DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 217

[Docket No. 160405311–6664–01]

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: Proposed rule; request for comments.

SUMMARY: NMFS has received a request from the U.S. Army Corps of Engineers, Portland District (Corps) for authorization to take marine mammals incidental to the rehabilitation of Jetty System at the mouth of the Columbia River (MCR): North Jetty, South Jetty, and Jetty A, in Washington and Oregon between May 1, 2017 and April 30, 2022. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue regulations and subsequent Letters of Authorization (LOA) to the Corps to incidentally harass marine mammals.

DATES: Comments and information must be received no later than September 26, 2016.

ADDRESSES: You may submit comments on this document, identified by NMFS–2014–0144, by either of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to: *www.regulations.gov,* enter NOAA–NMFS–2014–0144 in the ''Search'' box, click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.
- *Mail:* Submit written comments to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910.

Comments regarding any aspect of the collection of information requirement contained in this proposed rule should be sent to NMFS via one of the means stated here and to the Office of Information and Regulatory Affairs, NEOB–10202, Office of Management and Budget (OMB), Attn: Desk Office, Washington, DC 20503, *OIRA@omb.eop.gov.*

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted to *http://www.regulations.gov* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information. NMFS will accept anonymous comments (enter N/A in the required fields if you wish to remain anonymous).

An electronic copy of the application, containing a list of references used in this document, and the Environmental Assessment (EA) may be obtained by writing to the address specified above, telephoning the contact listed below (see **FOR FURTHER INFORMATION CONTACT**), or visiting the internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* To help NMFS process and review comments more efficiently, please use only one method to submit comments.

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

SUPPLEMENTARY INFORMATION:

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 proposes to conduct additional work under a Letter of Authorization (LOA) that may incidentally harass marine mammals. A notice of receipt was published in the **Federal Register** on October 26, 2015 (80 FR 65214). Activities would include pile repairs and removal actions at Jetty A, pile installation at North Jetty, and pile installation and surveys at South Jetty. A revised application including an updated marine mammal monitoring plan was submitted by the Corps on January 15, 2016 and deemed acceptable on January 30, 2016.

Description of the Specified Activity

Overview

The Corps is seeking a LOA for continuation of work begun on Jetty A under an IHA issued by NMFS that expires on April 30, 2017. Remaining work at Jetty A that may need to be completed under the LOA would include pile maintenance and pile removal of a barge offloading facility at that jetty. The following work on the North and South Jetties would be covered under the proposed LOA. The scheduled repair and head stabilization of the North Jetty would require pile installation, maintenance and removal for construction of a single barge offloading facility. The interim repair and head determination of the South

Jetty would require pile installation and maintenance and removal of two offloading facilities, one near the tip of the South Jetty and another at a sandy plain southwest of the Columbia River and east of the South Jetty known as the Clatsop Spit.

Dates and Duration

The current IHA, for which take has been authorized, is valid from May 1, 2016, through April 30, 2017. The LOA would 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 for offloading facilities from October 1 until May1 because that is the killer whales' primary feeding season when they may be present at the MCR plume. Installation and removal would occur from May 1 to September 30 each year.

Specific 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. Work will also be conducted near the Clatsop Spit off of the South Jetty. See Figure 1 in the application for a map of the MCR Jetty system and surrounding areas.

Detailed Description of Activities

There are a number of 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 a single offloading facility at Jetty A, a single facility at the North Jetty and two additional facilities at the South Jetty will be necessary to transport materials to these specific project locations. Jetty A pile installation is covered under the existing IHA. The proposed LOA will likely cover remaining pile installation, pile maintenance and pile removal at Jetty A depending on how much work is accomplished under the current IHA. The proposed LOA would cover pile installation and removal of one facility at North Jetty and two at South Jetty, including the Clatsop Spit location. 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 proposed LOA.

The scheduled program of repair and rehabilitation priorities are described in detail in Section 1 of the Corps' LOA application. The proposed 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 proposed LOA.

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

3. The South Jetty interim repair and head determination task would occur under the proposed LOA and would 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 would require four placement seasons running from 2018 through 2021.

Installation and removal of piles with a vibratory hammer would introduce sound waves into the MCR area intermittently for up to 7 years (depending on funding streams and construction sequences). In terms of actual on-the-ground work it is possible, but unlikely, that driving could 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.

Construction of all four offloading facilities combined will require up to 96 wood or steel piles and up to 373 sections of Z-piles, H-piles, and sheet pile to retain rock fill. A vibratory hammer will be used for pile installation due to the soft sediments (sand) in the project area and only untreated wood will be used, where applicable. No impact driving will be necessary under this LOA. The piles will be located within 200 ft (60.96 m) of each jetty structure. The presence of relic stone may require locating the piling further from the jetties so that use of this method is not precluded by the existing stone. 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. Because vibratory hammers will be used in areas with velocities greater than 1.6 ft (0.49 m) per second, the need for hydroacoustic attenuation is not an anticipated issue.

Pile installation is assumed to occur for about 10 hours a day, with a total of approximately 15 piles installed per day. Each offloading facility would have about 25 percent of the total piles mentioned. As noted above, up to 96 piles could be installed, and up to 373 sections of sheet pile to retain rock fill. This is a total of 469 initial installation and 469 removal events, over the span of about 67 days. In order to round the math, NMFS has assumed 68 days, so that each of the four offloading facilities would take about 17 days total for installation and removal. The current IHA covers 17 days of work at Jetty A, which leaves 51 days of work for the three remaining offloading facilities at the North and South Jetties. However, a second season of work at the Jetty A facility is likely. Therefore, NMFS will assume that only ten days of Jetty A-related work will be completed under the existing IHA, resulting in seven days that will need to be covered under the proposed LOA. Additionally, pedestrian surveys on South Jetty outside of the construction seasons are expected to take six additional days. A total of 64 days of work will be required, consisting of 51 days associated with activities at the North and South Jetties, seven days of remaining work at Jetty A and six days of pedestrian surveys at South Jetty.

Piles would be a maximum diameter of 24 inches and would only be installed by vibratory driving method. The possibility also exists that smaller diameter piles may be used but for this analysis it is assumed that 24 inch piles will be driven.

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 (600 to 6,000 feet in depth). Harbor porpoises (*Phocoena phocoena)* and gray whales (*Eschrichtius robustus)* were prevalent in shelf waters less than 600 ft (182 m) 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. The marine mammal species potentially present in the activity area are shown in Table 1.

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.

In the species accounts provided here, we offer a brief introduction to the species and relevant stock. We also provide available information regarding population trends and threats and describe any information regarding local occurrence.

TABLE 1—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*.	1918	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.

Cetaceans

Killer Whale

During construction of the project, it is possible that two killer whale stocks, the Eastern North Pacific Southern Resident and Eastern North Pacific West Coast transient stocks could be in the nearshore vicinity of the MCR. However, the Corps is limiting the installation work window to on or after May 1 in order to avoid exposure of Southern Resident killer whales (*Orcinus orca*) and will avoid installation or removal after September 30. As such, number of either West Coast transient or Southern Resident killer whales present in the project area will be decreased because the selected work window is not their primary feeding season.

Since the first complete census of this stock in 1974, when 71 animals were identified, the number of Southern Resident killer whales has fluctuated annually. Between 1974 and 1993 the Southern Resident stock increased approximately 35 percent, from 71 to 96 individuals (Ford *et al.,* 1994), representing a net annual growth rate of 1.8 percent during those years. Following the peak census count of 99 animals in 1995, the population size has fluctuated and currently stands at 82 animals as of the 2013 census (Carretta *et al.,* 2014).

The Southern Resident killer whale population consists of three pods, designated J, K, and L pods, that reside from late spring to fall in the inland waterways of Washington State and British Columbia (NMFS 2008a). During winter, pods have moved into Pacific coastal waters and are known to travel as far south as central California. Winter and early spring movements and distribution are largely unknown for the population. Sightings of members of K and L pods in Oregon (L pod at Depoe Bay in April 1999 and Yaquina Bay in March 2000, unidentified Southern Residents at Depoe Bay in April 2000, and members of K and L pods off of the Columbia River) and in California (17 members of L pod and four members of K pod at Monterey Bay in 2000; L pod members at Monterey Bay in March 2003; L pod members near the Farallon Islands in February 2005 and again off Pt. Reyes in January 2006) have considerably extended the southern limit of their known range (NMFS 2008a). Sightings of Southern Resident killer whales off the coast of Washington, Oregon, and California indicate that they are utilizing resources in the California Current ecosystem in contrast to other North Pacific resident pods that exclusively use resources in the Alaskan gyre system (NMFS 2008a).

During the 2011 Section 7 Endangered Species Act (ESA) consultation for Southern Resident killer whales, NMFS indicated these whales are known to feed on migrating Chinook salmon in the Columbia River plume during the peak salmon runs in March through April. Anecdotal evidence indicates that killer whales were historically regular visitors in the vicinity of the estuary but have been less common in current times (Wilson 2015). There is low likelihood of them being in close proximity to any of the pile installation locations because it is not their peak feeding season, and

there would be minimal overlap of their presence during the peak summer construction season. To further avoid any overlap with Southern Resident killer whales' use during pile installation, the Corps would limit the pile installation window to start on or after May 1 and end on September 30 of each year to avoid peak adult salmon runs. Recent information, however, indicates that Southern Resident killer whales may be present in the area after May 1. Because it may prove difficult to differentiate Southern Resident from transient killer whales, the Corps has agreed to shut down operations any time killer whales are observed in the Level B harassment zone between May 1 and July 1. It is assumed that all killer whales observed after July 1 are transients and any takes will be recorded as such. Southern Resident killer whales were listed as endangered under the ESA in 2005, and, consequently, the stock is automatically considered as a ''strategic'' stock under the MMPA. This stock was considered ''depleted'' under the MMPA prior to its 2005 listing under the ESA.

The West Coast transient stock ranges from Southeast Alaska to California. Preliminary analysis of photographic data resulted in the following minimum counts for transient killer whales belonging to the West Coast transient stock (NOAA 2013b). From 1975 to 2012, 521 individual transient killer whales have been identified. Of these, 217 are considered part of the poorly known ''outer coast'' subpopulation and 304 belong to the well-known ''inner coast'' population. However, of the 304, the number of whales currently alive is not certain. A recent mark-recapture estimate that does not include the outer coast subpopulation or whales from California for the west coast transient population resulted in an estimate of 243 in 2006. This estimate applies to the population of West Coast transient whales that occur in the inside waters of southeastern Alaska, British Columbia, and northern Washington. Given that the California transient numbers have not been updated since the publication of the catalogue in 1997, the total number of transient killer whales reported above should be considered as a minimum count for the West Coast transient stock (NOAA 2014a).

For this project, it is possible only the inner-coast species would be considered for potential exposure to acoustic effects. However, they are even less likely to be in the project area than Southern Resident killer whales, especially outside of the peak salmon runs. The Corps is avoiding pile installation work during potential peak feeding timeframes in order to further reduce the potential for acoustic exposure. It is possible, however, that West Coast transients come in to feed on the pinniped population hauled out on the South Jetty. The West Coast transient stock of killer whales is not designated as ''depleted'' under the MMPA nor are they listed as ''threatened'' or ''endangered'' under the ESA. Furthermore, this stock is not classified as a strategic stock under the MMPA.

Gray Whale

During summer and fall, most gray whales in the Eastern North Pacific stock feed in the Chukchi, Beaufort and Northwestern Bering Seas. An exception is the relatively small number of whales (approximately 200) that summer and feed along the Pacific coast between Kodiak Island, Alaska and northern California (Carretta *et al.,* 2014), also known as the Pacific Coast Feeding Group. The minimum population estimate for the Eastern North Pacific stock using the 2006/2007 abundance estimate of 19,126 and its associated coefficient of variation (CV) of 0.071 is 18,017 animals. In probability theory and statistics, the CV, also known as relative standard deviation (RSD), is a standardized measure of dispersion of a probability distribution or frequency distribution. The minimum population estimate for Pacific Coast Feeding Group gray whales is calculated as the lower 20th percentile of the log-normal distribution of the 2010 mark-recapture estimate, or 173 animals (Carretta *et al.,* 2014). If gray whales were in the vicinity of MCR, the Pacific Coast Feeding Group would be the most likely visitor. Anecdotal evidence indicates they have been seen at MCR but are not a common visitor as they mostly remain in the vicinity of the offshore shelf-break (Griffith 2015). In 1994, the Eastern North Pacific stock of gray whales was removed from the Endangered Species List as it was no longer considered ''endangered'' or ''threatened'' under the ESA. NMFS has not designated gray whales as ''depleted'' under the MMPA. The Eastern North Pacific gray whale stock is not classified as ''strategic'' under the MMPA.

Humpback Whale

According to the 2013 Pacific Marine Mammal Stock Assessments Report (Appendix 3), the estimated population of the humpback whale California/Oregon/Washington stock is about 1,918 animals (NOAA 2014a). There are at least three separate stocks of humpback whales in the North Pacific, of which one population migrates and feeds along the west coast of the United States. This population winters in coastal waters of Mexico and Central America and migrates to areas ranging from the coast of California to southern British Columbia in summer/fall (Carretta *et al.,* 2010). Within this stock, regional abundance estimates vary among the feeding areas. Average abundance estimates ranged from 200 to 400 individuals for southern British Columbia/northern Washington, and 1,400 to 1,700 individuals for California/Oregon (Calambokidis *et al.,* 2012).

There is a high degree of site fidelity in these feeding ranges with almost no interchange between these two feeding regions. Humpback whales forage on a variety of crustaceans, other invertebrates, and forage fish. In their summer foraging areas, humpback whales tend to occupy shallow, coastal waters. In contrast, during their winter migrations, humpback whales tend to occupy deeper waters further offshore and are less likely to occupy shallow, coastal waters.

Humpback whales are sighted off the Washington and Oregon coasts regularly (Carretta *et al.,* 2010, Lagerquist and Mate 2002, Oleson *et al.,* 2009). Humpback whales are known to predictably forage an average of 22 mi (35.4 km) offshore of Grays Harbor, Washington during spring and summer months (Oleson *et al.,* 2009). Grays Harbor is approximately 45 mi (72.4 km) north of the project site. Oleson et al. (2009) documented 147 individual humpback whales foraging off Grays Harbor from 2004 to 2008, and foraging whales (1–19 whales sighted per day) were sighted on 50 percent of the days surveyed (22 of 44 survey days). Anecdotally, humpback whales are regularly spotted in areas about 15 (22.14 km) to 20 miles (32.18 km) offshore of MCR (Griffith 2015).

The Corps has limited fine-scale information about humpback whale foraging habits and space use along the Washington coast and does not have specific fine-scale information for the project area. Based on the available information, humpback whales may occur within 4.6 mi (7.4 km) of the MCR jetties or 8.6 mi (13.84 km) of shore (where in-water sound from pile driving activities may be audible) given both their general tendency to occupy shallow, coastal waters when foraging, and the available information on their fine-scale use of a proximate location.

Note that in September 2015, humpback whales were spotted near the Astoria-Megler Bridge located 14 mi

(22.53 km) from where the river meets the Pacific Ocean. This was thought to be an unusual occurrence. Their presence at that time may have been due to existing El Niño conditions that drove whales closer to shore in search of food (Wilson 2015). As of March 2016, NOAA determined that El Niño conditions are in decline (Becker 2016). As such, sightings that far up river are less likely to occur. Based on this information, humpback whales are likely to pass through and may forage intermittently in the project area offshore of the Jetty system.

Harbor Porpoise

The harbor porpoise inhabits temporal, subarctic, and arctic waters. In the eastern North Pacific, harbor porpoises range from Point Barrow, Alaska, to Point Conception, California. Harbor porpoise primarily frequent coastal waters and occur most frequently in waters less than 328 ft (100 m) deep (Hobbs and Waite 2010). They may occasionally be found in deeper offshore waters.

Harbor porpoise are known to occur year-round in the inland transboundary waters of Washington and British Columbia and along the Oregon/Washington coast. Aerial survey data from coastal Oregon and Washington, collected during all seasons, suggest that harbor porpoise distribution varies by depth. Although distinct seasonal changes in abundance along the west coast have been noted, and attributed to possible shifts in distribution to deeper offshore waters during late winter, seasonal movement patterns are not fully understood. Harbor porpoises are sighted regularly at the MCR (Griffith 2015, Carretta *et al.,* 2014).

According to the online database, Ocean Biogeographic Information System, Spatial Ecological Analysis of Megavertebrate Populations (Halpin *et al.,* 2009), West Coast populations have more restricted movements and do not migrate as much as East Coast populations. Most harbor porpoise groups are small, generally consisting of less than five or six individuals, though for feeding or migration they may aggregate into large, loose groups of 50 to several hundred animals. Behavior tends to be inconspicuous, compared to most dolphins, and they feed by seizing prey which consists of a wide variety of fish and cephalopods, ranging from benthic or demersal.

The Northern Oregon/Washington coast stock of harbor porpoise inhabits the waters near the proposed project area. The population estimate for this stock is calculated at 21,847 with a minimum population estimate of 15,123 (Carretta *et al.,* 2014).

Harbor porpoise are not listed as ''depleted'' under the MMPA, listed as ''threatened'' or ''endangered'' under the ESA, or classified as ''strategic.''

Pinnipeds

Steller Sea Lion

The Steller sea lion is a pinniped and the largest of the eared seals. Steller sea lion populations that primarily occur east of 144° W (Cape Suckling, Alaska) comprise the Eastern Distinct Population Segment (DPS), which was de-listed and removed from the Endangered Species List on November 4, 2013 (78 FR 66140). This stock is found in the vicinity of MCR. The population west of 144° W longitude comprises the Western DPS, which is listed as endangered, based largely on over-fishing of the seal's food supply.

The range of the Steller sea lion includes the North Pacific Ocean rim from California to northern Japan. Steller sea lions forage in nearshore and pelagic waters where they are opportunistic predators. They feed primarily on a wide variety of fishes and cephalopods. Steller sea lions use terrestrial haulout sites to rest and take refuge. They also gather on well-defined, traditionally used rookeries to pup and breed. These habitats are typically gravel, rocky, or sand beaches; ledges, or rocky reefs (Allen and Angliss, 2013).

The MCR South Jetty is used by Steller sea lions for hauling out and is not designated critical habitat. Use occurs chiefly at the concrete block structure at the terminus, or head of the jetty, and at the emergent rubble mound made up of the eroding jetty trunk near the terminus.

Previous monthly averages between 1995 and 2004 for Steller sea lions hauled-out at the South Jetty head ranged from about 168 to 1,106 animals. More recent data from Oregon Department of Fish and Wildlife (ODFW) from 2000–2014 reflects a lower frequency of surveys, and numbers ranged from zero animals to 606 Steller sea lions (ODFW 2014). More frequent surveys by the Washington Department of Fish and Wildlife (WDFW) for the same time frame (2000–2014) put the monthly range at 177 to 1,663 animals throughout the year. According to ODFW (2014), most counts determined that animals remain at or near the jetty tip.

Steller sea lions are present all year, in varying abundances, as is shown in the Corps application. Abundance is typically lower as the summer progresses when adults are at the breeding rookeries. Steller sea lions are most abundant in the vicinity during the winter months and tend to disperse elsewhere to rookeries during breeding season between May and July. Abundance increases following the breeding season. However, this is not always true as evidenced by a flyover count of the South Jetty on May 23, 2007, where 1,146 Steller sea lions were observed on the concrete block structure and none on the rubble mound (ODFW 2007). Those counts represent a high-use day on the South Jetty. According to ODFW (2014), during the summer months it is not uncommon to observe between 500–1,000 Steller sea lions present per day, the majority of which are immature males and females (no pups or pregnant females). All population age classes, and both males and females, use the South Jetty to haul out. Only non-breeding individuals are typically found on the jetty during May-July, and a greater percentage of juveniles are present. It is likely that there is turnover in sea lions using the jetty. That is, the 100 or so sea lions hauled out one week might not be the same individuals hauled out the following week. Recent ODFW and WDFW survey data continue to support these findings. The most recent estimate from 2007 put the populations between 63,160 and 78,198 (Allen and Angliss, 2013). The best available information indicates the eastern stock of Steller sea lion increased at a rate of 4.18 percent per year between 1979 and 2010 based on an analysis of pup counts in California, Oregon, British Columbia and Southeast Alaska (Allen and Angliss, 2013).

California Sea Lion

California sea lions are found along the west coast from the southern tip of Baja California to southeast Alaska. They breed mainly on offshore islands from Southern California's Channel Islands south to Mexico. Non-breeding males often roam north in spring foraging for food. Since the mid-1980s, increasing numbers of California sea lions have been documented feeding on fish along the Washington coast and—more recently—in the Columbia River as far upstream as Bonneville Dam, 145 mi (233 km) from the river mouth. The population size of the U.S. stock of California sea lions is estimated at 296,750 animals (Carretta *et al.,* 2014). As with Steller sea lions, according to ODFW (2014) most counts of California sea lions are also concentrated near the tip of the jetty, although animals sometimes haul out about halfway down

the jetty. Survey information (2007 and 2014) from ODFW indicates that California sea lions are relatively less prevalent in the Pacific Northwest during June and July; though in the months just before and after their absence several hundred may be observed using the South Jetty. More frequent WDFW surveys (2014) indicate greater numbers in the summer, and use remains concentrated to fall and winter months. Nearly all California sea lions in the Pacific Northwest are sub-adult and adult males (females and young generally stay in California). Again, turnover of sea lions using the jetty is likely (ODFW 2014).

California sea lions in the United States are not listed as ''endangered'' or ''threatened'' under the Endangered Species Act, classified as ''depleted'' under the MMPA, or listed as ''strategic'' under the MMPA.

Harbor Seal

Harbor seals range from Baja California, north along the western coasts of the United States, British Columbia and southeast Alaska, west through the Gulf of Alaska, Prince William Sound, and the Aleutian Islands, and north in the Bering Sea to Cape Newenham and the Pribilof Islands. They haul out on rocks, reefs, beaches, and drifting glacial ice and feed in marine, estuarine, and occasionally fresh waters. Harbor seals generally are non-migratory, with local movements associated with tides, weather, season, food availability, and reproduction. Harbor seals do not make extensive pelagic migrations, though some long distance movement of tagged animals in Alaska (559mi/900 km) and along the west coast of the United States (up to 341 mi/550 km) have been recorded. Harbor seals have also displayed strong fidelity to haulout sites (Carretta *et al.,* 2014).

The 1999 harbor seal population estimate for the Oregon/Washington Coast stock was about 24,732 animals. However, the data used was over eight years old; and therefore, there are no current abundance estimates. Harbor seals are not considered to be ''depleted'' under the MMPA or listed as ''threatened'' or ''endangered'' under the ESA. The Oregon/Washington coast stock of harbor seals is not classified as a ''strategic'' stock under the MMPA (Carretta *et al.,* 2014).

Further information on the biology and local distribution of these species can be found in the Corps application available online at: *http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm* and the NMFS Marine Mammal Stock Assessment Reports, which may be found at: *http://www.nmfs.noaa.gov/pr/species/.*

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 *Proposed 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 mi (8.5 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 2.

TABLE 2—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

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms have been derived using auditory evoked potentials, anatomical modeling, and other data. Southall *et al.* (2007) designate ''functional hearing groups'' for marine mammals and estimate the lower and upper frequencies of functional hearing of the groups. The functional groups and the associated frequencies are indicated below (though animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

• Low frequency cetaceans (13 species of mysticetes): Functional hearing is estimated to occur between approximately 7 Hz and 25 kHz;

• Mid-frequency cetaceans (32 species of dolphins, 6 species of larger toothed whales, and 19 species of beaked and bottlenose whales): Functional hearing is estimated to occur between approximately 150 Hz and 160 kHz;

• High frequency cetaceans (8 species of true porpoises, 6 species of river dolphins, Kogia, the franciscana, and four species of cephalorhynchids): Functional hearing is estimated to occur between approximately 200 Hz and 180 kHz;

• Phocid pinnipeds in water: Functional hearing is estimated to occur between approximately 75 Hz and 100 kHz; and

• Otariid pinnipeds in water: Functional hearing is estimated to occur between approximately 100 Hz and 48 kHz.

Of the four cetacean species likely to occur in the proposed project area, one is classified as low-frequency cetaceans (*i.e.,* humpback, gray whales), one is classified as a mid-frequency cetacean (*i.e.,* killer whale), and one is classified as a high-frequency cetacean (*i.e.,* harbor porpoise) (Southall *et al.,* 2007). Additionally, harbor seals are classified as members of the phocid pinnipeds in water functional hearing group while Steller sea lions and California sea lions are grouped under the otariid pinnipeds in water functional hearing group. A species' functional hearing group is a consideration when we analyze the effects of exposure to sound on marine mammals.

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).

Given the available data, the received level of a single pulse (with no frequency weighting) might need to be approximately 186 dB re 1 μPa^2-s (*i.e.,* 186 dB sound exposure level (SEL) or approximately 221–226 dB p-p (peak)) in order to produce brief, mild TTS. Exposure to several strong pulses that each have received levels near 190 dB rms (175–180 dB SEL) might result in cumulative exposure of approximately 186 dB SEL and thus slight TTS in a small odontocete, assuming the TTS threshold is (to a first approximation) a function of the total received pulse energy.

The above TTS information for odontocetes is derived from studies on the bottlenose dolphin (*Tursiops truncatus*) and beluga whale (*Delphinapterus leucas*). There is no published TTS information for other species of cetaceans. However, preliminary evidence from a harbor porpoise exposed to pulsed sound suggests that its TTS threshold may have been lower (Lucke *et al.,* 2009). As summarized above, data that are now available imply that TTS is unlikely to occur unless odontocetes are exposed to pile driving pulses stronger than 180 dB re 1 µPa (rms).

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 can incur TTS, it is possible 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, based on anatomical similarities. PTS might occur at a received sound level at least several decibels above that inducing mild TTS if the animal were exposed to strong sound pulses with rapid rise time. Based on data from terrestrial mammals, a precautionary assumption is that the PTS threshold for impulse sounds (such as pile driving pulses as received close to the source) is at least six dB higher than the TTS threshold on a peak-pressure basis and probably greater than six dB (Southall *et al.,* 2007). On an SEL basis, Southall *et al.* (2007) estimated that received levels would need to exceed the TTS threshold by at least 15 dB for there to be risk of PTS. Thus, for cetaceans, Southall *et al.* (2007) estimate that the PTS threshold might be an M-weighted SEL (for the sequence of received pulses) of approximately 198 dB re 1 μPa^2-s (15 dB higher than the TTS threshold for an impulse). Given the higher level of sound necessary to cause PTS as compared with TTS, it is considerably less likely that PTS could occur.

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, 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 kPa (30 psi) 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 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 far 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 proposed 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.

Vessel Interaction

Besides being susceptible to vessel strikes, cetacean and pinniped responses to vessels may result in behavioral changes, including greater variability in the dive, surfacing, and respiration patterns; changes in vocalizations; and changes in swimming speed or direction (NRC 2003). There will be a temporary and localized increase in vessel traffic during construction. A maximum of three work barges will be present at any time during the in-water and over water work. The barges will be located in close proximity to each other near the construction site.

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 proposed action is not anticipated to measurably exceed levels caused by these normal, natural periods.

Proposed Mitigation

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.

For the proposed mitigation measures, the Corps listed the following protocols to be implemented during its proposed jetty rehabilitation program at MCR.

1. Briefings With Construction Crew, Marine Mammal Monitoring Team and Corps Staff

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.

2. Vibratory Hammer

All pile driving and removal activities will be conducted only using a vibratory hammer.

3. Shutdown and Disturbance Zones

The shutdown zone will include all areas where the underwater SPLs are anticipated to equal or exceed the Level A (injury) criteria for marine mammals

(180 dB isopleth for cetaceans; 190 dB isopleth for pinnipeds). The shutdown zone will always be a minimum of 66 ft (20 m) to prevent injury from physical interaction of marine mammals with construction equipment. The Level B harassment zone would extend 4.6 mi (7.4 km) from the sound source. The Level A and B harassment thresholds are depicted in Table 4 found later in the *Estimated Take by Incidental Harassment* section.

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 66 ft (20 m), operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. This type of work could include the following activities: (1) Movement of the barge to the pile location or (2) positioning of the pile on the substrate via a crane (*i.e.,* stabbing the pile).

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.

A monitoring plan will be implemented as described in Sections 13 and 16 of the Application. This plan includes shutdown zones and specific procedures in the event a mammal is encountered.

If a marine mammal approaches or enters the injury 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 for pinnipeds or 30 minutes for cetaceans have passed without re-detection of the animal.

Marine Mammal Observers (MMO) will 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 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 would 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 work will not be conducted during their primary feeding season extending from October 1 until May 1. Installation could occur from May 1 through September 30 each year.

If between May 1 and July 1 any killer whales are observed within the area of zone of influence (ZOI), comprising the Level A 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. In order to avoid take of endangered Southern Resident killer whales, which may be indistinguishable from transient whales, after July 1 until September 30 all killer whales will be assumed to be transients. 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 proposed 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,

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

1. Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal);

2. A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of pile driving, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only);

3. A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of pile driving, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only);

4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of pile driving, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only);

5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time; and

6. For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

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

Proposed 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 proposed action area. The Corps submitted information regarding marine mammal monitoring to be conducted during pile driving and removal operations as part of the proposed rule application. That information can be found in sections 13 and 16 of the application. The monitoring measures may be modified or supplemented based on comments or new information received from the public during the public comment period.

Monitoring measures proposed by the applicant or 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.

Proposed Monitoring Measures

1. Visual Vessel-Based Monitoring

The Corps will employ one or two vessels to monitor shutdown and disturbance zones for pile-driving and removal activities at the North Jetty and South Jetty offloading facilities. Section 16 of the Application indicates roughly where these vessels will be located. These vessels will be traversing across the delineated disturbance zones associated with the site at which active pile driving is occurring.

2. Visual Shore-Based Monitoring

- Visual 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.
- 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.
- 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.

3. Hydroacoustic Monitoring

A hydroacoustic monitoring plan shall be employed using an appropriate method reviewed and approved by NMFS to ensure that the harassment isopleths are not extending past the initial distances established.

Data Collection

We require that observers 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.

Proposed Reporting Measures

The Corps would submit an annual report to NMFS's Permits and Conservation Division within 90 days of the end of every operating season (October 1) during the five-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 (if issued), such as an injury (Level A harassment), serious injury or mortality (*e.g.,* ship-strike, gear interaction, and/or entanglement), the Corps would 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 would 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 would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with the Corps to determine necessary actions to minimize the likelihood of further prohibited take and ensure MMPA compliance. The Corps would 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 would 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 would include the same information identified in the section above. Activities would be able to continue while NMFS reviews the circumstances of the incident. NMFS would 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 would report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, 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 would 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 would 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 proposed 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. Because there are regular haul-outs in close proximity to South Jetty, we believe that incidents of incidental take may occur. Furthermore, 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 proposed action, about six days of surveys over three seasons would 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 generic 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. These thresholds below (Table 3) are used to estimate when harassment may occur (*i.e.,* when an animal is exposed to levels equal to or exceeding the relevant criterion). NMFS is working to revise these acoustic guidelines; for more information on that process, please visit *www.nmfs.noaa.gov/pr/acoustics/guidelines.htm.*

TABLE 3—UNDERWATER INJURY AND DISTURBANCE THRESHOLD DECIBEL LEVELS FOR MARINE MAMMALS

Criterion	Criterion definition	Threshold*
Level A harassment	PTS (injury) conservatively based on TTS**	190 dB RMS for pinnipeds 180 dB RMS for cetaceans.
Level B harassment	Behavioral disruption for impulse noise (*e.g.,* impact pile driving).	160 dB RMS.
Level B harassment	Behavioral disruption for non-pulse noise (*e.g.,* vibratory pile driving, drilling).	120 dB RMS.

*All decibel levels referenced to 1 micropascal (re: 1 μPa). Note all thresholds are based off root mean square (RMS) levels.
**PTS = Permanent Threshold Shift; TTS = Temporary Threshold Shift.

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 fifteen 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 proposed action are similar to those recently proposed 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. The Corps project is also in the immediate proximity of the open ocean, with less opportunity for sound attenuation by land.

NMFS considered representative results from underwater monitoring for concrete, 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, concrete, 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 proposed action. In some cases, becausee 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, though it will consult with NMFS regarding the originally proposed size.

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, as well as 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 but has indicated jetty attenuation in the ZOI area maps (See Figures 18, 19, 20, and 21 in the Application).

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 proposes to use 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-inch 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 proposes 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. Results are listed in Tables 4, 5, 6, and 7.

TABLE 4—CALCULATED AREA ENCOMPASSED WITHIN ZONE OF INFLUENCE AT MCR JETTIES FOR UNDERWATER MARINE MAMMAL SOUND THRESHOLDS AT JETTY A

Jetty	Underwater threshold	Distance—m (ft)	Area excluding land & jetty masses—km² (mi²)
Jetty A: ~ Station 78+50, River Side	Vibratory driving, pinniped injury (190 dB)	0	0
	Vibratory driving, cetacean injury (180 dB)	1 (3.3)	<0.000003 (0.000001)
	Vibratory driving, disturbance (120 dB)	7,356 (4.6 miles)	23.63 (9.12)

TABLE 5—CALCULATED AREA ENCOMPASSED WITHIN ZONE OF INFLUENCE AT MCR JETTIES FOR UNDERWATER MARINE MAMMAL SOUND THRESHOLDS AT NORTH JETTY: CHANNEL SIDE

Jetty	Underwater threshold	Distance—m (ft)	Area excluding land & jetty masses—km² (mi²)
North Jetty: ~ Station 70+00, Channel Side	Vibratory driving, pinniped injury (190 dB)	0	0
	Vibratory driving, cetacean injury (180 dB)	1 (3.3)	<0.000003 (0.000001)
	Vibratory driving, disturbance (120 dB)	7,356 (4.6 miles)	49.18 (18.99)

TABLE 6—CALCULATED AREA ENCOMPASSED WITHIN ZONE OF INFLUENCE AT MCR JETTIES FOR UNDERWATER MARINE MAMMAL SOUND THRESHOLDS AT SOUTH JETTY: CLATSOP SPIT SITE

Jetty	Underwater threshold	Distance—m (ft)	Area excluding land & jetty masses—km² (mi²)
South Jetty: ~ Clatsop Spit Side	Vibratory driving, pinniped injury (190 dB)	0	0
	Vibratory driving, cetacean injury (180 dB)	1 (3.3)	<0.000003 (0.000001)
	Vibratory driving, disturbance (120 dB)	7,356 (4.6 miles)	51.96 (20.06)

TABLE 7—CALCULATED AREA ENCOMPASSED WITHIN ZONE OF INFLUENCE AT MCR JETTIES FOR UNDERWATER MARINE MAMMAL SOUND THRESHOLDS AT SOUTH JETTY: STATION 270+00 CHANNEL SIDE

Jetty	Underwater threshold	Distance—m (ft)	Area excluding land & jetty masses—km^2 (mi^2)
South Jetty: ~ Channel Side	Vibratory driving, pinniped injury (190 dB)	0	0
	Vibratory driving, cetacean injury (180 dB)	1 (3.3)	<0.000003 (0.000001)
	Vibratory driving, disturbance (120 dB)	7,356 (4.6 miles)	52.89 (20.42)

Note that the actual area ensonified by pile driving activities is significantly constrained by local topography relative to the total threshold radius. The actual ensonified area was determined using a straight line-of-sight projection from the anticipated pile driving locations. These areas are depicted in Figures 18, 19, 20 and 21 in the Application.

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 at each of the three offloading facilities would occur over an approximate span of ~17 days per facility resulting in 51 days. Assuming that not all of the Jetty A work was completed prior to the expiration of the IHA, seven days were added to cover remaining work at that location. 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.

The exposure estimates for cetaceans were generated using the following general equation. Note that additional details are provided below for each species for which authorized take is proposed:

Exposure estimate = (n * ZOI) * days of total activity over 5 years

Where:

n = density estimate used for each species/season

ZOI = sound threshold ZOI area; the area encompassed by all locations where the SPLs equal or exceed the threshold being evaluated as shown in Tables 4, 5, 6, and 7.

n * ZOI produces an estimate of the abundance of animals that could be present in the area for exposure, and is multiplied by days of total activity.

Exposure estimates for pinnipeds were generated using haulout data collected by state wildlife agencies depicting the numbers of various pinniped species that are hauled out near the tip of the South Jetty.

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 as a result of 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.

Killer Whale

Southern Resident killer whales have been observed offshore near the study area and ZOI, but the Corps does not have fine-scale details on frequency of use. 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 is proposing to include vessel surveys 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. 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 resident. They are rarely observed inside of the jetty system. The Pacific U.S. Navy Marine Species Density Database (Hanser *et al.,* 2014) provides an estimated density of 0.00055–0.00411 animals per km² for killer whales in spring, summer and fall for offshore areas near MCR. Only North Jetty and South Jetty were included as part of this calculation because the ensonified zones associated with driving at the two locations extends out into the open ocean where killer whales may occur. The ensonified zones associated with Jetty A and Clatsop Spit are located to the inland side of the Jetty system where killer whales are unlikely to be found.

The following formula was used to calculate exposure:

$$\text{Exposure Estimate} = (0.00411_{\text{DensityEstimate}} * 48.18_{\text{ZOI North Jetty}} * 17_{\text{days}}) + (0.00411_{\text{DensityEstimate}} * 52.89_{\text{ZOI South Jetty}} * 17_{\text{days}}) = 7.05 \text{ whales}$$

Where:

$N_{\text{DensityEstimate}}$ = Estimated density of species within the 7.35 km (4.6 mi) radii encompassing the ZOIs at the North Jetty (48.18 km²) and South Jetty (52.89 km²) using the U.S. Navy density model (2014)

Days = Total days of pile installation or removal activity (17 days/facility * North and South Jetty offloading facilities = 34 days)

While the calculated exposure is 7.05 whales, 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 4 pods of 5 killer whales will exposed to Level B harassment.

Humpback Whale

The Corps does not have fine-scale information about humpback whale use within the immediate project area. The Navy (2014) marine mammal database indicates that between 0.002 animals per km² occur near the mouth of the Columbia River during spring (March–May) while the summer (June–August) and fall (September–November) densities are 0.0214 animals per km². Most of the pile installation is likely to be done in May or June at the beginning of the construction season while pile removal would occur towards the end of the season in August and September. Repair or replacement of piles, although not anticipated, could occur anytime during the five month construction season. Therefore, NMFS will conservatively assume that approximately 20 percent of driving will occur during each month between May and September, which equates to 3.4 days per month. Rounding to full days, NMFS will assume that 3 days of driving per month will occur from June through August while 4 days of driving will occur in the months of May and September. Humpback whales will only occur in the offshore portions of the project area which would be the ensonified areas associated with driving activities at the North and South Jetties.

The following formula was used to calculate exposure:

$$\text{Exposure Estimate} = (0.002_{\text{DensityEstimate}} * 48.18_{\text{ZOI North Jetty}} * 4_{\text{days (May)}} + 0.0214_{\text{DensityEstimate}} * 48.18_{\text{ZOI North Jetty}} * 13_{\text{days (June–September)}}) + (0.002_{\text{DensityEstimate}} * 52.89_{\text{ZOI South Jetty}} * 4_{\text{days (May)}} + 0.0214_{\text{DensityEstimate}} * 52.89_{\text{ZOI South Jetty}} * 13_{\text{days (June–September)}}) = 28.9 \text{ humpback whale exposures.}$$

Based on the above formula, an estimate of 29 (28.9) humpback whale disturbance exposures was calculated over the duration of the entire project. Therefore, NMFS is recommending Level B take of 29 humpback whales.

Gray Whales

Anecdotal evidence also indicates gray whales have been seen at 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 MCR.

The Navy (2014) marine mammal database indicates that between 0.0487 animals per km² occur near the mouth of the Columbia River during spring (March–May) while the summer (June–August) and fall (September–November) densities are 0.00045 animals per km². NMFS will conservatively assume that approximately 20 percent of driving will occur during each month between May and September which equates to 3.4 days per month. Rounding to full days NMFS will assume that three days of drilling per month will occur from June through August while four days of drilling will occur in the months of May and September. Gray whales would only occur in the offshore portions of the project area associated with pile driving activities at the North and South Jetties.

The following formula was used to calculate exposure:

$$\text{Exposure Estimate} = +(0.0487_{\text{DensityEstimate}} * 48.18_{\text{ZOI North Jetty}} * 4_{\text{days (May)}} + 0.00045_{\text{DensityEstimate}} * 48.18_{\text{ZOI North Jetty}} * 13_{\text{days (June–September)}}) + (0.0487_{\text{DensityEstimate}} * 52.89_{\text{ZOI South Jetty}} * 4_{\text{days (May)}} + 0.00045_{\text{DensityEstimate}} * 52.89_{\text{ZOI South Jetty}} * 13_{\text{days (June–September)}}) = 20.27 \text{ gray whale exposures.}$$

However, the number of gray whale exposures at the North Jetty and South Jetty locations should be higher than that of humpback whales because gray whales are known to inhabit nearshore environments in greater numbers than humpback whales.

Gray whales typically migrate in pods numbering between 1 and 3 although migrating pods of 16 or more have been recorded (Jefferson *et al.,* 1993.) For gray whales, NMFS will conservatively assume 20 pods of 2 gray whales will be exposed for work done at the North Jetty and South Jetty sites. Therefore, the total number of proposed takes is 40 gray whales.

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 are also known to occur within the proposed project area (Griffith 2015).

The Navy (2014) provides an estimated year round density of 1.67163 animals per km² for offshore waters near the MCR. This number will be utilized to estimate take for all four jetties as porpoises are known to occur on the inland side of the jetty complex.

The formula used for harbor porpoises is below:

Exposure Estimate =
($1.67163_{\text{DensityEstimate}}$ * $23.63_{\text{ZOI Jetty A}}$ * 7_{days})
+ ($1.67163_{\text{DensityEstimate}}$ * $48.18_{\text{ZOI North Jetty}}$ * 17_{days})
+ ($1.67163_{\text{DensityEstimate}}$ * $52.89_{\text{ZOI South Jetty Channel}}$ * 17_{days})
+ ($1.67163_{\text{DensityEstimate}}$ * $51.96_{\text{ZOI South Jetty Clatsop}}$ * 17_{days})
= 4,624 harbor porpoise exposures.

Based on the density model suggested by NOAA (2015), the Corps has provided a very conservative maximum estimate of 4,624 harbor porpoise disturbance exposures over the 58 days of operation. However, this number of potential exposures does not accurately reflect the actual number of animals that would potentially be taken for the MCR jetty project. Rather, it is more likely that the same animal may be exposed more than once during each 17-day operating window. According to Halpin *et al.* (2009), the normal range of group size generally consists of less than five or six individuals, although aggregations into large, loose groups of 50 to several hundred animals could occur for feeding or migration. Because the ZOI only extends for a maximum 7.35 km (4.6 mi), it is likely that due to competition and territorial circumstances only a limited number of pods would be feeding in the ZOI at any particular time, and members of this small number of pods could be taken repeatedly. NMFS is recommending Level B take of 4,624 harbor porpoises.

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 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 be between 200–800 animals per day depending on the particular month. California sea lion numbers could range from 1 to 500 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 WDFW (2000–2014 data), which had a more robust monthly sampling frequency relative to 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 utilized the average of counts from May through September from surveys conducted in between 2000 and 2014 at the South Jetty. This survey data was used to calculate take of animals exposed to Level B disturbance at the South Jetty's pinniped haulout area. 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 four ensonified zones associated with each offloading facility. Therefore, they would be exposed to noise at or above the Level B thresholds.

To calculate take, NMFS will take the average daily counts from the months of May and June, when pile driving is likely to occur. This will be multiplied by the total number of days of driving (58) at the four offloading facilities.

Exposure $\text{Estimate}_{\text{Stellar}}$ = ($N_{\text{est(May–Sept)}}$ * $58_{\text{underwater/piles days}}$)
= 27,773 Steller sea lions

Exposure $\text{Estimate}_{\text{California}}$
= ($N_{\text{est(May–Sept)}}$ * $58_{\text{underwater/piles days}}$)
= 8,039 California sea lions

Exposure $\text{Estimate}_{\text{Harbor}}$ = ($N_{\text{est(May–Sept)}}$ * $58_{\text{underwater/piles days}}$)
= 989 Harbor porpoises

Where:

N_{est} = Estimated daily average number of animals for May and June hauled out at South Jetty based on WDFW data and ODFW data

Duration = total days of pile installation or removal activity for underwater thresholds (58); 17 days each at North Jetty, South Jetty, and Clatsop Spit and 7 days remaining at Jetty A.

In order to estimate exposure from pedestrian surveys, NMFS assumed that over the span of three survey seasons (6 days), there was a chance of visual disturbance impacting one percent of pinnipeds that may be hauled out on the jetty during any single day. Because survey days are weather dependent and occur in the summer time, the Corps conservatively selected from the highest monthly average species number during the summer months between May and August. Pinniped exposure estimates are found in Table 8.

TABLE 8—AUTHORIZED TAKES OF PINNIPEDS DURING PILE INSTALLATION AT JETTY A, NORTH JETTY, SOUTH JETTY, AND CLATSOP SPIT

Month	Steller sea lion	California sea lion	Harbor seal
	Avg [1] #	Avg [1] #	Avg [1 2] #
April	587	99	.....
May	824	125	0
June	676	202	57
July	358	1	10
August	324	115	1
September	209	249	.....
October	384	508	.....
Avg Daily Count (May–Sept) [3]	478	138	17
Total Pile Driving Exposures (58 days)	27,724	8,027	986
Pedestrian Survey Exposures—1% of highest monthly $\text{Avg.}_{\text{May–August}}$ (6 days)	49	12	3
Total Exposures	27,773	8,039	989

[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.

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 1, 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, else species-specific factors would 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' proposed pile driving activities are localized and of short duration. The entire project area is limited to the four jetty offloading facilities and their immediate surroundings. Pile driving activities covered under the LOA would take on approximately 10 hours per day for 58 days over a five year period. Six days of pedestrian surveys 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 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 proposed 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 proposed action areas. Therefore, the take resulting from the proposed project is not reasonably expected to and is not reasonably likely to adversely affect the marine mammal species or stocks through effects on annual rates of recruitment or survival.

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; but, 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.

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 May 1 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 July 1 it would be highly unlikely for Southern Residents to occur in the project areas. 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 and; (3) the presumed efficacy of the proposed 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 proposed 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.

TABLE 9—ESTIMATED PERCENTAGE OF SPECIES/STOCKS THAT MAY BE EXPOSED TO LEVEL B HARASSMENT

Species	Total proposed 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)	29/6	1,918	0.3
Gray whale (Eastern North Pacific Stock)	40/8	18,017	<0.01
Harbor porpoise	4,624/924	21,487	4.3
Steller sea lion	27,773/5,555	63,160–78,198	8.8–7.1
California sea lion	8,039/1,608	296,750	0.5
Harbor seal	989/198	24,732	0.8

Small Numbers Analysis

Table 9 illustrates the number of animals that could be exposed to received noise levels that could cause Level B behavioral harassment for the proposed 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 proposed LOA. This was done because the small numbers analysis must be conducted on an annual basis.

Note that the work at the four jetty offloading facilities will not be spread evenly over the proposed 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 17.6 percent (11,110 Steller sea lions). Furthermore, the small numbers analyses of annual averages shown in Table 9 represents between 8.8 percent and <0.01 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 proposed 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 proposed project area and, thus, no subsistence uses impacted by this action.

Endangered Species Act (ESA)

We previously requested a section 7 consultation with NMFS West Coast Region for this action. The resultant Biological Opinion determined that the proposed action was not likely to jeopardize the continued existence of humpback whales. The West Coast Region has determined that the March 18, 2011, Biological Opinion remains valid and that the proposed MMPA authorization provides no new information about the effects of the action, nor does it change the extent of effects of the action, nor offers any other basis to require reinitiation of the consultation. Therefore, the March 18, 2011, Biological Opinion meets the

requirements of section 7(a)(2) of the ESA and implementing regulations at 50 CFR part 402 for our proposed action to issue an LOA under the MMPA, and no further consultation is required. The West Coast Region will issue a new Incidental Take Statement and append it to the 2011 Biological Opinion.

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* and *Finding of No Significant Impact* in 2011. The environmental assessment (EA) and finding of no significant interest (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 proposed 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 preliminarily determined that a new or supplemental EA or Environmental Impact Statement is unnecessary, and will, after review of public comments, determine whether or not to rely on the existing EA and FONSI. The 2012 EA is available for review at *www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.*

Classification

The Office of Management and Budget has determined that this proposed rule is not significant for purposes of Executive Order 12866.

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce has certified to the Chief Counsel for Advocacy of the Small Business Administration that this proposed rule, if adopted, would 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 proposed regulations. 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 proposed 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 a Letter of Authorization 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 pursuant to the RFA. Because this action, if adopted, would directly affect 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.

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 Paperwork Reduction Act (PRA) unless that collection of information displays a currently valid OMB control number.

This proposed rule contains collection-of-information requirements subject to the provisions of the PRA. These requirements have been approved by OMB under control number 0648–0151 and include applications for regulations, subsequent LOAs, and reports. Send comments regarding any aspect of this data collection, including suggestions for reducing the burden, to NMFS and the OMB Desk Officer (see **ADDRESSES**).

The Office of Management and Budget has determined that this proposed 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.

List of Subjects in 50 CFR Part 217

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

Dated: August 16, 2016.

Samuel D. Rauch III,

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

For reasons set forth in the preamble, 50 CFR part 217 is proposed to be 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 nearshored 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.

(a) 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.

(b) The incidental take of marine mammals under the activities identified in § 217.230(a) is limited to the indicated number of takes on an annual basis of the following species and is limited to Level B harassment:

(1) Cetaceans:

(i) Humpback whale (*Megaptera novaeangliae*)—29;

(ii) Harbor porpoise (*Phocoena phocoena*)—4,624;

(iii) Killer whale (*Orcinus orca*)—20;

(iv) Gray whale (*Eschrichtius robustus*)—40;

(2) Pinnipeds:

(i) Harbor seal (*Phoca vitulina*)—989;

(ii) Steller sea lion (*Eumetopias jubatus*)—27,773; and

(iii) California Sea Lion (*Zalophus californianus*)—8,039.

§ 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 § 217.232(b);

(2) Take any marine mammal specified in § 217.232(b) other than by incidental Level B harassment;

(3) Take a marine mammal specified in § 217.232(b) 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 § 217.232(b) 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, 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 65 ft (20 m) and 4.6 mi (7.35 km) from driving operations.

(c) Establishment of shutdown zone:

(1) The Corps shall implement a minimum shutdown zone of 65 ft (20 m) radial distance from vibratory hammer driving activities;

(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 66 ft (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;

(4) If a marine mammal is seen above water within or approaching a shutdown zone then dives below, the contractor would wait 15 minutes for pinnipeds and 30 minutes for cetaceans. 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 not defined as exclusion zones in paragraph (c) of this section. 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 § 217.232(b) 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 § 217.232(b) is exceeded, or if any marine mammal species not listed in § 217.232(b) 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 Level A take zone.

(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. One or two vessels may be utilized as necessary to adequately monitor the offshore ensonified zone;

(vii) Any marine mammals listed in § 217.232(b) 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;

(ix) Hydroacoustic monitoring; and

(x) Hydroacoustic monitoring shall be performed using an appropriate method reviewed and approved by NMFS.

(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) The Corps shall submit a draft annual report to NMFS Office of Protected Resources covering a given calendar year within ninety 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.

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

(e) 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 (Level A harassment), 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 paragraph (e) of this section. 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 paragraph (e) (of this section 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 paragraph (e) 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 proposed 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 proposed 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 a LOA:

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

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

(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.

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

(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 § 217.232(b), an LOA may be modified without prior notice or opportunity for public comment. Notice would 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

RIN 0648–BG19

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Reef Fish Fishery of the Gulf of Mexico; Amendment 45

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

ACTION: Notice of availability; request for comments.

SUMMARY: The Gulf of Mexico (Gulf) Fishery Management Council (Council) has submitted Amendment 45 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (FMP) for review, approval, and implementation by NMFS. Amendment 45 would extend the sunset date of the red snapper sector separation measures for an additional 5 years, through the end of the 2022 fishing year. The intent of Amendment 45 is to extend the sector separation measures to allow the Council more time to consider and possibly develop alternative management strategies within the Gulf red snapper recreational sector.

DATES: Written comments must be received on or before October 24, 2016.

ADDRESSES: You may submit comments on the amendment identified by ''NOAA–NMFS–2016–0089'' by either of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2016-0089,* click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.
- *Mail:* Submit written comments to Peter Hood, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of