BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XA252]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Construction of Two Liquefied Natural Gas Terminals, Texas

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

ACTION: Notice; issuance of incidental harassment authorizations.

SUMMARY: Pursuant to the Marine Mammal Protection Act (MMPA), NMFS has hereby issued an incidental harassment authorization (IHA) to Rio Grande LNG LLC (Rio Grande) and, separately, Annova LNG Common Infrastructure (Annova), authorizing the take of small numbers of marine mammals incidental to the construction of two liquefied natural gas (LNG) terminals in the Brownsville Ship Channel (BSC), Texas.

DATES: The Rio Grande IHA is effective July 1, 2020 through June 31, 2021. The Annova IHA is effective March 1, 2021 through February 28, 2022.

ADDRESSES: Electronic copies of the application, IHAs, and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*. In case of problems accessing these documents, please call the contact listed below.

FOR FURTHER INFORMATION CONTACT: Jaclyn Daly, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (as delegated to NMFS) 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 incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other "means of effecting the least practicable adverse impact" on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as "mitigation"); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On August 20, 2019, NMFS received a request from Rio Grande for an IHA to take marine mammals incidental to pile driving associated with the construction of a LNG terminal in the BSC. Rio Grande submitted a revised application on November 21, 2019 that was deemed adequate and complete on December 19, 2019. Rio Grande's request is for take of a small number of three species of marine mammals, by Level B harassment only. Neither Rio Grande nor NMFS expects serious injury or mortality to result from these activities and NMFS has not authorized it.

Separately, on June 27, 2019, NMFS received a request from Annova for an IHA to take marine mammals incidental to pile driving associated with the construction of a LNG terminal in the BSC. Annova submitted a revised application on February 28, 2020 that was deemed adequate and complete on March 2, 2020. Annova's request is for take of a small number of three species of marine mammals, by Level B harassment only. Neither Annova nor NMFS expects serious injury or mortality to result from this activity and NMFS has not authorized it.

Description of Specified Activity

Overview

Rio Grande and Annova are each planning to construct an LNG terminal in the BSC, Texas. The purpose of each project is to construct and operate an LNG terminal for purposes of international export. The LNG terminals would be located across from each other on opposite banks of the BSC. Both projects require pile driving and removal. Rio Grande will install 12 42-48-inch (in) piles and remove 5 small timber piles over 8 days. Annova will install and remove 16 24-in temporary piles and install 4 96 impermanent

breasting dolphin piles over 16 days. Due to the nature of the activities and potential presence of dolphins in the BSC, both applicants have requested authorization to take marine mammals incidental to pile driving and removal and NMFS has issued such authorization.

Dates and Duration

Rio Grande's IHA is effective July 1, 2020 through June 30, 2021. Pile driving would be limited to daylight hours; however, other project-related activities may occur at any time. Pile driving and removal would occur for no more than 8 days.

Annova's IHA is effective March 1, 2021 through February 28, 2022. Pile driving would be limited to daylight hours; however, other project-related activities may occur at any time. Pile driving and removal would occur for no more than 16 days.

Specific Geographic Region

The projects would be constructed with the BSC which is located in the southernmost portion of the Lower Laguna Madre system. We provided a complete description of Laguna Madre and the BSC in our notice of proposed IHA. Please see that notice for details of the specific geographic region and maps.

Detailed Description of Specific Activity

Rio Grande

Rio Grande plans to construct a natural gas liquefaction facility and liquefied natural gas (LNG) export terminal (Terminal) in Cameron County, Texas, along the north embankment of the Brownsville Ship Channel (BSC)(Figure 1). The purpose of the project is to develop, own, operate, and maintain a natural gas pipeline system to access natural gas from the Agua Dulce Hub and an LNG export facility in south Texas to

export 24.5 million metric tons (27 million U.S. tons) per annum of natural gas that provides an additional source of firm, long-term, and competitively priced LNG to the global market.

Figure 1 -- Rio Grande LNG Terminal Location

The terminal would be located on approximately 3.04 square kilometers (km^2) (750.4 acres) of a 3.98-km2 (984.2-acre) parcel of land along the northern shore of the BSC in Cameron County, Texas, approximately 16 km (9.8 statute mi) east of Brownsville and about 3.5 km (2.2 mi) west of Port Isabel (see Figure 1). The Terminal, which is currently expected to begin operations in late 2023, would have a minimum 20-year life span (which could be extended to a 50-year life span). It would receive natural gas via a proposed Pipeline System, which would connect the Terminal to the existing infrastructure near the natural gas Agua Dulce hub interconnection in Nueces County. All pipeline work is conducted on land and there are no potential impacts on marine mammals from this work; therefore, pipeline work will not be discussed further.

The terminal site includes the following major facilities: six liquefaction trains; four full-containment LNG storage tanks; docking facilities for two LNG vessels, turning basin, and material offloading facility (MOF); LNG truck loading facilities with four loading bays; and Pipeline System's Compressor Station 3, a metering site, and the interconnection to the Pipeline System. In-water pile driving associated with construction of the LNG Loading and Vessel Berthing Area, turning basin, MOF, and Tug Berth have the potential to harass marine mammals. Rio Grande would also remove existing navigation markers. We describe these construction activities below.

LNG Loading and Vessel Berthing Area

Two LNG vessel loading berths would be constructed along the south-central boundary of the Terminal to accommodate simultaneous loading of two LNG vessels (see Figure 2). The berths would be recessed into the Terminal property so that loading LNG vessels, separated by 76 m (250 ft), would not encroach on the navigable channel

boundaries of the BSC. Construction of the loading berths would require dredging to a depth of up to -14 m (43 ft plus 2 ft allowable overdepth) mean lower low water (MLLW) (-13-m [43 ft] plus -0.6 m [2 ft] of allowable overdepth). No pile driving in-water is associated with this part of the project.

Turning Basin

A 457.2-m (1,500-foot) diameter turning basin would be constructed to the east of the LNG vessel loading berths to accommodate turning maneuvers of the LNG vessels calling on the Terminal. LNG vessels would be escorted into the BSC and turning basin via tug boats, rotated in the turning basin, and then placed adjacent to a loading berth with the bow facing downstream (*i.e.*, eastward). The turning basin would be partially recessed into the terminal site, but the area of the turning basin would encroach on the navigable channel of the BSC such that channel transit would be temporarily precluded until the LNG vessels were moored at the berth. As with the loading berths, the turning basin would be dredged to a depth of up to -13.1 m (-43 ft plus 2 ft allowable overdepth). The navigable channel is maintained at -12.8 m (-42 ft) MLLW and would be deepened to -15.8 m (-52 ft) plus 0.6 m (2 ft) allowable overdepth and an additional 0.6 m (2 ft) for advanced maintenance dredging. An in-water Private Aid to Navigation (PATON) consisting of two steel 48-in pipe piles would be installed just outside of the footprint of the turning basin.

MOF and Tug Basin

Rio Grande would construct a MOF along the western extent of the Terminal site, adjacent to the BSC. The MOF would primarily be used during construction for marine delivery of bulk materials and larger or prefabricated equipment as an alternative to road

transportation; however, it would be maintained for the life of the terminal for periodic delivery of bulk materials. The MOF, which would require a dredged depth of up to -7.6 m (-25 ft) MLLW plus 0.6 m (2 ft) advanced maintenance allowance, would be constructed of a steel sheet pile bulkhead on land. Fencing would be placed around the MOF to control access and separate it from the adjacent wetlands on the west side of the terminal site; access would be through the western LNG terminal entrance. The MOF would be capable of berthing two barges simultaneously. Rio Grande anticipates that 880 barges would deliver materials to the MOF during the first 5 years of construction, although deliveries would continue as needed for the remainder of construction and into operations. Bulk materials delivered to the MOF would include the crushed sand or stone necessary for concrete fabrication. Ten 42-in piles would be installed in-water at the tug berth to support construction.

Removal of Existing Navigation Aids

Rio Grande plans to relocate one of the USCG fixed navigation aids in the BSC waterway. Pile driving would include in-water removal of five 12-in-diameter timber piles at the existing navigation aid location using a vibratory hammer. A double bubble curtain would be deployed during all vibratory hammer operations to reduce noise generated by the hammer. The new navigation aid would be installed on land near the shoreline. All five piles would be removed on the same day at a rate of one pile removed every 20 minutes.

In total, Rio Grande would install 12 piles associated with the marine facilities and remove five existing 12-in timber, navigation piles. (Table 1).

Table 1 -- In-Water Pile Driving and Removal Activities for Rio Grande

Area	Pile Size/Type	Method	Source Level (dB)[1]			Piles per Day	Duration (days)	Total Piles
			SEL	RMS	Peak			
PATON at the LNG Berth	48-in (steel)[2]	Vibratory	161.2	161.2	n/a	1	2	2
		Impact	179.7	191.6	205.5			
Removal of USCG Navigation Aid	12-in (timber)	Vibratory	145.0[3]	145.0[3]	n/a	5[5]	1[5]	5
Tug Berth	42-in (steel)[4]	Vibratory	161.2	161.2	n/a	2	5	10
		Impact	179.7	191.6	205.5			

[1] Source levels presented here account for use of a bubble curtain; therefore, they represent a 7decible (dB) reduction from unattenuated source levels.
[2] 48-in pile source levels (SL) represent a -7 dB reduction from median values presented in Austin *et al* (168.2 dB rms measured at 10 m (vibratory) and, for impact driving pile IP5, estimated SL of 198.6 dB rms at 10 m and 186.7 dB SEL and 212.5 dB peak measured at 11 m.
[3] The 145 dB SL represents a -7dB reduction from 152 dB; 152 dB represents the highest root mean square (RMS) value measured at 16 m during removal of timber piles at Port Townsend (Laughlin, 2011).
[4] Rio Grande conservatively applied 48-in pile IP5 source levels measured at the Port of Alaska (Austin *et al*. 2016) to 42-in pile source level estimate.
[5] Rio Grande's application indicates pile removal of the five 12-in timber piles would occur at a rate of one pile per day for five days. The applicant later clarified this was a mistake in interpreting the engineer's intent and that all five piles would be removed on the same day.

Rock Armoring at the MOF

East of the MOF, channel embankments and the top slope of the shoreline (to a depth of -0.6 m [-2 ft] MLLW) would be graded to a 1:3 slope, stabilized with bedding stone overlain by geotextile fabric, and then covered with riprap (*i.e.*, rock armoring) (see Section 1.3.2 in Rio Grande's application for further discussion of dredging activities). In the marine berths and turning basin, where vessel activity could erode the underwater channel slopes, the shoreline would be dredged to a 1:3 slope and stabilized with riprap to a depth of -13.1 m (-43 ft) MLLW. The rock armoring would extend to the top of the slope at elevation +1.8 m (+6 ft) North American Vertical Datum of 1988 and would tie in to the MOF bulkhead. The installation of rock armor does not generate in-water noise

levels to the extent harassment is anticipated; therefore, this activity will not be discussed further.

Dredging

Rio Grande would dredge the berthing areas and turning basin to a depth of -13.1 m (-43 ft) MLLW, with a -0.6 m (-2 foot) allowable over-dredge. The sides of the berthing areas and turning basin would be contoured at a 1:3 slope. The MOF would be excavated and dredged to a depth of -7.6 m (-25 ft) MLLW plus 0.6 m (2 ft) advanced maintenance allowance), to allow barges and shallow-draft vessels to directly offload bulk materials at the Terminal site. Rio Grande would install rock armoring to provide scour protection from propeller wash on the slope parallel to the shoreline. About 476,317.7 m^3 (623,000 cubic yards (yd^3)) of material would be excavated along the shoreline and outside the federally maintained BSC by land-based equipment for the construction of the berthing areas, turning basin, and MOF. This material would be directly placed at the Terminal site for fill. An additional 29,817.6 m^3 (39,000 yd^3) of material would be dredged from the MOF using a mechanical dredge from the shoreline. Approximately 4.6 million m^3 (6.1 million yd^3) of material would be dredged from the berths and turning basin using water-based equipment. Material would be dredged using a hydraulic dredge and temporary pipeline and placed at a U.S. Army Corps of Engineers (USACE)-approved dredged-material-placement area. The placement area will be on the southern shoreline. Although the temporary dredge material pipeline will cross the BSC, it will be completely submerged and will rest on the bottom of the BSC while dredging activities take place. NMFS does not anticipate harassment to marine mammals from dredging nor is it likely the presence of the pipeline would be perceived as a barrier to

dolphins. Therefore, harassment from dredging by Rio Grande is not anticipated nor is authorized, and this activity is not discussed further.

Annova

Annova plans to site, construct, and operate facilities necessary to liquefy and export natural gas along the south bank of the BSC (Figure 2). The purpose of the Project is to operate a mid-scale natural gas liquefaction facility along the South Texas Gulf Coast for exporting LNG to international markets via LNG carriers through United States and international waters. The terminal will include a new LNG export facility with a nameplate capacity of 6.0 million metric tons per annum (6.6 million U.S. tons) and a maximum output at optimal operating conditions of 6.95 million metric tons (7.66 million U.S. tons) per year of LNG for export. The project site is located on a 2.96 km^2 (731-acre) property adjacent to the BSC on land owned by the Brownsville Navigation District (BND). The property, located at approximate mile marker 8.2 on the south bank of the BSC, has direct access to the Gulf of Mexico via the Brazos Santiago Pass.

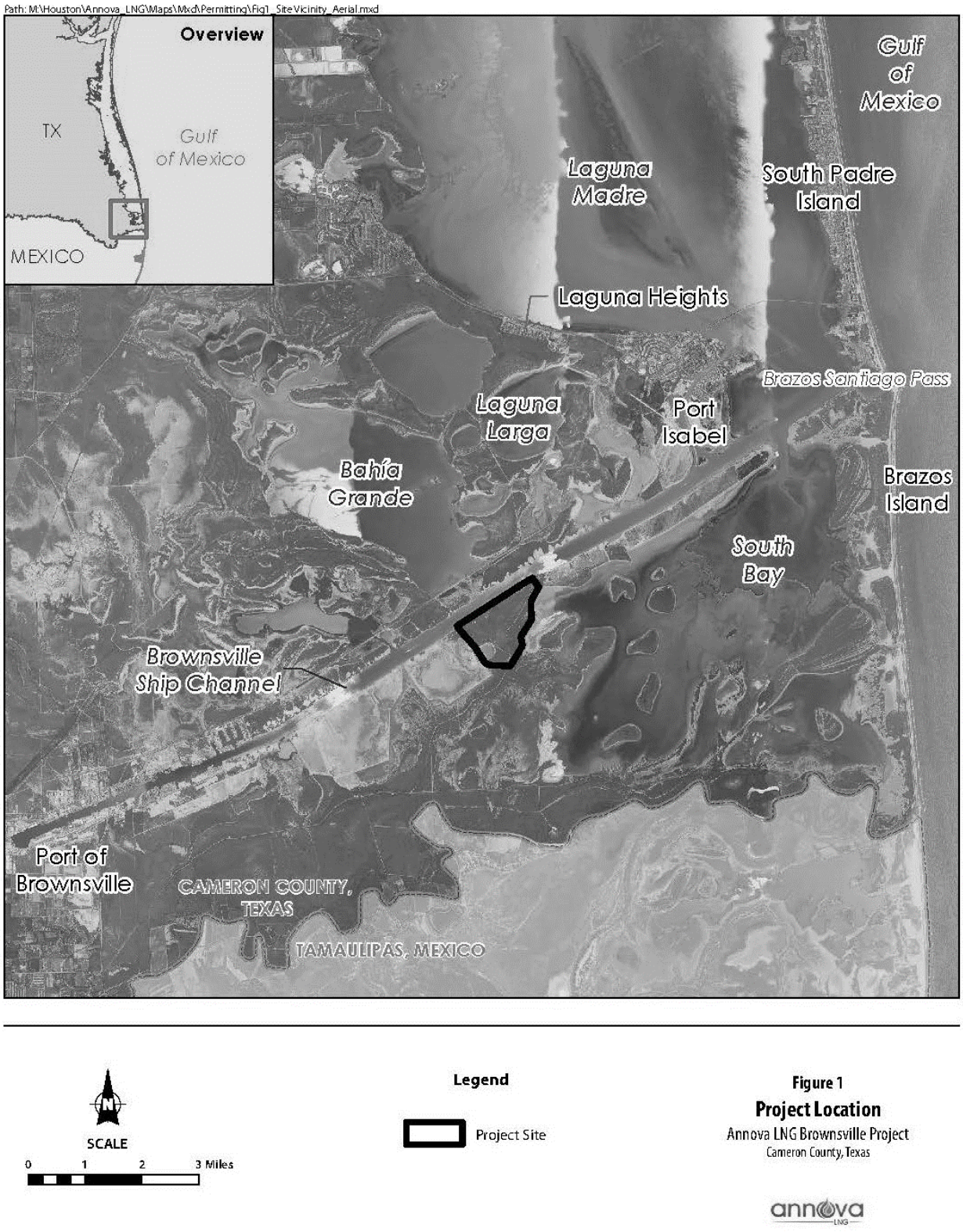

Figure 2 -- Annova Terminal Location

Natural gas will be delivered to the facility via a third-party intrastate pipeline. The natural gas delivered to the site via the feed gas pipeline will be treated, liquefied, and stored on-site in two single-containment LNG storage tanks, each with a net capacity of approximately 160,000 m^3 (42.3 million gallons). The LNG will be pumped from the storage tanks to the marine facilities, where it will be loaded onto LNG carriers at the berthing dock using cryogenic piping.

The facilities for the Project include the following major components: gas pretreatment facilities; liquefaction facilities (six liquefaction trains and six approximately 72,000-horsepower electric motor-driven compressors); two LNG storage tanks; boil-off gas handling system; flare system; marine facilities; control, administration, and support buildings; an access road; fencing and barrier wall; and utilities (power, water, and communication). Similar to Rio Grande, in-water work with the potential to cause harassment to marine mammals includes construction of the marine facilities.

The marine facilities will include a 457 m (1,500-ft) diameter turning basin and widened channel approach areas to the turning basin (see Figure 2). LNG carriers will dock on the loading platform at the south side of the turning basin. The marine facilities include the following components: Loading platform and berth for one LNG carrier, including turning basin and access areas along the BSC; cryogenic pipelines and vapor return lines; aids to navigation; MOF, mooring and breasting dolphins; and tug berth area.

The project involves installation and removal of 16 temporary 24-in diameter steel piles and installation of four 96-in diameter steel breasting dolphin piles (see Table

2). The 16 temporary steel piles will provide support during installation of the breasting dolphins (four temporary piles for each breasting dolphin). Each temporary pile will be installed using a vibratory and impact hammer. Installation of the temporary piles will occur in stages, initially with a vibratory hammer followed by an impact hammer. Once installation of the breasting dolphin piles is complete, all temporary piles will be removed using a vibratory hammer.

Table 2 -- In-Water Pile Driving and Removal Scenarios for Annova

Area	Pile Size/Type	Method	Source Level (dB)[1]			Piles per Day	Duration (days)	Total Piles
			SEL	RMS	Peak			
Breasting Dolphin (temporary)	24-in (steel)	Vibratory[1]	165.0	165.0	n/a	4	8[3]	16
		Impact[2]	171.0	187.0	200.0			
Breasting Dolphins (permanent)	96-in (steel)	Vibratory[1]	180.0	180.0	n/a	0.5	8[4]	4
		Impact[2]	188.0	198.0	213.0			

[1] Vibratory driving and removal source levels do not account for use of a bubble curtain. Proxy source levels are from 24-in sheet piles and 72-in pipe piles. Source: Caltrans (2015), Table I.2-2.
[2] Source levels for impact driving are a -7fB reduction from the unattenuated source levels in Caltrans (2015) Table I.2.I. Unattenuated source levels are: 178 dB re 1 µPa^2-s at 10 m, 194 dB re 1 µPa at 10 m, and 207 dB re 1 µPa at 10 m for 24-in piles and 195 dB re 1 µPa^2-s at 10 m, 205 dB re 1 µPa at 10 m, and 220 dB re 1 µPa at 10 m for 96-in piles.
[3] Includes four days for installation and four days for removal.
[4] Four of the eight days include both vibratory and impact hammering; the remaining four days include impact hammering only.

Dredging

Annova will dredge the marine berth using a hydraulic cutter dredge. The berth will be dredged to the final design depth of -13.7 m (-45 ft) mean lower low water, plus 0.9 m (3 ft) for advance maintenance and over depth, with side slopes at a ratio of 3:1 where sheet piling is not used. Material removed by land-based excavation will be used for on-site fill where possible or placed on the Project site to support landscaping and final grading. Annova plans to use the existing Dredged Material Placement Area

(DMPA) 5A or 5B, located just west of the Project site, to dispose of dredged material not used as fill on-site. Dredged material will be moved to the DMPA through an approximately 2.6 km (1.6-mi)-long, floating dredged material pipeline that will be temporarily anchored along the south shore of the BSC. The dredged material pipeline will be marked with navigation lights and reflective signs and monitored to ensure the safety of area traffic. Dredging for the marine berth is estimated to occur in two, 10-hour shifts, six days per week. Noise from dredging is not anticipated to harass marine mammals and the dredge material pipeline will not cross the BSC, avoiding potential impacts (*e.g.*, entrapment) to marine mammals. Therefore, dredging will not be discussed further.

The required mitigation, monitoring, and reporting measures for Rio Grande and Annova are described in detail later in this document (please see **Mitigation** and **Monitoring and Reporting**) and the IHAs which are posted online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations*.

Comments and Responses

A notice of NMFS' proposal to issue the IHAs was published in the **Federal Register** on May 8, 2020 (85 FR 27365). That notice described, in detail, Rio Grande and Annova's proposed activities, the marine mammal species that may be affected by the activities, the anticipated effects on marine mammals and their habitat, proposed amount and manner of take, and proposed mitigation, monitoring and reporting measures. During the 30-day public comment period, NMFS received a comment letter from the Marine Mammal Commission (Commission) and a member of the public. Both letters may be

accessed online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations*.

Comment 1: The Commission recommended that NMFS (1) have its experts in underwater acoustics and bioacoustics review and finalize as soon as possible, its recommended proxy source levels for impact pile driving of the various pile types and sizes, (2) compile and analyze the source level data for vibratory pile driving of the various pile types and sizes in the near term, and (3) ensure action proponents use consistent and appropriate proxy source levels in all future rulemakings and proposed IHAs.

Response: NMFS concurs with the Commission's recommendation and has prioritized these efforts.

Comment 2: If NMFS applies source level data from Austin et al. (2016), the Commission recommends that NMFS ensure that the sound level, as well as the distance at which the measurement was taken, is correct and consistent in all future rulemakings and proposed incidental harassment authorizations.

Response: The Commission recommends consistent source levels are applied; however, we do not agree this is necessary. The Commission compared source levels from the Port of Alaska (POA) Petroleum and Cement Terminal IHA and is concerned we did not apply identical source levels here. In their application, the POA averaged median source level values from two 48-in unattenuated piles (IP1 and IP5) during the POA Test Pile Program. The Commission failed to recognize that Rio Grande actually applied the higher source level of the two unattenuated piles to both 42-in and 48-in piles. NMFS considered this approach conservative and acceptable; therefore, NMFS did not

adjust the 42-in and 48-in source levels for Rio Grande. NMFS did, however, correct the SL distance measurement for SEL and peak levels to 11m, not 10m for the final IHA. The resulting change to the Level A harassment isopleth is negligible and (from 18.5 m to 20.3 m). There is no change to the Level B harassment isopleth as the RMS values in Austin et al (2016) are modeled at 10 m.

Comment 3: The Commission recommends that NMFS use the loudest [72-in pile proxy] source level of 180 dB re 1μPa_{rms} at 10 m [for the installation of 96-in piles] rather than the typical source level of 170 dB re 1 μPa_{rms} at 10 m from Table I.2-2 in Caltrans (2015).

Response: We have accepted the Commission's recommendation for this particular project but note future decisions regarding appropriate proxy levels will be considered on a case-by-case basis. As acknowledged by the Commission, this results in no change to the Level B harassment zones given the narrow channel. Application of the 180dB rms source level does slightly extend the calculated Level A harassment isopleth (from 1.2 m to 5.4 m) when considering the full 20 minutes of vibratory pile driving per day; however, the Level A harassment isopleth remains less than 20 m shutdown zone for this activity. Therefore, the recommendation does not result in any change to Annova's IHA.

Comment 4: The Commission again recommends that NMFS (1) refrain from using a 7-dB reduction factor and (2) consult with acousticians, including those at the University of Washington-Applied Physics Laboratory, regarding the appropriate source level reduction factor to use to minimize near-field (<100 m) and far-field (>100 m) effects on marine mammals or use the data NMFS has compiled regarding source level

reductions at 10 m for near-field effects and assume no source level reduction for far-field effects for all relevant rulemakings and proposed IHAs.

Response: NMFS disagrees with the Commission regarding this issue, and does not adopt the recommendation. NMFS has previously outlined our rationale for the bubble curtain source level reduction factor (*e.g.,* 84 FR 64833, November 25, 2019; 84 FR 28474, June 19, 2019) in response to a similar comment from the Commission. NMFS will additionally provide a detailed explanation of its decision within 120 days, as required by section 202(d) of the MMPA.

Comment 5: The Commission recommends that NMFS revise its standard condition for ceasing in-water heavy machinery activities to include movement of the barge to the pile location and positioning of the pile on the substrate, as well as the other activity examples, in all draft and final incidental take authorizations involving pile driving and removal.

Response: The Commission's recommendation is not fully practicable and is unnecessary for the following reasons. Barges are pushed by tugs. A tug pushing a barge is not able to cease entirely; it must maintain control of the barge and steerage capabilities. The draft IHAs already contain a measure that indicates vessels must reduce speeds in the presence of a marine mammal which is the more appropriate way to address any concerns from interaction with barges and vessels. With respect to other activities, the condition included in the draft IHAs provide examples and is not limited to those specifically identified. Because any machinery to lift and place piles is considered "heavy machinery", the placement of the pile is already covered in this measure. The condition remains as presented in the draft IHAs.

Comment 6: The Commission recommends that NMFS include in the final authorizations for Rio Grande and Annova the requirement that work must occur only during daylight hours.

Response: NMFS does not concur and does not adopt the recommendation. Both applicants have indicated they intent to conduct pile driving and removal activities during daylight hours only. However, if work needs to extend into the night, work may only be conducted under conditions where there is full visibility of the shutdown zone. Condition 4(d)(ii) in each IHA requires that pile driving and removal must cease if the shutdown zone is not visible.

Comment 7: The Commission recommends that an additional protected species observer (PSO) be deployed at the western edge of the Level B harassment zones from the outset of the projects to ensure that dolphins entering the Level B harassment zones from either end of the BSC would be detected.

Response: The Commission provided this comment during informal correspondence with NMFS and we responded with rationale for why we were not requiring a third PSO for either project unless the trigger identified in the proposed IHA was met (*i.e.*, the applicant reached 75 percent of takes). The Commission's letter did not acknowledge our prior response on this topic. In summary, NMFS does not require the entire Level B harassment monitoring area be covered and there is already a requirement that the applicants extrapolate take from any area that is not able to be monitored in their final report. There will be a PSO positioned at the pile driving site and a second PSO on the eastern (seaward) edge of the Level B harassment zone. As described in the notice of proposed IHAs, dolphins travel the BSC, primarily using the tides. Because dolphins

travel up and down the BSC, they are likely to be documented by the PSOs on site and reasonable extrapolation of takes are possible with the two required PSOs. Adding a third PSO at the onset of the pile driving for the project to cover the entire monitoring zone is not necessary and we have not included it. The trigger to add a third PSO if 75 percent of takes are reached remains in the IHAs.

Comment 8: The Commission recommends that NMFS require Rio Grande and Annova to keep a daily running tally of the total Level B harassment takes, based on both observed and extrapolated takes, to ensure timely implementation of measures to avoid exceeding authorized take limits.

Response: We agree that Rio Grande and Annova must ensure they do not exceed authorized takes but do not concur with the recommendation. NMFS is not responsible for ensuring that an applicant does not operate in violation of an issued IHA.

Comment 9: The Commission recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated **Federal Register** notice process, which is similarly expeditious and fulfills NMFS's intent to maximize efficiencies. If NMFS continues to propose to issue renewals, the Commission recommends that it (1) stipulate that a renewal is a *one-time opportunity* (a) in all **Federal Register** notices requesting comments on the possibility of a renewal, (b) on its webpage detailing the renewal process, and (c) in all draft and final authorizations that include a term and condition for a renewal and, (2) if NMFS declines to adopt this recommendation, explain fully its rationale for not doing so.

Response: NMFS does not fully agree with the Commission and, therefore, does not adopt the Commission's recommendation. However, we have identified that the

renewal process is a one-time opportunity in **Federal Register** notices requesting comments, draft and final authorizations, and have updated our webpage. Regarding the remainder of the recommendations, NMFS will provide a detailed explanation of its decision within 120 days, as required by section 202(d) of the MMPA.

Comment 10: A member of the public provided a letter that included concerns about various aspects of the project and other existing conditions in Laguna Madre including operational impacts of the project (*e.g.,* discharges of thermal water from the regasification process, LNG tanker water ballast), impacts to sea turtles, habitat impacts from recreational and commercial fishing, safety of storage of chemicals,

Response: These concerns are outside the scope of the one-year IHAs that authorize harassment to marine mammals from pile driving.

Comment 11: A member of the public claims take by Level A harassment may occur given that animals forage and calve within the BSC and must pass the project sites given the dead-end nature of the canal.

Response: Level A harassment equates to injury of a marine mammal. This could occur through non-auditory and auditory pathways. NMFS conducted a complete analysis of the potential for auditory injury (*i.e.*, permanent thresholds shift (PTS)) and the commenter did not provide reason that this analysis may be incorrect. The IHAs also contain a 10 m shutdown distance for heavy equipment to prevent physical injury and that vessels must slow in the presence of marine mammals to reduce the already low risk of vessel interaction resulting in injury. Therefore, the mechanism by which the commenter believes injury may occur is unclear. NMFS has fully evaluated the potential

for Level A harassment and has found that taking by Level A harassment is not reasonably anticipated and is not authorizing it.

Comment 12: A member of the public believes the renewal process is vague and requested more information on how NMFS plans to review reports for consideration of renewal, how long that review process will need, and from who or whom reports will be generated.

Response: NMFS' website about the renewal process, including criteria, is available on our website at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*. The criteria for renewal are also contained within the draft and final IHAs.

Comment 13: A member of the public had concerns that NMFS did not address cumulative impacts to dolphins from other stressors, including, but not limited to, fishing and an additional proposed LNG facility in the BSC.

Response: The MMPA requires NMFS to consider impacts from the specified activity contained within an IHA application. Existing stressors to marine mammals (*e.g.,* current estimated rates of mortality and serious injury from commercial and recreational fishing) are included in our baseline analysis and consideration of the status of the stock. Cumulative impacts from other stressors are considered under the National Environmental Policy Act (NEPA) and are evaluated within the permitting agency's (in this case the Federal Regulatory Energy Commission) Environmental Impact Statements for the two projects which can be found at *https://www.ferc.gov/industries/gas/enviro/eis/2019.asp.*

Comment 15: A member of the public requested NMFS require Rio Grande and Annova to use a double bubble curtain on all impact and vibratory pile driving and removal.

Response: Applicants typically propose using a bubble curtain for impact pile driving only as this method of pile installation is louder than vibratory driving and produces sharp rise times, which has a higher potential for causing auditory impairments (i.e., temporary threshold shift (TTS) and PTS). Rio Grande conservatively proposed using a double bubble curtain on all impact and vibratory pile driving and removal. Annova proposed to use the double bubble curtain on all impact pile driving which is the typical case. The duration of vibratory driving for Annova is short, the pile driving would occur within a basin confined on three sides which reduces noise propagation into the BSC, and vibratory driving produces low source levels without rapid rise times relative to impact pile driving. For these reasons, NMFS is not requiring Annova use a bubble curtain during vibratory pile driving. The use of a double bubble curtain during all impact driving is required for both Rio Grande (as well as vibratory driving and removal, as proposed by the applicant) and Annova.

Comment 16: A member of the public urged NMFS to require PSOs for Rio Grande and Annova to engage and coordinate with local experts to work with, collaborate, and coordinate dolphin monitoring, observations, and data intake and documentation and requested more information on the training and/or certification regimens for the PSOs that they must undertake to be approved and qualified.

Response: NMFS cannot require an applicant to hire or work with local experts without commitment from both parties and the commenter did not identify any specific

local experts. NMFS does; however, list PSO qualification requirements, including training and experience, in the IHAs. NMFS also requires PSOs contact the Marine Mammal Stranding Network should any injured or deceased marine mammals be observed. The IHAs also require that PSOs are independent and have no other project-related duties.

Changes from the Proposed IHA to Final IHA

There were no changes between the proposed IHAs and final IHAs: the description of specified activities, amount and type of authorized take, by species, and all mitigation, monitoring and reporting measures contained within the proposed IHAs were carried forward to the final IHAs. We made some adjustments to information contained within the analysis based on comments from the Commission; however, as described in the **Comments and Responses** section above, these changes did not result in any changes to the IHAs.

Description of Marine Mammals in the Area of Specified Activities

A detailed description of the species likely to be affected by Rio Grande and Annova's proposed projects, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHAs (85 FR 27365; May 8, 2020). Please refer to the proposed IHAs **Federal Register** notice for these descriptions and the summary in Table 3 below.

Table 3 -- Marine Mammals Potentially Present In the Action Area

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Bottlenose dolphin	*Tursiops truncatus*	Laguna Madre	N,Y	unknown[4]	UND	0.4
		Western Coastal GoM	N, N	20,161 (0.17, 17,491, 2012)	175	0.6
Atlantic spotted dolphin	*Stenella frontalis*	Northern GoM	N, N	37,611 (0.28, unk, 2004)	Undet.	42
Rough-toothed dolphin	*Steno bredanensis*	Northern GoM	N,N	624 (0.99, 311, 2009)[5]	2.5	1.2[6]

1 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2- NMFS marine mammal stock assessment reports online at: *www.nmfs.noaa.gov/pr/sars/*. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.

3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range.

4- The abundance estimate reported in the latest stock assessment report for common bottlenose dolphin Gulf of Mexico Bay, Sound, and Estuary stocks is 80 animals. However, this estimate is considered outdated as it is based on surveys from 1992–1993 (Blaylock and Hoggard 1994). Recent photo-identification surveys by Piwetz and Whitehead (2019) in Lower Laguna Madre identified 109 individuals; however, the authors note even this estimate is lower than a minimum population estimate.

5- This abundance estimate is reported in the latest stock assessment report for rough-toothed dolphins in the Northern Gulf of Mexico stock (Hayes *et al*. 2018). This estimate is considered outdated (more than 8 years old) and is based on surveys from 2009 (Garrison 2016). It does not include continental shelf waters and does not correct for unobserved animals. Data combined from 1992–2009 resulted in an estimate of 4,853 (CV=0.19) (Roberts *et al*. 2016).

6- Total human M/SI considers the mean annual M/SI from fishery observer related interactions from 2010-2014 and two stranded animals with signs of human-caused mortality (*i.e.*, 0.8 + 0.4).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

We provided discussion of the potential effects of the specified activity on marine mammals and their habitat in our **Federal Register** notice of proposed IHAs (84 FR 63618; November 18, 2018). Therefore, we do not reprint the information here but refer the reader to that document. That document included a summary and discussion of the ways that components of the specified activities may impact marine mammals and their habitat, as well as general background information on sound. The **Estimated Take** section later in this document includes a quantitative analysis of the number of individuals that are authorized to be taken by these activities. The **Negligible Impact Analysis and Determination** section considers the content of this section and the material it references, the **Estimated Take** section, and the **Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

Estimated Take

This section provides the means by which the number of incidental takes authorized in the IHAs were derived, for authorization through these IHAs, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of 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).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to pile driving and removal. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.*, shutdowns) – discussed in detail below in the **Mitigation** section, Level A harassment is neither anticipated nor authorized. Given the scope of work considered, no mortality or serious injury is anticipated or is authorized for this activity. The projects do have the potential to cause Level B (behavioral) harassment of dolphins within the BSC and we have authorized it. Below we describe how the Level B harassment take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the take estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 µPa (rms) for continuous (*e.g.,* vibratory pile-driving, drilling) and above 160 dB re 1 µPa (rms) for intermittent (*e.g.*, impact pile driving) sources.

Both Rio Grande and Annova's activities include the use of continuous (vibratory pile driving and removal) and intermittent (impact pile driving) sound sources; therefore, the 120 and 160 dB re: 1 µPa (rms) are applicable.

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0)

(Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). Both Rio Grande and Annova's activities include the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving and removal) sources.

These thresholds are provided in the Table 5. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*.

Table 4 -- Thresholds Identifying the Onset of Permanent Threshold Shift

	PTS Onset Acoustic Thresholds* **(Received Level)**	
Hearing Group	**Impulsive**	**Non-impulsive**
Low-Frequency (LF) Cetaceans	*Cell 1* $L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	*Cell 2* $L_{E,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	*Cell 3* $L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	*Cell 4* $L_{E,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	*Cell 5* $L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	*Cell 6* $L_{E,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	*Cell 7* $L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	*Cell 8* $L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	*Cell 9* $L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	*Cell 10* $L_{E,OW,24h}$: 219 dB

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 µPa, and cumulative sound exposure level (L_E) has a reference value of 1µPa^{2}s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.*, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

When the NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which may result in some degree of overestimate of Level A harassment take. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources such as pile driving, NMFS User Spreadsheet predicts the distance at which, if a

marine mammal remained at that distance the whole duration of the activity, it would incur PTS. Inputs used in the User Spreadsheet to calculate Level A harassment threshold isopleths for impact and vibratory pile driving are presented in Table 5 and 6, respectively.

Table 5 -- Inputs into NMFS PTS User Spreadsheet for Impact Pile Driving

Input Parameters	Rio Grande	Annova	
Spreadsheet Tab Used	E.1) Impact pile driving		
Source Level (SELs-s)	179.7	171	188
Source Level (SPLpk)	205.5	200	213
Weighting Factor Adjustment (kHz)	2		
Number of piles per day	1 (48-in), 2 (42-in)	4	0.5
Number of strikes per pile	400	675	2,700
Propagation (xLogR)	15		
Distance of source level measurement (m)	11 (Rio Grande), 10 (Annova)		

Table 6 -- Inputs into NMFS PTS User Spreadsheet for Vibratory Pile Driving

Input Parameters	Rio Grande		Annova	
	12-in piles	**48-in and 42-in**	**24-in**	**96-in**
Source Level (RMS SPL)[1]	145	161.2	165	180
Number of piles per day	5	1 (48-in), 2 (42-in)	4	N/A
Duration to drive or remove a single pile (minutes)	20[2]	24	10 (install), 45 (remove)[3]	20[4]
Propagation (xLogR)	15			
Distance from source level measurement (m)	16	10	10	10

[1] Source levels for Rio Grande account for a -7db bubble curtain reduction from unattenuated source levels.
[2] We note Rio Grande's application indicated it would take 480 minutes to remove each 12-in pile and 1 pile would be removed per day. Upon request from NMFS, the applicant later clarified this time reflected the removal of all five piles, including when the hammer would not be operating. The actual hammer operation time per pile is 20 minutes and all 5 piles would be removed in a single day.
[3] We note Annova's application indicated it would take 60 minutes to remove each 24-in pile but the applicant later clarified this included time when the hammer would not be operating and that actual hammer time would be, at most, 45 minutes.
[4] Annova is installing 0.5 piles per day. Total vibratory pile driving duration per day to install this 0.5 pile is 20 minutes.

The results of the User Spreadsheet are presented in Table 7. These distances represent the distance at which a dolphin would have to remain for the entire duration considered in the calculation and may be unrealistic (*e.g.*, NMFS does not anticipate a dolphin would remain at 18 m for the entire time it takes to install two 42-in piles with an impact hammer). In all cases, the peak Level A harassment threshold is not reached. For these reasons, the potential for Level A harassment take from all pile driving and removal is very small and the applicants are required to shutdown pile driving should a marine mammal enter the Level A harassment zones.

Table 7 -- Level A Harassment Isopleths and Corresponding Ensonified Areas

Pile Type	Hammer Type	Level A Isopleth (m)	Level A Area (km^2)
Rio Grande			
42-in	Vibratory	0.5	< 0.01
	Impact	20.3	< 0.01
48-in-diameter steel tube piles	Vibratory	0.3	< 0.01
	Impact	12.8	< 0.01
12-in-diameter timber piles	Vibratory	0.1	< 0.01
Annova			
24-in	Vibratory	0.3 (install) 0.9 (remove)	< 0.01
	Impact	10.9	< 0.01
92-in	Vibratory	5.4	< 0.01
	Impact	93.5	0.04

To estimate the area ensonified to the Level B harassment thresholds, a basic calculation that incorporated the source levels provided in Table 8 and a practical spreading loss model was used to estimate distances to the respective intermittent (160 dB rms) and continuous (120 dB rms) thresholds. However, the width of the BSC is relatively narrow (approximately 300 m wide); therefore, the Level B harassment areas

were clipped to account for land. Table 8 provides the calculated Level B harassment isopleths and area accounting for land.

Table 8 -- Level B Harassment Distances and Areas for Rio Grande and Annova

Hammer Type	Pile Size (source level dB rms)	Isopleth distance (m)	Level B harassment area (km^2)[1]
Rio Grande			
Impact	42- and 48-in	1,278	1.06
Vibratory	42- and 48-in	5,580	4.85
	12-in	743	0.62
Annova			
Impact	24-in	631	0.56
	96-in	3,415	1.0[2]
Vibratory	24-in	10,000	1.0[2]
	96-in	21,544	1.0[2]

[1] Ensonified areas are truncated by land. See Figures 4-6 in both Rio Grande and Annova's applications.
[2] Although radii to Level B harassment isopleths are similar between applications, Annova's pile driving will take place setback from the shoreline inside a berthing area (currently on land but will be dug out- see Figures 4-6 in Annova's application) versus Rio Grande's pile driving which will be conducted along the current shoreline. The nature of the work creates much smaller ensonified areas for Annova.

Take Calculation and Estimation

The abundance, distribution and density of marine mammals in Laguna Madre is poorly understood. Therefore, while the harassment areas described above are important for planning mitigation (*e.g.*, shutdown to avoid Level A harassment) and monitoring, they are not part of the take estimate calculations. For both applicants, we have considered other quantitative information (*e.g.*, group size and sighting rates) as well as behavior to estimate take.

Bottlenose Dolphins

For bottlenose dolphins, both applicants first estimated density in the Laguna Madre using the number of individuals reported in Piwetz and Whitehead (2019), which was 109 dolphins. We note this is not an abundance estimate of the Laguna Madre stock

as Piwetz and Whitehead (2019) conducted the surveys in a limited area of the lower Laguna Madre and the authors note the non-asymptotic nature of the photo-identification discovery curve (accumulation curve) indicates that the sampling effort has not yet identified all, or even most, of the individuals that use this region. Regardless, both applicants used habitat data layers from Finkbeiner *et al*. (2009) to estimate the area of the Laguna Madre, removing the layers that were not dolphin habitat (*e.g*., land, emergent marsh, and mangroves), which resulted in a 1,938 km^2 area. Separately, they estimated the area of the BSC at 27 km^2, for a total area of 1,965 km^2. Using these inputs, both applicants calculated a density of 0.055 dolphins/km^2 (109/1,965=0.055). NMFS believes this approach is an underestimate since the surveys in Piwetz and Whitehead (2019) were confined to the lower Laguna Madre. Therefore, we applied the 109 animals to the survey area in the study. The report did not provide the survey area (only the combined area covered for all five days) but a rudementary GIS exercise yielded an approximate survey area of 140 km^2. This results in a density of 0.76 dolphins/km^2.

When considering a density-based approach to calculate potential take, NMFS typically recommends the following equation: density x area x pile driving days. Using this equation and the NMFS-derived survey area of 140 km^2, the resulting total take estimate for Rio Grande is approximately 29 ((0.76 dolphins/km^2 x 4.85 km^2 x 7 days) + (0.76 dolphins/km^2 x 0.62 km^2 x 1 day) and approximately 12 for Annova (0.76 dolphins/km^2 x 1.0 km^2 x 16 days).

While these calculations would be appropriate for more open water areas, the results are not realistic for the context of these projects. First, dolphins travel up and down the BSC therefore the potential for them to be exposed to pile driving noise is

somewhat independent of the harassment zone sizes as all zones cross the entire width of the channel they are likely to travel into these zones on any given day (*i.e.*, that all dolphins traveling the BSC will eventually pass the terminal sites and therefore have equal chances for exposure). Second, Rio Grande is conducting less work on fewer days than Annova. Given the likely daily occurrence for dolphins to be within the BSC, it is unrealistic to assume Rio Grande has the potential to have more than double the instances of take than Annova. For this reason, NMFS determined the resulting take based on density is not realistic and has instead estimated take based on sighting rates which considers an important parameter - the number of hours of pile driving.

To derive a more realistic take estimate, NMFS considered the Piwetz and Whitehead (2019) data and the amount of pile driving proposed by each applicant. Piwetz and Whitehead (2019) observed 109 dolphins over 26.72 hours of survey effort, resulting in an average of 4.1 dolphins/hour. Rio Grande anticipates installing 12 piles and removing 5 piles over approximately 11.3 hours. Given the number of dolphins/hour, this results in a total take estimate of 46 (4.1 dolphins per hour x 11.3 hours). Annova anticipates installing 20 piles and removing 16 of those 20 piles over approximately 15 hours. Given the number of dolphins/hour, this results in a total take estimate of 62 takes (4.1 dolphins per hour x 15 hours). This amount of take more closely reflects the potential for both applicants to harass animals and allows for an adequate amount of take when considering another important parameter- group size. The average expected group size of dolphins in the BSC is 4.5 dolphins (Piwetz and Whitehead, 2019). The amount of bottlenose dolphin take authorized for Rio Grande and Annova is presented in Table 9 and 10, respectively.

Rough-toothed and Atlantic Spotted Dolphins

It is unlikely that rough-toothed dolphins or Atlantic spotted dolphins will occur in the BSC as these species typically inhabit coastal and offshore waters. We note that neither of these species were observed during opportunistic and planned surveys in 2016 through 2019 (Ronje *et al*., 2018; Piwetz and Whitehead 2019). However, because there is a small risk that these animals may be exposed to project-related noise if they do enter the BSC during pile driving (*e.g*., a stranding event or other abnormal behavior), both Rio Grande and Annova have each requested take equating to the average group size of these species (Maze-Foley and Mullin 2006). These mean group sizes are 14 rough-toothed dolphins and 26 Atlantic spotted dolphins (Table 9 and 10).

Table 9 -- Authorized Take for Rio Grande

Species	**Stock**	**Level B Harassment Take**
Bottlenose dolphin	Laguna Madre	46
	Western Gulf of Mexico Coastal	
Rough-toothed dolphin	N. Gulf of Mexico	14
Atlantic spotted dolphin	N. Gulf of Mexico	26

Table 10 -- Authorized Take for Annova

Species	**Stock**	**Level B Harassment Take**
Bottlenose dolphin	Laguna Madre	62
	Western Gulf of Mexico Coastal	
Rough-toothed dolphin	N. Gulf of Mexico	14
Atlantic spotted dolphin	N. Gulf of Mexico	26

Mitigation

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of

effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Both Rio Grande and Annova are required to enact similar mitigation measures to ensure the least practicable adverse impact on marine mammals. Because dolphins are present within the Laguna Madre year-round, we are not proposing any in-water work windows.

Each IHA would contain the following mitigation measures:

For in-water construction, heavy machinery activities other than pile driving, if a marine mammal comes within 10 m, Rio Grande and Annova must cease operations and reduce vessel speed to the minimum level required to maintain steerage and safe working conditions. This measure is designed to prevent physical injury from in-water equipment.

Rio Grande and Annova are required to conduct briefings for construction supervisors and crews, the monitoring team, and staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, the marine mammal monitoring protocol, and operational procedures.

Two PSOs must be stationed on land, barge, boat, or dock with full view of the shutdown zones (Table 11) and with direct view of the opposite shoreline to observe for marine mammals within the Level B harassment zone. If a marine mammal is observed within or approaching the shutdown zone, the PSOs will call for a shutdown.

Table 11 -- Shutdown Zones

Applicant	**Pile**	**Shutdown Zone**
Rio Grande	All piles	20 m
Annova	24-in	20 m
	96-in	100 m

Marine mammal monitoring must take place from 30 minutes prior to initiation of pile driving activity through 30 minutes post-completion of pile driving activity. Pile driving may commence when observers have declared the shutdown zone clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the shutdown zone (Table 11), their behavior must be monitored and documented until they leave of their own volition, at which point the activity may begin or they have not been re-sighted within 15 minutes.

If a marine mammal is entering or is observed within an established shutdown zone (Table 11), pile driving must be halted or delayed. Pile driving may not commence or resume until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without subsequent detections.

Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone would not be visible (*e.g.*, fog, heavy rain), pile driving and removal must be delayed until the PSO is confident marine mammals within the shutdown zone could be detected.

Rio Grande and Annova must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

Rio Grande and Annova have stated that they will conduct all pile driving during daylight hours, and both applicants are required to employ a double bubble curtain during

all impact pile driving and operate it in a manner consistent with the following performance standards: the bubble curtain must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column; the lowest bubble ring must be in contact with the mudline for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent mudline contact. No parts of the ring or other objects shall prevent full mudline contact; and air flow to the bubblers must be balanced around the circumference of the pile. Rio Grande will operate a double bubble curtain during all vibratory pile driving and removal and we have accounted for its use in our analysis. Therefore, Rio Grande must also operate this double bubble curtain during vibratory driving and removal.

If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized takes are met, is observed approaching or within the monitoring zone (Table 8), pile driving and removal activities must shut down immediately using delay and shut-down procedures. Activities must not resume until the animal has been confirmed to have left the area or 15 minutes has elapsed without a subsequent sighting.

In the case that 75 percent of the authorized take is met and two or more piles are left to be installed to complete the project, Rio Grande and Annova would implement additional monitoring and mitigation to ensure the authorized take is not exceeded. If this trigger is met, an additional PSO would be positioned at the western edge of the Level B harassment zone.

Based on our evaluation of the measures proposed by the applicants and contained within the IHAs, NMFS has determined that the measures provide the means effecting

the least practicable impact on the affected 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 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. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);

- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Marine mammal monitoring before, during, and after pile driving and removal must be conducted by NMFS-approved PSOs who are independent and have a degree in biological sciences or related training/field experience. NMFS considers the following qualifications when reviewing potential PSO's curriculum vitae : ability to conduct field observations and collect data according to assigned protocols, experience or training in the field identification of marine mammals, including the identification of behaviors, sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations, writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior, and ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary. Rio Grande and Annova must

submit each PSO's curriculum vitae for approval by NMFS prior to the onset of pile driving.

Each IHA holder must submit a draft report on all marine mammal monitoring conducted under their IHA within 90 calendar days of the completion of marine mammal monitoring. A final report must be prepared and submitted within 30 days following resolution of comments on the draft report from NMFS.

The marine mammal report must contain information related to construction activities, weather conditions, the number of marine mammals observed, by species, relative to the pile location (*e.g.*, distance and bearing), description of any marine mammal behavior patterns during observation, including direction of travel and estimated time spent within the Level A harassment and Level B harassment zones during pile driving and removal, if pile driving or removal was occurring at time of sighting, age and sex class, if possible, of all marine mammals observed, PSO locations during marine mammal monitoring, detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any, an extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible. Rio Grande and Annova must also submit all PSO datasheets and/or raw sighting data to NMFS.

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the IHA-holder must immediately cease the specified activities and report the incident to NMFS and the Southeast Marine Mammal Stranding Network. If the death or injury was clearly caused by the specified activity, the IHA-

holder must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The IHA-holder must not resume their activities until notified by NMFS. Reporting information must include information about the event, species, animal condition and behavior, and if possible, photographs.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact 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 (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. In addition to considering estimates of the number of marine mammals that might be "taken" through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS's implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*,

as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, our analysis below applies to the issuance of an IHA to Rio Grande and, separately, issuance of an IHA to Annova, as both projects include construction of an LNG terminal in the same area of the BSC.

Pile driving activities associated with both projects, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance) incidental to underwater sounds generated from pile driving. Harassment could occur if dolphins are present in relatively close proximity (1-5 km^2) to pile driving and removal.

No Level A harassment, serious injury or mortality is anticipated given the nature of the activities and measures designed to avoid the potential of injury (*e.g.*, PTS) to marine mammals. The potential for these outcomes is minimized through the construction method and the implementation of the planned mitigation measures. Rio Grande and Annova would utilize a double bubble curtain during all impact pile driving while Rio Grande has also committed to using the double bubble curtain during vibratory driving and removal. Specifically, vibratory and impact hammers will be the primary methods of installation. Piles will first be installed using vibratory pile driving. Vibratory pile driving produces lower SPLs than impact pile driving. The rise time of the sound produced by vibratory pile driving is slower, reducing the probability and severity of injury. Impact pile driving produces short, sharp pulses with higher peak levels and much sharper rise time to reach those peaks. When impact pile driving is used, implementation of soft start and shutdown zones significantly reduces any possibility of injury. Given

sufficient "notice" through use of soft starts (for impact driving), marine mammals are expected to move away from a sound source; thereby, lowering received sound levels.

The activities by Rio Grande and Annova are localized and of relatively short duration (8 and 16 days, respectively). The project area is also very limited in scope spatially (confined to a small area of the BSC). Localized (confined to the BSC) and short-term noise exposures produced by project activities may cause short-term behavioral modifications in dolphins. Surveys in the lower Laguna Madre indicate dolphin behavior is generally dominated by socializing, traveling (often in the direction of tidal movement), and foraging (Ronje *et al*., 2018; Piwetz and Whitehead, 2019). Dolphins were also observed foraging behind active commercial shrimp trawlers in the BSC as far as the Brownsville Fishing Harbor (Ronje *et al*. 2018). During another survey, commercial fishing trawlers were observed actively operating and 31 percent (n = 5) of groups were observed foraging behind trawlers or directly off the stern taking advantage of discarded bycatch (Piwetz and Whitehead, 2019).

Another Texas waterway similar to the BSC, the Galveston Ship Channel, has been a hot spot for dolphin research in Texas. Dolphins regularly use the GSC to forage (57 percent of observed behavioral states) and socialize (27 percent), and or traveling (5 percent) (Piwetz, 2019). The author found when boats were present, the proportion of time dolphins spent socializing and foraging was significantly less than expected by chance. Swimming speeds increased significantly in the presence of small recreational boats, dolphin-watching tour boats, shrimp trawlers, and when tour boats and shrimp trawlers were both present. We would expect animals in the BSC to respond similarly (*e.g.,* decreased foraging and socializing) to pile driving. However, the activities

considered in these IHAs (pile driving) would be stationary in nature and no vessels would be actively approaching dolphins nor would dolphins likely be attracted to pile driving as they are to shrimp trawls.

In general, effects on individuals that are taken by Level B harassment will likely be limited to temporary reactions such as avoidance, increased swimming speeds, and decreased socializing and foraging behaviors. We would anticipate swim speeds would increase as dolphins move closer to the pile driving location (similar to how they react to vessels); however, this would move them quickly past the terminal and pre-pile driving exposure behavior would likely return quickly. Foraging and socializing behaviors may cease; however, these behaviors would also resume shortly thereafter. Level B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein.

The project also is not expected to have significant adverse effects on affected marine mammal habitat. Marine mammal habitat quality within the BSC varies. There is little development along the shoreline until the Brownsville Fishing Harbor, located approximately 8 km west of the project sites, when the BCS becomes commercial/industrial. Dolphin habitat in the BSC would be temporarily, indirectly impacted during the brief duration of pile driving for both projects. Direct impacts to dolphin habitat would not occur during Annova's construction as the site is currently uplands. For Rio Grande, direct impacts to foraging habitat would be minimal and temporary in nature during pile driving, primarily consisting of increased turbidity. Dredging would permanently deepen the channel at the Rio Grande terminal location; however, the entire BSC is a man-made canal that is dredged. The activities may cause

some fish to leave the area of disturbance, thus temporarily impacting marine mammal foraging opportunities in a limited portion of the foraging range. However, because of the short duration of the activities, the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from the proposed activities are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No Level A harassment, mortality is anticipated or authorized;
- The anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior that would not result in fitness impacts to individuals;
- The specified activity and ensonification area is very small (1-5 km^2) relative to the overall habitat ranges of all species and does not include habitat areas of special significance;
- The presumed efficacy of the mitigation measures in reducing the effects of the specified activity to the level of least practicable adverse impact; and
- The impacts to marine mammal habitat would be temporary in nature, primarily increased turbidity and noise.

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 Rio Grande's specified activities and, separately, Annova's

specified activities, will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

For coastal stocks (bottlenose, Atlantic spotted, and rough-toothed dolphins) the amount of authorized take is less than one percent of the population. There is no population estimate available for the Laguna Madre stock of bottlenose dolphins. Two studies investigating dolphins in Lower Laguna Madre yielded approximately 60 in 2016 (Ronje *et al*., 2018) and 109 individuals in 2018 and 2019 (Piwetz and Whitehead, 2019). However, these surveys were very limited in space with respect to the stock range and the numbers reflect identified individuals. More specifically, Ronje *et al*. (2018) limited their survey to the extreme lower portion of Lower Laguna Madre while Piwetz and Whitehead (2019) acknowledge the non-asymptotic nature of the discovery curve (accumulation curve) indicates that the sampling effort has not yet identified all, or even

most, of the individuals that use this region (presumably referring to lower Laguna Madre). The entire Laguna Madre stock range include upper and lower Laguna Madre.

To estimate potential abundance, we looked for comparative ecosystems to estimate potential population size and trends in abundance estimates for other Gulf of Mexico BSE stocks. The Indian River Lagoon (IRL) in Florida is similar in configuration and length to Laguna Madre but is approximately half the size (539 km^2 versus 1137km^2). Similar to Laguna Madre, there are no recent stock estimates for the IRL; however, seasonal aerial surveys spanning the IRL from 2002 and 2003 yielded a range of 362 (CV =0.29) to 1316 (CV=0.24) with an overall mean abundance of 662 dolphins (Hayes *et al*., 2016). For those Gulf of Mexico BSEs that have been more intensively studied in recent years, the trend demonstrates these BSEs support much larger stocks of bottlenose dolphins than previously believed. For example, the abundance estimates for the Barataria Bay, Mobile Bay, and Mississippi Sound stocks based on older data were estimated at 138, 122, and 901 animals, respectively (Hayes *et al*., 2017). More recent surveys and analysis now estimate those stocks at 2,306, 1,393, and 3,046 dolphins, respectively. For these reasons, it is reasonable to assume the entire Laguna Madre similarly supports several hundred to thousand animals.

Finally, dolphins within the BSC have been documented as following the tides and shrimp trawls making their way back to the fleet docks which are located west of the terminal sites (Ronje *et al*., 2018). Because the BSC is a dead-end canal, dolphins traveling past the terminal sites in a westward direction must re-transit past the terminal sites to exit the BSC. This is likely to occur on the same day given the tides. While it is not possible to determine if pile driving would be occurring as animals are transiting both

west and east of the terminal sites on any given day, it is possible some animals may be exposed to pile driving on more than one occasion on any given day (*e.g.*, if pile driving is occurring in the morning and then several hours later, after a tide change). Therefore, the number of individual dolphins actually harassed may be less than the amount of take authorized.

In summary, surveys in Laguna Madre have been limited to lower Laguna Madre and the authors acknowledge the limitations of their studies for purposes of estimating stock size, the IRL (a lagoon similar in configuration and proximity to ocean waters as the BSC but approximately half the surface water area) supports hundreds to over 1,000 animals, and trends of older stock estimates compared to more recent data for other Gulf of Mexico BSE stocks. For these reasons, it is likely the Laguna Madre stock estimate is, at minimum, several hundred animals. Further, the number of individuals taken may be less than the amount of take authorized. Therefore, for the Laguna Madre stock of bottlenose dolphins, we find that the total taking may reasonably be expected to represent less than one-third of the total likely population abundance.

Based on the analysis contained herein of the proposed activity (including the required mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals relative to the population size of the affected species or stocks may be taken incidental to Rio Grande's proposed activities and, separately, incidental to Annova's proposed activities.

Endangered Species Act

Incidental take of ESA-listed species from the specified activities is not expected or authorized. Therefore, NMFS determined that formal consultation under section 7 of the ESA is not required for this action.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq*.) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

These actions are consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, the issuance of the IHAs has been categorically excluded from further NEPA review.

Authorization

As a result of these determinations, NMFS has issued IHAs to both Rio Grande and Annova authorizing the take, by Level B harassment only, of small numbers of marine mammals provided the mitigation, monitoring, and reporting requirements included in those IHAs are adhered to.

The IHAs can be found at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*.

Dated: June 29, 2020.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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