



**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RIN 0648-XE498**

**Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Installation of the Block Island Wind Farm Export and Inter-Array Cables**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice; issuance of an incidental harassment authorization.

**SUMMARY:** In accordance with regulations implementing the Marine Mammal Protection Act (MMPA), notification is hereby given that NMFS has issued an Incidental Harassment Authorization (IHA) to Deepwater Wind Block Island, LLC (DWBI) to take marine mammals, by harassment, incidental to the installation of the Block Island Wind Farm (BIWF) Export and Inter-Array Cables.

**DATES:** Effective May 31, 2016, through May 30, 2017.

**FOR FURTHER INFORMATION CONTACT:** John Fiorentino, Office of Protected Resources, NMFS, (301) 427-8401.

**SUPPLEMENTARY INFORMATION:**

**Availability**

An electronic copy of the application and supporting documents, as well as a list of the references cited in this document, may be obtained by visiting the internet at:

*<http://www.nmfs.noaa.gov/pr/permits/incidental/>. NMFS' final Environmental Assessment (EA), *Issuance of Incidental Harassment Authorizations to Deepwater Wind for the Take of**

*Marine Mammals Incidental to Construction of the Block Island Wind Farm and Block Island Transmission System*, which also contains a list of the references used in this document, may also be viewed on our website. In case of problems accessing these documents, please call the contact listed above (see **FOR FURTHER INFORMATION CONTACT**).

## **Background**

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined “negligible impact” in 50 CFR 216.103 as “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.”

Except with respect to certain activities not pertinent here, the MMPA defines harassment as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of

behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

### **Summary of Request**

On March 11, 2016, NMFS received an application from DWBI for the taking of marine mammals incidental to the installation of the BIWF export and inter-array cables. This work was originally authorized by NMFS as part of a September 2014 (modified in June 2015) IHA issued to DWBI for construction of the BIWF (offshore installation of wind turbine generator (WTG) jacket foundations and export/inter-array cable installation (79 FR 53409; September 9, 2014)). However, only the construction activities associated with the WTG jacket foundation installation were performed during that one-year authorization which expired in October 2015. Therefore, DWBI has reapplied for a new IHA to complete the remaining export and inter-array cable installation activities. The proposed export and inter-array cable installation activities remain the same as those described in the **Federal Register** notice for the original 2014 BIWF IHA. NMFS determined that the application was adequate and complete on March 14, 2016. NMFS published a notice making preliminary determinations and proposing to issue an IHA on April 15, 2016 (81 FR 22216; April 15, 2016). The notice initiated a 30-day comment period.

DWBI has begun construction of the BIWF, a 30-megawatt offshore wind farm. Construction activities began in July of 2015 with the installation of the five WTG foundations. The submarine cable (export and inter-array cables) installation is scheduled to occur sometime between May and October, 2016. Noise generated from the use of dynamically positioned (DP) vessel thrusters during cable installation may result in the take of marine mammals. Take, by Level B Harassment only, of individuals of nine species is anticipated to result from the specified activity.

## **Description of the Specified Activity**

A detailed description of the activity was provided in the **Federal Register** notice for the proposed IHA (81 FR 22216; April 15, 2016; pages 16302-16304). Since that time, no changes have been made to the proposed construction activities; therefore, a detailed description is not provided here. However, a brief overview of the activity is provided below.

### *Overview*

The BIWF will consist of five, 6-megawatt WTGs, a submarine cable interconnecting the WTGs, and a transmission cable. The WTG jacket foundations were installed in 2015. Erection of the five WTGs, installation of the inter-array and export cable, and construction of the onshore components of the BIWF are planned for 2016. The scope of the activity covered by this IHA is limited to the use of DP vessel thrusters during installation of the submarine cable interconnecting the WTGs (inter-array cable), and a transmission cable from the northernmost WTG to an interconnection point on Block Island, Rhode Island (export cable). DP vessel thrusters are needed to keep the cable laying vessel in position during the cable installation activities. A jet plow, supported by the DP vessel, will be used to install the inter-array and export cable below the seabed as it is pulled behind the cable laying vessel.

### *Dates and Duration*

BIWF cable installation activities are scheduled to occur sometime between May and October, 2016. NMFS is proposing to issue an authorization effective May 2016 through May 2017, based on the anticipated work window for the in-water cable installation activities that could result in the incidental take of marine mammals. While project activities may occur for over a 6-month period, use of the DP vessel thruster during cable installation is expected to occur for approximately 28 days. Cable installation (and subsequent use of the DP vessel thruster)

would be conducted 24 hours per day.

### *Specified Geographic Region*

The offshore components of the BIWF will be located in state territorial waters. The WTGs will be located on average about 4.8 kilometers (km) southeast of Block Island, and about 25.7 km south of the Rhode Island mainland. The WTGs will be arranged in a radial configuration spaced about 0.8 km apart. The inter-array cable will connect the five WTGs for a total length of 3.2 km from the northernmost WTG to the southernmost WTG. Water depths along the inter-array cable range up to 23.3 meters (m). The export cable will originate at the northernmost WTG and travel 10 km to a manhole located in the town of New Shoreham (Block Island) in Washington County, Rhode Island. Water depths along the export cable submarine route range up to 36.9 m. Construction staging and laydown for offshore construction is planned to occur at the Port of Providence, Providence, Rhode Island.

### **Comments and Responses**

A notice of NMFS' proposal to issue an IHA to DWBI was published in the **Federal Register** on April 15, 2016 (81 FR 22216). That notice described, in detail, DWBI's activity, the marine mammal species that may be affected by the proposed cable installation activities, and the anticipated effects on marine mammals and their habitat. During the 30-day public comment period, NMFS only received comments from the Marine Mammal Commission (Commission). Specific comments and responses are provided below. Comments are also posted at <http://www.nmfs.noaa.gov/pr/permits/incidental/>.

*Comment 1:* The Commission recommended that NMFS recalculate take numbers based on an accurate estimate of the distance that DWBI expects cable-laying vessels to travel each day, and clarify the number of days of activities necessary to complete the cable installation.

*Response:* As indicated in their application and in the proposed IHA, DWBI anticipates the same number of days (28) of cable installation activities as was proposed for the original 2014 (modified in 2015) IHA (79 FR 53409). Similar construction activities (submarine cable installation) for the related Block Island Transmission System project, which will interconnect Block Island to the existing Narragansett Electric Company National Grid distribution system on the Rhode Island mainland, confirm that this is an accurate estimation of cable installation project duration. Therefore, NMFS has calculated the takes to be authorized based on a maximum of 28 days of cable installation and DP vessel thruster use.

NMFS further clarifies its take calculations as follows. The WTGs will be arranged in a radial configuration spaced about 0.8 km apart. The inter-array cable will connect the five WTGs for a total length of 3.2 km. The export cable will originate at the northernmost WTG and travel 10 km to Block Island, Rhode Island. The total line kilometers of cable to be installed, then, is 13.2 km. Assuming 28 days of cable installation, this equates to approximately 0.5 km being laid on any of the 28 days of activities. Thus, the zone of influence (ZOI) used to calculate takes is based on a daily ensonified area over 0.5 km traveled per day. As discussed below in the “Estimated Take by Incidental Harassment” section, estimated takes were calculated by multiplying species density (per 100 km<sup>2</sup>) by the ZOI, multiplied by a correction factor to account for marine mammals underwater, multiplied by the number of days (28) of the specified activity.

*Comment 2:* The Commission recommended a 24-hour “reset” for enumerating takes by applying standard rounding rules before summing the numbers of estimated takes across days.

*Response:* NMFS appreciates the Commission’s recommendation and concurs that a consistent approach to estimating potential takes, where appropriate, is important. We will consider the Commission’s recommended methodology on an action-specific basis.

*Comment 3:* The Commission recommended that NMFS revise its take estimates for harbor and gray seals by removing the 80-percent reduction factor that was used to calculate takes in DWBI’s application and in the proposed IHA (81 FR 22216; “Estimated Take by Incidental Harassment,” pages 22226-22227).

*Response:* NMFS agrees with the Commission’s recommendation to no longer use a reduction factor to estimate harbor and gray seal densities in the project area. In the proposed IHA, NMFS had applied an 80-percent reduction factor for harbor and gray seal densities based on the presumption that original density estimates for the project area were an overestimation because they included breeding populations of Cape Cod (Schroeder, 2000; Ronald and Gots, 2003). NMFS has since determined that the findings used to inform that reduction factor are outdated and do not accurately reflect the average annual rate of population increase (especially for gray seal) (refer to Waring *et al.*, 2015 for information on population size and current population trend), and this reduction factor is no longer appropriate for calculating takes for harbor and gray seals. NMFS has revised the take estimates accordingly for harbor and gray seals in this final IHA, using the original densities reported in the Northeast Navy Operations Area (OPAREA) Density Estimates (see Table 3). There is no more recent source of density information available for seals in this region.

*Comment 4:* Given the potential for year-round occurrence of North Atlantic right whales off the coast of Rhode Island, including the summer months, the Commission

recommended that NMFS require DWBI to operate vessels conducting cable installation activities at speeds of 10 knots or less year-round.

*Response:* NMFS concurs with the Commission's recommendation to require a mandatory 10-knot vessel speed restriction throughout the duration of the project. In 2008, NMFS promulgated a regulation implementing a mandatory 10-knot speed limit for vessels 65 feet or greater in length in designated seasonal management areas (SMAs) to reduce the threat of ship collisions with right whales (see 50 CFR 224.105). The SMAs were established to provide protection for right whales, and the timing, duration, and geographic extent of the speed restrictions were specifically designed to reflect right whale movement, distribution, and aggregation patterns. The vessel speed restriction is in effect in the mid-Atlantic SMA from November 1 through April 30 to reduce the threat of collisions between ships and right whales around their migratory route and calving grounds.

Right whales have been observed in or near Rhode Island during all four seasons. However, they are most common in the spring when they are migrating northward and in the fall during their southbound migration (Kenney and Vigness-Raposa, 2009; Right Whale Consortium, 2014)). Although there is no temporal overlap between the Mid-Atlantic SMA and DWBI's projected cable installation activities, to minimize the potential for vessel collision with right whales and other marine mammal species NMFS will require all DWBI vessels associated with cable installation activities, regardless of their length, to operate at speeds of 10 knots or less throughout the duration of the project. In addition, all DWBI vessels will adhere to NMFS guidelines for marine mammal ship striking avoidance (available online at: <http://www.nmfs.noaa.gov/pr/shipstrike/>), including maintaining a distance of at least 1,500 feet from right whales and having dedicated protected species observers who will communicate with

the captain to ensure that all measures to avoid whales are taken (see *Mitigation Measures* below). NMFS believes that the size of right whales, their slow movements, and the amount of time they spend at the surface will make them extremely likely to be spotted by protected species observers during construction activities within the BIWF project area. NMFS does not anticipate any marine mammals to be impacted by vessel movement because only a limited number of vessels will be involved in construction activities and they will move at slow speeds throughout construction.

*Comment 5:* Citing safety concerns (both human and environmental) and practicability, the Commission recommended that NMFS review the requirement for applicants to reduce DP thruster power levels (for systems operating at both 100 and 50 percent power) when a marine mammal is observed approaching or within the Level B harassment zone and consider input received from DWBI and other applicants subject to other powerdown requirements.

*Response:* As stated in DWBI's IHA application and in the proposed IHA, powerdown procedures shall only be implemented by DWBI when reducing DP thruster use would not compromise safety (both human health and environmental) and/or the integrity of the project. Further, the powerdown requirement is consistent with the mitigation measures outlined in the original 2014 IHA and in the 2015 Biological Opinion for the BIWF. However, the Commission's comment is duly noted and it is NMFS' intent to review the effectiveness and practicability of this measure both internally and through input from other applicants and IHA holders that have implemented powerdown procedures during DP vessel thruster use.

### **Description of Marine Mammals in the Area of the Specified Activity**

The "Description of Marine Mammals in the Area of the Specified Activities" section has not changed from what was in the proposed IHA (81 FR 22216, April 15, 2016; pages 22217-

22218). The following species are both common in the waters of Rhode Island Sound and have the highest likelihood of occurring, at least seasonally, in the project area: North Atlantic right whale (*Eubalaena glacialis*), humpback whale (*Megaptera novaeangliae*), fin whale (*Balaenoptera physalus*), minke whale (*Balaenoptera acutorostrata*), harbor porpoise (*Phocoena phocoena*), Atlantic white-sided dolphin (*Lagenorhynchus acutus*), short-beaked common dolphin (*Delphinus delphis*), harbor seal (*Phoca vitulina*), and gray seal (*Halichorus grypus*). Three of these species are listed under the Endangered Species Act (ESA): North Atlantic right whale, humpback whale, and fin whale.

The proposed IHA and DWBI's application include a complete description of information on the status, distribution, abundance, vocalizations, density estimates, and general biology of marine mammal species in the study area. In addition, NMFS publishes annual stock assessment reports for marine mammals, including some stocks that occur within the study area (<http://www.nmfs.noaa.gov/pr/species/mammals>).

### **Potential Effects of the Specified Activity on Marine Mammals and Their Habitat**

We provided a detailed discussion of the potential effects of the specified activity on marine mammals and their habitat in the notice of the proposed IHA (81 FR 22216; April 15, 2016; pages 22218-22224). That information has not changed and is not repeated here.

### **Mitigation**

In order to issue an incidental take authorization under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar

significance, and on the availability of such species or stock for taking for certain subsistence uses (where relevant).

### *Mitigation Measures*

DWBI shall implement the following mitigation measures during export and inter-array cable installation activities.

*Exclusion and Monitoring Zones:* Exclusion zones (defined by NMFS as the Level A harassment ZOI out to the 180/190 decibel (dB) isopleth) and monitoring zones (defined by NMFS as the Level B harassment ZOI out to the 120 dB isopleth for continuous noise) are typically established to minimize impacts to marine mammals. However, noise analysis has indicated that DP vessel thruster use will not produce sound levels at 180/190 dB at any appreciable distance (see DWBI's Underwater Acoustic Modeling Report in Appendix A of the application). This is consistent with acoustic modeling results for other Atlantic wind farm projects using DP vessel thrusters (Tetra Tech, 2014; DONG Energy, 2016), as well as subsea cable-laying activities using DP vessel thruster use (Quintillion, 2015 and 2016). Therefore, injury to marine mammals is not expected and no Level A harassment exclusion zone is proposed.

Consultation with NMFS has indicated that the monitoring zones established out to the 120 dB isopleth for continuous noise will result in zones too large to effectively monitor (up to 4.75 km). Therefore, based on precedent set by the U.S. Department of the Navy and recent European legislation regarding compliance thresholds for wind farm construction noise (U.S. Department of the Navy, 2012; OSPAR, 2008), and consistent with the previous IHA's issued to DWBI and Deepwater Wind Block Island Transmission, L.L.C. (DWBITS), DWBI will establish a monitoring zone equivalent, at a minimum, to the size of the predicted 160 dB isopleth for DP

vessel thruster use (5-m radius from the DP vessel) based on DWBI's underwater acoustic modeling. All marine mammal sightings which are visually feasible beyond the 5-m 160 dB isopleth will also be recorded and potential takes will be noted. See *Visual Monitoring* below for additional details on monitoring requirements.

*DP Thruster Power Reduction* - During cable installation a constant tension must be maintained to ensure the integrity of the cable. Any significant stoppage in vessel maneuverability during jet plow activities has the potential to result in significant damage to the cable. Therefore, during cable lay, if marine mammals enter or approach the established 160 dB isopleth monitoring zone (estimated to be a 5-m radius around the DP vessel), DWBI proposes to reduce DP thruster power to the maximum extent possible, except under circumstances when reducing DP thruster use would compromise safety (both human health and environmental) and/or the integrity of the project. After decreasing thruster energy, protected species observers (PSOs) will continue to monitor marine mammal behavior and determine if the animal(s) is moving towards or away from the established monitoring zone. If the animal(s) continues to move towards the sound source, then DP thruster use would remain at the reduced level. Normal thruster use will resume when PSOs report that marine mammals have moved away from and remained clear of the monitoring zone for a minimum of 30 minutes since last the sighting.

*Vessel Speed Restrictions* – To minimize the potential for vessel collision with North Atlantic right whales and other marine mammals, all DWBI project vessels shall operate at speeds of 10 knots or less during cable installation activities.

*Ship Strike Avoidance* – DWBI shall adhere to NMFS guidelines for marine mammal ship strike avoidance (<http://www.nmfs.noaa.gov/pr/shipstrike/>).

## **Mitigation Conclusions**

NMFS has carefully evaluated DWBI's mitigation measures in the context of ensuring that we prescribe the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed here:

1. Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).
2. A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of activities that we expect to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).
3. A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of activities that we expect to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of activities that we expect to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing the severity of harassment takes only).
5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.
6. For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of DWBI's proposed measures, as well as other measures considered by NMFS, NMFS has determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

### **Monitoring and Reporting**

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth, "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for incidental take authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

1. An increase in our understanding of the likely occurrence of marine mammal species in the vicinity of the action, i.e., presence, abundance, distribution, and/or density of species.

2. An increase in our understanding of the nature, scope, or context of the likely exposure of marine mammal species to any of the potential stressor(s) associated with the action (e.g. sound or visual stimuli), through better understanding of one or more of the following: the action itself and its environment (e.g. sound source characterization, propagation, and ambient noise levels); the affected species (e.g. life history or dive pattern); the likely co-occurrence of marine mammal species with the action (in whole or part) associated with specific adverse effects; and/or the likely biological or behavioral context of exposure to the stressor for the marine mammal (e.g. age class of exposed animals or known pupping, calving or feeding areas).

3. An increase in our understanding of how individual marine mammals respond (behaviorally or physiologically) to the specific stressors associated with the action (in specific contexts, where possible, e.g., at what distance or received level).

4. An increase in our understanding of how anticipated individual responses, to individual stressors or anticipated combinations of stressors, may impact either: the long-term fitness and survival of an individual; or the population, species, or stock (e.g. through effects on annual rates of recruitment or survival).

5. An increase in our understanding of how the activity affects marine mammal habitat, such as through effects on prey sources or acoustic habitat (e.g., through characterization of longer-term contributions of multiple sound sources to rising ambient noise levels and assessment of the potential chronic effects on marine mammals).

6. An increase in understanding of the impacts of the activity on marine mammals in combination with the impacts of other anthropogenic activities or natural factors occurring in the region.

7. An increase in our understanding of the effectiveness of mitigation and monitoring measures.

8. An increase in the probability of detecting marine mammals (through improved technology or methodology), both specifically within the safety zone (thus allowing for more effective implementation of the mitigation) and in general, to better achieve the above goals.

*Visual Monitoring* – Visual observation of the 160 dB monitoring zone established for DP vessel operation during cable installation will be performed by qualified and NMFS approved PSOs, the resumes of whom will be provided to NMFS for review and approval prior to the start of construction activities. Observer qualifications will include direct field experience on a marine mammal observation vessel and/or aerial surveys in the Atlantic Ocean/Gulf of Mexico. A minimum of two PSOs will be stationed aboard the cable lay vessel. Each PSO will monitor 360 degrees of the field of vision. PSOs stationed on the DP vessel will begin observation of the monitoring zone as the vessel initially leaves the dock. Observations of the monitoring zone will continue throughout the cable installation and will end after the DP vessel has returned to dock.

Observers would estimate distances to marine mammals visually, using laser range finders, or by using reticle binoculars during daylight hours. During night operations, night vision binoculars will be used. If vantage points higher than 25 feet (7.6 m) are available, distances can be measured using inclinometers. Position data will be recorded using hand-held

or vessel global positioning system (GPS) units for each sighting, vessel position change, and any environmental change.

Each PSO stationed on the cable lay vessel will scan the surrounding area for visual indication of marine mammal presence that may enter the monitoring zone. Observations will take place from the highest available vantage point on the cable-lay vessel. General 360-degree scanning will occur during the monitoring periods, and target scanning by the PSO will occur when alerted of a marine mammal presence.

Information recorded during each observation shall be used to estimate numbers of animals potentially taken and shall include the following:

- Date, time, and location of construction operations;
- Numbers of individuals observed;
- Frequency of observations;
- Location (i.e., distance from sound source);
- DP vessel thruster status (i.e., energy level)
- Weather conditions (i.e., percent cloud cover, visibility, percent glare);
- Water conditions (i.e., Beaufort sea-state, tidal state)
- Details of mammal sightings (species, sex, age classification (if known), numbers)
- Reaction of the animal(s) to relevant sound source (if any) and observed behavior (e.g., avoidance, approach), including bearing and direction of travel; and
- Details of any observed “taking” (behavioral disturbances or injury/mortality).

All marine mammal sightings which are visually feasible beyond the 160 dB isopleth (i.e., beyond the 5-m radius around the DP vessel), will also be recorded and potential takes will be noted.

In addition, prior to initiation of construction work, all crew members on barges, tugs and support vessels, will undergo environmental training, a component of which will focus on the procedures for sighting and protection of marine mammals. A briefing will also be conducted between the construction supervisors and crews, the PSOs, and DWBI. The purpose of the briefing will be to establish responsibilities of each party, define the chains of command, discuss communication procedures, provide an overview of monitoring purposes, and review operational procedures. The DWBI Construction Compliance Manager (or other authorized individual) will have the authority to stop or delay construction activities, if deemed necessary. New personnel will be briefed as they join the work in progress.

*Acoustic Field Verification* - DWBI would perform field verification to confirm the 160-dB and 120-dB 1  $\mu$ Pa-m (root mean square (rms)) isopleths. Field verification during cable installation using DP thrusters will be performed using acoustic measurements from two reference locations at two water depths (a depth at mid-water and a depth at approximately 1 m above the seafloor). If field verification measurements suggest a larger monitoring zone, the preliminary 5-m-radius monitoring zone shall be modified to ensure adequate protection to marine mammals.

*Reporting Measures* – As described above (*Visual Monitoring*) observers would record and report dates, times, and locations of construction operations; number of individuals observed and frequency of observations; location, weather, and water conditions; details of marine mammal sightings (e.g., species, sex, age, numbers, behavior); DP vessel thruster status, and

details of any observed takes, including reaction of animals to sound source and any observed behavior.

DWBI shall provide the following notifications and reports during construction activities:

- Notification to NMFS and the U.S. Army Corps of Engineers (USACE) within 24-hours of beginning construction activities and again within 24-hours of completion;
- NMFS and USACE should be notified within 24 hours whenever a monitoring zone is re-established by DWBI. After any re-establishment of the monitoring zone, DWBI will provide a report to the USACE and NMFS detailing the field-verification measurements within 7 days. This includes information, such as: a detailed account of the levels, durations, and spectral characteristics of DP thruster use, and the peak, rms, and energy levels of the sound pulses and their durations as a function of distance, water depth, and tidal cycle. NMFS and USACE will be notified within 24 hours if field verification measurements suggest a larger monitoring zone.
- Within 90 days after completion of the construction activities, a draft technical report will be provided to NMFS and USACE that fully documents the methods, mitigation, and monitoring protocols implemented, summarizes the data recorded during monitoring (see *Visual Monitoring*), estimates the number of marine mammals that may have been taken during construction activities, and provides an interpretation of the results and an assessment of the implementation and effectiveness of prescribed monitoring and mitigation measures. The draft report shall be subject to review and comment by NMFS. Any recommendations made by NMFS must be addressed in the final report prior to acceptance by NMFS. The draft report will be considered the final report for this activity under this Authorization if NMFS has not provided comments and recommendations

within 30 days of receipt of the draft report.

- *Notification of Injured or Dead Marine Mammals* - In the unanticipated event that the specified activities clearly causes the take of a marine mammal in a manner prohibited by the IHA, such as a serious injury, or mortality, DWBI would immediately cease the specified activities and report the incident to the Office of Protected Resources, NMFS, and the Greater Atlantic Regional Fisheries Office (GARFO) Stranding Coordinator, NMFS. The report would include the following information:
  - Time and date of the incident;
  - Description of the incident;
  - Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
  - Description of all marine mammal observations and active sound source use in the 24 hours preceding the incident;
  - Species identification or description of the animal(s) involved;
  - Fate of the animal(s); and
  - Photographs or video footage of the animal(s) (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with DWBI to determine the measures necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance.

DWBI may not resume their activities until notified by NMFS.

In the event that DWBI discovers an injured or dead marine mammal and determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition), DWBI would immediately

report the incident to the Office of Protected Resources, NMFS, and the GARFO Stranding Coordinator, NMFS. The report would include the same information identified in the paragraph above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with DWBI to determine whether additional mitigation measures or modifications to the activities are appropriate.

In the event that DWBI discovers an injured or dead marine mammal and determines that the injury or death is not associated with or related to the activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), DWBI would report the incident to the Office of Protected Resources, NMFS, and the GARFO Stranding Coordinator, NMFS, within 24 hours of the discovery. DWBI would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS. DWBI can continue its operations under such a case.

### **Estimated Take by Incidental Harassment**

Except with respect to certain activities not pertinent here, the MMPA defines harassment as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Underwater sound associated with the use of DP vessel thrusters during inter-array and export cable installation is the only project activity that has the potential to harass marine mammals, as defined by the MMPA. Harassment could take the form of temporary threshold

shift, avoidance, or other changes in marine mammal behavior. NMFS anticipates that impacts to marine mammals would be in the form of Level B behavioral harassment and no take by injury, serious injury, or mortality is authorized. NMFS does not anticipate take resulting from the movement of vessels (i.e., vessel strike) associated with construction because there will be a limited number of vessels moving at slow speeds over a relatively shallow, nearshore area, and PSOs on the vessels will be monitoring for marine mammals and will be able to alert the vessels to avoid any marine mammals in the area.

NMFS' current acoustic exposure criteria for estimating take are shown in Table 1 below. DWBI's modeled distances to these acoustic exposure criteria are shown in Table 2. Details on the model characteristics and results are provided in the Underwater Acoustic Modeling Report found in Appendix A of the application. As discussed in the application and in Appendix A, acoustic modeling took into consideration sound sources using the loudest potential operational parameters, bathymetry, geoacoustic properties of the project area, time of year, and marine mammal hearing ranges. Results from the acoustic modeling showed that the estimated maximum distance to the 120 dB re 1  $\mu$ Pa (rms) MMPA threshold was approximately 4,750 m for 10-m water depth, 4,275 m for 20-m water depth, and 3,575 m for 40-m water depth; average distance to the 120 dB re 1  $\mu$ Pa (rms) MMPA threshold was approximately 2,700 m over the three depths (Table 2). More information on results including figures displaying critical distance information can be found in Appendix A of the application. DWBI and NMFS believe that these estimates represent the worst-case scenario and that the actual distances to the Level B harassment threshold may be shorter. DP vessel thruster use will not produce sound levels at 180/190 dB at any appreciable distance, therefore, no injurious (Level A harassment) takes have been requested or are being authorized. To verify the distance to the MMPA thresholds

calculated by underwater acoustic modeling, DWBI has committed to conducting real-time underwater acoustic measurements of the DP vessel thrusters. Field verification of actual sound propagation will enable adjustment of the MMPA threshold level distances to fit actual construction conditions, if necessary.

Table 1. NMFS' current acoustic exposure criteria.

Non-Explosive Sound		
Criterion	Criterion Definition	Threshold
Level A Harassment (Injury)	Permanent Threshold Shift (PTS) (Any level above that which is known to cause temporary threshold shift (TTS))	180 dB re 1 $\mu$ Pa-m (cetaceans) / 190 dB re 1 $\mu$ Pa-m (pinnipeds) (rms)
Level B Harassment	Behavioral Disruption (for impulse noises)	160 dB re 1 $\mu$ Pa-m (rms)
Level B Harassment	Behavioral Disruption (for continuous, noise)	120 dB re 1 $\mu$ Pa-m (rms)

Table 2. Critical distances to MMPA thresholds from DP vessel thrusters during submarine cable installation.

Source	Marine Mammal Level A Harassment 180/190 dB <sub>RMS</sub> re 1 $\mu$ Pa (m)	Marine Mammal Level B Harassment 120 dB <sub>RMS</sub> re 1 $\mu$ Pa (m)	
		Max. distance	Average distance
DP Vessel Thrusters – at 10 m	N/A	4,750	2,125
DP Vessel Thrusters – at 20 m	N/A	4,275	2,700
DP Vessel Thrusters – at 40 m	N/A	3,575	3,400

DWBI estimated species densities within the project area in order to estimate the number of marine mammal exposures to sound levels above 120 dB (continuous noise). The data used as the basis for estimating cetacean species density for the project area are sightings per unit effort (SPUE) taken from Kenney and Vigness-Raposa (2009). SPUE (or, the relative abundance of species) is derived by using a measure of survey effort and number of individual cetaceans sighted. SPUE allows for comparison between discrete units of time (i.e. seasons) and space within a project area (Shoop and Kenney, 1992). SPUE calculated by Kenney and Vigness-Raposa (2009) was derived from a number of sources including: 1) North Atlantic Right Whale Consortium (NARWC) database; 2) University of Rhode Island Cetacean and Turtle Assessment Program (CeTAP, 1982); 3) sightings data from the Coastal Research and Education

Society of Long Island, Inc. and Okeanos Ocean Research Foundation; 4) the Northeast Regional Stranding network (marine mammals); and 5) the NOAA Northeast Fisheries Science Center's Fisheries Sampling Branch.

The OPAREA Density Estimates (U.S. Department of the Navy, 2007) were used for estimating takes for harbor and gray seals. In the proposed IHA, NMFS had applied an 80 percent reduction factor for harbor and gray seal densities based on the presumption that original density estimates for the project area were an overestimation because they included breeding populations of Cape Cod (Schroeder, 2000; Ronald and Gots, 2003). NMFS has since determined that the findings used to inform that reduction factor are outdated and do not accurately reflect the average annual rate of population increase (especially for gray seal), and this reduction factor is no longer appropriate for calculating takes for harbor and gray seals.

The methodology for calculating takes was described in the **Federal Register** notice for the proposed IHA (81 FR 22216; April 15, 2016). Estimated takes were calculated by multiplying species density (per 100 km<sup>2</sup>) by the ZOI, multiplied by a correction factor to account for marine mammals underwater, multiplied by the number of days of the specified activity.

A detailed description of the model used to calculate zones of influence is provided in the Underwater Acoustic Modeling Report found in Appendix A of the application. Acoustic modeling was completed with the U.S. Naval Research Laboratory's Range-dependent Acoustic Model (RAM) which is widely used by sound engineers and marine biologists due to its adaptability to describe highly complex acoustic scenarios. This modeling analysis method considers range and depth along with a geo-referenced dataset to automatically retrieve the time of year information, bathymetry, and geo-acoustic properties (e.g. hard rock, sand, mud) along

propagation transects radiating from the sound source. Transects are run along compass points (45°, 90°, 135°, 180°, 225°, 270°, 315°, and 360°) to determine received sound levels at a given location. These values are then summed across frequencies to provide broadband received levels at the MMPA Level A and Level B harassment thresholds as described in Table 1. The representative area ensonified to the MMPA Level B threshold for DP vessel thruster use during cable installation was used to estimate take. The distances to the MMPA thresholds were used to conservatively estimate how many marine mammals would receive a specified amount of sound energy in a given time period and to support the development of monitoring and/or mitigation measures.

DWBI used a ZOI of 25 km<sup>2</sup> and a maximum installation period of 28 days to estimate take from use of the DP vessel thruster during cable installation. The ZOI represents the average daily ensonified area (using an average modeled distance to the 120 dB re 1 µPa (rms) isopleth of approximately 2.7 km) across the three representative water depths along the 13.2-km cable route. DWBI expects cable installation to occur between May and October. To be conservative, take calculations were based on the highest seasonal species density when cable installation may occur (see Table 3). The resulting take estimates (rounded to the nearest whole number) based upon these conservative assumptions for North Atlantic right, humpback, fin, and minke whales, as well as, short-beaked common and Atlantic white-sided dolphins, harbor porpoise, and harbor and gray seals are presented in Table 3. These numbers represent less than 1.5 percent of the stock for these species, respectively (Table 3). These percentages are the upper boundary of the animal population that could be affected.

Table 3. DWBI’s estimated take for DP thruster use during the BIWF project.

<b>Species</b>	<b>Maximum Seasonal Density (No./100 km<sup>2</sup>)</b>	<b>Estimated Take (No.)</b>	<b>Percentage of Stock Potentially Affected</b>
North Atlantic Right Whale	0.07	1	0.22

Humpback Whale	0.11	2	0.24
Fin Whale	2.15	23	1.42
Minke Whale	0.44	5	0.02
Short-beaked Common Dolphin	8.21	87	0.07
Atlantic White-sided Dolphin	7.46	79	0.16
Harbor Porpoise	0.74	8	0.01
Harbor Seal	9.74*	110	0.15
Gray Seal	14.16*	160	0.05

\* An 80 percent reduction factor for harbor and gray seal densities was applied in the proposed IHA based on the presumption that original density estimates for the project area were an overestimation because they included breeding populations of Cape Cod (Schroeder, 2000; Ronald and Gots, 2003). NMFS has since determined that the findings used to inform that reduction factor are outdated and do not accurately reflect the average annual rate of population increase (especially for gray seal). Therefore, NMFS no longer considers this reduction factor appropriate for calculating takes for harbor and gray seals.

DWBI's requested take numbers are provided in Table 3 and this is also the number of takes NMFS has authorized. DWBI's take calculations do not take into account whether a single animal is harassed multiple times or whether each exposure is a different animal. Therefore, the numbers in Table 3 are the maximum number of animals that may be harassed during the cable installation activities (i.e., DWBI assumes that each exposure event is a different animal). These estimates do not account for prescribed mitigation measures that DWBI would implement during the specified activities and the fact that powerdown procedures shall be implemented if an animal enters the Level B harassment zone (160 dB), further reducing the potential for any takes to occur during these activities.

DWBI did not request, and NMFS is not proposing, take from vessel strike. We do not anticipate marine mammals to be impacted by vessel movement because a limited number of vessels would be involved in construction activities and they would mostly move at slow speeds during DP vessel thruster use during cable installation activities. However, DWBI shall implement measures (e.g., vessel speed restrictions and separation distances; see *Mitigation Measures*) to further minimize potential impacts to marine mammals from vessel strikes during vessel operations and transit in the project area.

## **Analysis and Determinations**

### *Negligible Impact*

Negligible impact is “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival” (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of takes, alone, is not enough information on which to base an impact determination, as the severity of harassment may vary greatly depending on the context and duration of the behavioral response, many of which would not be expected to have deleterious impacts on the fitness of any individuals. In determining whether the expected takes will have a negligible impact, in addition to considering estimates of the number of marine mammals that might be “taken,” NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and the status of the species.

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 3, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. There is no information about the nature or severity of the impacts, or the size, status, or structure of any of these species or stocks that would lead to a different analysis for this activity.

As discussed in the “Potential Effects of the Specified Activity on Marine Mammals and Their Habitat” section of the proposed IHA (81 FR 22216; April 15, 2016; pages 22218-22224), permanent threshold shift, masking, non-auditory physical effects, and vessel strike are not

expected to occur. There is some potential for limited temporary threshold shift (TTS); however, animals in the area would likely incur no more than brief hearing impairment (i.e., TTS) due to low source levels and the fact that most marine mammals would more likely avoid a loud sound source rather than swim in such close proximity as to result in TTS. Moreover, as the DP vessel is continually moving along the cable route over a 24-hour period, the area within the 120 dB isopleth is constantly moving (i.e., transient sound field) and shifting within a 24-hour period. Therefore, no single area in Rhode Island Sound will have noise levels above 120 dB for more than a few hours; once the DP vessel has moved through the cable-laying area, it is not likely to again, therefore reducing the likelihood of repeated impacts within the project area.

Potential impacts to marine mammal habitat were discussed in the proposed IHA (see the “Potential Effects of the Specified Activity on Marine Mammals and Their Habitat” section) (81 FR 22216; April 15, 2016; pages 22218-22224). Marine mammal habitat may be impacted by elevated sound levels and some sediment disturbance, but these impacts would be temporary. Feeding behavior is not likely to be significantly impacted. Prey species are mobile, and are broadly distributed throughout the project area; therefore, marine mammals that may be temporarily displaced during cable installation activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Because of the temporary nature of the disturbance, the availability of similar habitat and resources in the surrounding area, and the lack of important or unique marine mammal habitat, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations. There are no feeding areas known to be biologically important to marine mammals within the project area.

There are no rookeries or mating grounds known to be biologically important to marine mammals within the project area. ESA-listed species for which takes are authorized are North Atlantic right, humpback, and fin whales. Recent estimates of abundance indicate a stable or growing humpback whale population, while examination of the minimum number alive population index calculated from the individual sightings database (as it existed on October 25, 2013) for the years 1990-2010 suggests a positive and slowly accelerating trend in North Atlantic right whale population size (Waring *et al.*, 2015). There are currently insufficient data to determine population trends for fin whale (Waring *et al.*, 2015). There is no designated critical habitat for any ESA-listed marine mammals within the project area, and none of the stocks for non-listed species authorized to be taken are considered “depleted” or “strategic” by NMFS under the MMPA.

The mitigation measures are expected to reduce the potential for exposure of marine mammals by reducing the DP thruster power if a marine mammal is observed within the 160 dB isopleth. Additional vessel strike avoidance requirements will further mitigate potential impacts to marine mammals during vessel transit in the study area. DWBI vessels associated with the BIWF construction will adhere to NMFS guidelines for marine mammal ship striking avoidance (available online at: <http://www.nmfs.noaa.gov/pr/shipstrike/>), including maintaining a distance of at least 1,500 feet from right whales and having dedicated protected species observers who will communicate with the captain to ensure that all measures to avoid whales are taken. NMFS believes that the size of right whales, their slow movements, and the amount of time they spend at the surface will make them extremely likely to be spotted by PSOs during construction activities within the project area.

DWBI did not request, and NMFS is not authorizing, take of marine mammals by injury, serious injury, or mortality. NMFS expects that takes would mainly be in the form of short-term Level B behavioral harassment in the form of brief startling reaction and/or temporary vacating of the area, or temporary decreased foraging (if such activity were occurring)—reactions that are considered to be of low severity and with no lasting biological consequences (e.g., Southall *et al.*, 2007). This is largely due to the short time scale of the proposed activities and the nature of the DP vessel noise (i.e., low source level, constantly moving resulting in a transient sound field), as well as the required mitigation.

Based on best available science, NMFS concludes that exposures to marine mammal species and stocks due to DWBI's DP vessel thruster use during cable installation activities would result in only short-term (temporary and short in duration) and relatively infrequent effects to individuals exposed, and not of the type or severity that would be expected to be additive for the very small portion of the stocks and species likely to be exposed. Given the intensity of the activities, and the fact that shipping contributes to the ambient sound levels in the surrounding waters, NMFS does not anticipate the authorized take estimates to impact annual rates of recruitment or survival. Animals may temporarily avoid the immediate area, but are not expected to permanently abandon the area. Major shifts in habitat use, distribution, or foraging success, are not expected

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from DWBI's DP vessel thruster use during cable installation activities will have a negligible impact on the affected marine mammal species or stocks.

### *Small Numbers*

The takes authorized for the cable installation activities utilizing DP vessel thrusters represent 0.22 percent of the Western North Atlantic (WNA) stock of North Atlantic right whale, 0.24 percent of the Gulf of Maine stock of humpback whale, 1.42 percent of the WNA stock of fin whale, 0.02 percent of the Canadian East Coast stock of minke whale, 0.07 percent of the WNA stock of short-beaked common dolphin, 0.16 percent of the WNA stock of Atlantic white-sided dolphin, 0.01 percent of the Gulf of Maine/Bay of Fundy stock of harbor porpoise, 0.15 percent of the WNA stock of harbor seal, and 0.05 percent of the North Atlantic stock of gray seal. These take estimates represent the percentage of each species or stock that could be taken by Level B behavioral harassment and represent extremely small numbers (less than 1.5 percent) relative to the affected species or stock sizes. Further, the take numbers are the maximum numbers of animals that are expected to be harassed during the project; it is possible that some of these exposures may occur to the same individual. Therefore, NMFS finds that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

### **Impact on Availability of Affected Species for Taking for Subsistence Uses**

There are no relevant subsistence uses of marine mammals implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

### **Endangered Species Act**

Under section 7 of the ESA, the USACE (the federal permitting agency for the actual construction) consulted with NMFS' GARFO on the proposed BIWF project. NMFS also consulted internally on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this

activity. The resultant Biological Opinion determined that the proposed action was not likely to jeopardize the continued existence of fin, humpback, and North Atlantic right whale. NMFS has determined that the 2015 Biological Opinion remains valid and that the proposed MMPA authorization provides no new information about the effects of the action, nor does it change the extent of effects of the action, or any other basis to require reinitiation of the opinion. Therefore, the 2015 Biological Opinion meets the requirements of section 7(a)(2) of the ESA and implementing regulations at 50 CFR 402 for our issuance of an IHA under the MMPA, and no further consultation is required.

### **National Environmental Policy Act**

NMFS conducted the required analysis under the National Environmental Policy Act (NEPA) and prepared an EA for its issuance of the original BIWF IHA, issuing a Finding of No Significant Impact (FONSI) for the action on August 21, 2014 (reaffirmed on June 9, 2015). The potential environmental impacts of issuance of the IHA are within the scope of the environmental impacts analyzed in NMFS' EA, which was used to support NMFS' FONSI. NMFS has determined that there are no substantial changes to the action or significant new circumstances or information relevant to environmental concerns which would require a supplement to the 2014 EA or preparation of a new NEPA document. Therefore, NMFS has determined that a new or supplemental EA or Environmental Impact Statement are unnecessary, and we shall rely on the existing EA and FONSI for this action.

### **Authorization**

As a result of these determinations, NMFS has issued an IHA to DWBI for cable installation activities that use DP vessel thrusters from May 31, 2016, through May 30, 2017,

provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: June 24, 2016.

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Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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