agencies to temporarily postpone the effective date for 60 days after January 20, 2017, of any regulations that have published in the **Federal Register** but not yet taken effect, for the purpose of ''reviewing questions of fact, law, and policy they raise.'' We are, therefore, delaying the effective date of our rule published on January 11, 2017, at 82 FR 3186 (see **DATES**, above).

Administrative Procedure Act

To the extent that 5 U.S.C. 553 applies to this action, it is exempt from notice and comment because it constitutes a rule of procedure under 5 U.S.C. 553(b)(A). Alternatively, our implementation of this action without opportunity for public comment, effective immediately upon publication in the **Federal Register**, is based on the good cause exceptions in 5 U.S.C. 553(b)(B) and 553(d)(3). Pursuant to 5 U.S.C. 553(b)(B), we have determined that good cause exists to forgo the requirement to provide prior notice and an opportunity for public comment thereon for this rule as such procedures would be impracticable, unnecessary, and contrary to the public interest. We are temporarily postponing for 60 days after January 20, 2017, the effective date of this regulation pursuant to the previously noted memorandum from the White House. As a result, seeking public comment on this delay is unnecessary and contrary to the public interest. For these same reasons, we find good cause to waive the 30-day delay in effective date provided for in 5 U.S.C. 553(d).

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

Dated: February 7, 2017.

James W. Kurth,

Acting Director, U.S. Fish and Wildlife Service.

[FR Doc. 2017–02865 Filed 2–9–17; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 217

[Docket No. 160405311–6999–02]

RIN 0648–BF95

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Rehabilitation of the Jetty System at the Mouth of the Columbia River: Jetty A, North Jetty, and South Jetty, in Washington and Oregon

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

ACTION: Final rule.

SUMMARY: NMFS, upon request of the U.S. Army Corps of Engineers (Corps), hereby issues a regulation to govern the unintentional taking of marine mammals incidental to the rehabilitation of the Jetty System at the Mouth of the Columbia River (MCR), over the course of five years. This regulation, which allows for the issuance of a Letter of Authorization (LOA) for the incidental take of marine mammals during the described activities and specified timeframes, prescribes the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, as well as requirements pertaining to the monitoring and reporting of such taking.

DATES: Effective May 1, 2017, through April 30, 2022.

ADDRESSES: An electronic copy of the application, containing a list of references used in this document, and the associated Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) may be obtained by telephoning the contact listed below (see **FOR FURTHER INFORMATION CONTACT**), or visiting the internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.*

FOR FURTHER INFORMATION CONTACT: Rob Pauline, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Executive Summary

This regulation, issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 *et seq.*), establishes a framework for authorizing the take of marine mammals incidental to the Corps' rehabilitation of the Jetty System, including Jetty A, North Jetty and South Jetty at the Mouth of the Columbia River in Washington and Oregon.

Purpose and Need for This Regulatory Action

NMFS received an application from the Corps requesting five-year regulations and authorization to take multiple species of marine mammals. We anticipate take to occur in the vicinity of the MCR Jetty System by Level B harassment incidental to the use of vibratory pile driving and pedestrian surveys of the jetties. This regulation is valid for five years from the date of issuance. Please see ''Background'' later in this document for definitions of harassment.

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1361 *et seq.*) directs 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, after notice and public comment, the agency makes certain findings and issues regulations. This regulation contains mitigation, monitoring, and reporting requirements.

Legal Authority for the Regulatory Action

Section 101(a)(5)(A) of the MMPA and the implementing regulations at 50 CFR part 216, subpart I provide the legal basis for issuing the five-year regulations and any subsequent Letters of Authorization.

Summary of Major Provisions Within the Final Regulation

The following provides a summary of some of the major provisions within this regulation for the MCR Jetty System rehabilitation project. We have determined that the Corps' adherence to the mitigation, monitoring, and reporting measures listed later in this regulation would achieve the least practicable adverse impact on the affected marine mammals. They include:

- Establishment and monitoring of shutdown zones to reduce likelihood of injury to marine mammals;
- Establishment and monitoring of Level B harassment zones or zones of influence (ZOI) to record instances of behavioral harassment;
- Implementation of hydroacoustic monitoring plan to ensure that shutdown zones and ZOIs have been delineated appropriately; and
- Shutdown between May 1 and July 1 when killer whales are sighted within the ZOIs to avoid take of Southern Resident killer whales which are listed

as Endangered under the Endangered Species Act (ESA);

Availability of Supporting Information

We provided **SUPPLEMENTARY INFORMATION** for this activity in the Notice of Proposed Rulemaking published in the **Federal Register** on August 25, 2016 (81 FR 58443) and a correction on September 6, 2016 (81 FR 61160). The correction notice noted that NMFS used an incorrect document identifier number ''NOAA–NMFS–2014–0144'' rather than the correct document identifier of ''NOAA–NMFS–2016–0108'' in the Federal e-Rulemaking Portal hyperlink. We do not reprint all of that information here in its entirety. Instead, we provide either a summary of the material presented in the proposed rule or a note referencing the page(s) in the proposed rule where the public can find the information. We do address any information that has changed since the proposed rule was published. Additionally, this final rule contains a section that responds to the public comments submitted during the 40-day public comment period, including the extension of the public comment period from September 26, 2016 to October 6, 2016 (81 FR 61160).

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.

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 February 13, 2015, NMFS received an application from the Corps for the taking of marine mammals incidental to the rehabilitation of the Jetty System at the MCR in Washington and Oregon. On June 9, 2015, NMFS received a revised application. NMFS determined that the application was adequate and complete on June 12, 2015. NMFS issued an incidental harassment authorization (IHA) to the Corps on August 31, 2015 (80 FR 53777; September 8, 2015) to cover pile installation at Jetty A which is valid from May 1, 2016 through April 30, 2017. The Corps will conduct additional work under an LOA that may result in the incidental harassment of marine mammals. A notice of receipt was published in the **Federal Register** on October 26, 2015 (80 FR 65214). On August 25, 2016 NMFS published a notice in the **Federal Register** of our proposal to issue regulations and subsequent LOAs with preliminary determinations (81 FR 58443). A corrected notice was published in the **Federal Register** on September 6, 2016 (81 FR 61160). The filing of the corrected notice extended the original 30-day comment period to 40 days with a closing date of October 6, 2016. The comments and our responses are discussed later in this document.

The Corps is seeking an LOA for continuation of work begun on Jetty A under an IHA issued by NMFS that expires on April 30, 2017. The activity will occur annually between the periods of May 1 through September 30 of each year between May 2017 and April 2022. If there is any remaining work from the IHA at Jetty A that may need to be completed under the LOA, it would likely include pile maintenance and pile removal of a barge offloading facility at that jetty. Any work on the North and South Jetties will be covered under the LOA. The following specific aspects of the activity are likely to result in the take of marine mammals: Vibratory pile driving and removal. Take, by Level B Harassment only, of individuals of seven species or stocks of marine mammals may result from the specified activity.

On August 4, 2016, NMFS released its Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Guidance) (81 FR 51694). This new Guidance established new thresholds for predicting auditory injury, which equates to Level A harassment under the MMPA. NMFS explained the approach it would take during a transition period, wherein we balance the need to consider this new best available science with the fact that some applicants have already committed time and resources to the development of analyses based on our previous thresholds and have constraints that preclude the recalculation of take estimates, as well as consideration of where the action is in the agency's decision-making pipeline. In that notice, we included a non-exhaustive list of factors that would inform the most appropriate approach for considering the new Guidance, including: The scope of effects; how far in the process the applicant has progressed; when the authorization is needed; the cost and complexity of the analysis; and the degree to which the Guidance is expected to affect our analysis.

As described above, NMFS published a notice in the **Federal Register** of our proposal to issue regulations and subsequent LOAs with preliminary determinations (81 FR 58443; August 25, 2016). A corrected notice was published in the **Federal Register** on September 6, 2016 (81 FR 61160). Theses notices did not include the standards contained in the new Guidance. NMFS received comment from the Marine Mammal Commission to use the new Guidance for this rulemaking (see below). NMFS agreed with this comment and used the Guidance for this final rule.

The Guidance indicates that there is a greater likelihood of auditory injury in the form of permanent threshold shift (PTS) for low-frequency cetaceans (*i.e.,* humpback whale, gray whale) and for high-frequency cetaceans (*i.e.,* harbor porpoise) than was considered in our notice of proposed rulemaking (81 FR 52614; August 9, 2016) because the Level A harassment isopleths are larger. To account for the slightly larger Level A zones that exist for these species, NMFS increased the shutdown zone from 20 meters (m) to 30 m for the two whale species and from 20 m to 40 m for the harbor porpoise. Therefore, no Level A take is likely or authorized for this action. With these changes, the required mitigation measures, and the monitoring and mitigation program, impacts to the affected species or stocks will be minimized.

In summary, we have considered the new Guidance and believe that the likelihood of injury is adequately addressed in the analysis contained herein and appropriate protective measures are in place in the regulations and LOAs.

Description of the Specified Activity

Overview

There are numerous steps involved in the planned multi-year effort to rehabilitate the MCR Jetty System. This notice will focus only on those components of the project under the MMPA. Additional detailed information about the project in its entirety is contained in the application which may be found at: *http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.* Construction of three offloading facilities will be necessary to transport materials to these specific project locations. These will be located at Jetty A, North Jetty and South Jetty. Pile installation at Jetty A is covered under an existing IHA. The LOA will cover remaining pile installation, pile maintenance and pile removal at Jetty A depending on how much work is accomplished under the current IHA. The LOA will also cover pile installation and removal of the facility at North Jetty and the one at South Jetty. In addition, all work related to pedestrian surveys of the South Jetty that could result in visual disturbance to pinnipeds will be covered under the LOA.

The scheduled program of repair and rehabilitation priorities is described in detail in Section 1 of the Corps' LOA application. The sequence and timing for work under the LOA at the three MCR jetties includes:

1. The Jetty A scheduled repairs and head stabilization task will be covered under the current IHA. This would include pile installation related to construction of an offloading facility as well as construction and stone placement. There will be at least one season of in-water work but two seasons are likely to be required to complete these activities. The second season of pile maintenance and removal would occur in 2017 and be covered under the LOA.

2. The North Jetty scheduled repair and head stabilization task will occur under the LOA and include pile installation and removal at an offloading facility. Construction and placement will occur from 2017 through 2019 as this task will require three placement seasons.

3. The South Jetty interim repair and head determination task will occur under the LOA and will include pile installation and removal at two facilities with one being on the trunk near the head and the other at Clatsop Spit. This task will require four placement seasons running from 2018 through 2021.

Installation and removal of piles with a vibratory hammer will introduce sound waves into the MCR area intermittently for up to seven years (depending on funding streams and construction sequences). In terms of actual on-the-ground work it is possible, but unlikely, that driving will occur at multiple facilities on the same day. For the purposes of this LOA, NMFS will be assuming that driving will occur only at a single facility on any given day.

The **Federal Register** Notice of Proposed Rulemaking (81 FR 58443, August 25, 2016) described the construction of four offloading facilities, not three, that would require pile driving. Piles would be a maximum diameter of 24 inches and would only be installed by vibratory driving method due to the soft sediments (sand) in the project area. No impact driving will be necessary or authorized under these regulations and LOA. The piles will be located within 200 feet (ft) (60.96 m) of each jetty structure. The dolphins' Z- and H-piles would be composed of either untreated timber or steel piles installed to a depth of approximately 15 to 25 ft (4.5–7.6 m) below grade in order to withstand the needs of offloading barges and heavy construction equipment.

In the **Federal Register** Notice of Proposed Rulemaking (81 FR 58443; August 25, 2016), it was assumed that pile installation and removal would occur for about 10 hours per day over the span of about 67 days. Approximately 96 piles and up to 373 sections of sheet pile to retain rock fill would be installed and removed, totaling 469 initial installation and 469 removal events over the span of about 67 days. In order to round the math, NMFS assumed 68 days, with each of the four offloading facilities taking about 17 days total for installation and removal.

Since the Notice of Proposed Rulemaking was published, the Corps has submitted an Addendum revising their project estimates to include only 5 hours of daily vibratory operations. The addendum is available at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* The vibratory duration, or number of days, remains the same at 17 days per facility. However, only one of the two sites originally planned for the South Jetty will be constructed resulting in a total of just three offloading facilities. Note that the Jetty A pile installation, requiring 10 pile driving days was completed under the existing IHA. Jetty A pile extraction is not expected to occur until May 2017 and, therefore, will be covered under this LOA. The Corps is still assuming a seven-day duration for the extraction at Jetty A. Additionally, pedestrian surveys on South Jetty outside of the construction seasons will take six additional days. In the Corps' updated addendum, the number of piles to be driven and/or extracted decreased from 96 to 52 while the number of sheet or Z- or H-piles went down from 373 to 139. A total of 49 days of pile driving work will be required, consisting of 41 days associated with installation and extraction at Jetty A, North Jetty and South Jetty and eight days of maintenance at South Jetty as shown in Table 1. Six days of pedestrian surveys at South Jetty will also be required. This activity will not affect the underwater soundscape but will result in some behavior disturbance to hauled out pinnipeds. The result is decreased impacts to marine mammals compared to impacts originally described in the proposed rule.

TABLE 1—ESTIMATED DAYS OF PILE DRIVING AND REMOVAL ACTIVITIES *

Jetty	Timeframe (install)	Timeframe (removal)	Timeframe (maint.)	Pile type and number	Duration (install) (days)	Duration (removal) (days)	Duration (maint.) (days)
Jetty A	.....	May 2017	.....	4–24″ dia Piles + 19 H-piles.	.....	7	.....
North	May 2018	Sep 2019	.....	24–24″ dia Piles + 20 H-piles.	10	7	.....
South	May 2020	Sep 2021	May–June 2020 + May–June 2021.	24–24″ dia Piles + 100 Z/Sheet piles.	10	7	8

TABLE 1—ESTIMATED DAYS OF PILE DRIVING AND REMOVAL ACTIVITIES *—Continued

Jetty	Timeframe (install)	Timeframe (removal)	Timeframe (maint.)	Pile type and number	Duration (install) (days)	Duration (removal) (days)	Duration (maint.) (days)
Totals	.....	.....	.....	.....	20	21	8

* Six days of pedestrian surveys will also be required.

Dates and Duration

The current IHA, for which take has been authorized, is valid from May 1, 2016, through April 30, 2017. The LOA will be valid from May 1, 2017, through April 30, 2022. The work season generally extends from April through October, with extensions, contractions, and additional work windows outside of the summer season varying by weather patterns. To avoid the presence of Southern Resident killer whales, the Corps will prohibit pile installation or removal from October 1 until April 30 because that is the killer whales' primary feeding season when they may be present at the MCR plume. Installation and removal will occur from May 1 to September 30 each year.

Specified Geographic Region

This activity will take place at the three MCR jetties in Pacific County, Washington, and Clatsop County, Oregon. These are Jetty A, North Jetty and South Jetty. See Figure 1 in the application for a map of the MCR Jetty system and surrounding areas.

Detailed Description of Activities

The notice of proposed rulemaking (NPRM) (81 FR 58443; August 25, 2016) contains a full detailed description of project activities and timelines. Other than the decreased hours of pile diving per day, reduction in the number of piles being driven, and reduction in pile driving days contained as shown in Table 1, the information in that NPRM has not changed and is not repeated here.

Comments and Responses

The proposed rule was published in the **Federal Register** on August 26, 2016 (81 FR 58443) for public comment. A correction notice was published in the **Federal Register** on September 6, 2016 (81 FR 61160) extending the public comment period until October 6, 2016. The Marine Mammal Commission (Commission) timely requested an extension for their comment letter which was granted by NMFS. The Commission submitted comments on November 15, 2016. No other comments nor other requests for extensions to file late comments were received past the October 6, 2016 comment deadline. The comment letter is available on our Web site at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* Following is a summary of the public comments and NMFS' responses.

Comment 1: The Commission recommended removing all references to impact pile driving, drilling, and installation of concrete piles because those activities would not occur.

Response: NMFS has made these changes in the final rule.

Comment 2: The Commission recommends using the standard clearance time of 15 minutes for small cetaceans rather than 30 minutes.

Response: NMFS has made this change in the final rule.

Comment 3: The Commission recommended incorporating NMFS' new Level A harassment thresholds, revising the exclusion zones accordingly, and requiring implementation of standard mitigation and monitoring measures based on those revised zones.

Response: NMFS has utilized the new Level A harassment thresholds to revise exclusion zones for the final rule. Appropriate mitigation and monitoring measures will be enacted based on these updated thresholds and corresponding shutdown zones.

Comment 4: The Commission recommended using the most recent version of the *Pacific Navy Marine Species Density Database* (Navy 2015) rather than the 2014 edition (Navy, 2014) as the basis for cetacean density estimates and choosing the appropriate densities from the seasonal distribution maps.

Response: NMFS has applied these recommendations and revised take calculations accordingly for the final rule.

Comment 5: The Commission recommended reducing the number of Level B harassment takes of California sea lions and harbor seals based on computational errors.

Response: NMFS has corrected computational errors in the Final Rule.

Comment 6: Thus, the Commission recommended that NMFS (1) follow its policy of a 24-hour reset for enumerating the number of each species that could be taken during the proposed activities, (2) apply standard rounding rules before summing the numbers of estimated takes across days, and (3) for species that have the potential to be taken but model-estimated or calculated takes round to zero, use group size to inform the take estimates—these methods should be used consistently for all future incidental take authorizations.

Response: While NMFS uses a 24-hour reset for its take calculation to ensure that individual animals are not counted as a take more than once per day, that fact does not make the summing of take across the entire activity period before rounding incorrect. The calculation of predicted take is not an exact science and there are arguments for taking different mathematical approaches in different situations, and for making qualitative adjustments in other situations. NMFS is currently engaged in developing a protocol to guide more consistent take calculation given certain circumstances. In this case, group size was used to inform the take estimates and we believe that the prediction for this action remains appropriate.

Description of Marine Mammals in the Area of the Specified Activity

Marine mammals known to occur in the Pacific Ocean offshore at the MCR include whales, orcas, dolphins, porpoises, sea lions, and harbor seals. Most cetacean species observed by Green and others (1992) occurred in Pacific slope or offshore waters 182 m to 1,828 m (600 to 6,000 ft) in depth. Harbor porpoises (*Phocoena phocoena)* and gray whales (*Eschrichtius robustus)* were prevalent in shelf waters less than 182 m (600 ft) in depth. Killer whales *(Orcinus orca)* are known to feed on Chinook salmon at the MCR, and humpback whales (*Megaptera novaeangliae*) may transit through the area offshore of the jetties. Pinniped species that occur in the vicinity of the jetties include Pacific harbor seals (*Phoca vitulina richardsi*), California sea lions (*Zalophus californianus*), and Steller sea lions (*Eumetopias jubatus*). A haulout used by all of these species is located on the open ocean side of the South Jetty. The marine mammal species potentially present in the activity area are shown in Table 2.

We have reviewed the Corps' detailed species descriptions, including life history information, for accuracy and completeness and refer the reader to the application instead of reprinting the information here. We provided additional information for marine mammals with potential for occurrence in the area of the specified activity in our **Federal Register** NPRM (81 FR 58443; August 26, 2016). Information regarding these species is also available in the NMFS Marine Mammal Stock Assessment Reports, which may be found at: *http://www.nmfs.noaa.gov/pr/species/.*

TABLE 2—MARINE MAMMAL SPECIES POTENTIALLY PRESENT IN THE PROJECT AREA

Species	Stock(s) abundance estimate [1]	ESA * status	MMPA ** status	Frequency of occurrence [3]
Killer Whale (*Orcinus orca*) *Eastern N. Pacific, Southern Resident Stock*.	82	Endangered	Depleted and Strategic	Infrequent/Rare.
Killer Whale (*Orcinus orca*) *Eastern N. Pacific, West Coast Transient Stock*.	243		Non-depleted	Rare.
Gray Whale (*Eschrichtius robustus*) *Eastern North Pacific Stock, (Pacific Coast Feed Group)*.	20,990 (197)	Delisted/Recovered (1994).	Non-depleted	Rare.
Humpback Whale (*Megaptera novaeangliae*) *California/Oregon/Washington Stock*.	1,918	Endangered	Depleted and Strategic	Rare.
Harbor Porpoise (*Phocoena phocoena*) *Northern Oregon/Washington Coast Stock*.	21,487		Non-depleted	Likely.
Steller Sea Lion (*Eumetopias jubatus*) *Eastern U.S. Stock/DPS* ***.	60,131–74,448	Delisted/Recovered (2013).	Depleted and Strategic [2].	Likely.
California Sea Lion (*Zalophus californianus*) *U.S. Stock*.	296,750		Non-depleted	Likely.
Harbor Seal (*Phoca vitulina richardii*) *Oregon and Washington Stock*.	[4] 24,732		Non-depleted	Seasonal.

[1] NOAA/NMFS 2015 marine mammal stock assessment reports at *http://www.nmfs.noaa.gov/pr/sars/species.htm.*
[2] May be updated based on the recent delisting status.
[3] Frequency defined here in the range of:
- Rare—Few confirmed sightings, or the distribution of the species is near enough to the area that the species could occur there.
- Infrequent—Confirmed, but irregular sightings.
- Likely—Confirmed and regular sightings of the species in the area year-round.
- Seasonal—Confirmed and regular sightings of the species in the area on a seasonal basis.

4 Data is 8 years old. No current abundance estimates exist.
* ESA = Endangered Species Act.
** MMPA = Marine Mammal Protection Act.
*** DPS = Distinct population segment.

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

This section includes a summary and discussion of the ways that stressors, (*e.g.* pile driving) and potential mitigation activities, associated with the MCR jetty rehabilitation project, may impact marine mammals and their habitat. The *Estimated Take by Incidental Harassment* section will include an analysis of the number of individuals that are expected to be taken by this activity. The *Estimated Take by Incidental Harassment* section, together with the *Mitigation* section will also draw conclusions regarding the likely impacts of this activity on the reproductive success or survivorship of individuals and, from that, on the affected marine mammal populations or stocks. The *Negligible Impact Analysis* section will include the analysis of how this specific activity will impact marine mammals. In this section, we provide general background information on sound and marine mammal hearing before considering potential effects to marine mammals from sound produced by vibratory pile driving.

Sound travels in waves, the basic components of which are frequency, wavelength, velocity, and amplitude. Frequency is the number of pressure waves that pass by a reference point per unit of time and is measured in hertz (Hz) or cycles per second. Wavelength is the distance between two peaks of a sound wave; lower frequency sounds have longer wavelengths than higher frequency sounds and attenuate (decrease) more rapidly in shallower water. Amplitude is the height of the sound pressure wave or ''loudness'' of a sound and is typically measured using the decibel (dB) scale. A dB is the ratio between a measured pressure (with sound) and a reference pressure (sound at a constant pressure, established by scientific standards). It is a logarithmic unit that accounts for large variations in amplitude; therefore, relatively small changes in dB ratings correspond to large changes in sound pressure. When referring to sound pressure levels (SPLs; the sound force per unit area), sound is referenced in the context of underwater sound pressure to 1 microPascal (μPa). One pascal is the pressure resulting from a force of one newton exerted over an area of one square meter. The source level (SL) represents the sound level at a distance of 1 m from the source (referenced to 1 μPa). The received level is the sound level at the listener's position. Note that all underwater sound levels in this document are referenced to a pressure of 1 μPa, and all airborne sound levels in this document are referenced to a pressure of 20 μPa.

Root mean square (rms) is the quadratic mean sound pressure over the duration of an impulse. Rms is calculated by squaring all of the sound amplitudes, averaging the squares, and then taking the square root of the average (Urick 1983). Rms accounts for both positive and negative values; squaring the pressures makes all values positive so that they may be accounted for in the summation of pressure levels (Hastings and Popper 2005). This measurement is often used in the context of discussing behavioral effects, in part because behavioral effects, which often result from auditory cues,

may be better expressed through averaged units than by peak pressures.

When underwater objects vibrate or activity occurs, sound-pressure waves are created. These waves alternately compress and decompress the water as the sound wave travels. Underwater sound waves radiate in all directions away from the source (similar to ripples on the surface of a pond), except in cases where the source is directional. The compressions and decompressions associated with sound waves are detected as changes in pressure by aquatic life and man-made sound receptors such as hydrophones.

Even in the absence of sound from the specified activity, the underwater environment is typically loud due to ambient sound. Ambient sound is defined as environmental background sound levels lacking a single source or point (Richardson *et al.,* 1995), and the sound level of a region is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.,* waves, earthquakes, ice, atmospheric sound), biological (*e.g.,* sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.,* vessels, dredging, aircraft, construction). A number of sources contribute to ambient sound, including the following (Richardson *et al.,* 1995):

- *Wind and waves:* The complex interactions between wind and water surface, including processes such as breaking waves and wave-induced bubble oscillations and cavitation, are a main source of naturally occurring ambient noise for frequencies between 200 Hz and 50 kHz (Mitson 1995). In general, ambient sound levels tend to increase with increasing wind speed and wave height. Surf noise becomes important near shore, with measurements collected at a distance of 5.2 miles (mi) (8.5 kilometers (km)) from shore showing an increase of 10 dB in the 100 to 700 Hz band during heavy surf conditions.
- *Precipitation:* Sound from rain and hail impacting the water surface can become an important component of total noise at frequencies above 500 Hz, and possibly down to 100 Hz during quiet times.
- *Biological:* Marine mammals can contribute significantly to ambient noise levels, as can some fish and shrimp. The frequency band for biological contributions is from approximately 12 Hz to over 100 kHz.
- *Anthropogenic:* Sources of ambient noise related to human activity include transportation (surface vessels and aircraft), dredging and construction, oil and gas drilling and production, seismic surveys, sonar, explosions, and ocean acoustic studies. Shipping noise typically dominates the total ambient noise for frequencies between 20 and 300 Hz. In general, the frequencies of anthropogenic sounds are below 1 kHz and, if higher frequency sound levels are created, they attenuate rapidly (Richardson *et al.,* 1995). Sound from identifiable anthropogenic sources other than the activity of interest (*e.g.,* a passing vessel) is sometimes termed background sound, as opposed to ambient sound. Representative levels of anthropogenic sound are displayed in Table 3.

TABLE 3—REPRESENTATIVE SOUND LEVELS OF ANTHROPOGENIC SOURCES

Sound source	Frequency range (Hz)	Underwater sound level	Reference
Small vessels	250–1,000	151 dB rms at 1 m	Richardson *et al.,* 1995.
Tug docking gravel barge	200–1,000	149 dB rms at 100 m	Blackwell and Greene, 2002.
Vibratory driving of 72-in steel pipe pile.	10–1,500	180 dB rms at 10 m	Reyff, 2007.
Impact driving of 36-in steel pipe pile	10–1,500	195 dB rms at 10 m	Laughlin, 2007.
Impact driving of 66-in cast-in-steel-shell (CISS) pile.	10–1,500	195 dB rms at 10 m	Reviewed in Hastings and Popper, 2005.

The sum of the various natural and anthropogenic sound sources at any given location and time—which comprise ''ambient'' or ''background'' sound—depends not only on the source levels (as determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10–20 dB from day to day (Richardson *et al.,* 1995). The result is that, depending on the source type and its intensity, sound from the specified activity may be a negligible addition to the local environment or could form a distinctive signal that may affect marine mammals.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals, and exposure to sound can have deleterious effects. To appropriately assess these potential effects, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995; Wartzok and Ketten 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on measured or estimated hearing ranges on the basis of available behavioral data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. The lower and/or upper frequencies for some of these functional hearing groups have been modified from those designated by Southall *et al.* (2007), and the revised generalized hearing ranges are presented in the new Guidance. The functional hearing groups and the associated frequencies are indicated in Table 4.

TABLE 4—MARINE MAMMAL HEARING GROUPS AND THEIR GENERALIZED HEARING RANGE

Hearing group	Generalized hearing range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz.
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz.
High-frequency (HF) cetaceans (true porpoises, *Kogia,* river dolphins, cephalorhynchid, *Lagenorhynchus cruciger* and *L. australis*).	275 Hz to 160 kHz.

TABLE 4—MARINE MAMMAL HEARING GROUPS AND THEIR GENERALIZED HEARING RANGE—Continued

Hearing group	Generalized hearing range*
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz.
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz.

* Represents the generalized hearing range for the entire group as a composite (*i.e.,* all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.,* 2007) and PW pinniped (approximation).

Acoustic Impacts

Potential Effects of Pile Driving Sound—The effects of sounds from pile driving might result in one or more of the following: Temporary or permanent hearing impairment, non-auditory physical or physiological effects, behavioral disturbance, and masking (Richardson *et al.,* 1995; Gordon *et al.,* 2004; Nowacek *et al.,* 2007; Southall *et al.,* 2007). The effects of pile driving on marine mammals are dependent on several factors, including the size, type, and depth of the animal; the depth, intensity, and duration of the pile driving sound; the depth of the water column; the substrate of the habitat; the standoff distance between the pile and the animal; and the sound propagation properties of the environment. Impacts to marine mammals from pile driving activities are expected to result primarily from acoustic pathways. As such, the degree of effect is intrinsically related to the received level and duration of the sound exposure, which are in turn influenced by the distance between the animal and the source. The further away from the source, the less intense the exposure should be. The substrate and depth of the habitat affect the sound propagation properties of the environment. Shallow environments are typically more structurally complex, which leads to rapid sound attenuation. In addition, substrates that are soft (*e.g.,* sand) would absorb or attenuate the sound more readily than hard substrates (*e.g.,* rock) which may reflect the acoustic wave. Soft porous substrates would also likely require less time to drive the pile, and possibly less forceful equipment, which would ultimately decrease the intensity of the acoustic source.

In the absence of mitigation, impacts to marine species would be expected to result from physiological and behavioral responses to both the type and strength of the acoustic signature (Viada *et al.,* 2008). The type and severity of behavioral impacts are more difficult to define due to limited studies addressing the behavioral effects of impulse sounds on marine mammals. Potential effects from impulse sound sources can range in severity from effects such as behavioral disturbance or tactile perception to physical discomfort, slight injury of the internal organs and the auditory system, or mortality (Yelverton *et al.,* 1973).

Hearing Impairment and Other Physical Effects—Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak *et al.,* 1999; Schlundt *et al.,* 2000; Finneran *et al.,* 2002, 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is not recoverable, or temporary (TTS), in which case the animal's hearing threshold would recover over time (Southall *et al.,* 2007). Marine mammals depend on acoustic cues for vital biological functions (*e.g.,* orientation, communication, finding prey, avoiding predators). Thus, TTS may result in reduced fitness in survival and reproduction. However, this depends on the frequency and duration of TTS, as well as the biological context in which it occurs. TTS of limited duration, occurring in a frequency range that does not coincide with that used for recognition of important acoustic cues, would have little to no effect on an animal's fitness. Repeated sound exposure that leads to TTS could cause PTS. PTS constitutes injury, but TTS does not (Southall *et al.,* 2007). The following subsections discuss in somewhat more detail the possibilities of TTS, PTS, and non-auditory physical effects.

Temporary Threshold Shift—TTS is the mildest form of hearing impairment that can occur during exposure to a strong sound (Kryter 1985). While experiencing TTS, the hearing threshold rises, and a sound must be stronger in order to be heard. In terrestrial mammals, TTS can last from minutes or hours to days (in cases of strong TTS). For sound exposures at or somewhat above the TTS threshold, hearing sensitivity in both terrestrial and marine mammals recovers rapidly after exposure to the sound ends. Few data on sound levels and durations necessary to elicit mild TTS have been obtained for marine mammals, and none of the published data concern TTS elicited by exposure to multiple pulses of sound. Available data on TTS in marine mammals are summarized in Southall *et al.* (2007) and more recently in Finneran (2016).

Marine mammal hearing plays a critical role in communication with conspecifics, and interpretation of environmental cues for purposes such as predator avoidance and prey capture. Depending on the degree (elevation of threshold in dB), duration (*i.e.,* recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious. For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that occurs during a time where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during time when communication is critical for successful mother/calf interactions could have more serious impacts.

Currently, TTS data only exist for four species of cetaceans (bottlenose dolphin, beluga whale, harbor porpoise, and Yangtze finless porpoise) and three species of pinnipeds (northern elephant seal, harbor seal, and California sea lion) exposed to a limited number of sound sources (*i.e.,* mostly tones and octave-band noise) in laboratory settings (*e.g.,* Finneran, 2016; Finneran *et al.,* 2002; Finneran and Schlundt, 2010, 2013; Nachtigall *et al.,* 2004; Kastaket *et al.,* 2005; Lucke *et al.,* 2009; Popov *et al.,* 2011). In general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Kastak *et al.,* 2005; Kastelein *et al.,* 2011, 2012a, 2012b, 2013a, 2013b, 2014a, 2014b, 2015a, 2015b, 2015c, 2016). Additionally, the existing marine mammal TTS data come from a limited number of individuals within these species. There are no data available on noise-induced hearing loss for mysticetes. For summaries of data on TTS in marine mammals or for further discussion of TTS onset thresholds, please see Southall *et al.* (2007),

Finneran and Jenkins (2012), and Finneran (2016).

Permanent Threshold Shift—When PTS occurs, there is physical damage to the sound receptors in the ear. In severe cases, there can be total or partial deafness, while in other cases the animal has an impaired ability to hear sounds in specific frequency ranges (Kryter 1985). There is no specific evidence that exposure to pulses of sound can cause PTS in any marine mammal. However, given the possibility that mammals close to a sound source might incur TTS, there has been further speculation about the possibility that some individuals might incur PTS. Single or occasional occurrences of mild TTS are not indicative of permanent auditory damage, but repeated or (in some cases) single exposures to a level well above that causing TTS onset might elicit PTS.

Relationships between TTS and PTS thresholds have not been studied in marine mammals but are assumed to be similar to those in humans and other terrestrial mammals. Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al.,* 1958; Ward *et al.,* 1959; Ward, 1960; Kryter *et al.,* 1966; Miller, 1974; Ahroon *et al.,* 1996; Henderson *et al.,* 2008). Southall *et al.,* (2007) also recommended this definition of PTS onset.

PTS onset acoustic thresholds for marine mammals have not been directly measured and must be extrapolated from available TTS onset measurements. Thus, based on cetacean measurements from TTS studies (see Southall *et al.,* 2007; Finneran, 2015; Finneran, 2016 (found in Appendix A of the Guidance)) a threshold shift of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability and is typically the minimum amount of threshold shift that can be differentiated in most experimental conditions (Finneran *et al.,* 2000; Schlundt *et al.,* 2000; Finneran *et al.,* 2002).

Measured source levels from impact pile driving can be as high as 214 dB rms. Although no marine mammals have been shown to experience TTS or PTS as a result of being exposed to pile driving activities, captive bottlenose dolphins and beluga whales exhibited changes in behavior when exposed to strong-pulsed sounds (Finneran *et al.,* 2000, 2002, 2005). The animals tolerated high received levels of sound before exhibiting aversive behaviors. Experiments on a beluga whale showed that exposure to a single watergun impulse at a received level of 207 kilopascal (kPa) (30 psi) peak-to-peak (p-p), which is equivalent to 228 dB p-p, resulted in a 7 and 6 dB TTS in the beluga whale at 0.4 and 30 kHz, respectively. Thresholds returned to within 2 dB of the pre-exposure level within four minutes of the exposure (Finneran *et al.,* 2002). Although the source level of pile driving from one hammer strike is expected to be much lower than the single watergun impulse cited here, animals being exposed for a prolonged period to repeated hammer strikes could receive more sound exposure in terms of sound exposure level (SEL) than from the single watergun impulse (estimated at 188 dB re 1 μPa^2-s) in the aforementioned experiment (Finneran *et al.,* 2002). However, in order for marine mammals to experience TTS or PTS, the animals have to be close enough to be exposed to high intensity sound levels for a prolonged period of time. Based on the best scientific information available, these SPLs are below the thresholds that could cause TTS or the onset of PTS.

Non-auditory Physiological Effects—Non-auditory physiological effects or injuries that theoretically might occur in marine mammals exposed to strong underwater sound include stress, neurological effects, bubble formation, resonance effects, and other types of organ or tissue damage (Cox *et al.,* 2006; Southall *et al.,* 2007). Studies examining such effects are limited. In general, little is known about the potential for pile driving to cause auditory impairment or other physical effects in marine mammals. Available data suggest that such effects, if they occur at all, would presumably be limited to short distances from the sound source and to activities that extend over a prolonged period. The available data do not allow identification of a specific exposure level above which non-auditory effects can be expected (Southall *et al.,* 2007) or any meaningful quantitative predictions of the numbers (if any) of marine mammals that might be affected in those ways. Marine mammals that show behavioral avoidance of pile driving, including some odontocetes and some pinnipeds, are especially unlikely to incur auditory impairment or non-auditory physical effects.

Disturbance Reactions

Disturbance includes a variety of effects, including subtle changes in behavior, more conspicuous changes in activities, and displacement. Behavioral responses to sound are highly variable and context-specific and reactions, if any, depend on species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day, and many other factors (Richardson *et al.,* 1995; Wartzok *et al.,* 2003; Southall *et al.,* 2007).

Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2003). Animals are most likely to habituate to sounds that are predictable and unvarying. The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure. Behavioral state may affect the type of response as well. For example, animals that are resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; NRC 2003; Wartzok *et al.,* 2003).

Controlled experiments with captive marine mammals showed pronounced behavioral reactions, including avoidance of loud sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2000). Observed responses of wild marine mammals to loud pulsed sound sources (typically seismic guns or acoustic harassment devices but also including pile driving) have been varied but often consist of avoidance behavior or other behavioral changes suggesting discomfort (Morton and Symonds, 2002; Thorson and Reyff, 2006; see also Gordon *et al.,* 2004; Wartzok *et al.,* 2003; Nowacek *et al.,* 2007). Responses to continuous sound, such as vibratory pile installation, have not been documented as well as responses to pulsed sounds.

With both types of pile driving, it is likely that the onset of pile driving could result in temporary, short term changes in an animal's typical behavior and/or avoidance of the affected area. These behavioral changes may include (Richardson *et al.,* 1995): Changing durations of surfacing and dives; number of blows per surfacing; moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where sound sources are located; and/or flight responses (*e.g.,* pinnipeds flushing into water from haul-outs or rookeries). Pinnipeds may increase their haul-out time, possibly to avoid in-water disturbance (Thorson and Reyff 2006).

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected

disturbances appear minor. However, the consequences of behavioral modification could be expected to be biologically significant if the change affects growth, survival, or reproduction. Significant behavioral modifications that could potentially lead to effects on growth, survival, or reproduction include:

- Drastic changes in diving/surfacing patterns (such as those thought to cause beaked whale stranding due to exposure to military mid-frequency tactical sonar);
- Habitat abandonment due to loss of desirable acoustic environment; and
- Cessation of feeding or social interaction.

The onset of behavioral disturbance from anthropogenic sound depends on both external factors (characteristics of sound sources and their paths) and the specific characteristics of the receiving animals (hearing, motivation, experience, demography) and is difficult to predict (Southall *et al.,* 2007).

Auditory Masking—Natural and artificial sounds can disrupt behavior by masking, or interfering with, a marine mammal's ability to hear other sounds. Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher levels. Chronic exposure to excessive, though not high-intensity, sound could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions. Masking can interfere with detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction. If the coincident (masking) sound were anthropogenic, it could be potentially harassing if it disrupted hearing-related behavior. It is important to distinguish TTS and PTS, which persist after the sound exposure, from masking, which occurs only during the sound exposure. Because masking (without resulting in TS) is not associated with abnormal physiological function, it is not considered a physiological effect, but rather a potential behavioral effect.

Masking occurs at the frequency band which the animals utilize so the frequency range of the potentially masking sound is important in determining any potential behavioral impacts. Because sound generated from in-water vibratory pile driving is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds made by porpoises. However, lower frequency man-made sounds are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey sound. It may also affect communication signals when they occur near the sound band and thus reduce the communication space of animals (Clark *et al.,* 2009) and cause increased stress levels (Foote *et al.,* 2004; Holt *et al.,* 2009).

Masking has the potential to impact species at the population or community levels as well as at individual levels. Masking affects both senders and receivers of the signals and can potentially have long-term chronic effects on marine mammal species and populations. Recent research suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than three times in terms of SPL) in the world's ocean from pre-industrial periods, and that most of these increases are from distant shipping (Hildebrand 2009). All anthropogenic sound sources, such as those from vessel traffic, pile driving, and dredging activities, contribute to the elevated ambient sound levels, thus intensifying masking.

Vibratory pile driving is relatively short-term, with rapid oscillations occurring for 10 to 30 minutes per installed pile. It is possible that vibratory pile driving resulting from this action may mask acoustic signals important to the behavior and survival of marine mammal species, but the short-term duration and limited affected area would result in insignificant impacts from masking. Any masking event that could possibly rise to Level B harassment under the MMPA would occur concurrently within the zones of behavioral harassment already estimated for vibratory pile driving, and which have already been taken into account in the exposure analysis.

Acoustic Effects, Airborne—Marine mammals that occur in the project area could be exposed to airborne sounds associated with pile driving that have the potential to cause harassment, depending on their distance from pile driving activities. Airborne pile driving sound would have less impact on cetaceans than pinnipeds because sound from atmospheric sources does not transmit well underwater (Richardson *et al.,* 1995). Thus, airborne sound would only be an issue for pinnipeds either hauled-out or looking with heads above water in the project area. Most likely, airborne sound would cause behavioral responses similar to those discussed above in relation to underwater sound. For instance, anthropogenic sound could cause hauled-out pinnipeds to exhibit changes in their normal behavior, such as reduction in vocalizations, or cause them to temporarily abandon their habitat and move further from the source. Studies by Blackwell *et al.* (2002) and Moulton *et al.* (2005) indicate a tolerance or lack of response to unweighted airborne sounds as high as 112 dB peak and 96 dB rms.

Potential Effects on Marine Mammal Habitat

The primary potential impacts to marine mammal habitat are associated with elevated sound levels produced by vibratory and impact pile driving and removal in the area. However, other potential impacts to the surrounding habitat from physical disturbance are also possible.

Potential Pile Driving Effects on Prey—Construction activities would produce continuous (*i.e.,* vibratory pile driving) sounds. Fish react to sounds that are especially strong and/or intermittent low-frequency sounds. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. Hastings and Popper (2005) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. Additional studies have documented effects of pile driving on fish, although several are based on studies in support of large, multiyear bridge construction projects (*e.g.,* Scholik and Yan 2001, 2002; Popper and Hastings 2009). Sound pulses at received levels of 160 dB may cause subtle changes in fish behavior. SPLs of 180 dB may cause noticeable changes in behavior (Pearson *et al.,* 1992; Skalski *et al.,* 1992). SPLs of sufficient strength have been known to cause injury to fish and fish mortality. The most likely impact to fish from pile driving activities at the project area would be temporary behavioral avoidance of the area. The duration of fish avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution, and behavior is anticipated. Additionally, NMFS developed a Biological Opinion in 2011 which indicated that no adverse effects were anticipated for critical habitat of prey species for marine mammals. In general, impacts to marine mammal prey species are expected to be minor and temporary due to the short timeframe for the project.

Effects to Foraging Habitat—Pile installation may temporarily increase turbidity resulting from suspended sediments. Any increases would be temporary, localized, and minimal. The Corps must comply with state water

quality standards during these operations by limiting the extent of turbidity to the immediate project area. In general, turbidity associated with pile installation is localized to about a 25-ft (7.62 m) radius around the pile (Everitt *et al.,* 1980). Cetaceans are not expected to be close enough to the project pile driving areas to experience effects of turbidity, and any pinnipeds will be transiting the terminal area and could avoid localized areas of turbidity. Therefore, the impact from increased turbidity levels is expected to be discountable to marine mammals. Furthermore, pile driving and removal at the project site will not obstruct movements or migration of marine mammals.

Natural tidal currents and flow patterns in MCR waters routinely disturb sediments. High volume tidal events can result in hydraulic forces that re-suspend benthic sediments, temporarily elevating turbidity locally. Any temporary increase in turbidity as a result of the action is not anticipated to measurably exceed levels caused by these normal, natural periods.

Mitigation Measures

In order to issue an LOA under section 101(a)(5)(A) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, ''and other means of effecting the least practicable 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.

The Corps' calculation of the Level A harassment zones utilized the methods presented in Appendix D of NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (the Guidance, available at *http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm*) and the accompanying User Spreadsheet. The Guidance provides updated PTS onset thresholds using the cumulative SEL (SEL_{cum}) metric, which incorporates marine mammal auditory weighting functions, to identify the received levels, or acoustic thresholds, at which individual marine mammals are predicted to experience changes in their hearing sensitivity for acute, incidental exposure to all underwater anthropogenic sound sources. The Guidance (Appendix D) and its companion User Spreadsheet provide alternative methodology for incorporating these more complex thresholds and associated weighting functions.

The User Spreadsheet accounts for effective hearing ranges using Weighting Factor Adjustments (WFAs), and the Corps' application uses the recommended values for vibratory driving therein. NMFS' new acoustic thresholds use SEL_{cum} for non-impulsive sounds (*e.g.,* vibratory pile driving) (Table 5). The Corps used the User Spreadsheet to determine isopleth estimates for PTS onset using the cumulative sound exposure level metric (L_E) (*http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm*). In determining the cumulative sound exposure levels, the Guidance considers the duration of the activity (5 hours), the sound exposure level produced by the source (163 rms SPL) during one working day, and the effective hearing range of the receiving species. These values were then used to develop mitigation measures for pile driving activities. The shutdown zone effectively represents the mitigation zone that would be established around each pile to prevent Level A harassment (PTS onset) to marine mammals (Table 5), while the ZOIs provide estimates of the areas within which Level B harassment might occur for vibratory pile driving.

TABLE 5—SUMMARY OF PTS ONSET ACOUSTIC THRESHOLDS AND PTS ISOPLETHS

Functional hearing group	PTS onset acoustic thresholds—non-impulsive, stationary, continuous (received level)	PTS isopleth to threshold (meters)
Low-Frequency (LF) Cetaceans	L_E,LF,24h: 199 dB	27.1
Mid-Frequency (MF) Cetaceans	LE,MF,24h: 198 dB	2.4
High-Frequency (HF) Cetaceans	LE,HF,24h: 173 dB	40.1
Phocid Pinnipeds (PW) (Underwater)	L_E,PW,24h: 201 dB	16.5
Otariid Pinnipeds (OW) (Underwater)	LE,OW,24h: 219 dB	1.2

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.

For this project, the Corps worked with NMFS to develop the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity. The primary purposes of these mitigation measures are to minimize sound levels from the activities, avoid unnecessary exposure to elevated sound levels, and to monitor marine mammals within designated ZOIs corresponding to NMFS' Level A and B harassment thresholds. The following measures would apply to the Corps' mitigation through shutdown zone and ZOI:

Shutdown Zone—For all pile driving activities, the Corps will establish a shutdown zone intended to contain the area in which Level A harassment thresholds are exceeded. The purpose of the exclusion zone is to define an area within which shutdown of construction activity would occur upon sighting of a marine mammal within that area (or in anticipation of an animal entering the defined area), preventing potential injury of marine mammals. Calculated distances to the updated PTS onset acoustic thresholds are shown in Table 5. Distances to the PTS onset threshold during vibratory pile driving range from a maximum of 40.1 m for high-frequency cetaceans to 1.2 m for otariid

pinnipends. Shutdown zone ispopleths for the species for which take are authorized is shown in Table 6.

Level B Harassment Zone (Zone of influence)—The ZOI refers to the area(s) in which SPLs equal or exceed NMFS' current Level B harassment thresholds (120 dB rms for non-pulsed continuous sound). ZOIs provide utility for monitoring that is conducted for mitigation purposes (*i.e.,* exclusion zone monitoring) by establishing monitoring protocols for areas adjacent to the exclusion zone. Monitoring of the ZOI enables observers to be aware of, and communicate about, the presence of marine mammals within the project area but outside the exclusion zone and prepare for potential shutdowns of activity should those marine mammals approach the exclusion zone. However, the primary purpose of ZOI monitoring is to allow documentation of incidents of Level B harassment; ZOI monitoring is discussed in greater detail later (see *Monitoring and Reporting*). The modeled radial distances for ZOIs for vibratory pile driving (not taking into account landmasses which are expected to limit the actual ZOI radii) are shown in Table 6 in the *Estimated Take by Harassment* section.

The Corps will implement a marine mammal monitoring plan as described in Sections 13 and 16 of the application as well as the November 2016 Addendum to the application. This plan includes the following measures:

- The Corps will conduct briefings between construction supervisors and crews, the marine mammal monitoring team, and Corps staff prior to the start of all pile driving activity in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.
- All pile driving and removal activities will be conducted only using a vibratory hammer.
- For in-water heavy machinery work other than pile driving (using, *e.g.,* standard barges, tug boats, barge-mounted excavators, or clamshell equipment used to place or remove material), if a marine mammal comes within 20 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions.
- If the shutdown zone is obscured by fog or poor lighting conditions, pile driving will not be initiated until the entire shutdown zone is visible.
- If a marine mammal approaches or enters the shutdown zone during pile driving, work will be halted and delayed until either the animal's voluntary departure has been visually confirmed beyond the disturbance zone, or 15 minutes have passed without re-detection of the animal.
- Marine Mammal Observers (MMO) will scan the waters starting 30 minutes before and continuing through duration of all pile driving. If any species for which take is not authorized are observed within the area of potential sound effects during or 30 minutes before pile driving, the observer(s) will immediately notify the on-site supervisor or inspector, and require that pile driving either not initiate or temporarily cease until the animals have moved outside of the area of potential sound effects.
- Work will occur only during daylight hours, when visual monitoring of marine mammals can be conducted.
- In order to minimize impact to Southern Resident killer whales, in-water pile driving work will not be conducted during their primary feeding season extending from October 1 until April 30. Installation will occur from May 1 through September 30 each year. In order to avoid take of endangered Southern Resident killer whales, which may be indistinguishable from transient whales, if between May 1 and July 1 any killer whales are observed within the area of ZOI, comprising the shutdown and Level B thresholds, the Corps will immediately shut down all pile installation, removal, or maintenance activities. Operations will either remain shutdown or will not be initiated until all killer whales have moved outside of the area of the ZOI. After July 1 until September 30 all killer whales will be assumed to be transients because the presence of Southern Resident killer whales at that time would be highly improbable. No shutdown is required for killer whales observed after July 1 until September 30 in the Level B harassment zone, but animals must be recorded as Level B takes in the approved monitoring forms.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of affecting 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.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has determined that these 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 Incidental Take Authorization (ITA) 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 ITAs 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 action area. The Corps submitted information regarding marine mammal monitoring to be conducted during pile driving and removal operations as part of the application. That information can be found in sections 13 and 16 of the application as well as the November 2016 Addendum.

Monitoring measures prescribed by NMFS should contribute to or accomplish one or more of the following top-level 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.

Monitoring Measures

Visual Monitoring

The following monitoring measures are required as part of this authorization.

- Visual vessel-based monitoring—The Corps will employ two vessels to monitor disturbance zones associated with pile-driving and removal activities at the North Jetty and South Jetty offloading facilities. Section 16 of the Corps' application indicates roughly where these vessels will be located. These vessels will be traversing across the delineated disturbance zones while pile driving is occurring.
- Visual shore-based monitoring will be conducted by qualified, trained MMOs. Visual monitoring will be implemented during all pile installation activities at all jetties. An observer must meet the qualifications stated in the application, have prior training and experience conducting marine mammal monitoring or surveys, and have the ability to identify marine mammal species and describe relevant behaviors that may occur in proximity to in-water construction activities.
- MMOs must be approved in advanced by NMFS.
- Trained MMOs will be placed at the best vantage points practicable (*e.g.,* at the pile location on construction barges, on shore, or aboard vessels, *etc.* as noted in the figures) to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. Likely shore-based MMO locations are described in section 16 of the application.
- During pedestrian surveys, personnel will avoid as much as possible direct approach towards pinnipeds that are hauled out. If it is absolutely necessary to make movements towards pinnipeds, approach in a slow and steady manner to reduce the behavioral harassment to the animals as much as possible.
- MMOs will use a hand-held or boat-mounted GPS device *and* rangefinder to verify the required monitoring distance from the project site. MMOs will use range finders to determine distance to marine mammals, boats, buoys, and construction equipment.
- MMOs will be equipped with camera and video capable of recording any necessary take information, including data required in the event of an unauthorized Level A take.
- MMOs will scan the waters within the area of potential sound effects using high-quality binoculars (*e.g.,* Zeiss 10x42, or similar) or spotting scopes (20–60 zoom or equivalent), and by making visual observations.
- MMOs shall be equipped with radios or cell phones for maintaining immediate contact with other observers, Corps engineers, and personnel operating pile equipment.
- Monitoring would be conducted before, during, and after pile driving and removal activities. In addition, observers shall record all incidents of marine mammal occurrence, regardless of distance from activity, and shall document any behavioral reactions in concert with distance from piles being driven. Observations made outside the shutdown zone will not result in shutdown; that pile segment would be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile driving activities would be halted.
- Monitoring will take place from 30 minutes prior to initiation through 30 minutes post-completion of pile driving activities. Pile driving activities include the time to remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

Hydroacoustic Monitoring

A hydroacoustic monitoring plan submitted by the Corps has been approved by NMFS and will be implemented during construction. This will ensure that the shutdown and harassment isopleths are aligned with the initial distances established as part of these regulations. The complete hydroacoustic monitoring plan may be found in the November 2016 Addendum to the application at *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.*

Data Collection

Observers shall use approved data forms. Among other pieces of information, the Corps will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, the Corps will attempt to distinguish between the number of individual animals taken and the number of incidents of take. We require that, at a minimum, the following information be collected on the sighting forms:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters *(e.g.,* percent cover, visibility);
- Water conditions (*e.g.,* sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;
- Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Locations of all marine mammal observations; and
- Other human activity in the area.

Reporting Measures

The Corps will submit an annual report to NMFS' Permits and Conservation Division within 90 days of the end of every operating season (September 30) during the 5-year authorization period. The annual report would detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed. If no comments are received from NMFS within 30 days, the draft final report will become final. If comments are received, a final report must be submitted up to 30 days after receipt of comments. Reports shall contain the following information:

- Summaries of monitoring effort (*e.g.,* total hours, total distances, and marine mammal distribution through the study period, accounting for sea state and other factors affecting visibility and detectability of marine mammals);
- Analyses of the effects of various factors influencing detectability of marine mammals (*e.g.,* sea state, number of observers, and fog/glare);
- Species composition, occurrence, and distribution of marine mammal sightings, including date, numbers, age/size/gender categories (if determinable), and group sizes;
- Observed behavioral responses to pile driving including bearing and direction of travel and distance from pile driving activity; and
- Results of hydroacoustic monitoring program.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the LOA, such as an injury (Level A harassment), serious injury or mortality (*e.g.,* ship-strike, gear interaction, and/or entanglement), the

Corps will immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator. The report will include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved (if applicable);
- Vessel's speed during and leading up to the incident (if applicable);
- Description of the incident;
- Status of all sound source used in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (*e.g.,* wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations 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 will not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with the Corps to determine necessary actions to minimize the likelihood of further prohibited take and ensure MMPA compliance. The Corps will not be able to resume their activities until notified by NMFS via letter, email, or telephone.

In the event that the Corps discovers an injured or dead marine mammal, and the lead MMO 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 as described in the next paragraph), the Corps will immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator. The report will include the same information identified in the section above. Activities will be able to continue while NMFS reviews the circumstances of the incident. NMFS will work with the Corps to determine whether modifications in the activities are appropriate.

In the event that the Corps discovers an injured or dead marine mammal, and the lead MMO determines that the injury or death is not associated with or related to the activities authorized in the LOA (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), the Corps will report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS West Coast Stranding Hotline or West Coast Regional Stranding Coordinator, within 24 hours of the discovery. The Corps will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. Pile driving activities will be permitted to continue.

Estimated Take by Incidental Harassment

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).''

All anticipated takes would be by Level B harassment resulting from vibratory pile driving and removal and may result in temporary changes in behavior. Injurious or lethal takes are not expected due to the expected source levels and sound source characteristics associated with the activity, and the mitigation and monitoring measures are expected to further minimize the possibility of such take.

If a marine mammal responds to a stimulus by changing its behavior (*e.g.,* through relatively minor changes in locomotion direction/speed or vocalization behavior), the response may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (*e.g.,* Lusseau and Bejder 2007; Weilgart 2007). Given the many uncertainties in predicting the quantity and types of impacts of sound on marine mammals, it is common practice to estimate how many animals are likely to be present within a particular distance of a given activity, or exposed to a particular level of sound, and to use those values to estimate take.

Upland work can generate airborne sound and create visual disturbance that could potentially result in disturbance to marine mammals (specifically, pinnipeds) that are hauled out or at the water's surface with heads above the water. The Corps will also be conducting pedestrian surveys on each of the jetties during the summer, lasting about two days for each survey. During the life of this action, about six days of surveys over three seasons will occur at the South Jetty, which is the only jetty survey with the potential to impact pinnipeds.

The Corps requested authorization for the incidental taking of small numbers of killer whale, gray whale, humpback whale, harbor porpoise, Steller sea lion, California sea lion, and harbor seal near the MCR project area that may result from vibratory pile driving and removal during construction activities associated with the rehabilitation of the Jetty system at the MCR. In order to estimate the potential incidents of take that may occur incidental to the specified activity, we must first estimate the extent of the sound field that may be produced by the activity and then consider that in combination with information about marine mammal density or abundance in the project area. We first provide information on applicable sound thresholds for determining effects to marine mammals before describing the information used in estimating the sound fields, the available marine mammal density or abundance information, and the method of estimating potential incidences of take.

Sound Thresholds

We use sound exposure thresholds to determine when an activity that produces sound might result in impacts to a marine mammal such that a ''take'' by harassment might occur. As discussed above, NMFS has recently revised PTS (and TTS) onset acoustic thresholds for impulsive and non-impulsive sound as part of its new acoustic guidance. Information on applicable sound thresholds for determining Level A auditory injury harassment may be found in the new Guidance document (81 FR 51694; August 4, 2016). NMFS' calculation of the Level A harassment zones utilized the methods presented in Appendix D of the new Guidance and the accompanying Optional User Spreadsheet. The spreadsheet accounts for a marine mammal hearing group's potential susceptibility to noise-induced hearing loss at different frequencies (*i.e.,* auditory weighting functions) using Weighting Factor Adjustments (WFA). NMFS' new acoustic thresholds use cumulative sound exposure level for non-impulsive sounds (*e.g.,* vibratory pile driving). NMFS used source level measurements from similar vibratory pile driving events coupled with

practical spreading loss (15 log R), and applied the updated PTS onset thresholds for cumulative sound exposure level (SEL_{cum}) metric using the Optional User spreadsheet derived from the new acoustic guidance to determine isopleth estimates for PTS onset using the SEL_{cum} metric (*http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm*). In determining the cumulative sound exposure levels, the Guidance considers the duration of the activity within a 24-hour period, and the associated adjustment from the WFAs by hearing group. All calculated distances to marine mammal sound thresholds for PTS injury are provided in Table 6.

TABLE 6—PTS ISOPLETHS AND SHUTDOWN ZONE RADII AT MCR JETTIES

Species (hearing group)	PTS isopleth (m)	Shutdown radius (m)
Western Transient Killer Whale (Mid-frequency cetaceans)	2.4	20
Humpback Whale (Low-frequency cetaceans)	27.1	30
Gray Whale (Low-frequency cetaceans)	27.1	30
Harbor Porpoise (High-frequency cetaceans)	40.1	40
Steller Sea Lion (Otariid pinnipeds)	1.2	20
California Sea Lion (Otariid pinnipeds)	1.2	20
Harbor Seal (Phoccid pinnipeds)	16.5	20

These values were then used to develop mitigation measures for pile driving activities. The new Guidance indicates that there is a greater likelihood of auditory injury for low-frequency cetaceans (*i.e.,* humpback whales, gray whales) and high-frequency cetaceans (*i.e.,* harbor porpoise) than was considered in our **Federal Register** Notice of Proposed Rulemaking. In that **Federal Register** notice, NMFS proposed a shutdown zone of 20 m for all species during vibratory driving. In order to address this increased likelihood of PTS, we increased the shutdown zones required for low-frequency cetacean hearing group to 30 m and for high-frequency cetacean hearing group to 40 m. For harbor porpoise we assumed that 0.1 m (40.1 m vs. 40 m) would not make a significant difference in susceptibility to injury and set the PTS isopleth at 40 m. Because the shutdown zones for all hearing groups and species are greater than or equivalent to the PTS injury isopleths, NMFS does not authorize any Level A harassment take.

The Guidance does not address Level B harassment or airborne noise harassment; therefore, the Corps uses the current NMFS acoustic exposure criteria to determine exposure to airborne and underwater noise sound pressure levels for Level B harassment (Table 7).

TABLE 7—CURRENT NMFS ACOUSTIC EXPOSURE CRITERIA FOR LEVEL B HARASSMENT

Criterion	Definition	Threshold
Level B harassment (underwater) ...	Behavioral disruption	160 dB re: 1 μPa (impulsive source*)/120 dB re: 1 μPa (continuous source*) (rms).
Level B harassment (airborne)**	Behavioral disruption	90 dB re: 20 μPa (harbor seals)/100 dB re: 20 μPa (other pinnipeds) (unweighted).

* Impact pile driving produces impulsive noise; vibratory pile driving produces non-pulsed (continuous) noise.

** NMFS has not established any formal criteria for harassment resulting from exposure to airborne sound. However, these thresholds represent the best available information regarding the effects of pinniped exposure to such sound and NMFS' practice is to associate exposure at these levels with Level B harassment.

Distance to Sound Thresholds

Underwater Sound Propagation Formula—Pile driving generates underwater noise that can potentially result in disturbance to marine mammals in the project area. Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

$TL = B * \log_{10} (R_1/R_2)$,

Where

TL = transmission loss in dB

B = wave mode coefficient

R_1= the distance of the modeled SPL from the driven pile, and

R_2= the distance from the driven pile of the initial measurement.

This formula neglects loss due to scattering and absorption, which is assumed to be zero here. The degree to which underwater sound propagates away from a sound source is dependent on a variety of factors, most notably the water bathymetry and presence or absence of reflective or absorptive conditions including in-water structures and sediments. Spherical spreading occurs in a perfectly unobstructed (free-field) environment not limited by depth or water surface, resulting in a 6 dB reduction in sound level for each doubling of distance from the source (20*log[range]). Cylindrical spreading occurs in an environment in which sound propagation is bounded by the water surface and sea bottom, resulting in a reduction of 3 dB in sound level for each doubling of distance from the source (10*log(range)). A practical spreading value of 15 is often used under conditions where water increases with depth as the receiver moves away from the shoreline, resulting in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions. Practical spreading loss (15*log(range)) with a 4.5 dB reduction in sound level for each doubling of distance is assumed here.

The Corps does not have information or modeling results related to pile installation activities. However, some features of the action are similar to those recently carried out by the Navy, the Washington State Department of Transportation (WSDOT), and other entities which were issued IHA/LOAs. For these reasons, NMFS considered

some of the results from previous, representative monitoring efforts. Though the MCR navigation channel is a major commercial thoroughfare, there are no ports or piers in the immediate proximity of the jetties, as the seas are too dangerous. The locations and settings of the MCR jetties are far more dynamic than a naval pier setting in the Puget Sound, the substrate is mostly sand, and the natural background noise is likely to be much higher with the large, breaking wave sets, dynamic currents, and high winds.

NMFS considered representative results from underwater monitoring for steel and wood piles that were installed via both impact and vibratory hammers in water depths from 5 to 15 meters (Illingworth and Rodkin 2007; WSDOT 2011 cited in Naval Base Kitsap 2014; Navy 2014; and NMFS 2011b). Transmission loss and propagation estimates are affected by the size and depth of the piles, the type of hammer and installation method, frequency, temperature, sea conditions, currents, source and receiver depth, water depth, water chemistry, and bottom composition and topography. NMFS reviewed several documents that included relevant monitoring results for radial distances and proxy sound levels encompassed by underwater pile driving noise. These distances for vibratory driving for 24-in steel piles were summarized previously in Table 16 in the application.

Because no site-specific, in-water noise attenuation data is available, the practical spreading model described and used by NMFS was used to determine transmission loss and the distances at which impact and vibratory pile driving or removal source levels are expected to attenuate down to the pertinent acoustic thresholds. The underwater practical spreading model is provided below:

$R_2 = R_1 * 10^{\wedge} ((dB_{at\ R1} - dB_{acoustic\ threshold})/15)$

Where:

R_1 = distance of a known or measured sound level

R_2 = estimated distance required for sound to attenuate to a prescribed acoustic threshold

NMFS used representative sound levels from different studies to determine appropriate proxy sound levels and to model estimated distances until pertinent thresholds (R_1 and dB at R_1). Studies which met the following parameters were considered: Pile materials comprised of wood and steel pipe piles; pile sizes from 24- to 30-inches diameter; and pile driver type of either vibratory and impact hammers. These types and sizes of piles were considered in order to evaluate a representative range of sound levels that may result from the action. In some cases, because there was little or no data specific to 24-inch piles, NMFS analyzed 30-inch piles as the next larger pile size with available data. The Corps will include a maximum pile size of 24-inches as a constraint in its construction contracts.

Results of the practical spreading model provided the distance of the radii that were used to establish a ZOI or area affected by the noise criteria. At the MCR, the channel is about 3 miles across between the South and North Jetty. These jetties, as well as Jetty A, could attenuate noise, but the flanking sides on two of the jetties are open ocean, and Jetty A is slightly further interior in the estuary. Clatsop Spit, Cape Disappointment, Hammond Point, and the Sand Islands are also land features that would attenuate noise. Therefore, as a conservative estimate, NMFS is using (and showing on ZOI maps) the maximum distance and area (See Figures 1, 2, 3, and 4 in the November 2016 Addendum to the application). The actual area ensonified by pile driving activities is significantly constrained by local topography relative to the total threshold radius. The ensonified area was determined using a straight line-of-sight projection from the anticipated pile driving locations. Note that figures are provided for the ZOIs for both the South Jetty and the South Jetty Clatsop Spit. Only one of those two offloading facilities will be constructed, resulting in a total of three offloading facilities for the entire project.

NMFS selected proxy values for impact installation methods and calculated distances to acoustic thresholds for comparison and contextual purposes. NMFS ultimately relied most heavily on the proxy values developed by the Navy (2014).

For vibratory pile driving source level installation, NMFS used a figure of 163 dB re 1 µPa rms at 10 m. The proxy value of 163 dB re 1 µPa rms at 10 m is greater than the 24-in pipe pile proxy and equal to the sheet pile values proposed by Navy (2014) at 161 dB re 1 µPa rms and 163 dB re 1 µPa rms, respectively, and is also higher than the Friday Harbor Ferry sample (162 dB re 1 µPa rms) (Navy 2014 and Laughlin 2010a cited in Washington State Ferries 2013, respectively). NMFS also used 163 dB re 1 µPa rms to represent sheet pile installation, which registered higher than the pipe pile levels in the proxy study. Given the comparative differences between the substrate and context used in the Navy study relative to the MCR, 163 dB re 1 µPa rms is a very conservative evaluation level.

Airborne construction sound may also cause behavioral responses. Again, the Corps does not have specific, in-situ data and has used monitoring results from similar actions to obtain representative proxy SPLs. This also included the Navy (2014) proxy study for acoustic values from both vibratory and impact installation methods.

During the Navy study (2014), a maximum level of 110 re 20 µPa at 15 m was measured for a single 24-inch pile installed via impact hammer and was selected as the most representative value for modeling analysis under the Navy proxy study. The site was located in the Puget Sound. A single 30-second measurement was made for 24-inch piles during the Test Pile Program at NBK, Bangor via vibratory installation, and because these data fit the overall trend of smaller and larger pile sizes, the limited data set for 24-inch steel pipe supported the Navy (2014) representative proxy value of 92 dB re 20 µPa at 15 m (Navy 2014) for vibratory installation. The rms L_{eq} value for 24-inch steel pipe piles was also chosen as the best estimate for 24-inch sheet piles in the Navy study (Navy 2014).

The method used for calculating potential exposures to vibratory pile driving noise for each threshold was estimated using local marine mammal data sets, the Biological Opinion and data from LOA/IHA estimates on similar projects with similar actions. All estimates are conservative and include the following assumptions:

- During construction, each species could be present in the project area each day. The potential for a take is based on a 24-hour period. The model assumes that there can be one potential take (Level B harassment exposure) per individual per 24-hours;
- All pilings installed at each site would have an underwater noise disturbance equal to the piling that causes the greatest noise disturbance (*i.e.,* the piling furthest from shore) installed with the method that has the largest ZOI. The largest underwater disturbance ZOI would be produced by vibratory driving steel piles. The ZOIs for each threshold are not spherical and are truncated by land masses which would dissipate sound pressure waves;
- Exposures were based on estimated work days. Construction and maintenance at the three jetties will result in 49 days of pile driving activity as shown in Table 1. Additionally, six days of pedestrian surveys are planned to occur on South Jetty which may result in pinniped disturbance at haulout sites; and
- In absence of site specific underwater acoustic propagation modeling, the practical spreading loss model was used to determine the ZOI.

Note that pinnipeds that occur near the project sites could be exposed to airborne sounds associated with pile driving that have the potential to cause behavioral harassment, depending on their distance from pile driving activities. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA. Airborne noise will primarily be an issue for pinnipeds that are swimming or hauled out near the project site within the range of noise levels elevated above the airborne acoustic criteria. NMFS recognizes that pinnipeds in the water could be exposed to airborne sound that may result in behavioral harassment when looking with heads above water. However, these animals would previously have been taken by exposure to underwater sound above the behavioral harassment thresholds, which are in all cases larger than those associated with airborne sound. Thus, the behavioral harassment of these animals is already accounted for in these estimates of potential take. Multiple incidents of exposure to sound above NMFS' thresholds for behavioral harassment are not believed to result in increased behavioral disturbance, in either nature or intensity of disturbance reaction. Therefore, we do not believe that authorization of incidental take resulting from airborne sound for pinnipeds is warranted, and airborne sound is not discussed further here.

Level B Take ZOI calculations are based on revised PTS isopleths and subsequent revised shutdown zones as well as the revised location of North Jetty barge offloading facility (moved 3,000 ft to the east). The ZOI is calculated by taking the area within the vibratory driving disturbance area established at the 120 dB level (7,356 m radius) and subtracting the shutdown zone radii, land mass and land mass shadow. Revised ZOI are provided in Table 8 below.

TABLE 8—REVISED ZONE OF INFLUENCES

Jetty	Species	Revised shutdown ZOI radius (m)	Area excluding land & jetty masses (km)[2]
Jetty A	Killer Whale, Stellar & California Sea lion and Harbor Seal	20	27.020
	Humpback & Gray Whale	30	27.019
	Harbor Porpoise	40	27.017
North Jetty—(STA 40 + 00)	Killer Whale, Stellar & California Sea lion and Harbor Seal	20	44.336
	Humpback & Gray Whale	30	44.335
	Harbor Porpoise	40	44.335
South Jetty—(STA 270 + 00)	Killer Whale, Stellar & California Sea lion and Harbor Seal	20	56.778
	Humpback & Gray Whale	30	56.777
	Harbor Porpoise	40	56.776
*South Jetty—Clatsop Spit	Killer Whale, Stellar & California Sea lion and Harbor Seal	20	56.506
	Humpback & Gray Whale	30	56.504
	Harbor Porpoise	40	56.502

To determine the total number of days required to calculate take, it is assumed that pile driving installation will take longer than extraction. Therefore, the number of pile driving days for installation is assumed to be 10 while extraction will take up to 7 days, for a total of 41 days [17 + 17 + 7] of vibratory activity. Furthermore, the South Jetty pile installation is anticipated to require maintenance after the installation due to harsher wave conditions during offloading activities that may loosen the 24 inch pile dolphins at that location. As such, we are assuming eight (8) additional days, four days per season, for maintenance activities most likely to occur in the May–June timeframe. Therefore, the total number of days is 41 + 8 = 49 days as is shown in Table 1.

In general, the following equation is used to calculate exposure estimate Level B Take for cetaceans:

$$\text{Take Estimate} = (N_{\text{DensityEstimate}} * \text{Area}_{\text{ZOI Jetty A}} * 7_{\text{days}}) + (N_{\text{DensityEstimate}} * \text{Area}_{\text{ZOI North Jetty}} * 17_{\text{days}}) + (N_{\text{DensityEstimate}} * \text{Area}_{\text{ZOI South Jetty Channel}} * 17_{\text{days}})$$

However, because densities vary depending on season, a more expanded equation is necessary to more accurately reflect potential exposure for some species based on the activities expected and described above. Calculations are shown in Table 9.

Take Estimate =

For Jetty A Extraction: $(N_{\text{DensityEstimate-May/June}} * \text{Area}_{\text{ZOI Jetty A}} * 7_{\text{days}}) +$

For NJ Installation/Extraction: $\text{Area}_{\text{ZOI North Jetty}} * [(N_{\text{DensityEstimate-May/June}} * 10_{\text{days}}) + (N_{\text{DensityEstimate-July–Sep}} * 7_{\text{days}})] +$

For SJ Installation/Extraction: $\text{Area}_{\text{ZOI South Jetty}} * [(N_{\text{DensityEstimate-May/June}} * 10_{\text{days}}) + (N_{\text{DensityEstimate-July–Sep}} * 7_{\text{days}})] +$

For SJ Maintenance: $(\text{Area}_{\text{ZOI South Jetty}} * N_{\text{DensityEstimate-May/June}} * 8_{\text{days}})$

TABLE 9—LEVEL B TAKE CALCULATIONS FOR CETACEANS

Species	Density (May/June)[1]	Density (July/Sept)[1]	SJ ZOI	NJ ZOI	JA ZOI	Days install NJ & SJ each	Days extract NJ & SJ each	SJ maint. days	JA extract days	Takes	Requested takes
Killer whale	0.0051	0.0051	56.778	44.336	[2] n/a	10	7	8	n/a	11.08	20
Humpback whale	0.00015	0.008976	56.777	44.335	27.019	10	7	8	7	6.60	15
Gray whale	0.04857	.000678	56.777	44.335	27.019	10	7	8	7	80.83	81
Harbor Porpoise	0.6935	0.6935	56.776	44.335	27.017	10	7	8	7	1,638.19	1,638

[1] Hanser *et al.* (2015).

[2] Shut-down procedures initiated for killer whales sited within the ZOI between 1 May and 1 July. Jetty A Extraction will occur in May 2017 so no takes associated with Jetty A.

Estimated Take for Cetaceans

Killer Whale

Southern Resident killer whales have been observed offshore near the study area and ZOI. While killer whales do occur in the Columbia River plume, where fresh water from the river intermixes with salt water from the ocean, they are rarely seen in the interior of the Columbia River Jetty system. Because Southern Residents have been known to feed in the area offshore, the Corps has limited its pile installation window in order to avoid peak salmon runs and any overlap with the presence of Southern Residents. To ensure no Level B acoustical harassment of endangered Southern Resident killer whales occurs, the Corps will prohibit pile installation from October 1 until April 30 of each season. The Corps will use vessels to survey and to implement a shut-down procedure if killer whales occur in the ZOI during pile installation/removal/repair activities from May 1 to July 1 to avoid take. After July 1, any animals taken are assumed to be transient killer whales rather than Southern Residents. As such NMFS is not anticipating any acoustic exposure to Southern Residents. Therefore, NMFS has determined that authorization of take for Southern Residents is not warranted.

Western transient killer whales may be traversing offshore over a greater duration of time than the feeding Southern Resident killer whales. While the calculated exposure is 11 (11.08) whales using Navy data (Hanser *et al.,* 2015), NMFS believes that an authorized take of 20 over the 5 year LOA period is warranted because solitary killer whales are rarely observed, and transient whales travel in pods of 6 or less (Dalheim *et al.,* 2008) members. NMFS has conservatively assumed that four pods of five killer whales will exposed to Level B harassment.

Humpback Whale

Humpback whales have been observed on both the ocean side of the Jetty System as well as in the Columbia River. Based on the Hanser *et al.* (2015) data, the calculated take for humpback whales is 7 (6.60). However, these animals also travel in groups although group size may vary. NMFS will assume that a group of three humpbacks will occur in a ZOI each year for which take is authorized under these regulations, resulting in a total of 15 Level B takes.

Gray Whale

Anecdotal evidence indicates gray whales occur near the MCR but are not a common visitor, as they mostly remain in the vicinity of the further offshore shelf-break (Griffith 2015). According to NOAA's Cetacean Mapping classification the waters in the vicinity of the MCR are classified as a Biologically Important Area (BIA) for gray whales. These whales use the area as a migration corridor (Calambokidis *et al.,* 2015). As primarily bottom feeders, gray whales are the most coastal of all great whales. They primarily feed in shallow continental shelf waters and are often observed within a few miles of shore (Barlow *et al.,* 2009). The Pacific Coast Feeding Group (PCFG) or northbound summer migrants would be the most likely gray whales to be in the vicinity of the MCR.

Based on the Navy data (Hanser *et al.,* 2015), NMFS has authorized 81 (80.83) gray whale takes. Because gray whales are known to inhabit nearshore environments in greater numbers than humpback whales, this higher number of gray whales takes would be expected.

Harbor Porpoise

Harbor porpoises are known to occupy shallow, coastal waters and, therefore, are likely to be found in the vicinity of the MCR. They have also been documented within the project area (Griffith 2015). The Navy data (Hanser *et al.,* 2015) indicates that 1,638 (1,638.19) harbor porpoise will be taken during the 5-year period, and NMFS has authorized that number of takes during the 5-year period covered by these regulations.

Pinnipeds

There are haulout sites on the South Jetty used by pinnipeds, especially Steller sea lions. It is likely that pinnipeds that use the haulout area would be exposed to 120 dB threshold acoustic threshold if they enter the water during pile driving activities. The number of exposures would vary based on weather conditions, season, and daily fluctuations in abundance. Based on a survey by the WDFW (2014), the number of affected Steller sea lions could range from 209 to 824 animals per day depending on the particular month. California sea lion numbers could range from 1 to 249 per day and the number of harbor seals could be as low as 1 to as high as 57 per day. Exposure and take estimates, below, are based on past pinniped data from Washington Department of Fish & Wildlife (WDFW) (2000–2014 data), which had a more robust monthly sampling frequency relative to Oregon Department of Fish and Wildlife (ODFW) (2014) counts. The exception to this was for harbor seal counts, for which ODFW (also 2000–2014 data) had more sampling data in certain months. Therefore, ODFW harbor seal data was used for the month of May, which indicated zero harbor seal sightings in May. NMFS will conservatively assume that all pinnipeds both hauled out and in-water would enter the water at some point during a single day of driving and transit into one of the three ensonified zones associated with each offloading facility. Therefore, they would be exposed to noise at or above the Level B thresholds.

To calculate take for pinnipeds the average daily count of each pinniped from the months of May through September was multiplied by 49 pile installation/removal/maintenance days. As was stated previously, the total vibration pile driving days is 49 which includes 17 days each for both North and South Jetties for install and extraction, 7 days for Jetty A extraction and 8 days for South Jetty maintenance. This figure was added to 1 percent of the highest average daily count for months May-August multiplied by six days. Calculations are shown in Table 10.

Pinniped take estimate = (average daily $count_{May–Sept.}$ * 49 pile driving days) + (1 percent highest average daily $count_{May–August}$ * 6 pedestrian survey days)

TABLE 10—LEVEL B TAKE CALCULATIONS FOR PINNIPEDS

Month	Steller sea lion	California sea lion	Harbor seal
	Avg [1] number	Avg [1] number	Avg [1 2] number
May	824	125	0
June	676	202	57
July	358	1	10

TABLE 10—LEVEL B TAKE CALCULATIONS FOR PINNIPEDS—Continued

Month	Steller sea lion	California sea lion	Harbor seal
	Avg [1] number	Avg [1] number	Avg [1 2] number
August	324	115	1
September	209	249	.....
Avg Daily Count (May–Sept) [3]	478	138	17
Total Pile Driving Exposures (49 days)	23,422	6762	833
Pedestrian Survey Exposures—1% of highest monthly Avg. $_{May–August}$ (6 days)	49	12	3
Total Takes (rounded)	23,471	6,774	836

[1] WDFW average daily count per month from 2000–2014.
[2] ODFW average daily count per month for May and July 2000–2014 due to additional available sampling data.
[3] Conservatively assumes each exposure is to new individual, all individuals are new arrivals each month, and no individual is exposed more than one time.

Based on the above equation, NMFS authorizes the Level B take of 23,471 Steller sea lions, 6,774 California sea lions, and 836 harbor seals over the 5-year authorization period.

Analyses and Determinations

Negligible Impact Analysis

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 Level B harassment 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 behavioral harassment, 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, effects on habitat, and the status of the species.

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 2, with the exception of Southern Resident killer whales and gray whales, given that the anticipated effects of this pile driving project on marine mammals are expected to be relatively similar in nature. There is no information about the size, status, or structure of any species or stock that would lead to a different analysis for this activity. Thus species-specific factors cannot be identified and analyzed.

Pile driving activities associated with the rehabilitation of the Jetty system at the MCR, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the planned activities may result in take, in the form of Level B harassment (behavioral disturbance) only, from underwater sounds generated from pile driving. Potential takes could occur if individuals of these species are present in the ensonified zone when pile driving is happening. No injury, serious injury, or mortality is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. The potential for these outcomes is minimized through the construction method and the implementation of the planned mitigation measures. Specifically, vibratory hammers will be the only method of installation utilized. No impact driving is planned. Vibratory driving does not have significant potential to cause injury to marine mammals due to the relatively low source levels produced and the lack of potentially injurious source characteristics. The likelihood of marine mammal detection ability by both land-based and vessel-based observers is high under the environmental conditions described for the rehabilitation of the Jetty System. MMO's ability to readily implement shutdowns as necessary during Jetty System construction activities will result in avoidance of injury, serious injury, or mortality.

The Corps' pile driving activities are localized and of short duration. The entire project area is limited to three jetty offloading facilities and their immediate surroundings. Pile driving activities covered under these regulations would take approximately 5 hours per day for 49 days over a 5-year period. Six days of pedestrian surveys at a single jetty across the five-year period are also planned. The piles would be a maximum diameter of 24 inches and would only be installed by vibratory driving method. The possibility exists that smaller diameter piles may be used, but for this analysis it is conservatively assumed that 24-inch piles will be driven.

These localized and short-term noise exposures may cause brief startle reactions or short-term behavioral modification by the animals. These reactions and behavioral changes are expected to subside quickly when the exposures cease. Moreover, the mitigation and monitoring measures are expected to reduce potential exposures and behavioral modifications even further. Additionally, no important feeding and/or reproductive areas for marine mammals are known to be near the action areas.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the *Anticipated Effects on Marine Mammal Habitat* section. The project activities would not modify existing marine mammal habitat. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range. However, because of the short duration of the activities and 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.

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.,*Thorson and Reyff 2006; Lerma 2014). Most likely, individuals will

simply move away from the sound source and be temporarily displaced from the areas of pile driving, although even this reaction has been observed primarily only in association with impact pile driving. In response to vibratory driving, pinnipeds (which may become somewhat habituated to human activity in industrial or urban waterways) have been observed to orient towards and sometimes move towards the sound. The pile driving activities analyzed here are similar to or less impactful than numerous construction activities conducted in other similar locations, which have taken place with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stocks is unlikely to result in any significant realized decrease in fitness for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment will be reduced to the level of least practicable impact through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the project area while the activity is occurring.

While NMFS is not aware of comparable construction projects near the MCR Jetty system, the pile driving activities analyzed here are similar to other in-water construction activities that have received incidental harassment authorizations previously, including a Unisea dock construction project in neighboring Iliuliuk Harbor, and at Naval Base Kitsap Bangor in Hood Canal, Washington, and at the Port of Friday Harbor in the San Juan Islands. These projects were completed with no reported injuries or mortalities to marine mammals, and no known long-term adverse consequences to marine mammals from behavioral harassment.

Note that NMFS has not authorized take for the endangered Southern Resident killer whales. Take has not been authorized because the Corps will prohibit pile driving from October 1 through April 30, which is considered the primary feeding season for Southern Residents and when their presence in the project areas is likely to be greatest. Additionally, the Corps will shut down all pile driving activities between May 1 and July 1 if any killer whale is observed approaching the ZOI. While unlikely, Southern Residents may occur near the project areas during this time. Because it may be difficult to differentiate between Southern Resident and transient populations, this conservative measure will ensure that no Southern Residents are taken. After July1 it would be highly unlikely for Southern Residents to occur in the project area. Therefore, shut down for Southern Residents will not be necessary, and any killer whales observed in the ZOI during this time are assumed to be transient killer whales.

The area offshore of MCR has been identified as a BIA for migrating gray whales (Calambokidis *et al.,* 2015). Members of the PCFG as well as other animals from both the eastern and western North Pacific populations travel through the area. However, this region has not been identified as one of six distinct PCFG feeding BIAs where PCFG animals are likely to stay for extended periods. Furthermore, anecdotal evidence indicates that while members of the PCFG have been observed near the MCR, they are not a common visitor, as they mostly remain in the vicinity of the offshore shelf-break (Griffith 2015).

In summary, this negligible impact analysis is founded on the following factors: (1) The possibility of injury, serious injury, or mortality may reasonably be considered discountable; (2) the anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior; (3) the absence of any other known areas or features of special significance for reproduction within the project area; and (4) the presumed efficacy of the mitigation measures in reducing the effects of the specified activity to the level of least practicable impact. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activity will have only short-term effects on individuals. The specified activity is not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

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 the Corps' rehabilitation of the MCR Jetty System will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers Analysis

Table 11 illustrates the number of animals that could be exposed to received noise levels that could cause Level B behavioral harassment for the work associated with the rehabilitation of the Jetty System at MCR. The total number of allowed takes was estimated and then divided equally over five years, which is the length of the LOA.

TABLE 11—ESTIMATED PERCENTAGE OF SPECIES/STOCKS THAT MAY BE EXPOSED TO LEVEL B HARASSMENT

Species	Total authorized takes over 5 years/average annual take (rounded)	Abundance	Percentage of total stock taken annually over 5 year LOA period (%)
Killer whale (Western transient stock)	20/4	243	1.6
Humpback whale (California/Oregon/Washington stock)	15/3	1,918	0.1
Gray whale (Eastern North Pacific Stock)	81/16	18,017	<0.01
Harbor porpoise	1,638/328	21,487	1.5
Steller sea lion	23,471/4,694	63,160–78,198	7.4–6.0
California sea lion	6,774/1,355	296,750	0.5
Harbor seal	836/167	24,732	0.7

Note that the work at the three jetty offloading facilities will not be spread evenly over the five-year authorization period. Because the schedule for pile driving over the five-year period is uncertain and susceptible to change depending on future funding availability, it is not possible for NMFS to estimate exposure and subsequent take for specific years. As such, the actual take per species may be higher or lower than the annual average for a specific year. Because the take numbers generated by NMFS are annualized averages, NMFS will assume that in any one year the actual take will be up to two times greater than the projected average annual take. As such, the greatest percentage of a total stock taken annually is not likely to exceed 14.7 percent (9,388 Steller sea lions). Furthermore, the small numbers analyses of annual averages shown in Table 11 represents between <0.01 and 7.4 percent of the populations of these stocks that could be affected by Level B behavioral harassment. The numbers of animals authorized to be taken for all species would be considered small relative to the relevant stocks or populations even if each estimated taking occurred to a new individual—an extremely unlikely scenario. For pinnipeds occurring in the vicinity of the offloading facilities, especially those hauled out at South Jetty, there will almost certainly be overlap in individuals present day-to-day, and these takes are likely to occur only within some small portion of the overall regional stock.

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 mitigation and monitoring measures, which are expected to reduce the number of marine mammals potentially affected by the action, 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 subsistence uses of marine mammals in the project area and, thus, no subsistence uses impacted by this action.

Endangered Species Act

NMFS, Permits and Conservation Division (PR1), Office of Protected Resources sent a request for consultation under section 7(a)(2) of the ESA to the West Coast Region (WCR), Protected Resources Division 1 (PR1) on August 12, 2016, for the issuance of an LOA to the Corps. To meet the requirements under section 7(a)(2), the WCR sent a memo to PR1 on August 25, 2016, referencing an existing formal consultation that analyzed the same effects and take as the issuance of the LOA. The WCR previously consulted with the Corps on the major rehabilitation of MCR Jetty System and issued a biological opinion on March 18, 2011. NMFS analyzed the effects of the action and concluded in the biological opinion that the effects of pile driving and pile removal activities at the MCR jetties were likely to adversely affect, but not likely to jeopardize the continued existence of humpback whales.

Since the biological opinion was finalized, NMFS has published a final rule that identified 14 distinct population segments (DPSs) of humpback whales (81 FR 62259; September 8, 2016). Three DPSs could occur in the action area, the Hawaii DPS, the Mexico DPS and the Central America DPS. The Mexico DPS is listed as threatened while the Central America DPS is listed as endangered.

Subsequent to the completion of the 2011 biological opinion, the WCR prepared an Incidental Take Statement (ITS) to be appended to the biological opinion. The WCR compared the ITS, as well as the effects analysis and conclusions in the biological opinion, with the amount of and conditions of take listed in the LOA. The WCR determined that the effects of NMFS' issuing an LOA to the Corps for the taking of humpback whales incidental to construction activities are consistent with those described in the 2011 biological opinion. The extent of the takes analyzed in the biological opinion ranged from 0–19 whales per day, which is more than the 15 individual takes being authorized under the MMPA over the 5-year authorization period. In addition, the short-term potential displacement or deflection around the action area and the small number of takes would also not be expected to have population level impacts or jeopardize any of the DPSs that could occur in the action area. The 2011 biological opinion remains valid and the MMPA authorization provides no new information about the effects of the action, nor does it change the extent of effects of the action. Based on the conclusions in the biological opinion, the takes would not jeopardize the continued existence of the two humpback whale DPSs currently listed under the ESA, and no further consultation was needed.

National Environmental Policy Act (NEPA)

The Corps issued the *Final Environmental Assessment Columbia River at the Mouth, Oregon and Washington Rehabilitation of the Jetty System at the Mouth of the Columbia River* (EA) and *Finding of No Significant Impact* (FONSI) in 2011. The EA and FONSI were revised in 2012 with a FONSI being signed on July 26, 2012. NMFS has reviewed the Corps' application for a rehabilitation of the MCR Jetty System. Based on that review, we have determined that the action closely follows the activities described in the EA and does not present any substantial changes, or significant new circumstances or information relevant to environmental concerns which would require a supplement to the 2012 EA or preparation of a new NEPA document. Therefore, we have determined that a new or supplemental EA or Environmental Impact Statement is unnecessary. After review of public comments, we determined it was appropriate to adopt the existing EA and develop a FONSI, which was signed in December 2016. The 2012 EA and 2016 FONSI are available for review at *www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.*

Classification

The Office of Management and Budget has determined that this rule is not significant for purposes of Executive Order 12866. NMFS has considered all provisions of E.O. 12866 and analyzed this action's impact. Based on that review, this action is not expected to have an annual effect on the economy of $100 million or more, or have an adverse effect in a material way on the economy. Furthermore, this action would not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; or materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or raise novel or policy issues.

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration at the proposed rule stage that this rule, if adopted, would not have a significant economic impact on a substantial number of small entities. The RFA requires Federal agencies to prepare an analysis of a rule's impact on small entities whenever the agency is required to publish a notice of proposed

rulemaking. However, a Federal agency may certify, pursuant to 5 U.S.C. 605(b), that the action will not have a significant economic impact on a substantial number of small entities. The U.S. Army Corps of Engineers is the only entity that would be subject to the requirements in these regulations. The SBA defines a small entity as one that is independently owned and operated, and not dominant in its field of operation. The U.S. Army Corps of Engineers is not a small governmental jurisdiction, small organization, or small business, as defined by the RFA. Any requirements imposed by an LOA issued pursuant to these regulations, and any monitoring or reporting requirements imposed by these regulations, would be applicable only to the U.S. Army Corp of Engineers. NMFS does not expect the issuance of these regulations or the associated LOAs to result in any impacts to small entities. Because this action, if adopted, would directly affect only the U.S. Army Corps of Engineers and not a small entity, NMFS concludes the action would not result in a significant economic impact on a substantial number of small entities. Thus, a regulatory flexibility analysis is not required and none has been prepared.

This rule does not contain a collection-of-information requirement subject to the provisions of the Paperwork Reduction Act (PRA) because the applicant is a federal agency. Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB control number.

List of Subjects in 50 CFR Part 217

Exports, Fish, Imports, Indians, Labeling, Marine mammals, Penalties, Reporting and recordkeeping requirements, Seafood, Transportation.

Dated: February 7, 2017.

Alan D. Risenhoover,

Acting Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For reasons set forth in the preamble, 50 CFR part 217 is amended as follows:

PART 217—REGULATIONS GOVERNING THE TAKE OF MARINE MAMMALS INCIDENTAL TO SPECIFIED ACTIVITIES

■ 1. The authority citation for part 217 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.,* unless otherwise noted.

■ 2. Add subpart X to part 217 to read as follows:

Subpart X—Taking Marine Mammals Incidental to Rehabilitation of the Jetty System at the Mouth of the Columbia River in Oregon and Washington

Sec.

Subpart X—Taking Marine Mammals Incidental to Rehabilitation of the Jetty System at the Mouth of the Columbia River in Oregon and Washington

§ 217.230 Specified activity and specified geographical region.

(a) Regulations in this subpart apply only to the U.S. Army Corps of Engineers (Corps) and those persons it authorizes to conduct activities on its behalf for the taking of marine mammals that occurs in the area outlined in paragraph (b) of this section and that occurs incidental to the jetty rehabilitation program.

(b) The taking of marine mammals by the Corps may be authorized in a Letter of Authorization (LOA) only if it occurs within the nearshore marine environment at the Mouth of the Columbia River in Oregon and Washington.

§ 217.231 Effective dates.

Regulations in this subpart are effective May 1, 2017 through April 30, 2022.

§ 217.232 Permissible methods of taking.

Under LOAs issued pursuant to § 216.106 of this chapter and § 217.236, the Holder of the LOA (hereinafter ''Corps'') may incidentally, but not intentionally, take marine mammals within the area described in § 217.230(b), provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA.

§ 217.233 Prohibitions.

(a) Notwithstanding takings contemplated in § 217.230 and authorized by an LOA issued under § 216.106 of this chapter and § 217.236, no person in connection with the activities described in § 217.230 may:

(1) Take any marine mammal not specified in § 217.236;

(2) Take any marine mammal specified in § 217.236(a) other than by incidental Level B harassment;

(3) Take a marine mammal specified in § 217.236 if the National Marine Fisheries Service (NMFS) determines such taking results in more than a negligible impact on the species or stocks of such marine mammal;

(4) Take a marine mammal specified in § 217.236 if NMFS determines such taking results in an unmitigable adverse impact on the species or stock of such marine mammal for taking for subsistence uses; or

(5) Violate, or fail to comply with, the terms, conditions, and requirements of this subpart or an LOA issued under § 216.106 of this chapter and § 217.236.

(b) [Reserved]

§ 217.234 Mitigation requirements.

(a) When conducting the activities identified in § 217.130(a), the mitigation measures contained in any LOA issued under § 216.106 of this chapter and § 217.236 must be implemented. These mitigation measures include, but are not limited to:

(1) General conditions:

(i) The Corps shall conduct briefings as necessary between vessel crews, the marine mammal monitoring team, and other relevant personnel prior to the start of all pile driving and removal activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures;

(ii) Each Marine Mammal Observer (MMO) will maintain a copy of the LOA at their respective monitoring location, as well as a copy in the main construction office;

(iii) Pile activities are limited to the use of a vibratory hammer. Impact hammers are prohibited;

(iv) Pile installation/maintenance/removal activities are limited to the time frame starting May 1 and ending September 30 each season; and

(v) The Corps must notify NMFS' West Coast Regional Office (562–980–3232), at least 24-hours prior to start of activities impacting marine mammals.

(2) [Reserved]

(b) Establishment of Level B harassment zone:

(1) The Corps shall establish Level B behavioral harassment Zone of Influence (ZOI) where received underwater sound pressure levels (SPLs) are higher than 120 dB (rms) re 1 μPa for non-pulse sources (*i.e.,* vibratory hammer). The ZOI delineates where Level B harassment would occur; and

(2) For vibratory driving, the level B harassment area is comprised of a radius

between the shutdown zone for a specified species and 7.35 km from driving operations.

(c) Establishment of shutdown zone:

(1) Under LOAs issued pursuant to § 216.106 of this chapter and § 217.236, the Corps shall establish shutdown zones that are in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA;

(2) For in-water heavy machinery work other than pile driving (using, *e.g.,* standard barges, tug boats, barge-mounted excavators, or clamshell equipment used to place or remove material), operations shall cease if a marine mammal comes within 20 m and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions;

(3) If a marine mammal approaches or enters the shutdown zone during the course of vibratory pile driving operations, the activity will be halted and delayed until the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed with the animal being resighted;

(4) If a marine mammal is seen above water within or approaching a shutdown zone then dives below, the contractor would wait 15 minutes. If no marine mammals are seen by the observer in that time it will be assumed that the animal has moved beyond the exclusion zone;

(5) If the shutdown zone is obscured by fog or poor lighting conditions, pile driving shall not be initiated until the entire shutdown zone is visible;

(6) Disturbance zones shall be established as described in paragraph (b) of this section, and shall encompass the Level B harassment zones established by LOAs issued pursuant to § 216.106 of this chapter and § 217.236 provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA. These zones shall be monitored to maximum line-of-sight distance from established vessel- and shore-based monitoring locations. If marine mammals other than those listed in § 216.106 and § 217.236 are observed within the disturbance zone, the observation shall be recorded and communicated as necessary to other MMOs responsible for implementing shutdown/power down requirements and any behaviors documented;

(7) Between May 1 and July 1, the observation of any killer whales within the ZOI shall result in immediate shut-down all of pile installation, removal, or maintenance activities. Pile driving shall not resume until all killer whales have moved outside of the ZOI; and

(8) After July 1, no shutdown is required for Level B killer whale take, but animals must be recorded as Level B take in the monitoring forms described below.

(d) If the allowable number of takes for any marine mammal species in § 216.106 of this chapter and § 217.236 is exceeded, or if any marine mammal species not listed in § 216.236 is exposed to SPLs greater than or equal to 120 dB re 1 μPa (rms), the Corps shall immediately shutdown activities involving the use of active sound sources (*e.g.,* vibratory pile driving equipment), record the observation, and notify NMFS Office of Protected Resources.

§ 217.235 Requirements for monitoring and reporting.

(a) *Monitoring.* (1) Qualified Marine Mammal Observers (MMOs) shall be used for both shore and vessel-based monitoring;

(2) All MMOs must be approved by NMFS;

(3) A qualified MMO is a third-party trained biologist with the following minimum qualifications:

(i) Visual acuity in both eyes (correction is permissible) sufficient to discern moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars or spotting scope may be necessary to correctly identify the target;

(ii) Advanced education in biological science, wildlife management, mammalogy or related fields (Bachelor's degree or higher is preferred);

(iii) Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience);

(iv) Experience or training in the field identification of marine mammals (cetaceans and pinnipeds);

(v) Sufficient training, orientation or experience with vessel operation and pile driving operations to provide for personal safety during observations;

(vi) Writing skills sufficient to prepare a report of observations; and

(vii) 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 needed.

(4) MMOs must be equipped with the following:

(i) Binoculars (10x42 or similar), laser rangefinder, GPS, big eye binoculars and/or spotting scope 20–60 zoom or equivalent; and

(ii) Camera and video capable of recording any necessary take information, including data required in the event of an unauthorized take; and

(5) MMOs shall conduct monitoring as follows;

(i) During all pile driving and removal activities;

(ii) Only during daylight hours from sunrise to sunset when it is possible to visually monitor mammals;

(iii) Scan the waters for 30 minutes before and during all pile driving. If any species for which take is not authorized are observed within the area of potential sound effects during or 30 minutes before pile driving, the MMO(s) will immediately notify the on-site supervisor or inspector, and require that pile driving either not initiate or temporarily cease until the animals have moved outside of the area of potential sound effects;

(iv) If weather or sea conditions restrict the observer's ability to observe, or become unsafe for the monitoring vessel(s) to operate, pile installation shall not begin or shall cease until conditions allow for monitoring to resume;

(v) Trained land-based observers will be placed at the best vantage points practicable. The observers' position(s) will either be from the top of jetty or adjacent barge at the location of the pile activities and from Cape Disappointment Visitors Center during work at North and South Jetty, and Clatsop Spit for work at Jetty A;

(vi) Vessel-based monitoring for marine mammals must be conducted for all pile-driving activities at the North Jetty and two South Jetty offloading facilities. Two vessels may be utilized as necessary to adequately monitor the offshore ensonified zone;

(vii) Any marine mammals listed in § 217.236 entering into the Level B harassment zone will be recorded as take by the MMO and listed on the appropriate monitoring forms described below;

(viii) During pedestrian surveys, personnel will avoid as much as possible direct approach towards pinnipeds that are hauled out. If it is absolutely necessary to make movements towards pinnipeds, personnel will approach in a slow and steady manner to reduce the behavioral harassment to the animals as much as possible; and

(ix) Hydroacoustic monitoring shall be performed using methodology described in the November 2016 Addendum containing the Hydroacoustic Monitoring Plan.

(b) *Reporting.* (1) MMOs must use NMFS-approved monitoring forms and shall record the following information when a marine mammal is observed:

(i) Date and time that pile removal and/or installation begins and ends;

(ii) Construction activities occurring during each observation period;

(iii) Weather parameters (*e.g.,* percent cover, visibility);

(iv) Water conditions [*e.g.,* sea state, tidal state (incoming, outgoing, slack, low, and high)];

(v) Species, numbers, and, if possible, sex and age class of marine mammals;

(vi) Marine mammal behavior patterns observed, including bearing and direction of travel, and, if possible, the correlation to SPLs;

(vii) Distance from pile removal and/or installation activities to marine mammals and distance from the marine mammal to the observation point;

(viii) Locations of all marine mammal observations; and

(ix) Other human activity in the area.

(2) [Reserved]

(c) *Annual report.* (1) The Corps shall submit a draft annual report to NMFS Office of Protected Resources covering a given calendar year within 90 days of the last day of pile driving operations. The annual report shall include summaries of the information described in paragraph (b)(1) of this section.

(2) The Corps shall submit a final annual report to the Office of Protected Resources, NMFS, within 30 days after receiving comments from NMFS on the draft report.

(d) *Notification of dead or injured marine mammals.* (1) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this Authorization, such as an injury, serious injury, or mortality, The Corps shall immediately cease the specified activities and report the incident to the Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator, NMFS.

(i) The report must include the following information:

(A) Time, date, and location (latitude/longitude) of the incident;

(B) Description of the incident;

(C) Environmental conditions (*e.g.,* wind speed and direction, Beaufort sea state, cloud cover, and visibility);

(D) Description of marine mammal observations in the 24 hours preceding the incident;

(E) Species identification or description of the animal(s) involved;

(F) Status of all sound source use in the 24 hours preceding the incident;

(G) Fate of the animal(s); and

(H) Photographs or video footage of the animal(s). Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with the Corps to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The Corps may not resume their activities until notified by NMFS.

(ii) In the event that the Corps discovers an injured or dead marine mammal, and the lead MMO determines that the cause of the injury or death is unknown and the death is relatively recent (*e.g.,* in less than a moderate state of decomposition), the Corps shall immediately report the incident to the Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator, NMFS. The report must include the same information identified in this paragraph (d). If the observed marine mammal is dead, activities may continue while NMFS reviews the circumstances of the incident. If the observed marine mammal is injured, measures described in this paragraph (d) must be implemented. NMFS will work with the Corps to determine whether additional mitigation measures or modifications to the activities are appropriate.

(iii) In the event that the Corps discovers an injured or dead marine mammal, and the lead MMO determines that the injury or death is not associated with or related to the activities authorized in the LOA (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, scavenger damage), the Corps shall report the incident to the Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator, NMFS, within 24 hours of the discovery. The Corps shall provide photographs or video footage or other documentation of the stranded animal sighting to NMFS. If the observed marine mammal is dead, activities may continue while NMFS reviews the circumstances of the incident. If the observed marine mammal is injured, measures described in this paragraph (d) must be implemented. In this case, NMFS will notify the Corps when activities may resume.

§ 217.236 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, the Corps must apply for and obtain an LOA.

(b) An LOA, unless suspended or revoked, may be effective for a period of time not to exceed the expiration date of these regulations.

(c) If an LOA expires prior to the expiration date of these regulations, the Corps may apply for and obtain a renewal of the Letter of Authorization.

(d) In the event of projected changes to the activity or to mitigation and monitoring measures required by an LOA, the Corps must apply for and obtain a modification of the Letter of Authorization as described in § 217.237.

(e) The LOA shall set forth:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact (*i.e.,* mitigation) on the species, its habitat, and on the availability of the species for subsistence uses; and

(3) Requirements for monitoring and reporting.

(f) Issuance of the LOA shall be based on a determination that the level of taking will be consistent with the findings made for the total taking allowable under these regulations.

(g) Notice of issuance or denial of an LOA shall be published in the **Federal Register** within thirty days of a determination.

§ 217.237 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under § 216.106 of this chapter and § 217.236 for the activity identified in § 217.230(a) shall be renewed or modified upon request by the applicant, provided that:

(1) The specified activity and mitigation, monitoring, and reporting measures, as well as the anticipated impacts, are the same as those described and analyzed for these regulations (excluding changes made pursuant to the adaptive management provision in paragraph (c)(1) of this section); and

(2) NMFS determines that the mitigation, monitoring, and reporting measures required by the previous LOA under these regulations were implemented.

(b) For LOA modification or renewal requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting (excluding changes made pursuant to the adaptive management provision in § 217.247(c)(1)) that do not change the findings made for the regulations or result in no more than a minor change in the total estimated number of takes (or distribution by species or years), NMFS may publish a notice of LOA in the **Federal Register**, including the associated analysis of the change, and solicit public comment before issuing the LOA.

(c) An LOA issued under § 216.106 of this chapter and § 217.236 for the activity identified in § 217.230(a) may be modified by NMFS under the following circumstances:

(1) *Adaptive management*—NMFS may modify (including augment) the existing mitigation, monitoring, or reporting measures (after consulting

with the Corps regarding the practicability of the modifications) if doing so creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth in the preamble for these regulations;

(i) Possible sources of data that could contribute to the decision to modify the mitigation, monitoring, or reporting measures in an LOA:

(A) Results from the Corps' monitoring from the previous year(s);

(B) Results from other marine mammal and/or sound research or studies; and

(C) Any information that reveals marine mammals may have been taken in a manner, extent or number not authorized by these regulations or subsequent LOAs; and

(ii) If, through adaptive management, the modifications to the mitigation, monitoring, or reporting measures are substantial, NMFS will publish a notice of LOA in the **Federal Register** and solicit public comment; and

(2) *Emergencies*—If NMFS determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in § 217.236, an LOA may be modified without prior notice or opportunity for public comment. Notice will be published in the **Federal Register** within thirty days of the action.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 160510416–6999–02]

RIN 0648–BG06

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Reef Fish Fishery of the Gulf of Mexico; Yellowtail Snapper Management Measures

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

ACTION: Final rule.

SUMMARY: NMFS issues regulations to implement management measures described in a framework action to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (FMP), as prepared by the Gulf of Mexico (Gulf) Fishery Management Council (Gulf Council). This final rule revises the yellowtail snapper commercial and recreational fishing year and removes the requirement to use circle hooks for the commercial harvest of yellowtail snapper in the Gulf exclusive economic zone (EEZ) south of Cape Sable, Florida. The purpose of this final rule is to increase the operational efficiency of the yellowtail snapper component of the commercial sector of the Gulf reef fish fishery, achieve optimum yield, and decrease the regulatory burden of compliance with differing regulations established by separate regulatory agencies across the adjacent Gulf and South Atlantic jurisdictions.

DATES: This final rule is effective March 13, 2017.

ADDRESSES: Electronic copies of the framework action, which includes an environmental assessment, Regulatory Flexibility Act (RFA) analysis, and a regulatory impact review, may be obtained from *www.regulations.gov* or the SERO Web site at *http://sero.nmfs.noaa.gov.*

FOR FURTHER INFORMATION CONTACT: Cynthia Meyer, NMFS Southeast Regional Office, telephone: 727–824–5305, email: *cynthia.meyer@noaa.gov.*

SUPPLEMENTARY INFORMATION: The Gulf reef fish fishery includes yellowtail snapper and is managed under the FMP. The FMP was prepared by the Gulf Council and is implemented by NMFS through regulations at 50 CFR part 622 under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

On October 17, 2016, NMFS published a proposed rule for the framework action and requested public comment (FR 81 71471). The proposed rule and the framework action outline the rationale for the actions contained in this final rule. A summary of the management measures described in the framework action and implemented by this final rule is provided below.

In the southeastern United States, yellowtail snapper are harvested by both commercial and recreational fishers, with landings coming almost exclusively from waters adjacent to Florida. Yellowtail snapper are managed separately in the Gulf and South Atlantic but are a single genetic stock. The 2012 Southeast Data, Assessment, and Review (SEDAR 27) combined the two areas for stock assessment purposes and indicated that yellowtail snapper in the Gulf and South Atlantic were not overfished and not experiencing overfishing.

Management Measures Contained in This Final Rule

This final rule revises the fishing year for Gulf yellowtail snapper and the fishing gear requirements for the Gulf yellowtail snapper commercial sector.

Yellowtail Snapper Fishing Year

Previously, the fishing year for both the commercial and recreational sectors for yellowtail snapper in the Gulf and the South Atlantic was January 1 through December 31. The South Atlantic Fishery Management Council changed the yellowtail snapper fishing year in the South Atlantic to begin on August 1, and end on July 31, for both the commercial and recreational sectors (81 FR 45245, July 13, 2016). This final rule similarly revises the fishing year for Gulf yellowtail snapper for both the commercial and recreational sectors to be August 1 through July 31, each year. Although the harvest of yellowtail snapper in the Gulf has not exceeded the stock ACL since ACLs were implemented in 2011 (76 FR 82044, December 29, 2011), this fishing year revision may more closely align any required ACL closure in the Gulf, if one were to occur, with any ACL closure in the South Atlantic. In addition, having the same fishing year for both the Gulf and South Atlantic would benefit those commercial fishers that harvest yellowtail snapper in both regions by decreasing the compliance burden of different regulations for the same species in adjacent management areas.

Yellowtail Snapper Fishing Gear Requirements

In the Gulf, a person harvesting reef fish, including yellowtail snapper, is required to use non-stainless steel circle hooks when fishing with natural bait (50 CFR 622.30(a)). This measure was put in place to reduce the post-release mortality of Gulf reef fish. This final rule revises this requirement to also allow the use of other non-stainless steel hook types, such as J-hooks, when commercial fishing with natural bait for yellowtail snapper in the area south of a line extending due west from 25°09′ N. lat. off the west coast of Monroe County, Florida, to the Gulf and South Atlantic Councils' shared boundary. The northern boundary of the area for this fishing gear exemption coincides with a state of Florida species management boundary already put in place by the Florida Fish and Wildlife Conservation Commission.

The Gulf Council determined that allowing other hook types for the commercial harvest of yellowtail snapper in Federal waters off south