



**BILLING CODE 3510-22-P**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**[RTID 0648-XA285]**

**Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Treasure Island Ferry Dock Project, San Francisco, California**

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

**ACTION:** Notice; issuance of an incidental harassment authorization.

**SUMMARY:** In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to the City and County of San Francisco, CA (San Francisco) to incidentally harass, by Level A and Level B harassment only, marine mammals during construction activities associated with the Treasure Island Ferry Dock Project in San Francisco, California.

**DATES:** This Authorization is effective for one year from the date of issuance.

**FOR FURTHER INFORMATION CONTACT:** Dwayne Meadows, Ph.D., Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>. In case of problems accessing these documents, please call the contact listed above.

## **SUPPLEMENTARY INFORMATION:**

### **Background**

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

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

The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

### **Summary of Request**

On February 6, 2020, NMFS received an application from San Francisco requesting an IHA to take small numbers of seven species of marine mammals incidental to pile driving associated with the Treasure Island Ferry Dock Project. The application was deemed adequate and complete on May 13, 2020. San Francisco's request is for take of a small number of seven species of marine mammals by Level B harassment and Level A harassment. Neither San Francisco nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

### **Description of Proposed Activity**

#### *Overview*

The project consists of the construction of a ferry terminal, breakwater, and removal of an old pier on Treasure Island in the middle of San Francisco Bay. San Francisco would install and then remove two temporary 36-inch-diameter steel piles for moorings and 196 temporary 14-inch by 89 foot steel H piles as templates. Final construction requires installation of eight 36-inch-diameter steel piles, five 48-inch-diameter steel piles, 52 24-inch octagonal concrete breakwater piles, and 120 14-inch by 48-inch concrete sheet piles for the breakwater. Removing the old pier requires removal of 198 12-inch diameter timber piles. The work for this project began on June 8, 2020. From that date until July 7, 2020, San Francisco completed pile driving for 38 piles (two 48-inch steel pipe piles, six 36-inch steel pipe piles, and 30 14-inch x 89-foot steel H-piles) associated with the ferry pier. San Francisco has also informed us that the fireboat access pier will not be built at this time, so the 37 pile associated with that aspect of the project are also being removed from this authorization. The revised summary of pile driving activities covered by this IHA is in Table 1. Therefore in this final authorization

we adjust our analysis and take estimates based on the work still to be completed as described below. Pile driving/removal for the remaining work is expected to take no more than 1,820 hours over 182 days. Pile driving would be by vibratory pile driving until resistance is too great and driving would switch to an impact hammer. Removal of temporary piles would use vibratory methods only. A detailed description of the planned project is provided in the **Federal Register** notice for the proposed IHA (85 FR 35271; June 9, 2020). Since that time, no other changes have been made to the planned activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

**Table 1 – Summary of Pile Driving Activities**

ACTIVITY	Location	PILES	
		Number (maximum)	Type
Install Piles for Ferry Pier (impact and/or vibratory)	Ferry Pier	0*	36-inch steel pipe (mooring piles)/ vibratory
	Ferry Pier	0*	48-inch steel pipe vibratory & impact
	Ferry Pier	0*	36-inch steel pipe (fender piles)/ vibratory
Install Temporary Steel Template Piles (Vibratory)	Ferry Pier	4	14-inch x 89-foot steel H-piles
Remove Temporary Steel Template Piles (Vibratory)	Ferry Pier	12	14-inch x 89-foot steel H-piles
Install Octagonal Piles for North Breakwater (Impact)	North Breakwater	52	24-inch octagonal concrete
Install Sheetpiles for North Breakwater (Impact)	North Breakwater	120	14 x 48-inch concrete sheetpiles
Install Temporary Steel Template Piles (Vibratory)	North Breakwater	105	14-inch x 89-foot steel H-piles
Remove Temporary Steel Template Piles (Vibratory)	North Breakwater	105	14-inch x 89-foot steel H-piles
Install Temporary Steel Template Batter Piles (Vibratory)	North Breakwater	46	14-inch x 89-foot steel H-piles
Remove Temporary Steel Template Batter Piles (Vibratory)	North Breakwater	46	14-inch x 89-foot steel H-piles

Install Temporary Mooring Piles (Vibratory)	Mooring	2	36-inch steel pipe
Remove Temporary Mooring Piles (Vibratory)	Mooring	2	36-inch steel pipe
Install Temporary Mooring Batter Piles (Vibratory)	Mooring	4	14-inch x 89-foot steel H-piles
Remove Temporary Mooring Batter Piles (Vibratory)	Mooring	4	14-inch x 89-foot steel H-piles
Install Crew Access Piles (Vibratory)	Mooring	2	14-inch x 89-foot steel H-piles
Remove Crew Access Piles (Vibratory)	Mooring	2	14-inch x 89-foot steel H-piles
Install Fireboat Access Pier (Vibratory & Impact)	North Breakwater	0**	48-inch steel pipe
Install Fireboat Access Pier (Vibratory)	North Breakwater	0**	36-inch steel pipe
Install Temporary Fireboat Steel Template Piles (Vibratory)	North Breakwater	0**	14-inch x 89-foot steel H-piles
Remove Temporary Fireboat Steel Template Piles (Vibratory)	North Breakwater	0**	14-inch x 89-foot steel H-piles
Remove Existing Pier (vibratory or crane cable)	Pier	198	12-inch timber
TOTAL		704	N/A

\* Work on these piles completed before issuance of IHA.

\*\* Work on the fireboat access pier will no longer occur under this authorization.

### Comments and Responses

A notice of NMFS's proposal to issue an IHA to San Francisco was published in the **Federal Register** on June 9, 2020 (85 FR 35271). That notice described, in detail, San Francisco's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received public comment from one commenter. The U.S. Geological Survey noted they have "no comment to offer at this time". A comment letter from the Marine Mammal Commission (Commission) was received pursuant to the Commission's

authority to recommend steps it deems necessary or desirable to protect and conserve marine mammals (16 U.S. C. 1402.202(a)). We are obligated to respond to the Commission's recommendations within 120 days, and we do so below.

*Comment:* The Commission recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated **Federal Register** notice process.

*Response:* NMFS does not agree with the Commission and, therefore, does not adopt the Commission's recommendation. NMFS has explained the rationale for this decision in multiple **Federal Register** notices (*e.g.*, 84 FR 52464; October 02, 2019); nonetheless, NMFS will also provide a separate detailed explanation of its decision within 120 days, as required by section 202(d) of the MMPA.

*Comment:* The Commission recommends that NMFS ensure that San Francisco keep a running tally of the total takes, based on observed and extrapolated takes, for Level B harassment consistent with condition 4(h) of the IHA.

*Response:* NMFS agrees that San Francisco must ensure they do not exceed authorized takes.

*Comment:* The Commission recommends that NMFS revise its standard condition for ceasing in-water heavy machinery activities to include, as examples, movement of the barge to the pile location, positioning of the pile on the substrate, use of barge-mounted excavators, and dredging in all draft and final incidental take authorizations involving pile driving and removal.

*Response:* NMFS appreciates the recommendation but disagrees that a comprehensive listing of potential activities for which the measure is appropriate is necessary, and does not adopt the recommendation.

*Comment:* The Commission recommends that NMFS (1) require San Francisco to have at least two Protected Species Observers (PSO) monitoring during all activities, with at least one PSO monitoring the shut-down zones at each pile-driving or removal site, one PSO near Pier 33 during vibratory installation of 36- and 48-inch steel piles, and one PSO stationed south toward Yerba Buena Island during all other pile-driving and removal activities and (2) specify the number and location of PSOs for each of the various activities in condition 5(iv) in the final authorization.

*Response:* We disagree with the Commission. For the less noisy scenarios with smaller harassment zones we believe the current provisions are sufficient to ensure we obtain adequate information on take, especially given the abundant anthropogenic effects, loud ambient noise environment in which the activities occur, and small sliver of area in which sound can propagate long distances. For the possibility of vibratory driving of 36-inch piles alone (without the second hammer operating simultaneously) we have clarified that a second PSO near Pier 33 is also required. Therefore, two PSOs are required for 36 inch piles (alone or simultaneous), and 1 PSO for all other scenarios. The second PSO will be located near Pier 33 for driving 36 inch piles and at the best vantage point practicable to monitor the shutdown zones when removing timber piles at the old pier is combined with vibratory driving of 14-inch x 89-foot steel H-pile elsewhere in the project area.

*Comment:* The Commission recommends that NMFS (1) have its experts in underwater acoustics and bioacoustics review and finalize as soon as possible, its recommended proxy source levels for impact pile driving of the various pile types and sizes, and (2) compile and analyze the source level data for vibratory pile driving of the various pile types and sizes in the near term.

*Response:* NMFS appreciates the Commission's interest in this issue and, as we have indicated previously, we are working on developing such products within the context of available resources and staff.

*Comment:* The Commission recommends NMFS ensure action proponents use consistent and appropriate proxy source levels in all future rulemakings and proposed IHAs.

*Response:* We agree with the Commission that applicants should use appropriate source levels and will continue to work to ensure that they do through our review of applications.

*Comment:* The Commission recommends NMFS use a source level of 166 decibels (dB) re 1  $\mu\text{Pa}^2\text{-sec}$  (micro Pascals) at 10 meters (m) (Caltrans 2015) for impact installation of 24-inch concrete piles.

*Response:* We disagree. The source level used by San Francisco is based on recent nearby data. The Caltrans (2015) data the Commission cites is 16 years-old and comes from deeper locations. Caltrans (2015) provided a second source level for 24-inch concrete piles at shallow depths more similar to those of this project, and that source level is quieter than the source level we use. The Commission provides no rationale for this



recommendation, and thus given the above information, we retain the original source level that is more conservative than the most comparable Caltrans (2015) source.

*Comment:* The Commission recommends NMFS (1) use 164 dB re 1  $\mu$ Pa<sup>2</sup>-sec at 10 m and a 250-millisecond (msec) pulse duration rather than 170 dB re 1  $\mu$ Pa (root mean square (rms)) at 10 m and a 100-msec pulse duration to re-estimate the Level A harassment zones during impact installation of 24-inch concrete piles, (2) revise the Level A harassment zones accordingly, (3) revise the shut-down zone to be 100 m rather than 80 m for LF cetaceans and at least 75 m rather than 40 m for phocids, and (4) ensure all tables in the notice for final authorization issuance and the final authorization include those revisions.

*Response:* We disagree. The Commission fails to acknowledge that the source level data is not measured perfectly and are medians. The 164 dB SEL (Sound Exposure Level) /170dB rms measurements from Illingworth and Rodkin (2019a) are medians from a small number of estimates. That means they are estimates and are not perfectly precise or accurate, and are medians, not means. In fact, from Illingworth and Rodkin (2019a) we know that the SEL measurements ranged from 146 to 171, and the rms measurements ranged from 157 to 178. Thus the Commission's unacknowledged assumption that the SEL and RMS numbers are exactly correct leads them to come to the improper conclusion that the pulse duration must be 250-msec, apparently also without error bars in the Commission's view.

Thus the disagreement stems from a debate about what is the most appropriate assumption for pulse duration and the various source levels. A 250-msec pulse duration near the source is unrealistically long based on our experience. Given the data are

medians from a small number of samples with large variation, it is not surprising that they are not perfect estimators of source levels. Illingworth and Rodkin (2019a) do not provide means of their measurements, making assessment of the skewness of the data impossible. We do note that the RMS data range over 21 dB while the range for the SEL data is larger at 25dB.

The Commission failed to reference additional data on source levels for 24-inch concrete piles in Caltrans (2015), a source the Commission normally trusts (see *e.g.*, above comment). Caltrans (2015) provides two source level estimates for 24-inch concrete piles. Both of those source levels reflect a 100-msec pulse duration. Moreover, the shallow water source level estimate for 24-inch piles that is most relevant to this project has an rms source level of 170dB, exactly what we and San Francisco used. Therefore, we decline to change the source level for 24-inch concrete piles and thus there is no need to change the Level A harassment or shutdown zones or revise any other tables.

*Comment:* The Commission recommends that, for all incidental take authorizations involving impact pile driving, NMFS (1) use the SELs-s (single strike) source levels, when available, to estimate the Level A harassment zones consistent with NMFS (2018), (2) if an SELs-s source level is not available, use the pulse duration that accompanies the SPL(Sound Pressure Level) rms source level, and (3) if neither an SELs-s source level nor a specified pulse duration based on the SPLrms source level is available, then and only then use the 100-msec pulse duration default. NMFS should consult with its experts in underwater acoustics and bioacoustics on this matter.

*Response:* We disagree with the Commission. We have consulted with our acoustics experts. As the example from the prior comment shows, the source level data we use is often imprecise and based on field estimates of a small number of piles with large variation. In some cases, as we also see in the prior comment, the variation in SEL measurements is larger and less precise than that for RMS measurements. Moreover, as the above example shows, knowledge of expected values for pulse duration and other inputs may be available from prior experience so that a strict adherence to formulas that assume the data have no variation is not wise or effective. In addition, the Commission fails to acknowledge or discuss potential challenges and pitfalls in using median values to estimate pulse duration when means are unavailable and we do not know the underlying distribution of the data points, and where that distribution might differ for RMS and SEL. Therefore, we will continue to recommend SEL as the preferred source, when data are relatively complete and robust, but allow consideration of RMS data when conditions warrant.

### **Changes from the Proposed IHA to Final IHA**

We corrected discrepancies between the proposed table and text in pile numbers and types and we revised the number of piles to be completed based on work already completed and/or cancelled (see Table 1 above). Not all of the work planned for completion in the “June” work scenario was completed so we changed the name of the scenario to “July” as needed. We used more appropriate source levels for the 14 x 48-inch concrete sheet piles (Illingworth and Rodkin, 2019b). We revised our guidance in Table 6 for combining sound levels generated during simultaneous pile installation to require Level B zones for a combination of vibratory and impact hammering to be the

largest of the zones for either source; impact pile driving can produce a louder source when the impact driven pile is much larger in diameter than the vibratory driven pile. We also clarified that sound sources from multiple simultaneous hammers are combined when their Level B harassment zones overlap. We clarified the scenario involving 12-inch timber pile removal and corrected the Level B harassment zone size for this scenario.

These changes in source levels and pile numbers alter the Level A and Level B harassment zones sizes and expected take for California sea lion, harbor seals, and harbor porpoises (see **Estimated Take** section below). Specifically, the Level B harassment zone for simultaneous vibratory driving of 14-inch x 89-foot steel H-piles and vibratory removal of 12-inch timber piles increased from 1585 to 2512 m and the Level A harassment zones for 14 x 48-inch concrete sheet piles increase by no more than 1 m. Total take for California sea lion, harbor seals, and harbor porpoises increases by 7, 192, and 8 individuals, respectively. The shutdown zone for 14 x 48-inch concrete sheet piles increases to 20 m (66 feet) (see **Mitigation** section below).

### **Description of Marine Mammals in the Area of Specified Activities**

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (e.g., physical and

behavioral descriptions) may be found on NMFS's website (<https://www.fisheries.noaa.gov/find-species>).

Table 2 lists all species with expected potential for occurrence in the project area near Treasure Island and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2019). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Pacific SARs and draft SARs (*e.g.*, Caretta *et al.* 2019).

**Table 2 -- Species That Spatially Co-occur with the Activity to the Degree That Take Is Reasonably Likely to Occur**

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) <sup>1</sup>	Stock abundance (CV, N <sub>min</sub> , most recent abundance survey) <sup>2</sup>	PBR	Annual M/SI <sup>3</sup>
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray Whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	-, -, N	26,960 (0.05, 25,849, 2016)	801	138
Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Bottlenose Dolphin	<i>Tursiops truncatus</i>	California Coastal	-, -, N	453 (0.06, 346, 2011)	2.7	>2.0
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	San Francisco/Russian River	-, -, N	9,886 (0.51, 2019)	66	0
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California Sea Lion	<i>Zalophus californianus</i>	United States	-, -, N	257,606 (N/A, 233,515, 2014)	14,011	>321
Northern fur seal	<i>Callorhinus ursinus</i>	California	-, D, N	14,050 (N/A, 7,524, 2013)	451	1.8
		Eastern North Pacific	-, D, N	620,660 (0.2, 525,333, 2016)	11,295	399
Family Phocidae (earless seals)						
Northern elephant seal	<i>Mirounga angustirostris</i>	California Breeding	-, -, N	179,000 (N/A, 81,368, 2010)	4,882	8.8
Harbor seal	<i>Phoca vitulina</i>	California	-, -, N	30,968 (N/A, 27,348, 2012)	1,641	43

1 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2- NMFS marine mammal stock assessment reports online at: [www.nmfs.noaa.gov/pr/sars/](http://www.nmfs.noaa.gov/pr/sars/). CV is coefficient of variation; N<sub>min</sub> is the minimum estimate of stock abundance.

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

Harbor seal, California sea lion, bottlenose dolphin and Harbor porpoise spatially co-occur with the activity to the degree that take is reasonably likely to occur, and we are authorizing take of these species. For gray whale, northern fur seal and northern elephant seal, occurrence is such that take is possible, and we are also authorizing take of these species. All species that could potentially occur in the proposed survey areas are included in San Francisco's IHA application (see application, Table 2). Humpback whales could potentially occur in the area. However the spatial and temporal occurrence of this species is very rare, the species is readily observed, and the applicant would shut down pie driving if humpback whales enter the project area. Thus take is not expected to occur, and they are not discussed further.

A detailed description of the of the species likely to be affected by the project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (85 FR 25271; June 9, 2020); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

#### **Potential Effects of Specified Activities on Marine Mammals and their Habitat**

The effects of underwater noise from San Francisco's construction activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the survey area. The notice of proposed IHA (85 FR 35271; June 9, 2020) included a

discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise from San Francisco's survey activities on marine mammals and their habitat. That information and analysis is incorporated by reference into this final IHA determination and is not repeated here; please refer to the notice of proposed IHA (85 FR 35271; June 9, 2020).

### **Estimated Take**

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of "small numbers" 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, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as use of the acoustic source (*i.e.*, vibratory or impact pile driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result for pinnipeds and harbor porpoise because predicted auditory injury zones are larger. The mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.



As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

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

#### *Acoustic Thresholds*

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur permanent threshold shift (PTS) of some degree (equated to Level A harassment).

*Level B Harassment for non-explosive sources* – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals

(hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1  $\mu$ Pa (rms) for continuous (*e.g.*, vibratory pile-driving) and above 160 dB re 1  $\mu$ Pa (rms) for non-explosive impulsive (*e.g.*, impact pile driving) or intermittent (*e.g.*, scientific sonar) sources.

San Francisco's proposed activity includes the use of continuous (vibratory pile-driving) and impulsive (impact pile-driving) sources, and therefore the 120 and 160 dB re 1  $\mu$ Pa (rms) thresholds are applicable.

*Level A harassment for non-explosive sources* - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). San Francisco's activity includes the use of impulsive (impact pile-driving) and non-impulsive (vibratory pile driving/removal) sources.

These thresholds are provided in Table 3. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>.

**Table 3 -- Thresholds Identifying the Onset of Permanent Threshold Shift**

Hearing Group	PTS Onset Acoustic Thresholds* (Received Level)	
	Impulsive	Non-impulsive
<b>Low-Frequency (LF) Cetaceans</b>	<i>Cell 1</i> $L_{pk,flat}$ : 219 dB $L_{E,LF,24h}$ : 183 dB	<i>Cell 2</i> $L_{E,LF,24h}$ : 199 dB
<b>Mid-Frequency (MF) Cetaceans</b>	<i>Cell 3</i> $L_{pk,flat}$ : 230 dB $L_{E,MF,24h}$ : 185 dB	<i>Cell 4</i> $L_{E,MF,24h}$ : 198 dB
<b>High-Frequency (HF) Cetaceans</b>	<i>Cell 5</i> $L_{pk,flat}$ : 202 dB $L_{E,HF,24h}$ : 155 dB	<i>Cell 6</i> $L_{E,HF,24h}$ : 173 dB
<b>Phocid Pinnipeds (PW) (Underwater)</b>	<i>Cell 7</i> $L_{pk,flat}$ : 218 dB $L_{E,PW,24h}$ : 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$ : 201 dB
<b>Otariid Pinnipeds (OW) (Underwater)</b>	<i>Cell 9</i> $L_{pk,flat}$ : 232 dB $L_{E,OW,24h}$ : 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$ : 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p><u>Note:</u> Peak sound pressure (<math>L_{pk}</math>) has a reference value of 1 <math>\mu</math>Pa, and cumulative sound exposure level (<math>L_E</math>) has a reference value of 1 <math>\mu</math>Pa<sup>2</sup>s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (<i>i.e.</i>, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

*Ensonified Area*

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

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

Vibratory hammers produce constant sound when operating, and produce vibrations that liquefy the sediment surrounding the pile, allowing it to penetrate to the required seating depth. An impact hammer would then generally be used to place the pile at its intended depth through rock or harder substrates. The actual durations of each installation method vary depending on the type and size of the pile. An impact hammer is a steel device that works like a piston, producing a series of independent strikes to drive the pile. Impact hammering typically generates the loudest noise associated with pile installation.

In order to calculate distances to the Level A harassment and Level B harassment sound thresholds for piles of various sizes being used in this project, NMFS used acoustic monitoring data from other locations to develop source levels for the various pile types, sizes and methods (see Table 4).

**Table 4 -- Project Sound Source Levels**

Pile Driving Activity		Estimated sound source level at 10 meters without attenuation			Data Source
Hammer Type	Pile Type	dB RMS	dB SEL	dB peak	

Impact	36-inch steel pipe	193	183	210	Compendium pg. 131 (Buehler <i>et al.</i> 2015) Humboldt
	24-inch octagonal concrete	170	164	189	Measurements at Pile 3B, 9/10/2019 at Alameda Seaplane Lagoon Project (Illingworth and Rodkin, Inc., 2019a)
	14-inch x 48-inch concrete sheetpile (measured at 32m)	157	147	168	Treasure Island (Illingworth and Rodkin, Inc., 2019b)
Vibratory	36-inch steel pipe	170			Compendium pg. 129 (Buehler <i>et al.</i> 2015)
	14-inch x89-foot steel H-piles	150			Compendium pg. 129 (Buehler <i>et al.</i> 2015)
Vibratory Removal	12-inch timber piles (measured at 15.8m)	150			Port Townsend Dolphin Timber Pile Removal (WSDOT 2011)*

Note: It is assumed that noise levels during pile installation and removal are similar. Use of an impact hammer will be limited to 5-10 minutes per pile, if necessary. SEL = single strike sound exposure level; dB peak = peak sound level; rms = root mean square.

\* NMFS typically uses Greenbusch Group (2018) data for source levels for timber pile removal, but the applicant chose the more conservative WSDOT (2011). The source level from Greenbusch Group (2018) is 152 dB at 10m, the equivalent source level for WSDOT (2011) at 10m is 153 dB.

During pile driving installation activities, there may be times when multiple hammers are used simultaneously. For impact hammering, it is unlikely that the two hammers would strike at the same exact instant, and therefore, the sound source levels will not be adjusted regardless of the distance between the hammers. For this reason, multiple impact hammering is not discussed further. For simultaneous vibratory hammering, the likelihood of such an occurrence is anticipated to be infrequent and would be for short durations on that day. In-water pile installation is an intermittent activity, and it is common for installation to start and stop multiple times as each pile is adjusted and its progress is measured. When two continuous noise sources, such as vibratory hammers, have overlapping sound fields, there is potential for higher sound

levels than for non-overlapping sources. When two or more vibratory hammers are used simultaneously, and the Level B harassment sound field of one source encompasses the Level B harassment sound field of another source, the sources are considered additive and combined using the following rules (see Table 5): for addition of two simultaneous vibratory hammers, the difference between the two sound source levels (SSLs) is calculated, and if that difference is between 0 and 1 dB, 3 dB are added to the higher SSL; if difference is between 2 or 3 dB, 2 dB are added to the highest SSL; if the difference is between 4 to 9 dB, 1 dB is added to the highest SSL; and with differences of 10 or more dB, there is no addition.

**Table 5 -- Rules for Combining Sound Levels Generated during Pile Installation**

Hammer Types	Difference in SSL	Level A Zones	Level B Zones
Vibratory, Impact	Any	Use impact zones	Use largest zone
Impact, Impact	Any	Use zones for each pile size and number of strikes	Use zone for each pile size
Vibratory, Vibratory	0 or 1 dB	Add 3 dB to the higher source level	Add 3 dB to the higher source level
	2 or 3 dB	Add 2 dB to the higher source level	Add 2 dB to the higher source level
	4 to 9 dB	Add 1 dB to the higher source level	Add 1 dB to the higher source level
	10 dB or more	Add 0 dB to the higher source level	Add 0 dB to the higher source level

Source: Modified from USDOT 1995, WSDOT 2018, and NMFS 2018b.  
 Note: dB = decibels; SSL = sound source level.

For simultaneous usage of three or more continuous sound sources, such as vibratory hammers, the three overlapping sources with the highest SSLs are identified. Of the three highest SSLs, the lower two are combined using the above rules, then the combination of the lower two is combined with the highest of the three. For example, with overlapping isopleths from 24-, 36-, and 42-inch diameter steel pipe piles with SSLs

of 161, 167, and 168 dB rms respectively, the 24- and 36-inch would be added together; given that  $167 - 161 = 6$  dB, then 1 dB is added to the highest of the two SSLs (167 dB), for a combined noise level of 168 dB. Next, the newly calculated 168 dB is added to the 42-inch steel pile with SSL of 168 dB. Since  $168 - 168 = 0$  dB, 3 dB is added to the highest value, or 171 dB in total for the combination of 24-, 36-, and 42-inch steel pipe piles (NMFS 2018b; WSDOT 2018). As described in Table 5, dB addition calculations were carried out for all possible combinations of vibratory installation.

When calculating Level B harassment zones for simultaneous use of an impact hammer and a vibratory hammer, the Level B zones are calculated using the largest zone for either the impact pile driving or the vibratory pile driving.

In consideration of the various pile types and sizes and the construction work plan for the different structures and components of the project, San Francisco developed a set of likely worst case scenarios for the activities that would be carried out over the course of individual days (Table 6). These scenarios encompass the worst possible combinations of simultaneous pile driving over the worst possible number of days it might take to complete those tasks. There are four basic scenarios plus the short-term addition of pile removal of the timber piles from the old pier. The course of the project is broken up into work windows for the first month of the project versus the remaining months. Within each of these temporal work windows there are some days with driving of larger and louder piles (called the maximum exposure days) and some days where driving will be of smaller piles (called average exposure days). The table shows what pile driving source is used to calculate the Level A and level B zones under each scenario.

The applicant discusses how they will follow the California Environmental Quality Act requirement that a bubble curtain be used during operation of an impact hammer if sound pressures exceeded 160 dB at 500 meters from the source. Because San Francisco will not use a bubble curtain for all impact hammering of any pile size, we do not include a source level reduction for bubble curtain use or isopleth calculation for this project.

**Table 6 -- Work Scenarios with Simultaneous Pile Driving Sources Used to Calculate Level A and Level B zones**

Date	Location	Total Days	Piles driven during 24 hours	Drive Type	Pile Type	Loudest Potential Sound Source Combination	
						Level A	Level B
<b>MAXIMUM EXPOSURE DAYS</b>							
July to January 15	North Breakwater	50	4	Impact	24-inch octagonal concrete or 14x48-inch concrete sheetpiles	Impact 24-inch octagonal concrete	2 vibratory 14-inch x 89-foot steel H-pile
			4	Vibratory	14-inch x 89-foot steel H-piles		
<b>AVERAGE EXPOSURE DAYS</b>							
July	Ferry Pier	20	1	Vibratory	36-inch steel pipe (fender and/or mooring piles)	2 vibratory (36-inch) steel pipes	2 vibratory (36-inch) steel pipes
			2	Vibratory	14-inch x 89-foot steel H-piles		
July to January 15	North Breakwater	112	1	Impact	14 x 48-inch concrete sheetpiles	Impact 14 x 48-inch	2 vibratory 14-inch x 89-foot steel H-pile
			2	Vibratory	14-inch x 89-foot steel H-piles		
July to December 31	Existing Timber Pier Removal	14*	15	Vibratory	12-inch Timber Piles	Same as above	12-inch timber pile plus 14-inch x 89-foot steel H-pile

\*Pier removal will overlap with work days in July to December 2020, but is kept separate as it is short duration and will have different zone sizes.

*Level B Harassment Zones*



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

$$TL = B * \text{Log}_{10} (R1/R2), \text{ where}$$

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

R1 = the distance of the modeled SPL from the driven pile, and

R2 = the distance from the driven pile of the initial measurement

The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for San Francisco's proposed activity.

Using the practical spreading model, San Francisco determined underwater noise would fall below the behavioral effects threshold of 120 dB rms for marine mammals at distances of 1,585 to 34,164 m depending on the pile type(s) and number of simultaneous vibratory hammers (Table 7). The distance determines the maximum Level B harassment zones for the project. Other activities have smaller Level B harassment zones. It should be noted that based on the geography of Treasure Island, sound will not reach the full distance of the largest Level B harassment isopleth, except a potential sliver that would exit San Francisco Bay. We do not expect significant sound to exit San Francisco Bay however because the entrance to the bay is 13 kilometer (km) from the project location,

there is extensive anthropogenic ambient noise from vessels and development in San Francisco that would mask the project sounds, and the geography and bathymetry of the bay is not conducive to sounds originating from Treasure Island escaping San Francisco Bay.

**Table 7 -- Level B Isopleths for Each Work Scenario**

	Maximum Exposure Day	Average Exposure Day		
	July-January	July	July-January	July-December
Loudest Pile Type or Combination	2 vibratory 14-inch x 89-foot steel H-pile	2 vibratory (36-inch) steel pipes	2 vibratory 14-inch x 89-foot steel H-pile	vibratory 14-inch x 89-foot steel H-pile and vibratory removal of 12-inch timber pile
Level B Isopleth (meters)	1585	34,164	1585	2512

*Level A Harassment Zones*

When the NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which may result in some degree of overestimate of take by Level A harassment. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to

quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources such as impact/vibratory pile driving or drilling, NMFS User Spreadsheet predicts the closest distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would not incur PTS.

Inputs used in the User Spreadsheet (Table 8), and the resulting isopleths are reported below (Table 9) for each of the work scenarios. These inputs follow the rules for simultaneous pile driving as described in Table 5. The weighting factor adjustments for impact pile driving were all 2 kilohertz (kHz) and for vibratory pile driving were 2.5 kHz.

**Table 8 -- NMFS Technical Guidance User Spreadsheet Input to Calculate Level A Isopleths for a Combination of Pile Driving**

	High Exposure Day	Average Exposure Day		
	July-January	July	July-January	July- December
Pile Type	24-inch Octagonal Concrete Impact	36-inch Steel Simultaneous Vibratory	14x48-inch Concrete Sheet Pile Impact	Vibratory Removal of 12-inch Timber Pile
Source Level (RMS SPL)	170	173	157	153
Source Level (Peak)	189		168	
Source Level (ssSEL)	164		147	
Strike Duration (sec)	0.1			
Number of Piles per day	4	2*	1	15
Number of Strikes per Pile/ Duration to drive a single pile	1000 strikes	45 minutes	600 strikes	5 minutes
Distance of source level measurement	10	10	33	15.8

(m)				
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Note: Propagation loss coefficient is 15LogR for all cells.

\*Two combined piling events, four piles total.

The above input scenarios lead to PTS isopleth distances (Level A thresholds) of 0.1 to 88 meters, depending on the marine mammal group and scenario (Table 9).

**Table 9 -- Calculated Distances (meters) to Level A Harassment Isopleths (m) During Pile Installation and Removal for each Hearing Group and Work Scenario**

Pile Driving Activity			Low-Frequency Cetaceans (m)	Mid-Frequency Cetaceans (m)	High-Frequency Cetaceans (m)	Phocid Pinnipeds (m)	Otariid Pinnipeds (m)
Maximum Exposure Day	July - January	24-inch Octagonal Concrete Impact	74	3	88	39	3
Average Exposure Day	July	36-inch steel simultaneous vibratory	57	5	84	34	2
	July - January	14x48-inch concrete sheet pile impact	9	0.3	11	5	0.3
	Vibratory Removal of 12-inch Timber pile		2	0.2	3	1	0.1

Note: a 10-meter shutdown zone will be implemented for all species and activity types to prevent direct injury of marine mammals.

### *Marine Mammal Occurrence and Take Calculation and Estimation*

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. For the three most common species (harbor seal, California sea lion, and Harbor porpoise) density data exists from the multiple years of the San Francisco-Oakland Bay Bridge (SFOBB) demolition and reconstruction project (Caltrans 2015, 2018). For other species we used

more qualitative data on observations from the SFOBB project and observations from year one of this project along with local information on strandings and other biology. Take by Level A and B harassment is proposed for authorization and summarized in Table 10.

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

#### *Bottlenose Dolphin*

Density data for this species in the project vicinity do not exist. SFOBB monitoring showed two observations of this species over 6 days of monitoring in 2017 (CalTrans 2018). No common bottlenose dolphins were observed over the course of 264 monitoring hours within the 1,000 foot (305 m) monitoring zone for the Treasure Island Ferry Dock project in 2019. One common bottlenose dolphin is sighted with regularity near Alameda (GGCR 2016). Based on the regularity of the sighting in Alameda and the SFOBB observations of approximately 0.33 dolphin a day, we propose the Level B harassment take equivalent to 0.33 dolphins per day for the 182 proposed days of the project, or 61 common bottlenose dolphin. Because the Level A harassment zones are relatively small and we believe the PSO will be able to effectively monitor the Level A harassment zones, we do not anticipate or propose take by Level A harassment of bottlenose dolphins.

#### *Harbor Porpoise*

Density data for this species from SFOBB monitoring was 0.17/km<sup>2</sup> (CalTrans 2018). Based on the work scenarios of different pile types there are three different sized ensonified areas to be considered to estimate Level B harassment take (Table 11).

Multiplication of the above density times the corresponding scenario area and duration, and summing the results for the two scenarios leads to a Level B harassment take of 563 harbor porpoise (Table 11).

Given the relatively high density and size of the Level A isopleths for two of the scenarios for Harbor porpoises (Table 9, high-frequency cetaceans) we consider Level A harassment take is a possibility. Based on density alone it is estimated only two harbor porpoises will enter a Level A harassment zone. However, we recognize that harbor porpoises travel in groups of up to 10 individuals and observers of the Treasure Island Ferry Dock project in 2019 recorded two harbor porpoises over 264 hours of observation, or 0.008 per hour. Based on this observation take equivalent to this rate (0.008 per hour) over the entire project period of 182 days (10 hours per day or 1820 hours) equals 15 animals. Because the observation area in 2019 is larger than the small Level A harassment zones for this species, we propose take at less than one-half this rate. As such, we propose Level A harassment take of 7 harbor porpoise.

Because any harbor porpoises that enter the Level A harassment zone would initially be counted as entering the Level B harassment zone, we deduct the Level A harassment take from the Level B harassment take calculation in Table 11 to avoid double-counting and arrive at the Level B harassment take in Table 10.

#### *California Sea Lion*

Density data for this species from SFOBB monitoring was 0.16/km<sup>2</sup> (CalTrans 2018). Based on the work scenarios of different pile types there are three different sized ensonified areas to be considered to estimate Level B harassment take (Table 11).

Multiplication of the above density times the corresponding scenario area and duration,

and summing the results for the two scenarios leads to a Level B harassment take of 512 California sea lions (Table 11).

Given the relatively high density for California sea lions we consider Level A harassment take a possibility. Based on density alone it is estimated only one California sea lion will enter a Level A harassment zone. However, we recognize that observers of the Treasure Island Ferry Dock project in 2019 recorded five California sea lions over 264 hours of observation, or 0.019 per hour. Because the observation area in 2019 is much larger than the small otariid Level A harassment zones we propose take at less than one-third this rate. Specifically we propose take of 10 California sea lions.

Because any California sea lions that enter the Level A harassment zone would initially be counted as entering the Level B harassment zone, we deduct the Level A harassment take from the Level B harassment take calculation in Table 11 to avoid double-counting and arrive at the Level B harassment take in Table 10.

#### *Northern Fur Seal*

Density data for this species in the project vicinity do not exist. SFOBB monitoring showed no observations of this species (CalTrans 2018). None were observed for the Treasure Island Ferry Dock project in 2019. The Marine Mammal Center rescues about five northern fur seals in a year, and they occasionally rescue them from Yerba Buena Island and Treasure Island (TMMC, 2019). To be conservative we propose Level B harassment take of five northern fur seals. Because the Level A harassment zones are relatively small and we believe the PSOs will be able to effectively monitor the Level A harassment zones, and the species is rare, we do not anticipate or propose take by Level A harassment of northern fur seals.

### *Northern Elephant Seal*

Density data for this species in the project vicinity do not exist. SFOBB monitoring showed no observations of this species (CalTrans 2018). None were observed for the Treasure Island Ferry Dock project in 2019. Out of the approximately 100 annual northern elephant seal strandings in San Francisco Bay, approximately 10 individuals strand at Yerba Buena or Treasure Islands each year (TMMC, 2020). Therefore, we propose the Level B harassment take of 10 northern elephant seals. Because the Level A harassment zones are relatively small and we believe the PSOs will be able to effectively monitor the Level A harassment zones, and the species is rare, we do not anticipate or propose take by Level A harassment of northern elephant seals.

### *Harbor Seal*

Density data for this species from SFOBB monitoring was 3.92/km<sup>2</sup> (CalTrans 2018). Based on the work scenarios of different pile types there are three different sized ensonified areas to be considered to estimate Level B harassment take (Table 11). Multiplication of the above density times the corresponding scenario area and duration leads to an estimate of 511 harbor seals per day for the pipe pile scenario. Summing the results for the two scenarios leads to an expectation of 12,701 instances of Level B harassment take of harbor seals.

The number of expected takes per day for the pipe pile scenario (511) exceeds the estimate that there is only 500 harbor seals in San Francisco Bay (NPS 2016). It is our normal practice not to issue more than one take per individual per day. Therefore, we cap the number of takes per day for this scenario at 500 per day. Thus, summing the results



for the two scenarios leads to a Level B harassment take of 12,481 harbor seals (Table 11).

Given the relatively high density and size of the Level A isopleths for many of the scenarios for harbor seals (Table 9, phocid pinnipeds) we consider Level A harassment take is a possibility. Based on density alone it is estimated that 3 harbor seals will enter a Level A harassment zone. However, we recognize that harbor seals can occur in moderate and rarely large size groups and observers of the Treasure Island Ferry Dock project in 2019 recorded 324 harbor seals over 264 hours of observation, or 6.12 per km<sup>2</sup> per hour. Based on this observation and the size and days of activity for the two large Level A harassment zones we request take equivalent to this rate. As such, we propose Level A harassment take of 20 harbor seals.

Because any harbor seals that enter the Level A harassment zone would initially be counted as entering the Level B harassment zone, we deduct the Level A harassment take from the Level B harassment take calculation in Table 11 to avoid double-counting and arrive at the Level B harassment take in Table 10.

#### *Gray Whale*

Density data for this species in the project vicinity do not exist. SFOBB monitoring showed no observations of this species (CalTrans 2018). None were observed for the Treasure Island Ferry Dock project in 2019. Approximately 12 gray whales were stranded in San Francisco Bay from January to May of 2019 (TMMC, 2019). Because recent observations are not well understood, Treasure Island sits near the entrance to the bay, and as a conservative measure, we propose Level B harassment take of 10 gray whales. Because the Level A harassment zones are relatively small and we believe the

PSOs will be able to effectively monitor the Level A harassment zones, and the species is rare, we do not anticipate or propose take by Level A harassment of gray whales.

**Table 10 -- Authorized Amount of Taking, by Level A Harassment and Level B Harassment, by Species and Stock and Percent of Take by Stock**

Species	Authorized Take		Percent of Stock
	Level B	Level A	
Harbor seal ( <i>Phoca vitulina</i> ) California Stock	12,461	20	1.6
Harbor porpoise ( <i>Phocoena phocoena</i> ) San Francisco – Russian River Stock	538	7	5.5
California sea lion ( <i>Zalophus californianus</i> ) U.S. Stock	502	10	0.2
Gray whale ( <i>Eschrichtius robustus</i> ) Eastern North Pacific Stock	10	0	<0.1
Common bottlenose dolphin ( <i>Tursiops truncatus</i> ) California Coastal Stock	61	0	13.5
Northern elephant seal ( <i>Mirounga angustirostris</i> ) California breeding Stock	10	0	<0.1
Northern fur seal ( <i>Callorhinus ursinus</i> ) California and Eastern North Pacific Stocks	5	0	<0.1

**Table 11 -- Calculations of Level B Harassment Take From Density Data by Species**

		Harbor Porpoise	California Sea Lion	Harbor Seal
SFOBB density (animals/ square km)		0.17	0.16	3.96
	Piling Scenario / Level B isopleth Distance (m)			
Days of Pile Driving	2 vibratory 14-inch x 89-foot steel H-pile / 1585 m	148	148	148
	2 vibratory (36-inch) steel pipes / 34,164 m	20	20	20
	12-inch timber pile plus 14-inch x 89-foot steel H-pile / 2512 m	14	14	14
Area of Isopleth in square kilometers	2 vibratory 14-inch x 89-foot steel H-pile / 1585 m	3.42	3.42	3.42
	2 vibratory (36-inch) steel pipes / 34,164 m	129	129	129
	12-inch timber pile plus 14-inch x 89-foot steel H-pile / 2512 m	8.6	8.6	8.6
Per day take Level B	2 vibratory 14-inch x 89-foot steel H-pile / 1585 m	0.6	0.5	13.5
	2 vibratory (36-inch) steel pipes / 34,164 m	21.9	20.6	500*
	12-inch timber pile plus 14-inch x 89-foot steel H-pile	1.5	1.4	34
Total Level B Take Calculated		545	512	12,481

\*Capped at maximum population size (500) in San Francisco Bay per day (NPS 2016)

### Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of

effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

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

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

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The following mitigation measures are listed in the IHA:

- For in-water heavy machinery work other than pile driving (*e.g.*, standard barges, *etc.*), if a marine mammal comes within 10 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. This type of work could include the following activities: (1) Movement of the barge to the pile location; or (2) positioning of the pile on the substrate via a crane (*i.e.*, stabbing the pile);
- Conduct briefings between construction supervisors and crews and the marine mammal monitoring team prior to the start of all pile driving activity and when new personnel join the work, to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures;
- For those marine mammals for which Level B harassment take has not been requested, in-water pile installation/removal will shut down immediately if such species are observed within or entering the Level B harassment zone; and
- If take reaches the authorized limit for an authorized species, pile installation will be stopped as these species approach the Level B harassment zone to avoid additional take.

The following mitigation measures would apply to San Francisco's in-water construction activities.

- *Establishment of Shutdown Zones*- San Francisco will establish shutdown zones for all pile driving and removal activities. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones will vary based on the activity type and marine

mammal hearing group (Table 3). The largest shutdown zones are generally for high frequency cetaceans, as shown in Table 12.

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

**Table 12 -- Shutdown Zones During Pile Installation and Removal**

Pile Driving Activity			Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
High Exposure Day	July - January	24-inch Octagonal Concrete Impact	80	10	100	40	10
Average Exposure Day	July	36-inch steel simultaneous vibratory	60	10	100	40	10
	July - January	14 x 48-inch concrete sheet pile impact	10	10	20	10	10
	Vibratory Removal of 12-inch Timber pile		10	10	10	10	10

- *Monitoring for Level A and Level B Harassment-* San Francisco will monitor the Level A and B harassment zones. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence

of marine mammals in the project area outside the shutdown zone and thus prepare for a potential halt of activity should the animal enter the shutdown zone. Placement of PSOs will allow PSOs to observe marine mammals within the Level A and B harassment zones. However, due to the large Level B harassment zones (Table 7), PSOs will not be able to effectively observe the entire zone. Therefore, Level B harassment exposures will be recorded and extrapolated, as necessary, based upon the number of observed takes and the percentage of the Level B harassment zone that was not visible.

- *Pre-activity Monitoring-* Prior to the start of daily in-water construction activity, or whenever a break in pile driving/removal of 30 minutes or longer occurs, PSOs will observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone will be considered cleared when a marine mammal has not been observed within the zone for that 30-minute period. If a marine mammal is observed within the shutdown zone, a soft-start cannot proceed until the animal has left the zone or has not been observed for 15 minutes. When a marine mammal for which Level B harassment take is authorized is present in the Level B harassment zone, activities may begin and Level B harassment take will be recorded. If the entire Level B harassment zone is not visible at the start of construction, pile driving activities can begin. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones will commence.
- *Soft Start-* Soft-start procedures are believed to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile

driving, contractors will be required to provide an initial set of three strikes from the hammer at reduced energy, followed by a 30-second waiting period. This procedure will be conducted three times before impact pile driving begins. Soft start will be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

- Pile driving or removal must occur during daylight hours.

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

### **Monitoring and Reporting**

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.



Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the 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 mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

### *Visual Monitoring*

Marine mammal monitoring must be conducted in accordance with the Monitoring section of the application and section 5 of the IHA. Marine mammal monitoring during pile driving and removal must be conducted by NMFS-approved PSOs in a manner consistent with the following:

- Independent PSOs (*i.e.*, not construction personnel) who have no other assigned tasks during monitoring periods must be used;
- Other PSOs may substitute education (degree in biological science or related field) or training for experience; and
- San Francisco must submit PSO Curriculum Vitae for approval by NMFS prior to the onset of pile driving.

PSOs must have the following additional qualifications:

- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

Two PSOs will be employed. PSO locations will provide an unobstructed view of all water within the shutdown zone(s), and as much of the Level A and Level B harassment zones as possible. PSO locations are as follows:

(1) At the pile driving site(s) or best vantage point practicable to monitor the shutdown zones; and

(2) For the large Level B harassment zone associated with simultaneous driving of large pipe piles (i.e. 36-inch), or when vibratory driving a 36-inch pile by itself, a second PSO will be placed near Pier 33 in San Francisco.

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

### *Reporting*

A draft marine mammal monitoring report will be submitted to NMFS within 90 days after the completion of pile driving and removal activities, or 60 days prior to a requested date of issuance of any future IHAs for projects at the same location, whichever comes first. The report will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets.

Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring.

- Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed and by what method (*i.e.*, impact or vibratory).
- Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).
- The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
- Age and sex class, if possible, of all marine mammals observed.
- PSO locations during marine mammal monitoring.
- Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
- Description of any marine mammal behavior patterns during observation, including direction of travel and estimated time spent within the Level A and Level B harassment zones while the source was active.
- Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).
- Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.

- Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
- An extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible, when applicable.

If no comments are received from NMFS within 30 days, the draft final report will constitute the final report. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

#### *Reporting Injured or Dead Marine Mammals*

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, San Francisco shall report the incident to the Office of Protected Resources (OPR), NMFS and to the regional stranding coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, San Francisco must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The IHA-holder must not resume their activities until notified by NMFS. The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);

- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

### **Negligible Impact Analysis and Determination**

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), 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’s 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 of the species listed in Table 10, given that many of the anticipated effects of this project on

different marine mammal stocks are expected to be relatively similar in nature. Additional discussion is included for harbor seals, which occur more densely in the area and may be disturbed repeatedly during the season. Pile driving activities have the potential to disturb or displace marine mammals. Specifically, the project activities may result in take, in the form of Level A harassment and Level B harassment from underwater sounds generated from pile driving and removal. Potential takes could occur if individuals are present in the ensonified zone when these activities are underway.

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

The Level A harassment zones identified in Table 9 are based upon an animal exposed to impact pile driving multiple piles per day. Considering duration of impact driving each pile (up to 10 minutes) and breaks between pile installations (to reset equipment and move pile into place), this means an animal would have to remain within the area estimated to be ensonified above the Level A harassment threshold for multiple hours. This is highly unlikely given marine mammal movement throughout the area. If an animal was exposed to accumulated sound energy, the resulting PTS would likely be small (*e.g.*, PTS onset) at lower frequencies where pile driving energy is concentrated, and unlikely to result in impacts to individual fitness, reproduction, or survival.

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

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

We are authorizing large numbers of take of harbor seals. As discussed above, there are approximately 500 harbor seals in San Francisco Bay. Thus we expect most of the harbor seal take to consist of repeated take of a smaller number of individuals, rather than a large proportion of the stock. Most of the take is expected to occur from the 20 days of simultaneous vibratory pile driving of large piles. However, we are not concerned about fitness impacts as the daily exposure is likely to be brief and intermittent. The 20 days of simultaneous pile driving are not expected to be sequential, providing the animals recovery time. The presence of the large simultaneous level B harassment zones are also



likely to be of very short duration within a day on any given day given the dynamics of operating and adjusting different pile driving rigs and thus the likelihood that both rigs will be operating simultaneously. It is also the case that some of the simultaneous pile driving will consist of one large pile and smaller, quieter H-piles (see Table 6), so that effects are likely to be less significant. In addition, this area of the bay lacks important habitat areas, including haulouts within the level B harassment zone, and the existing industrialized nature and loud ambient noise of the area minimize the degradation of habitat and effects on individual fitness, reproduction, or survival. Moreover, harbor seals resident in San Francisco Bay are likely habituated to this noise and activity as evident in the low number of observed responses, none of which seemed severe, from monitoring. Finally, the status of this stock is not of concern.

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

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

- No mortality is anticipated or authorized.

- Authorized Level A harassment would be very small amounts and of low degree.
- No biologically important areas have been identified within the project area.
- For all species, San Francisco Bay is a very small and peripheral part of their range.
- For harbor seals take is concentrated in a small number of individuals with the 20 days of major activity spread out, the most severe simultaneous pile driving likely of short duration on any given day in an area of unimportant habitat with significant existing anthropomorphic noise and disturbance and evidence the animals are habituated to these circumstances.
- San Francisco would implement mitigation measures such as vibratory driving piles to the maximum extent practicable, soft-starts, and shut downs.
- Monitoring reports from similar work in San Francisco Bay have documented little to no effect on individuals of the same species impacted by the specified activities.

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 monitoring and mitigation measures, NMFS finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

### **Small Numbers**

As noted above, only small numbers of incidental take may be authorized under section 101(a)(5)(D) of the MMPA for specified activities other than military readiness

activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The amount of take NMFS proposes to authorize of all species or stocks is below one third of the estimated stock abundance. These are all likely conservative estimates because they assume all takes are of different individual animals which is likely not the case. Some individuals may return multiple times in a day, but PSOs would count them as separate takes if they cannot be individually identified.

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

### **Unmitigable Adverse Impact Analysis and Determination**

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

### **National Environmental Policy Act**

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

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

#### **Endangered Species Act**

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

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

#### **Authorization**

NMFS has issued an IHA to San Francisco for the potential harassment of small numbers of seven marine mammal species incidental to the Treasure Island Ferry Dock project in San Francisco, California, provided the previously mentioned mitigation, monitoring and reporting requirements are followed.

Dated: July 16, 2020.

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Donna S. Wieting,  
Director, Office of Protected Resources,  
National Marine Fisheries Service.

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