751(a)(1) and 777(i)(1) of the Act, and 19 CFR 351.213(h) and 351.221(b)(5).

Dated: November 20, 2023.

Abdelali Elouaradia,

Deputy Assistant Secretary for Enforcement and Compliance.

[FR Doc. 2023–26135 Filed 11–27–23; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XD494]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the City of Oceanside's Harbor Fishing Pier and Non-Motorized Vessel Launch Improvement Project in Oceanside, 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 City of Oceanside for authorization to take marine mammals incidental to pile driving activities associated with harbor fishing pier and non-motorized vessel launch improvement in Oceanside, 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 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 December 28, 2023.

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.clevenstine@noaa.gov.* 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.

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: Alyssa Clevenstine, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are 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 NAO 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 May 16, 2023, NMFS received a request from the City of Oceanside for an IHA to take marine mammals incidental to construction activities associated with fishing pier and non-motorized vessel improvement in Oceanside Harbor, Oceanside, CA. Following NMFS' review of the application, the City of Oceanside submitted revised versions on July 18 and October 17, 2023. The application was deemed adequate and complete on November 2, 2023. The City of Oceanside's request is for take of seven species of marine mammals by Level B harassment only. Neither the City of Oceanside nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Proposed Activity

Overview

The City of Oceanside proposes to remove and replace the existing public fishing pier and non-motorized vessel launch in Oceanside Harbor, Oceanside,

CA. The purpose of this project is to completely replace the pier and launch dock with the goals of making the pier larger, bringing the pier to current code standards, and relocating the launch dock to improve accessibility. The existing pier is past its design service life and has inadequate load-bearing capabilities. The applicant intends to use vibratory extraction to remove four 16-inch octagonal concrete support piles; vibratory driving to install up to 18 18-inch round plastic-coated steel piles to within 0.61–1.52 meters (m; 2–5 feet (ft)) of required depth; and, potentially, impact driving to complete pile installation depending on observed soil resistance. While not expected to be required based on site geology, 18 10-inch steel piles may be used as temporary guide piles to aid in the installation of the larger 18-inch structural piles.

A maximum of 6 non-consecutive days of piling activities is proposed to occur during the course of construction (5–6 months) from March 2024 through February 2025. The proposed project footprint is approximately 0.0081 square kilometers (km^2; 0.0031 square miles (mi^2)) with water depths ranging from approximately −6 m (−20 ft) below mean lower low water (MLLW) and 2.4 m (7.8 ft) above MLLW.

Dates and Duration

This IHA would be effective from March 1, 2024, until February 28, 2025. The project is anticipated to occur over a period of 183 days (5–6 months) from March 1, 2024, through February 28, 2025 (excluding work from April 1 through August 31, 2024, to account for the breeding and nesting season of the Endangered Species Act (ESA)-listed California least tern (*Sternula antillarum browni*)), and in-water pile activity is anticipated to occur for 6 non-consecutive days during that time. The City of Oceanside plans to conduct piling activities during daylight hours, generally limited to between 45 minutes post-sunrise and 45 minutes pre-sunset. Pile removal and installation activities may take place concurrently, where multiple piles are extracted or installed during a day, but not coincidentally. Pile extraction is anticipated to take 1 day and pile installation is anticipated to take 5 days.

Specific Geographic Region

This project would be located at the existing Oceanside Harbor Fishing Pier in Oceanside, CA (Figure 1), with depths ranging from approximately 6 m below to 2.4 m above MLLW.

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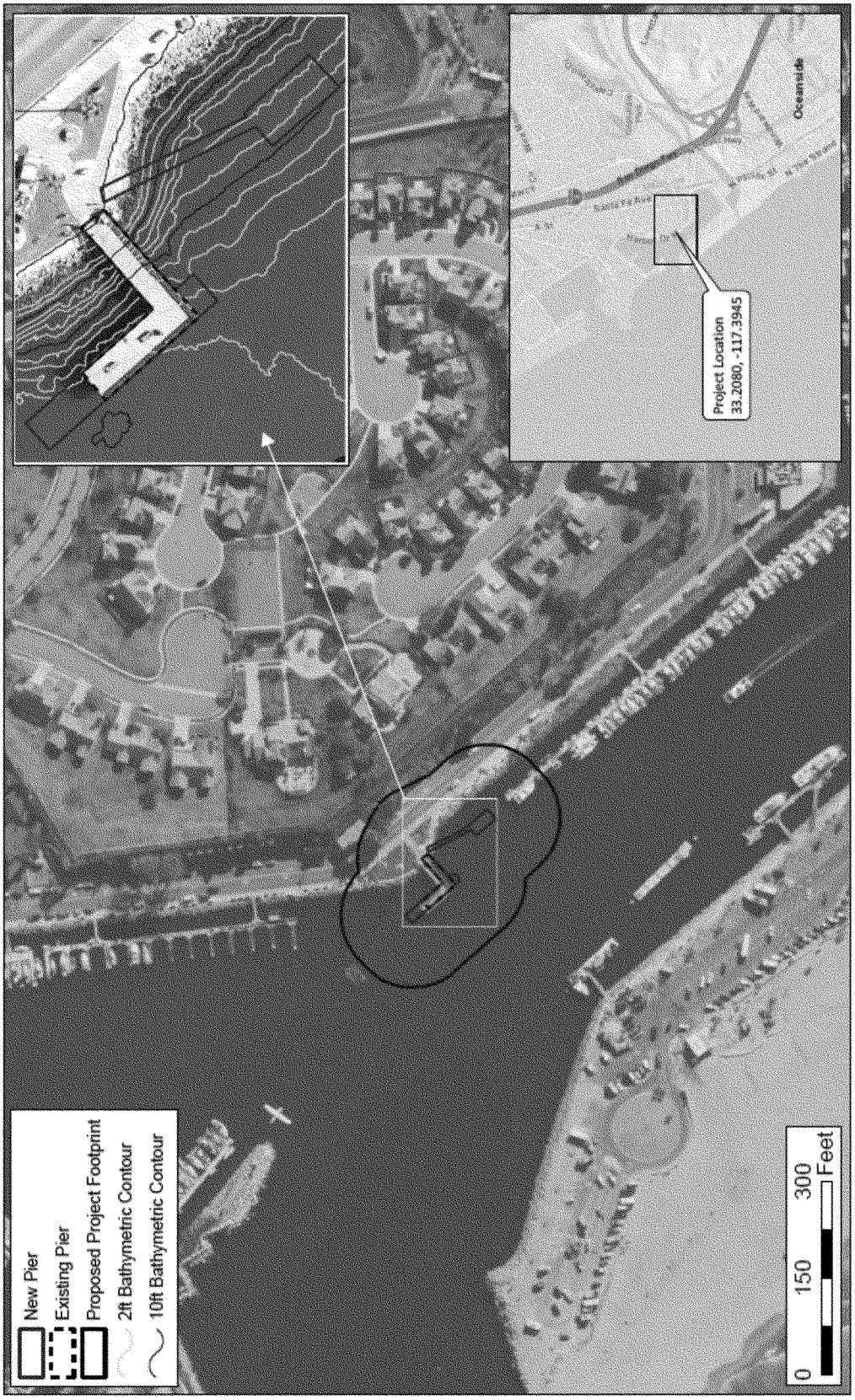

Figure 1 – Map of Proposed Project Area in Oceanside Harbor, California

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Detailed Description of the Specified Activity

Vibratory extraction of four existing 16-inch octagonal concrete support piles would occur in 1 day. Vibratory installation of up to 18 18-inch round plastic-coated steel pipe piles, with the potential for an additional 18 10-inch

temporary steel guide piles, would occur over 5 days (table 1). If 10-inch steel guide piles are needed, they will be installed and extracted via vibratory hammer within the same timeframe as the permanent piles. New 18-inch steel piles will be installed with a vibratory hammer until they are within 0.61–1.52 m of the required depth, at which point the remaining driving will be done with an impact hammer depending on observed sediment resistance. Temporary 10-inch guide piles would only be installed to aid in installation of structural 18-inch piles if hard sediments are encountered that will deflect pile positioning. All activities may occur with or without high-pressure water jetting.

TABLE 1—PILE EXTRACTION AND INSTALLATION ACTIVITIES

Pile activity	Method	Pile size (inch), material	Piles per day	Duration of activity (days)	Duration of vibratory activity per pile (minutes)	Estimated blows of impact driving per pile (strikes)
Extraction	Vibratory	16, concrete	4	1	25	N/A
Installation	Vibratory	18, steel	4	*5	25	N/A
Installation	Impact	18, steel	4	*5	N/A	300
Installation	Vibratory	10, steel	4	N/A	10	N/A

Note: Impact pile installation will be used for driving piles 0.61–1.52 m to final depth, depending on observed sediment resistance.
* Vibratory and impact installation of 18-inch steel piles would occur in the same 5 days.

Other pile removal methods, including removing piles via high-pressure water jet may also occur, but no take of marine mammals is anticipated to occur incidental to this portion of the project and these activities will not be discussed further.

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 instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SAR; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS' 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 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 managed stocks in this region are assessed in NMFS' U.S. Pacific SARs. All values presented in table 2 are the most recent available at the time of publication (including from the final 2022 SARs) and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.*

TABLE 2—MARINE MAMMAL SPECIES LIKELY IMPACTED BY THE SPECIFIED ACTIVITIES

Common name	Scientific name	Stock	ESA/MMPA status; strategic (Y/N) [2]	Stock abundance (CV, N_{min}, most recent abundance survey) [3]	PBR	Annual M/SI [4]
Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae:						
Bottlenose dolphin	*Tursiops truncatus*	California Coastal	-/-; N	453 (0.06, 346, 2011)	2.7	≥2
Long-beaked common dolphin.	*Delphinus delphis capensis*	California	-/-; N	83,379 (0.216, 69,636, 2018)	668	≥29.7
Short-beaked common dolphin.	*Delphinus delphis delphis*	California/Oregon/Washington.	-/-; N	1,056,308 (0.21, 888,971, 2018).	8,889	≥30.5
Pacific white-sided dolphin.	*Lagenorhynchus obliquidens*	California	-/-; N	34,999 (0.222, 29,090, 2018)	279	7
Order Carnivora—Pinnipedia						
Family Otariidae (eared seals and sea lions):						

TABLE 2—MARINE MAMMAL SPECIES LIKELY IMPACTED BY THE SPECIFIED ACTIVITIES—Continued

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [2]	Stock abundance (CV, N_{min}, most recent abundance survey) [3]	PBR	Annual M/SI [4]
California sea lion	*Zalophus californianus*	U.S.	-/-; N	257,606 (N/A, 233,515, 2015).	14,011	>321
Family Phocidae (earless seals):						
Harbor seal	*Phoca vitulina richardii*	California	-/-; N	30,968 (0.157, 27,348, 2012)	1,641	42.8
Northern elephant seal	*Mirounga angustirostris*	California Breeding	-/-; N	187,386 (N/A, 85,369, 2013)	5,122	13.7

[1] Information on the classification of marine mammal species can be found on the web page for The Society for Marine Mammalogy's Committee on Taxonomy (*https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies/;* Committee on Taxonomy (2022)).

[2] 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.

[3] NMFS marine mammal stock assessment reports online at: *https://www.nmfs.noaa.gov/pr/sars/.* CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance.

[4] 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, vessel 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, all seven species in table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. Based on previous marine mammal monitoring events near the mouth of Oceanside Harbor (Merkel and Associates, Inc., 2022; Merkel and Associates, Inc., 2023), other marine mammals rarely occur within Oceanside Harbor and any occurrence in the project area would be very rare. While Risso's dolphins (*Grampus griseus*) and gray whales (*Eschrichtius robustus*) have been sighted outside of the harbor and in coastal waters, these species' general spatial occurrence is such that take is not expected to occur as they typically occur more offshore, and they are not discussed further beyond the explanation provided here.

Bottlenose Dolphin

Bottlenose dolphins (California coastal stock) occur in coastal waters within 1 km of shore, primarily between Point Conception, CA, and San Quintin, Mexico (Hansen, 1990, Carretta *et al.,* 1998). California coastal bottlenose dolphins show little site fidelity and likely move within their home range in response to patchy concentrations of nearshore prey (Defran and Weller, 1999, Bearzi *et al.,* 2009). Oceanographic events may influence the distribution and residency patterns of dolphins (Hansen and Defran, 1990, Wells *et al.,* 1990). In southern California, coastal bottlenose dolphins are typically found within 250 m of the shoreline (Hansen and Defran, 1993).

Bottlenose dolphin sightings are not common in Oceanside Harbor but do occur, typically within the outer surge basin of the harbor and, rarely, within the inner harbor.

Common Dolphin (Long-Beaked and Short-Beaked)

Short-beaked common dolphins (California/Oregon/Washington stock) are the most abundant cetacean off of California and are widely distributed between the coast and approximately 556 km offshore. In contrast, long-beaked common dolphins (California stock) are considered a nearshore species and generally occur within 92.6 km of shore. Both stocks may shift their distributions seasonally and annually in response to oceanographic conditions and prey availability (Carretta *et al.,* 2023). Long-beaked common dolphins tend to prefer shallower, warmer waters as compared to the short-beaked common dolphin (Perrin, 2009), yet both stocks appear to be more abundant in coastal waters during warm-water months (Bearzi, 2005).

While there is no occurrence data for common dolphin in Oceanside Harbor, they are rare visitors to the northern portion of San Diego Bay and could be expected to be rare visitors within the outer portion of Oceanside Harbor.

Pacific White-Sided Dolphin

Pacific white-sided dolphins (California stock) are endemic to temperate waters of the North Pacific Ocean, and are the most abundant pelagic species of dolphin in the region (Carretta *et al.,* 2023). Off the U.S. West Coast, Pacific white-sided dolphins occur primarily in shelf and slope waters. Sighting patterns from aerial and shipboard surveys conducted in California, Oregon, and Washington suggest seasonal north-south movements, with animals found primarily off California during colder water months and shifting northward into Oregon and Washington as water temperatures increase in late spring and summer (Green *et al.,* 1992, Green *et al.,* 1993, Forney and Barlow, 1998, Carretta *et al.,* 2023). Pacific white-sided dolphins are highly social and commonly occur in groups of less than a hundred, although groups of several thousands of individuals have been observed. They often associate with Risso's dolphins and short-beaked common dolphins, and occasionally feed in association with California sea lions and mixed species aggregations of seabirds.

No data of Pacific white-sided dolphin occurrence within Oceanside Harbor exists but, as they do occur in the waters of southern California, they could enter the outer portion of Oceanside Harbor.

California Sea Lion

California sea lions occur from Vancouver Island, British Columbia, to the southern tip of Baja California, Mexico. Habitat use and distribution varies with sex and reproductive stage, and sea lions breed on the offshore islands of southern California, western Baja California, and the Gulf of California from May through July (Heath and Perrin, 2009, Lowry *et al.,* 2017). Adult males may haul out on land to breed and defend territory from mid-May through late July. Adult males and females are known to haul out more often during warm-water months.

California sea lions are commonly seen in the proposed project area and generally in and around Oceanside Harbor on a pinniped haulout float, buoys, rocks, and other structures throughout the harbor (Merkel and Associates, Inc., 2023). Beyond these structures, there are no known natural haulout locations near the proposed action area. Abundance in the proposed project area varies substantially through

time, with variability also being driven by food availability and breeding season movements (*pers. comm.* Oceanside Harbor Department). California sea lions in Oceanside Harbor are typically concentrated around the pinniped float approximately 21 m north of the end of the existing fishing pier in the proposed project area. This structure was installed several years ago to attract sea lions away from docks and boats (see Figure 2–1 in application). The Harbor Department noted that the pinniped float varies from being completely full (approximately 100 animals or more) to completely empty. Prior to in-water activity, the pinniped float would be relocated by the Oceanside Harbor Department when no sea lions or other marine mammals are present to minimize attraction of sea lions to the proposed work area during construction.

California sea lions experienced an Unusual Mortality Event (UME), not correlated to an El Niño event, from 2013–2017 (Carretta *et al.,* 2023). Pup and juvenile age classes experienced high mortality during this time, likely attributed to a lack of prey availability, specifically Pacific sardines (*Sardinops sagax*). California sea lions are also susceptible to the algal neurotoxin domoic acid (Carretta *et al.,* 2023), which is expected to cause future mortalities among California sea lions due to the prevalence of harmful algal blooms within their habitat, as evidenced by recent stranding events along parts of the Southern California coast in summer 2023.

Harbor Seal

Harbor seals are distributed from Baja California, Mexico, to the eastern Aleutian Islands of Alaska (Harvey and Goley, 2011). Harbor seals do not make extensive pelagic migrations but may travel hundreds of kilometers to find food or suitable breeding areas (Harvey and Goley, 2011, Carretta *et al.,* 2023). Seals primarily haul out on remote mainland and island beaches, reefs, and estuary areas. At haulout sites, they congregate to rest, socialize, breed, and molt. In California, there are approximately 500 haulout sites along the mainland and on offshore islands, including intertidal sandbars, rocky shores, and beaches (Hanan, 1996, Lowry *et al.,* 2008).

Harbor seals are present within Oceanside Harbor, primarily in the outer surge basin and not typically within the inner harbor (Merkel and Associates, Inc., 2023). Harbor seals may haul out on the pinniped float, rocks, buoys, or other structures within the harbor.

Northern Elephant Seal

Northern elephant seals breed and give birth in California and Baja California, mainly on offshore islands during the months of December through March (Stewart and Huber, 1993, Stewart *et al.,* 1994, Carretta *et al.,* 2023). Molting season takes place from March to August. In between the spring/summer molting season and winter breeding season, northern elephant seals migrate north, exhibiting spatial segregation in foraging areas in the Gulf of Alaska, western Aleutian Islands, and central North Pacific Ocean to feeding grounds (Carretta *et al.,* 2023). Northern elephant seal populations in the United States and Mexico have recovered after being hunted to near extinction (Stewart *et al.,* 1994) and undergoing a severe population bottleneck, leading to a loss of genetic diversity, that resulted in the population being reduced to an estimated 10–30 individuals (Hoelzel *et al.,* 2002, Carretta *et al.,* 2023). There are two distinct populations of northern elephant seals, including a breeding population in Baja California, Mexico, and a breeding population on U.S. islands off of California. Northern elephant seals in the region could be from either population (Carretta *et al.,* 2023).

Northern elephant seals rarely occur in the Southern California Bight and are not expected to occur in Oceanside Harbor. However, given the species has been sighted along the southern California coast in recent years, potentially due to the continuing long-term increase in the population of northern elephant seals (Lowry *et al.,* 2020), there is a possibility of occurrence in the project area.

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) was 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 *et al.,* 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 of Marine Mammals 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 of Marine Mammals 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.

Acoustic effects on marine mammals during the specified activities can occur from impact pile driving and vibratory pile driving and removal. The effects of underwater noise from the City of Oceanside's proposed activities have the potential to result in Level B harassment of marine mammals in the project area.

Description of Sound Sources

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

The sum of the various natural and anthropogenic sound sources at any given location and time—which comprise ''ambient'' or ''background'' sound—depends not only on the source levels (as determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor, and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10–20 dB from day to day (Richardson *et al.,* 1995). The result is that, depending on the source type and its intensity, sound from the specified activities 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 proposed project would include vibratory pile extraction and vibratory pile installation, and, potentially, impact pile installation. The sounds produced by these activities fall into one of two general sound types: impulsive and non-impulsive. Impulsive sounds (*e.g.,* explosions, 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, NMFS, 2018). Non-impulsive sounds (*e.g.,* machinery operations such as drilling or dredging, vibratory pile driving, underwater chainsaws, and active sonar systems) can be broadband, narrowband, or tonal, brief or prolonged (continuous or intermittent), and typically do not have the high peak sound pressure with raid rise/decay time that impulsive sounds do (ANSI, 1995, NIOSH, 1998, NMFS, 2018). The distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.,* Ward, 1997).

Two types of hammers would be used on this project, vibratory and, if necessary, impact. Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the sediment. Vibratory hammers produce non-impulsive, continuous sounds. Vibratory hammering generally produces sound pressure levels (SPLs) 10–20 dB lower than 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). Impact hammers operate by repeatedly dropping and/or pushing a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is considered impulsive.

The likely or possible impacts of the City of Oceanside's proposed activities on marine mammals could be generated from both non-acoustic and acoustic stressors. Potential non-acoustic stressors include the physical presence of the equipment, vessels, and personnel; however, we expect that any animals that approach the project site close enough to be harassed due to the presence of equipment or personnel would be within the Level B harassment zones from pile removal or driving and would already be subject to harassment from the in-water activities. Therefore, any impacts to marine mammals are expected to primarily be acoustic in nature. Acoustic stressors are generated by heavy equipment operation during pile driving activities (*i.e.,* impact and vibratory pile driving and removal).

Acoustic Impacts

The introduction of anthropogenic noise into the aquatic environment from pile driving equipment is the primary means by which marine mammals may be harassed from the City of Oceanside's specified activities. In general, animals exposed to natural or anthropogenic sound may experience physical and psychological effects, ranging in magnitude from none to severe (Southall *et al.,* 2007). Generally, exposure to pile driving and removal and other construction noise has the potential to result in auditory threshold shifts (TS) 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 and construction 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. mother 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 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 TS is customarily expressed in dB and TS can be permanent or temporary. As described in NMFS (2018), there are numerous factors to consider when examining the consequence of TS, including, but not limited to, the signal temporal pattern (*e.g.,* impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of the TS, time to recovery (seconds to minutes or hours to days), the frequency range of the exposure (*i.e.,* spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.,* how animal uses sound within the frequency band of the signal) (Kastelein *et al.,* 2014b), 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 TS approximates PTS onset (see Ward *et al.,* 1958, Ward *et al.,* 1959, Ward, 1960, Kryter *et al.,* 1966, Miller, 1974, Ahroon *et al.,* 1996, Henderson *et al.,* 2008). PTS levels for marine mammals are estimates because there are limited empirical data measuring PTS in marine mammals (*e.g.,* Kastak *et al.,* 2008), 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 TS 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, FInneran *et al.,* 2002). As described in Finneran (2016), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SEL_{cum}) in an accelerating fashion: At low exposures with lower SEL_{cum}, the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SEL_{cum}, the growth curves become steeper and approach linear relationships with the noise SEL.

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

Currently, TTS data only exist for four species of cetaceans (bottlenose dolphin, beluga whale (*Delphinapterus leucas*), harbor porpoise (*Phocoena phocoena*), Yangtze finless porpoise (*Neophocoena asiaeorientalis*)) and five species of pinnipeds exposed to a limited number of sound sources (*i.e.,* tones and octave-band noise) in laboratory settings (Finneran, 2015). TTS was not observed in trained spotted seals (*Phoca largha*) and ringed seals (*Pusa hispida*) 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). At low frequencies, onset-TTS exposure levels are higher compared to those in the region of best sensitivity (*i.e.,* a low frequency noise would need to be louder to cause TTS onset when TTS exposure level is higher), as shown for harbor porpoises and harbor seals (Kastelein *et al.,* 2019b, Kastelein *et al.,* 2019a, Kastelein *et al.,* 2020a, Kastelein *et al.,* 2020b). In addition, TTS can accumulate across multiple exposures but the resulting TTS will be less than the TTS from a single, continuous exposure with the same SEL (Mooney *et al.,* 2009, Finneran *et al.,* 2010, Kastelein *et al.,* 2014a, Kastelein *et al.,* 2015). This means that TTS predictions based on the total SEL_{cum} will overestimate the amount of TTS from intermittent exposures such as sonars and impulsive sources.

The potential for TTS from impact pile driving exists. After exposure to playbacks of impact pile driving sounds (rate 2,760 strikes/hour) in captivity, mean TTS increased from 0 dB after a 15 minute exposure to 5 dB after a 360 minute exposure; recovery occurred within 60 minutes (Kastelein *et al.,* 2016). 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. Nonetheless, what we considered is the best available science. For summaries of data on TTS in marine mammals or for further discussion of TTS onset thresholds, please see Southall *et al.* (2007), Southall *et al.* (2019), Finneran and Jenkins (2012), Finneran (2015), and table 5 in NMFS (2018).

Proposed activities for this project include vibratory pile driving and vibratory pile removal and, potentially, impact pile driving. There would likely be pauses in activities producing the sound during each day and, given these pauses and the fact that many marine mammals would likely be moving through the project areas 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.,* Council, 2005, Lusseau and Bejder, 2007, Weilgart, 2007b).

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 haulout 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.,* 2004, Southall *et al.,* 2007, Weilgart, 2007a, Archer *et al.,* 2010, Southall *et al.,* 2021). Behavioral reactions can vary not only among individuals but also within an individual depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.,* 2012), and can vary depending on characteristics associated with the sound source (*e.g.,* whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Please see Appendices B and C of Southall *et al.* (2007) as well as Nowacek *et al.* (2007), Ellison *et al.* (2012), and Gomez *et al.* (2016) 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, Melcon *et al.,* 2012). In addition, behavioral state of the animal plays a role in the type and severity of a behavioral response, such as disruption to foraging (*e.g.,* Sivle *et al.,* 2016, Wensveen *et al.,* 2017). 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 (Goldbogen *et al.,* 2013).

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.,* Selye, 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 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 vessel traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales (*Eubalaena glacialis*). 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 the proposed project based on observations of marine mammals during previous, similar projects in the region.

Masking—Sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.,* those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation) (Richardson *et al.,* 1995). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.,* snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.,* pile driving, shipping, sonar, seismic exploration) in origin. The ability of a noise source to mask biologically important sounds depends on the characteristics of both the noise source and the signal of interest (*e.g.,* signal-to-noise ratio, temporal variability, direction), in relation to each other and to an animal's hearing abilities (*e.g.,* sensitivity, frequency range, critical ratios, frequency discrimination, directional discrimination, age or TTS hearing loss), and existing ambient noise and propagation conditions. Masking of natural sounds can result when human activities produce high levels of background sound at frequencies important to marine mammals. Conversely, if the background level of underwater sound is high (*e.g.,* on a day with strong wind and high waves), an anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked. The masking of communication signals by anthropogenic noise may be considered as a reduction in the

communication space of animals (*e.g.,* Clark *et al.,* 2009) and may result in energetic or other costs as animals change their vocalization behavior (*e.g.,* Miller *et al.,* 2000, Foote *et al.,* 2004, Parks *et al.,* 2007, Di Iorio and Clark, 2010, Holt *et al.,* 2009). Oceanside Harbor is used by commercial and recreational vessels, and background sound levels in the area are already elevated. Due to the transient nature of marine mammals to move and avoid disturbance, masking is not likely to have long-term impacts on marine mammal species within the proposed project area.

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

Airborne noise would primarily be an issue for pinnipeds that are swimming or hauled out near the project site within the range of noise levels elevated above the acoustic criteria. We recognize that pinnipeds in the water could be exposed to airborne sound that may result in behavioral harassment when looking with their heads above water. Most likely, airborne sound would cause behavioral responses similar to those discussed above in relation to underwater sound. For instance, anthropogenic sound could cause hauled out pinnipeds to exhibit changes in their normal behavior, such as reduction in vocalizations, or cause them to temporarily abandon the area and move further from the source. However, these animals would likely previously have been ''taken'' because of exposure to underwater sound above the behavioral harassment thresholds, which are generally larger than those associated with airborne sound. Thus, the behavioral harassment of these animals is already accounted for in these estimates of potential take. Therefore, we do not believe that authorization of incidental take resulting from airborne sound for pinnipeds is warranted, and airborne sound is not discussed further.

Marine Mammal Habitat Effects

The City of Oceanside's proposed construction activities could have localized, temporary impacts on marine mammal habitat, including prey, by increasing in-water SPLs and slightly decreasing water quality. Increased noise levels may affect acoustic habitat (see *Masking* above) and adversely affect marine mammal prey in the vicinity of the project area (see discussion below). During impact and vibratory pile driving or removal, elevated levels of underwater noise would ensonify the project area where both fishes and mammals occur and could affect foraging success. Additionally, marine mammals may avoid the area during construction, however, displacement due to noise is expected to be temporary and is not expected to result in long-term effects to the individuals or populations. Construction activities are expected to be of short duration (6 non-consecutive days) and would likely have temporary impacts on marine mammal habitat through increases in underwater and airborne sound.

A temporary and localized increase in turbidity near the seafloor would occur in the immediate area surrounding the area where piles are installed or removed, for example, if high-pressure water jetting is used. In general, turbidity associated with pile driving is localized to an approximately 7.6 m radius around the pile (Everitt *et al.,* 1980). Cetaceans are not expected to be close enough to the pile driving areas to experience effects of turbidity, and any pinnipeds could avoid localized areas of turbidity. Therefore, we expect the impact from increased turbidity levels to be discountable to marine mammals and do not discuss it further.

In-Water Construction Effects on Potential Foraging Habitat—The area likely impacted by the proposed action is relatively small compared to the total available habitat in the area within and outside the harbor. The proposed project area is highly influenced by anthropogenic activities and provides limited foraging habitat for marine mammals. Furthermore, pile driving and removal at the proposed project site would not obstruct long-term movements or migration of marine mammals.

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

In-water Construction Effects on Potential Prey—Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.,* crustaceans, cephalopods, fish, zooplankton, other marine mammals). 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 (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, several of which are based on studies in support of large, multiyear bridge construction projects (*e.g.,* Scholik and Yan, 2001, Popper and Hastings, 2009). Many 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.,* Pearson *et al.,* 1992, Skalski *et al.,* 1992, Santulli *et al.,* 1999, Fewtrell and McCauley, 2012, Paxton *et al.,* 2017). In response to pile driving, Pacific sardines and northern anchovies (*Engraulis mordax*) may exhibit an immediate startle response to individual strikes but return to ''normal'' pre-strike behavior following the conclusion of pile driving with no evidence of injury as a result (see NAVFAC, 2014). However, some studies have shown no or slight reaction to impulse sounds (*e.g.,* Wardle *et al.,* 2001, Popper *et al.,* 2005, Jorgenson and Gyselman, 2009, Peña *et al.,* 2013).

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.* (2012b) 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.,* 2012a, Casper *et al.,* 2013) and the greatest potential effect on fish during the proposed project would occur during impact pile driving, if it is required. However, the duration of impact pile driving would be limited to a contingency in the event that vibratory driving does not satisfactorily install the pile depending on observed soil resistance. In-water construction activities would only occur during daylight hours allowing fish to forage and transit the project area at night. Vibratory pile driving may elicit behavioral reactions from fish such as temporary avoidance of the area but is unlikely to cause injuries to fish or have persistent effects on local fish populations. In addition, it should be noted that the area in question is low-quality habitat since it is already developed and experiences anthropogenic noise from vessel traffic.

The most likely impact to fishes from pile driving and removal and construction activities at the project area would be temporary behavioral avoidance of the area. The duration of fish avoidance of this area after pile driving stops is unknown but a rapid return to normal recruitment, distribution, and behavior is anticipated. In general, impacts to marine mammal prey species are expected to be minor and temporary. Further, it is anticipated that preparation activities for pile driving or removal (*i.e.,* positioning of the hammer) and upon initial startup of devices would cause fish to move away from the affected area where injuries may occur. Therefore, relatively small portions of the proposed project area would be affected for short periods of time, and the potential for effects on fish to occur would be temporary and limited to the duration of sound-generating activities.

In summary, given the short daily duration of sound associated with individual pile driving events and the relatively small area being affected, pile driving activities associated with the proposed action are not likely to have a permanent, adverse effect on any fish habitat or populations of fish species. Any behavioral avoidance by fish of the disturbed area would still leave significantly large potential areas for fish and marine mammal foraging in the nearby vicinity. Thus, we conclude that impacts of the specified activities are not likely to have more than short-term adverse effects on any prey habitat or populations of prey species. Further, any impacts to marine mammal habitat are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

Estimated Take 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 be by Level B harassment only in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to the acoustic sources. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.,* shutdown) discussed in detail below in the Proposed Mitigation section, Level A harassment is neither anticipated nor proposed to be authorized.

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 will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) 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, Southall *et al.,* 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 (*e.g.,* vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 μPa for non-explosive impulsive (*e.g.,* seismic airguns) 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 (*e.g.,* conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

The City of Oceanside's proposed construction activities includes the use of continuous (vibratory pile removal and installation) and, potentially, impulsive (impact pile installation) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 µPa are both 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). The City of Oceanside's proposed activity includes the use of impulsive (impact hammer) and non-impulsive (vibratory hammer) sources.

These thresholds are provided in table 4, below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.*

TABLE 4—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

Hearing group	PTS onset acoustic thresholds * (received level)	
	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 (TL) coefficient.

Pile driving activities using an impact hammer as well as a vibratory hammer would generate underwater noise that could result in disturbance to marine mammals near the project area. A review of underwater sound measurements for similar projects was conducted to estimate the near-source sound levels for impact and vibratory pile driving and vibratory extraction. Source levels for proposed removal and installation activities derived from this review are shown in table 5.

TABLE 5—PROJECT SOUND SOURCE LEVELS

Activity	Method	Pile size (inch, material)	Peak SPL dB re 1 µPa [1]	RMS SPL dB re 1 µPa [1]	SEL dB re 1 µPa [1]	Source
Extraction	Vibratory	16, concrete [2]	N/A	163	N/A	NAVFAC SW, 2022.
Installation	Vibratory	18, steel	196	158	N/A	Caltrans, 2020.
Installation	Impact	18, steel [3]	200	185	175	Caltrans, 2020.
Installation	Vibratory	10, steel [4]	171	155	N/A	Illingworth and Rodkin, 2007.

Note: All 18-inch round steel piles will be installed using both vibratory and impact driving, therefore, the total number of 18-inch piles proposed for use is 18. Use of 10-inch piles will be as temporary support, and will be driven and removed in the same day as the permanent 18-inch piles.

[1] As measured, or calculated, at 10 m (33 ft).

[2] Proxy source levels provided by NMFS from Pier 6 Replacement Project, San Diego Bay (NAVFAC SW, 2022).

[3] Analysis of pooled reported data provided by NMFS (Caltrans, 2020).

[4] In the absence of information on vibratory installation of 10-inch round steel piles, source data from 12-inch round steel piles (Illingworth and Rodkin, 2007) was used as a proxy source level.

Level B Harassment Zone—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 topography. The general formula for underwater TL is:

$$TL = B * \mathrm{Log}_{10}(R_1/R_2),$$

where:

TL = transmission loss in dB;

B = transmission loss coefficient;

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

R_2 = the distance from the driven pile of the

initial measurement.

The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, known as practical spreading, which is the most appropriate assumption for the City of Oceanside's proposed activity in the absence of specific modeling and site-specific information. Sound propagation in Oceanside Harbor is limited by physical structures and substantial sound would be confined within the harbor (see Figures 6–1, 6–2 in application). The Level A and Level B harassment isopleths for the City of Oceanside's proposed activities are shown in table 6.

TABLE 6—DISTANCE TO THE LEVEL A AND LEVEL B HARASSMENT THRESHOLDS FOR PROPOSED ACTIVITIES

Activity	Method	Pile size (inch, material)	Level A threshold for MF (m)	Level A threshold for PW (m)	Level A threshold for OW (m)	Level B harassment zone (m)
Extraction	Vibratory	16, concrete	1.2	7.9	0.6	7,356
Installation	Vibratory	18, steel	0.5	3.7	0.3	3,415
Installation	Impact	18, steel	11.7	176.7	12.9	100
Installation	Vibratory	10, steel	0.2	1.3	0.1	2,154

Note: for impact pile driving, the single strike SEL was used to calculate distances to Level A harassment thresholds.
Abbreviations: MF = mid-frequency cetaceans, PW = phocid pinnipeds, OW = otariid pinnipeds.

Level A Harassment Zones—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 (*i.e.,* vibratory and impact piling), 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 optional User Spreadsheet tool, and the resulting estimated isopleths, are reported in tables 6 and 7. The isopleths generated by the User Spreadsheet used the same TL coefficients as the Level B harassment isopleth calculations, as indicated above for each activity type. Inputs used in the User Spreadsheet (*e.g.,* number of piles per day, duration and/or strikes per pile) are presented in table 1. The maximum RMS SPL, SEL, and peak SPL are reported in table 7. The cumulative SEL and peak SPL were used to calculate Level A harassment isopleths for vibratory pile driving and extraction activities, while the single strike SEL value was used to calculate Level A harassment isopleths for impact pile driving activity.

TABLE 7—SOUND LEVELS USED FOR PREDICTING UNDERWATER SOUND IMPACTS

Activity	Method	Pile size (inch, material)	Duration (hours/day)	Peak SPL dB re 1 μPa	RMS SPL dB re 1 μPa	Single strike SEL dB re 1 μPa^2 sec
Extraction	Vibratory	16, concrete	1.67	N/A	163	N/A
Installation	Vibratory	18, steel	1.67	196	158	N/A
Installation	Impact	18, steel	0.13	200	185	175
Installation	Vibratory	10, steel	0.67	171	155	N/A

Marine Mammal Occurrence

In this section we provide information about the occurrence of marine mammals, including density or other relevant information which will inform the take calculations.

Bottlenose Dolphin—Bottlenose dolphins can occur at any time of year in the waters around Oceanside Harbor. Based on previous monitoring (Merkel and Associates, Inc., 2022), an average of 6 bottlenose dolphins per day were observed with a maximum of 12 individuals being observed on a single day. This higher peak of 12 individuals was used to calculate Level B harassment for bottlenose dolphin.

Common Dolphin—Common dolphins are generally abundant in the outer coastal waters but are not known to occur regularly in Oceanside Harbor. Based on marine mammal monitoring by NAVFAC SW (2015), during El Niño conditions an average of 8.5 common dolphins per day (rounded to nine per day) were observed in northwest San Diego Bay. This expected daily individual count was used to calculate the take by Level B harassment for common dolphins within Oceanside Harbor as no local data exists.

Pacific White-Sided Dolphin—Pacific white-sided dolphins are commonly seen offshore of southern California but are not known to occur regularly in Oceanside Harbor. Based on the observations presented by NAVFAC SW (2015), during El Niño conditions an average of 0.3 Pacific white-sided dolphins per day (rounded to one per day) were observed. This expected daily individual count was used to calculate the Level B harassment for Pacific white-sided dolphins.

California Sea Lion—California sea lions are present in Oceanside Harbor year-round and numbers vary considerably. The daily estimate provided by the Oceanside Harbor Department is over 100 individuals. Limited counts from photographs and

spot counts average approximately 50 individuals and are known to be incomplete estimates. Based on the variability in the number of sea lions present in the harbor, an estimate of 100 sea lions per day was used to estimate take.

Harbor Seal—Based on marine mammal monitoring by NAVFAC SW (2015), during El Niño conditions an average of 2.5 harbor seals per day (rounded to three per day) were observed. This expected daily individual count was used to calculate the Level B harassment for harbor seals in Oceanside Harbor.

Northern Elephant Seal—Due to increasing population size of northern elephant seals, presence in the Southern California Bight is considered a reasonable possibility (Carretta *et al.,* 2023). Based on marine mammal monitoring by NAVFAC SW (2015), an average of 0.1 northern elephant seals per day (rounded to one per day) were observed during El Niño conditions. This expected daily individual count was used to calculate the Level B harassment for northern elephant seals in Oceanside Harbor.

Take Estimation

Here we describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and proposed for authorization.

No take by Level A harassment is proposed for any species of marine mammal due to the small zone sizes for most taxa, and the low likelihood that an animal would approach during in-water construction or remain within the Level A harassment isopleth long enough to incur PTS during the specified activities. Proposed shutdown zones would encompass the extent of the estimated Level A harassment isopleths (180 m for phocid pinnipeds during impact driving, 15 m for all other species and activities) and are expected to be effective at avoiding Level A harassment for all species. Given the locations of Protected Species Observers (PSOs) described in the Proposed Monitoring and Reporting section, in conjunction with the City of Oceanside's proposed shutdown mitigation measure, NMFS agrees that monitoring and shutdown measures are likely to be successful at avoiding take by Level A harassment.

Incidental take by Level B harassment was estimated for each species by multiplying the expected average number of individuals per day by the number of work days (6 days; table 8). Take estimates for each species were calculated by multiplying the estimated site-specific abundance of each species by the area of impact where noise levels exceed acoustic thresholds for marine mammals during active each type of piling activity (vibratory removal, vibratory driving, impact driving) and pile size (16 inch concrete, 18 inch steel, 10 inch steel). Estimated daily exposures for each species were based on evaluation of the potential presence of each marine mammal species using historical occurrence from Oceanside Harbor (Merkel and Associates, Inc., 2022; Merkel and Associates, Inc., 2023).

Estimated Take = Expected Average Individuals per Day × Number of Work Days

Due to a paucity of marine mammal occurrence data within Oceanside Harbor, and with the probability of El Niño conditions persisting throughout 2024 (*https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml*), four species of marine mammal (common dolphin, Pacific white-sided dolphin, harbor seal, northern elephant seal) that are unlikely to occur within a semi-enclosed harbor environment were included to account for a potential increase in occurrence that has been previously documented for those species under similar climatological conditions (NAVFAC SW, 2015).

TABLE 8—ESTIMATED TAKE BY LEVEL B HARASSMENT PROPOSED FOR AUTHORIZATION

Common name	Scientific name	Stock	Expected average individuals per day	Maximum estimated Level B harassment takes	Estimated takes as a percentage of population
Bottlenose dolphin [1]	*Tursiops truncatus*	California Coastal	12	72	15.9
Common dolphin (long-beaked) [2].	*Delphinus capensis*	California	*9	*54	<1
Common dolphin (short-beaked) [2].	*Delphinus delphis*	California/Oregon/Washington.	*9	*54	<1
Pacific white-sided dolphin [2]	*Lagenorhynchus obliquidens*	California/Oregon/Washington—Northern and Southern.	1	6	<1
California sea lion [3]	*Zalophus californianus*	U.S.	100	600	<1
Harbor seal [2]	*Phoca vitulina richardii*	California	3	18	<1
Northern elephant seal [2]	*Mirounga angustirostris*	California breeding	1	6	<1

[1] Average daily counts based on observations during Oceanside Harbor Dredging 2022 Project Monitoring, rounded up to nearest individual count (Merkel and Associates Inc., 2022).

[2] Average daily counts based on observations during Year 2 of Navy Base Point Loma's Fuel Pier Replacement Project Monitoring, rounded up to nearest individual count (NAVFAC SW, 2015).

[3] Reported high estimate of sea lions observed on pinniped float by Oceanside Harbor District staff.

* A total of 54 takes are estimated and may be attributed to either long- or short-beaked common dolphin species.

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.

The City of Oceanside must ensure that construction supervisors and crews, the monitoring team, and relevant staff/contractors are trained prior to the start of all piling activities 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.

Timing Restrictions

All piling activities would be conducted during daylight hours, generally between 45 minutes post-sunrise and 45 minutes pre-sunset. All piling would occur in March 2024 and/or September 2024 through February 2025, when the likelihood of ESA-listed California least tern breeding and nesting in the work area is minimal, as proposed by the City of Oceanside.

Protected Species Observers

The placement of PSOs during all pile driving activities (described in the Proposed Monitoring and Reporting section) would ensure that the entire shutdown zone is visible. Should environmental conditions deteriorate such that the entire shutdown zone would not be visible (*e.g.,* fog, heavy rain), pile driving would be delayed until the PSO is confident marine mammals within the shutdown zone could be detected.

PSOs would monitor the full shutdown zones and the Level B harassment zones to the extent practicable. 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 areas outside the shutdown zones and thus prepare for a potential cessation of activity should the animal enter the shutdown zone.

Pre- and Post-Activity Monitoring

Monitoring must take place from 30 minutes prior to initiation of pile driving activities (*i.e.,* pre-clearance monitoring) through 30 minutes post-completion of pile driving. Prior to the start of daily in-water construction activity, or whenever a break in pile driving of 30 minutes or longer occurs, PSOs would observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone would be considered cleared when a marine mammal has not been observed within the zone for a 30-minute period. If a marine mammal is observed within the shutdown zones listed in table 9, pile driving activity would be delayed or halted. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones would commence. A determination that the shutdown zone is clear must be made during a period of good visibility (*i.e.,* the entire shutdown zone and surrounding waters must be visible to the naked eye).

Soft-Start Procedures for Impact Driving

Soft-start procedures provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. If impact pile driving is necessary to achieve required tip elevation, City of Oceanside staff and/or contractors would be required to provide an initial set of three strikes from the hammer at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. Soft-start would 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.

Shutdown Zones

The City of Oceanside must establish shutdown zones for all pile driving activities. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones would be based upon the Level A harassment thresholds for each pile size/type and driving method where applicable, as shown in table 6. During all in-water piling activities, the City of Oceanside has proposed to implement a buffered 15 m shutdown zone, with the exception of a 180 m shutdown zone for phocids during the use of impact pile driving of 18-inch piles. These distances exceed the estimated Level A harassment isopleths described in table 6. Adherence to this expanded shutdown zone will avoid the potential for the take of phocids by Level A harassment during impact pile driving. For pile driving, the radii of the shutdown zones are rounded to the next largest 10 m interval in comparison to the Level A harassment isopleth for each activity type. If a marine mammal is observed entering, or detected within, a shutdown zone during pile driving activity, the activity must be stopped until there is visual confirmation that the animal has left the zone or the animal is not sighted for a period of 15 minutes. Proposed shutdown zones for each activity type are shown in Table 9.

All marine mammals would be monitored in the Level B harassment zones and throughout the area as far as visual monitoring can take place. If a marine mammal enters the Level B harassment zone, in-water activities would continue and PSOs would document the animal's presence within the estimated harassment zone.

TABLE 9—PROPOSED SHUTDOWN AND HARASSMENT ZONES

Activity	Method	Pile size (inch, material)	Shutdown zone for MF (m)	Shutdown zone for PW (m)	Shutdown zone for OW (m)	Harassment zone (m)
Extraction	Vibratory	16, concrete	15	15	15	7,360
Installation	Vibratory	18, steel	15	15	15	3,420
Installation	Impact	18, steel	15	180	15	100
Installation	Vibratory	10, steel	15	15	15	2,160

Based on our evaluation of the City of Oceanside's proposed measures, 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 conditions in this section and this IHA. Marine mammal monitoring during pile driving activities would be conducted by two PSOs meeting NMFS' standards and in a manner consistent with the following:

- PSOs must be independent of the activity contractor (for example, employed by a subcontractor) and have no other assigned tasks during monitoring periods;
- At least one PSO would have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Other PSOs may substitute other relevant experience, education (degree in biological science or related field), or training for prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Where a team of three or more PSOs is required, a lead observer or monitoring coordinator must be designated. The lead observer must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization; and
- PSOs must be approved by NMFS prior to beginning any activity subject to the IHA.

PSOs should 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.

The City of Oceanside would have two PSOs stationed at the best possible vantage points in the project area to monitor during all pile driving activities. Monitoring would occur from elevated locations along the shoreline where the entire shutdown zones are visible. PSOs would be equipped with high quality binoculars for monitoring and radios or cells phones for maintaining contact with work crews. Monitoring would be conducted 30 minutes before, during, and 30 minutes after all in-water construction activities. In addition, PSOs would record all incidents of marine mammal occurrence, regardless of distance from activity, and would 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 equipment is no more than 30 minutes.

Reporting

The City of Oceanside will provide the following reporting as necessary during active pile driving activities:

- The applicant will report any observed injury or mortality as soon as feasible and in accordance with NMFS' standard reporting guidelines. Reports will be made by phone (866–767–6114) and by email (*PR.ITP.MonitoringReports@noaa.gov*) and will include the following:
  - 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;
- An annual report summarizing the prior year's activities will be provided that fully documents the methods and monitoring protocols, summarizes the data recorded during monitoring, estimates the number of listed marine mammals that may have been incidentally taken during project pile driving, and provides an interpretation of the results and effectiveness of all monitoring tasks. The annual draft report will be provided no later than 90 days following completion of construction activities. Any recommendations made by NMFS will be addressed in the final report, due

after the IHA expires and including a summary of all monitoring activities, prior to acceptance by NMFS. Final reports will follow a standardized format for PSO reporting from activities requiring marine mammal mitigation and monitoring; and

- All PSOs will use a standardized data entry format (see Monitoring Plan).

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 all the species listed in table 2, 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.

Level A harassment is extremely unlikely given the small size of the Level A harassment isopleths and the required mitigation measures designed to minimize the possibility of injury to marine mammals (see Proposed Mitigation section). No mortality is anticipated given the nature of the activity.

Pile installation and removal activities are likely to result in the Level B harassment of marine mammals that move into the ensonified zone, primarily in the form of disturbance or displacement of marine mammals.

Take would occur within a limited, confined area of each stock's range. 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 authorized is extremely small when compared to stock abundance.

No marine mammal stocks for which incidental take authorization is proposed are listed as threatened or endangered under the ESA or determined to be strategic or depleted under the MMPA. The relatively low marine mammal occurrences in the area, small shutdown zones, and proposed monitoring make injury takes of marine mammals unlikely. The shutdown zones would be thoroughly monitored before the proposed vibratory pile installation and removal begins, and construction activities would be postponed if a marine mammal is sighted within the shutdown zone. There is a high likelihood that marine mammals would be detected by trained observers under environmental conditions described for the proposed project. Limiting construction activities to daylight hours would also increase detectability of marine mammals in the area. Therefore, the proposed mitigation and monitoring measures are expected to eliminate the potential for injury and Level A harassment as well as reduce the amount and intensity for Level B behavioral harassment. Furthermore, the pile installation and removal activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in other similar locations which have occurred with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment.

Anticipated and authorized takes are expected to be limited to short-term Level B harassment (behavioral disturbance) as construction activities will occur over the course of 5–6 months. Effects on individuals taken by Level B harassment, based upon reports in the literature as well as monitoring from other similar activities, may include increased swimming speeds, increased surfacing time, or decreased foraging (*e.g.,* NAVFAC SW, 2018). Individual animals, even if taken multiple times, would likely move away from the sound source and be temporarily displaced from the area due to elevated noise level during pile removal. Marine mammals could also experience TTS if they move into the Level B harassment monitoring zone. TTS is a temporary loss of hearing sensitivity when exposed to loud sound, and, given the likely levels and duration of exposure to pile driving, any shift of the hearing threshold is expected to recover completely within minutes to hours. While TTS could occur, it is not considered a likely outcome of this activity.

Given the limited number of total predicted exposures, no individual marine mammals of any species, with the possible exception of California sea lions, would be expected to be taken on more than a few days during the construction activities. California sea lions are relatively common in the area, and potential takes would likely involve sea lions loafing on, or in the vicinity of, physical structures or moving through the area en route to foraging areas or structures where they haul out. Relocation of the float where they frequently haul out is expected to reduce both the number of sea lions present in the area during construction and also the likelihood that they may be repeatedly impacted.

The proposed project is not expected to have significant adverse effects on marine mammal habitat. There are no Biologically Important Areas or ESA-designated critical habitat within the project area, and the proposed activities would not permanently modify existing marine mammal habitat. The activities may cause fish to leave the area temporarily which could impact marine mammals' foraging opportunities in a limited portion of the foraging range. However, due to the short duration of the proposed activities and the relatively small area of affected habitat, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

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 would have only minor, short-term effects on individuals. The specified activities are not expected to impact reproduction or survival of any individual marine mammals, much less affect rates of recruitment or survival and would 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 any of the species or stocks through effects on annual rates of recruitment or survival:

- No serious injury or mortality, or Level A harassment, is anticipated or authorized;
- The specified activities are of a very short duration and associated ensonified areas are very small relative to the overall habitat ranges of both species;
- The project area does not overlap with known BIAs or ESA-designated critical habitat;
- Significant or long-term effects to marine mammal habitat are not anticipated; and
- Proposed mitigation measures are expected to reduce the effects of the specified activity to the level of least practicable adverse impact.

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 take of small numbers of marine mammals 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 has authorized is below one-third of the estimated stock abundances for all seven species (see table 8). For all but one species, the proposed take of individuals is less than 1 percent of the abundance of the affected stock (with the exception for bottlenose dolphins at less than 16 percent). 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 ESA of 1973 (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 the City of Oceanside for conducting pile removal and driving in Oceanside Harbor, Oceanside, CA, 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 construction 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); and
- The request for renewal must include the following:

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

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

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: November 20, 2023.

Kimberly Damon-Randall,

Director, Office of Protected Resources, National Marine Fisheries Service.

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