E 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RTID 0648-XA199

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Army Corps of Engineers Port San Luis Breakwater Repair Project, Avila Beach, California

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

ACTION: Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

SUMMARY: NMFS has received a request from the Army Corps of Engineers (ACOE) for authorization to take marine mammals incidental to the Port San Luis Breakwater Repair Project in Avila Beach, California. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-year renewal that could be issued under certain circumstances and if all requirements are met, as described in **Request for Public Comments** at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorizations and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than [*insert date 30 days after date of publication in the* ***FEDERAL REGISTER***].

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service. Electronic comments should be sent to *ITP.Meadows@noaa.gov*.

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period. Comments received electronically, including all attachments, must not exceed a 25-megabyte file size. Attachments to electronic comments will be accepted in Microsoft Word or Excel or Adobe PDF file formats only. All comments received are a part of the public record and will generally be posted online at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.*, name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Dwayne Meadows, Ph.D., Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical

region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

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

The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

National Environmental Policy Act

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

This action is consistent with categories of activities identified in Categorical Exclusion B4 (incidental harassment authorizations with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has

preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review.

We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

Summary of Request

On March 13, 2020, NMFS received an application from the ACOE requesting an IHA to take small numbers of three species of pinnipeds incidental to resetting and replacing stone and dredging associated with the San Luis Breakwater Repair Project. ACOE subsequently notified us that funding, workload and other issues led them to delay the project 1 year. A revised application was sent on February 18, 2021 and the application process was reinitiated. The application was deemed adequate and complete on March 1, 2021. ACOE's request is for take of a small number of three species of marine mammals by Level B harassment. Neither the ACOE nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Proposed Activity

Overview

The project consists of the repair of a deteriorating breakwater at Port San Luis, California. The proposed project is required to protect Port San Luis Harbor and maintain safe navigability within the port. Repair work includes minor excavation of shoaled sediment (~ 15,000 cubic yards (11,470 cubic meters)) adjacent to the leeward side of the breakwater to create adequate depths for barges and support boats to access the breakwater for the repair. Approximately 29,000 tons (26,310 metric tons) of existing stone would need to be reset and 60,000 tons (54,430 metric tons) of new stone (stones range from 5 to 20 tons (4.5 – 18.1 metric tons) each) would be placed to restore the most heavily damaged portion of the breakwater. The project is expected to take no more than

174 work days over 7 months. The sounds and visual disturbance from the work can result in take of marine mammals through behavioral harassment and/or auditory injury.

Dates and Duration

The IHA will be valid April 1, 2022 through March 31, 2023. Due to the location of the breakwater, the work would be fully or partially exposed to open ocean wave conditions. Adverse wave and inclement winter weather conditions at the breakwater generally preclude safe working conditions during the months of November to March. Therefore, the analysis emphasizes conditions during the likely work window but considers that work could possibly occur anytime during the year in case work is not completed and decent weather days occur in late fall and winter.

Specific Geographic Region

The project site is located on the central California Coast, approximately midway between Los Angeles and San Francisco, in San Luis Obispo County (Figure 1). An offshore rock formation on the seaward side of the breakwater's southern end absorbs direct wave energy and reduces the intensity of waves reaching the breakwater. This allows for manageable pinniped haulout locations on both the seaward and leeward sides of the breakwater in proximity to this rock. A small island called Smith Island is approximately 400 meters (m) (1312 feet) to the northwest of the breakwater and also attracts pinnipeds. Smith Island is also near some eelgrass remediation that is part of the project.

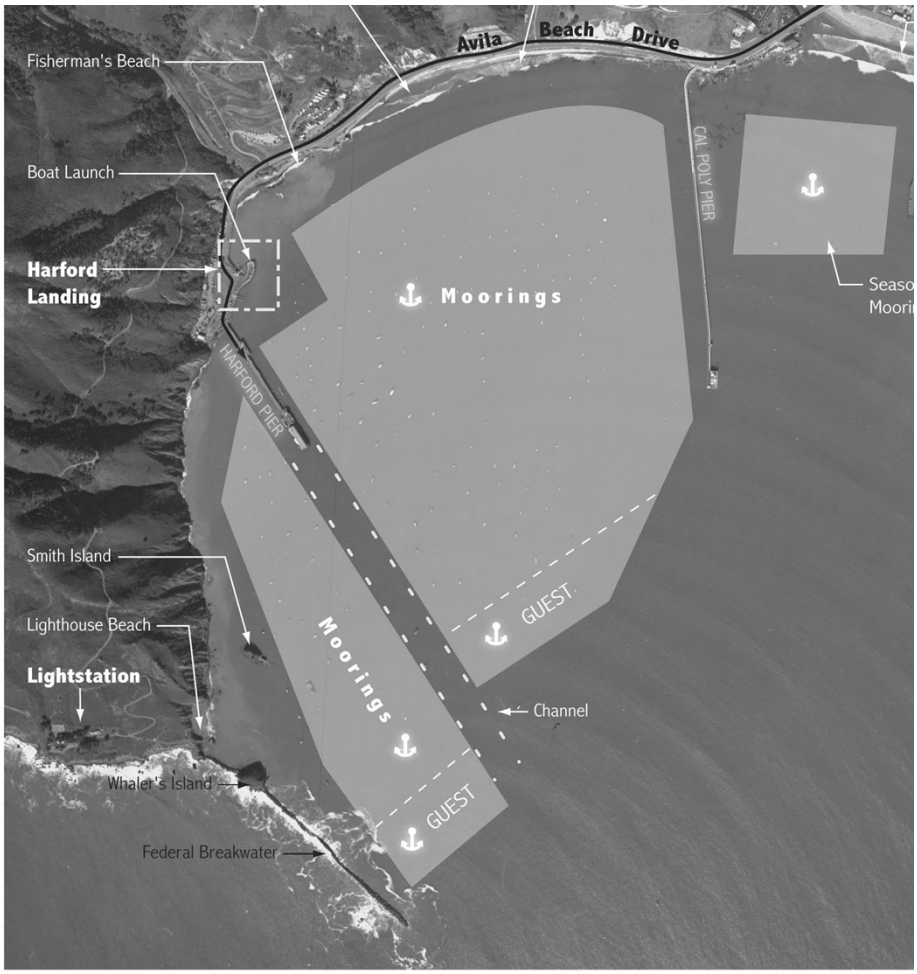

Figure 1 -- Map of Proposed Project Area*

* Breakwater is in the lower left and moorings created by the breakwater stretch to the north and east. Smith Island and other key locations labelled.

Detailed Description of Specific Activity

Port San Luis breakwater is approximately 2,400 feet (730 m) long and 20 feet (6 m) wide. Repair work would focus on the most heavily damaged 1,420 feet (430 m) at the seaward end of the breakwater. The footprint of the breakwater would not be changed, but the crest elevation would be raised 3 feet (1 m) from +13 feet Mean Lower Low Water (MLLW) to +16 feet MLLW for hydraulic stability, to accommodate larger armor stone, to meet design criteria, and to account for sea level rise. Repair work could potentially extend to the sea bed to ensure a stable slope and structural stability is maintained. Repair work construction activities would be limited to daylight hours (approximately 11 hours a day), 6 days a week.

The sediment removal is the first phase of the project and would require one to 3 weeks. The excavated material would be side cast to an adjacent area from where it was removed. The sediment excavation requires a crane-equipped barge, possibly a scow, up to two tugboats, and two small craft support vessels. The crane on the barge will be outfitted with a clamshell bucket which will be lowered by the crane operator to the sea floor to excavate sediment. The crane will pivot around and place material in an adjacent area or into a scow for placement at a designated placement site within the vicinity.

The major phase of the breakwater repair requires a crane-equipped barge, up to two barges carrying rock to be added to the breakwater, up to three tug boats, and three small craft support vessels. The work will consist of resetting of existing stone and placement of new stone on the breakwater structure. Dropping of armor stone is not permitted, but it should be expected that some stones may be accidentally dropped during placement. Stones would be carefully placed and interlocked with existing stones to maximize stability and minimize the intensity of sound due to stone placement. The crane on the barge will be outfitted with lifting tongs to reset existing stone and retrieve stones from the rock storage barge, and then place those stones on damaged sections of the

jetties. A boat operator in a skiff, and a spotter on the jetty, would direct the operation of the crane in order to pick and place the stones. The picked stone must be able to match the dimensions of the voids along the jetty. Approximately 30 to 35 stones can be picked and placed per day.

The small tugs help position the barge and other support vessels ferry equipment and crew back and forth from the shore, jetties, staging areas, and the crane and rock storage barges. Rock storage barges are typically towed in from an offsite quarry location (likely Pebbly Beach Quarry on Santa Catalina Island), and then anchored next to the crane-equipped barge. The rock storage barges are expected to carry approximately 1,500 tons (1360 metric tons) of stone per trip. Additional rock storage barges will be stored within a designated area within Port San Luis Harbor until they are needed. Approximately 40 rock storage barges/loads will be needed for this project.

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Proposed Mitigation** and **Proposed Monitoring and Reporting**).

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS's website (*https://www.fisheries.noaa.gov/find-species*).

Table 1 lists all species or stocks for which take is expected and proposed to be authorized for this action, and summarizes information related to the population or stock,

including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2019). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Pacific SARs and draft SARs (*e.g.*, Carretta *et al*. 2019, 2020).

Table 1. Species That Spatially Co-occur with the Activity to the Degree That Take Is Reasonably Likely to Occur

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California Sea Lion	*Zalophus californianus*	United States	-, -, N	257,606 (N/A, 233,515, 2014)	14,011	>321
Steller Sea Lion	*Eumetopias jubatus*	Eastern DPS	-, -, N	43,210 (N/A, 43,201, 2017)	2,592	113
Family Phocidae (earless seals)						

Harbor seal	*Phoca vitulina*	California	-, -, N	30,968 (N/A, 27,348, 2012)	1,641	43

[1] - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds Potential Biological Removal (PBR) or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.
[2]- NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports*. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.
[3] - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, ship strike). Annual mortality/serious injury (M/SI) often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

As indicated above, all three species (with three managed stocks) in Table 1 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur, and we have proposed authorizing it. All species that could potentially occur in the proposed survey areas are discussed in the IHA application. While gray whales, humpback whales, blue whales, killer whales, bottlenose and common dolphins, harbor porpoise, fur seal, and northern elephant seals have been sighted in the area, the temporal and/or spatial occurrence of these species is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here. None of the cetacean species would occur close enough to the breakwater to be exposed to the limited sound from the project, and as cetaceans they do not haul out where they would be exposed to the visual or in-air disturbance of the project. Surveys over multiple years (see below) have not recorded fur seals or northern elephant seals in the vicinity of the project so take is not requested for these species and they are not discussed further.

California Sea Lion

California sea lions occur from Vancouver Island, British Columbia, to the southern tip of Baja California. They breed on the offshore islands of southern and central California from May through July (Heath and Perrin 2008). During the non-breeding season, adult and subadult males and juveniles migrate northward along the coast to central and northern California, Oregon, Washington, and Vancouver Island (Jefferson *et al.* 1993). They return south the following spring (Heath and Perrin 2008,

Lowry and Forney 2005). Females and some juveniles tend to remain closer to rookeries (Antonelis *et al.* 1990, Melin *et al.* 2008).

Pupping occurs primarily on the California Channel Islands from late May until the end of June (Peterson and Bartholomew 1967). Weaning and mating occur in late spring and summer during the peak upwelling period (Bograd *et al.*, 2009). After the mating season, adult males migrate northward to feeding areas as far away as the Gulf of Alaska (Lowry *et al.*, 1992), and they remain away until spring (March–May), when they migrate back to the breeding colonies. Adult females generally remain south of Monterey Bay, California throughout the year, feeding in coastal waters in the summer and offshore waters in the winter, alternating between foraging and nursing their pups on shore until the next pupping/breeding season (Melin and DeLong 2000; Melin *et al.* 2008). Increasing sea- surface temperatures in the California Current negatively impact prey species availability and reduce survival rates (DeLong *et al*. 2017, Laake *et al*. 2018, Lowry *et al*. 1991, Melin *et al*. 2008, 2010).

California sea lions are common in Port San Luis year round where they are often hauled out on buoys, work docks, and the breakwater structure. The general distribution along the breakwater is influenced by direct wave energy against exposed breakwater segments. Generally the breakwater is utilized beginning in April extending through December, with greater densities observed hauled out at the south eastern end of the breakwater. In addition, greater densities were observed on the leeward side as opposed to the seaward side, except on the southeastern seaward side where some rocks provide protection depending on the prevailing current and wind.

Harbor Seal

Harbor seals are found from Baja California to the eastern Aleutian Islands of Alaska (Harvey and Goley 2011). In California there are approximately 500 haulout sites along the mainland and on offshore islands, including intertidal sandbars, rocky shores,

and beaches (Hanan 1996, Lowry *et al.* 2008). Harbor seals are central-place foragers (Orians and Pearson 1979) and tend to exhibit strong site fidelity within season and across years, generally forage close to haulout sites, and repeatedly visit specific foraging areas (Grigg *et al.* 2012, Suryan and Harvey 1998, Thompson *et al.* 1998).

Harbor seals molt from May through June. Peak numbers of harbor seals haul out in central California during late May to early June, which coincides with the peak molt. During both pupping and molting seasons, the number of seals and the length of time hauled out per day increase, from an average of 7 hours per day to 10–12 hours (Harvey and Goley 2011, Huber *et al.* 2001, Stewart and Yochem 1994).

Harbor seals tend to forage at night and haul out during the day with a peak in the afternoon between 1 p.m. and 4 p.m. (Grigg *et al.* 2012, London *et al.* 2001, Stewart and Yochem 1994, Yochem *et al.* 1987). Tide levels affect the maximum number of seals hauled out, with the largest number of seals hauled out at low tide, but time of day and season have the greatest influence on haul-out behavior (Manugian *et al.* 2017, Patterson and Acevedo-Gutiérrez 2008, Stewart and Yochem 1994).

Harbor seals have not been observed hauling out on the Port San Luis breakwater or work docks but they have been observed swimming in close proximity. They are also known to forage and rest in various small patch kelp beds of the inner harbor, ranging from 0.5 to 1.5 miles (0.8 to 2.4 kilometers (km)) from the breakwater. The closest haulout to the project area is on Smith Island (Figure 1).

Pupping occurs from March through May in central California (Codde and Allen 2018). Pups are weaned in four weeks, most by mid-June (Codde and Allen 2018). Harbor seals molt from June through July (Codde and Allen 2018) and breed between late March and June (Greig and Allen 2015).

Steller Sea Lion

Steller sea lions range along the North Pacific Rim from northern Japan to California, with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands. Large numbers of individuals widely disperse when not breeding (late May to early July) to access seasonally important prey resources (Muto *et al*., 2019). They were listed as threatened range-wide under the ESA on November 26, 1990 (55 FR 49204). Steller sea lions were subsequently partitioned into the western and eastern Distinct Population Segments (DPSs; western and eastern stocks) in 1997 (62 FR 24345, May 5, 1997). The western DPS breeds on rookeries located west of 144°W in Alaska and Russia, whereas the eastern DPS breeds on rookeries in southeast Alaska through California. The eastern DPS was delisted in 2013. The eastern DPS is the only population of Steller's sea lions thought to occur in the project area.

In the southern end of its range (Channel Islands in southern California), Steller sea lions have declined considerably since the late 1930s and several rookeries and haulouts south of Año Nuevo Island have been abandoned (Carretta *et al*. 2019). Steller sea lions have been observed hauling out on the Port San Luis breakwater and work docks. Like the California sea lions, the general distribution of Steller sea lions when present along the breakwater is influenced by direct wave energy against exposed breakwater segments, the season, and day to day sea state conditions with the highest densities on the southeastern leeward end of the breakwater.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.,* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007)

recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e*., low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 2.

Table 2. Marine Mammal Hearing Groups (NMFS, 2018)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, *Kogia*, river dolphins, cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz

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

The pinniped functional hearing group was modified from Southall *et al*. (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al*., 2006; Kastelein *et al*., 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Harbor seals are in the phocid group and the sea lions are classified as otariid pinnipeds.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The **Estimated Take** section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The **Negligible Impact Analysis and Determination** section considers the content of this section, the **Estimated Take** section, and the **Proposed Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

The likely or possible impacts of the ACOE's proposed activity on marine mammals could involve both non-acoustic and acoustic stressors. Potential non-acoustic stressors could result from the physical and visual presence of the equipment, vessels, and personnel. Acoustic stressors include effects of heavy equipment operation, rock setting, and sediment movement. The effects of underwater and in-air noise and visual disturbance from the ACOE's proposed activities have the potential to result in Level B harassment of marine mammals in the action area.

Description of Sound Sources

The marine soundscape is comprised of both ambient and anthropogenic sounds. Ambient sound is defined as the all-encompassing sound in a given place and is usually a composite of sound from many sources both near and far (ANSI 1994, 1995). The sound level of an area is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.*, waves, wind, precipitation,

earthquakes, ice, atmospheric sound), biological (*e.g.*, sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.*, vessels, dredging, aircraft, construction).

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.

In-water construction activities associated with the project would include sediment removal and rock setting. The sounds produced by these activities fall into one of two general sound types: impulsive and non-impulsive. Impulsive sounds (*e.g.*, explosions, gunshots, sonic booms, impact pile driving) are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (ANSI, 1986; NIOSH, 1998; ANSI, 2005; NMFS, 2018). Non-impulsive sounds (*e.g.*, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems) can be broadband, narrowband or tonal, brief or prolonged (continuous or intermittent), and typically do not have the high peak sound pressure with raid rise/decay time that impulsive sounds do (ANSI 1995; NIOSH 1998; NMFS 2018). The distinction between these two sound types is important because they have differing

potential to cause physical effects, particularly with regard to hearing (*e.g.*, Ward 1997 in Southall *et al*., 2007). There is likely to be some level of non-impulsive sounds from the sediment removal and rock setting equipment activities. In addition there is likely to be some impulsive sounds from the setting or occasional accidental dropping of stones.

Acoustic Impacts

Visual disturbance and the introduction of anthropogenic noise into the environment from rock setting is the primary means by which marine mammals may be harassed from the ACOE's specified activity. In general, animals exposed to natural or anthropogenic sound may experience physical and psychological effects, ranging in magnitude from none to severe (Southall *et al*., 2007). Generally, exposure to this construction noise has the potential to result in auditory threshold shifts and behavioral reactions (*e.g.,* avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). Exposure to anthropogenic noise can also lead to non-observable physiological responses such an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions such as communication and predator and prey detection. The effects of noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.,* impulsive vs. non-impulsive), the species, age and sex class (*e.g.,* adult male vs. mom with calf), duration of exposure, the distance between the activity and the animal, received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.,* 2004; Southall *et al*., 2007). Here we discuss physical auditory effects (threshold shifts) followed by behavioral effects and potential impacts on habitat.

NMFS defines a noise-induced threshold shift (TS) as a change, usually an increase, in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). The amount of threshold shift is customarily expressed in dB. A TS can be permanent or

temporary. As described in NMFS (2018), there are numerous factors to consider when examining the consequence of TS, including, but not limited to, the signal temporal pattern (*e.g.,* impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of the TS, time to recovery (seconds to minutes or hours to days), the frequency range of the exposure (*i.e.,* spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.,* how animal uses sound within the frequency band of the signal; *e.g.*, Kastelein *et al.,* 2014), and the overlap between the animal and the source (*e.g.,* spatial, temporal, and spectral).

Permanent Threshold Shift (PTS) - NMFS defines PTS as a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al*., 1958, 1959; Ward, 1960; Kryter *et al.,* 1966; Miller, 1974; Ahroon *et al*., 1996; Henderson and Hu, 2008). PTS levels for marine mammals are estimates, with the exception of a single study unintentionally inducing PTS in a harbor seal (Kastak *et al.,* 2008), there are no empirical data measuring PTS in marine mammals, largely due to the fact that, for various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS, 2018).

Temporary Threshold Shift (TTS) - A temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). Based on data from cetacean TTS measurements (see Southall *et al.,* 2007), a TTS of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Schlundt *et al*., 2000; Finneran *et al*.,

2000, 2002). As described in Finneran (2016), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SEL_{cum}) in an accelerating fashion: At low exposures with lower SEL_{cum}, the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SEL_{cum}, the growth curves become steeper and approach linear relationships with the noise SEL.

Depending on the degree (elevation of threshold in dB), duration (*i.e.*, recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during time when communication is critical for successful mother/calf interactions could have more serious impacts. We note that reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.,* 2007), so we can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

Currently, TTS data only exist for four species of cetaceans (bottlenose dolphin, beluga whale (*Delphinapterus leucas*), harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*)) and five species of pinnipeds exposed to a limited number of sound sources (*i.e.*, mostly tones and octave-band noise) in laboratory settings (Finneran, 2015). TTS was not observed in trained spotted (*Phoca largha*) and ringed (*Pusa hispida*) seals exposed to impulsive noise at levels matching previous predictions of TTS onset (Reichmuth *et al*., 2016). In general, harbor seals and harbor porpoises have

a lower TTS onset than other measured pinniped or cetacean species (Finneran, 2015). Additionally, the existing marine mammal TTS data come from a limited number of individuals within these species. No data are available on noise-induced hearing loss for mysticetes. For summaries of data on TTS in marine mammals or for further discussion of TTS onset thresholds, please see Southall *et al*. (2007), Finneran and Jenkins (2012), Finneran (2015), and Table 5 in NMFS (2018).

Resetting rocks and moving sediments are intermittent activities, especially for the loudest noises. There would likely be pauses in activities producing the sound during each day. Given these pauses and that many marine mammals are likely moving through the action area and not remaining for extended periods of time, the potential for TS declines.

Behavioral Harassment - Exposure to noise from the project also has the potential to behaviorally disturb marine mammals. Available studies show wide variation in response to in-air and underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to a sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g*., Lusseau and Bejder, 2007; Weilgart, 2007; NRC, 2005).

Disturbance may result in changing durations of surfacing and dives, number of blows per surfacing, or 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. Pinnipeds may increase their haul

out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006) or in the worst cases stampede en masse towards the water. Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.*, species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.*, Richardson *et al*., 1995; Wartzok *et al*., 2003; Southall *et al*., 2007; Weilgart, 2007; Archer *et al*., 2010). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al*., 2012), and can vary depending on characteristics associated with the sound source (*e.g.*, whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Please see Appendices B and C of Southall *et al*. (2007) for a review of studies involving marine mammal behavioral responses to sound.

Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (*e.g.*, bubble nets or sediment plumes), or changes in dive behavior. As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing factors to differences in response in any given circumstance (*e.g.*, Croll *et al*., 2001; Nowacek *et al*., 2004; Madsen *et al*., 2006; Yazvenko *et al*., 2007). A determination of whether foraging disruptions incur fitness consequences would require information on or estimates of the energetic requirements of the affected individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal.

Stress responses – An animal's perception of a threat may be sufficient to trigger stress responses consisting of some combination of behavioral responses, autonomic nervous system responses, neuroendocrine responses, or immune responses (*e.g.*, Seyle 1950; Moberg 2000). In many cases, an animal's first and sometimes most economical (in terms of energetic costs) response is behavioral avoidance of the potential stressor. Autonomic nervous system responses to stress typically involve changes in heart rate, blood pressure, and gastrointestinal activity. These responses have a relatively short duration and may or may not have a significant long-term effect on an animal's fitness.

Neuroendocrine stress responses often involve the hypothalamus-pituitary-adrenal system. Virtually all neuroendocrine functions that are affected by stress – including immune competence, reproduction, metabolism, and behavior – are regulated by pituitary hormones. Stress-induced changes in the secretion of pituitary hormones have been implicated in failed reproduction, altered metabolism, reduced immune competence, and behavioral disturbance (*e.g.*, Moberg 1987; Blecha 2000). Increases in the circulation of glucocorticoids are also equated with stress (Romano *et al.*, 2004).

The primary distinction between stress (which is adaptive and does not normally place an animal at risk) and "distress" is the cost of the response. During a stress response, an animal uses glycogen stores that can be quickly replenished once the stress is alleviated. In such circumstances, the cost of the stress response would not pose serious fitness consequences. However, when an animal does not have sufficient energy reserves to satisfy the energetic costs of a stress response, energy resources must be diverted from other functions. This state of distress will last until the animal replenishes its energetic reserves sufficient to restore normal function.

Relationships between these physiological mechanisms, animal behavior, and the costs of stress responses are well-studied through controlled experiments and for both laboratory and free-ranging animals (*e.g.*, Holberton *et al.*, 1996; Hood *et al.*, 1998;

Jessop *et al.*, 2003; Krausman *et al.*, 2004; Lankford *et al.*, 2005). Stress responses due to exposure to anthropogenic sounds or other stressors and their effects on marine mammals have also been reviewed (Fair and Becker 2000; Romano *et al.*, 2002b) and, more rarely, studied in wild populations (*e.g.*, Romano *et al.*, 2002a). For example, Rolland *et al.* (2012) found that noise reduction from reduced ship traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales. These and other studies lead to a reasonable expectation that some marine mammals will experience physiological stress responses upon exposure to acoustic stressors and that it is possible that some of these would be classified as "distress." In addition, any animal experiencing TTS would likely also experience stress responses (NRC, 2003), however distress is an unlikely result of this project based on observations of marine mammals during previous, similar projects in the area.

Masking - Sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.*, those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation) (Richardson *et al*., 1995). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.*, snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.*, pile driving, shipping, sonar, seismic exploration) in origin. The ability of a noise source to mask biologically important sounds depends on the characteristics of both the noise source and the signal of interest (*e.g.*, signal-to-noise ratio, temporal variability, direction), in relation to each other and to an animal's hearing abilities (*e.g*., sensitivity, frequency range, critical ratios, frequency discrimination, directional discrimination, age or TTS hearing loss), and existing ambient noise and propagation conditions. Masking of natural sounds can result when human activities produce high levels of background sound at

frequencies important to marine mammals. Conversely, if the background level of underwater sound is high (*e.g*. on a day with strong wind and high waves), an anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked. The California coast area contains active commercial shipping, cruise ship and ferry operations, as well as numerous recreational and other commercial vessels; therefore, background sound levels in the area are already elevated.

Airborne Acoustic Effects - Pinnipeds that occur near the project site could be exposed to airborne sounds associated with the sediment removal and rock setting that have the potential to cause behavioral harassment, depending on their distance from the construction activities. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA.

Airborne noise would 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 acoustic criteria. We recognize that pinnipeds in the water could also be exposed to airborne sound that may result in behavioral harassment when looking with their heads above water. 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 the area and move further from the source.

Visual Disturbance

Pinnipeds that occur near the project site could be exposed to visual disturbance associated with the sediment removal and rock setting activities that have the potential to cause behavioral harassment, depending on their sensitivity and distance from the

construction activities. Cetaceans are not expected to be exposed to airborne visual disturbance that would result in harassment as defined under the MMPA.

Available studies show wide variation in response to in-air visual disturbance, therefore it is difficult to predict specifically how any given activity might affect pinnipeds perceiving the signal. If a pinniped does react briefly to visual disturbance by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. Since the construction work will not affect the entire length of the breakwater at any time the animals may simply move to other parts of the breakwater or nearby haulout locations. Some degree of habituation is possible. Monitoring data from the project will help ascertain these effects for similar future projects (see **Proposed Monitoring and Reporting** section below).

California sea lions and northern elephant seals have been observed as less sensitive to visual stimuli than harbor seals. For example, monitoring of pinniped disturbance as a result of abalone research in the Channel Islands showed that while harbor seals flushed at a rate of 69 percent, California sea lions flushed at a rate of only 21 percent. The rate for elephant seals declined to 0.1 percent (VanBlaricom 2010). For intertidal researchers the take rate for harbor seals was 40 percent, while for California sea lions and northern elephant seals it was 24 and 19 percent, respectively (PISCO 2019).

Construction activities related to estuary management and marsh restoration, including heavy equipment operation, sediment removal, and other activities, has also resulted in take of pinnipeds (Sonoma County Water Agency 2019, California Department of Fish and Wildlife 2018).

Small and large vessels are also known to affect pinnipeds. Henry and Hammil (2001) measured the impacts of small boats (*i.e.*, kayaks, canoes, motorboats and sailboats) on harbor seal haulout behavior in Metis Bay, Quebec, Canada. The most

frequent disturbances were caused by lower speed, lingering kayaks, and canoes (33.3 percent) as opposed to motorboats (27.8 percent) conducting high-speed passes. The seal's flight reactions could be linked to a surprise disturbance factor by kayaks and canoes, which approach slowly, quietly, and low on the water. However, the authors note that once the animals were disturbed, there did not appear to be any significant lingering effect on the recovery of numbers to their pre-disturbance levels.

Acevedo-Gutierrez and Johnson (2007) evaluated the efficacy of buffer zones for watercraft around harbor seal haul-out sites on Yellow Island, Washington. The authors estimated the minimum distance between the vessels and the haul-out sites; categorized the vessel types; and evaluated seal responses to the disturbances. During the course of the study the authors recorded 14 human-related disturbances that were associated with stopped powerboats and kayaks. During these events, hauled out seals became noticeably active and moved into the water. The authors note that the seals were unaffected by passing powerboats, even those approaching as close as 128 feet (39 m), possibly indicating that the animals had become tolerant of the brief presence of the vessels and ignored them. The authors reported that on average, the seals quickly recovered from the disturbances and returned to the haul-out site in 60 minutes or less.

The potential for striking marine mammals is a concern with vessel traffic. Typically, the reasons for vessel strikes are fast transit speeds, lack of maneuverability, or not seeing the animal because the boat is so large. The ACOE will access project areas at slow transit speeds, avoiding close approaches to the breakwater unless necessary, minimizing any chance of an accidental strike.

The available evidence thus suggests the construction and vessel activities of the work on Port San Luis harbor have the potential for short-term Level B behavioral harassment, but not more serious effects.

Marine Mammal Habitat Effects

The ACOE's construction activities could have localized, temporary impacts on marine mammal habitat and their prey by increasing in-water sound pressure levels and slightly decreasing water quality. Increased noise levels may affect acoustic habitat (see masking discussion above) and adversely affect marine mammal prey in the vicinity of the project area (see discussion below). During project work, elevated levels of underwater noise would ensonify Port San Luis Harbor where both fishes and mammals occur and could affect foraging success. Additionally, marine mammals may avoid the area during construction, however, displacement due to noise is expected to be temporary and is not expected to result in long-term effects to the individuals or populations. Construction activities are of short duration, produce relatively quiet in-water noise levels (see below), and would likely have temporary impacts on marine mammal habitat through increases in underwater and airborne sound.

A temporary and localized increase in turbidity near the seafloor would occur in the immediate area surrounding the area where sediment is removed or redeposited. Increases in turbidity detectable above background levels are usually confined from 100 to 500 feet from the crane- equipped barge depending on sediment character and tidal current conditions (Merkel and Associates 2010). Sediment adjacent to the PSL breakwater is expected to be characterized as sands, which fall out of the water column quickly. Suspended solid concentrations would likely return to background levels within an hour to 24 hours after excavation ceases (Merkel and Associates 2010). Cetaceans are not expected to be close enough to the activities to experience effects of turbidity, and any pinnipeds could avoid localized areas of turbidity. Therefore, we expect the impact from increased turbidity levels to be discountable to marine mammals and do not discuss it further.

In-water Construction Effects on Potential Foraging Habitat

The area likely impacted by the project is relatively small compared to the available habitat (*e.g.*, most of the impacted area is immediately adjacent to the breakwater and in the area where sediment is deposited of the bay and does not include any Biologically Important Areas). Extensive Pacific eelgrass (*Zostera pacifica*) beds are located throughout Port San Luis Harbor. Essential Fish Habitat mitigation under the Magnuson Stevens Act is a required part of the project for impacts to nearby eelgrass beds. The area is highly influenced by anthropogenic activities. The total seafloor area affected is a very small area compared to the vast foraging area available to marine mammals in the area. At best, the impact area provides marginal foraging habitat for marine mammals and fish, while the new breakwater rocks would provide substrate for invertebrate prey to settle on. Furthermore, construction activity at the project site would not obstruct movements or migration of marine mammals.

Avoidance by potential prey (*i.e.*, fish) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish avoidance of this area after construction stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity.

In-water Construction Effects on Potential Prey - Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.*, crustaceans, cephalopods, fish, zooplankton). Marine mammal prey varies by species, season, and location. Here, we describe studies regarding the effects of noise on known marine mammal prey.

Fish utilize the soundscape and components of sound in their environment to perform important functions such as foraging, predator avoidance, mating, and spawning (*e.g.*, Zelick and Mann., 1999; Fay, 2009). Depending on their hearing anatomy and

peripheral sensory structures, which vary among species, fishes hear sounds using pressure and particle motion sensitivity capabilities and detect the motion of surrounding water (Fay *et al.*, 2008). The potential effects of noise on fishes depends on the overlapping frequency range, distance from the sound source, water depth of exposure, and species-specific hearing sensitivity, anatomy, and physiology. Key impacts to fishes may include behavioral responses, hearing damage, barotrauma (pressure-related injuries), and mortality.

Fish react to sounds which are especially strong and/or intermittent low-frequency sounds, and behavioral responses such as flight or avoidance are the most likely effects. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. The reaction of fish to noise depends on the physiological state of the fish, past exposures, motivation (*e.g.*, feeding, spawning, migration), and other environmental factors. 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). Several studies have demonstrated that impulse sounds might affect the distribution and behavior of some fishes, potentially impacting foraging opportunities or increasing energetic costs (*e.g.*, Fewtrell and McCauley, 2012; Pearson *et al.*, 1992; Skalski *et al.*, 1992; Santulli *et al.*, 1999; Paxton *et al.*, 2017). However, some studies have shown no or slight reaction to impulse sounds (*e.g.*, Pena *et al.*, 2013; Wardle *et al.*, 2001; Jorgenson and Gyselman, 2009; Cott *et al.*, 2012).

SPLs of sufficient strength have been known to cause injury to fish and fish mortality. However, in most fish species, hair cells in the ear continuously regenerate and loss of auditory function likely is restored when damaged cells are replaced with new cells. Halvorsen *et al.* (2012a) showed that a TTS of 4-6 dB was recoverable within 24

hours for one species. Impacts would be most severe when the individual fish is close to the source and when the duration of exposure is long. Injury caused by barotrauma can range from slight to severe and can cause death, and is most likely for fish with swim bladders. Barotrauma injuries have been documented during controlled exposure to impact pile driving (Halvorsen *et al.*, 2012b; Casper *et al.*, 2013).

The most likely impact to fish from construction 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.

Construction activities, in the form of increased turbidity, have the potential to adversely affect fishes and invertebrates in the project area. Increased turbidity is expected to occur in the immediate vicinity of construction activities (see above). However, suspended sediments and particulates are expected to dissipate quickly. Given the limited area affected, high tidal dilution rates, and ability to avoid turbidity any effects on fish are expected to be minor or negligible. Some marine populations, particularly benthic organisms, would be destroyed by, or have filter-feeding or respiratory structures damaged by, the excavation of sediment, but are expected to recolonize the area once excavation of sediment has ceased (Merkel and Associates 2010).

In summary, given the short daily duration of sound and visual disturbance associated with individual rock setting events and the relatively small areas being affected, construction activities associated with the proposed action are not likely to have a permanent, adverse effect on any fish habitat, or populations of fish species. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity. Thus, we conclude that impacts of the specified activity are not likely to have more than short-term

adverse effects on any prey habitat or populations of prey species. Further, any impacts to marine mammal habitat are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

Estimated Take

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as use of the acoustic source (*i.e.*, rock setting) and visual disturbance has the potential to result in disruption of behavioral patterns for individual marine mammals. Based on the nature of the activity, Level A harassment is neither anticipated nor proposed to be authorized. The proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

As described previously, no mortality is anticipated or proposed to be authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the

area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Due to the lack of marine mammal density for some species, NMFS relied on local occurrence data and group size to estimate take. For activities like this with visual disturbance impacts we must also estimate the area or space within which harassment is likely to occur. Below, we describe the factors considered here in more detail and present the proposed take estimate.

Acoustic Thresholds

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

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS

predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 microPascal (μPa) (root mean square (rms)) for continuous (*e.g.,* vibratory pile-driving) and above 160 dB re 1 μPa (rms) for non-explosive impulsive (*e.g.*, impact pile driving) or intermittent (*e.g.*, scientific sonar) sources. The ACOE's proposed activity includes the use of continuous (general construction equipment and machinery) and impulsive (rock setting) sources, and therefore the 120 and 160 dB re 1 μPa (rms) thresholds are applicable.

For in-air sounds, NMFS predicts that harbor seals exposed above received levels of 90 dB re 20 μPa (rms) will be behaviorally harassed, and other pinnipeds will be harassed when exposed above 100 dB re 20 μPa (rms).

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). The ACOE's activity includes the use of impulsive (rock setting) and non-impulsive (general construction) sources.

These thresholds are provided in Table 3. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*.

Table 3. Thresholds identifying the onset of Permanent Threshold Shift.

	PTS Onset Acoustic Thresholds* (Received Level)	
Hearing Group	Impulsive	Non-impulsive

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

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

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

Ensonified Area

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

The sound field in the project area is the existing background noise plus additional construction noise from the proposed project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, rock setting and sediment removal).

Level B Harassment Zones

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 * Log10 (R1/R2), where

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

R1 = the distance of the modeled SPL from the driven pile, and

R2 = the distance from the driven pile of the initial measurement

The recommended TL coefficient for most nearshore environments is the, practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for the ACOE's proposed activity.

In order to calculate distances to the Level A harassment and Level B harassment sound thresholds for this project, NMFS used acoustic monitoring data collected by the ACOE. In February 2019 a team of researchers from the ACOE Los Angeles District and Engineer Research and Development Center traveled to a breakwater repair project at the Port of Long Beach, CA to collect representative sound data in anticipation of the Port San Luis breakwater project. Maintenance activities on the Long Beach, CA breakwater provided near identical conditions to the proposed work activities at Port San Luis, but the Long Beach site has no marine mammals nearby. At Long Beach they collected in-air and in-water sound recordings from both the rock setting and other construction equipment sounds. They also recorded ambient sound data at San Luis Obispo, CA near the breakwater to be used as a baseline measurement for proposed repair work. The analysis of the sound files provided by the ACOE to determine source levels relevant to marine mammal exposures contained some methods that we did not entirely concur with, but our acoustics expert (Dr. Shane Guan) was able to determine from them that in-water

noise would not exceed marine mammal thresholds beyond 10 m (33 feet) from the source. He was also able to determine that in-air noise would not exceed the pinniped in-air thresholds at a distance greater than 100 m (328 feet) from the source.

Visual Disturbance

During the above-mentioned acoustic surveys of the similar breakwater repair work at the Port of Long Beach pinnipeds maintained a minimum approximate 150 foot (46 m) distance from construction equipment and personnel (Natalie Martinez-Takeshita, ACOE, personal communication 2020). Observations on a past breakwater repair project in Redondo Harbor, California showed that pinnipeds that flushed from distances up to 100 m (Natalie Martinez-Takeshita, ACOE, personal communication 2021). As noted above the construction barge could be up to 260 feet (80 m) long with activity occurring simultaneously at either end as well as the full reach of the crane. Based on the above information, we conservatively estimate a 200 m (660 ft) radius potential effect zone for Level B harassment of pinnipeds by visual disturbance. This equals or exceeds any effect radius from in-air noise. Given the breakwater is 2,400 feet (730 m) long, this means large portions of the breakwater should be undisturbed and available for animals to re-haulout on any given construction day.

Marine Mammal Occurrence and Take Calculation and Estimation

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. Take by Level B harassment is proposed for authorization and summarized in Table 6.

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

Merkel and Associates (2019) conducted three marine mammal surveys of the breakwater in 2018 as part of the preparation for this project. The surveys were in June, July and September. The focus was on other taxa besides marine mammals. Their most

detailed marine mammal survey was in June when pinnipeds were identified to species level. They identified California sea lions and Steller sea lions hauled out on the breakwater, with 94 percent of the animals being California sea lions. Greater densities of pinnipeds were observed hauled out at the south eastern end of the breakwater, and the greatest densities were consistently observed at the most seaward end of the breakwater.

In further anticipation of this project, the ACOE conducted additional approximately monthly marine mammal surveys, weather permitting, in the project area in 2019 to estimate breakwater abundance levels to use to estimate take. The 2019 surveys did not distinguish between California sea lions and Steller seals and assumed the Merkel and Associates (2019) determination that 94 percent of the animals were California sea lions and 6 percent were Steller sea lions applied during 2019 as well. While harbor seals were not observed hauled out on the breakwater, the ACOE did observe them hauled out at the low lying rocky benches of Smith Island (approximately 400 m (1,300 feet) from the nearest repair area). They were also observed in the water adjacent to the breakwater on at least one occasion. No other marine mammal species were observed in the project area.

California Sea Lion and Steller Sea Lion

The ACOE surveys from 2019 found that pinnipeds were present on the breakwater from April through December (Table 4), likely due to lower wave energy at those times. The highest number were present from June through September. We averaged the three highest surveys (bolded in the table) during the likely work period to determine that an average of 321.33 animals were present daily during the spring to fall construction season. Using the results of Merkel and Associates (2019) June 2018 survey we estimated those 321.33 animals were comprised of 302.05 California sea lions and 19.29 Steller sea lions per day. We used these numbers to estimate take for these two species for the project by multiplying these daily take estimates by the total number of

work days (174). For California sea lions this is 302.05 x 174 = 52,557 takes, and for Steller sea lions this is 19.28 x 174 = 3,355 takes.

Table 4. ACOE 2019 Breakwater Pinniped Survey Results by Side of Breakwater

Survey Date	Leeward	Seaward	Total
1/30/2019	0	0	0
1/31/2019	0	0	0
2/1/2019	0	0	0
3/1/2019	0	*	0*
3/24/2019	0	*	0*
3/30/2019	0	*	0*
3/31/2019	0	*	0*
4/1/2019	0	*	0*
5/1/2019	0	18	18+
5/28/2019	188	*	188
6/3/2019	**182**	**115**	**297**
7/29/2019	**166**	**25**	**191**
8/27/2019	0	1	1
9/25/2019	**326**	**150**	**476**
11/6/2019	398	*	398*
12/5/2019	113	*	113*
12/28/2019	0	0	0**

*Seaward side of breakwater not surveyed because of sea state conditions, no pinnipeds expected to be hauled out during these times.
**No pinnipeds hauled out on breakwater, 3 observed swimming near head of breakwater.
Bold indicates months survey data was used to calculate the average abundance of pinnipeds on the PSL Breakwater per day.

Harbor Seal

While harbor seals were not observed hauled out on the breakwater, they were observed hauled out at the low lying rocky benches of Smith Island and in the water near the breakwater during the ACOE 2019 surveys. Estimated daily abundance for harbor seals was also calculated using the three highest abundance surveys from 2019 survey data from the likely construction season (late March through September, bolded in Table 5). The average abundance in the project area was 10.33 seals per day. We used this average and calculated total take for the project by multiplying by the total number of work days (174). For harbor seals this is 10.33 x 174 = 1,797 takes.

Table 5. ACOE 2019 Harbor Seal Survey Results

Survey Date	Swimming Near Breakwater	Hauled Out at Smith Is.	Swimming near Smith Island	TOTAL
1/30/19-2/1/19	0	13	Several	~16
3/1/2019	0	15	0	15
3/24/2019	**1**	**14**	**3**	**18**
5/1/2019	**0**	**10**	**0**	**10**
5/28/2019	**0**	**2**	**1**	**3**
6/3/2019	0	0	0	0
7/29/2019	0	0	0	0
8/27/2019	0	0	0	0
9/25/2019	0	0	0	0
11/6/2019	0	0	0	0
12/5/2019	0	25	0	25
12/28/2019	0	1	1	2

Bold indicates months survey data was used to calculate the average abundance per day.

Summary

The above-calculated take estimates are likely to be conservative as some animals may habituate to the project and regularly haul out on the parts of the breakwater where there is no construction activity, where construction activity has finished, or they may move to other nearby haulout locations. Moreover, because the main area of effect on any given day is no more than 300 m of breakwater length, the breakwater is much longer than this, most pinnipeds are concentrated at the far 200 m of the breakwater, and the project will begin at the landward end of the breakwater, far fewer animals will likely be taken in the early stages of the project.

Table 6. Proposed Authorized Amount of Taking, by Level A Harassment and Level B Harassment, by Species and Stock and Percent of Take by Stock

	Authorized Take		Percent of Stock
Species	Level B	Level A	
Harbor seal (*Phoca vitulina*) California Stock	52,557	0	20.4
California sea lion (*Zalophus californianus*) U.S. Stock	3,355	0	7.8
Steller sea lion (*Eumetopias jubatus*) Eastern DPS	1,797	0	6.6

Proposed Mitigation

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

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

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

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

The following mitigation measures are proposed in the IHA:

- Monitoring must take place from 30 minutes prior to initiation of construction activity (*i.e.*, pre-start clearance monitoring) through 30 minutes post-completion of construction activity.
- The ACOE must avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 meters of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions, as necessary to avoid direct physical interaction.
- Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead Protected Species Observer (PSO) to determine the shutdown zones clear of marine mammals. Construction may commence when the determination is made.
- If construction is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal.
- The Holder must use soft start techniques. Soft start requires contractors and equipment to slowly approach the work site creating a visual disturbance allowing animals in close proximity to construction activities a chance to leave the area prior to stone resetting or new stone placement. Contractors shall avoid walking or driving equipment through the seal haul-out. A soft start must be implemented at the start of each day's construction activity and at any time following cessation of activity for a period of 30 minutes or longer.
- Vessels would approach the breakwater perpendicular to the area they need to be as much as is feasible to minimize interactions with pinnipeds on or near the breakwater.

- The Holder must ensure that construction supervisors and crews, the monitoring team, and relevant ACOE staff are trained prior to the start of construction activity subject to this IHA, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work.
- Construction activity must be halted upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within a 200 m Level B harassment zone.
- Construction work will start at the landward end of the breakwater as much as feasible.

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 effecting the least practicable adverse impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

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

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Visual Monitoring

Marine mammal monitoring must be conducted in accordance with the Monitoring section of the application and Section 5 of the IHA. These observers must record all observations of marine mammals, regardless of distance from the construction activity. Marine mammal monitoring during construction activity must be conducted by NMFS-approved PSOs in a manner consistent with the following:

- Independent PSOs (*i.e.*, not construction personnel) who have no other assigned tasks during monitoring periods must be used;

- At least one PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Other PSOs may substitute education (degree in biological science or related field) or training for experience; and
- The ACOE must submit PSO Curriculum Vitae for approval by NMFS prior to the onset of pile driving.

PSOs must have the following additional qualifications:

- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

One PSO will be employed. PSO location will provide an unobstructed view of all water within the shutdown zone, and as much of the Level B harassment zones as possible. PSO location is as follows:

(1) At the crane barge site or best vantage point practicable to monitor the shutdown zones; and

Monitoring will be conducted 30 minutes before, during, and 30 minutes after construction 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 construction activity.

Reporting

A draft marine mammal monitoring report will be submitted to NMFS within 90 calendar days after the completion of pile driving and removal activities, or 60 calendar days prior to the requested issuance of any subsequent IHAs for construction activity at the same location, whichever comes first. A final report must be prepared and submitted within 30 days following resolution of any NMFS comments on the draft report. The report will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets. All draft and final marine mammal and acoustic monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *Dwayne.Meadows@noaa.gov*. Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring.
- Construction activities occurring during each daily observation period, including how many and what type of rocks were set or reset and total duration of rock setting.
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.
- PSO locations during marine mammal monitoring.

- Upon observation of a marine mammal, the following information:
    - PSO who sighted the animal and PSO location and activity at time of sighting;
    - Time of sighting;
    - Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
    - Distance and bearing of each marine mammal observed to the rock setting for each sighting (if rock setting was occurring at time of sighting);
    - Estimated number of animals (min/max/best);
    - Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);
    - Animal's closest point of approach and estimated time spent within the harassment zone;
    - Number of disturbances, by species and age, according to a three-point scale of disturbance (see Table 7). Observations of disturbance Levels 2 and 3 must be recorded as takes. Description of any additional marine mammal behavioral observations (*e.g.*, observed behaviors such as feeding or traveling;
- Detailed information about implementation of any mitigation (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal, if any.

The ACOE must submit all PSO datasheets and/or raw sighting data. If no comments are received from NMFS within 30 days, the draft final report will constitute the final report. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

Table 7. Levels of Pinniped Behavioral Disturbance

Level	Type of response	Definition
1	Alert	Seal head orientation or brief movement in response to disturbance, which may include turning head towards the disturbance, craning head and neck while holding the body rigid in a u-shaped position, changing from a lying to a sitting position, or brief movement of less than twice the animal's body length.
2	Movement	Movements in response to the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degrees.
3	Flush	All retreats (flushes) to the water.

Reporting Injured or Dead Marine Mammals

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the ACOE must report the incident to the Office of Protected Resources (OPR), NMFS and to the regional stranding coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, the ACOE must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The IHA-holder must not resume their activities until notified by NMFS. The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS's implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, this introductory discussion of our analyses applies to all of the species listed in Table 6, given that many of the anticipated effects of this project on different marine mammal stocks are expected to be relatively similar in nature. Construction activities have the potential to disturb or displace marine mammals. Specifically, the project activities may result in take, in the form of Level B harassment from in-air sounds and visual disturbance generated from rock setting and sediment removal. Potential takes could occur if individuals are present in the ensonified or disturbance zone(s) when these activities are underway.

The takes from Level B harassment would be due to potential behavioral disturbance or TTS. No mortality or PTS is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. The potential for harassment is minimized through the construction method and the implementation of the planned mitigation measures (see **Proposed Mitigation** section).

For all species and stocks, take would occur within a very limited, confined area (Port San Luis harbor) of any given stock's range. Level B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein. Behavioral responses of marine mammals to construction at the project site, if any, are expected to be mild and temporary. Marine mammals within the Level B harassment zone may not show any visual cues they are disturbed by activities (as noted during modification to the Kodiak Ferry Dock and other construction projects near pinnipeds) or could become alert, avoid the area, leave the area, or display other mild responses that are not observable such as changes in vocalization patterns. Given the short duration of noise-generating activities per day, any harassment would be temporary. There are no other areas or times of known biological importance for any of the affected species.

In addition, it is unlikely that minor noise effects in a small, localized area of habitat would have any effect on the stocks' ability to recover. 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 activities will have only minor, short-term effects on individuals. The specified activities are not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to

adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No mortality is anticipated or authorized.
- No Level A harassment is anticipated or authorized.
- No biologically important areas have been identified within the project area.
- For all species, the harbor is a very small and peripheral part of their range.
- The ACOE would implement mitigation measures such as vessel avoidance and slow down, proceeding from the low density to high density areas to increase habituation, soft-starts, and shut downs; and
- Monitoring reports from similar work have documented little to no effect on individuals of the same species impacted by the specified activities.

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 preliminarily finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

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

factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The amount of take NMFS proposes to authorize of all species or stocks is below one third of the estimated stock abundance. These are all likely conservative estimates because they assume all takes are of different individual animals which is likely not the case as most stocks do not move in or out of the area frequently. Some individuals may return multiple times in a day, but PSOs would count them as separate takes if they cannot be individually identified.

Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

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

Endangered Species Act (ESA)

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq*.) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally, in this case with the West Coast Region Protected Resources Division Office, whenever we propose to authorize take for endangered or threatened species.

No incidental take of ESA-listed species is proposed for authorization or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to the ACOE to conduct the Port San Luis Breakwater Repair project in Avila Beach, California from April 1, 2022 through March 31, 2023, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*.

Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this Notice of Proposed IHA for the proposed Port San Luis Breakwater Repair project. We also request at this time comment on the potential renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent Renewal IHA.

On a case-by-case basis, NMFS may issue a one-time one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical, or nearly identical, activities as described in the Specified Activities section of this notice is planned or (2) the activities as described in the Specified Activities section of this notice would not be completed by the time the IHA expires and a Renewal would allow for completion of the activities beyond that described in the Dates and Duration section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (recognizing that Renewal IHA expiration date cannot extend beyond one year from expiration of the initial IHA);

- The request for renewal must include the following:

(1) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.*, reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take); and

(2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized; and

- Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Dated: March 12, 2021.

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Donna S. Wieting,
Director, Office of Protected Resources,
National Marine Fisheries Service.

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