of exactly when the unit is transmitting and is unable to alter the signal or the time of transmission. The VMS unit is passive and automatic, requiring no reporting effort by the vessel operator. A communications service provider receives the transmission and relays it to the National Marine Fisheries Service (NMFS) Office of Law Enforcement and the U.S. Coast Guard. Enforcement of management measures, such as directed fishing closures and critical habitat no-fishing zones, relies heavily on the use of VMS.

II. Method of Collection

Automatic GPS position reporting starts after VMS transceiver installation and power activation on board the vessel. The unit is pre-configured and tested for NMFS VMS operations. Vessel operators who purchase and install a VMS on a vessel must fax a one-time VMS check-in report to NMFS. Thereafter, submittal is automatic by satellite.

III. Data

OMB Control Number: 0648–0445.

Form Number(s): None.

Type of Review: Regular submission (extension of a currently approved collection).

Affected Public: Business or other for-profit organizations; individuals or households.

Estimated Number of Respondents: 83.

Estimated Time per Response: 12 minutes for VMS check-in report; 2 hours for VMS operation (includes installation and maintenance).

Estimated Total Annual Burden Hours: 130.

Estimated Total Annual Cost to Public: $67,793 in recordkeeping/reporting costs.

IV. Request for Comments

Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology.

Comments submitted in response to this notice will be summarized and/or included in the request for OMB approval of this information collection; they also will become a matter of public record.

Dated: June 1, 2017.

Sarah Brabson,

NOAA PRA Clearance Officer.

[FR Doc. 2017–11627 Filed 6–5–17; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XF411

Taking of Marine Mammals Incidental to Specified Activities; Dismantling of the Original East Span of the San Francisco-Oakland Bay Bridge

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

ACTION: Notice; proposed incidental harassment authorization; request for comments and information.

SUMMARY: NMFS has received a request from the California Department of Transportation (CALTRANS) for an incidental take authorization to take small numbers of six species of marine mammals, by harassment, incidental to the dismantling of the original East Span of the San Francisco-Oakland Bay Bridge (SFOBB) in the San Francisco Bay (SFB), California. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities.

DATES: Comments and information must be received no later than July 6, 2017.

ADDRESSES: Comments on the application should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910 and electronic comments should be sent to *ITP.Youngkin@noaa.gov.*

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period. Comments received electronically, including all attachments, must not exceed a 25-megabyte file size. Attachments to electronic comments will be accepted in Microsoft Word or Excel or Adobe PDF file formats only. All comments received are a part of the public record and will generally be posted online at *http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm* without change. All personal identifying information (*e.g.,* name, address, etc.) 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: Dale Youngkin, Office of Protected Resources, NMFS, (301) 427–8401. Electronic copies of the application and supporting documents, as well as a list of references cited in this document, may be obtained at *www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.* In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

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

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

NMFS has defined ''negligible impact'' in 50 CFR 216.103 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.

The MMPA states that the term ''take'' means to harass, hunt, capture, kill, or attempt to harass, hunt, capture, or kill any marine mammal.

Except with respect to certain activities not pertinent here, 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 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).

Summary of Request

On April 5, 2017, CALTRANS submitted a request to NMFS for an IHA to take marine mammals incidental to the dismantling of the original East Span of the SFOBB in the San Francisco Bay. On May 1, 2017, NMFS deemed the application adequate and complete. CALTRANS requested authorization for incidental take by harassment only and NMFS concurs that mortality is not expected to result from this activity. NMFS is proposing to issue an IHA that will authorize take by Level B harassment of Pacific harbor seal, California sea lion, northern elephant seal, northern fur seal, harbor porpoise, and bottlenose dolphin incidental to CALTRANS' activities. As described in the Overview section, previous IHAs have been issued to CALTRANS for similar activities, specifically for the use of mechanical dismantling and controlled blasts to implode piers of the original East Span of the SFOBB.

Description of the Specified Activity

Overview

CALTRANS proposes removal of the original East Span of the SFOBB by mechanical dismantling and by use of controlled charges to implode 13 piers (Piers E6–E18) into their open cellular chambers below the mudline. Activities associated with dismantling the original East Span may potentially result in incidental take of marine mammals due to the use of highly controlled charges to dismantle the marine foundations of the piers.

Several previous one-year IHAs have been issued to CALTRANS for pile driving/removal and construction of the new SFOBB East Span beginning in 2003. NMFS has issued 10 IHAs to CALTRANS for the SFOBB Project. The first five IHAs (2003, 2005, 2007, 2009, and 2011) addressed potential impacts associated with pile driving for the construction of the new East Span of the SFOBB. IHAs issued in 2013, 2014 and July 2015 addressed activities associated with both constructing the new East Span and dismantling the original East Span, specifically addressing vibratory pile driving, vibratory pile extraction/removal, attenuated impact pile driving, pile proof testing, and mechanical dismantling of temporary and permanent marine foundations. On September 9, 2015, NMFS issued an IHA to CALTRANS for incidental take associated with the demolition of Pier E3 of the original SFOBB by highly controlled explosives (80 FR 57584; September 24, 2015). On September 30, 2016, NMFS issued an IHA authorizing the incidental take of marine mammals associated with both pile driving/removal and controlled implosion of Piers E4 and E5 (81 FR 67313). CALTRANS is requesting this IHA to continue dismantling the original East Span of the SFOBB using mechanical means as well as five to six implosion events to dismantle 13 piers (Piers E6–E18). CALTRANS does not anticipate any further in-water pile installation or pile removal for the SFOBB project, and is not requesting coverage under this IHA to conduct pile driving/removal activities.

Dates and Duration

The demolition of Piers E6 through E18 through controlled implosion are planned to begin in September 2017. Implosion events would consist of the use of highly controlled charges to implode 1 to 4 piers per event, amounting to a total of 5 to 6 implosion events to dismantle the 13 piers (Piers E6–E18). CALTRANS is requesting issuance of an IHA for a period of one year. Therefore, an IHA, if issued, would cover the period from September 1, 2017 through August 31, 2018.

Specified Geographic Region

The SFOBB project area is located in the central San Francisco Bay (SFB or Bay), between Yerba Buena Island (YBI) and the city of Oakland. The western limit of the project area is the east portal of the YBI tunnel, located in the city of San Francisco. The eastern limit of the project area is located approximately 1,312 feet (ft) (400 meters (m)) west of the Bay Bridge toll plaza, where the new and former spans connect with land at the Oakland Touchdown (OTD) in the city of Oakland.

Detailed Description of the Specified Activities

CALTRANS proposes the removal of Piers E6 through E18 (13 piers) of the original East Span by use of mechanical dismantling and controlled charges to implode each pier into its open cellular chambers below the mudline. A Blast Attenuation System (BAS) will be used to minimize potential impacts on biological resources in the Bay. Both NMFS and CALTRANS believe that the results from the 2015 Pier E3 Demonstration Project implosion, as well as the results from the 2016 implosions of Piers E4 and E5, support the use of controlled charges as a more expedient method of removal that will cause less environmental impact compared to mechanical methods using a dry (fully dewatered) cofferdam.

Piers E6 through E18 of the original East Span are located between the OTD area and YBI, and just south of the SFOBB new East Span. These piers consist of lightly reinforced concrete cellular structures that are supported by timber piles driven into the Bay mud and occupy areas below the mudline, within the water column, and above the water line of the Bay. Unlike Piers E3, E4, and E5, which were dismantled using highly controlled charges previously, Piers E6 through E18 do not extend deep below the mudline. The timber piles and concrete slabs that are below approved removal limits will remain in place. Piers E6, E7, and E8 supported the 504-ft bridge spans of the original SFOBB. Pier E9 is located at the connection point between the 504-ft bridge spans and the 288-ft bridge spans. Piers E10 through E18 supported the original SFOBB 288-ft bridge spans.

The use of controlled charges would greatly reduce in-water work periods and shorten the overall duration of marine foundation removal compared with mechanical removal. Because of the similar structures for each pier, each would be removed following the same five steps:

- Mechanical dismantling of the pier cap and concrete pedestals;
- Drilling bore holes into the marine foundation;
- Installing and testing the BAS;
- Installing charges, activating the BAS, and imploding the pier; and
- Managing and removing remaining dismantling debris.

Details of these steps are provided below.

Mechanical Dismantling of Concrete Pedestals and Pier Caps

For all piers, support barges will be used to move hydraulic excavators equipped with hoe rams, shearing attachments, drills, saws, and other equipment including cutting lances and torches to be used during the mechanical dismantling. A barge-mounted crane will be used to move equipment onto and off each pier.

For all piers, the concrete pedestals and pier cap will be removed by mechanical means using tools including those listed above to break the concrete structure to pieces. Concrete rubble and rebar will be managed using excavators and cranes that will be mounted with buckets. Throughout concrete dismantling operations on each pier, support platforms will be installed to provide a working surface for the

excavators to dismantle the upper portion of the pier. The support platforms will be made up of timber crane mats. A debris catchment system, accepted by the San Francisco Regional Water Quality Control Board, will be in place to contain concrete debris from discharging into the Bay during dismantling operations.

All concrete rubble from mechanical dismantling of concrete pedestals will be taken off-site for disposal. Rubble will be loaded onto receiving barges to be taken to Berth 9 in the Port of Oakland to be sorted and disposed of at an approved upland facility. The pier caps covering the central chambers will be dismantled last and will be broken with a ram hoe. The broken pier caps will remain in the hollow void during the controlled blasting, and all other mechanical dismantling activities would occur above the waterline.

Drill Boreholes

After the mechanical dismantling operations are complete, access platforms will be installed on top of each pier to support the drilling equipment. The exposed interior cell walls, buttress walls, and outside walls will be drilled from the top down, to remove concrete and create boreholes to just below the controlled blasting removal limit for each pier. Boreholes that are drilled in areas that are inundated with water (*i.e.,* to the buttress walls and concrete slabs) will be done using a drill bit working within a tubular casing for guidance and to provide containment during in-water work. Monitoring will be performed to minimize and avoid impacts on water quality during this activity.

Pier 9 has additional buttress walls compared to other piers. Drilling holes for buttress walls on Pier 9 will be done by the same method that was used for the buttress wall of Pier 3 (Demonstration Project). Divers will cut notches into the buttress walls and will install conduit to the work platform on top of the pier. The drilling will be done within the casings from the work platform.

Blast Attenuation System (BAS) Installation and Deployment

The BAS that will be used at Piers E6 to E 18 is the same system that was successfully used for Piers E3 (Demonstration Project), E4, and E5. The BAS is a modular system of pipe manifold frames, placed around each pier and fed by air compressors to create a curtain of air. The BAS will be activated before and during implosion. As shown during previous implosions, the BAS will help minimize noise and pressure waves generated during each controlled blast, to minimize potentially adverse effects on biological resources. Each BAS frame is approximately 50.5 ft (15.4 m) long by 6 ft (1.8 m) wide. The BAS to be used at Piers E6 through E18 will be same system that was used at Piers E3, E4, and E5, and will meet the same specifications.

To remove the 13 pier foundations of Piers E6 through E18 in 2017, multiple pier implosions may be performed on the same day, sequentially. Smaller piers will be combined into single blast events. The implosion of each pier within the blast events will be spaced 1 to 5 seconds apart. All pier implosion events involving multiple piers will use fewer explosives and will have shorter blast durations than the previous implosion of Pier E3. Up to 2 piers that formerly supported either the 504-foot spans of the bridge may be imploded on the same day. Two to four small piers (that formerly supported the 288-foot spans) may be imploded on the same day. A total of five to six pier implosion events, consisting of the implosion of one to four piers per event, may be required. An individual BAS will be installed around each pier included in a multiple-pier implosion event.

The complete BAS will be installed and tested during the weeks leading up to each controlled blast. Before installing the BAS, CALTRANS will move any existing debris on the Bay floor that may interrupt proper installation of the BAS. Existing debris identified as a risk to proper installation of the BAS will be moved outside the path of the BAS layout. Each BAS frame will be lowered to the bottom of the Bay by a barge-mounted crane and positioned into place. Divers will be used to assist frame placement, and to connect air hoses to the frames. Frames will be situated to contiguously surround the pier. Each frame will be weighted to negative buoyancy for activation. Compressors will provide enough pressure to achieve a minimal air volume fraction of three to four percent, consistent with the successful use of BAS systems in past controlled blasting activities, including Pier E3 (CALTRANS 2016 and CALTRANS 2017). System performance is anticipated to provide 70 to 80 percent sound and pressure attenuation, based on the results from the previous controlled blasting activities (CALTRANS 2016, 2017).

Test Blasts

At the beginning of the implosion season, test blasts will be conducted within the completely installed and operating BAS so that the hydroacoustic monitoring equipment will be properly triggered and functional before each pier implosion event. A key requirement of the implosion involves accurately capturing hydroacoustic information from the controlled blast. To accomplish this, a smaller test charge will be used to trigger recording instrumentation. Multiple test blast events may be required to verify proper instrument operation and calibrate the equipment for the implosion event. These same instruments and others of the same type will use high-speed recording devices to capture hydroacoustic data at both near-field and far-field monitoring locations during the implosion.

Test charges will be scheduled to occur within two weeks of the first implosion scheduled for the implosion season and after the BAS is positioned into place and is functional. Additional test blasts may be needed prior to subsequent implosion events to ensure triggering of the data acquisition and recording instruments as well as calibration of the equipment. The BAS will be operational during all tests. Tests will use a charge weight of approximately 18 grains (0.0025 pound) or less. The test charge will be placed along one of the longer faces of the pier and inside the BAS while it is operating. Results from test blasts that occurred during the Piers E3–E5 indicate that these test blasts did not reach or exceed marine mammal threshold criteria beyond the bubble flux of the BAS (See Appendix A of the IHA application and CALTRANS 2016). Therefore, no take of marine mammals is anticipated due to test blasts.

Controlled Implosion of Piers E6 Through E18

Before pier removal via controlled blasting, the bore holes in the pier will be loaded with controlled charges. Individual cartridge charges, using electronic blasting caps versus pumpable liquid blasting agents, have been selected to provide greater control and accuracy in determining the individual and total charge weights. Use of individual cartridges will allow a refined blast plan that efficiently breaks concrete while minimizing the amount of charges needed.

Boreholes will vary in diameter and depth, and have been designed to provide optimal efficiency in transferring the energy created by the controlled charges to dismantle the pier. Individual charge weights will vary from 20 to 35 pounds (lbs) (9 to 16 kilograms (kg)), and the total charge weight for each controlled blast event will be approximately 2,132 to 15,800 lbs (967 to 7,167 kg). Depending on the

location, size, and removal limit of the pier to be removed, the total number of individual charges to be used will range from approximately 100 to 455. The charges will be arranged in different levels (decks) and will be separated in boreholes by stemming, which is the insertion of inert materials (*e.g.,* sand or gravel) to insulate and retain charges in an enclosed space. Stemming will allow more efficient transfer of energy into the structural concrete for fracture, and will further reduce the release of potential energy into the surrounding water column. The entire detonation sequence, consisting of approximately 100 to 455 detonations, will last approximately 1 to 4 seconds for each pier with a minimum delay time of 9 milliseconds (msec) between detonations.

Controlled blasting of Pier E6 will remove concrete by blasting down through the concrete slab and top 3 ft (1 m) of the concrete seal. Controlled blasting of Pier E7 will remove concrete by blasting down through the concrete slab but not the concrete seal. Controlled blasting of Piers E8 through E18 will remove concrete by blasting down through the concrete cellular structure, but not through the concrete slab, seal, and timber piles below. For Pier E6, site conditions will require the pier to be blasted further into the structure to remove the upper 3 ft (1 m) of the concrete seal and remove the structure to the approved removal elevation. Remaining concrete seals and timber piles below the mudline will not be removed.

As stated above, to remove the 13 marine foundations of Piers E6 through E18 in the 2017 season, multiple pier implosions may be performed on the same day, sequentially. Smaller piers will be combined into single blast events. All pier implosion events involving multiple piers will use fewer explosives and will have a shorter total blast duration than the previous implosion of Pier E3.

Debris Removal and Site Restoration

Following the controlled implosion event and confirmation that the area is safe to work in, construction crews will begin to remove all associated equipment, including barges, compressors, the BAS, and blast mats. CALTRANS expects that a small portion of rubble from each pier will fall outside its respective footprint and/or mound within the footprint of each pier, and will need to be managed after each controlled implosion. The portions of each pier that do not break apart during controlled blasting and remain above the removal limits will be demolished by mechanical means. This may require the use of underwater mechanical equipment, including hydraulic crushing or grinding machinery or diver-operated jackhammers.

Rubble from the controlled implosion of Piers E6 through E18 will be removed down to each pier's respective planned debris removal limit elevation by barge-mounted crane with a clamming bucket. The clamming bucket will be equipped with a GPS unit to accurately guide the movement of the bucket during underwater operation. The planned debris removal limit elevations are shown in Table 1.

TABLE 1—APPROXIMATE MUDLINE AND REMOVAL ELEVATIONS OF SFOBB ORIGINAL EAST SPAN MARINE FOUNDATIONS

Pier	Mudline elevation (feet)	Required removal elevation (1.5 ft below mudline; ft)	Planned removal limits (3 ft below mudline; ft)
E6	−40.0	−41.5	−43.0
E7	−28.0	−29.5	−31.0
E8	−19.0	−20.5	−22.0
E9	−17.5	−19.0	−20.5
E10	−18.0	−19.5	−21.0
E11	−14.0	−15.5	−17.0
E12	−14.0	−15.5	−17.0
E13	−14.0	−15.5	−17.0
E14	−15.0	−16.5	−18.0
E15	−12.5	−14.0	−15.5
E16	−12.5	−14.0	−15.5
E17	−12.5	−14.0	−15.5
E18	−12.5	−14.0	−15.5

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

Description of Marine Mammals in the Area of the Specified Activity

Seven species, representing seven stocks, of marine mammals may be affected by the SFOBB project. The two most common species observed are the Pacific harbor seal (*Phoca vitulina richardii*) and the California sea lion (*Zalophus californianus*). Juvenile northern elephant seals (*Mirounga angustirostris*) seasonally enter the Bay (spring and fall), while harbor porpoises (*Phocoena phocoena*) may enter the western side of the Bay throughout the year, but rarely occur near the SFOBB east span. Gray whales (*Eschrichtius robustus*) may enter the Bay during their northward migration in the late winter and spring, but are unlikely to occur near the project area during September, October, and November when pier implosions would take place. Therefore, no take of gray whales from the proposed pier implosions was requested, and NMFS is not proposing to authorize take of gray whales. In addition, though rare, northern fur seals (*Callorhinus ursinus*) and bottlenose dolphins (*Tursiops truncatus*) have also been sighted in the Bay. None of these species are listed as endangered or threatened under the Endangered Species Act (ESA), or as depleted or a strategic stock under the MMPA.

We have reviewed CALTRANS' species information, which summarizes available information regarding status and trends, distribution, and habitat preferences, behavior and life history, and auditory capabilities of the potentially affected species, for accuracy and completeness. We refer the reader to Chapters 3 and 4 of the CALTRANS IHA application as well as to NMFS' Stock Assessment Reports (SR; *www.nmgs.noaa/.gov/pr/sars/*), for detailed information. Additional general information about these species and

stocks (*e.g.,* physical and behavioral descriptions) may be found on NMFS' Web site (*www.nmfs.noaa.gov/pr/species/mammals/*). Table 2 lists all species and stocks with potential for occurrence in the San Francisco Bay and summarizes information related to the species or stock, including potential biological removal (PBR). For taxonomy, we follow Committee on Taxonomy (2016). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. PBR is considered in concert with the known sources of ongoing anthropogenic mortality to assess the population-level effects of the anticipated mortality from a specific project (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR information is included here as a gross indicator of the status of the species and other threats.

Gray whales are a species that could potentially occur in the proposed survey area but are not expected to have reasonable potential to be harassed by CALTRANS' SFOBB actions because they are unlikely to occur in the project area, as discussed above. This species is included in Table 2 but is omitted from further analysis. For species status, we provide information regarding U.S. regulatory status under the MMPA and ESA in Table 2.

TABLE 2—MARINE MAMMAL SPECIES POTENTIALLY PRESENT IN REGION OF ACTIVITY

Common name	Scientific name	ESA/ MMPA status	Occurrence	Seasonality	Range	Stock abundance	Potential biological removal (PBR)
Harbor seal (CA stock)	*Phoca vitulina richardii*	NL/ND	Common	Year round	California	30,968	1,641
California sea lion (US stock)	*Zalophus californianus*	NL/ND	Common	Year round	California	296,750	9,200
Northern fur seal (CA stock)	*Callorhinus ursinus*	NL/ND	Rare	Year round	California	12,844	451
Northern elephant seal (CA breeding stock).	*Mirounga angustirostris*	NL/ND	Occasional	Spring & fall	California	179,000	4,882
Gray whale (Eastern north Pacific stock).	*Eschrichtius robustus*	NL*/ND	Rare	Spring & fall	Mexico to the U.S. Arctic Ocean.	20,990	624
Harbor porpoise (SF-Russian River stock).	*Phocoena phocoena*	NL/ND	Rare	Year round	California	9,886	66
Coastal Bottlenose dolphin (CA coastal stock).	*Tursiops truncatus*	NL/ND	Rare	Year round	California	323	2.4

NL = Not Listed; * The E. North Pacific population is not listed under the ESA.; ND = Not Depleted under the MMPA.

Potential Effects of the Specified Activity on Marine Mammals and Their Habitat

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

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. In August 2016, NMFS released its Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2016 Acoustic Technical Guidance). Under the NMFS 2016 Acoustic Technical Guidance, there are five marine mammal hearing group categories, with associated generalized hearing ranges as shown in Table 3 (note that animals are less sensitive to sounds at the outer edge of their generalized hearing range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range).

TABLE 3—MARINE MAMMAL HEARING GROUPS (NMFS, 2016)

Hearing group	Generalized hearing range [1]
Low-frequency (LF) cetaceans (baleen whales).	7 Hz to 35 kHz.
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales).	150 Hz to 160 kHz.
High-frequency (HF) cetaceans (true porpoises, *Kogia,* river dolphins, cephalorhynchid, *Lagenorhynchus* cruciger & *L. australis*).	275 Hz to 160 kHz.
Phocid pinnipeds underwater (PW) (true seals).	50 Hz to 86 kHz.
Otariid pinnipeds underwater (OW) (sea lions and fur seals).	60 Hz to 39 kHz.

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

As mentioned previously, six marine mammal species (two cetacean and four pinniped species) are likely to be incidentally taken by the proposed SFOBB controlled pier implosions. Of the two cetacean species, one belongs to the MF cetacean (bottlenose dolphin) hearing group, and one to the HF cetacean hearing group (harbor porpoise). Two species of pinniped are phocid (Pacific harbor seal and northern elephant seal), and two species of pinniped are otariid (California sea lion and northern fur seal). A species' hearing group is a consideration when we analyze the effects of exposure to sound on marine mammals.

General Information on Potential Effects

Explosives are impulsive sounds, which are characterized by short duration, abrupt onset, and rapid decay. The proposed CALTRANS SFOBB work using controlled charges (*i.e.,* implosion events) could adversely affect marine mammal species and stocks by exposing them to elevated noise levels in the vicinity of the activity area. Based on the nature of the other activities associated with the dismantling of Piers E6 through E18 of the original SFOBB East Span (mechanical dismantling) and measured sound levels from those activities during past monitoring associated with previous IHAs, NMFS does not expect activities other than implosion events to contribute to underwater noise levels such that take of marine mammals would potentially occur.

Exposure to high intensity sound for a sufficient duration may result in behavioral reactions and auditory effects such as a noise-induced threshold shift—an increase in the auditory threshold after exposure to noise (Finneran *et al.,* 2005). Factors that influence the amount of threshold shift include the amplitude, duration, frequency content, temporal pattern, and energy distribution of noise exposure. The magnitude of hearing threshold shift normally decreases over time following cessation of the noise exposure. The amount of threshold shift just after exposure is the initial threshold shift. If the threshold shift eventually returns to zero (*i.e.,* the threshold returns to the pre-exposure value), it is a temporary threshold shift (Southall *et al.,* 2007).

When animals exhibit reduced hearing sensitivity (*i.e.,* sounds must be louder for an animal to detect them) following exposure to an intense sound or sound for long duration, it is referred to as a noise-induced threshold shift (TS). An animal can experience temporary threshold shift (TTS) or permanent threshold shift (PTS). TTS can last from minutes or hours to days (*i.e.,* there is complete recovery), can occur in specific frequency ranges (*i.e.,* an animal might only have a temporary loss of hearing sensitivity between the frequencies of 1 and 10 kilohertz (kHz)), and can be of varying amounts (for example, an animal's hearing sensitivity might be reduced initially by only 6 decibel (dB) or reduced by 30 dB). PTS is a permanent loss within a specific frequency range, but some recovery is possible.

For cetaceans, published data are limited to the captive bottlenose dolphin, beluga, harbor porpoise, and Yangtze finless porpoise (Finneran *et al.,* 2000, 2002, 2003, 2005, 2007, 2010a, 2010b; Finneran and Schlundt, 2010; Lucke *et al.,* 2009; Mooney *et al.,* 2009a, 2009b; Popov *et al.,* 2011a, 2011b; Kastelein *et al.,* 2012a; Schlundt *et al.,* 2000; Nachtigall *et al.,* 2003, 2004). For pinnipeds in water, data are limited to measurements of TTS in harbor seals, an elephant seal, and California sea lions (Kastak *et al.,* 1999, 2005; Kastelein *et al.,* 2012b).

Based on the best available scientific data, NMFS' 2016 Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing includes acoustic thresholds related to PTS and TTS for impulsive sounds that are expressed as weighted, cumulative sound exposure levels (SEL_{cum}) and unweighted peak sound pressure levels (SPL_{PK}), as presented in Table 4.

TABLE 4—NMFS TAKE THRESHOLDS FOR MARINE MAMMALS FROM UNDERWATER IMPLOSIONS

Group	Species	Level B harassment		Level A harassment	Serious injury		Mortality
		Behavioral	TTS	PTS	Gastro-intestinal tract	Lung	
Mid-freq cetacean ..	Bottlenose dolphin.	165 dB SEL	170 dB SEL or 224 dB SPL_{pk}.	185 dB SEL or 230 dB SPL_{pk}.	237 dB SPL ..	$39.1M^{1/3}$ $(1+[D/10.081])^{1/2}$ Pa-sec. where: M = mass of the animals in kg. D = depth of animal in m..	$91.4M^{1/3}$ $(1+[D/10.081])^{1/2}$ Pa-sec. where: M = mass of the animals in kg. D = depth of animal in m.
High-freq cetacean	Harbor porpoise	135 dB SEL	140 dB SEL or 196 dB SPL_{pk}.	155 dB SEL or 202 dB SPL_{pk}.	.....	.....	
Phocidae	Harbor seal & northern elephant seal.	165 dB SEL	170 dB SEL or 212 dB SPL_{pk}.	185 dB SEL or 218 dB SPL_{pk}.	.....	.....	
Otariidae	California sea lion & northern fur seal.	183 dB SEL	188 dB SEL or 226 dB_{pk}.	203 dB SEL or 232 dB SPL_{pk}.	.....	.....	

Note: All dB values are referenced to 1 μPa. SPL_{pk} = Peak sound pressure level; psi = pounds per square inch.

Marine mammal hearing plays a critical role in communication with conspecifics, and interpretation of environmental cues for purposes such as predator avoidance and prey capture. Depending on the degree (elevation of threshold in dB), duration (*i.e.,* recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that occurs during a time 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. Also, depending on the degree and frequency range, the effects of PTS on an animal could range in severity, although it is considered generally more serious because it is a permanent condition. Of note, 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 one can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

In addition, 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 occurs when other noises, such as those from human sources, interfere with animal detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. 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.

Masking occurs at the frequency band which the animals utilize. However, lower frequency man-made noises are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey noise. It may also affect communication signals when they occur near the noise band and thus reduce the communication space of animals (*e.g.,* Clark *et al.,* 2009) and cause increased stress levels (*e.g.,* Foote *et al.,* 2004; Holt *et al.,* 2009).

Unlike TS, masking, which can occur over large temporal and spatial scales, can potentially affect the species at population, community, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could have long-term chronic effects on marine mammal species and populations. Recent science suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than 3 times in terms of sound pressure level) in the world's ocean from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand 2009). For CALTRANS' proposed SFOBB construction activities, noises from controlled blasting is not likely to contribute to the elevated ambient noise levels in the project area in such a way as to increasing potential for or severity of masking. Baseline ambient noise levels in the Bay are very high due to ongoing shipping, construction and other activities in the Bay, and the sound associated with the controlled blasting activities would be very brief.

Finally, exposure of marine mammals to certain sounds could lead to behavioral disturbance (Richardson *et al.,* 1995), such as: Changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where noise sources are located; and/or flight responses (*e.g.,* pinnipeds flushing into water from haulouts or rookeries).

The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography) and is also difficult to predict (Southall *et al.,* 2007). For impulse noises (such as the proposed controlled implosions associated with the dismantling of the original SFOBB spans), NMFS uses received levels of 165 dB SEL to predict the onset of behavioral harassment for mid-frequency cetaceans and phocid pinnipeds (bottlenose dolphins and harbor seals and northern elephant seals, respectively); 135 dB SEP for high-frequency cetaceans (harbor porpoises); and 183 dB SEL for otariid pinnipeds (California sea lions and northern fur seals).

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification could be biologically significant if the change affects growth, survival, and/or reproduction, which depends on the severity, duration, and context of the effects.

Potential Effects From Controlled Pier Implosion

It is expected that an intense impulse from the proposed controlled blasting of Piers E6 through E18 would have the potential to impact marine mammals in the vicinity of the activity. The majority of impacts would be startle behavioral responses and temporary behavioral modification of marine mammals. However, a few individual animals could be exposed to sound levels that would cause TTS.

The underwater explosion would send a shock wave and blast noise through the water, release gaseous by-products, create an oscillating bubble, and cause a plume of water to shoot up from the water surface. The shock wave and blast noise are of most concern to marine animals. The effects of an underwater explosion on a marine mammal depends on many factors, including the size, type, and depth of both the animal and the explosive charge; the depth of the water column; and the standoff distance between the charge and the animal, as well as the sound propagation properties of the environment. Potential impacts can range from brief effects (such as behavioral disturbance), tactile perception, physical discomfort, slight injury of the internal organs and the auditory system, to death of the animal (Yelverton *et al.,* 1973; DoN, 2001). Non-lethal injury includes slight injury to internal organs and the auditory system; however, delayed lethality can be a result of individual or cumulative sublethal injuries (DoN, 2001). Immediate lethal injury would be a result of massive combined trauma to internal organs as a direct result of proximity to the point of detonation (DoN, 2001). Generally, the higher the level of impulse and pressure level exposure, the more severe the impact to an individual.

Injuries resulting from a shock wave take place at boundaries between tissues of different density. Different velocities are imparted to tissues of different densities, and this can lead to their physical disruption. Blast effects are greatest at the gas-liquid interface (Landsberg 2000). Gas-containing organs, particularly the lungs and gastrointestinal (GI) tract, are especially susceptible (Goertner 1982; Hill 1978; Yelverton *et al.,* 1973). In addition, gas-containing organs including the nasal sacs, larynx, pharynx, trachea, and lungs may be damaged by compression/expansion caused by the oscillations of the blast gas bubble. Intestinal walls can bruise or rupture, with subsequent hemorrhage and escape of gut contents into the body cavity. Less severe gastrointestinal tract injuries include contusions, petechiae (small red or purple spots caused by bleeding in the skin), and slight hemorrhaging (Yelverton *et al.,* 1973).

Because the ears are the most sensitive to pressure, they are the organs most sensitive to injury (Ketten 2000). Sound-related damage associated with blast noise can be theoretically distinct from injury from the shock wave, particularly farther from the explosion. If an animal is able to hear a noise, at some level it can damage its hearing by causing decreased sensitivity (Ketten 1995). Sound-related trauma can be lethal or sublethal. Lethal impacts are those that result in immediate death or serious debilitation in or near an intense source and are not, technically, pure acoustic trauma (Ketten 1995). Sublethal impacts include hearing loss, which is caused by exposures to perceptible sounds. Severe damage (from the shock wave) to the ears includes tympanic membrane rupture, fracture of the ossicles, damage to the cochlea, hemorrhage, and cerebrospinal fluid leakage into the middle ear. Moderate injury implies partial hearing loss due to tympanic membrane rupture and blood in the middle ear. Permanent hearing loss also can occur when the hair cells are damaged by one very loud event, as well as by prolonged exposure to a loud noise or chronic exposure to noise. The level of impact from blasts depends on both an animal's location and, at outer zones, on its sensitivity to the residual noise (Ketten, 1995).

The above discussion concerning underwater explosions only pertains to open water detonations in a free field.

CALTRANS' demolition of Piers E6 through E18 using controlled implosion uses a confined detonation method, meaning that the charges would be placed within the structure. Therefore, most energy from the explosive shock wave would be absorbed through the destruction of the structure itself, and would not propagate through the open water. Measurements and modeling from confined underwater detonation for structure removal showed that energy from shock waves and noise impulses were greatly reduced in the water column compared to expected levels from open water detonations (Hempen *et al.,* 2007; CALTRANS 2016). Therefore, with monitoring and mitigation measures discussed below, CALTRANS' controlled implosions of Piers E6 through E18 are not likely to have injury or mortality effects on marine mammals in the project vicinity. Instead, NMFS considers that CALTRANS' proposed controlled implosions in the San Francisco Bay are most likely to cause behavioral harassment and may cause TTS in a few individual of marine mammals, as discussed below.

Changes in marine mammal behavior are expected to result from acute stress, or startle, responses. This expectation is based on the idea that some sort of physiological trigger must exist to change any behavior that is already being performed, and this may occur due to being startled by the implosion events. The exception to this expectation is the case of behavioral changes due to auditory masking (increasing call rates or volumes to counteract increased ambient noise). Masking is not likely since the CALTRANS' controlled implosion would only consist of five to six short, sequential detonations that last for approximately 3–4 seconds each.

The removal of the SFOBB East Span is not likely to negatively affect the habitat of marine mammal populations because no permanent loss of habitat will occur, and only a minor, temporary modification of habitat will occur due to the addition of sound and activity associated with the dismantling activities.

Project activities will not affect any pinniped haul-out sites or pupping sites. The YBI harbor seal haul-out site is on the opposite site of the island from the SFOBB Project area. Because of the distance and the island blocking the sound, underwater noise and pressure levels from the SFOBB Project will not reach the haul-out site. Other haul-out sites for sea lions and harbor seals are at a sufficient distance from the SFOBB Project area that they will not be affected. The closest recognized harbor seal pupping site is at Castro Rocks, approximately 8.7 miles (mi) (14 kilometers (km)) from the SFOBB Project area. No sea lion rookeries are found in the Bay.

The addition of underwater sound from SFOBB Project activities to background noise levels can constitute a potential cumulative impact on marine mammals. However, these potential cumulative noise impacts will be short in duration and would not occur in biologically important areas, would not significantly affect biologically important activities, and are not expected to have significant environmental effects, as noted in the original FHWA 2001 FEIS for the SFOBB project, incorporated by reference into NMFS' 2003 EA and subsequent Supplemental EAs (2009 and 2015) for the issuance of IHAs for the SFOBB project.

SPLs from pier implosions have the potential to injure or kill fish in the immediate area. During previous pier implosion and pile driving activities, CALTRANS reported mortality to prey species of marine mammals, including northern anchovies and Pacific herring (CALTRANS 2016), averaging approximately 200 fish per implosion event (none of which were ESA-listed species and none of which are managed under a Fishery Management Plan). These few isolated fish mortality events are not anticipated to have a substantial effect on prey species populations or their availability as a food resource for marine mammals.

Studies on explosives also suggest that larger fish are generally less susceptible to death or injury than small fish, and results of most studies are dependent upon specific biological, environmental, explosive, and data recording factors. For example, elongated forms that are round in cross section are less at risk than deep-bodied forms; orientation of fish relative to the shock wave may also affect the extent of injury; and finally, open water pelagic fish, such as those expected to be in the project area, seem to be less affected than reef fishes.

The huge variation in fish populations, including numbers, species, sizes, and orientation and range from the detonation point, makes it very difficult to accurately predict mortalities at any specific site of detonation. Most fish species experience a large number of natural mortalities, especially during early life-stages, and any small level of mortality caused by the CALTRANS' controlled implosion events will likely be insignificant to the population as a whole.

Estimated Take

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

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

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns and/or TTS for individual marine mammals resulting from exposure to noise from the controlled implosions of 13 piers of the original East Span of the SFOBB. Based on the nature of activity and past results from controlled implosions of Piers E3, E4, and E5, Level A harassment is neither anticipated nor proposed to be authorized. The death of a marine mammal is also a type of incidental take. However, as described previously, no mortality is anticipated or proposed to be authorized for this activity. Below we describe how the take is estimated.

The distance to marine mammal threshold criteria for implosion activities, and corresponding zones of influence (ZOI) have been determined based on underwater sound and pressure measurements collected during previous activities in the SFOBB Project area. The numbers of marine mammals by stock that may be taken by each type of take were calculated based on distance to the marine mammal threshold criteria, duration of the activity, and the estimated density of each stock in the ZOI. NMFS worked with CALTRANS and adjusted those estimated numbers upwards based on past monitoring data and/or other sightings data in the San Francisco Bay area to come up with a maximum number of potential occurrences for the requested takes, given that the number of marine mammals in the area is highly variable.

Estimates of Species Densities of Marine Mammals

No systematic line transect surveys of marine mammals have been performed in the San Francisco Bay. Therefore, the in-water densities of harbor seals, California sea lions, and harbor porpoises were calculated based on marine mammal monitoring conducted intermittently from 2000 to 2016 during observations made during monitoring for the SFOBB construction and demolition activities. 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 251 days of monitoring from 2000 through 2016 (including 15 days of baseline monitoring in 2003), 958 harbor seals, 80 California sea lions, and 9 harbor porpoises were observed within the waters of the SFOBB east span (CLATRANS, 2001, 2004, 2013, 2014, 2015, 2016, 2017). Northern elephant seal density in the project area was calculated from stranding records of the Marine Mammal Center (MMC). Too few observations or strandings of northern fur seals have occurred to determine density estimates. However, take estimates for northern fur seals were made based on stranding data, which was provided by the MMC. Similarly, too few observations of bottlenose dolphins have occurred to determine density estimates. Observations of bottlenose dolphins are primarily west of Treasure Island and concentrated along the nearshore areas of San Francisco south to Redwood City. One individual has been observed near Alameda and is thought to have likely passed by the project area, but no other reports of bottlenose dolphins exist in the project area. Therefore, bottlenose dolphin takes are based on the possibility of a few individuals potentially passing by the project area. Table 5 provides the estimated in-water densities used for calculating take of marine mammals in the SFOBB project area.

TABLE 5—ESTIMATED IN-WATER DENSITIES OF MARINE MAMMALS IN THE SFOBB PROJECT AREA

Species	Main season of occurrence	Density (animals/km^2)
Pacific Harbor seal (2015–2016)	Fall–Winter	4.1
Northern elephant seal	Late Spring–Early Winter	0.03
California sea lion	Late Summer–Fall (post breeding season)	0.09
Northern fur seal	Late Fall–Early Spring	Insufficient data.
Bottlenose dolphin	Year Round	Insufficient data.
Harbor porpoise	Year Round	0.21

Notes: Pacific harbor seal, California sea lion, and harbor porpoise densities based on monitoring for the east span of SFOBB from 2000 to 2016. Elephant seal densities estimated from sighting and stranding data from MMC; A second set of Pacific harbor seal densities were estimated based on increases of sightings recorded during 2015–2016 monitoring; Insufficient sighting data exist to estimate bottlenose dolphin density. However, a single animal has been regularly observed near the SFOBB east span; Insufficient sighting data exist to estimate northern fur seal densities in the Bay. Approximately 2–4 strandings occur in the entire Bay per year (unlikely to occur in the SFOBB project area).

1. Pacific Harbor Seal Density Estimates

Most data on harbor seal populations are collected while the seals are hauled out because they are much easier to count when they are out of the water. In-water density estimates rely on haul-out counts, the percentage of seals not on shore based on radio telemetry studies, and the size of the foraging range of the population. Harbor seal density in the water can vary greatly depending on weather conditions or the availability of prey. For example, during Pacific herring runs further north in the Bay in February 2014 (outside of the hydroacoustic zone for Piers E6 to E18), very few harbor seals were observed foraging near YBI or transiting through the project area for approximately two weeks. Sightings went from a high of 27 harbor seals in one day to no seals observed (CALTRANS 2014). In 2015 and 2016, the number of harbor seals sighted in the project area increased up to 41 seals per day (CALTRANS 2015 and 2016).

Calculated harbor seal density for the proposed project is a per day estimate of harbor seals in a 1 square kilometer (km^2) during the fall/winter or spring/summer season. Harbor seal density was calculated from all observations during the SFOBB project monitoring from 2000 to 2016, with a second set of density estimates for 2015–2016 to account for an increase in daily harbor seal observations during monitoring in the fall of these years. Although multiple density estimates were calculated for harbor seals, the highest density (4.1/km^2) was used to calculate estimated take to be conservative.

2. California Sea Lion Density Estimates

Within the SFOBB Project area, California sea lion density was calculated from all observations of animals in the water during SFOBB Project monitoring from 2000 to 2016. These observations included data from baseline, pre, during, and post-pile driving, mechanical dismantling, onshore blasting, and offshore implosion activities. All sea lion observations within a 1 km^2 area were used in the estimate. Distances were recorded using a laser range finder (Bushnell Yardage Pro Elite 1500; ± 1.0 yard accuracy). Care was taken to eliminate multiple observations of the same animal, although most sea lion observations involve a single animal.

Calculated California sea lion density was a per day estimate of sea lions in 1 km^2 during the fall/winter or spring/summer season in Table 4. The highest density value (0.09/km^2) was used to calculate estimated take in order to be conservative.

3. Northern Elephant Seal Density Estimates

Northern elephant seal density in the project area was calculated from the stranding records of the MMC, from 2004 to 2014. These data included both injured or sick seals and healthy seals. Approximately 100 elephant seals were reported in the Bay during this time; most of these hauled out and likely were sick or starving. The actual number of individuals in the Bay may have been higher because not all individuals would necessarily have hauled out. Some individuals may have simply left the Bay soon after entering because the Bay is not a usual haul-out area for elephant seals. Data from the MMC show several elephant seals stranding on Treasure Island, and one healthy elephant seal was observed resting on the beach in Clipper Cove in 2012. Elephant seal pups or juveniles also may have stranded after weaning in the spring and when they returned to California in the fall (September through November). The density estimate of 0.03 animals/km^2 was conservatively estimated for the entire San Francisco

Bay based on stranding data over the 10-year period from 2004–2014, and adjusting to account for the time period of the proposed SFOBB activities. However, to be conservative, the actual number of takes requested was not based on the calculated takes using the density estimate. Instead, take estimates were requested based on qualitative worst-case (and unlikely) estimates assuming six implosion events may occur and assuming presence of three northern elephant seals at half (three) of the implosion events.

4. Northern Fur Seal

Too few observations or strandings of northern fur seals have occurred to determine densities. Juveniles of this species occasionally strand in San Francisco Bay, particularly during El Nino events. During the 2016 El Nino event, northern fur seal juveniles were observed and stranded inside San Francisco Bay more frequently but were still not considered common. The MMC reported rescuing more than 80 stranded northern fur seal pups in 2015 and 2016, but only two to four northern fur seal strandings occurred in the Bay. That number is likely to decrease because the El Nino and warm water blob that affected the species' food resources has dissipated. Requested take was based on qualitative worst-case (and unlikely) estimates assuming six implosion events may occur and assuming presence of three northern fur seals at half (three) of the implosion events.

5. Common Bottlenose Dolphin Density Estimates

Too few observations of bottlenose dolphins have occurred to determine density. Observations of bottlenose dolphins primarily have occurred west of Treasure Island and were concentrated along the nearshore area of San Francisco south to Redwood City. One individual has been observed regularly near Alameda and likely passed by the project area, but no other reports of bottlenose dolphins exist in the project area (Perlman 2017). Requested take was based on qualitative worst-case (and unlikely) estimates assuming six implosion events may occur and assuming presence of three bottlenose dolphins at half (three) of the implosion events.

6. Harbor Porpoise Density Estimates

Harbor porpoise density was calculated from all observations during SFOBB Project monitoring, from 2000 to 2016. These observations included data from baseline, pre, during and post-pile driving, and onshore implosion activities. Over this period, the number of harbor porpoises that were observed entering and using the Bay increased. During the 16 years of monitoring in the SFOBB Project area, only 9 harbor porpoises were observed, and all occurred between 2006 and 2015 (including two in 2014 and 5 in 2015). Based on this data, a density estimate of 0.21 animals/km^2 was used to calculate estimated take.

Distance Calculations for Marine Mammal Threshold Criteria and Corresponding Zones of Influence (ZOI)

Utilizing the marine mammal threshold criteria from NMFS' 2016 Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2016), presented in Table 4, distances to these threshold criteria were calculated using the results from previous hydroacoustic monitoring associated with the implosions of Piers E3, E4, and E5. In addition, the criteria for lung injury and mortality to marine mammals is dependent on the mass of the animal and depth of the animal in the water column. Animals that are smaller in mass are more susceptible to injury from impulse pressures from blasting, so the mass of juveniles (6 to 16 months old) from each species was used in the calculations because these would be the smallest animals potentially exposed. As Piers E6 through E18 are in water that ranges from 10 to 40 ft (3 to 12 m), and due to the fact that the species that may be present in the project area surface frequently, and average depth of 20 ft (6 m) was used in the threshold calculations for lung injury and mortality.

Distances to marine mammal threshold criteria were calculated for each of the potential pier implosion scenarios:

- Implosion of Pier E6.
- Implosion of two 504-ft span piers in one implosion event.
- Implosion of two 288-ft span piers in one implosion event.
- Implosion of three 288-ft span piers in one implosion event.
- Implosion of four 288-ft span piers in one implosion event.

Methods used to calculate distances to threshold criteria for the implosion of multiple piers are presented in detail in Appendix C of CALTRANS' application. Table 6 presents the distances calculated to each threshold for each of the anticipated pier implosion scenarios.

TABLE 6—THRESHOLD DISTANCES (FEET) CALCULATED FOR EACH IMPLOSION SCENARIO

Group	Species	Level B harassment		Level A harassment	Serious injury		Mortality
		Behavioral	TTS (pk/SEL$_{cum}$)	PTS (pk/SEL$_{cum}$)	GI tract	Slight lung	
Implosion of Pier E6							
Mid-freq cetacean	Bottlenose dolphin	1,330	180/881	98/256	48	48	<40
High-freq cetacean	Harbor porpoise	12,567	3,127/8,358	1,697/2,459	48	48	<40
Phocidae	Harbor seal & northern elephant seal.	2,220	613/1,484	332/443	48	48	<40
Otariidae	California sea lion & northern fur seal.	554	147/367	80/106	48	48	<40
Implosion of Two 504-ft Span Piers							
Mid-freq cetacean	Bottlenose dolphin	1,055	166/685	90/190	44	<40	<40
High-freq cetacean	Harbor porpoise	10,300	2,882/6,800	1,564/1,966	44	<40	<40
Phocidae	Harbor seal & northern elephant seal.	1,790	565/1,186	306/333	44	<40	<40
Otariidae	California sea lion & northern fur seal.	421	136/274	74/78	44	<40	<40

TABLE 6—THRESHOLD DISTANCES (FEET) CALCULATED FOR EACH IMPLOSION SCENARIO—Continued

Group	Species	Level B harassment		Level A harassment	Serious injury		Mortality
		Behavioral	TTS (pk/SEL_{cum})	PTS (pk/SEL_{cum})	GI tract	Slight lung	
Implosion of Two 288-ft Span Piers							
Mid-freq cetacean	Bottlenose dolphin	798	166/517	90/126	44	<40	<40
High-freq cetacean	Harbor porpoise	7,700	2,882/5,140	1,564/1,493	44	<40	<40
Phocidae	Harbor seal & northern elephant seal.	1,359	565/900	306/232	44	<40	<40
Otariidae	California sea lion & northern fur seal.	304	136/185	74/52	44	<40	<40
Implosion of Three 504-ft Span Piers							
Mid-freq cetacean	Bottlenose dolphin	920	166/588	90/132	44	<40	<40
High-freq cetacean	Harbor porpoise	9,403	2,882/5,900	1,564/1,722	44	<40	<40
Phocidae	Harbor seal & northern elephant seal.	1,580	565/1,045	306/258	44	<40	<40
Otariidae	California sea lion & northern fur seal.	339	136/201	74/52	44	<40	<40
Implosion of Four 504-ft Span Piers							
Mid-freq cetacean	Bottlenose dolphin	920	166/558	90/132	44	<40	<40
High-freq cetacean	Harbor porpoise	9,935	2,882/6,590	1,564/1,917	44	<40	<40
Phocidae	Harbor seal & northern elephant seal.	1,730	565/1,135	306/264	44	<40	<40
Otariidae	California sea lion & northern fur seal.	349	136/204	74/52	44	<40	<40

Estimated Takes of Marine Mammals

The number of marine mammals by stock that may be taken by implosion of Piers E6 through E18 were calculated based on distances to the marine mammal threshold criteria, duration of the activity, and the estimated density of each species in the ZOI (for species with insufficient data to calculate densities, estimated number of takes were based on potential for occurrence as described above). For each pier implosion scenario, the total area of the criteria zone was calculated and multiplied by the density of each species. Combining multiple piers in a single implosion event results in fewer implosion events and, therefore, fewer marine mammals that would potentially be taken. However, take estimates were calculated based on a worst-case scenario of a total of six implosion events.. Based on calculated sound pressure levels and the implementation of avoidance and minimization measures discussed below, no injury (Level A harassment) or mortality is anticipated to occur as a result of the implosion activities and NMFS is not authorizing any Level A takes for this activity. For more detailed information on the number of takes calculated for each implosion scenario, see Table 19 of the CALTRANS IHA application. For spreadsheets showing the calculations that were performed to estimate marine mammal exposures for each pier implosion scenario, see Appendix D of the IHA application. Table 7 provides a summary of the estimated exposure of marine mammals based on calculations using density estimates or past monitoring efforts in cases where density estimates were not able to be calculated (northern fur seal and bottlenose dolphin).

TABLE 7—ESTIMATED COMBINED EXPOSURES OF MARINE MAMMALS TO THE IMPLOSIONS OF PIERS E6 THROUGH E18 FOR LEVELS A AND B AND MORTALITY THRESHOLD CRITERIA

Species	Level B exposures for all implosions		Level A exposures [1]			Mortality [1]
	Behavior	TTS	PTS	GI injury	Slight lung injury	
Harbor seal	22	16	0	0	0	0
California sea lion	0	0	0	0	0	0
Northern elephant seal	0	0	0	0	0	0
Northern fur seal	[2] NA (0)	[2] NA (0)	[2] NA (0)	[2] NA (0)	[2] NA (0)	[2] NA (0)
Bottlenose dolphin	[2] NA (0)	[2] NA (0)	[2] NA (0)	[2] NA (0)	[2] NA (0)	[2] NA (0)
Harbor porpoise	0	0	0	0	0	0
TOTAL	22	16	0	0	0	0

[1] No implosions would occur if any marine mammal is within the Level A or mortality threshold criteria zones.

[2] No density estimates were calculated, so calculations of take were not completed; However, no takes are estimated in this table based on the fact that none of these species have been observed since monitoring efforts for the SFOBB project began in 2000.

However, the number of marine mammals in the area at any given time is highly variable. Animal movement depends on time of day, tide levels, weather, and availability and distribution of prey species. Therefore, to account for potential high animal density that could occur during the short window of controlled implosion, NMFS worked with CALTRANS and adjusted the estimated number upwards based on past monitoring data and/or other sightings data in the San Francisco Bay area to come up with a maximum number of potential occurrences for the requested takes. These adjustments were based on likely group sizes of these animals and were developed quantitatively to account for variability in animal occurrence and activity.

A summary of the requested number of takes by implosion of Piers E6 through E18 is provided in Table 8.

TABLE 8—SUMMARY OF REQUESTED TAKES OF MARINE MAMMALS FOR THE PIER E4 AND E5 IMPLOSIONS

Species	Level B behavioral	Level B TTS	Stock abundance	Percent take of population
Pacific harbor seal	66	48	30,968	0.37
California sea lion	18	12	296,750	0.01
Northern elephant seal	6	3	179,000	0.01
Northern fur seal	6	3	12,844	0.21
Harbor porpoise	18	9	9,886	0.09
Bottlenose dolphin	6	3	323	2.8
Total	120	78	.....	.....

Proposed Mitigation

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

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully weigh 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, which considers the nature of the potential adverse impact being mitigated (likelihood, scope, range), as well as the likelihood that the measure will be effective if implemented; and (2) the practicability of the measures for applicant implementation, which may consider such things as cost and impact on operations.

Proposed Mitigation Measures for Confined Implosion

For CALTRANS's proposed controlled implosions of Piers E6 through E18, CALTRANS will utilize the mitigation measures discussed below to minimize the potential impacts to marine mammals in the project vicinity, which were developed and successfully employed for previous controlled implosions of other piers of the original East Span of the SFOBB. The primary purposes of these mitigation measures are to minimize impacts by reducing sound levels from the activities and to monitor for marine mammals within designated exclusion zones and zones of influence (ZOI). Specific proposed mitigation measures are:

Time Restriction

Implosion of Piers E6 through E18 would only be conducted during daylight hours, with enough time for pre and post implosion monitoring during daylight hours. Implosion events would also only be conducted during periods with good visibility when the largest exclusion zone can be visually monitored. In addition, to minimize impacts on biological resources, implosion events would be conducted at slack tides between September and November.

Installation of Blast Attenuation System (BAS)

Prior to the demolition of Piers E6 through E18, CALTRANS would install a Blast Attenuation System (BAS) as described above to reduce the noise and shockwave from the implosion.

Establishment of Level A Exclusion Zone

CALTRANS will establish marine mammal exclusion zones (MMEZ) for both the mortality and Level A harassment zone (including PTS, GI track injury, and slight lung injury) using the criteria threshold that extends out the furthest distance (refer to Table 6). As an additional conservative measure to ensure that no marine mammals are taken by Level A harassment, the field-implemented MMEZ will be 20 percent larger than the calculated distances to threshold criteria in Table 6.

The isopleths for PTS for phocids (harbor seal and elephant seal) cover the entire area for both Level A harassment and mortality for all pinnipeds (including California sea lions and northern fur seals), as well as bottlenose dolphins. Therefore, the pinniped and dolphin exclusion zone will be established at the radial distance to the phocid PTS Level A harassment threshold plus an additional 20 percent conservative factor. The harbor porpoise exclusion zone will be established at the radial distance to the high-frequency cetacean PTS Level A harassment threshold plus an additional 20 percent conservative factor (see Table 23 and Figures 12–14 and 17–21 of the IHA application). These MMEZs will be monitored by marine mammal observers (MMOs), and if any marine mammals are observed within the MMEZs, the implosion will be delayed until the animal leaves the area or at least 15 minutes have passed since the last observation of pinnipeds and small cetaceans and at least 30 minutes have passed since the last observation of bottlenose dolphins.

Establishment of Level B Behavioral Harassment and Temporary Hearing Threshold Shift (TTS) Monitoring Zones

Marine mammal monitoring zones will be established for both behavioral response and TTS (Level B harassment). Hydroacoustic monitoring results from the implosions of Piers E3, E4, and E5 were used to calculate distances to these thresholds for the implosions of Piers E6 through E18 (see Chapter 6 and Tables 9 to 18 of the IHA application). As a conservative measure, the field-implemented behavioral response and TTS monitoring zones will be 20 percent larger than the calculated distances to threshold criteria shown in Tables 9 to 18 of the IHA application.

The isopleths for Level B harassment to phocids (harbor seals and elephant seals) for all pier implosion scenarios cover the entire area for Level B harassment to all pinnipeds including otariids (California sea lions and fur seals) as well as bottlenose dolphins. Therefore, the pinniped and dolphin Level B harassment monitoring zones for each pier implosion scenario will be established at the radial distance to the phocid Level B harassment threshold plus an additional 20 percent conservative factor (see Tables 24 and 25 and Figures 12–16 of the IHA application).

Communication

All Marine Mammal Observers (MMOs) will be equipped with mobile phones and a VHF radio as a backup. One person will be designated as the Lead MMO and will be in constant contact with the Resident Engineer on site and the blasting crew. The Lead MMO will coordinate marine mammal sightings with the other MMOs. MMOs will contact the other MMOs when a sighting is made within the exclusion zone or near the exclusion zone so that the MMOOs within overlapping areas of responsibility can continue to track the animal and the Lead MMO is aware of the animal. If an animal has entered the exclusion zone or is near it within 30 minutes of blasting, the Lead MMO will notify the Resident Engineer and blasting crew. The Lead MMO will keep them informed of the disposition of the animal.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals.
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned.
- The practicability of the measure for applicant implementation.

Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

(1) Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).

(2) A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

(3) A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

(4) A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).

(5) Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

(6) For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth, ''requirements pertaining to the monitoring and reporting of such taking.'' The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for Incidental Take Authorizations (ITA) must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical to both compliance as well as ensuring that the most value is obtained from the required monitoring. CALTRANS has proposed marine mammal monitoring measures as part of the IHA application found at *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* The plan may be modified or supplemented based on comments or new information received from the public during the public comment period.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

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

- Mitigation and monitoring effectiveness.

Proposed Monitoring Measures

As most elements of marine mammal monitoring plans for pile driving activities are similar to what would be required for underwater implosions, monitoring for impacts to marine mammals from the implosion activities for Piers E3, E4, and E5 were based on the SFOBB pile driving monitoring protocol. Monitoring for the implosion events for Piers E6 through E18 will also be based on the SFOBB pile driving monitoring protocol and past implosion activities for Piers E3, E4, and E5. These monitoring plans would include monitoring an exclusion zone and ZOIs for TTS and behavioral harassment described above as well as the following:

(1) Marine Mammal Observers (MMOs)

A minimum of 10 MMOs would be required during the controlled implosions of Piers E6 through E18 so that the MMEZ, Level B Harassment TTS and Behavioral ZOIs, and surrounding area can be monitored. Up to 15 MMOs will be required for implosion events involving multiple piers in order to monitor the full extent of these areas. One MMO would be designated as the Lead MMO and would receive updates from other MMOs on the presence or absence of marine mammals within the MMEZ and would notify the Environmental Compliance Manager of a cleared exclusion zone to the implosion(s).

(2) Monitoring Protocol

Implosions of Piers E6 through E18 will be conducted only during daylight hours and with enough time for pre and post-implosion monitoring during daylight hours, and with good visibility (*i.e.,* clear skies and no high winds). This work will be completed so that MMOs will be able to detect marine mammals within the exclusion zones and beyond. The Lead MMO will be in contact with other MMOs and if any marine mammals enter an exclusion zone within 30 minutes of blasting, the Lead MMO will notify the Environmental Compliance Manager that the implosion may need to be delayed. The Lead MMO will keep the Environmental Compliance Manager informed about the disposition of the animal. If the animal remains in the MMEZ, blasting will be delayed until it has left the exclusion zone. If the animal dives and is not seen again, blasting will be delayed at least 15 minutes for pinnipeds and small cetacean (harbor porpoise), and 30 minutes for bottlenose dolphin. After the implosion has occurred, the MMOs will continue to monitor the area for at least 60 minutes.

(3) Data Collection

Each MMO will record the observation position, start and end times of observations, and weather conditions (*i.e.,* sunny/cloudy, wind speed, fog, visibility). For each marine mammal sighting, the following will be recorded, if possible:

- Species.
- Number of animals (with or without pup/calf).
- Age class (pup/calf, juvenile, adult).
- Identifying marks or color (*e.g.,* scars, red pelage, damaged dorsal fin).
- Position relative to piers being imploded (distance and direction).
- Movement (direction and relative speed).
- Behavior (*e.g.,* logging (resting at the surface), swimming, spy-hopping (raising above the water surface to view the area), foraging).

(4) Post-Implosion Survey

Although any injury or mortality from the implosions of Piers E6 through E18 is very unlikely, boat or shore surveys will be conducted daily for 3 days following the event, to determine whether any injured or stranded marine mammals are in the area. If an injured or dead animal is discovered during these surveys or by other means, the NMFS-designated stranding team will be contacted to pick up the animal. Veterinarians will treat the animal or will conduct a necropsy to attempt to determine whether it stranded because of the pier implosions.

Proposed Reporting Measures

CALTRANS would be required to submit a draft monitoring report within 90 days after completion of the construction work or the expiration of the IHA (if issued), whichever comes earlier. This draft report would detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed. NMFS would have an opportunity to provide comments on the draft report within 30 days, and if NMFS has comments, CALTRANS would address the comments and submit a final report to NMFS within 30 days. If no comments are provided by NMFS after 30 days receiving the report, the draft report is considered to be final.

Marine Mammal Stranding Plan

Stranding plans for the pier implosions of Piers E3, E4, and E5 were prepared in cooperation with the local NMFS-designated marine mammal stranding, rescue, and rehabilitation center. An updated version of this plan will be implemented during implosions of Piers E6 through E18. Although avoidance and minimization measures likely will prevent any injuries, preparations will be made in the unlikely event that marine mammals are injured. Elements of the plan will include the following:

1. The stranding crew will prepare treatment areas at an NMFS-designated facility for cetaceans or pinnipeds that may be injured from the implosions. Preparation will include equipment to treat lung injuries, auditory testing equipment, dry and wet caged areas to hold animals, and operating rooms if surgical procedures are necessary.

2. A stranding crew and a veterinarian will be on call near the piers at the time of the implosions to quickly recover any injured marine mammals, provide emergency veterinary care, stabilize the animal's condition, and transport individuals to an NMFS-designated facility. If an injured or dead animal is found, NMFS (both the regional office and headquarters) will be notified immediately, even if the animal appears to be sick or injured from causes other than the implosions.

3. Post-implosion surveys will be conducted immediately after the event and over the following 3 days to determine whether any injured or dead marine mammals are in the area.

4. Any veterinarian procedures, euthanasia, rehabilitation decisions, and time of release or disposition of the animal will be at the discretion of the NMFS-designated facility staff and the veterinarians treating the animals. Any necropsies to determine whether the injuries or death of an animal was the result of an implosion or other anthropogenic or natural causes will be conducted at an NMFS-designated facility by the stranding crew and veterinarians. The results will be communicated to both the CALTRANS and to NMFS as soon as possible, followed by a written report within a month.

Negligible Impact Analysis and Determinations

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 Level B harassment 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 behavioral harassment, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, *etc.*), the context of any responses (*e.g.,* critical reproductive time or location, migration, *etc.*), 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 environmental baseline (*e.g.,* as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, this introductory discussion of our analyses applies to all the species and stocks listed in Table 8, given that the anticipated effects of CALTRANS' SFOBB construction activities involving controlled implosions for Piers E6 through E18 on marine mammals are expected to be relatively similar in nature. There is no information about the nature or severity of the impacts, or the size, status, or structure of any species or stock that would lead to a different analysis for this activity, or else species-specific factors would be identified and analyzed.

No injuries or mortalities are anticipated to occur as a result of CALTRANS' SFOBB activity associated with the controlled implosions to demolish Piers E6 through E18, and none are proposed to be authorized. The relatively low marine mammal density and small Level A exclusion zones make injury takes of marine mammals unlikely, based on take calculation described above. In addition, the Level A exclusion zones would be thoroughly monitored before the proposed implosion, and detonation activity would be postponed if an marine mammal is sighted within the exclusion zone.

The takes that are anticipated and authorized are expected to be limited to short-term Level B harassment (behavioral responses and TTS). Due to implementation of mitigation measures and proven success in implementation of these measures as evidenced during previous SFOBB activities, more significant acute stress responses, serious injury or mortality, and more significant behavioral responses are not anticipated as a result of the proposed activities. Marine mammals (Pacific harbor seal, northern elephant seal, California sea lion, northern fur seal, harbor porpoise, and bottlenose dolphin) present in the vicinity of the action area and taken by Level B harassment would most likely show overt brief disturbance (startle reaction) and avoidance of the area from elevated noise level during the implosion noise. A few marine mammals could experience TTS if they occur within the Level B TTS ZOI. However, as discussed early in this document, TTS is a temporary loss of hearing sensitivity when exposed to loud sound, and the hearing threshold is expected to recover completely within minutes to hours. Therefore, it is not considered an injury. In addition, even if an animal receives a TTS, the TTS would be a one-time event from a brief impulse noise (about 5 seconds), making it unlikely that the TTS would lead to PTS. Finally, there is no critical habitat or other biologically important areas in the vicinity of CALTRANS' proposed controlled implosion areas (Calambokidis *et al.,* 2015).

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the ''Potential Effects of the Specified Activity on Marine Mammals and their Habitat'' section. There is no biologically important area in the vicinity of the SFOBB project area. The project activities would not permanently modify existing marine mammal habitat. The activities may kill some fish and cause other fish to leave the area temporarily, thus impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

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 CALTRANS's SFOBB demolition via controlled implosions of Piers E6 through E18 will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

Table 8 presents the numbers of marine mammals that could be taken by Level B harassment incidental to CALTRAN's activities. Our analysis shows that less than 2.8 percent of the affected stocks could be taken by behavioral harassment and TTS (see Table 8 in this document). Therefore, the numbers of marine mammals estimated to be taken are small relative to total populations of the affected species or stocks. In addition, the mitigation and monitoring measures (described previously in this document) prescribed in the proposed IHA are expected to reduce even further any potential disturbance to marine mammals.

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 mitigation and monitoring measures, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no subsistence uses of marine mammals in the proposed project area; and, thus, no subsistence uses impacted by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

NMFS has determined that issuance of the IHA will have no effect on listed marine mammals, as none are known to occur in the action area.

National Environmental Policy Act (NEPA)

NMFS prepared an Environmental Assessment (EA) for the take of marine mammals incidental to construction of the East Span of the SFOBB and made a Finding of No Significant Impact (FONSI) on November 4, 2003. Due to the modification of part of the construction project and the mitigation measures, NMFS reviewed additional information from CALTRANS regarding empirical measurements of pile driving noises for the smaller temporary piles without an air bubble curtain system and the use of vibratory pile driving. NMFS prepared a Supplemental

Environmental Assessment (SEA) and analyzed the potential impacts to marine mammals that would result from the modification of the action. A FONSI was signed on August 5, 2009. In addition, for CALTRANS' Piers E4 and E5 demolition using controlled implosion, NMFS prepared an SEA and analyzed the potential impacts to marine mammals that would result from the modification. A FONSI was signed on September 3, 2015. The proposed activity and expected impacts remain within what was previously analyzed in the EA and SEAs. Therefore, no additional NEPA analysis is warranted. A copy of the SEA and FONSI is available upon request (see **ADDRESSES**).

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to CALTRANS for conducting SFOBB activities involving demolition via controlled implosion of Piers E6 through E18, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. The proposed IHA language is provided next.

1. This Authorization is valid from September 1, 2017, through August 31, 2018.

2. This Authorization is valid only for activities associated with the SFOBB demolition activities in San Francisco Bay.

3. (a) The species authorized for incidental harassment takings, Level B harassment only, are: Pacific harbor seal (*Phoca vitulina richardii*), California sea lion (*Zalophus californianus*), northern elephant seal (*Mirounga angustirostris*), northern fur seal (*Callorhinus ursinus*), harbor porpoise (*Phocoena phocoena*), and bottlenose dolphin (*Tursiops truncatus*).

(b) The authorization for taking by harassment is limited to the dismantling of Piers E6 through E18 via controlled implosion.

(c) The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the West Coast Administrator of the National Marine Fisheries Service (NMFS) at 206–526–6150, and the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at (301) 427–8401, or her designee (301–427–8418).

4. The holder of this Authorization must notify the Chief of the Permits and Conservation Division, Office of Protected Resources, at least 48 hours prior to the start of activities identified in 3(b) (unless constrained by the date of issuance of this Authorization in which case notification shall be made as soon as possible).

5. Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 8 of this notice. The taking by Level A harassment, injury, or death of these species or the taking by harassment, injury, or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

(b) The taking of any marine mammal is prohibited whenever the required marine mammal observers (MMOs), required by condition 7(a), are not present in conformance with condition 7(a) of this Authorization.

6. Mitigation

(a) Time Restriction

Controlled implosion of Piers E6 through E18 shall only be conducted during daylight hours on slack tides between September and November and with enough time for pre- and post-activity monitoring during daylight hours. Further, controlled implosion shall only be conducted during periods of good visibility when the largest exclusion zone can be visually monitored.

(b) For controlled implosion of Piers E6 through E18, CALTRANS will install a Blast Attenuation System (BAS) prior to demolition to reduce the noise and shockwave from the implosion.

(c) For controlled implosion of Piers E6 though E18 and associated test blasting, CALTRANS shall establish exclusions zones and zones of influence (ZOIs) that are appropriate to specific marine mammal functional hearing group (Tables 1–10, Attachment 1; see Tables 9–18 of the application) .

(d) Exclusion Zone Monitoring for Mitigation Measures.

(i) NMFS-approved MMOs shall survey the exclusion zone for 30 minutes prior to the start of controlled implosion activities to ensure that no marine mammals are seen within the zones

(ii) If marine mammals are found within the exclusion zones, controlled implosion of the pier(s) shall be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor shall wait 15 minutes for pinnipeds and small cetaceans (harbor porpoise) and 30 minutes for bottlenose dolphins prior to initiating implosion activities. If no marine mammals are seen by the observer in that time it would be assumed that the animal has moved beyond the exclusion zone.

(e) Communication

For controlled implosion, the Lead MMO shall be in constant contact with the Resident Engineer on site and the blasting crew to ensure that no marine mammal is within the exclusion zone before the controlled implosion.

7. Monitoring:

(a) Marine Mammal Observers.

(i) CALTRANS shall employ NMFS-approved MMOs to conduct marine mammal monitoring for its SFOBB controlled pier implosion.

(ii) Marine mammal monitoring shall begin at least 30 minutes prior to the start of the activities, shall occur through the entire activities, and shall continue for 60 minutes after the implosion events.

(iii) Observations shall be made using high-quality binoculars (*e.g.,* Zeiss, 10 x 42 power). MMOs shall be equipped with radios or cell phones for maintaining contact with other observers and CALTRANS engineers, and range finders to determine distance to marine mammals, boats, buoys, and construction equipment.

(iv) For controlled implosion of Piers E6 through E18:

(A) A minimum of 10 MMOs shall be required during controlled implosion so that the exclusion zone, Level B Harassment TTS and Behavioral ZOIs, and surrounding area can be monitored. Up to 15 MMOs will be required for implosion events involving multiple piers.

(B) MMOs shall be positioned near the edge of each of the threshold criteria zones and shall utilize boats, barges, and bridge piers and roadway.

(C) Boat or shore surveys shall be conducted immediately after the event and daily for the three days following the event to determine if there are any injured or stranded marine mammals in the area.

(D) Monitoring Data Collection:

For each marine mammal sighting, the following shall be recorded, if possible:

- Species.
- Number of animals (with or without pup/calf).
- Age class (pup/calf, juvenile, adult).
- Identifying marks or color (scars, red pelage, damaged dorsal fin, etc.).
- Position relative to pier implosion (distance and direction).
- Movement (direction and relative speed).
- Behavior (logging [resting at the surface], swimming, spyhopping [raising above the water surface to view the area], foraging, *etc.*)

• Duration of sighting or times of multiple sightings of the same individual

8. Reporting:

(a) CALTRANS shall submit a draft monitoring report within 90 days after completion of the dismantling work or the expiration of the IHA (if issued), whichever comes earlier. This report would detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed.

(b) NMFS will have an opportunity to provide comments within 30 days after receiving the draft report. If NMFS has comments, CALTRANS shall address the comments and submit a final report to NMFS within 30 days.

(c) If NMFS does not provide comments within 30 days after receiving the report, the draft report is considered to be final.

(d) In the unanticipated event that the dismantling activities clearly cause the take of a marine mammal in a manner prohibited by this Authorization (if issued), such as an injury, serious injury, or mortality, CALTRANS shall immediately cease all operations and immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators. The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the incident;

(ii) Description of the incident;

(iii) Status of all sound source use in the 24 hours preceding the incident;

(iv) Environmental conditions (*e.g.,* wind speed and direction, sea state, cloud cover, visibility, and water depth);

(v) Description of marine mammal observations in the 24 hours preceding the incident;

(vi) Species identification or description of the animal(s) involved;

(vii) The fate of the animal(s); and

(viii) Photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with CALTRANS to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. CALTRANS may not resume their activities until notified by NMFS via letter, email, or telephone.

(e) In the event that CALTRANS discovers an injured or dead marine mammal, and the lead MMO determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.,* in less than a moderate state of decomposition as described in the next paragraph), CALTRANS will immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators. The report must include the same information identified above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with CALTRANS to determine whether modifications in the activities are appropriate.

(f) In the event that CALTRANS discovers an injured or dead marine mammal, and the lead MMO determines that the injury or death is not associated with or related to the activities authorized in the IHA (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), CALTRANS shall report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators, within 24 hours of the discovery. CALTRANS shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. CALTRANS can continue its operations under such a case.

9. Marine Mammal Stranding Plan:

A marine mammal stranding plan shall be prepared in cooperation with the local NMFS-designated marine mammal stranding, rescue, and rehabilitation center. Elements of that plan would include the following:

(a) The stranding crew shall prepare treatment areas at the NMFS-designated facility for cetaceans or pinnipeds that may be injured from the implosion. Preparation shall include equipment to treat lung injuries, auditory testing equipment, dry and wet caged areas to hold animals, and operating rooms if surgical procedures are necessary. Equipment to conduct auditory brainstem response hearing testing would be available to determine if any inner ear threshold shifts (TTS or PTS) have occurred.

(b) A stranding crew and a veterinarian shall be on call near the implosion event sites at the time of the implosion to quickly recover any injured marine mammals, provide emergency veterinary care, stabilize the animal's condition, and transport individuals to the NMFS-designated facility. If an injured or dead animal is found, NMFS (both the regional office and headquarters) shall be notified immediately even if the animal appears to be sick or injured from other than blasting.

(c) Post-implosion surveys shall be conducted immediately after the event and over the following three days to determine if there are any injured or dead marine mammals in the area.

(d) Any veterinarian procedures, euthanasia, rehabilitation decisions and time of release or disposition of the animal shall be at the discretion of the NMFS-designated facility staff and the veterinarians treating the animals. Any necropsies to determine if the injuries or death of an animal was the result of the blast or other anthropogenic or natural causes will be conducted at the NMFS-designated facility by the stranding crew and veterinarians. The results shall be communicated to both CALTRANS and to NMFS as soon as possible with a written report within a month.

10. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals, or if there is an unmitigable adverse impact on the availability of such species or stocks for subsistence uses.

11. A copy of this Authorization must be in the possession of each contractor who performs the controlled implosion work for Piers E6 through E18 and associated Test Blasts.

Dated: June 1, 2017.

Donna S. Wieting,

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

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BILLING CODE 3510–22–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Grant Exclusive Patent License: Evolva, Inc.

AGENCY: Department of the Navy, DOD.

ACTION: Notice.

SUMMARY: The Department of the Navy herby gives notice of its intent to grant to Evolva, Inc., a revocable, nonassignable, exclusive license to practice in the field of use of thermoset compositions for composites manufacturing in the United States and its territories, the Government-owned inventions described in U.S. Patent No. 8,853,343 entitled: Thermoset compositions from plant polyphenols; U.S. Patent No. 8,921,614 entitled: Selective deoxygenation of hydroxybenzaldehydes; U.S. Patent No.