DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XC681]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Pillar Point Harbor Johnson Pier Expansion and Dock Replacement Project in Princeton, 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 San Mateo County Harbor District for authorization to take marine mammals incidental to the Pillar Point Harbor Johnson Pier Expansion and Dock Replacement Project in Princeton, 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-time, 1-year renewal that could be issued under certain circumstances and if all requirements are met, as described in **Request for Public Comments** section at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization 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 and should be submitted via email to *ITP.Hotchkin@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, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record and will generally be posted online at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities* 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: Cara Hotchkin, 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/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*. 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 proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) 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 IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, 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 August 10, 2022, NMFS received a request from the San Mateo County Harbor District (SMCHD) for an IHA to take marine mammals incidental to the Pillar Point Harbor Johnson Pier Expansion and Dock Replacement Project in Princeton, California. Following NMFS' review of the application and in response to our comments, SMCHD submitted revised versions on October 4, 2022, and December 6, 2022. The application was deemed adequate and complete on December 13, 2022. SMCHD's request is for take of harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*) by Level A and Level B harassment. Neither SMCHD nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

This proposed IHA would cover 1 year of a larger project for which SMCHD intends to request take authorization for subsequent facets of the project. The larger 2-year project involves the expansion of the Johnson Pier commercial docks and fuel pier.

Description of Proposed Activity

Overview

The SMCHD is proposing the demolition and replacement/expansion of the Johnson Pier at Pillar Point Harbor in San Mateo County, California (Figure 1). Demolition of the North Timber Pier and the commercial floating docks and fuel dock would be followed by expansion of the pier and replacement of the commercial and fuel docks. The proposed project includes impact and vibratory pile driving and vibratory pile removal. Sounds resulting from pile driving and removal may result in the incidental take of marine mammals by Level A and Level B harassment in the form of auditory injury or

behavioral harassment. Underwater sound would be constrained to the inner harbor area by solid rubble-mound breakwaters.

The purpose of this project is to replace existing deteriorated commercial floating docks (Dock D, E, F, G, H, and fuel dock), expand Johnson Pier to improve the safety of commercial fish handling operations, and complete minor concrete and utility repairs (see Figures 2 and 3). Approximately 7,200 square feet (sf) (669 square meters (m^2)) of deck area would be added to improve fish handling, forklift maneuvering, and truck turnarounds on the North Pier. Approximately 8,500 sf (790 m^2) would be added to the south end of the pier to allow for commercial vehicle operations. The commercial and fuel dock replacement segment would add approximately 20,000 sf (1,858 m^2) to improve capacity for fish handling and commercial fishery operations.

Dates and Duration

The proposed IHA would be effective from January 1, 2024 to December 31, 2025. The in-water construction period for the proposed action will occur over up to 130 days of pile driving and extraction over 12 months. The total project duration will last approximately 36 months, and may be performed in phases over a 5-year period. SMCHD anticipates the need for subsequent IHAs, including a potential renewal of this proposed IHA. SMCHD plans to conduct all work during daylight hours.

Specific Geographic Region

The project is located at the Pillar Point Harbor in the Community of Princeton, north of Half Moon Bay, San Mateo County, California. The project occurs within the Pillar Point inner harbor, which is contained by three solid rubble-mound breakwaters. Project activities will occur at floating docks Dock D, E, F, G, H, and fuel dock, north timber pier, north floats, east timber pier, and Johnson Pier.

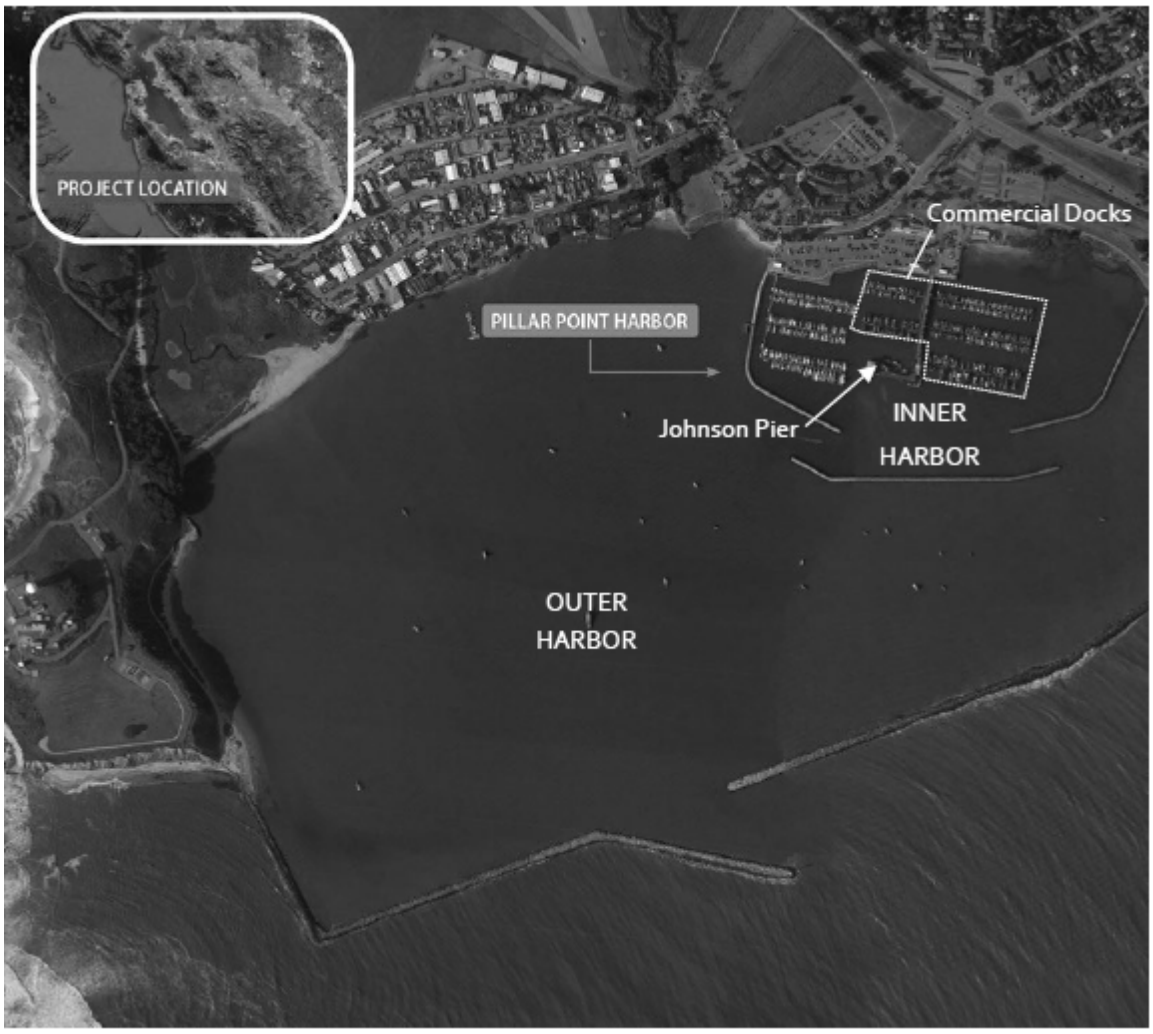

Figure 1-- Map of Proposed Project Area in San Mateo County, California

Detailed Description of Specific Activity

The purpose of this project is to replace existing deteriorated commercial floating docks (Dock D, E, F, G, H, and fuel dock), expand Johnson Pier to improve the safety of commercial fish handling operations, and complete minor concrete and utility repairs (see Figures 2 and 3 in the IHA application). Approximately 7,200 square feet (sf) (669 square meters (m^2)) of deck area would be added to improve fish handling, forklift maneuvering, and truck turnarounds on the North Pier. Approximately 8,500 sf (790 m^2) would be added to the south end of the pier to allow for commercial vehicle operations. The commercial and fuel dock replacement segment would add approximately 20,000 sf (1,858 m^2) to improve capacity for fish handling and commercial fishery operations.

Activity details for the work under this proposed IHA are provided in Table 1. In-water construction activities and specific project phases that would occur under this IHA are described in more detail below:

Pile Removal--Piles are anticipated to be removed with a vibratory hammer, or direct pull depending on site conditions. Since vibratory removal is the loudest activity, to be precautionary, we assume all piles would be removed with a vibratory hammer. If piles break during extraction, they would be cut below the mudline. Pile removal methods are described as follows:

- Vibratory Extraction – This method uses a barge-mounted crane with a vibratory driver to remove all pile types. The vibratory driver is suspended from a crane by a cable and positioned on top of the pile to loosen the pile from the sediment. Once the pile is released from the sediments, the crane continues to raise the driver and pull the pile from the sediment and place it on a barge; and
- Direct Pull – Piles may be removed by wrapping piles with a cable or chain and pulling them directly from the sediment with a crane. This method may be used depending on site conditions.

Pile Installation--The proposed pile installation would occur using barge-mounted cranes and vary in method based on pile type. Concrete piles would be installed using an impact hammer. Fiberglass would be installed using an impact hammer or vibratory hammer. Hydraulic Jetting, which works by directing pressurized water flow down the pile to liquefy the soils at the pile tip and reduce friction, allowing the pile to descend under its own weight, may also be used to install piles.

Johnson Pier Partial Demolition – The existing North Timber Pier will be completely demolished, and approximately 2,500 sf (232 m^2) of existing fixed timber pier and up to 55, 14-inch (in.) (0.36 m) diameter treated timber piles will be removed. On the North floats, approximately 1,900 sf (177 m^2) of existing floating docks and up to seven,

14-in diameter square concrete piles will be removed. On the east timber pier, approximately 600 sf (56 m^2) of existing fixed treated timber pier and up to 20, 14-in treated timber piles will be removed.

Johnson Pier Expansion – The northern portion of the pier would be expanded by approximately 7,200 sf (669 m^2) and up to 65, 24-in (0.61 m) diameter precast concrete piles would be installed to replace the North Timber Pier. The southern portion of the pier would be expanded by approximately 8,500 sf (790 m^2) and up to 65, 24-in precast concrete piles would be installed.

Commercial Floating Dock and Fuel Dock Replacement – The existing commercial treated-timber floating docks and fuel dock would be demolished and removed, replacing and expanding the existing docks for an additional 20,000 sf (1,858 m^2), including removal of up to 190, 14-in diameter square concrete piles, and installation of up to 215, 16-in (0.41 m) diameter concrete or fiberglass piles and 15, 24-in concrete piles.

Minor Utility Improvements –This includes replacement of all power, potable water, and fire water utilities on the commercial docks, and relocation of the existing fuel lines, sewage pumpout and force main within the footprint of the commercial docks and Johnson Pier.

Concurrent Activities – In order to maintain project schedules, it is possible that multiple pieces of equipment would operate at the same time within the project area. Piles may be extracted and installed on the same day, with a maximum of one impact and one vibratory hammer operating simultaneously. The method of installation, and whether concurrent pile driving scenarios will be implemented, will be determined by the construction crew once the project has begun. Therefore, the total take estimate reflects the worst-case scenario for the proposed project.

Table 1 provides a summary of the pile driving activities. Vibratory pile driving could occur for up to 10 hours per day over 50 days, removing approximately five piles per day. Impact pile driving would occur over 80 days at an average rate of five piles installed per day.

Table 1-- Pile Information for Project Segments

Activity	Location	Number of Piles	Type and Size	Method	Total Production days	Piles per day
Demolition	North Timber Pier	55	14-in Timber	Vibratory extract OR direct pull	50	5
	North Floats	7	14-in square concrete	Vibratory extract OR direct pull		
	East Timber Pier	20	14-in Timber	Vibratory extract OR direct pull		
	Commercial Dock Replacement	190	14-in square concrete	Vibratory extract OR direct pull		
Installation	North Expansion	65	24-in Octagonal Concrete	Impact	80	5
	South Expansion	65	24-in Octagonal Concrete	Impact		
	Commercial Dock Replacement	215	16-in concrete OR fiberglass	Impact OR vibratory*		
		15	24-in Concrete	Impact		
Total piles installed and extracted		632				
Total days pile driving/extraction/drilling					130	

* Installation of fiberglass piles would be via vibratory hammer with impact proofing.

In summary, the project period includes up to 130 days of pile installation and extraction activities for which incidental take authorization is requested. 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. NMFS fully considered all of this information, and we refer the reader to these descriptions, incorporated here by reference, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; *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' website (*https://www.fisheries.noaa.gov/find-species)*.

Table 2 lists all species or stocks for which take is expected and proposed to be authorized for this activity, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. 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' SARs). While no serious injury or mortality is anticipated or proposed to be authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks 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' 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 stocks managed under the MMPA in this region are assessed in NMFS' U.S.

Pacific SARs (*e.g.,* Caretta *et al.,* 2022), including the Draft 2022 SARs. All values presented in Table 2 are the most recent available at the time of publication and are available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*).

Table 2 -- Species Likely Impacted by the Specified Activities

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, Nmin, 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	>320
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 PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2- NMFS marine mammal stock assessment reports online at: *www.nmfs.noaa.gov/pr/sars/*. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable [explain if this is the case]

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

As indicated above, both species in Table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. All species that could potentially occur in the proposed survey areas are included in Table 1 of the IHA application. While gray whale (*Eschrichtius robustus*), harbor porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*), and northern elephant seals (*Mirounga angustirostris*) have been reported 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. Pillar Point Harbor consists of inner and outer harbor sections enclosed by rubble mound breakwaters. The inner harbor is isolated from Half Moon Bay by both sets of breakwaters, and sound from the project is not expected to propagate outside of the inner harbor. Gray whale, harbor porpoise, bottlenose dolphin, and Northern elephant seals are not expected to occur within the inner

harbor, and have never been sighted inside the inner harbor breakwaters. In the rare instance that one of these species does enter the inner harbor during construction activities, a shutdown would be implemented to avoid take of unauthorized species.

California Sea Lion

California sea lions occur from Vancouver Island, British Columbia, to the southern tip of Baja California. Sea lions 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).

California sea lions regularly occur on rocks, buoys, and other structures. California sea lions were observed within the Project area during the field survey (Rincon, 2021). Breeding and pupping are not known to occur in the Project area. Based on anecdotal statements from Pillar Point Harbor operations staff, California sea lions

could occur within the inner harbor area on a daily basis. Past observations indicate that sea lions rarely haul out within the Project area (Meyers, 2022).

Harbor Seal

Harbor seals are widely distributed in the North Atlantic and Pacific Oceans. In the North Pacific Ocean two sub-species occur: *Phoca vitulina stejnegeri* in the western North Pacific near Japan and *Phoca vitulina richardii* in the eastern North Pacific, including areas around the project site (Caretta *et al.,* 2022). Three stocks are currently recognized along the west coast of the continental U.S.: 1) California, 2) Oregon and Washington outer coast waters, and 3) inland waters of Washington (Caretta *et al.,* 2022). The California stock of Pacific harbor seals is found in the project action area and inhabits coastal and estuarine areas including sand bars, rocky shores, and beaches along the entire coast of California, including the offshore islands, forming small, relatively stable populations. Pacific harbor seals do not make extensive pelagic migrations like other pinnipeds, but do travel distances of 300-500 km to forage or find appropriate breeding habitat (Herder, 1986; Harvey and Goley, 2011). Harbor seals are rarely found more than 10.8 nautical miles from shore (Baird, 2001) and are generally are non-migratory (Burns, 2002; Jefferson *et al.,* 2008) and solitary at sea. Harbor seals spend more than 80 percent of their time in the upper 164 ft (50 m) of the water column (Womble *et al.,* 2014) and forage most commonly on fish, shellfish, and crustaceans.

The California stock of harbor seals breeds along the California coast from March to May and pupping occurs between April and May (Alden *et al.,* 2002; Reeves *et al.,* 2002). Molting occurs from late May through July or August and lasts approximately 6 weeks. In fall and winter, harbor seals spend less time on land, but they usually remain relatively close to shore while at sea. The peak haulout period for harbor seals in California is May through July (Caretta *et al.,* 2022).

Threats to the California stock include interactions with fisheries, entanglement in marine debris, ship strikes, research-related deaths, entrainment in power plants, and human interactions/harassment (shootings, stabbing/gaff wounds, human-induced abandonment of pups) (Caretta *et al.,* 2022).

Harbor seals were observed within the Project area during the field survey and have been frequently documented within Pillar Point Harbor (Rincon, 2021). Breeding and pupping are not known to occur in the Project area. Based on anecdotal statements from Pillar Point Harbor operations staff, harbor seals could occur within the inner harbor area on a daily basis. Past observations indicate that harbor seals rarely haul out within the Project area (Meyers, 2022).

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. 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, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). 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 3.

Table 3 -- 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.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section provides a discussion of the ways in which 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 whether those impacts are reasonably expected to, or reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

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. 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 vibratory pile removal, and impact and vibratory pile driving. 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, 2018a). Non-impulsive sounds (*e.g.* aircraft, 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, 2018a). 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).

Impact hammers operate by repeatedly dropping a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is characterized by rapid rise times and high peak levels, a potentially injurious combination (Hastings and Popper, 2005). Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the sediment. The vibrations produced also cause liquefaction of the substrate surrounding the pile, enabling the pile to be extracted or driven into the ground more easily. Vibratory hammers produce significantly less sound than impact hammers. Peak sound pressure levels (SPLs) may be 180 dB or greater, but are generally 10 to 20 dB lower than SPLs generated during impact pile driving of the same-sized pile (Oestman *et al.,* 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards 2002; Carlson *et al.,* 2005).

The likely or possible impacts of the SMCHD's proposed activity on marine mammals could involve both non-acoustic and acoustic stressors. Potential non-acoustic stressors could result from the physical presence of the equipment and personnel;

however, any impacts to marine mammals are expected to be primarily acoustic in nature. Acoustic stressors include effects of heavy equipment operation during pile driving and removal.

Acoustic Impacts

The introduction of anthropogenic noise into the aquatic environment from pile driving is the primary means by which marine mammals may be harassed from the proposed 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). In general, exposure to pile driving 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 as 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 pile driving 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 pile 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 decibels (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 an 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 *et al.,* 2008). PTS levels for marine mammals are estimates, as 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)—TTS is 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 (2015), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SELcum) in an accelerating fashion: At low exposures with lower SELcum, the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SELcum, 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 a 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). Installing piles for this project requires either impact pile driving or vibratory pile driving. For this project, these activities could occur at the same time, and there would be pauses in activities producing the sound during each day. Given these pauses, and that many marine mammals are likely moving through the ensonified area and not remaining for extended periods of time, the potential for TS declines.

Behavioral Harassment—Exposure to noise from pile driving and removal also has the potential to behaviorally disturb marine mammals. Available studies show wide variation in response to 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 an underwater 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); or 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). 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 appendixes B-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.

Airborne Acoustic Effects—Although pinnipeds are known to haul out regularly on manmade objects, such as some floating docks and breakwaters like those surrounding the inner harbor, we believe that incidents of take resulting solely from airborne sound are unlikely because there are no known haulouts in or around Pillar Point Harbor. Local observations report that sightings of pinnipeds hauling out on the breakwaters or docks of the inner harbor are very rare (Meyer, 2022). There is a possibility that an animal could surface in-water, but with head out, within the area in which airborne sound exceeds relevant thresholds and thereby be exposed to levels of airborne sound that we associate with harassment, but any such occurrence would likely be accounted for in our estimation of incidental take from underwater sound. Therefore, authorization of incidental take resulting from airborne sound for pinnipeds is not warranted, and airborne sound is not discussed further here.

Marine Mammal Habitat Effects

The SMCHD's construction activities could have localized, temporary impacts on marine mammal habitat by increasing in-water sound pressure levels and slightly decreasing water quality. However, since the focus of the proposed action is pile driving, a minimal amount of net habitat loss is expected, as the new Johnson Pier would be constructed on the existing pier footprint, with some expansion areas. Construction activities are of short duration and would likely have temporary impacts on marine mammal habitat through increases in underwater sounds. 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 pile

driving activities, elevated levels of underwater noise would ensonify the project area where both fishes and marine mammals may 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.

Temporary and localized reduction in water quality would occur because of in-water construction activities as well. Most of this effect will occur during the installation and removal of piles when bottom sediments are disturbed. The installation of piles will disturb bottom sediments and may cause a temporary increase in suspended sediment in the project area. In general, turbidity associated with pile installation is localized to about 25-ft (7.6 meter) radius around the pile (Everitt *et al.,* 1980). Pinnipeds are not expected to be close enough to the pile driving areas to experience effects of turbidity, and 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 proposed activities would not result in permanent impacts to habitats used directly by marine mammals except for the actual footprint of the new Johnson Pier. The total seafloor area affected by pile installation and removal is a very small area compared to the vast foraging area available to marine mammals in the larger Pillar Point Harbor, including the Outer Harbor, and the adjacent Half Moon Bay. Pile extraction and installation may have impacts on benthic invertebrate species primarily associated with disturbance of sediments that may cover or displace some invertebrates. The impacts would be temporary and highly localized, and no habitat would be permanently displaced by construction. Therefore, it is expected that impacts on foraging opportunities for marine mammals due to the demolition and expansion of Johnson Pier would be minimal.

It is possible that avoidance by potential prey (*i.e.,* fish) in the immediate area may occur due to temporary loss of this foraging habitat. The duration of fish avoidance of this area after pile driving stops is unknown, but we anticipate a rapid return to normal recruitment, distribution and behavior. Any behavioral avoidance by fish of the disturbed area would still leave large areas of fish and marine mammal foraging habitat in the nearby vicinity in the in the project area and Half Moon Bay.

Effects on Potential Prey

Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.,* fish). 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 *et al.,* 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 pile driving activities at the project areas would be temporary behavioral avoidance of the area. The duration of fish avoidance of an area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated.

The area impacted by the project is relatively small compared to the available habitat in the remainder of the Pillar Point Harbor and Half Moon Bay, and there are no areas of particular importance that would be impacted by this project. 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. As described in the preceding, the potential for the SMCHD's construction to affect the availability of prey to marine mammals or to meaningfully impact the quality of physical or acoustic habitat is considered to be insignificant.

Estimated Take of Marine Mammals

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 determinations.

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 noise generated during construction activities (*i.e.*, impact and vibratory pile driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result. The proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

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

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

Acoustic Thresholds

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

Level B Harassment – 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 or exposure context (*e.g.*, frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.*, bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.*, Southall *et al.,* 2007, 2021; Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are

likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 μPa)) for continuous non-impulsive (*e.g.,* vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 μPa for non-explosive impulsive (*e.g.*, impact pile driving) or intermittent (*e.g.*, scientific sonar) sources. Generally speaking, Level B harassment take estimates based on these behavioral harassment thresholds are expected to include any likely takes by TTS as, in most cases, the likelihood of TTS occurs at distances from the source less than those at which behavioral harassment is likely. TTS of a sufficient degree can manifest as behavioral harassment, as reduced hearing sensitivity and the potential reduced opportunities to detect important signals (conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

SMCHD's proposed activity includes the use of continuous non-impulsive (vibratory pile installation and extraction) and impulsive (impact pile driving) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 μPa are applicable.

Level A Harassment – 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). SMCHD's proposed activity includes the use of non-impulsive (vibratory pile installation and extraction) and impulsive (impact pile driving) sources.

These thresholds are provided in Table 4. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at:

www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.

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

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

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

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

Ensonified Area

Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including 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. Pile driving generates underwater noise that can potentially result in disturbance to marine mammals in the

project area. The maximum (underwater) area ensonified is determined by the topography of the Pillar Point inner harbor, including hard structure breakwaters that bound the inner harbor and preclude sound from transmitting into the outer harbor. Additionally, vessel traffic and other commercial and industrial activities in the project area may contribute to elevated background noise levels, which may mask sounds produced by the project.

Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

$TL = B * Log_{10} (R_1/R_2)$, where

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

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

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

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

receiver moves away from the shoreline, resulting in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions. Practical spreading loss is assumed here.

The intensity of pile driving sounds is greatly influenced by factors such as the type of piles, hammers, and the physical environment in which the activity takes place. In order to calculate the distances to the Level A harassment and the Level B harassment sound thresholds for the methods and piles being used in this project, NMFS used acoustic monitoring data from other locations to develop proxy source levels for the various pile types, sizes and methods (Table 5). Generally, we choose source levels from similar pile types from locations (*e.g.*, geology, bathymetry) similar to the project. At this time, NMFS is not aware of reliable source levels available for fiberglass piles using vibratory pile installation; therefore, source levels for timber pile driving were used as a proxy. While vibratory extraction of concrete piles has been measured only for 20-in piles, NMFS has conservatively applied this source level to vibratory extraction of 14-in concrete piles.

For this project, one impact and one vibratory hammer may operate simultaneously. Because an impact hammer is not a continuous source, there is no adjustment needed in the source levels needed to calculate the Level A harassment or Level B harassment zones. In the event of concurrent activities, the Level A harassment zones would be equivalent to those produced by the impact hammer alone, and the Level B harassment zone would be the largest zone. Due to the confined nature of the Project Area, these zones are sometimes identical. Therefore, no separate analysis of concurrent activities was conducted for this project.

Table 5 – Project Sound Source Levels normalized to 10 meters

Pile Type	Pile Size (inch)	Method	Peak SPL (re 1 µPa (rms))	RMS SPL (re 1 µPa (rms))	SEL (re 1 µPa (rms))	Source
Concrete	16	Impact	193	168	160	Caltrans 2020
Concrete	24	Impact	188	176	166	Caltrans 2020
Fiberglass	16	Vibratory	NA	162	NA	Caltrans 2020
Concrete or Timber	14	Vibratory extraction	NA	162	NA	NAVFAC SW 2022

The ensonified area associated with Level A harassment is more technically challenging to predict due to the need to account for a duration component. Therefore, NMFS developed an optional User Spreadsheet tool to accompany the Technical Guidance that can be used to relatively simply predict an isopleth distance for use in conjunction with marine mammal density or occurrence to help predict potential takes. We note that because of some of the assumptions included in the methods underlying this optional tool, we anticipate that the resulting isopleth estimates are typically going to be overestimates of some degree, which may result in an overestimate of potential take by Level A harassment. However, this optional tool offers the best way to estimate isopleth distances when more sophisticated modeling methods are not available or practical. For stationary sources like pile driving, the optional User Spreadsheet tool predicts the distance at which, if a marine mammal remained at that distance for the duration of the activity, it would be expected to incur PTS. Inputs used in the User Spreadsheet are reported in Table 1 and source levels used in the User Spreadsheet are reported in Table 5, and the resulting isopleths are reported in Table 6, below.

Table 6 – Calculated Level A Harassment and Level B Harassment Isopleths for Impact Pile Driving

Method	Source	Level A Harassment- Radius to Isopleth (m)	Level B Harassment- Radius to Isopleth

		Phocids	Otariids	(m)
Impact	16-in Concrete	96	7	35
	24-in Concrete	290	22	117
Vibratory	16-in Fiberglass	23	2	6,265*
	14-in Concrete or Timber	23	2	6,265*

* The calculated distance to the Level B harassment threshold of 120 dB is 6,265m. However, sound propagation will be limited by the solid breakwaters surrounding the inner harbor and therefore the harassment zone will be limited to the area within the inner harbor breakwaters.

The maximum Level A harassment zones would occur during impact driving of 24-in concrete piles, extending out to 290 m from the source pile for harbor seals, and out to 22 m from the source pile for sea lions. The 290 m zone fills the inner harbor area surrounded by the breakwaters, as shown in Figure 7 of the IHA application. The largest Level B harassment zone would occur during vibratory pile driving and extraction, and would encompass the entire inner harbor basin.

Marine Mammal Occurrence and Take Calculation and Estimation

In this section, we provide information about the occurrence of marine mammals, including density or other relevant information that will inform the take calculations, and describe how the information provided is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and proposed for authorization.

California Sea Lion

California sea lions regularly occur on rocks, buoys, and other structures. California sea lions were observed within the Project area during the field survey (Rincon, 2021). Breeding and pupping are not known to occur in the Project area. Based on anecdotal statements from Pillar Point Harbor operations staff, California sea lions could occur within the inner harbor area on a daily basis. Past observations indicate that sea lions rarely haul out within the Project area (Meyers, 2022). Because no density

estimates are available for the species in this area, the SMCHD estimated that two California sea lions could be present within the Pillar Point Inner Harbor each day. Based on this information, NMFS has similarly estimated that two California sea lions may be taken by Level B harassment each day of pile driving. This equates to 260 Level B harassment takes over 130 project days (Table 1). Therefore, the SMCHD is requesting, and NMFS is proposing to authorize 260 takes by Level B harassment of California sea lion (Table 7).

The largest Level A harassment zone for otariids extends approximately 23 m from the source during impact driving of a 24-in concrete pile (Table 6). SMCHD has conservatively assumed that 1 sea lion may occur within the 23 m zone for a duration long enough to be taken by Level A harassment every 2 days of impact pile driving, equating to 40 takes over 80 project days (Table 1). Therefore, the SMCHD is requesting, and NMFS is proposing to authorize 40 takes by Level A harassment of California sea lion (Table 7).

Harbor Seal

Harbor seals were observed within the Project area during the field survey and have been frequently documented within Pillar Point Harbor (Rincon, 2021). Breeding and pupping are not known to occur in the Project area. Based on anecdotal statements from Pillar Point Harbor operations staff, harbor seals could occur within the inner harbor area on a daily basis. Past observations indicate that harbor seals rarely haul out within the Project area (Meyers, 2022). Because no density estimates are available for the species in this area, the SMCHD estimated that two harbor seals could be present within the Pillar Point Inner Harbor each day. Based on this information, NMFS has similarly estimated that two harbor seals may be taken by Level B harassment each day of vibratory pile driving, and up to 10 percent of those individuals may be taken by Level A harassment each day. On days with impact driving, up to two harbor seals may be taken

by Level A harassment, with no Level B exposures due to the Level A harassment zone extending to the boundaries of the inner harbor. This equates to 90 Level B harassment takes and 170 Level A harassment takes over 130 project days (Table 1). Therefore, the SMCHD is requesting, and NMFS is proposing, to authorize 90 takes by Level B harassment, and 170 takes by Level A harassment of harbor seals (Table 7).

Table 7 – Proposed Authorized Amount of Taking, by Level A Harassment and Level B Harassment, by Species and Stock and as a Percentage of Stock Abundance

Common Name	Stock	Level A Harassment	Level B Harassment	Total	Percent of Stock
California sea lion	United States	40	260	300	0.12
Harbor seal	California	170	90	260	0.84

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, NMFS considers 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 and impact on operations.

In addition to the measures described later in this section, SMCHD will employ the following mitigation measures:

- The Holder must ensure that construction supervisors and crews, the monitoring team, and relevant SMCHD staff are trained prior to the start of activities 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.
- For those marine mammals for which Level B harassment take has not been requested, in-water pile installation/removal will shut down immediately if such species are observed within or entering the Level B harassment zone; and
- If take reaches the authorized limit for an authorized species, pile installation/removal will shut down immediately if these species approach the Level B harassment zone to avoid additional take.

The following mitigation measures apply to SMCHD's in-water construction activities:

- *Establishment of Shutdown Zones* - SMCHD will establish of 15.25 meter (50-foot) shutdown zone for all pinnipeds during in-water construction activities to avoid interaction between pile driving equipment and pinnipeds. For all marine mammal species other than harbor seals and California sea lions, the shutdown

zone will encompass the entire inner harbor. Pile driving must be halted or delayed if a marine mammal is observed entering or within the shutdown zone. 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.

  - *Monitoring for Level A Harassment and Level B Harassment* – SMCHD will monitor the Level A harassment and Level B harassment zones. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence of marine mammals in the project area outside the shutdown zone and thus prepare for a potential halt of activity should the animal enter the shutdown zone. Placement of Protected Species Observers (PSOs) will allow PSOs to observe marine mammals within the Level B harassment zones. During pile driving activities, PSOs will monitor the entire inner harbor area and the outer harbor to the extent practicable. A qualified observer will monitor the zone of influence, and document all marine mammals that enter the monitoring zone.

- *Pre/post-activity Monitoring*- Prior to the start of daily in-water construction activity, or whenever a break in pile driving/removal of 30 minutes or longer occurs, PSOs will observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone will be considered cleared when a marine mammal has not been observed within the zone for that 30-minute period. If a marine mammal is observed within the shutdown zone, a soft-start cannot proceed until the animal has left the zone or has not been observed for 15 minutes. When a marine mammal for which Level B harassment take is authorized is present in the

Level B harassment zone, activities may begin and Level B harassment take will be recorded. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones will commence. Monitoring must also occur through 30 minutes post-completion of pile driving activity.

- *Protected Species Observers*- The placement of PSOs during all pile driving and removal activities (described in detail in the **Proposed Monitoring and Reporting** section) will ensure that the entire inner harbor is visible during pile installation. Should environmental conditions deteriorate such that marine mammals within the entire monitoring zone would not be visible (*e.g.*, fog, heavy rain), pile driving and removal must be delayed until the PSO is confident marine mammals within the monitoring zone could be detected.
- *Soft Start*- Soft-start procedures are believed to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the impact hammer operating at full capacity. For impact driving, an initial set of three strikes will be made by the hammer at reduced energy, followed by a 30-second waiting period, then two subsequent three-strike sets before initiating continuous driving. Soft start will be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on 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 while conducting the activities. 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 activity; 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 Plan and Section 5 of the IHA. Marine mammal monitoring during pile driving and removal 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 SMCHD 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.

SMCHD will employ up to two PSOs. PSO locations will provide an unobstructed view of all water within the shutdown zone(s), and as much of the Level A harassment and Level B harassment zones as possible. PSO locations may include Johnson Pier, adjacent floating docks, and/or the shoreline area. If necessary, observations may occur from two locations simultaneously.

- Monitoring will be conducted 30 minutes before, during, and 30 minutes after pile driving/removal activities. In addition, observers shall record all incidents of marine mammal occurrence, regardless of distance from activity, and shall document any behavioral reactions in concert with distance from piles being driven or removed. Pile driving activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving or drilling equipment is no more than 30 minutes.

Reporting

A draft marine mammal monitoring report will be submitted to NMFS within 90 days after the completion of pile driving and removal activities, or 60 days prior to a requested date of issuance of any future IHAs for projects at the same location, whichever comes first. The report will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets. 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 piles were driven or removed and by what method (*i.e.*, impact or vibratory and if other removal methods were used) and the total duration of driving time for each pile (vibratory driving/removal) and number of strikes for each pile (impact driving).
- PSO locations during marine mammal monitoring.
- 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;
- Upon observation of a marine mammal, the following information:
    - Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;
    - Time of sighting;
    - Identification of the animal(s) (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 location of each observed marine mammal relative to the pile being driven for each sighting;
    - Estimated number of animals (min/max/best estimate);
    - 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;

- Description of any marine mammal behavioral observations (e.g., observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);

- Number of marine mammals detected within the harassment zones, by species; and
- 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(s), if any.

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.

Reporting Injured or Dead Marine Mammals

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the SMCHD shall 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 SMCHD 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 impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts affecting energetics), 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' 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 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, the discussion of our analysis applies to both California sea lions and harbor seals, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. There is little information about the

nature or severity of the impacts, or the size, status, or structure of any of these species or stocks that would lead to a different analysis for this activity.

Pile driving activities have the potential to disturb or displace marine mammals. Specifically, the project activities may result in take, in the form of Level A harassment and Level B harassment from underwater sounds generated from pile driving and removal. Potential takes could occur if individuals are present in the ensonified zone when these activities are underway.

The takes from Level B harassment would be due to potential behavioral disturbance, and TTS. Level A harassment takes would be due to PTS. No mortality or serious injury is anticipated given the nature of the activity, even in the absence of the required mitigation. The potential for harassment is minimized through the construction method and the implementation of the proposed mitigation measures (see **Proposed Mitigation** section).

Take would occur within a limited, confined area (Pillar Point Inner Harbor) of the stock's range. Level A harassment and Level B harassment would be reduced to the level of least practicable adverse impact through use of mitigation measures described herein. Further, the amount of take proposed to be authorized is extremely small when compared to stock abundance, and the project is not anticipated to impact any known important habitat areas for any marine mammal species.

Take by Level A harassment is authorized to account for the potential that an animal could enter and remain within the area between a Level A harassment zone and the shutdown zone for a duration long enough to be taken by Level A harassment. Any take by Level A harassment is expected to arise from, at most, a small degree of PTS because animals would need to be exposed to higher levels and/or longer duration than are expected to occur here in order to incur any more than a small degree of PTS. Additionally, and as noted previously, some subset of the individuals that are

behaviorally harassed could also simultaneously incur some small degree of TTS for a short duration of time. Because of the small degree anticipated, though, any PTS or TTS potentially incurred here would not be expected to adversely impact individual fitness, let alone annual rates of recruitment or survival.

Behavioral responses of marine mammals to pile driving 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 (ABR, 2016)) 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 limited number of piles to be installed or extracted per day and that pile driving and removal would occur across a maximum of 130 days within the 12-month authorization period, any harassment would be temporary.

Any impacts on marine mammal prey that would occur during SMCHD's proposed activity would have, at most, short-term effects on foraging of individual marine mammals, and likely no effect on the populations of marine mammals as a whole. Indirect effects on marine mammal prey during the construction are expected to be minor, and these effects are unlikely to cause substantial effects on marine mammals at the individual level, with no expected effect on annual rates of recruitment or survival.

In addition, it is unlikely that minor noise effects in a small, localized area of habitat would have any effect on the stocks' annual rates of recruitment or survival. 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 or serious injury is anticipated or proposed for authorization.
- The intensity of anticipated takes by Level B harassment is relatively low for all stocks and would not be of a duration or intensity expected to result in impacts on reproduction or survival;
- No important habitat areas have been identified within the project area.
- For all species, Pillar Point Harbor is a very small and peripheral part of their range and anticipated habitat impacts are minor.
- The SMCHD would implement mitigation measures, such as soft-starts for impact pile driving and shut downs to minimize the numbers of marine mammals exposed to injurious levels of sound, and to ensure that take by Level A harassment, is at most, a small degree of PTS.

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 previously, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species

or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The amount of take NMFS proposes to authorize for both California sea lions and harbor seals is below one-third of the estimated stock abundance (0.12 percent and 0.84 percent, respectively; Table 7). This is likely a conservative estimate because it assumes all takes are of different individual animals, which is likely not the case. 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 would 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

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 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 SMCHD for conducting the Pillar Point Harbor Johnson Pier Expansion and Dock Replacement Project in Princeton, California, between January 1, 2024 and December 31, 2024, 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/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*.

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 Pillar Point Harbor Johnson Pier Expansion and Dock Replacement Project. We also request 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 **Description of Proposed Activity** section of this notice is planned or (2) the activities as described in the **Description of Proposed Activity** 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 the 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).

(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.

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: February 22, 2023.

Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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