Special Accommodations

If you have particular access needs please contact Morgan Corey at *Morgan.Corey@noaa.gov* at least 7 business days prior to the meeting for accommodation.

Dated: June 27, 2023.

Jennifer M. Wallace,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 2023–13991 Filed 6–29–23; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XD066]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to San Francisco Bay Area Water Emergency Transportation Authority's Ferry Terminal Refurbishment in Alameda, California

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

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

SUMMARY: NMFS has received a request from the San Francisco Bay Area Water Emergency Transportation Authority (WETA) for authorization to take marine mammals incidental to the refurbishment of the Alameda Main Street Ferry Terminal in Alameda, 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, one-year renewal that could be issued under certain circumstances and if all requirements are met, as described in Request for Public Comments at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than July 31, 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.*

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. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.* In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

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

National Environmental Policy Act

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

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216–6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review.

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

Summary of Request

On February 9, 2023, NMFS received a request from WETA for an IHA to take marine mammals incidental to pile removal and driving associated with refurbishment of the Alameda Main Street Ferry Terminal in Alameda, California. Following NMFS' review of the application, WETA submitted revised versions on March 15, April 18, May 18, and May 24, 2023. The application was deemed adequate and complete on May 25, 2023. WETA's request is for take of harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*) by Level A harassment and Level B harassment. Neither WETA nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Proposed Activity

Overview

WETA proposes to refurbish the Alameda Main Street Ferry Terminal in the Oakland Inner Harbor, Alameda, California, to update and replace ageing ferry terminal components and structural support. Water depth within the project area varies between 14–28 inches (in; 35.56–71.12 centimeter (cm)) mean lower low water (MLLW), and most construction activities will occur above or at the waterline. The only elements that would extend below the mudline are nine new steel piles that would have a maximum tip elevation of approximately 110 in MLLW. WETA intends to use vibratory extraction to remove four existing 30 in (76.2 cm) steel guide piles and vibratory installation to drive nine new steel piles: two 24 in (60.9 cm) steel pipe piles with concrete cap beams on land, one 48 in (121.9 cm) steel pipe monopile in water, four 36 in (91.4 cm) steel guide piles in water, and two 36 in (91.4 cm) donut fender piles in water. A maximum of 6 days of consecutive piling activities is proposed to occur during the course of construction (4–6 weeks) from August through November 2023. WETA proposes to use vibratory pile driving and, if necessary, impact pile driving to achieve required tip elevation for the nine new piles. No in-air impacts to marine mammals are anticipated from the installation of the two 24 in (60.9 cm) piles driven on land, as such, they were not included in the Estimated Take section and will not be discussed further.

Project construction would include replacement of the existing bridge walkway and foundation, replacement of the gangway, demolition and replacement of the float, removal and installation of guide piles, and upgrades to utilities at the project site. No take of marine mammals is anticipated to occur incidental to these portions of the project and these activities will not be discussed further.

Dates and Duration

This IHA would be effective from August 15, 2023, until August 14, 2024. Pile extraction and installation activities would occur for a total of 6 consecutive days (5 days in water, 1 day on land) from August through November 2023. WETA plans to conduct piling activities during daylight hours, with noise-generating construction activities limited to occur between the hours of 0700–1900 Monday through Friday, and 0800–1300 Saturdays. Due to in-water work timing restrictions to protect ESA-listed fish species, all in-water construction activities including pile extraction and installation would occur during the period from June 1 to November 30. Pile extraction is anticipated to take between 1–3 days, pile installation is anticipated to take 3 days, of which 2 days will be required for in-water pile installation.

Specific Geographic Region

This project will be located at the existing Alameda Main Street Ferry Terminal in Alameda, CA (Figure 1), at a water depth between 14–28 in (35.56–71.12 cm). All project activities for which take is being requested will be located in the Oakland Inner Harbor, Alameda (see Figure 2 in IHA application).

BILLING CODE 3510–22–P

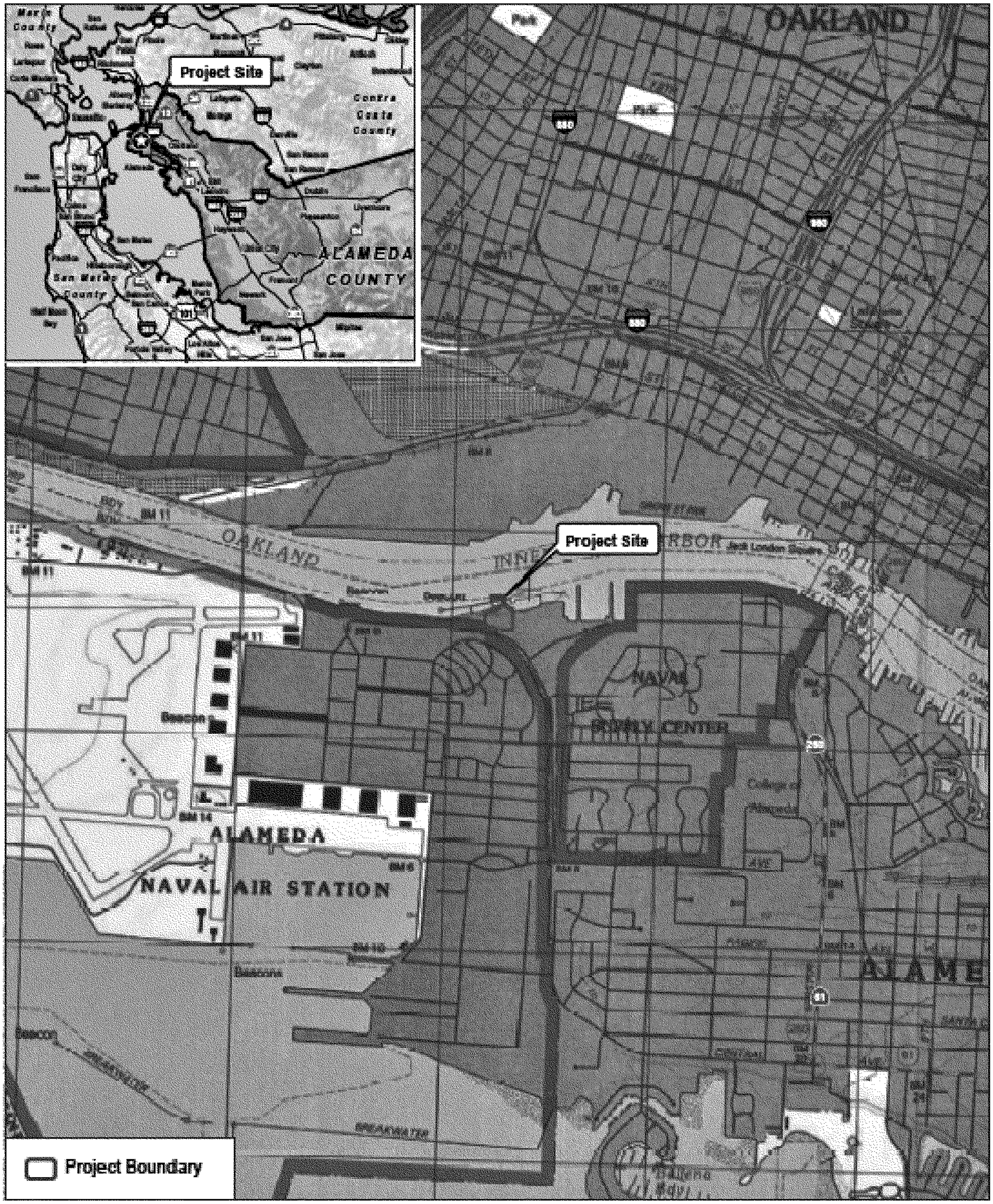

Figure 1 – Project Area Map

BILLING CODE 3510–22–C

Detailed Description of the Specified Activity

Vibratory extraction of four existing 30 in diameter steel guide piles would occur over 1 to 3 days. Vibratory installation of one 48 in diameter steel pipe monopile, four 36 in diameter steel guide piles, and two 36 in diameter donut fender piles would occur over 2 days, with the monopile requiring 1 day and the six 36 in piles requiring 1 day. Impact installation of the seven new piles would occur only if required tip elevation was not achieved through vibratory methods and a bubble curtain would be employed to attenuate noise from impact driving (assuming a 5-dB reduction).

TABLE 1—PILE EXTRACTION AND INSTALLATION ACTIVITIES

Pile activity	Structure	Pile size (in)	Piles per day	Duration of activity	Duration of vibratory activity per pile (minutes)	Estimated blows of impact driving per pile (strikes) *
Extraction	Removal of existing guide piles	30	4	1–3 days	45	N/A
Installation	Terminal bridge and foundation replacement.	48	1	1 day	45	1,015
Installation	Float replacement (guide piles and donut fender piles).	36	6	1 day	45	1,015

Note: Impact pile installation will only be used if vibratory methods are insufficient to achieve required tip elevation.
* Impact pile driving assumes approx. 20–30 minutes of driving.

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 (SARs; *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species*).

Table 2 lists all species for which take is expected and proposed to be authorized for this activity, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is anticipated or proposed to be authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All 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 draft 2022 SARs) and are available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.*

TABLE 2—MARINE MAMMAL SPECIES LIKELY IMPACTED BY THE SPECIFIED ACTIVITIES [1]

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]
Order Carnivora—Pinnipedia						
Family Otariidae (eared seals and sea lions):						
California sea lion	*Zalophus californianus*	U.S.	-/-; N	257,606 (N/A; 233,515; 2014).	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

[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] Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.
[3] NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.* 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.

As indicated above, both species in Table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur and are also included in Table 2 of the IHA application. No other marine mammal species are expected to occur in the project area.

California Sea Lion

California sea lions occur from Vancouver Island, British Columbia, to the southern tip of Baja California, Mexico. Sea lions breed on the offshore islands of southern and central California from May through July (Heath and Perrin, 2009). During the non-breeding season, adult and sub-adult males and juveniles migrate northward along the coast to central and northern California, Oregon, Washington, and Vancouver Island (Jefferson *et al.,* 1993). They return south the following spring (Heath and Perrin, 2009, Lowry and Forney, 2005). Females and some juveniles tend to remain closer to rookeries (Antonelis *et al.,* 1990, Melin *et al.,* 2008).

Pupping occurs primarily on the California Channel Islands from late May until the end of June (Peterson and Bartholomew, 1967). No pupping has been recorded in the San Francisco Bay. Weaning and mating occur in late spring and summer during the peak upwelling period (Bograd *et al.,* 2009). After the mating season, adult males migrate northward to feeding areas as far away as the Gulf of Alaska (Lowry *et al.,* 1992), and they remain away until spring (March through May), when they migrate back to the breeding colonies. Adult females generally remain south of Monterey Bay, California, throughout the year, feeding in coastal waters in the summer and offshore waters in the winter, alternating between foraging and nursing their pups on shore until the next pupping/breeding season (Melin and DeLong, 2000, Melin *et al.,* 2008).

California sea lions experienced an Unusual Mortality Event (UME), not correlated to an El Niño event, from 2013–2017 (Carretta *et al.,* 2022). Pup and juvenile age classes experienced high mortality during this time, likely attributed to sea lion prey availability, specifically Pacific sardines (*Sardinops sagax*). California sea lions are also susceptible to the algal neurotoxin domoic acid (Carretta *et al.,* 2022). This neurotoxin is expected to cause future mortalities among California sea lions due to the prevalence of harmful algal blooms within their habitat.

In San Francisco Bay, sea lions haul out primarily on floating docks at Pier 39 at the Fisherman's Wharf area of the San Francisco Marina, approximately 10.5 kilometers (6.5 miles) west-northwest of the project area. Haul out numbers at Pier 39 vary seasonally. In addition to the Pier 39 haul out, California sea lions haul out on buoys, wharfs, and similar structures throughout the Bay.

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.,* 2022). 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 opportunistic, generalist foragers and are expected to forage in shallow, intertidal waters on a variety of fish, crustaceans, and other species in the San Francisco Bay and could occasionally be found foraging in the Oakland Inner Harbor (Gibble, 2011). Harbor seals haul out at approximately 20 locations in San Francisco Bay with three main locations: Mowry Slough in the south, Corte Madera Marsh and Castro Rocks in the north, and Yerba Buena Island in the central bay (Gibble, 2011, Grigg *et al.,* 2012).

Harbor seals are the most common marine mammal species observed in the San Francisco Bay, where they primarily haul out on exposed rocky ledges and on sloughs in the southern San Francisco Bay. Harbor seals are central-place foragers (Orians, 1979) and tend to exhibit strong site fidelity within season and across years, generally forage close to haulout sites, and repeatedly visit specific foraging areas (Grigg *et al.,* 2012, Suryan and Harvey, 1998, Thompson *et al.,* 1998). Harbor seals in San Francisco Bay forage mainly within 7 mi (10 km) of their primary haulout site (Grigg *et al.,* 2012), and often within just 1–3 mi (1–5 km; Torok, 1994). Depth, bottom relief, and prey abundance also influence foraging location (Grigg *et al.,* 2012).

Peak numbers of harbor seals haul out in central California during late May to early June, which coincides with the peak molt (May through June). During both pupping and molting seasons, the number of seals and the length of time hauled out per day increase, from an average of 7 hours per day to 10–12 hours per day (Harvey and Goley, 2011, Huber *et al.,* 2001, Stewart and Yochem, 1994). Pupping occurs from March through May in central California and pups are weaned in approximately 4 weeks, most by mid-June (Codde and Allen, 2018). The closest recognized harbor seal pupping site to the proposed project area is at Castro Rocks, approximately 12 mi (19 km) away.

Harbor seals tend to forage at night and haul out during the day with a peak in the afternoon between 1300 and 1600 hr (Grigg *et al.,* 2012, London *et al.,* 2002, Stewart and Yochem, 1994, Yochem *et al.,* 1987). Tide levels affect the maximum number of seals hauled out, with the largest number of seals hauled out at low tide, but time of day and season have the greatest influence on haul out behavior (Manugian *et al.,* 2017, Patterson and Acevedo-Gutiérrez, 2008, Stewart and Yochem, 1994).

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995, Wartzok and Ketten, 1999, Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, etc.). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.,* low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

TABLE 3—MARINE MAMMAL HEARING GROUPS

[NMFS, 2018]

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

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

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.,* 2006, Kastelein *et al.,* 2009, Reichmuth *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 WETA's proposed activities have the potential to result in Level A and 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 (American National Standards Institute, 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, with the potential for 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 (American National Standards Institute, 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 (American National Standards Institute, 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 WETA'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 WETA'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 (*Tursiops truncatus*), 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 (*Pusa hispida*) seals exposed to impulsive noise at levels matching previous predictions of TTS onset (Reichmuth *et al.,* 2016). In general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Finneran, 2015). 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, cumulative SEL 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 impact and vibratory pile driving, and vibratory pile removal. There would likely be pauses in activities producing the sound during each day. Given these pauses and the fact that many marine mammals are likely 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.,* NRC, 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 haul out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006). Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.,* species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.,* Richardson *et al.,* 1995, Wartzok *et al.,* 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. 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 these projects based on observations of marine mammals during previous, similar projects in the area.

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

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, there are no known haul out sites in the vicinity of the project area and, if there were, 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 here.

Marine Mammal Habitat Effects

WETA'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 discussion above) and adversely affect marine mammal prey in the vicinity of the project areas (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 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. In general, turbidity associated with pile driving is localized to about a 25-ft (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. Local currents are anticipated to disburse any additional suspended sediments produced by project activities at moderate to rapid rates depending on tidal stage. 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 Bay. 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 by potential prey (*i.e.,* fish) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish 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.

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 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).

The greatest potential impact to fish during construction would occur during impact pile driving. 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. In-water construction activities would only occur during daylight hours allowing fish to forage and transit the project area in the evening. 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 highly developed and experiences a high level of anthropogenic noise from normal dock operations and other 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 outside areas 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 areas being affected, pile driving activities associated with the proposed actions 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 fish and marine mammal foraging habitat 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 primarily be by Level B harassment, as use of the acoustic sources (*i.e.,* vibratory removal, vibratory driving, impact driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for PTS (Level A harassment) to result, primarily for phocids because predicted auditory injury zones are larger than for otariids. Auditory injury is unlikely to occur for otariids. The proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

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

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 (conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

WETA's proposed activity 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 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). WETA's proposed activity includes the use of impulsive (impact hammer) and non-impulsive (vibratory hammer) sources.

These thresholds are provided in the table 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: *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 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

Driving method	Location	Pile size (in)	Peak SPL dB re 1 μPa	RMS SPL dB re 1 μPa	SEL dB re 1 μPa	Source
Impact *	Water	36	206	188	178	Caltrans 2020
Impact *	Water	48	208	187	174	Caltrans 2020
Vibratory	Water	** 30	200	168	168	POA 2016
Vibratory	Water	36	200	168	168	POA 2016
Vibratory	Water	48	200	168	168	POA 2016

* Attenuated condition achieved using a bubble curtain system for all impact pile driving; attenuated condition assumes a 5–dB reduction in sound.

** Vibratory driving of 36 in piles used as proxy for vibratory extraction of 30 in piles.

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

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

where

TL = transmission loss in dB;
B = transmission loss coefficient;
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 WETA's proposed activity in the absence of specific modeling and site-specific information. If piles are installed or removed with a vibratory hammer, the SEL_{cum} thresholds apply for sounds greater than 150 dB (re 1 μPa^2-sec) SEL and the peak PTS thresholds that apply to marine mammals would not be reached (see Appendix A in the IHA application). Sound propagation in the Oakland Inner Harbor is limited by bends in the Oakland estuary. Substantial sound is not anticipated to travel beyond 4,200 m (13,780 ft) to the west (out the shipping channel into the bay) and 1,700 m (5,577 ft) east of the project site (where the channel bends around the island of Alameda), and will be confined to the north and south by the narrow channel of the Oakland Inner Harbor (Figure 1). Therefore, the distance for noise impacts would be limited to 4,200 m west and 1,700 m east. The Level A shutdown zones and Level B harassment zone for WETA's proposed activities are shown in Table 6.

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

Method	Pile type	Pile size (in)	Level A threshold for phocids (m)	Level A threshold for otariids (m)	Level B harassment zone (m)
Impact, installation	Steel	36	827	60	736
Impact, installation	Steel	48	136	10	631
Vibratory, extraction *	Steel	30	33	10	4,200 W; 1,700 E
Vibratory, installation *	Steel	36	33	10	4,200 W; 1,700 E
Vibratory, installation *	Steel	48	10	10	4,200 W; 1,700 E

Note: Vibratory driving of 36 in piles used as proxy for vibratory extraction of 30 in piles.

* Constrained by bends in the Oakland Estuary and relatively shallow bathymetry near the shipping channel: 4,200 m (13,780 ft) west, 1,700 m (5,577 ft) east.

Level A Harassment Thresholds—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 Table 7 The isopleths generated by the User Spreadsheet used the same TL coefficients as the Level B harassment zone 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 isopleths for impact pile driving activity.

TABLE 7—SOUND LEVELS USED FOR PREDICTING UNDERWATER SOUND IMPACTS

Driving method	Location	Pile size (in)	Peak SPL dB re 1 μPa	RMS SPL dB re 1 μPa	SEL dB re 1 μPa	Peak SPL attenuated * dB re 1 μPa	RMS SPL attenuated * dB re 1 μPa	SEL attenuated * dB re 1 μPa
Impact	Water	36	211	193	183	206	188	178
Impact	Water	48	213	192	179	208	187	174
Vibratory	Water	36	200	168	168	NA	NA	NA
Vibratory	Water	48	200	168	168	NA	NA	NA

Note: Using estimates for vibratory installation of 36 in (91.4 cm) steel pile as proxy for vibratory extraction of 30 in (76.2 cm) steel pile. Sound pressure levels (SPL) measured in dB re 1 μPa at 10 meters.
* Attenuated condition assumes minimum 5 dB lower sounds.
NA: sounds from piles driven on land cannot be further attenuated.

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.

The California Department of Transportation (Caltrans) conducted monitoring of marine mammals in the vicinity of the San Francisco-Oakland Bay Bridge for 16 years. From those data, Caltrans has produced at-sea density estimates for California sea lions and harbor seals (Caltrans, 2016). Using these density estimates and the estimated Level A and Level B harassment areas, take estimates were calculated for all potential construction options. Activities and potential animal exposure to Level A harassment levels are presented in the IHA application's Table 3 for phocid species and Table 4 for otariid species. Take estimates based on exposure and activity duration are provided in Tables 5 and 6 of the IHA application.

WETA ferry boat captains have reported frequently seeing both California sea lions and harbor seals in the estuary channel and within the Oakland Inner Harbor (in-water sightings, not hauled out) but did not report seeing either species or other marine mammals near the Alameda Main Street Ferry Terminal dock or platform (WETA, pers. comm.).

California sea lion—Caltrans at-sea density estimate for California sea lions is 0.161 animals/km^2 for the summer-late fall season (Caltrans, 2016). During El Niño Southern Oscillation (ENSO) conditions, the density of California sea lions in San Francisco Bay may be much greater than the value used above. The likelihood of ENSO conditions developing in 2023 is probable. To account for the potential increase in California sea lions within San Francisco Bay during the proposed project, daily take estimated has been increased by a factor of 10 for each pile activity and type (*e.g.,* 82 FR 17799, April 13, 2017). California sea lions have occupied docks near Pier 39 in San Francisco, several miles from the project area, since 1987. The highest number of sea lions recorded at Pier 39 was 1,701 individuals in November 2009. Occurrence of sea lions here is typically lowest in June (during pupping and breeding seasons) and highest in August. Approximately 85 percent of the animals that haul out at this site are males, and no pupping has been observed here or at any other site in San Francisco Bay. Pier 39 is the only regularly used haul out site in the project vicinity, but sea lions occasionally haul out on human-made structures such as bridge piers, jetties, or navigation buoys (Riedman, 1990).

Harbor seal—Caltrans at-sea density estimate for harbor seals is 3.957 animals/km^2 (Caltrans, 2016). No resident harbor seals occur within the Oakland Inner Harbor. The closest haul out to the proposed project area is located outside of the Oakland Inner Harbor at Alameda Point (approx. 37.770127°, –120.296819°), where a float was installed by WETA in 2016 to accommodate harbor seals. This haulout can carry approximately 80 individuals, with highest sightings occurring during winter months. Additionally, the southern shoreline of Yerba Buena Island is a haulout site with the highest numbers hauled out during afternoon low tides in fall and winter months.

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.

Incidental take is estimated for each species by estimating the maximum number of marine mammals potentially present within a harassment zone during active pile driving based on density estimates, harassment zone size, and length of construction activity. Animal exposure estimates for each species were calculated by multiplying the estimated density of each species by the area of each harassment zone during active each type of pile driving activity (vibratory removal, vibratory driving, impact driving) and pile size (30 in, 36 in, 48 in). The estimated density is based on Caltrans (2016) offshore at-sea density and increased to account for the likely increase of animals in a nearshore environment based on previous comments from the Marine Mammal Commission (see Tables 3, 4 in application and 82 FR 17799, April 13, 2017).

Maximum number of animals exposed per activity = Density × Level A or Level B harrassment area

Estimated take was calculated using the exposure estimate multiplied by the number of days each in-water pile driving activity will occur. An additional take of 0–2 animals per day was added to account for the potential occurrence of small groups or additional individuals. This was done because small numbers of both species are known to incidentally use the Oakland Inner Harbor but extensive surveys have not been completed in the proposed project area. Using these density estimates and the areas within the Level A and B harassment isopleths, the take estimates were calculated for all possible construction options and here we show the maximum take estimates. Maximum estimated take by Level A harassment is based on 3 days of in-water vibratory pile removal plus 2 days of in-water impact driving, as the Level A harassment isopleth is larger for impact driving than vibratory driving (Table 8). Maximum estimated take by Level B harassment is based on 3 days of in-water vibratory removal plus 2 days of in-water vibratory pile installation, as the Level B harassment isopleth for vibratory driving is larger than for impact driving (Table 9). This results in a conservative estimate of how many marine mammals might be present to ensure that take estimates will not be exceeded (Table 10).

Estimated take = Maximum number of animals exposed × number of days per activity + additional individuals

Finally, due to the probability of ENSO conditions developing throughout 2023 (*https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml*), the daily take estimate for California sea lions was multiplied by a factor of 10 for each day to account for a potential increase in occurrence that has been previously documented for the species under expected climatological conditions (see 82 FR 17799, April 13, 2017).

TABLE 8—ESTIMATED TAKE BY LEVEL A HARASSMENT PER ACTIVITY

Construction activity	Pile size (in)	Species	Potential take/day	Duration of activity (day)	Estimated incidental take	Additional level A take requested (animals/day)	Total level A take
Vibratory removal	*30	HASE	0.04	1–3	<1	1	1–3
Vibratory removal	*30	CASL	NA	1–3	NA	NA	NA
Vibratory installation	36	HASE	0.04	1	<1	1	1
Vibratory installation	36	CASL	NA	1	NA	NA	NA
Vibratory installation	48	HASE	0.001	1	<1	1	1
Vibratory installation	48	CASL	NA	1	NA	NA	NA
Impact driving	36	HASE	2.57	1	3	1	4
Impact driving	36	CASL	0.002	1	<1	1	1
Impact driving	48	HASE	0.15	1	<1	1	1
Impact driving	48	CASL	0.00005	1	<1	1	1

Note: All California sea lion estimates were multiplied by a factor of 10 to account for the increased occurrence of this species due to potential for ENSO conditions.
* Using estimates for vibratory installation of 36 in (91.4 cm) steel pile as proxy for vibratory extraction of 30 in (76.2 cm) steel pile.
HASE: Harbor seal density 3.957 animals/km^2.
CASL: California sea lion density 0.161 animals/km^2.

TABLE 9—ESTIMATED TAKE BY LEVEL B HARASSMENT PER ACTIVITY

Construction activity	Pile size (in)	Condition	Species	Potential take/day	Duration of activity (day)	Estimated incidental take	Additional level B take requested (animals/day)	Total level B take
Vibratory removal	*30	Unattenuated	HASE	7.64	1–3	8–24	2	10–30
Vibratory removal	*30	Unattenuated	CASL	3.1	1–3	1–3	2	5–15
Vibratory installation	36	Unattenuated	HASE	7.64	1	8	2	10
Vibratory installation	36	Unattenuated	CASL	3.1	1	1	2	5
Vibratory installation	48	Unattenuated	HASE	7.64	1	8	2	10
Vibratory installation	48	Unattenuated	CASL	3.1	1	1	2	5
Impact driving	36	Attenuated	HASE	2.33	1	3	2	5
Impact driving	36	Attenuated	CASL	0.9	1	<1	2	2
Impact driving	48	Attenuated	HASE	1.94	1	2	2	4
Impact driving	48	Attenuated	CASL	0.8	1	<1	2	2

Note: All California sea lion estimates were multiplied by a factor of 10 to account for the increased occurrence of this species due to potential for ENSO conditions.
* Using estimates for vibratory installation of 36 in (91.4 cm) steel pile as proxy for vibratory extraction of 30 in (76.2 cm) steel pile.
HASE: Harbor seal density 3.957 animals/km^2.
CASL: California density 1.61 animals/km^2.

TABLE 10—ESTIMATED TAKE BY LEVEL A AND LEVEL B HARASSMENT PROPOSED FOR AUTHORIZATION

Species common name	Scientific name	Stock	Maximum estimated level A harassment*	Maximum estimated level B harassment**	Estimate take as a percentage of population
California sea lion***	*Zalophus californianus*	U.S.	2	25	0.011
Harbor seal	*Phoca vitulina richardii*	California	8	50	0.187

Source: NMFS SARs 2015, 2021.
* Based on 3 days of vibratory removal plus 2 days of impact driving (36 in (91.4 cm), 48 in (121.9 cm) piles only).
** Based on 3 days of vibratory removal plus 2 days of vibratory installation (36 in (91.4 cm), 48 in (121.9 cm) piles only).
*** To account for the increase in California sea lion density due to potential El Niño conditions, the daily take estimated from the density has been increased by a factor of 10 for each day that pile driving or removal occurs.

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.

WETA must ensure that construction supervisors and crews, the monitoring team, and relevant WETA staff are trained prior to the start of all pile driving 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 shall be conducted between June 1 and November 30, when the likelihood of sensitive fish species being present in the work area is minimal, following U.S. Army Corps of Engineer's Proposed Additional Procedures and Criteria for Permitting Projects under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species in California (USACE, 2018). Consistent with municipal code, noise-generating construction activities would be limited to the hours between 0700 and 1900 Monday through Friday, and 0800 and 1300 on Saturdays.

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 11, 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, WETA 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.

Bubble Curtain for Impact Driving

A bubble curtain must be employed during all impact pile installation of piles to interrupt the acoustic pressure and reduce impact on marine mammals. The bubble curtain must distribute air bubbles around 100 percent of the piling circumference for the full depth of the water column. The lowest bubble ring must be in contact with the mudline for the full circumference of the ring. The weights attached to the bottom ring must ensure 100 percent substrate contact. No parts of the ring or other objects may prevent full substrate contact. Air flow to the bubblers must be balanced around the circumference of the pile.

Shutdown Zones

WETA 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 zone for each pile size/type and driving method where applicable, as shown in Table 6. A minimum shutdown zone of 10 m would be required for all in-water construction activities to avoid physical interaction with marine mammals. 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 zone for each activity type. If a marine mammal is observed entering or 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 11.

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 11—PROPOSED SHUTDOWN AND HARASSMENT ZONES

Method	Pile type	Pile size (in)	Shutdown zone for phocids (m)	Shutdown zone for otariids (m)	Level B harassment zone (m)
Impact, installation	Steel	36	830	60	736
Impact, installation	Steel	48	140	10	631
Vibratory, extraction *	Steel	30	40	10	4,200 W; 1,700 E
Vibratory, installation *	Steel	36	40	10	4,200 W; 1,700 E
Vibratory, installation *	Steel	48	10	10	4,200 W; 1,700 E

Note: Vibratory driving of 36 in (91.4 cm) piles used as proxy for vibratory extraction of 30 in (76.2 cm) piles.
* Constrained by bends in the Oakland Estuary and relatively shallow bathymetry near the shipping channel: 4,200 m (13,780 ft) west, 1, 700 m (5,577 ft) east.

Based on our evaluation of the applicant'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 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.

WETA would have 1–3 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 or on vessels 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.

Pre-Construction Monitoring

In addition to monitoring on days that pile removal and driving would occur, as proposed by the applicant, WETA would conduct pre-construction monitoring. Prior to initiation of in-water construction, a qualified NMFS-approved PSO will conduct monitoring of marine mammals to update existing information on species occurrence in and near the project area, their movement patterns, and their site use. This pre-construction monitoring will take place at least 5 days prior to the start of in-water construction and will cover a period of at least 1 week (with at least 5 days of actual observation over a period of 4 hours each day), 2 hours in the morning at the time that construction activities would begin and 2 hours at midday.

Reporting

WETA 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.
- All PSOs will use a standardized data entry format (see Appendix B of the IHA application).

Negligible Impact Analysis and Determination

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

To avoid repetition, the discussion of our analysis applies to both California sea lions and harbor seals, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. There is little information about the nature or severity of the impacts, or the size, status, or structure of any of these species or stocks that would lead to a different analysis for this activity.

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

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

The Level A harassment zones identified in Table 6 are based upon an animal exposed to impact pile driving multiple piles per day. Considering duration of impact driving each pile (up to 20 minutes) and breaks between pile installations (to reset equipment and move pile into place), this means an animal would have to remain within the area estimated to be ensonified above the Level A harassment threshold for multiple hours. This is highly unlikely given marine mammal movement throughout the area. If an animal was exposed to accumulated sound energy, the resulting PTS would likely be small (*e.g.,* PTS onset) at lower frequencies where pile driving energy is concentrated, and unlikely to result in impacts to individual fitness, reproduction, or survival.

The nature of the pile driving project precludes the likelihood of serious injury or mortality. For all species and stocks, take would occur within a limited, confined area (north-central San Francisco Bay including Richardson's Bay) of the stock's range. Level A and Level B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein. Further, the amount of take proposed to be authorized is extremely small when compared to stock abundance.

Behavioral responses of marine mammals to pile driving at the project site, if any, are expected to be mild and temporary. Marine mammals within the Level B harassment zone may not show any visual cues they are disturbed by activities or could become alert, avoid the area, leave the area, or display other mild responses that are not observable such as changes in vocalization patterns. Given the short duration of noise-generating activities per day and that pile driving and removal would occur across 6 consecutive days, any harassment would be temporary. There are no other areas or times of known biological importance for any of the affected species.

In addition, it is unlikely that minor noise effects in a small, localized area of habitat would have any effect on the stocks' ability to recover. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activities will have only minor, short-term effects on individuals. The specified activities are not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to adversely affect any of the species or stocks through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- The specified activities 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;
- The lack of anticipated significant or long-term effects to marine mammal habitat;
- The presumed efficacy of the mitigation measures in reducing the effects of the specified activity; and,
- Monitoring reports from similar work in San Francisco Bay have documented little to no effect on individuals of the same species impacted by the specified activities (AECOM, 2022; AECOM, 2023).

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 stocks (see Table 9). For both stocks, the proposed take of individuals is less than 1 percent of the abundance of the affected stock. This is likely a conservative estimate because it assumes all takes are of different individual animals, which is likely not the case. Some individuals may return multiple times in a day, but PSOs would count them as separate takes if they cannot be individually identified.

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

Unmitigable Adverse Impact Analysis and Determination

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

Endangered Species Act

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

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

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to WETA for conducting pile removal and driving in the Oakland Inner Harbor at Alameda, California, for one year from the date of issuance, 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: June 26, 2023.

Kimberly Damon-Randall,

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

[FR Doc. 2023–13899 Filed 6–29–23; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XD006]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys in the New York Bight

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

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an IHA to Community Offshore Wind, LLC (COSW) to incidentally harass marine mammals during marine site characterization surveys in coastal waters off of New Jersey and New York in the New York Bight.

DATES: This authorization is effective from July 1, 2023, through June 30, 2024.

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

Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable.* In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed incidental harassment authorization (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.

Summary of Request

On November 17, 2022, NMFS received a request from COSW for an IHA to take marine mammals incidental to conducting marine site characterization surveys in coastal waters off of New Jersey and New York in the New York Bight, specifically within the Bureau of Ocean Energy Management (BOEM) Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) Lease Area OCS–A 0539 (Lease Area) and associated Export Cable Route survey area (ECR Area). Following NMFS' review of the application, COSW submitted a revised request on February 27, 2023. NMFS deemed the application adequate and complete on March 1, 2023. COSW's request is for take of small numbers of 15 species (16 stocks) of marine mammals by Level B harassment only. Neither COSW nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Specified Activity

Overview

COSW plans to conduct marine site characterization surveys, including high-resolution geophysical (HRG) surveys, in coastal waters off of New Jersey and New York in the New York Bight, specifically within BOEM Lease Area OCS–A 0539 and associated ECR Area, collectively considered the Survey Area.

The planned marine site characterization surveys are designed to obtain data sufficient to meet BOEM guidelines for providing geophysical, geotechnical, and geohazard information for site assessment plan surveys and/or construction and operations plan development. The objective of the surveys is to support the site characterization, siting, and engineering design of offshore wind project facilities including wind turbine generators, offshore substations, and submarine cables within the Survey Area. Up to three vessels may conduct survey efforts concurrently. Underwater sound resulting from COSW's marine site characterization survey activities, specifically HRG surveys, have the potential to result in incidental take of marine mammals in the form of Level B harassment.

Dates and Duration

The surveys are planned to begin as soon as practicable and estimated to require 293 survey days within a single year across a maximum of three vessels operating concurrently, which includes up to two vessels operating offshore (>20 meters (m) depth) and one vessel operating nearshore (<20 m depth). The survey days will occur any month throughout the year as the exact timing of the surveys during the year is not certain. A ''survey day'' is defined as a 24-hour (hr) activity period in which active acoustic sound sources are used offshore and a 12-hr activity period when a vessel is operating nearshore. It is expected that each offshore vessel would cover approximately 170 kilometers (km) of trackline per day surveyed at a speed of approximately 3.8 knots (kn; 7.04 km/h), based on COSW's expectations regarding data acquisition efficiency. There is up to 30,467 km of trackline survey effort planned: a maximum trackline length of 28,290 km is planned for the Lease Area