the meeting (see **ADDRESSES**) by April 15, 2026.

Authority: 16 U.S.C. 951 *et seq.,* 16 U.S.C. 1801 *et seq.,* and 16 U.S.C. 6901 *et seq.*

Dated: March 31, 2026.

David R. Blankinship,

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

[FR Doc. 2026–06533 Filed 4–2–26; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XF443]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Port of San Francisco Mission Bay Ferry Landing Project in San Francisco Bay, 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 Port of San Francisco (PSF) for authorization to take marine mammals incidental to the Mission Bay Ferry Landing (MBFL) Project in San Francisco Bay (SFB), California (CA). 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 possible one-time, 1-year renewals for each IHA that could be issued under certain circumstances and if all requirements are met, as described in the Request for Public Comments section at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than May 4, 2026.

ADDRESSES: Comments should be addressed to the Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service and should be submitted via email to *ITP.esch@noaa.gov.* Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.* In case of problems accessing these documents, please call the contact listed below.

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/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.,* name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

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

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Section 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) directs 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; 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 as ''mitigation''); and requirements pertaining to the monitoring and reporting of the takings. The definitions of all applicable MMPA statutory terms used above are included in the relevant sections below (see also 16 U.S.C. 1362; 50 C.F.R 216.3, and 216.103).

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.

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

Summary of Request

On October 10, 2025, NMFS received a request from PSF for an IHA to take marine mammals incidental to vibratory pile driving and extraction, and down-the-hole (DTH) driving, necessary for construction of the MBFL Project within PSF's Southern Waterfront in the Mission Bay/Central Waterfront area.

NMFS previously issued an IHA to PSF to harass small numbers of marine mammals, by Level B harassment, incidental to similar activities, effective June 1, 2019, to May 31, 2020 (83 FR 53217, October 22, 2018). Following issuance of the original IHA, Project construction was significantly delayed due to the City of San Francisco's project resources and funding constraints. PSF then divided the Project construction sequencing into two phases. MBFL Phase 1 project elements, completed from June to November 2020, included only project activities incidental to which take of marine mammals was not anticipated (*i.e.,* demolition, dredging, and sand capping). Following a five-year construction delay, PSF is preparing to initiate construction of the remaining MBFL Phase 2 elements (*i.e.,* pile installation and extraction using vibratory methods and DTH driving). Since issuance of the 2018 IHA, PSF has streamlined the project description to include a ferry landing only, rather than both ferry and water taxi landings. Therefore, the specified activities described in the 2025 IHA request include only a subset of those analyzed for the 2018 IHA, with minor changes to pile sizes and installation parameters.

Following NMFS' review of the application drafts and associated discussions, PSF iteratively submitted revised versions of the application on January 8, February 6, and February 23, 2026. The application was deemed adequate and complete on March 5, 2026.

PSF now proposes to construct a single-float, two-berth MBFL to provide ferry access to the SFB area. PSF is requesting an IHA to cover the period of June 1, 2026, to May 31, 2027. PSF's proposed activity includes vibratory pile driving, vibratory pile extraction, and DTH driving, which may result in the incidental take of marine mammals, by harassment only. PSF's request is for incidental take, by Level B harassment, of eight species of marine mammals. No Level A harassment is anticipated to occur, and none is proposed for authorization. Neither PSF nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Proposed Activity

Overview

PSF proposes to construct the MBFL, a single-float, two-berth ferry landing, in SFB, CA, within PSF's Southern Waterfront in the Mission Bay/Central Waterfront area. The MBFL will provide critical regional ferry service to and from the Mission Bay neighborhood, one of the fastest growing neighborhoods in San Francisco, as well as the Dogpatch, Potrero Hill, Pier 70, and the Central Waterfront neighborhoods. The MBFL will provide capability to berth two ferry boats simultaneously and it is estimated that the ferry landing will have the capacity to handle up to 6,000 passengers per day. The ferry landing is considered essential to alleviate current regional transportation overcrowding and provide transportation resiliency in the event of an earthquake, Bay Bridge failure, or other unplanned events. The ferry landing in-water construction activities that have the potential to take marine mammals include vibratory pile driving and extraction, and DTH driving. In total, PSF anticipates conducting 32 non-consecutive days of in-water construction with the potential to result in take of eight species of marine mammals, over a 46-day period between June 1 and November 30, 2026.

Dates and Duration

The proposed IHA would be valid for the statutory maximum of 1 year from the date of effectiveness. It will become effective upon written notification from the applicant to NMFS but not beginning later than 1 year from the date of issuance or extending beyond 2 years from the date of issuance. Although the IHA would be active for a period of 1 year, in-water pile installation and extraction activities are planned from June through November to protect sensitive life stages of endangered fish in the area. PSF plans to conduct in-water construction activities over the course of 46 days from June 1, 2026, through November 30, 2026, although only 32 of those days would include construction activities that may result in incidental harassment of marine mammals. This schedule is subject to change, however, as project delays may occur due to a number of factors (*e.g.,* poor weather, equipment availability constraints).

Pile installations would proceed sequentially (*i.e.,* no concurrent activities planned). PSF estimates an overall production rate of two to six piles per day, although this number would vary depending on the stage of construction. PSF anticipates that all vibratory pile driving and extraction and DTH driving would be limited to daylight hours.

Specified Geographical Region

The project is located in SFB within PSF's Southern Waterfront in the Mission Bay/Central Waterfront area. The specific geographic location for the project is provided in figure 1. The project site is approximately three kilometers (km) south of the San Francisco-Oakland Bay Bridge, on the western side of SFB in the Central Basin. The nearby waterfront is an active recreational and commercial port and shipyard. The Long Wharf is located in northern region of the central Bay, south of the eastern terminus of the Richmond-San Rafael Bridge (Figure 1). Water depth in the project area ranges from approximately 6 to 15 meters (m). The substrate is primarily Bay mud, however, sand or gravel may exist deeper into the substrate. The project area around Berth 1 is approximately 470 square kilometers (km^2) in size. Ambient underwater noise in the vicinity of the project area is generated by shipping activity, ferry traffic, and sound generated by the Richmond Bridge piers. Underwater noise measurements in 2006 and from 2020 to 2022 found the ambient noise in the project area to exceed 120 decibels (dB) root-mean-squared (RMS). Ambient underwater noise levels at Long Wharf may vary with noise levels being higher at Berth 1, likely due to its closer proximity to the main shipping channel.

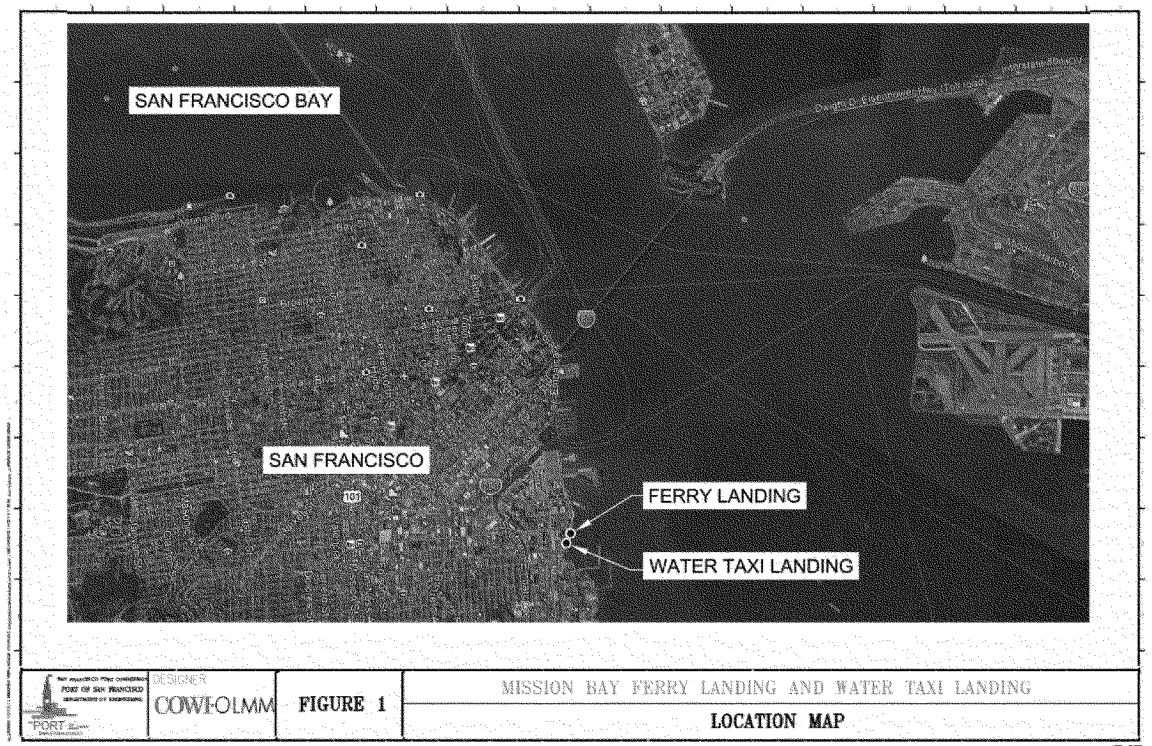

Figure 1—MBFL Project Location in SFB, CA

Detailed Description of Specific Activity

PSF proposes to construct the MBFL, a single-float, two-berth ferry landing in Mission Bay, located in SFB, CA, within PSF's Southern Waterfront in the Mission Bay/Central Waterfront area. Table 1 provides a summary of in-water construction activities, including installation of octagonal concrete piles which would not require pile driving or DTH driving. PSF defines four components of the overall ferry landing structure:

Pier Bents 1 and 2—includes vibratory pile driving installation of four permanent 48-in steel caisson sleeves, drilling inside each caisson sleeve to create space to accommodate the base of one 24-in octagonal concrete pile per caisson sleeve, crane-mediated placement of four concrete piles (one per sleeve), and grouting to secure the base of each concrete pile;

Pier Bents 3 to 7—includes vibratory pile driving installation of 10 temporary 30-in steel caisson sleeves, drilling inside each caisson sleeve to create space to accommodate the base of a 24-in octagonal concrete pile per caisson sleeve, crane-mediated placement of ten concrete piles, grouting to secure the base of each concrete pile, and vibratory pile extraction of each 30-in steel caisson sleeve;

Float Guide Piles—includes vibratory pile driving installation of six 36-in steel pipe piles to refusal, followed by DTH to the 20-ft (6.1-m) embedment depth; and

Donut Fender Piles—includes vibratory pile driving installation of two 36-in steel pipe piles to refusal, followed by DTH to the 20-ft (6.1-m) embedment depth.

To ensure the piles are correctly positioned during construction of the ferry landing, the contractor may elect to utilize a temporary pile-driving template. PSF estimates that the template may be installed and moved up to 10 times during construction. Four 14-in steel H-piles would support the template. Each of the four H-piles would be driven to refusal with a vibratory pile driver (600 seconds/pile) every time the template is set up and extracted using the same vibratory piling methodology to release the template for subsequent use, for a combined total of 80 H-pile installations and extractions (installation and extraction of 4 H-piles x 10 template applications).

TABLE 1—SUMMARY OF PSF'S PILE INSTALLATION ACTIVITIES FOR THE MBFL PROJECT

Project element	Pile type	Pile diameter (inches)	Method	Duration and strikes/second (sec)	Pile events per day	Days	Total pile events
Pile driving template piles.	H-Pile Steel (temporary).	14	Vibratory pile driving and extraction.	600	8 (4 installed and 4 removed).	10	80 (40 installed and 40 removed).
Pier (Bents 1 & 2)	Steel Caisson (permanent).	48	Vibratory pile driving	900	1	4	4.
	Octagonal Concrete	*24*	*No pile driving or DTH*	*N/A*	*1*	*4*	*4.*
Pier (Bents 3 –7)	Steel Caisson (temporary).	30	Vibratory pile driving and extraction.	900	2 (1 installed and 1 removed).	10	20 (10 installed and 10 removed).
	Octagonal Concrete	*24*	*No pile driving or DTH*	*N/A*	*1*	*10*	*10.*
Float Guide Piles	Steel Pipe (permanent)	36	Vibratory pile installation.	1,200	1	6	6.

TABLE 1—SUMMARY OF PSF'S PILE INSTALLATION ACTIVITIES FOR THE MBFL PROJECT—Continued

Project element	Pile type	Pile diameter (inches)	Method	Duration and strikes/second (sec)	Pile events per day	Days	Total pile events
Donut Fender Piles			DTH driving	20 minutes (10/sec).	1	2	2.

* Activities in italics are not likely to incidentally harass marine mammals.

To aid in constructing Pier Bents, PSF would first install the template (using the approach described above) to support vibratory pile driving installation of each of four permanent 48-in (Bents 1 and 2) and 10 temporary 30-in (Bents 3 to 7) steel caisson sleeves. Once a given caisson sleeve is in place, sediment/soil/rock within the caisson would be drilled out using a Bauer BG18 rotary drill (similar) to create a rock socket (*i.e.,* a void in the substrate in which to seat the base of the pile). All drilled sediment/soil/rock will be collected for disposal and transported to an appropriate permitted facility. However, rotary drilling is not likely to result in incidental take of marine mammals, and we do not discuss it further. Using a crane, PSF would place/seat a 24-in diameter concrete pile in each rock socket. After securing each concrete pile with grouting, PSF would remove the associated outer caisson sleeve and four temporary support H-piles. The 48-in caisson sleeves (n=4) would be permanent; thus, extraction only applies to the 30-in caisson sleeves (n=10). Figure 3 in the IHA application provides a depiction of this process.

Installation of the 36-in steel float and donut piles will require vibratory pile driving until refusal is reached (1,200 sec/pile), followed by DTH driving for approximately 20 minutes to achieve the target full 20 ft (6.1 m) embedment depth. PSF would utilize a noise attenuation system (*i.e.,* bubble curtain) during all DTH driving.

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

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the ITA 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 this information, and we refer the reader to these descriptions, instead of reprinting the information. Information regarding population trends and threats for the following species may be found in NMFS' Stock Assessment Reports (SARs; *https://www.fisherie.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species*).

Table 2 lists all species or stocks for which take is expected and proposed to be authorized for this activity and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, which 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 (M/SI) 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 and Alaska SARs. All values presented in table 2 are the most recent available at the time of publication (including from the draft 2024 SARs) and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.*

TABLE 2—STATUS OF MARINE MAMMAL SPECIES [1] LIKELY TO OCCUR NEAR THE PROJECT AREA

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 Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae:						
Gray whale	*Eschrichtius robustus*	Eastern North Pacific	-/- ; N	25,960 (0.05, 25,849, 2016).	801	131
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae:						
Bottlenose dolphin	*Tursiops truncatus*	California Coastal	-/- ; N	453 (0.06, 346, 2011)	2.7	> = 2
Family Phocoenidae (porpoises):						
Harbor porpoise	*Phocoena phocoena*	San Francisco-Russian River	-/- ; N	7,777 (0.62, 4,811, 2017	73	> = 0.4
Order Carnivora—Superfamily Pinnipedia						
California sea lion	*Zalophus californianus*	United States	-/- ; N	257,606 (N/A, 233,515, 2014).	14,011	>321

TABLE 2—STATUS OF MARINE MAMMAL SPECIES[1] LIKELY TO OCCUR NEAR THE PROJECT AREA—Continued

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N)[2]	Stock abundance (CV, N_{min}, most recent abundance survey)[3]	PBR	Annual M/SI[4]
Steller sea lion	*Eumetopias jubatus*	Eastern North Pacific	-,-,N	36,308 (N/A, 36,308, 2022).	2,178	92.3
Northern fur seal	*Callorhinus ursinus*	California	-/- ; N	14,050 (n/a, 7,524, 2013)	451	1.8
		Eastern North Pacific	-/- ; N	612,765 (0.2, 518,651, 2022).	11,151	296
Family Phocidae (earless seals):						
Pacific harbor seal	*Phoca vitulina richardii*	California	-/- ; N	30,968 (n/a, 27,348, 2012).	1,641	43
Northern elephant seal	*Mirounga angustirostris*	California Breeding	-/- ; N	194,907 (N/A, 88,794, 2023).	5,328	11.2

[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*).
[2] ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.
[3] NMFS' marine mammal SARs can be found online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.* CV is the coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable.
[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, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range.

Very few marine mammal species occur consistently within SFB, and even fewer are likely to occur near the project area (*i.e.,* in the inner Bay) during the planned period of in-water construction (June–November). When cetacean sightings do occur, most tend to occur north of the project area, in the Central Bay (the area bound by the Golden Gate Bridge to the west, the Richmond Bridge to the north, and the San Francisco-Oakland Bay Bridge (SFOBB) to the south). The SFOBB, the southern boundary of the Central Bay, is approximately 1.5 miles (2.4 km) north of the project area. Only harbor seals, California sea lions, harbor porpoises, and bottlenose dolphins are sighted in SFB year-round; other marine mammal species sighted, although more infrequently, include the gray whale, humpback whale, northern elephant seal, Guadalupe fur seal, and northern fur seal. However, both the temporal and/or spatial occurrence of the humpback whale and Guadalupe fur seal is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here.

Humpback whales are historically rare visitors to the interior of SFB. However, beginning in 2016, a seasonal (*i.e.,* April to November) influx of humpback whales occurred inside SFB near the Golden Gate Bridge (Keener 2017). Markiwitz *et al.* (2024) documented increased use of the portions of SFB near the Golden Gate strait as foraging habitat by humpback whales. Systematic land- and boat-based observations made during their 2016–2018 study period indicated that individual humpback whales moved into and out of SFB (*i.e.,* east and west of the Golden Gate Bridge) daily, on a timescale correlated with the tidal cycle, although individuals rarely ventured east of Alcatraz Island and never south of the SFOBB. PSF's project location is south of the documented foraging habitat, to the extent that neither NMFS nor PSF anticipates that planned construction activities would result in incidental taking of humpback whales. To ensure no take occurs, PSF proposes to shutdown construction activities should this species show up unexpectedly and approach the Level B harassment zone.

Although extremely rare, Guadalupe fur seals may range into the waters of northern California and the Pacific Northwest, potentially using the Farallon Islands (off central California) and Channel Islands (off southern California) as haul-out sites during these movements (Simon, 2016). However, Guadalupe fur seal occurrence in the vicinity of San Francisco is usually in the form of stranded juveniles (usually younger than 2 years old) with evidence of malnutrition, especially during El Niño events (NMFS 2017a). Because Guadalupe fur seals are so rare in the area, and sightings are associated with specific abnormal weather conditions, NMFS has determined that no Guadalupe fur seals are likely to occur in the project vicinity and, therefore, no take is expected to occur.

As indicated above, all eight species (with nine managed stocks) in table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur.

Harbor Seal

Harbor seals are distributed from Baja California north to the Aleutian Islands of Alaska. Harbor seals do not make extensive pelagic migrations but may travel hundreds of km to find food or suitable breeding areas (Herder, 1986; Harvey and Goley, 2011; Carretta *et al.,* 2023). Harbor seals are the most common marine mammal species observed in SFB and occur year-round, primarily observed hauled out on exposed rocky ledges and sloughs in the southern Bay. Harbor seals, central-place foragers (Orians and Pearson 1979) that tend to exhibit strong site fidelity within season and across years, forage close to haul-out sites, thus repeatedly visiting specific foraging areas (Grigg *et al.,* 2012; Suryan and Harvey, 1998; Thompson *et al.,* 1998). Harbor seals in SFB forage mainly within 7 mi (11.3 km of their primary haul-out site (Grigg *et al.,* 2012), and often within just 1–3 mi (1–5 km; Torok 1994). The closest harbor seal haul-out site to the Project Area is Yerba Buena Island (YBI), approximately 3.3 mi (5.3 km) to the east of the Project Area. Although the YBI haul-out is not expected to be within the area of ensonification, it is likely that foraging seals from this location would be present in the water during construction.

Gray Whale

Gray whales are one of the most common whales along the California coast. A small number of whales, known as the Pacific Coast Feeding Group, are known to feed along the Pacific coast between Kodiak Island, AK and northern California, as well as in nearshore waters just outside of SFB (Carretta *et al.,* 2022). The southward migration to winter breeding grounds occurs from December through February while the northward migration to the feeding grounds takes place from February through May, peaking in March. Since 2019, it has become more common for gray whales on their northward migration, during the months of February and March, to enter SFB to feed (Bartlett, 2022). Although PSF would not initiate MBFL pile installation activities until June 1, well outside the northward migratory period, it is possible that a gray whale may enter the project area during pile driving activities.

In 2024, during monitoring required by an IHA for construction activities near the MBFL project site, Protected Species Observers (PSOs) observed gray whales more often than expected (Integral Consulting Inc., 2025a). The California Academy of Sciences and Marine Mammal Center reported an unusually high number of sightings in the SFB in 2025, with more than 30 individual gray whales confirmed via photo identification. By comparison, only six gray whales were sighted in SFB in 2024. Roughly one-third of the whales sighted in 2025 remained in SFB for at least 20 days; among these individuals, body condition ranged from normal to emaciated.

Bottlenose Dolphin

The common bottlenose dolphin is found in all oceans across the globe and is one of the most commonly observed marine mammal species in coastal waters and estuaries. Two genetically distinct stocks occur off the coast of California, the California coastal stock and the California/Oregon/Washington offshore stock. The range of the California coastal stock has been expanding north since an El Niño event in 1982 through 1983 (Hansen and Defran, 1990; Wells *et al.,* 1990) and spans as far north as Sonoma County (Keener *et al.,* 2023). From 2010 to 2018, a photo-identification monitoring study identified 84 distinctive individual bottlenose dolphins in SFB, likely belonging to the California coastal stock (Keener *et al.,* 2023). This stock is highly transitory, shows little site fidelity, and individuals are highly mobile (Weller *et al.,* 2016). Since 2008, coastal bottlenose dolphins have been observed regularly in SFB in proximity to the Golden Gate near the mouth of SFB, north of PSF's MBFL project site (Bay Nature, 2020). However, due to increased numbers of dolphins occurring in SFB, it is possible that a limited number of individuals may approach the project area during in-water construction activities.

Harbor Porpoise

Harbor porpoises typically occur in cool temperate to sub-polar waters less than 62.6 degrees Fahrenheit (17 degrees Celsius) (Read 1999) where prey aggregations are concentrated (Watts and Gaskin, 1985). In the eastern Pacific, harbor porpoises occur in coastal and inland waters from Point Conception, California to Alaska (Gaskin 1984). The non-migratory San Francisco-Russian River stock ranges from Pescadero to Point Arena, California, utilizes relatively shallow nearshore waters (<100 m), and feeds on small schooling fishes such as northern anchovy and Pacific herring which enter SFB (Caretta *et al.,* 2022; Stern *et al.,* 2017). Harbor porpoises tend to occur in small groups and are considered relatively cryptic animals.

Recently, observations of harbor porpoises within SFB have become more common (Duffy 2015; Stern *et al.,* 2017; AECOM, 2021). Before 2008, harbor porpoises occurred primarily outside of SFB, although SFB has historically been considered habitat for harbor porpoises (Broughton, 1999). From 2011 to 2014, the Golden Gate Cetacean Research program conducted a visual count and identified 2,698 porpoise groups from the Golden Gate Bridge during 96 percent of their on-effort survey days (Stern *et al.,* 2017). Harbor porpoise movements into SFB are linked to tidal cycles, with the greatest numbers of individuals sighted during high tide to ebb tide periods. Movements into SFB, which may serve as a foraging habitat, are likely influenced by prey availability (Duffy 2015; Stern *et al.,* 2017). Although harbor porpoise sightings are generally concentrated in the vicinity of the Golden Gate Bridge and Angel Island, northwest of the project site (Keener, 2011), this species is occurring more frequently in SFB east of Angel Island and may approach the project area during pile driving activities.

California Sea Lion

California sea lions reside in the Eastern North Pacific Ocean in shallow coastal and estuarine waters. A common, abundant marine mammal, they are found throughout the U.S. west coast, generally within 10-miles of shore and are known to breed on the offshore islands of 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 (Lowry and Forney 2005; Heath and Perrin 2009). Females and some juveniles tend to remain closer to rookeries (Antonelis *et al.,* 1990; Melin *et al.,* 2008).

California sea lions occur within SFB-Delta in their highest numbers while migrating to and from their primary breeding areas on the Farallon and California Channel Islands, and when Pacific herring and salmon inhabit Bay-Delta waters spawn. or migrate to upriver spawning areas. They haul out on offshore rocks, sandy beaches, and onto floating docks, wharfs, vessels, and other man-made structures in SFB and coastal waters of the state.

In SFB, California sea lions have been observed at Angel Island and occupying the docks near Pier 39, which is the largest California sea lion haul-out in SFB. A maximum of 1,706 sea lions were counted at Pier 39 in 2009. However, since then the population has averaged at about 50–300 depending upon the season (The Marine Mammal Center ((TMMC) 2017). This group of sea lions has decreased in size in recent years, coincident with a fluctuating decrease in the herring population in SFB. There are no known breeding sites within SFB. Their primary breeding site is in the Channel Islands (USACE 2011). The sea lions appear at Pier 39 after returning from the Channel Islands at the beginning of August (Bauer 1999). No other sea lion haul-out sites have been identified in SFB and no pupping has been observed at the Pier 39 site or any other site in SFB under normal conditions (USACE 2011). Although there has been documentation of pupping on docks in SFB, this event was during a domoic acid event. The Port does not anticipate that any domoic events will occur during the project construction activities. The project site is approximately 4 miles away from Pier 39.

Although there is little information regarding the foraging behavior of the California sea lion in southern SFB, they have been observed foraging on a regular basis in the shipping channel south of YBI. Foraging grounds have also been identified for pinnipeds, including sea lions, between YBI and Treasure Island, as well as off the Tiburon Peninsula (California Department of Transportation (CALTRANS), 2006), 2006). The California sea lions that use the Pier 39 haul-out site may be feeding on Pacific herring (*Clupea harengus*), northern anchovy, and other prey in the waters of SFB (CALTRANS, 2013a). In addition to the Pier 39 haul-out, California sea lions haul out on buoys and similar structures throughout SFB. Although mainly observed swimming off the San Francisco and Marin shorelines within SFB, California sea lions may occasionally enter the project area to forage.

Stellar Sea Lion

Steller sea lions are found along the North Pacific Rim from Japan to California. The eastern Pacific U.S. stock includes animals originating from rookeries east of Cape Suckling, Alaska, and ranges from approximately the Alaska-Canada border to California. Breeding and pupping occur from mid-May to mid-July. Females usually mate within two weeks of giving birth. Steller sea lions have a polygynous mating system in which only a small proportion of the males (*i.e.,* bulls) father most of the pups. Bulls are highly territorial during the breeding season, often aggressively guarding a rocky outcrop or area onshore. Although species' occurrence is rare in the project area, since 1993, a single adult male Steller sea lion has been observed using the nearby Pier 39 haul-out sites more than 30 times over 10 years, typically intermittently July through September, but as recently as March 2026.

Northern Elephant Seal

Northern elephant seals are found in the eastern and central North Pacific Ocean and range as far north as Alaska and as far south as Mexico, spending approximately 9 months per year at sea. The species breeds and pups from December through March in the Channel Islands of California or Baja California in Mexico, preferring sandy beaches or similar habitat (Stewart and Huber, 1993; Stewart *et al.,* 1994; Carretta *et al.,* 2022). The largest rookeries are on San Nicolas and San Miguel islands in the northern Channel Islands. Near SFB, elephant seals breed, molt, and haul out at Año Nuevo Island, the Farallon Islands, and Point Reyes National Seashore.

Elephant seals do not have any established haul out sites in the SFB, but occasional sightings have occurred. The most recent sighting was in 2012 on the beach at Clipper Cove on Treasure Island, when a healthy yearling elephant seal hauled out for a day. Approximately 100 juvenile northern elephant seals strand in SFB each year, including at YBI and Treasure Island (fewer than 10 strandings per year) (CALTRANS, 2018). Although visits to SFB are rare, it is possible that a few individuals could be present in the project area during construction activities.

Northern Fur Seal

Northern fur seals range from southern California north to the Bering Sea, and west to the Okhotsk Sea and Honshu Island, Japan in the west (Carretta *et al.,* 2022). Most of the population breeds on the Pribilof Islands in the southern Bering Sea, although a small percentage of the population breed at San Miguel Island and the Farallon Islands off the coast of California. Northern fur seals show high site fidelity to breeding and rookery locations and may swim long distances for prey. Their diet is composed of small schooling fish such as walleye pollock, herring, hake, anchovy, and squid. Diet and population trends vary with environmental conditions, such as El Niño (Carretta *et al.,* 2022). The California stock of northern fur seals forage in waters outside of SFB. Juvenile northern fur seals occasionally strand in SFB, especially during El Niño events (TMMC 2016). TMMC responds to approximately five northern fur seal strandings per year in SFB (TMMC, 2016). TMMC occasionally responds to stranded fur seals around YBI and Treasure Island. Although rarely observed in SFB, it is possible individuals may be present during construction activities but unlikely that the species will be exposed to construction activities.

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.*). Generalized hearing ranges were chosen based on the approximately 65-dB threshold from composite audiograms, previous analyses in NMFS (2018), and/or data from Southall *et al.* (2007) and Southall *et al.* (2019). We note that the names of two hearing groups and the generalized hearing ranges of all marine mammal hearing groups have been recently updated (NMFS, 2024) as reflected below in table 3.

TABLE 3—MARINE MAMMAL HEARING GROUPS

[NMFS, 2024]

Hearing group	Generalized hearing range *
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 36 kHz.
High-frequency (HF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz.
Very High-frequency (VHF) cetaceans (true porpoises, *Kogia,* river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*).	200 Hz to 165 kHz.
Phocid pinnipeds (PW) (underwater) (true seals)	40 Hz to 90 kHz.
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 68 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 may not be as broad. Generalized hearing range chosen based on ~65 dB threshold from composite audiogram, previous analysis in NMFS (2018), and/or data from Southall *et al,* 2007, 2019). Additionally, animals are able to detect very loud sounds above and below that "generalized" hearing range.

For more details concerning these groups and associated generalized hearing ranges, please see (NMFS, 2024) for a review of available information.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

This section includes a summary and 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 likely to adversely affect the species or stock through effects on annual rates of recruitment or survival.

There are a variety of types and degrees of effects on marine mammals and their habitat (including prey) that could occur as a result of the specified activities. Below, we provide a brief description of the types of sound generated by specified activities, the general impacts on marine mammals and their habitat from these types of activities, and a related project-specific analysis, with consideration of the proposed mitigation measures.

Description of Sound Sources for the Specified Activities

Activities associated with the project with the potential to incidentally take marine mammals though exposure to sound would include vibratory pile installation and extraction, and DTH driving. Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the substrate. Vibratory hammers typically produce less sound (*i.e.,* lower sound pressure level (SPLs)) than impact hammers. Peak SPLs may be 180 dB or greater but are generally 10 to 20 dB lower than SPLs generated during impact pile driving of the same-sized pile (Oestman *et al.,* 2009; CALTRANS, 2015, 2020). Sounds produced by vibratory hammers are non-impulsive and, compared to sounds produced by impact hammers, have a slower rise time that reduces the probability and severity of injury, given the sound energy is distributed over a greater amount of time (Nedwell and Edwards, 2002; Carlson *et al.,* 2005).

DTH driving uses a combination of drilling and impact hammering mechanisms to advance development of a hole in rock, with or without simultaneously advancing a pile/casing into that hole. DTH excavation is accomplished by the efficient progression of a drill bit, rotated under pressure while simultaneously hammered by a specialized percussive hammer located within the drill string (*i.e.,* ''behind'' the bit), the combined forces moving the bit forward to fracture rock. Traditional impact and vibratory pile driving involve a hammer striking the top of the pile, causing the entire length of the submerged pile to radiate sound as a linear source. However, the DTH hammering mechanism is integrated into the drill itself, so the primary sound generation point is at the interface of the drill bit and the substrate (*i.e.,* rock) deep within the ground/seabed, radiating sound pressure more like a point rather than linear source. DTH systems often involve a single hammer (mono-hammer), but multi- or ''cluster'' hammer drills are also used widely. For construction of the MBFL, PSF anticipates that installation of the 36-in steel pipe piles to the full 20-ft (6.1-m) embedment depth will require DTH driving using a mono-hammer.

The sounds produced by the DTH driving methods simultaneously contain both a continuous non-impulsive component from the drilling action and an impulsive component from the hammering effect. Therefore, for purposes of evaluating Level A harassment and Level B harassment under the MMPA, NMFS treats DTH systems simultaneously as both impulsive (Level A harassment thresholds) and continuous, non-impulsive (Level B harassment thresholds) sound source types. While DTH impact hammering can, in general, result in Level A harassment of marine mammals, it is not expected for this project given the small zones produced by the proposed DTH driving (quantified in the Estimated Take of Marine Mammals section) coupled with proposed monitoring and shutdown measures (described in the Proposed Mitigation and Proposed Monitoring and Reporting sections) that would prevent animals from entering these small zones.

The likely or possible impacts of the proposed activities on marine mammals could result from both non-acoustic and acoustic stressors. Potential non-acoustic stressors include the physical presence of the equipment, vessels, and personnel; however, the closest known harbor seal (*i.e.,* YBI) and California sea lion (*i.e.,* Pier 39) haul-out sites are located approximately 3.3 mi (5.3 km) and 4.0 mi (6.4 km), respectively, from the MBFL location; thus, we expect that visual and other non-acoustic stressors would be limited. Should any animals approach the project site(s) closely enough to be harassed due to the presence of equipment or personnel, we expect they would have already traveled through the acoustic harassment zones for the specified in-water activities and, thus, would already be considered taken by acoustic impacts. Therefore, any impacts to marine mammals are expected to be primarily acoustic in nature.

Acoustic Effects

The introduction of anthropogenic noise into the aquatic environment from pile driving and extraction is the means by which marine mammals may be harassed by the specified activity. In general, animals exposed to natural or anthropogenic sound may experience behavioral, physiological, and/or physical effects, ranging in magnitude from none to severe (Southall *et al.* 2007, 2019). In general, exposure to pile driving and extraction noise has the potential to result in behavioral reactions (*e.g.,* avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior) and, in limited cases, an auditory threshold shift (TS). Exposure to anthropogenic noise can also lead to non-observable physiological responses such an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions such as communication, and predator and prey detection. The effects of pile driving noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.,* impulsive vs. non-impulsive), the species, age and sex class (*e.g.,* adult male vs. mom with calf), duration of exposure, the distance between the pile and the animal, received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.,* 2004; Southall *et al.* 2007). Here, we discuss physical auditory effects (TSs) 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, 2024). The amount of TS is customarily expressed in dB. A TS can be permanent or temporary. As described in NMFS (2018, 2024), there are numerous factors to consider when examining the consequence of TS, including, but not limited to, the signal temporal pattern (*e.g.,* impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of the TS, time to recovery (seconds to minutes or hours to days), the frequency range of the exposure (*i.e.,* spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.,* how animal uses sound within the frequency band of the signal; *e.g.,* Kastelein *et al.* 2014), and the overlap between the animal and the source (*e.g.,* spatial, temporal, and spectral).

Auditory Injury (AUD INJ) and Permanent Threshold Shift (PTS)—NMFS defines AUD INJ as ''damage to the inner ear that can result in destruction of tissue . . . which may or may not result in PTS'' (NMFS, 2024). 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, 2024). PTS does not generally affect more than a limited frequency range, and an animal that has incurred PTS has incurred some level of hearing loss at the relevant frequencies; typically, animals with PTS are not functionally deaf (Au and Hastings, 2008; Finneran, 2016). Available data from humans and other terrestrial mammals indicate that a 40-dB TS approximates PTS onset (see Ward *et al.* 1958, 1959, 1960; Kryter *et al.,* 1966; Miller, 1974; Ahroon *et al.,* 1996; Henderson *et al.,* 2008). PTS levels for marine mammals are estimates; with the exception of a single study unintentionally inducing PTS in a harbor seal (Kastak *et al.,* 2008), there are no empirical data measuring PTS in marine mammals. For various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS 2024, 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, 2024, 2018). Based on data from mammals ranging from discountable to serious (similar to those discussed in the Auditory Masking section, 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.

Many studies have examined noise-induced hearing loss in marine mammals (see Finneran (2015) and Southall *et al.* (2019) for summaries). TTS is the mildest form of hearing impairment that can occur during exposure to sound (Kryter, 2013). While experiencing TTS, the hearing threshold rises, and a sound must be at a higher level in order to be heard. In terrestrial and marine mammals, TTS can last from minutes or hours to days (in cases of strong TTS). In many cases, hearing sensitivity recovers rapidly after exposure to the sound ends. For cetaceans, published data on the onset of TTS are limited to captive bottlenose dolphin, beluga whale, harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*) (Southall *et al.,* 2019). For pinnipeds in water, measurements of TTS are limited to harbor seals, elephant seals, bearded seals (*Erignathus barbatus*) and California sea lions (Kastak *et al.,* 1999, 2007; Kastelein *et al.,* 2019b, 2019c, 2021, 2022a, 2022b; Reichmuth *et al.,* 2019; Sills *et al.,* 2020). TTS was not observed in spotted (*Phoca largha*) and ringed (*Pusa hispida*) seals exposed to single airgun impulse sounds at levels matching previous predictions of TTS onset (Reichmuth *et al.,* 2016). These studies examine hearing thresholds measured in marine mammals before and after exposure to intense or long-duration sound exposures. The difference between the pre-exposure and post-exposure thresholds can be used to determine the amount of TS at various post-exposure times. The amount and onset of TTS depend on the exposure frequency. Sounds at low frequencies, well below the region of best sensitivity for a species or hearing group, are less hazardous than those at higher frequencies, near the region of best sensitivity (Finneran and Schlundt, 2013). 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.,* 2019a, 2019c). Note that in general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Finneran, 2015). 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 sound exposure level (SEL) (Mooney *et al.,* 2009; Finneran *et al.,* 2010; Kastelein *et al.,* 2014, 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. Nachtigall *et al.* (2018) describe measurements of hearing sensitivity of multiple odontocete species (bottlenose dolphin, harbor porpoise, beluga, and false killer whale (*Pseudorca crassidens*)) when a relatively loud sound was preceded by a warning sound. These captive animals were shown to reduce hearing sensitivity when warned of an impending intense sound. Based on these experimental observations of captive animals, the authors suggest that wild animals may dampen their hearing during prolonged exposures or if conditioned to anticipate intense sounds. Another study showed that marine mammal TTS measurements (Southall *et al.,* 2007, 2019), 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 (Finneran *et al.,* 2000, 2002; Schlundt *et al.,* 2000). As described in Finneran (2015), marine mammal studies have shown the amount of TTS increases with the 24-hour cumulative SEL (SEL_{24}) in an accelerating fashion: at low exposures with lower $SEL_{24,}$ the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SEL_{24}, the growth curves become steeper and approach linear relationships with the 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 more impactful (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 severe 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.

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Relationships between TTS and PTS thresholds have not been studied in marine mammals, and there is no PTS data for cetaceans, but such relationships are assumed to be similar to those in humans and other terrestrial mammals. PTS typically occurs at exposure levels at least several decibels above that inducing mild TTS (*e.g.,* a 40-dB TS approximates PTS onset (Kryter *et al.,* 1966; Miller, 1974), while a 6-dB TS approximates TTS onset (Southall *et al.,* 2007, 2019). Based on data from terrestrial mammals, a precautionary assumption is that the PTS thresholds for impulsive sounds (such as impact pile driving pulses as received close to the source) are at least 6 dB higher than the TTS threshold on a peak-pressure basis and PTS cumulative SEL thresholds are 15 to 20 dB higher than TTS cumulative SEL thresholds (Southall *et al.,* 2007, 2019). Given the higher level of sound or longer exposure duration necessary to cause PTS as compared with TTS, it is considerably less likely that PTS could occur.

Activities for this project include vibratory pile driving and vibratory extraction, and DTH driving. There would likely be pauses in activities producing the sound during each day. Given these pauses and the fact that many marine mammals are unlikely to remain in the project area for extended periods of time, the potential for TS declines.

Behavioral Harassment—Exposure to noise from vibratory pile driving and vibratory extraction, and DTH driving, can also have the potential to behaviorally disturb marine mammals. Generally speaking, NMFS considers a behavioral disturbance that rises to the level of harassment under the MMPA a non-minor response—in other words, not every response qualifies as behavioral disturbance, and for responses that do, those of a higher level, or accrued across a longer duration, have the potential to affect foraging, reproduction, or survival. Behavioral disturbance may include a variety of effects, including subtle changes in behavior (*e.g.,* minor or brief avoidance of an area or changes in vocalizations), more conspicuous changes in similar behavioral activities, and more sustained and/or potentially severe reactions, such as displacement from or abandonment of high-quality habitat. Behavioral responses may include changing durations of surfacing and dives, changing direction and/or speed; reducing/increasing vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); eliciting a visible startle response or aggressive behavior (such as tail/fin slapping or jaw clapping); avoidance of areas where sound sources are located. Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006).

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, 2019; Weilgart, 2007; Archer *et al.,* 2010). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.,* 2012), and can vary depending on characteristics associated with the sound source (*e.g.,* whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Please see Appendices B and C of Southall *et al.* (2007) and Gomez *et al.*

(2016) for reviews of studies involving marine mammal behavioral responses to sound.

Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2004). Animals are most likely to habituate to sounds that are predictable and unvarying. It is important to note that habituation is appropriately considered as a ''progressive reduction in response to stimuli that are perceived as neither aversive nor beneficial,'' rather than as, more generally, moderation in response to human disturbance (Bejder *et al.,* 2009). The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure.

As noted above, behavioral state may affect the type of response. For example, animals that are resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; Wartzok *et al.,* 2004; National Research Council (NRC), 2005). Controlled experiments with captive marine mammals have shown pronounced behavioral reactions, including avoidance of loud sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2003). Observed responses of wild marine mammals to loud pulsed sound sources (*e.g.,* seismic airguns) have been varied but often consist of avoidance behavior or other behavioral changes (Richardson *et al.,* 1995; Morton and Symonds, 2002; Nowacek *et al.,* 2007).

Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.,* Lusseau and Bejder, 2007; Weilgart, 2007; NRC, 2005). However, there are broad categories of potential response, which we describe in greater detail here, that include alteration of dive behavior, alteration of foraging behavior, effects to breathing, interference with or alteration of vocalization, avoidance, and flight.

Changes in dive behavior can vary widely and may consist of increased or decreased dive times and surface intervals as well as changes in the rates of ascent and descent during a dive (*e.g.,* Frankel and Clark, 2000; Costa *et al.,* 2003; Ng and Leung, 2003; Nowacek *et al.,* 2004; Goldbogen *et al.,* 2013a, 2013b). Variations in dive behavior may reflect interruptions in biologically significant activities (*e.g.,* foraging) or they may be of little biological significance. The impact of an alteration to dive behavior resulting from an acoustic exposure depends on what the animal is doing at the time of the exposure and the type and magnitude of the response.

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. However, acoustic and movement bio-logging tools have been used in some cases, to infer responses of feeding to anthropogenic noise. For example, Blair *et al.* (2016) reported significant effects on humpback whale foraging behavior in Stellwagen Bank in response to ship noise including slower descent rates, and fewer side-rolling events per dive with increasing ship nose. In addition, Wisniewska *et al.* (2018) reported that tagged harbor porpoises demonstrated fewer prey capture attempts when encountering occasional high-noise levels resulting from vessel noise as well as more vigorous fluking, interrupted foraging, and cessation of echolocation signals observed in response to some high-noise vessel passes.

In response to playbacks of vibratory pile driving sounds, captive bottlenose dolphins showed changes in target detection and number of clicks used for a trained echolocation task (Branstetter *et al.,* 2018). Similarly, harbor porpoises trained to collect fish during playback of impact pile driving sounds also showed potential changes in behavior and task success, though individual differences were prevalent (Kastelein *et al.,* 2019d). As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing factors to differences in response in any given circumstance (*e.g.,* Croll *et al.,* 2001; Nowacek *et al.,* 2004; Madsen *et al.,* 2006; Yazvenko *et al.,* 2007). A determination of whether foraging disruptions incur fitness consequences would require information on or estimates of the energetic requirements of the affected individuals and the relationships among prey availability, foraging effort and success, and the life history stage(s) of the animal.

Variations in respiration naturally vary with different behaviors and alterations to breathing rate as a function of acoustic exposure can be expected to co-occur with other behavioral reactions, such as a flight response or an alteration in diving. However, respiration rates in and of themselves may be representative of annoyance or an acute stress response. Various studies have shown that respiration rates may either be unaffected or could increase, depending on the species and signal characteristics, again highlighting the importance in understanding species differences in the tolerance of underwater noise when determining the potential for impacts resulting from anthropogenic sound exposure (*e.g.,* Kastelein *et al.,* 2001, 2005, 2006; Gailey *et al.,* 2007). For example, harbor porpoises' respiration rate increased in response to pile driving sounds at and above a received broadband SPL of 136 dB (zero-peak SPL: 151 dB (re 1 mPa); SEL of a single strike: 127 dB re 1 mPa2-s) (Kastelein *et al.,* 2013).

Avoidance is the displacement of an individual from an area or migration path as a result of the presence of a sound or other stressors and is one of the most obvious manifestations of disturbance in marine mammals (Richardson *et al.,* 1995). For example, gray whales are known to change direction—deflecting from customary migratory paths—in order to avoid noise from seismic surveys (Malme *et al.,* 1984). Avoidance may be short-term, with animals returning to the area once the noise has ceased (*e.g.,* Bowles *et al.,* 1994; Goold, 1996; Stone *et al.,* 2000; Morton and Symonds, 2002; Gailey *et al.,* 2007). Longer-term displacement is possible, however, which may lead to changes in abundance or distribution patterns of the affected species in the affected region if habituation to the presence of the sound does not occur (*e.g.,* Blackwell *et al.,* 2004; Bejder *et al.,* 2006; Teilmann *et al.,* 2006).

A flight response is a dramatic change in normal movement to a directed and rapid movement away from the perceived location of a sound source. The flight response differs from other avoidance responses in the intensity of the response (*e.g.,* directed movement, rate of travel). Relatively little information on flight responses of marine mammals to anthropogenic signals exist, although observations of flight responses to the presence of predators have occurred (Connor and

Heithaus, 1996; Bowers *et al.,* 2018). The result of a flight response could range from brief, temporary exertion and displacement from the area where the signal provokes flight to, in extreme cases, marine mammal strandings (England *et al.,* 2001). However, it should be noted that response to a perceived predator does not necessarily invoke flight (Ford and Reeves, 2008), and whether individuals are solitary or in groups may influence the response.

Behavioral disturbance can also impact marine mammals in more subtle ways. Increased vigilance may result in costs related to diversion of focus and attention (*i.e.,* when a response consists of increased vigilance, it may come at the cost of decreased attention to other critical behaviors such as foraging or resting). These effects have generally not been demonstrated for marine mammals, but studies involving fishes and terrestrial animals have shown that increased vigilance may substantially reduce feeding rates (*e.g.,* Beauchamp and Livoreil, 1997; Fritz *et al.,* 2002; Purser and Radford, 2011). In addition, chronic disturbance can cause population declines through reduction of fitness (*e.g.,* decline in body condition) and subsequent reduction in reproductive success, survival, or both (*e.g.,* Harrington and Veitch, 1992; Daan *et al.,* 1996; Bradshaw *et al.,* 1998). However, Ridgway *et al.* (2006) reported that increased vigilance in bottlenose dolphins exposed to sound over a 5-day period did not cause any sleep deprivation or stress effects.

Many animals perform vital functions, such as feeding, resting, traveling, and socializing, on a diel cycle (24-hour cycle). Disruption of such functions resulting from reactions to stressors such as sound exposure are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall *et al.,* 2007). Consequently, a behavioral response lasting less than 1 day and not recurring on subsequent days is not considered particularly severe unless it could directly affect reproduction or survival (Southall *et al.,* 2007). Note that there is a difference between multi-day substantive (*i.e.,* meaningful) behavioral reactions and multi-day anthropogenic activities. For example, just because an activity lasts for multiple days does not necessarily mean that individual animals are either exposed to activity-related stressors for multiple days or, further, exposed in a manner resulting in sustained multi-day substantive behavioral responses.

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

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

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

Relationships between these physiological mechanisms, animal behavior, and the costs of stress responses are well-studied through controlled experiments and for both laboratory and free-ranging animals (*e.g.,* Holberton *et al.,* 1996; Hood *et al.,* 1998; Jessop *et al.,* 2003; Krausman *et al.,* 2004; Lankford *et al.,* 2005). Stress responses due to exposure to anthropogenic sounds or other stressors and their effects on marine mammals have also been reviewed (Fair and Becker, 2000; Romano *et al.,* 2002b) and, more rarely, studied in wild populations (*e.g.,* Romano *et al.,* 2002a). For example, Rolland *et al.* (2012) found that noise reduction from reduced ship traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales. These and other studies lead to a reasonable expectation that some marine mammals would experience physiological stress responses upon exposure to acoustic stressors and that it is possible that some of these would be classified as ''distress''. In addition, any animal experiencing TTS would likely also experience stress responses (NRC, 2003), however distress is an unlikely result of this project based on observations of marine mammals during previous, similar projects in the area.

Auditory Masking—Since many marine mammals rely on sound to find prey, moderate social interactions, and facilitate mating (Tyack, 2008), noise from anthropogenic sound sources can interfere with these functions, but only if the noise spectrum overlaps with the hearing sensitivity of the receiving marine mammal (Southall *et al.,* 2007; Clark *et al.,* 2009; Hatch *et al.,* 2012). Chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions (Clark *et al.,* 2009). Acoustic masking is when other noises such as from human sources interfere 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; Erbe *et al.,* 2016). Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction. 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 (Hotchkin and Parks, 2013).

Marine mammals vocalize for different purposes and across multiple modes, such as whistling, echolocation click production, calling, and singing. Changes in vocalization behavior in response to anthropogenic noise can occur for any of these modes and may result from a need to compete with an increase in background noise or may reflect increased vigilance or a startle response. For example, in the presence of potentially masking signals, humpback whales and killer whales have been observed to increase the length of their songs (Miller *et al.,* 2000; Fristrup *et al.,* 2003) or vocalizations (Foote *et al.,* 2004), respectively, while North Atlantic right whales (*Eubalaena glacialis*) have been observed to shift the frequency content of their calls upward while reducing the rate of calling in areas of increased anthropogenic noise (Parks *et al.,* 2007). Fin whales have also been documented lowering the bandwidth, peak frequency, and center frequency of their vocalizations under increased levels of background noise from large vessels (Castellote *et al.,* 2012). Other alterations to communication signals have also been observed. For example, gray whales, in response to playback experiments exposing them to vessel noise, have been observed increasing their vocalization rate and producing louder signals at times of increased outboard engine noise (Dahlheim and Castellote, 2016). Alternatively, animals may cease sound production during production of aversive signals (Bowles *et al.,* 1994).

Under certain circumstances, marine mammals experiencing significant masking could also be impaired from maximizing their performance fitness in survival and reproduction. Therefore, when the coincident (masking) sound is human made, it may be considered harassment when disrupting or altering critical behaviors. It is important to distinguish TTS and PTS, which persist after the sound exposure, from masking, which occurs during the sound exposure. Because masking (without resulting in TS) is not associated with abnormal physiological function, it is not considered a physiological effect, but rather a potential behavioral effect (though not necessarily one that would be associated with harassment).

The frequency range of the potentially masking sound is important in determining any potential behavioral impacts. For example, low-frequency signals may have less effect on high-frequency echolocation sounds produced by odontocetes but are more likely to affect detection of mysticete communication calls and other potentially important natural sounds such as those produced by surf and some prey species. 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). Masking can be reduced in situations where the signal and noise come from different directions (Richardson *et al.,* 1995), through amplitude modulation of the signal, or through other compensatory behaviors (Hotchkin and Parks, 2013). Masking can be tested directly in captive species (*e.g.,* Erbe, 2008), but in wild populations it must be either modeled or inferred from evidence of masking compensation. There are few studies addressing real-world masking sounds likely to be experienced by marine mammals in the wild (*e.g.,* Branstetter *et al.,* 2013).

Marine mammals at or near the proposed project site may be exposed to anthropogenic noise which may be a source of masking. Vocalization changes may result from a need to compete with an increase in background noise and include increasing the source level, modifying the frequency, increasing the call repetition rate of vocalizations, or ceasing to vocalize in the presence of increased noise (Hotchkin and Parks, 2013). For example, in response to loud noise, beluga whales may shift the frequency of their echolocation clicks to prevent masking by anthropogenic noise (Eickmeier and Vallarta, 2022).

Masking occurs in the frequency band or bands that animals utilize and is more likely to occur in the presence of broadband, relatively continuous noise sources such as vibratory pile driving. Energy distribution of pile driving covers a broad frequency spectrum, and sound from pile driving would be within the audible range of pinnipeds and cetaceans present in the proposed action area. While some construction during the specified activities may mask some acoustic signals that are relevant to the daily behavior of marine mammals, the short-term duration and limited areas affected make it very unlikely that the fitness of individual marine mammals would be impacted.

Airborne Acoustic Effects—Pinnipeds that may occur near the project site could be exposed to airborne sounds associated with construction activities that have the potential to cause behavioral harassment, depending on their distance from these 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 airborne acoustic harassment criteria. There is also a possibility that an animal could surface in-water, but with head out, within the area in which airborne sound exceeds relevant thresholds and thereby be exposed to levels of airborne sound that we associate with harassment. However, as a result of the mitigation and monitoring measures and due to the infrequent occurrence of marine mammals in the area, takes by behavioral harassment resulting from airborne sounds that would result in harassment as defined under the MMPA are not expected.

Marine Mammal Habitat Effects

The proposed specified activities could have localized, temporary impacts on marine mammal habitat and their prey by increasing in-water SPLs and slightly decreasing water quality. Increased noise levels may affect acoustic habitat (see *Auditory Masking* discussion above) and adversely affect marine mammal prey in the vicinity of the project area (see discussion below). During in-water vibratory pile driving and vibratory extraction, and DTH driving, elevated levels of underwater noise would ensonify the project area where both fish and some mammals occur and could affect foraging success.

Water Quality—Temporary and localized reduction in water quality would occur as a result of in-water construction activities. Most of this effect would occur during the installation and extraction of piles when bottom sediments are disturbed. The installation and extraction of piles would disturb bottom sediments and may cause a temporary increase in suspended sediment in the project area. During pile extraction, sediment attached to the pile moves vertically through the water column until gravitational forces cause it to slough off under its own weight. The small resulting sediment plume is expected to settle out of the water column within a few hours. Studies of the effects of turbid water on fish (marine mammal prey) suggest that concentrations of suspended sediment can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton, 1993).

Effects to turbidity and sedimentation are expected to be short-term, minor, and localized. Suspended sediments in the water column should dissipate and quickly return to background levels in all construction scenarios. Turbidity within the water column has the potential to reduce the level of oxygen in the water and irritate the gills of prey fish species in the proposed project area. However, turbidity plumes associated with the project would be temporary and localized, and fish in the proposed project area would be able to move away from and avoid the areas where plumes may occur. Therefore, it is expected that the impacts on prey fish species from turbidity, and therefore on marine mammals, would be minimal and temporary. In general, the area likely impacted by the proposed construction activities is relatively small compared to the available marine mammal habitat in the area and does not include any areas of particular importance.

In-Water Construction Effects on Potential Prey—Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.,* crustaceans, cephalopods, fish, zooplankton). Marine mammal prey varies by species, season, and location and, for some, is not well documented. Here, we describe studies regarding the effects of noise on known marine mammal prey.

Fish utilize the soundscape and components of sound in their environment to perform important functions such as foraging, predator avoidance, mating, and spawning (*e.g.,* Zelick *et al.,* 1999; Fay, 2009). Depending on their hearing anatomy and peripheral sensory structures, which vary among species, fishes hear sounds using pressure and particle motion sensitivity capabilities and detect the motion of surrounding water (Fay *et al.,* 2008). The potential effects of noise on fish depend on the overlapping frequency range, distance from the sound source, water depth of exposure, and species-specific hearing sensitivity, anatomy, and physiology. Key impacts to fishes may include behavioral responses, hearing damage, barotrauma (pressure-related injuries), and mortality.

Fish react to sounds which are especially strong and/or intermittent low-frequency sounds, and behavioral responses such as flight or avoidance are the most likely effects. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. The reaction of fish to noise depends on the physiological state of the fish, past exposures, motivation (*e.g.,* feeding, spawning, migration), and other environmental factors. Hastings and Popper (2005) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. Additional studies have documented effects of pile driving on fish, although several are based on studies in support of large, multiyear bridge construction projects (*e.g.,* Scholik and Yan, 2001, 2002; Popper and Hastings, 2009). Several studies have demonstrated that impulse sounds might affect the distribution and behavior of some fishes, potentially impacting foraging opportunities or increasing energetic costs (*e.g.,* Fewtrell and McCauley, 2012; Pearson *et al.,* 1992; Skalski *et al.,* 1992; Santulli *et al.,* 1999; Paxton *et al.,* 2017). However, some studies have shown no or slight reaction to impulse sounds (*e.g.,* Pena *et al.,* 2013; Wardle *et al.,* 2001; Jorgenson and Gyselman, 2009; Cott *et al.,* 2012). More commonly, though, the impacts of noise on fish are temporary.

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 is likely restored when damaged cells are replaced with new cells. Halvorsen *et al.* (2012a) showed that a TTS of 4–6 dB was recoverable within 24 hours for one species. Impacts would be most severe when the individual fish is close to the source and when the duration of exposure is long. Injury caused by barotrauma can range from slight to severe and can cause death and is most likely for fish with swim bladders. Barotrauma injuries have been documented during controlled exposure to impact pile driving (Halvorsen *et al.,* 2012b; Casper *et al.,* 2013).

The greatest potential impact to fishes during construction would occur during DTH driving, which has an impact hammer component. 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 would possibly elicit behavioral reactions from fishes such as temporary avoidance of the area but is unlikely to cause injuries to fishes or have persistent effects on local fish populations. Construction also would have minimal permanent and temporary impacts on benthic invertebrate species, a marine mammal prey source. 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 operations and other vessel traffic. In general, any negative impacts on marine mammal prey species are expected to be minor and temporary.

Fish populations in the proposed project area that serve as marine mammal prey could be temporarily affected by noise from pile installation and extraction. The frequency range in which fishes generally perceive underwater sounds is 50 to 2,000 Hz, with peak sensitivities below 800 Hz (Popper and Hastings, 2009). Fish behavior or distribution may change, especially with strong and/or intermittent sounds that could harm fishes. High underwater SPLs have been documented to alter behavior, cause hearing loss, and injure or kill individual fish by causing serious internal injury (Hastings and Popper, 2005).

The most likely impact to fish from pile driving and extraction activities in the project area would be temporary behavioral avoidance of the area. The duration of fish avoidance of an area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated. In general, impacts to marine mammal prey species are expected to be minor and temporary due to the expected short daily duration of individual pile driving events.

In-Water Construction Effects on Potential Foraging Habitat—The area likely impacted by the project is relatively small compared to the available habitat in the SFB area and does not include any biologically important areas (BIAs) or ESA-designated critical habitat. The total area affected by the project is small compared to the vast foraging area available to marine mammals in the area. Pile driving and extraction at the 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.

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 action are not likely to have a permanent adverse effect on any fish habitat, or populations of fish species. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity. Thus, we conclude that impacts of the specified activity are not likely to have more than short-term adverse effects on any prey habitat or populations of prey species. Further, any impacts to marine mammal habitat are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

Estimated Take of Marine Mammals

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

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

Authorized takes would be by Level B harassment, as use of the acoustic sources (*i.e.,* vibratory installation and extraction, DTH driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.,* shutdown at the Level A harassment isopleth) discussed in detail below in the Proposed Mitigation section, Level A harassment is neither anticipated nor proposed to be authorized. As described previously, no serious injury or mortality is anticipated or proposed to be authorized for this activity. Below we describe how the proposed take numbers are estimated.

For acoustic impacts, generally speaking, we estimate take by considering: (1) acoustic criteria above which NMFS believes there is some reasonable potential for marine mammals to be behaviorally harassed or incur some degree of AUD INJ; (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 Criteria

NMFS recommends the use of acoustic criteria 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 AUD INJ of some degree (equated to Level A harassment).

Level B Harassment—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.,* frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.,* bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.,* Southall *et al.,* 2007, 2021, Ellison *et al.,* 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above RMS pressure received levels (RMS SPL) of 120 dB (referenced to 1 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, estimates of take by Level B harassment 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.

PSF's proposed construction activity includes the use of vibratory pile driving and extraction, and DTH driving, both of which are treated as continuous noise sources when evaluating the potential for Level B harassment; therefore, the RMS SPL thresholds of 120 dB re 1 μPa is applicable.

Level A Harassment—NMFS' 2024 Updated Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0) (Updated Technical Guidance, 2024) identifies dual criteria to assess AUD INJ (Level A harassment) to five different underwater marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive) (table 4). PSF's proposed activity includes the use of impulsive (DTH hammering component) and non-impulsive (vibratory pile driving and DTH drilling component) sources.

The 2024 Updated Technical Guidance criteria include both updated thresholds and updated weighting functions for each hearing group (table 4). These thresholds criteria are provided in the table below. The references, analysis, and methodology used in the development of the criteria thresholds, as well as the detailed description of the updated weighting functions, are described in NMFS' 2024 Updated Technical Guidance, which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance-other-acoustic-tools.*

TABLE 4—THRESHOLDS IDENTIFYING THE ONSET OF AUD INJ

Hearing group	AUD INJ onset thresholds * (received level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	*Cell 1:* $L_{p,0\text{-pk,flat}}$: 222 dB; $L_{E,p,\text{ LF,24h}}$: 183 dB	*Cell 2:* $L_{E,p,\text{ LF,24h}}$: 197 dB.
High-Frequency (HF) Cetaceans	*Cell 3:* $L_{p,0\text{-pk,flat}}$: 230 dB; $L_{E,p,\text{ HF,24h}}$: 193 dB	*Cell 4:* $L_{E,p,\text{ HF,24h}}$: 201 dB.
Very High-Frequency (VHF) Cetaceans	*Cell 5:* $L_{p,0\text{-pk,flat}}$: 202 dB; $L_{E,p,\text{VHF,24h}}$: 159 dB	*Cell 6:* $L_{E,p,\text{ VHF,24h}}$: 181 dB.
Phocid Pinnipeds (PW) (Underwater)	*Cell 7:* $L_{p,0\text{-pk.flat}}$: 223 dB; $L_{E,p,\text{PW,24h}}$: 183 dB	*Cell 8:* $L_{E,p,\text{PW,24h}}$: 195 dB.

TABLE 4—THRESHOLDS IDENTIFYING THE ONSET OF AUD INJ—Continued

Hearing group	AUD INJ onset thresholds * (received level)	
	Impulsive	Non-impulsive
Otariid Pinnipeds (OW) (Underwater)	*Cell 9:* $L_{p,\text{0-pk,flat}}$: 230 dB; $L_{E,p,\text{OW,24h}}$: 185 dB	*Cell 10:* $L_{E,p,\text{OW,24h}}$: 199 dB.

* Dual metric thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating AUD INJ onset. If a non-impulsive sound has the potential of exceeding the peak SPL thresholds associated with impulsive sounds, these thresholds are recommended for consideration.

Note: Peak SPL ($L_{p,\text{0-pk}}$) has a reference value of 1 µPa, and weighted cumulative SEL ($L_{E,p}$) has a reference value of 1µPa²s. In this table, thresholds are abbreviated to be more reflective of International Organization (ISO) for Standardization standards (ISO 2017). The subscript "flat" is being included to indicate peak sound pressure are flat weighted or unweighted within the generalized hearing range of marine mammals (*i.e.,* 7 Hz to 165 kHz). The subscript associated with cumulative SEL thresholds indicates the designated marine mammal auditory weighting function (LF, HF, and VHF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The weighted cumulative SEL 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 thresholds will be exceeded.

As discussed in the *Description of Sound Sources* section above, DTH systems have both continuous, non-impulsive, and impulsive components. When evaluating Level B harassment, NMFS recommends treating DTH as a continuous source and applying RMS SPL thresholds of 120 dB re 1 µPa. When evaluating Level A harassment, NMFS recommends treating DTH as an impulsive source, applying the thresholds in the second column of table 4.

NMFS (2022) guidance on DTH systems recommends source levels for DTH systems (*https://media.fisheries.noaa.gov/2022-11/PUBLIC%20DTH%20Basic%20Guidance_November%202022.pdf*). NMFS has applied those levels in our analysis (see table 5 for NMFS' proposed source levels) of potential acoustic impacts from DTH driving during PSF's installation of 36-in steel pipe piles.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

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

The project includes vibratory pile installation and extraction and DTH driving. Source levels for these activities are based on reviews of measurements of the same or similar types and dimensions of pile available in the literature. Source levels for each pile size are presented in table 5. Source levels for vibratory installation and extraction of piles of the same diameter are assumed to be the same. PSF plans to use a bubble curtain for all DTH driving, and a 5-dB reduction in source level is assumed from those presented in table 5 for DTH driving.

TABLE 5—SOURCE LEVELS FOR PROPOSED ACTIVITIES

Project element	Pile type	Pile diameter (in)	Method	Duration (seconds/pile)	Daily/total piling events (including installation and extraction)	Source level (dB)		
						Peak	SEL	RMS
Pile driving template piles.	H-pile steel (temporary).	14	Vibratory pile installation and extraction.	600	8/80 (40 installed and 40 removed).	165	NA	150
Pier (Bents 1 & 2)	Steel Caisson (permanent).	48	Vibratory pile installation	900	1/4	NA	NA	170
Pier (Bents 3–7)	Steel Caisson (temporary).	30	Vibratory pile installation and extraction.	900	2/20 (10 installed and 10 removed).	196	NA	159
Float Guide and Donut Fender Piles.	Steel (permanent)	36	Vibratory pile installation	1,200	2/8	206	172	172
			DTH driving	20 minutes (10 strikes per second).	2/8	[1] 194	164	[1] 174

[1] PSF will deploy a bubble curtain during all DTH driving, which is expected to provide a 5-dB reduction from the source levels presented in table (SPL_{peak} and SPL_{rms}).

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

$$TL = B \times \text{Log10}\,(R_1/R_2),$$

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

Absent site-specific acoustic monitoring with differing measured *TL,* a practical spreading loss value of 15 is used as the *TL* coefficient in the above formula for nearshore environments. Site-specific *TL* data for the MBFL project site are not available; therefore, the default coefficient of 15 is used to determine the distances to the Level A harassment and Level B harassment thresholds.

The TL model described above was used to calculate the expected noise propagation from vibratory pile driving and extraction, and DTH driving, using representative source levels to estimate the harassment zones exceeding the noise criteria. The resulting distances to Level A harassment and Level B harassment isopleths are shown in table 6. The largest calculated distances to the Level B harassment isopleth would be produced during vibratory pile installation of 36-in steel pipe piles (29,286 m) and 48-in steel caisson sleeves (21,544 m), and DTH driving of 36-in steel pipe piles (39,811 m). However, when accounting for attenuation from landmass interference, the maximum radius of the Level B harassment zone is approximately 6,000 m (table 6).

The ensonified area associated with Level A harassment (AUD INJ) 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 2024 Updated Technical Guidance that can be used to 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 (AUD INJ). 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 such as pile driving and DTH, 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 AUD INJ, which includes but is not limited to PTS.

PSF used NMFS' 2024 Updated Technical Guidance and optional User Spreadsheet to calculate the maximum distances to Level A harassment (AUD INJ onset) thresholds for all in-water construction activities (*i.e.,* vibratory installation and extraction, and DTH driving). Inputs used in the optional User Spreadsheet tool include values in table 1 (*e.g.,* number of piles per day, duration) and table 5 (*i.e.,* source levels). Sound source locations were chosen to model the greatest possible affected area from the representative notional pile location. The resulting estimated distances to Level A harassment threshold isopleths are reported below in table 6.

TABLE 6—MAXIMUM DISTANCES [1] TO MMPA HARASSMENT THRESHOLD ISOPLETHS

Project element	Pile type	Pile diameter (in)	Duration (seconds/pile)	Method	Distance to Level A harassment (AUD INJ) isopleth (meters)					Distance to Level B harassment isopleth [1] (meters)
					Cetaceans			Pinnipeds		
					LF	HF	VHF	PW	OW	
Pile driving template piles.	H-pile steel (temporary).	14	600	Vibratory pile installation and extraction.	4.4	1.7	3.6	5.7	1.9	2,154
Pier (Bents 1 & 2).	Steel Caisson (permanent).	48	900	Vibratory pile installation.	23.1	8.9	18.9	29.8	10	[2] 21,554
Pier (Bents 3–7)	Steel Caisson (temporary).	30	900	Vibratory pile installation and extraction.	4.3	1.6	3.5	5.5	1.9	3,981
Float Guide and Donut Fender Piles.	Steel (permanent).	36	1,200	Vibratory pile installation.	38.1	14.6	31.1	49	16.5	[2] 29,286
			20 minutes (10 strikes per second).	DTH driving [3]	282.2	36	436.8	250.7	93.5	[2] 39,811

[1] The distances to Level B harassment isopleth were evaluated relative to the 120 dB SPL_{rms} threshold for vibratory pile driving and DTH driving, based on its continuous component.
[2] The harassment zones will be truncated due to the presence of intersecting landmasses, extending to a maximum of 6,000 m from the sound source during vibratory pile installation of 48-in steel caisson sleeves and both methods of installation (*i.e.,* vibratory pile driving and DTH driving) of 36-in steel pipe piles.
[3] All distances calculated assuming 5 dB attenuation by a bubble curtain.

Marine Mammal Occurrence and Take Estimation

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

No systematic line transect surveys of marine mammals have been performed in SFB. Therefore, estimates of occurrence for each species were derived using the following datasets:

• 17 years of sighting data collected during the SFOBB construction project (CALTRANS, 2018);

• 5 years of sighting and stranding data from TMMC (NMFS, 2021b as cited by Integral Consulting Inc., 2025a)

• 5 years of sighting and stranding data from The California Academy of Sciences (CAS) (Integral Consulting Inc., 2025a); and

• Monitoring data collected in Spring 2025 over 11 days in Remedial Response Areas A and B (required by NMFS-issued IHA for the Piers 39 to 43½ Sediment Remediation Project) (Integral Consulting Inc., 2025b).

Monitoring data collected by CALTRANS for the SFOBB project over 17 years can be used to approximate density of the observed species near PSF's project site. Care was taken to eliminate multiple observations of the same animal in the dataset, although this can be difficult and it is likely that the same individual may have been counted by observers multiple times on the same day. The amount of monitoring performed per year varied, depending on the frequency and duration of construction activities with the potential to affect marine mammals. During the 257 days of monitoring from 2000 through 2017 (including 15 days of baseline monitoring in 2003), CALTRANS observed a total of 1,029 harbor seals, 83 California sea lions, and 24 harbor porpoises in the vicinity of the SFOBB, with the number of harbor seals and harbor porpoises increasing significantly beginning in 2015. These observations included data from baseline, pre-, during, and post-pile driving, mechanical dismantling, onshore blasting, and offshore implosion activities.

The TMMC and CAS datasets report sightings of marine mammals found within SFB between September 2016 and September 2021. The sightings include those of stranded animals (that were of confirmed species and associated with a confirmed location within SFB) whether they were living, dead (all stages of decomposition), floating, or stranded. The TMMC and CAS often have duplicate sightings in their databases due to how information is received from the public. As TMMC receives the most reports from the public, their dataset was treated as the primary source. Duplicates were removed from the CAS dataset and CAS sightings are reported separately. The age, sex, and reproductive condition of individuals of each species that may potentially be taken is difficult to estimate given the lack of information on the class distribution of these species within the project area and greater SFB. Below are estimates for each species potentially affected.

Depending on the distribution of sightings and granularity of data, different sources have been used to estimate the species-specific number of individuals expected to occur within SFB and, thus, potentially within the area ensonified by PSF's pile-installation activities.

Gray Whale

Gray whales may enter SFB in late winter/early spring or in the fall during their migrations and, in recent years, there have been an increased number of gray whales in the western and Central Bay (Integral Consulting Inc., 2025a). During construction in March–April 2025, multiple gray whales were observed in SFB (Integral Consulting Inc., 2025b). According to TMMC, in June 2025, 9 individual gray whales were observed over 14 days (TMMC, unpublished data). As such, PSF anticipates the potential for gray whale occurrence in the MBFL project's Level B harassment ensonified zones. Given these data, and the trends they indicate, PSF estimates that one gray whale could occur in the project area every other day (0.5 whales/day), and NMFS concurs with this approach.

Bottlenose Dolphin

Historically, observations of bottlenose dolphins have occurred west of Treasure Island and were concentrated along the nearshore area of San Francisco south to Redwood City. Since 2016, one individual has been regularly seen near the former Alameda Air Station, and five animals were regularly seen in the summer and fall of 2018 in the same location (Integral Consulting Inc., 2025a). In February 2019, an adult and juvenile were seen on two separate occasions northwest of the Oakland Inner Harbor, over 4 mi (6.4 km) from PSF's proposed project area (Integral Consulting Inc., 2025a). No bottlenose dolphins were observed during pre-construction monitoring in 2020 (Haase, 2021) or during construction in the spring of 2025 (Integral Consulting Inc., 2025b). Although bottlenose dolphins are relatively uncommon in SFB, NMFS conservatively assumes that one group of bottlenose dolphins will be present in the project area during the construction period. A group size is estimated to be five animals based on sightings of bottlenose dolphins in SFB (Integral Consulting Inc., 2025a).

Pacific Harbor Porpoise

Harbor porpoises are primarily seen near the Golden Gate Bridge, Marin County, and the city of San Francisco on the northwest side of SFB (Keener *et al.,* 2012; Stern *et al.,* 2017). CAS recorded 29 harbor porpoises (only 2 of which were alive) over the past 5 years, and *https://www.iNaturalist.org* recorded 11 harbor porpoises in SFB over the past 2 years. During 2020 monitoring, an individual harbor porpoise was seen near the project area on 2 of the 5 monitoring days (Haase, 2021), and a single harbor porpoise was observed within the Level B harassment zone during 11 days of monitoring in the spring of 2025 (Integral Consulting Inc., 2025b). Based on these data, PSF estimates that two harbor porpoises could occur within the MBFL project's Level B harassment zone per day, and NMFS concurs.

California Sea Lion

The Pier 39 K-Dock California sea lion haul-out site supports up to 1,701 individuals, with the highest abundance occurring from August through October. Pier 39 is the only regularly used sea lion haul-out site in the project vicinity, located approximately 3 mi (5 km) northwest of the MBFL project site. The Sea Lion Center at Pier 39 regularly counted sea lions at K-Dock from 1991 through 2018; from 2016 through 2018, the yearly average ranged from 89 to 229 animals per day; the average per day over all 3 years was 191. The maximum numbers of animals using the haul-out site in 2016, 2017, and 2018 were 707, 239, and 466 respectively; the average maximum per day over this period was 324. TMMC recorded 1,586 sea lions in SFB between September 2016 and September 2021. CAS recorded an additional 191 for a total of 1,777 over 5 years. Based on these data, PSF estimates that California sea lions could occur within the MBFL project's Level B harassment zone at a rate of 0.97 per day, and NMFS concurs with this approach.

Steller Sea Lion

Steller sea lions are rare in SFB. TMMC recorded four Steller sea lions in SFB from 2016 to 2021 (NMFS, 2021b), and CAS recorded no Steller sea lions over the same time frame (NMFS, 2021a). On rare occasions, Steller sea lions are seen on the Pier 39 K-Dock haul-out site (located approximately 3 miles (5 km) northwest of the MBFL site). An adult male was spotted there in May 2023 (Segura, 2023), and, in previous years, a single male Steller sea lion had been observed using the Pier 39 K-Dock haul-out site intermittently during July and August, and occasionally September (Integral Consulting Inc., 2025a). No Steller sea lions were observed during the 2020 or 2025 monitoring (Haase, 2021; Integral Consulting Inc., 2025b). Given the potential for Stellar sea lion occurrence at Pier 39, if only rarely, NMFS feels it is appropriate to assume one Steller sea lion may occur in PSF's proposed project area during the period of construction.

Northern Fur Seal

TMMC recorded 44 northern fur seals in SFB from 2016 to 2021 (NMFS, 2021b). CAS recorded an additional 3 for a total of 47 over 5 years (NMFS, 2021a), yielding a frequency of 0.03 northern fur seals per day, or approximately 10 northern fur seals per year. In the fall and winter, northern fur seals occasionally strand on YBI and Treasure Island (Integral Consulting Inc., 2025a), approximately 3.3 mi (5.3 km) from PSF's proposed project area. PSF assumes 10 northern fur seals could occur in the proposed project area and within the Level B harassment zone per year (*i.e.,* within the effective period of the proposed IHA), given the maximum potential sightings in San Franciso Bay averaged over a 5-year period is 10 individuals. NMFS concurs with this approach.

Northern Elephant Seal

TMMC recorded 903 northern elephant seals in SFB from 2016 to 2021 (NMFS, 2021b). The CAS reported an additional 6 northern elephant seals over the same timeframe (NMFS, 2021a), for a total of 909 seals, yielding an average of 0.5 northern elephant seals per day. No northern elephant seals were observed during monitoring efforts conducted in 2020 and 2025 (Haase, 2021; Integral Consulting Inc., 2025b). Based on these data, PSF assumed 0.5 elephant seals will occur in the proposed project area per day (*i.e.,* one elephant seal in the ensonified zone every 2 days). NMFS concurs with this assumption.

Pacific Harbor Seal

Pacific harbor seals in SFB forage mainly within 7 mi (11.3 km) of their primary haul-out site (Grigg *et al.,* 2012) and often within just 1–3 mi (1.6–4.8 km) (Torok, 1994). The only harbor seal haul-out site within 7 mi (11.3 km) of the project site is YBI, approximately 3.3 mi (5.3 km) northeast of the MBFL site. Given the large Level B harassment zone sizes predicted for vibratory installation of 48-in steel caisson sleeves (21,554 m) and 36-in steel pipe piles (29,286 m), and DTH driving of 36-in steel pipe piles (39,811 m), it is likely harbor seals foraging in the vicinity of the YBI would enter the ensonified area during pile installations.

The TMMC recorded 495 harbor seals in SFB between September 2016 and September 2021. CAS recorded an additional 34 for a total of 529 over the same period, yielding an average of 0.29 per day. CALTRANS has reported between zero and 188 harbor seals using the YBI haul-out site, depending on the year. PSF determined that an occurrence rate estimate for harbor seals based on the CALTRANS dataset (3.957 harbor seals per day) would be appropriate, given the large sample size, and NMFS concurs.

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.

To estimate take by Level B harassment for the gray whale, harbor porpoise, California sea lion, northern elephant seal, and harbor seal, the species-specific expected daily occurrence was multiplied by the estimated number of construction days for the entire project (n=46), which includes only 32 days of in-water construction with the potential for incidental take of marine mammals (see table 1) and an additional 14 days to support placement of the 24-in octagonal concrete piles, a process that does not require pile driving or DTH. PSF estimated take based on the maximum total of 46 days to account for any delays in construction. PSF is assuming that five northern fur seals and one Steller sea lion will occur in the proposed project area during the course of pile installations (see table 7). For bottlenose dolphins, PSF estimates that one group of five bottlenose dolphins will occur in the proposed project area during the 46-day construction period (table 7).

TABLE 7—ESTIMATED TAKE BY LEVEL B HARASSMENT PROPOSED FOR AUTHORIZATION

Species	Stock	Estimated abundance in project area per day [1]	Total take requested	Stock abundance	Percent of stock (take/abundance *100)
Gray Whale	Eastern North Pacific	0.5	23	26,960	<0.1
Bottlenose Dolphin	California Coastal	5	5	453	1.10
Harbor Porpoise	San Francisco-Russian River	2	92	7,777	1.18
California Sea Lion	United States	0.97	45	257,606	<0.1
Northern Fur Seal	Eastern North Pacific	0.027	2	14,050	<0.1
	California			626,618	<0.1
Steller Sea Lion	Eastern North Pacific	0.0027	1	43,201	<0.1
Pacific Harbor Seal	California	3.957	183	30,968	<0.1
Northern Elephant Seal	California Breeding	0.5	23	187,386	<0.1

[1] Local occurrence information calculated based on CALTRANS (2018), NOAA (2021a, b), and Integral Consulting (2025 a, b).

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 ITAs to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR 216.104(a)(11)).

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

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

(2) The practicability of the measures for applicant implementation, which may consider such things as cost and impact on operations.

The mitigation requirements described in the following sections were either proposed by PSF in its adequate and complete application or are the result of subsequent coordination between NMFS and PSF. PSF has agreed that all the mitigation measures are practicable. NMFS has fully reviewed the specified activities and the mitigation measures to determine if the mitigation measures would result in the least practicable adverse impact on marine mammals and their habitat, as required by the MMPA, and has determined the proposed measures are appropriate. NMFS describes these measures below as proposed mitigation requirements (see section 11 of PSF's application for more detail) and has included them in the proposed IHA.

PSF, as the responsible named party of the proposed IHA, must ensure that construction supervisors and crews, the monitoring team, and relevant staff are trained prior to the start of all vibratory pile driving and DTH driving activity, 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. In addition to the measures described later in the Proposed Monitoring and Reporting section and all mitigation measures described in PSF's Marine Mammal Monitoring Plan, the following mitigation measures would also apply to the in-water construction activities.

Implementation/Coordination—Qualified, trained PSOs would implement mitigation measures. PSOs would be located on-site before, during, and after permitted activities to monitor marine mammals within (and approaching) mitigation zones. PSOs would be in constant contact with the construction personnel to implement appropriate mitigation measures. Briefings must be conducted between construction supervisors and crews and the marine mammal monitoring team before the start of all vibratory pile driving/extraction and DTH driving activities and when new personnel join the work to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

Establishment of Shutdown Zones —Shutdown zones for all the specified activities can be found in table 8. A shutdown zone generally defines an area near or within which a marine mammal sighting would trigger cessation of a specified activity. Shutdown zone sizes would vary based on the activity type and marine mammal hearing group (table 3). PSF proposes shutdown zones with radial distances identified in table 8 for all construction activities (*i.e.,* pile driving or extraction and DTH). If a marine mammal enters or is observed within an established shutdown zone, pile driving must be halted or delayed. Pile driving may not commence or resume until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone, or 15 minutes have passed without subsequent detections. For those marine mammals for which take has not been authorized, vibratory pile driving/extraction and DTH driving would shut down immediately if such species are observed within or entering any harassment zone defined for that activity.

For those marine mammals for which take has not been authorized, in-water vibratory pile installation and extraction, and DTH, would shut down immediately if such species are observed within or entering the Level A or Level B harassment zone.

TABLE 8—PROPOSED SHUTDOWN ZONES AND LEVEL B HARASSMENT ZONES FOR PROJECT ACTIVITIES

Pile description	Level A (AUD INJ onset) shutdown zone radius for all species (meters)	Level B (Behavioral) harassment zone radius (meters)
Vibratory pile driving and extraction		
14-inch steel H-pile (temporary)	10	2,200
48-inch steel caisson (permanent)	30	[1] 6,000
30-inch steel caisson (temporary)	10	4,000
36-inch steel pipe (permanent)	50	[1] 6,000
DTH driving		
36-inch steel pipe (permanent)	450	[1] 6,000

[1] 6,000 meters is the maximum distance sound can propagate in the project area before interception by land.

PSOs—PSF must employ PSOs who would monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. The number, placement, and qualifications of PSOs during all pile driving and extraction activities (described in detail in the Proposed Monitoring and Reporting section) would ensure that the entire shutdown zone is visible during pile installation. Visual monitoring would be conducted by at least one PSO, depending on the pile activity.

Pre- and Post-activity Monitoring—Before starting daily in-water construction activity, or whenever a break in activity (*i.e.,* vibratory pile driving/extraction or DTH driving) of 30 minutes or longer occurs, the PSO(s) would observe the shutdown and monitoring zones for 30 minutes. The shutdown zone would be considered cleared when a marine mammal has not been observed within the zone for those 30 minutes. If a marine mammal is observed within the shutdown zone, pile-driving activities (*i.e.,* vibratory pile driving installation/extraction or DTH driving) cannot proceed until the animal has left the zone or has not been observed for 15 minutes. When a marine mammal for which take is authorized is present in the harassment zone, activities may begin.

Bubble Curtain—PSF would employ a bubble curtain during all DTH driving. 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.

Based on our evaluation of the applicant's proposed measures, as well as other measures we considered, 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

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 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;
- Extent to which 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.

The monitoring and reporting requirements described here were proposed by PSF in its adequate and complete application and/or are the result of subsequent coordination between NMFS and PSF has agreed to the requirements. NMFS describes these below as requirements and has included them in the proposed IHA.

PSF would abide by all monitoring and reporting measures contained within the IHA, if issued, and their Marine Mammal Monitoring and Mitigation Plan (to be submitted for NMFS approval no later than 30 days prior to the start of construction). A summary of those measures and additional requirements proposed by NMFS is provided below.

Visual Monitoring—Qualified, NMFS-approved PSOs must conduct monitoring in accordance with project's Marine Mammal Monitoring Plan. PSOs would 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 an activity pursuant to a NMFS-issued ITA. 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 ITA. PSOs would be present during all pile installation and extraction activities, including vibratory and DTH methods, in accordance with the following:

- Observer training must be provided before the project starts and must include instruction on species identification (sufficient to distinguish the species in the project area), description and categorization of observed behaviors, and interpretation of behaviors that may be construed as being reactions to the specified activity, proper completion of data forms, and other basic components of biological monitoring, including tracking of observed animals or groups of animals such that repeat sound exposures may be attributed to individuals (to the extent possible).
- All PSOs must have no other project-related tasks while conducting monitoring.
- PSOs shall be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown or delay procedures when applicable through communication with the equipment operator.
- Monitoring would be conducted 30 minutes before, during, and 30 minutes after drilling and pile driving/extraction activities. PSOs would record all observations of marine mammals, regardless of distance from the pile being driven, as well as the additional data indicated below and in section 6 of the IHAs, if issued.

Hydroacoustic Monitoring—PSF proposes implementing in situ acoustic monitoring efforts to measure SPLs from in-water activities. PSF would collect and evaluate sound level data for a subset of representative piles (minimum of two) for each installation or extraction method and pile type PSF would submit a detailed acoustic monitoring plan to NMFS for approval no later than 60 days in advance of the start of in-water work for approval of proposed methodologies.

At a minimum, the methodology would include a stationary hydrophone system with the ability to measure SPLs placed in accordance with NMFS' most recent recommendations for the collection of source levels. Monitoring would occur at 33 ft (10 m) from the noise; at a location within the Level A (AUD INJ onset) zones; and occasionally near the predicted harassment zones for Level B (Behavioral) harassment. The resulting data set would be analyzed to examine and confirm SPLs and rates of transmission loss for each separate in-water construction activity. With NMFS' concurrence, these metrics would be used to recalculate the limits of the shutdown, Level A (AUD INJ onset), and Level B (behavioral) disturbance zones, and to make corresponding adjustments in marine mammal monitoring of these zones.

Environmental data would be collected, including but not limited to, the following: wind speed and direction, air temperature, humidity, surface water temperature, water depth, wave height, weather conditions, and other factors that could contribute to influencing the airborne and underwater sound levels (*e.g.,* aircraft, boats, etc.). The chief inspector would supply the acoustics specialist with the substrate composition, hammer or drill model and size, hammer or drill energy settings and any changes to those settings during acoustic monitoring, depth of the pile being driven or steel caisson being excavated and strikes per second during DTH driving.

For acoustically monitored piles, data from the monitoring locations would be post-processed to obtain the following sound measures:

- Mean, median, minimum, and maximum RMS pressure level in [dB re 1 mPa];
- Mean, median, minimum, and maximum single strike SEL in [dB re mPa^2s];
- Cumulative SEL as defined by the mean single strike SEL + 10*log10 (number of hammer strikes) in [dB re mPa^2s]; and
- A frequency spectrum (pressure spectral density) in dB re millipascals squared per hertz ((mPa^2/Hz) based on the average of up to eight successive strikes with similar sound. Spectral resolution would be 1 Hz, and the spectrum would cover nominal range from 7 Hz to 20 kHz.

Reporting—PSF must submit a draft marine mammal monitoring report to NMFS within 90 days after the completion of pile driving activities, or 60 days prior to the requested issuance of any future IHAs for the project, or other projects at the same location, whichever comes first. A final report must be prepared and submitted within 30 calendar days of following receipt of any NMFS comments on the draft report. If no comments are received from NMFS within 30 calendar days of receipt of the draft report, the report shall be considered final. The marine mammal report would include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets and/or raw sighting data. Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including: (a) the number and type of piles that were driven and the method (*e.g.,* vibratory, DTH driving); and (b) total duration of driving time for each pile (vibratory driving, DTH driving);
- PSO locations during marine mammal monitoring; and
- Environmental conditions during monitoring periods (at the beginning and end of a PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions, including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.

Upon observation of a marine mammal, the following information must be reported:

- Name of PSO who sighted the animal(s) and PSO location and activity at the time of the sighting;
- Time of the sighting;
- Identification of the animal(s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
- Distance and bearing of each observed marine mammal relative to the pile being driven or removed for each sighting;
- Estimated number of animals (min/max/best estimate);
- Estimated number of animals by cohort (*e.g.,* adults, juveniles, neonates, group composition, *etc.*);
- Animal's closest point of approach and estimated time spent within the harassment zone(s);
- Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.,* no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching); description of any actions implemented in response to the sighting (*e.g.,* delays, shutdown), time and location of the action;
- Number of marine mammals detected within the harassment zones, by species; and
- Summary information about implementation of any mitigation (*e.g.,* shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal.

Hydroacoustic Monitoring Report—The hydroacoustic monitoring report must, at minimum, include the following:

- Hydrophone equipment and methods, recording device, sampling rate, distance (m) from the pile where recordings were made; depth of water and recordings device(s);
- Type and size of pile being driven, substrate type, method of driving during recordings (*e.g.,* hammer model and energy), and total pile driving duration;
- Whether a sound attenuation device is used and, if so, a detailed description of the device used and the duration of its use per pile;
- For vibratory driving/extraction (per pile): Duration of driving per pile; mean, median, and maximum sound levels (dB re: 1 mPa): SPLrms, SEL_{cum} (and timeframe over which the sound is averaged).
- One-third octave band spectrum and power spectral density plot; and
- Transmission loss values for each pile size and type and installation method, when appropriate.

Reporting Injured or Dead Marine Mammals—In the event that personnel involved in the construction activities discover an injured or dead marine mammal, PSF must report the incident to the Office of Protected Resources, NMFS (*PR.ITP.MonitoringReports@noaa.gov*) and to the West Coast regional stranding network (866–767–6114) as soon as feasible. If the death or injury was clearly caused by the specified activity, PSF would immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. PSF would not resume their activities until notified by NMFS. The report would include the following information:

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

Negligible Impact Analysis and Determination

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

To avoid repetition, the discussion of our analysis applies to all the species listed in table 3, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. There is little information about the nature or severity of the impacts, or the size, status, or structure of any of these species or stocks that would lead to a different analysis for this activity.

Level A harassment is extremely unlikely given the small size of the Level A harassment isopleths and the required mitigation measures designed to minimize the possibility of injury to marine mammals. No serious injury or mortality is anticipated given the nature of the activity.

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

The takes by Level B harassment would be due to potential behavioral disturbances. The potential for harassment is minimized through construction methods and the implementation of planned mitigation strategies (see Proposed Mitigation section).

Behavioral responses of marine mammals to vibratory pile driving and DTH 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 extraction would occur over approximately 32 days during a 46-day period, any harassment would be temporary. There are no other overlapping areas or times of known biological importance for any of the affected species. Take would occur within a limited, confined area of each stock's range. Further, the numbers of take proposed to be authorized are extremely small when compared to stock abundance.

No marine mammal stocks for which incidental take authorization is proposed are listed as threatened or endangered under the ESA. Only one stock, the Eastern North Pacific Stock of the northern fur seal, is listed as depleted under the MMPA. However, we do not expect the proposed authorized take included in this action to affect the stock. No injury or mortality is proposed for authorization, take by Level B harassment is limited (two takes over the duration of the project), and the proposed action should have no effect on the reproduction of this species. In addition, the two authorized takes for the northern fur seal include both the depleted Eastern North Pacific Stock and the California stock, which is not depleted.

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

The project is not expected to have significant adverse effects on marine mammal habitat. There are no known BIA or ESA-designated critical habitat within the project area, and the activities would not permanently modify existing marine mammal habitat. 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 all species;
- The project area does not overlap known BIAs or ESA-designated critical habitat;
- The lack of anticipated significant or long-term effects or marine mammal habitat; and
- The presumed efficacy of the mitigation measures in reducing the effects of the specified activity.

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 (86 FR 5322, January 19, 2021). Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The instances of take NMFS proposes to authorize are below one-third of the estimated stock abundance for all impacted stocks (table 7). In fact, take of individuals is 2 percent or less of the abundance for all affected stocks. Indeed, even if each take NMFS proposes to authorize occurred to a new individual, the number of animals would be considered small relative to the size of the relevant stocks or populations. Furthermore, the takes proposed for authorization would be limited to individuals occurring local to PSF's construction activities, an area that represents a small portion of the range for any of the eight species considered here. Thus, the likelihood that each take would occur to a new individual is low and, while some individuals may return multiple times in a day, PSOs would count them as separate takes if the individuals are not identifiable.

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, with no species take exceeding 2 percent of the best available population abundance estimate.

Unmitigable Adverse Impact Analysis and Determination

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

Endangered Species Act

Section 7(a)(2) of the ESA of 1973 (16 U.S.C. 1531 *et seq.*) requires that each

Federal agency ensures 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 PSF for conducting pile driving activities in SFB, 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. 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, 1-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 1 year from expiration of the initial IHA).
- The request for renewal must include the following:

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

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

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

Dated: March 31, 2026.

Kimberly Damon-Randall,

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

[FR Doc. 2026–06484 Filed 4–2–26; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Evaluation of Pennsylvania Coastal Management Program; Notice of Public Meeting; Request for Comments

AGENCY: Office for Coastal Management, National Ocean Service, National Oceanic and Atmospheric Administration, Department of Commerce.

ACTION: Notice of public meeting; opportunity to comment.

SUMMARY: The National Oceanic and Atmospheric Administration (NOAA), Office for Coastal Management, will hold a virtual public meeting to solicit input on the performance evaluation of the Pennsylvania Coastal Management Program. NOAA also invites the public to submit written comments.

DATES: NOAA will hold a virtual public meeting from 12 p.m. to 1 p.m. Eastern Time (ET) on Tuesday, May 19, 2026. NOAA may close the meeting 10 minutes after the conclusion of public testimony and after responding to any clarifying questions from meeting participants. NOAA will consider all relevant written comments received by Friday, May 29, 2026.

Comments may be submitted:

- *Virtually at Public Meeting:* Provide oral comments during the virtual public meeting on Tuesday, May 19, 2026, at 12 p.m. ET by registering as a speaker at *https://forms.gle/FeTssayfKAQfN6q56.* Please register by Monday, May 18, 2026, at 5 p.m. ET. Upon registration, NOAA will send a confirmation email. At least one hour prior to the start of the May 18, 2026, virtual meeting, NOAA will send an email to all registrants with a link to the public meeting and information about participating. While advance registration is requested, registration will remain open until the meeting closes, and any participant may provide oral comment after the registered speakers conclude. Meeting registrants may remain anonymous by typing ''Anonymous'' in the ''First Name'' and ''Last Name'' fields on the registration form.
- *Email:* Send written comments to Carrie Hall, Evaluator, NOAA Office for Coastal Management, at *czma.evaluations@noaa.gov.* Include ''Comments on Pennsylvania Coastal Management Program'' in the subject line. NOAA will accept anonymous comments; however, the written comments NOAA receives are part of the public record, and the entirety of the comment, including the name of the commenter, email address, attachments, and other supporting materials, will be publicly accessible. Do not submit confidential business information or otherwise sensitive or personally identifiable information, such as account numbers and Social Security numbers. Comments that are not related to the performance evaluation of the Pennsylvania Coastal Management Program or that contain profanity, vulgarity, threats, or other inappropriate language will not be considered.

FOR FURTHER INFORMATION CONTACT: Carrie Hall, Evaluator, NOAA Office for Coastal Management, by email at *Carrie.Hall@noaa.gov* or by phone at (240) 410–3422. Copies of the previous evaluation findings may be viewed and downloaded at *https://coast.noaa.gov/czm/evaluations.* A copy of the evaluation notification letter and most recent progress report may be obtained upon request by contacting Carrie Hall.

SUPPLEMENTARY INFORMATION: Section 312 of the Coastal Zone Management Act (CZMA) requires NOAA to conduct periodic evaluations of federally approved coastal management programs. The evaluation process includes holding one or more public