

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 Renewal IHA qualifies to be categorically excluded from further NEPA review.

#### IHA Renewal

NMFS has issued an IHA Renewal that includes the previously described mitigation, monitoring, and reporting requirements to PISCO for the harassment of small numbers of the three marine mammal species incidental to conducting rocky intertidal monitoring surveys off the coasts of Oregon and California for a period of one year.

Dated: April 22, 2019.

**Donna S. Wieting,**

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

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## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

RIN 0648–XG876

#### Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Chevron Richmond Refinery Long Wharf Maintenance and Efficiency Project in San Francisco Bay, California

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

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

**SUMMARY:** NMFS has received a request from Chevron for authorization to take marine mammals incidental to pile driving and removal associated with the Long Wharf Maintenance and Efficiency Project (LWMEP) in San Francisco Bay, California. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-year

renewal that could be issued under certain circumstances and if all requirements are met, as described in *Request for Public Comments* at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorizations and agency responses will be summarized in the final notice of our decision.

**DATES:** Comments and information must be received no later than May 28, 2019.

**ADDRESSES:** Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service. Physical comments should be sent to 1315 East-West Highway, Silver Spring, MD 20910 and electronic comments should be sent to [ITP.Pauline@noaa.gov](mailto:ITP.Pauline@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 <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act> without change. All personal identifying information (e.g., name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

**FOR FURTHER INFORMATION CONTACT:** Rob Pauline, 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 such 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 such takings are set forth.

#### 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 incidental harassment authorization) with respect to potential impacts on the human environment.

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

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

#### Summary of Request

On January 17, 2019, NMFS received a request from Chevron for an IHA to take marine mammals incidental to pile

driving and pile removal associated with the LWMEP in San Francisco Bay, California. The application was deemed adequate and complete on April 8, 2019. Chevron's request is for take of a small number of seven species of marine mammals, by Level B harassment and Level A harassment. Neither Chevron nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued an IHA to Chevron for similar work (82 FR 27240; June 17, 2017). However, the construction schedule and scope was revised and no work was conducted under that IHA. NMFS issued a second IHA on May 31, 2018 to Chevron for work not conducted in 2017 (83 FR 27578; June 13, 2018). This newly proposed IHA would cover one year of this larger project for which Chevron obtained the prior IHAs, and Chevron also intends to request take authorizations for subsequent facets of the project. The larger multi-year project involves various construction activities that would allow Chevron to comply with Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) and to improve safety and efficiency at the Long Wharf. Chevron complied with

all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHA and information regarding their monitoring results may be found in the *Estimated Take* section.

Because of the similarity of the work and marine mammal impacts to that covered in previous IHAs, we have often cited back to previous documents for more detailed descriptions.

#### **Description of Proposed Activity**

##### *Overview*

Chevron's Richmond Refinery Long Wharf (Long Wharf) located in San Francisco Bay, is the largest marine oil terminal in California. The existing configuration of these systems have limitations to accepting more modern, fuel efficient vessels with shorter parallel mid-body hulls and in some cases do not meet current MOTEMS requirements. The purpose of the proposed LWMEP is to comply with current MOTEMS requirements and to improve safety and efficiency at the Long Wharf.

Impact and vibratory pile driving and removal will be employed during the proposed construction project. These actions could produce underwater sound at levels that could result in the

injury or behavioral harassment of marine mammal species. The proposed IHA would be effective from June 1, 2019 through May 31, 2020.

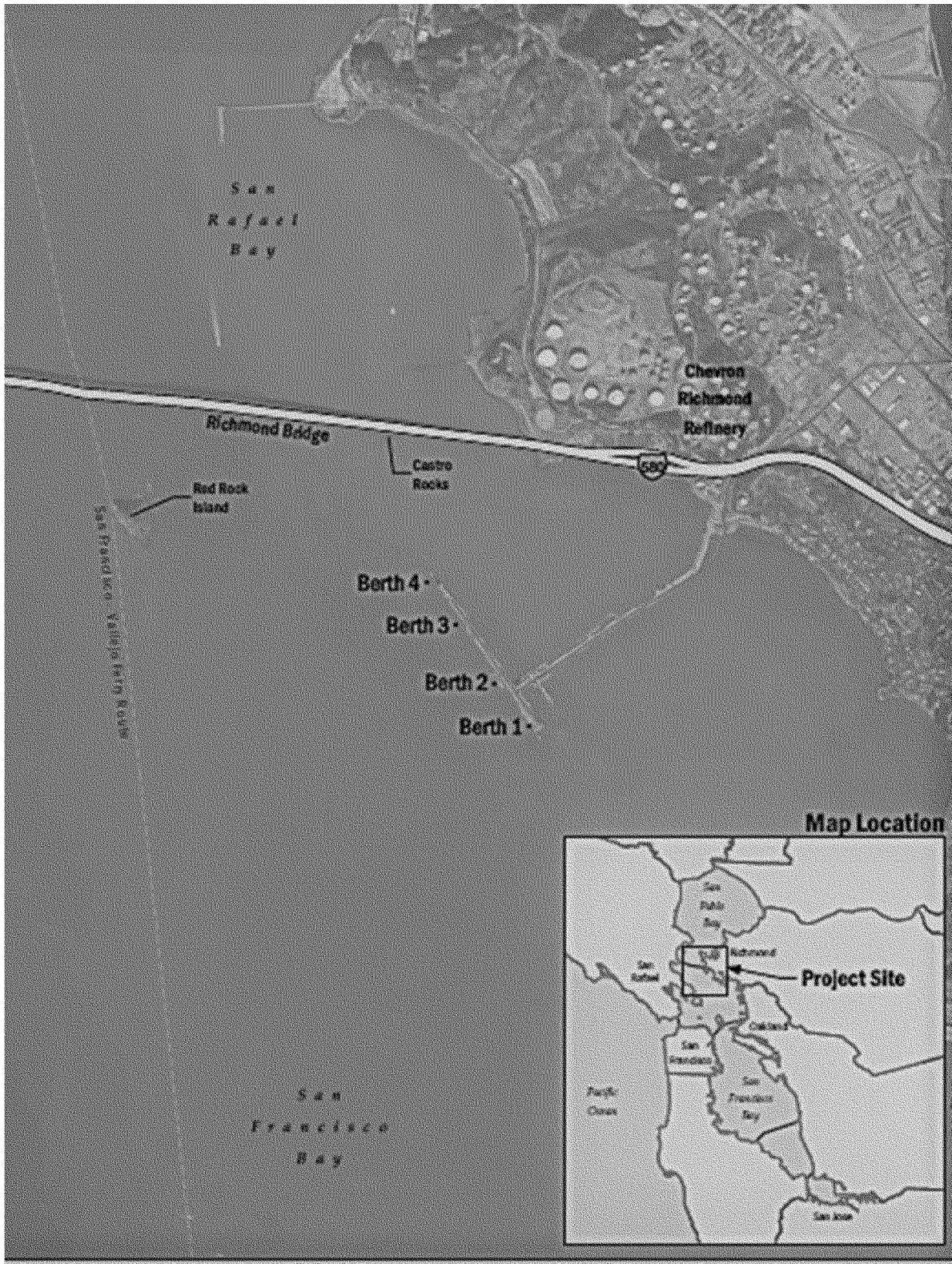
##### *Dates and Duration*

Pile driving activities would be timed to occur within the standard NMFS work windows for Endangered Species Act (ESA)-listed fish species (June 1 through November 30) over multiple years. An estimated 67 days of pile driving activity within the designated work window are planned for 2019. Additional work in the future will require subsequent IHAs. The proposed IHA would be effective from June 1, 2019 through May 31, 2020.

##### *Specific Geographic Region*

The Long Wharf is located in San Francisco Bay (the Bay) just south of the eastern terminus of the Richmond-San Rafael Bridge (RSRB) in Contra Costa County. The wharf is located in the northern portion of the central bay, which is generally defined as the area between the RSRB, Golden Gate Bridge, and San Francisco-Oakland Bay Bridge (SFOBB).

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**Figure 1. Long Wharf Maintenance and Efficiency Project (LWMEP) Location.**

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*Detailed Description of Specific Activity*

The proposed project would involve modifications at Berths 1, 2, 3, and 4 as shown in Figure 1. NMFS refers the

reader to the documents related to the previously issued 2018 IHA for more detailed description of the project activities, which include vibratory

driving and removal as well as impact pile driving. These previous documents include the **Federal Register** notice of the issuance of the 2018 IHA for Chevron's LWMEP project (83 FR

27578; June 13, 2018), the **Federal Register** notice of the proposed IHA (83 FR 18802; April 30, 2018), as well as Chevron's current IHA application for the 2019 work season. The current

application is requesting take for the pile driving that will occur during the 2019 work season as shown in Table 1.

TABLE 1—PILE DRIVING SUMMARY FOR 2019 WORK SEASON

Pile type	Pile driver type	Number of piles	Number of driving days
60-inch steel pipe piles .....	Impact .....	8	8
36-inch steel template pile (Installation and removal)	Vibratory/Impact Proofing .....	8	4
20-inch steel template pile (Installation and removal)	Vibratory .....	8	4
22-inch concrete pile removal .....	Vibratory .....	5	1
24-inch square concrete .....	Impact .....	39	30
12-inch composite barrier piles .....	Vibratory .....	52	11
Timber pile removal .....	Vibratory .....	106	9

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

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

Table 2 lists species that may occur in the vicinity of the project area. A description of the marine mammals in the area of the activities is found in the **Federal Register** notice of the issuance

of the 2018 IHA for Chevron's LWMEP project (83 FR 27578; June 13, 2018), the **Federal Register** notice of the proposed IHA (83 FR 18802; April 30, 2018), as well as Chevron's current IHA application for the 2019 work season.. NMFS has reviewed the monitoring data from the initial IHA, recent draft Stock Assessment Reports, information on relevant Unusual Mortality Events, and other scientific literature, and determined that neither this nor any

other new information affects which species or stocks have the potential to be affected or the pertinent information in the Description of the Marine Mammals in the Area of Specified Activities contained in the supporting documents for the initial IHA. Specifically, the only change from the 2018 IHA is an increase in numbers of the eastern north Pacific stock of gray whale which have increased 20,990 to 26,960.

TABLE 2—MARINE MAMMALS POTENTIALLY PRESENT IN THE VICINITY OF THE PROJECT AREA

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>
<b>Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)</b>						
Family Eschrichtiidae: Gray whale .....	<i>Eschrichtius robustus</i> .....	Eastern North Pacific .....	-/-; (N)	26,960 (0.05, 25,849, 2016).	801	138
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 Stock.	-/-; (N)	9,886 (0.51, 6,625, 2011)	66	0
<b>Order Carnivora—Superfamily Pinnipedia</b>						
Family Otariidae (eared seals and sea lions): California sea lion .....	<i>Zalophus californianus</i> .....	Eastern U.S. stock .....	-/-; (N)	296,750 (-, 153,337, 2011).	9,200	389
<i>Steller sea lion</i> .....	<i>Eumetopias jubatus</i> .....	Eastern U.S. stock .....	-/-; (N)	41,638 (-, 41,638, 2015)	2,498	108
Northern fur seal .....	<i>Callorhinus ursinus</i> .....	California stock .....	-/-; (N)	14,050 (-, 7,524, 2013) ..	451	1.8
Family Phocidae (earless seals): Pacific harbor seal .....	<i>Phoca vitulina</i> .....	California stock .....	-/-; (N)	30,968 (-, 27,348, 2012) ..	1,641	43
Northern elephant seal .....	<i>Mirounga angustirostris</i> .....	California Breeding stock .....	-/-; (N)	179,000 (-, 81,368, 2010)	4,882	8.8

<sup>1</sup> 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.

<sup>2</sup> NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region#reports>. CV is coefficient of variation; N<sub>min</sub> is the minimum estimate of stock abundance.

<sup>3</sup> 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.

*Marine Mammal Hearing*

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and

Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018)

described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

TABLE 3—MARINE MAMMAL HEARING GROUPS [NMFS, 2018]

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

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

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Seven marine mammal species (three cetacean and four pinniped (two otariid and two phocid) species) have the reasonable potential to co-occur with the proposed survey activities. Of the cetacean species that may be present, one is classified as a low-frequency cetacean (*i.e.*, gray whale), one is classified as a mid-frequency cetacean (*i.e.*, bottlenose dolphin), and one is classified as a high-frequency cetacean (*i.e.*, harbor porpoise).

**Potential Effects of Specified Activities on Marine Mammals and Their Habitat**

A description of the potential effects of the specified activities on marine mammals and their habitat may be found in the **Federal Register** notice of the issuance of the 2018 IHA for Chevron's LWMEP project (83 FR 27578; June 13, 2018) and the **Federal Register** notice of the proposed IHA (83 FR 18802; April 30, 2018). This information remains applicable to the

issuance of the proposed 2019 IHA. NMFS has reviewed the monitoring data from the initial IHA and other scientific literature, and found no new information that would affect our initial analysis of impacts on marine mammals and their habitat.

The *Estimated Take by Incidental Harassment* section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The *Negligible Impact Analysis and Determination* section considers the content of this section, the *Estimated Take 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.

**Estimated Take**

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact 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.*, pile driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for limited auditory injury (Level A harassment) to result, primarily for high frequency species (harbor porpoises) because predicted auditory injury zones are larger than for other functional hearing groups and for phocids (harbor seals) as there is a sizable harbor seal haulout (Castro Rocks) located in close proximity to the project area. The proposed mitigation and monitoring measures are expected to minimize the severity of such taking to the extent practicable.

As described previously, no mortality is anticipated or proposed to be 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) and 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). Below, we describe the factors considered here in more detail and present the proposed 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 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). 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 microPascal, root mean square (µPa (rms) for continuous (e.g., vibratory pile-driving), and above 160 dB re 1 µPa (rms) for non-explosive impulsive (e.g., seismic airguns) or intermittent (e.g., scientific sonar) sources.

Chevron’s proposed activity includes the use of continuous (vibratory pile

driving and removal) and intermittent (impact pile driving) sources and, therefore, the 120 and 160 dB re 1 µPa (rms) 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) (NMFS, 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). Chevron’s proposed activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving and removal) sources.

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

TABLE 4—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

Hearing group	PTS onset acoustic thresholds* (received level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans .....	Cell 1: $L_{pk,flat}$ : 219 dB; $L_{E,LF,24h}$ : 183 dB .....	Cell 2: $L_{E,LF,24h}$ : 199 dB.
Mid-Frequency (MF) Cetaceans .....	Cell 3: $L_{pk,flat}$ : 230 dB; $L_{E,MF,24h}$ : 185 dB .....	Cell 4: $L_{E,MF,24h}$ : 198 dB.
High-Frequency (HF) Cetaceans .....	Cell 5: $L_{pk,flat}$ : 202 dB; $L_{E,HF,24h}$ : 155 dB .....	Cell 6: $L_{E,HF,24h}$ : 173 dB.
Phocid Pinnipeds (PW) (Underwater) .....	Cell 7: $L_{pk,flat}$ : 218 dB; $L_{E,PW,24h}$ : 185 dB .....	Cell 8: $L_{E,PW,24h}$ : 201 dB.
Otariid Pinnipeds (OW) (Underwater) .....	Cell 9: $L_{pk,flat}$ : 232 dB; $L_{E,OW,24h}$ : 203 dB .....	Cell 10: $L_{E,OW,24h}$ : 219 dB.

\* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

**Note:** Peak sound pressure ( $L_{pk}$ ) has a reference value of 1 µPa, and cumulative sound exposure level ( $L_E$ ) has a reference value of 1 µPa<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.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

**Ensonified Area**

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

**Source Levels**

The project includes impact pile driving, vibratory pile driving and vibratory pile removal. Source levels of pile driving activities are based on hydroacoustic testing performed in 2018 at the LWMEP location as well as

reviews of measurements of the same or similar types and dimensions of piles available in the literature. Based on this information, the source levels described below are assumed for the underwater noise produced by construction activities.

Eight batter steel pipe piles, 60-inch diameter would be installed adjacent to the existing Wharf structure to retrofit the Berth 4 loading platform to limit displacement in a seismic event. An impact driver will be used to install these piles, as it is difficult to vibrate in batter piles and these piles have very

high axial design loads that can only be achieved by impact driving methods.

Other projects conducted under similar circumstances were reviewed in order to estimate the approximate noise effects of the 60-inch steel piles. The best match found for sound source levels is from summary values provided by Caltrans in their hydroacoustic guidance document (Caltrans 2015). Summary values for the impact pile driving of 60-inch steel pipe piles indicates that noise levels of up to 210 peak, 185 dB SEL (single strike), and 195 RMS would be produced at 10

meters during pile driving using no sound attenuation such as a bubble curtain. The use of properly functioning bubble curtains is expected to reduce the peak and RMS noise levels by about 7 dB. As a result, noise levels of 203 dB peak, 178 dB SEL (single strike), and 188 dB are utilized to assess potential acoustic impacts.

It is expected that just one 60-inch pile would be driven over one (1) hour of active driving in a given day and that only one (1) pile would be installed in a given week. Installation could require up to 2,400 blows from an impact hammer, such as a HHK-16 or similar diesel hammer, producing approximately 173,000 to 217,000 ft. lbs. maximum energy per blow and 1.5 to 2 sec/blow average. As noted above, bubble curtains will be used during the installation of the 60-inch steel pipe piles in order to reduce underwater noise levels, with an assumed attenuation of 7 dB. NMFS acknowledges that noise level reductions measured at different project locations as well as different received ranges can vary widely. However, NMFS believes it reasonable to use a source level reduction factor for sound attenuation device implementation during impact pile driving. NMFS reviewed Caltrans' bubble curtain "on and off" studies conducted in San Francisco Bay in 2003 and 2004. Based on near distance measurements (a total of 28 measurements, with 14 during bubble curtain on and 14 during bubble curtain off), the linear averaged noise level reduction is 7 dB. As a conservative approach, NMFS will use a standard reduction of 7 dB of the source level for impact zone estimates.

Installation of 24-inch diameter square concrete piles is proposed for the modifications at the four berths. Approximately one to two of these piles would be installed in one work day, using impact driving methods and a bubble curtain attenuation system. Based on measured blow counts for 24-inch concrete piles driven at the Long Wharf Berth 4 in 2011, installation for each pile could require up to approximately 300 blows from a DelMag D62 22 or similar diesel hammer, producing approximately 165,000 ft lbs maximum energy (may not need full energy) and 1.5 second per blow average over a duration of approximately 20 minutes per pile, with 40 minutes of pile driving time per day if two (2) piles are installed.

To estimate the noise effects of the 24-inch square concrete piles, the underwater noise measurements recorded for this pile type at the Long Wharf during the 2018 construction

season are utilized. These measured values were: 191 dB peak, 161 dB SEL (single strike), and 173 dB RMS during attenuated impact driving (AECOM 2018).

As part of the Berth 4 Loading Platform seismic retrofit, four (4) clusters of 13 composite piles (52 piles total) will be installed to provide protection to the infrastructure. These plastic encased concrete piles would be installed with a vibratory pile driver (APE 400B King Kong or similar vibratory driver), with a drive time of approximately 10 minutes per pile. Up to five (5) of these piles could be installed in any single work day.

Projects conducted under similar circumstances with similar piles were reviewed in order to approximate the noise effects of the 12-inch composite barrier piles. Since these piles will be composed of concrete encased in plastic, vibratory installation of similarly sized concrete piles would provide a good surrogate. However, concrete piles are rarely installed with a vibratory driver, and no suitable data could be located. In the absence of this data, we are conservatively using data from the Anacortes Ferry Terminal in Washington State, where 13-inch plastic coated steel piles were installed with a vibratory hammer. RMS noise levels produced during this installation varied from 138 to 158 dB RMS at 43 meters (141 feet) from the pile (Laughlin 2012). From these measurements, a peak noise value of 178 dB and an average RMS value of 168 dB normalized to a 10 meter (33 feet) distance was used to estimate the extent of underwater noise from installation of the 12-inch composite piles. During installation of the 12-inch composite barrier piles for the proposed Project, up to 50 minutes of vibratory driving could occur per day.

For the Berth 4 Loading Platform seismic retrofit, eight (8) 36-inch diameter temporary steel piles would be installed using a vibratory pile driver (APE 400B King Kong or similar vibratory driver) will be needed to support the guide template for the driving of the permanent 60-inch steel pipe piles. Each 36-inch temporary pile has an estimated drive time of approximately 10 minutes per pile. Up to four (4) of these piles could be installed in any single work day.

Projects conducted under similar circumstances with similar piles were reviewed in order to approximate the noise effects of the 36-inch steel pipe. The best match for estimated noise levels is from the Explosive Handling Wharf-2 (EHW-2) project located at the Naval Base Kitsap in Bangor, Washington (Illingworth and Rodkin

2013) During vibratory pile driving associated with this Project, which occurred under similar circumstances, average peak noise levels were approximately 180 dB, and the RMS was approximately 170 dB at a 10 meter (33 feet) distance (Caltrans 2015a). Installation of the 36-inch steel pipe piles is expected to be require 40 minutes per day.

In total, two of the eight 36-inch temporary piles will require proofing using an impact hammer. Each pile will require up to 30 strikes from an impact hammer during proofing which will take place during the last foot of pile driving. Up to two (2) piles would be proofed in one day, with each pile requiring up to 30 strikes from an impact hammer, for a total of 60 strikes in one day. The best match found for sound source levels is from summary values provided by Caltrans in their hydroacoustic guidance document (Caltrans 2015). Summary values for the impact pile driving of 36-inch steel pipe piles in water less than 5m deep indicates that noise levels of up to 210 peak, 180 dB SEL (single strike), and 193 RMS would be produced at 10 meters during pile driving. Since impact hammers are often operated at reduced power output during proofing, the source levels are likely to be lower than the values for impact driving used here. Due to very limited time that pile proofing would occur (60 strikes total, over a few minutes of active hammering) no sound attenuation would be used.

The Berth 4 Loading Platform seismic retrofit will require vibratory installation of, eight (8) 20-inch diameter temporary steel piles (APE 400B King Kong or similar vibratory driver) to support the guide template needed for the driving the permanent 60-inch steel pipe piles. Each 20-inch temporary pile has a drive time per pile of approximately 10 minutes. Up to four (4) of these piles could be installed in any single work day. The best match for estimated noise levels is from vibratory driving of 24-inch piles at the Explosive Handling Wharf-2 (EHW-2) project located at the Naval Base Kitsap in Bangor, Washington (Illingworth and Rodkin 2013). During vibratory pile driving associated with this Project, which occurred under similar circumstances, measured peak noise levels were approximately 180 dB, and the RMS was approximately 163 dB at a 10 meter (33 feet) distance (Illingworth and Rodkin 2013). During installation of the 20-inch steel pipe piles will require approximately 40 minutes per day.

The project includes the removal of 106 16-inch timber piles, and five (5) 18

to 24-inch square concrete piles using a vibratory pile driver. Up to 12 of these piles could be extracted in one (1) work day. Extraction time needed for each pile may vary greatly, but could require approximately 400 seconds (approximately seven (7) minutes) from an APE 400B King Kong or similar driver. The most applicable noise values for wooden pile removal from which to base estimates for the LWMEP are derived from measurements taken at the Pier 62/63 pile removal in Seattle, Washington. During vibratory pile extraction associated with this Project, which occurred under similar circumstances, the RMS was approximately 152 dB (WSDOT 2011). Applicable sound values for the removal of concrete piles could not be located, but they are expected to be similar to the levels produced by wooden piles described above, as they are similarly sized, non-metallic, and will be removed using the same methods.

For pile driving that does not have project specific hydroacoustic data

available, the practical spreading model with a transmission loss coefficient of 15 (4.5 dB per doubling of distance) is used. However, project-specific transmission loss values have been measured for the impact driving of concrete piles and the vibratory driving of concrete piles. For those types of pile driving, a transmission loss factor of 20 (~8 dB per doubling of distance) has been measured and will be applied. This value is calculated from hydroacoustic monitoring of vibratory driving of steel piles and attenuated impact driving of concrete piles conducted as part of the LWMEP. The results of the 2018 hydroacoustic monitoring are provided in Appendix A of the application.

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 Level A harassment take. 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 and vibratory pile driving), 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, and the resulting isopleths are reported below in Table 5.

TABLE 5—INPUTS FOR USER SPREADSHEET

Spreadsheet tab used	E.1–2: Impact pile driving			A.1: Vibratory driving			
	60-inch steel	24-inch concrete	36-inch steel	12-inch Composite	36-inch steel	20-inch steel	Wood/ concrete
Source Level .....	178 SEL .....	161 SEL .....	180 SEL .....	168 RMS .....	170 RMS .....	150 RMS .....	152 RMS.
Weighting Factor Adjustment (kHz).	2 .....	2 .....	2 .....	2.5 .....	2.5 .....	2.5 .....	2.5.
Number of strikes in 1 h OR number of strikes per pile.	2,400 .....	300 .....	30 .....	NA .....	NA .....	NA .....	NA.
Number of piles per day .....	1 .....	2 .....	2 .....	5 .....	4 .....	4 .....	12.
Propagation (xLogR) .....	15 .....	20 .....	15 .....	15 .....	20 .....	20 .....	15.
Duration to Drive single pile (minutes).	NA .....	NA .....	NA .....	10 .....	10 .....	10 .....	7.
Distance of source level measurement (meters).	10 .....	10 .....	10 .....	10 .....	10 .....	10 .....	10.

Table 6 shows the Level A harassment isopleths as determined utilizing inputs from Table 5. Note that for all calculations, the results based on SEL<sub>ss</sub>

are larger than SPL<sub>pk</sub>, therefore, distances calculated using SEL<sub>ss</sub> are used to calculate the area. Level B Harassment isopleths for impact and

vibratory driving and extraction are shown in Table 7.

TABLE 6—RADIAL DISTANCES TO LEVEL A HARASSMENT ISOPLETHS DURING IMPACT AND VIBRATORY DRIVING

Project element requiring pile installation	Source levels at 10 meters (dB)		Distance to Level A threshold in meters (feet)				
	Peak	RMS/SEL	Low-frequency cetaceans	Mid-frequency cetaceans	High-frequency cetaceans	Phocid pinnipeds	Otariid pinnipeds
Attenuated Impact Driving (with bubble curtain):							
60-inch steel pipe (1 per day) .....	203 .....	178 SEL .....	831 (2,726)	30 (97)	990 (3,247)	445 (1,459)	32 (106)
24-inch square concrete (1–2 per day).	191 .....	161 SEL .....	19 (64)	2 (5)	22 (73)	12 (40)	2 (6)
Impact Pile Proofing (no bubble curtain):							
36-inch steel pipe pile (2 total) .....	210 .....	180 SEL .....	97 (317)	3 (11)	115 (377)	52 (170)	4 (12)
Vibratory Driving/Extraction:							



TABLE 6—RADIAL DISTANCES TO LEVEL A HARASSMENT ISOPLETHS DURING IMPACT AND VIBRATORY DRIVING—Continued

Project element requiring pile installation	Source levels at 10 meters (dB)		Distance to Level A threshold in meters (feet)				
	Peak	RMS/SEL	Low-frequency cetaceans	Mid-frequency cetaceans	High-frequency cetaceans	Phocid pinnipeds	Otariid pinnipeds
12-inch Composite Barrier Pile (5 per day).	178 .....	168 RMS .....	18 (58)	2 (5)	26 (86)	11 (35)	1 (2)
36-inch steel pipe pile (4 per day)	195 .....	170 RMS .....	17 (57)	3 (9)	23 (76)	12 (39)	2 (5)
20-inch steel pipe pile (4 per day)	180 .....	163 RMS .....	8 (25)	1 (4)	10 (34)	5 (17)	1 (2)
Wood and concrete pile extraction (12 per day).	No Data .....	152 RMS .....	2 (7)	0 (<1)	3 (10)	1 (4)	0 (<1)

TABLE 7—RADIAL DISTANCES TO LEVEL B HARASSMENT ISOPLETHS DURING IMPACT AND VIBRATORY DRIVING

Pile type	Source levels at 10 meters (dB)		Distance to threshold 160/120 dB RMS (Level B) in meters (feet)
	Peak	RMS	
Attenuated Impact Driving (with Bubble curtain):			
60-inch steel pipe (1 per day) .....	203	188	736 (2,413)
24-inch square concrete (1–2 per day) .....	191	173	45 (147)
Impact Pile Proofing (no Bubble curtain):			
36-inch steel pipe pile (2 total) .....	210	193	1,585 (5,198)
Vibratory Driving/Extraction:			
12-Inch Composite Barrier Piles (5 per day) .....	178	168	15,849 (51,984)
36-inch steel pipe pile (4 per day) .....	180	170	3,162 (10,372)
20-inch steel pipe pile (4 per day) .....	180	163	1,413 (4,633)
Wood and concrete pile extraction (12 per day) .....	*	152	1,359 (4,459)

\*No Data Available.

Marine Mammal Occurrence

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 2019 IHA application, a combination of nearby haul-out occupancy and at-sea densities were used to develop take estimates, in order to account for both local movements of harbor seals that haul out at Castro Rocks and other individuals that may be foraging in the more distant part of the Level B Harassment zone. By using hydroacoustic data collected in 2018, extent of the harassment zones was refined for vibratory driving of steel piles and attenuated impact driving of concrete piles by using the transmission loss measured during 2018 project (20logr). As the Level B Harassment zones estimated for the 2019 IHA are generally more localized, only the occupancy from the local Castro Rocks haul-out is used.

Castro Rocks, located approximately 1.3 km northwest of the project site, is the largest harbor seal haul out site in the northern part of San Francisco Bay and is the second largest pupping site in the Bay (Green *et al.* 2002). Tidal stage is a major controlling factor of haul out

usage at Castro Rocks with more seals present during low tides than high tide periods (Green *et al.* 2002). Additionally, the number of seals hauled out at Castro Rocks also varies with the time of day, with proportionally more animals hauled out during the nighttime hours (Green *et al.* 2002). Therefore, the number of harbor seals in the water around Castro Rocks will vary throughout the work period. Pile driving would occur intermittently during the day with average active driving times typically of a few hours per day, so varying sets of animals may be hauled out or in the water. However, there are no systematic counts available for accurately estimating the number of seals that may be in the water near the Long Wharf at any given time. The National Park Service provided recent data indicating that up to 176 seals could be present each day at Castro Rocks. This value was conservatively based on the highest mean plus the standard error of harbor seals observed at Castro Rocks per day (Codde, S. and S. Allen. 2013, 2015, and 2017), a value of 176 seals. The 2018 draft Long Wharf marine mammal monitoring report indicated that 24 harbor seals were observed within the Level B harassment

zone and zero individuals were observed within the Level A harassment zone over 10 days of pile driving, which equals less than 1 percent of the authorized number of harbor seals with an average of 2.4 animals per day. The maximum number observed per day was six.

Since there are no California sea lion haul-outs in the vicinity of the project area, relatively few animals are expected to be present. However, monitoring for the RSRB did observe limited numbers in the north and central portions of the Bay during working hours. During monitoring for the San Francisco-Oakland Bay Bridge (SFOBB) Project in the central Bay, 83 California sea lions were observed in the vicinity of the bridge over a 17-year period from 2000–2017, and from these observations, an estimated at-sea density of 0.16 animals per square kilometer is derived (NMFS 2018). This bridge is located approximately 25 km south of the LWMEP location and is considered by NMFS to be the best available information. The 2018 Long Wharf draft monitoring report did not record any observations of sea lions.

Small numbers of northern elephant seal may haul out or strand on coastline

within the Central Bay. Monitoring of marine mammals in the vicinity of the SFOBB has been ongoing for 15 years. From those data, Caltrans has produced an estimated at-sea density for northern elephant seal of 0.16 animal per square mile (0.06 animal per square kilometer) (Caltrans, 2015b). Most sightings of northern elephant seal in San Francisco Bay occur in spring or early summer, and are less likely to occur during the periods of in-water work for this project. As a result, densities during pile driving for the proposed action are likely to be lower. Additionally, this species was not observed by the marine mammal observers in the vicinity of the Long Wharf during 2018 pile driving monitoring.

The occurrence of northern fur seal in San Francisco Bay depends largely on oceanic conditions, with animals more likely to strand during El Niño events. Equatorial sea surface temperatures are above average across most of the Pacific Ocean this year, and El Niño is expected to continue through winter of 2019 and into spring (NOAA 2019). There are no estimated at-sea densities for this species in San Francisco Bay and no seals were recorded during 2018 Long Wharf marine mammal monitoring.

A small but growing population of harbor porpoises utilizes San Francisco Bay which are typically spotted in the vicinity of Angel Island and the Golden Gate (6 and 12 kilometers [3.7 and 7.5 miles] southwest respectively) and the vicinity of Treasure Island (Caltrans 2018). However, they may occur in other areas in the Central Bay in low numbers, including the project area. Based on monitoring conducted for the SFOBB project in 2017, an in-water density of 0.17 animals per square kilometer has been estimated by

Caltrans for this species (NMFS 2018). No members of this species were recorded during 2018 during pile driving activities at LWMEP.

Bottlenose dolphins are typically found close to the Golden Gate Bridge when they are observed in San Francisco Bay. There are no estimated at-sea densities for this species in San Francisco Bay available for calculating a take estimate. Beginning in 2015, two individuals have been observed frequently in the vicinity of Oyster Point (GGCR 2018; Perlman, 2017). The average reported group size for bottlenose dolphins is five. Reports show that a group normally comes into San Francisco Bay, is near Yerba Buena Island once per week for approximately two (2) weeks and then leaves (NMFS, 2017).

Gray whales have been observed entering the Bay during their northward migration period, and are most often sighted in the Bay between February and May. Most venture only about 2 to 3 km (about 1–2 miles) past the Golden Gate. However, gray whales have occasionally been sighted as far north as San Pablo Bay. Pile driving is not expected to occur during the February–May period, and gray whales are not likely to be present at other times of year. No whales were observed as part of 2018 Long Wharf marine mammal monitoring activities.

*Take Calculation and Estimation*

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

When density data was available, take for the project was calculated by multiplying the density times the harassment zone (km<sup>2</sup>) associated with pile driving activities that are underway times the number of construction days.

Since density data was only available for harbor seals, harbor porpoises, and California sea lions, these were the only species whose take was calculated using this methodology. For species without density information, information on average group size or local observational data was used as described below.

*Pacific Harbor Seal*

Chevron initially estimated that all harbor seals (176) at Castro Rocks would be exposed to noise that reaches the threshold for Level B harassment on every day on which there was pile driving. The areas of the Level A harassment zones in which take by injury could occur were determined by subtracting the shutdown zone areas from Level A harassment zone areas. Estimated Level A take for impact driving of the 60-inch and 36-inch steel piles was then estimated by taking Level B take and multiplying it by the ratio of the Level A zone area to the Level B zone area. Level A take is not requested for vibratory driving. This resulted in an estimated 11,968 takes by Level B harassment and 513 takes by Level A harassment. However, given that the 2018 IHA, overestimated the amount of authorized seal takes by a considerable margin (based on recorded <1 percent of the authorized number of takes observed), this initial 2019 estimate is likely to also be too high. Therefore, NMFS proposes to conservatively assume that only 25 percent of these initially calculated take numbers will actually occur, resulting in a proposal of 2,992 takes by Level B harassment and 128 takes by Level A harassment. Even in consideration of animals that were likely taken but not detected, this results in a likely conservative average of 47 harbor seal takes per day.

TABLE 8—LEVEL A AND LEVEL B HARASSMENT ESTIMATE FOR PACIFIC HARBOR SEAL [Per Day]

Pile type	Level B zone (sq km)	Exclusion zone radius (m)	Level A zone, minus shutdown zone (sq km)	Estimated take per day	
				Level B take per day—total	Level A take per day—total
<b>Vibratory Driving</b>					
12-inch composite pile .....	165.62	15	0	176	NA
36-inch steel pipe pile .....	22.90	15	0	176	NA
20-inch steel pipe pile .....	5.72	10	0	176	NA
Timber/Concrete Pile Removal .....	5.33	15	0	176	NA
<b>Impact Driving</b>					
24-inch concrete pile .....	0.01	20	0	176	NA
60-inch steel pile .....	1.70	30	0.62	176	64.06
<b>Impact Proofing</b>					
36-inch steel pile .....	6.92	30	0.01	176	0.14

For impact pile driving of the 60-inch steel piles, the proposed shutdown zones (30 m) are notably smaller than the Level A harassment zone and the applicant has accordingly requested take by Level A harassment for harbor seal so that pile driving can be completed on schedule without frequent shutdowns. Individuals occurring within the Level A harassment zone but outside of the shut-down zone may

experience Level A harassment, if they reside in that area for a long enough duration. However, these animals can be highly mobile, and remaining within the small injury zone for an extended period is unlikely, though it could occur.

*California Sea Lion*

Monitoring data from the SFOBB Project over a 17-year period was used

to develop a density of 0.16 California sea lions per square kilometer. This density and the areas of the potential Level B Harassment zones are used in Table 9. Level A harassment take of this species is not requested, due to the small size of the Level A harassment zone for otariid pinnipeds.

TABLE 9—LEVEL B HARASSMENT ESTIMATE FOR CALIFORNIA SEA LION  
[per day]

Pile type	Level B zone (km <sup>2</sup> )	Level B take estimate (based on Central Bay density of 0.16 animals per km <sup>2</sup> )
<b>Vibratory Driving</b>		
12-inch composite pile .....	165.62	26.50
36-inch steel pipe pile .....	22.90	3.66
20-inch steel pipe pile .....	5.72	0.91
Timber/Concrete Pile Removal .....	5.33	0.85
<b>Impact Driving</b>		
24-inch concrete pile .....	0.01	0.01
60-inch steel pile .....	1.70	0.27
<b>Impact Proofing</b>		
36-inch steel pile .....	6.92	1.11

*Harbor Porpoise*

Based on monitoring conducted for the SFOBB project in 2017, an in-water density of 0.17 animals per square kilometer has been estimated by

Caltrans for this species (NMFS 2018). Using this in-water density and the areas of potential Level A and Level B harassment, take is estimated for harbor porpoise as provided in Table 10. Level A harassment zone areas in which PTS

could occur were determined by subtracting the shutdown zone areas from Level A harassment zone areas. Level A take is not requested for vibratory driving.

TABLE 10—LEVEL A AND LEVEL B HARASSMENT ESTIMATE FOR PACIFIC HARBOR PORPOISE  
[Per day]

Pile type	Level B zone (km <sup>2</sup> )	Exclusion zone (m)	Level A zone, minus shutdown zone (km <sup>2</sup> )	Level B estimate Central Bay in-water—0.17 per km <sup>2</sup>	Estimated Level A take per day
<b>Vibratory Driving</b>					
12-inch composite barrier pile .....	165.62	50	NA	28.16	NA
36-inch steel pipe pile .....	22.90	50	NA	3.89	NA
20-inch steel pipe pile .....	5.72	50	NA	0.97	NA
Timber/Concrete Pile Removal .....	5.33	50	NA	0.91	NA
<b>Impact Driving</b>					
24-inch concrete pile .....	0.01	50	0	0.01	0
60-inch steel pile .....	0.21	50	0.23	0.29	0.52
<b>Impact Proofing</b>					
36-inch steel pile .....	0.31	80	0	1.18	<0.01

*Northern Elephant Seal*

As noted above, elephant seal densities are expected to be extremely low. Therefore, Chevron did not use density data to calculate take. Additionally, this species was not observed by the marine mammal observers in the vicinity of the LWMEP during 2018 pile driving marine mammal monitoring activities. Therefore, Caltrans will conservatively assume that a lone northern elephant seal may enter the Level B Harassment area once per every three days during pile driving. As such, Chevron requests and NMFS proposes to authorize a total of 23 takes by Level B harassment. Level A harassment of this species is not expected to occur.

*Northern Fur Seal*

With weak El Niño conditions predicted to continue into spring and, perhaps, summer (NOAA 2019). There is a chance that fur seals could occur near the project area. Since there are no estimated at-sea densities for this

species in San Francisco Bay, Chevron conservatively requested and NMFS proposes to authorize 10 takes of fur seals by Level B harassment. Level A harassment of this species is not anticipated.

*Bottlenose Dolphin*

As noted above, there are no estimated at-sea densities for this species in San Francisco Bay available for calculating a take estimate although they have been observed. Beginning in 2015, two individuals have been observed frequently in the vicinity of Oyster Point (GGCR, 2016; GGCR 2017; Perlman, 2017). The average reported group size for bottlenose dolphins is five. Assuming the dolphins come into San Francisco Bay once every 10 days, 34 takes would be anticipated, if the group enters the areas over which the Level B harassment thresholds may be exceeded.

*Gray Whale*

Gray whales are most often sighted in the Bay between February and May.

However, LWMEP pile driving is not expected to occur during this time, and gray whales are unlikely to be present at other times of year. However, should pile driving occur during the northward migration period, Chevron requests and NMFS proposes to authorize two (2) Gray whale takes by Level B harassment.

The Level B Harassment estimates shown in Table 11 are based on the number of individuals assumed to be exposed per day, the number of piles driven per day and the number of days of pile driving expected based on an average installation rate. The Level A Harassment estimates for harbor seals and harbor porpoises are derived by taking the Level B Harassment estimates and multiplying it by the fractional ratio of the area of the Level A zone to the Level B zone as shown in Table 12. Values for harbor seals in both Table 11 and Table 12 are shown as 25 percent of total sums. Take by Level A harassment is not proposed for any other species.

TABLE 11—SUMMARY OF ESTIMATED TAKE LEVEL B HARASSMENT FOR 2019 WORK SEASON

Pile type	Pile driver type	Number of piles	Number of driving days	Species						
				Harbor seal	CA sea lion	Harbor porpoise	Gray whale	N. elephant seal	N. fur seal	Bottlenose dolphin
60-inch steel pipe.	Impact .....	8	8	1,408	2.18	2.31	NA	2.66	NA	NA
36-inch steel pipe pile **.	Vibratory .....	8	4	704	14.66	15.57	NA	1.33	NA	NA
36-inch steel pipe pile.	Impact Proofing.	2	1	176	1.11	1.18	NA	0.33	NA	NA
20-inch steel pipe pile **.	Vibratory .....	8	4	704	3.66	3.89	NA	1.33	NA	NA
Concrete pile removal.	Vibratory .....	5	1	176	0.91	0.97	NA	0.33	NA	NA
24-inch concrete.	Impact .....	39	30	5,280	0.03	0.04	NA	10	NA	NA
12-inch composite pile installation.	Vibratory .....	52	11	1,936	291.50	309.72	NA	3.66	NA	NA
Timber pile removal.	Vibratory .....	106	9	1,584	7.68	8.16	NA	3	NA	NA
Total Proposed Take by Species (2019).	.....	.....	.....	*2,992	322	342	2	23	10	34

\* Stated value equivalent to 25% of total sum.

TABLE 12—SUMMARY OF ESTIMATED TAKE LEVEL A HARASSMENT FOR 2019 WORK SEASON

Pile type	Pile driver type	Number of piles	Number of driving days	Harbor seal	Harbor porpoise
60-inch steel pipe .....	Impact .....	8	8	512.49	4.18
36-inch steel pipe pile .....	Vibratory .....	8	4	0	0
36-inch steel pipe pile .....	Impact Proofing .....	2	1	0.14	<0.01
20-inch steel pipe pile ** .....	Vibratory .....	8	4	0	0
Concrete pile removal .....	Vibratory .....	5	1	0	0
24-inch concrete .....	Impact .....	39	30	0	0
12-inch composite pile installation ....	Vibratory .....	52	11	0	0
Timber pile removal .....	Vibratory .....	106	9	0	0

TABLE 12—SUMMARY OF ESTIMATED TAKE LEVEL A HARASSMENT FOR 2019 WORK SEASON—Continued

Pile type	Pile driver type	Number of piles	Number of driving days	Harbor seal	Harbor porpoise
Total Proposed Take .....	.....	.....	.....	* 128	4

\* Stated value equivalent to 25% of total sum.

TABLE 13—PROPOSED AUTHORIZED TAKE AND PERCENTAGE OF STOCK OR POPULATION

Species	Stock	Authorized Level A takes	Authorized Level B takes	Percent (instances of take compared to population abundance)
Harbor seal .....	California .....	128	2,992	10.07
California sea lion .....	Eastern U.S .....	.....	322	<0.01
Harbor porpoise .....	San Francisco—Russian River .....	4	342	3.49
Northern elephant seal .....	California Breeding .....	.....	23	<0.01
Gray whale .....	Eastern North Pacific .....	.....	2	<0.01
Northern fur seal .....	California .....	.....	10	<0.01
Bottlenose Dolphin .....	California Coastal .....	.....	34	7.51

**Proposed Mitigation**

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable 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 (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 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 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, as well as subsistence uses. 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.

*Mitigation for Marine Mammals and Their Habitat*

The following mitigation measures are proposed for Chevron’s LWMEP:

*Noise Attenuation*—Bubble curtains will be used during all impact pile driving of 60-inch steel shell pile and 24-inch square concrete piles to

interrupt acoustic pressure and reduce impact on marine mammals. The use of bubble curtains is expected to reduce underwater noise levels by approximately 7 dB, which greatly reduces the area over which the cumulative SEL threshold for Level A Harassment may be exceeded. Bubble curtains would also decrease the size of the Level B harassment zone, reducing the numbers of marine mammals affected by potential behavioral impacts.

*Daylight Construction Period*—Work would occur only during daylight hours (7:00 a.m. to 7:00 p.m.) when visual marine mammal monitoring can be conducted.

*Establishment of a Shutdown Zone*—For all pile driving/removal and drilling activities, Chevron will establish shutdown zones. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). A shutdown zone will be established which will include all or a portion of the area where SPLs are expected to reach or exceed the cumulative SEL thresholds for Level A harassment as provided in Table 14.

TABLE 14—SHUTDOWN ZONES FOR LWMEP

Project element requiring pile installation	Exclusion zones meters				
	Low-frequency cetaceans	Mid-frequency cetaceans	High-frequency cetaceans	Phocid pinnipeds	Otariid pinnipeds
Attenuated Impact Driving (with bubble curtain):					
60-inch steel pipe .....	840	30	50	30	35
24-inch square concrete .....	20	10	50	15	10
Impact Pile Proofing (no bubble curtain):					
36-inch steel pipe pile .....	100	10	80	30	10

TABLE 14—SHUTDOWN ZONES FOR LWMEP—Continued

Project element requiring pile installation	Exclusion zones meters				
	Low-frequency cetaceans	Mid-frequency cetaceans	High-frequency cetaceans	Phocid pinnipeds	Otariid pinnipeds
Vibratory Driving/Extraction:					
12-inch Composite Barrier Pile .....	20	10	50	15	10
36-inch steel pipe pile .....	20	10	50	15	10
20-inch steel pipe pile .....	10	10	50	10	10
Wood and concrete pile extraction .....	10	10	50	10	10

Establishment of Monitoring Zones for Level A and Level B—Chevron will establish and monitor Level A harassment zones during impact driving for harbor seal extending to 450 meters and harbor seals and extending to 990 for harbor porpoises. These are areas beyond the shutdown zone in which animals could be exposed to sound levels that could result in Level A harassment in the form of PTS. Chevron will also establish and monitor Level B harassment zones which are areas where SPLs are equal to or exceed the 160 dB rms threshold for impact driving and the 120 dB rms threshold during vibratory driving and extraction as shown in Table 7. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones also 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 cease of activity should the animal enter the shutdown zone. Level B harassment exposures will be recorded and extrapolated based upon the number of observed take and the percentage of the Level B harassment zone that was not visible.

**10-Meter Shutdown Zone**—During the in-water operation of heavy machinery (e.g., barge movements), a 10-m shutdown zone for all marine mammals will be implemented. 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.

**Soft Start**—The use of a soft-start procedure 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. Chevron shall use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a

thirty-second waiting period, then two subsequent reduced energy strike sets.

**Pre-Activity Monitoring**—Pre-activity monitoring shall take place from 30 minutes prior to initiation of pile driving activity and post-activity monitoring shall continue through 30 minutes post-completion of pile driving activity. Pile driving may commence at the end of the 30-minute pre-activity monitoring period, provided observers have determined that the shutdown zone is clear of marine mammals, which includes delaying start of pile driving activities if a marine mammal is sighted in the zone, as described below.

If a marine mammal approaches or enters the shutdown zone during activities or pre-activity monitoring, all pile driving activities at that location shall be halted or delayed, respectively. If pile driving is halted or delayed due to the presence of a marine mammal, the activity may not resume or commence until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal. Pile driving activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than thirty minutes.

**Non-authorized Take Prohibited**—If a species for which authorization has not been granted or a species for which authorization has been granted but the authorized takes are met, is observed approaching or within the monitoring zone, pile driving and removal activities must shut down immediately using delay and shut-down procedures. Activities must not resume until the animal has been confirmed to have left the area or an observation time period of 15 minutes has elapsed.

Based on our evaluation of the Chevron's proposed measures, as well as other measures considered by NMFS, we have preliminarily determined that the proposed 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.

### Proposed Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present 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

The following visual monitoring measures are required as part of the issued IHA.

- One day of biological monitoring would occur within one week before the project's start date to establish baseline observations;
- Monitoring distances, in accordance with the identified shutdown, Level A, and Level B zones, will be determined by using a range finder, scope, hand-held global positioning system (GPS) device or landmarks with known distances from the monitoring positions;
- Monitoring locations will be established at locations offering best views of the monitoring zone;
- Monitoring would be conducted 30 minutes before, during, and 30 minutes after pile driving/removal and drilling 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/removal and drilling activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.
- Monitoring will be continuous unless the contractor takes a break longer than 2 hours from active pile driving, in which case, monitoring will be required 30 minutes prior to restarting pile installation;
- For in-water pile driving, under conditions of fog or poor visibility that might obscure the presence of a marine mammal within the shutdown zone, the pile in progress will be completed and then pile driving suspended until visibility conditions improve;
- At least two PSOs will be actively scanning the monitoring zone during all pile driving activities;
- Monitoring of pile driving shall be conducted by qualified PSOs (see below), who shall have no other assigned tasks during monitoring periods. Chevron shall adhere to the following conditions when selecting observers:
  - (1) Independent PSOs shall be used (*i.e.*, not construction personnel);
  - (2) At least one PSO must have prior experience working as a marine

mammal observer during construction activities;

(3) Other PSOs may substitute education (degree in biological science or related field) or training for experience; and

(4) Chevron shall submit PSO CVs for approval by NMFS;

• Chevron will ensure that observers have the following additional qualifications:

(1) Ability to conduct field observations and collect data according to assigned protocols;

(2) Experience or training in the field identification of marine mammals, including the identification of behaviors;

(3) Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;

(4) 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

(5) 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.

#### Hydroacoustic Monitoring

Sound Source Verification (SSV) testing of would be conducted under this IHA. The purpose of the planned acoustic monitoring plan is to collect underwater sound-level information at both near and distant locations during vibratory pile extraction and installation and impact pile installation.

Hydroacoustic monitoring would be conducted by a qualified monitor during pile extraction and driving activities as described in the Hydroacoustic Monitoring plan and will likely include the following during 2019:

- Acoustic monitoring for at least two (2) 60-inch steel pipe piles at Berth 4;
- Acoustic monitoring for at least one (1) 36-inch pile at Berth 4;
- Acoustic monitoring for at least one (1) 20-inch pile at Berth 4;
- Acoustic monitoring of a representative pile removal; and
- Acoustic monitoring of two (2) composite piles.

#### Proposed Reporting Measures

A draft marine mammal monitoring report would be submitted to NMFS within 90 days after the completion of pile driving and removal and drilling

activities. It 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;
- 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; and

- Level B harassment exposures recorded by PSOs must be extrapolated based upon the number of observed takes and the percentage of the Level B harassment zone that was not visible.

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.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such

activities. It 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;
- 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; and
- Level B harassment exposures recorded by PSOs must be extrapolated based upon the number of observed takes and the percentage of the Level B harassment zone that was not visible.

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.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such

as an injury, serious injury or mortality, Chevron would immediately cease the specified activities and report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator. The report would include the following information:

- Description of the incident;
- Environmental conditions (*e.g.*, Beaufort sea state, visibility);
- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

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

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

In the event that Chevron discovers an injured or dead marine mammal and the lead PSO 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), Chevron would report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator, within 24 hours of the discovery. Chevron would provide photographs, video footage (if available), or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

### 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).

Pile driving and extraction associated with Chevron’s LWMEP project as outlined previously have the potential to injure, disturb or displace marine mammals. Specifically, the proposed activities may result in Level B harassment (behavioral disturbance) for seven marine mammal species authorized for take from underwater sound generated during pile driving and removal operations. Level A harassment in the form of limited PTS may also occur to animals of two species. No marine mammal stocks for which incidental take authorization are listed as threatened or endangered under the ESA or determined to be strategic or depleted under the MMPA. No serious injuries or mortalities are anticipated to occur as a result of Chevron’s pile driving activities.

A limited number of animals (128 harbor seals and 4 harbor porpoises) could experience Level A harassment in the form of PTS if they stay within the Level A harassment zone during impact

driving of 60-inch steel and 36-inch steel piles. The degree of injury is expected to be mild and is not likely to affect the reproduction or survival of the individual animals. It is expected that, if hearing impairments occurs, most likely the affected animal would lose a few dB in its hearing sensitivity, which in most cases is not likely to affect its survival and recruitment.

The Level B takes that are anticipated and authorized are expected to be limited to short-term behavioral harassment. Marine mammals present near the action area and taken by Level B harassment would most likely show overt brief disturbance (*e.g.*, startle reaction) and avoidance of the area from elevated noise level during pile driving. However, this is unlikely to result in any significant realized decrease in fitness for the affected individuals or stocks for which take is authorized. While harbor seals from Castro Rocks may experience some temporary low-level behavioral impacts, the number of seals potentially affected is conservatively estimated at approximately 10 percent of the stock. This number, however, likely includes multiple takes of the same individuals. Furthermore, Castro Rocks and the LWMEP location represent a small portion of the range of the California stock of harbor seal. These two factors indicate that a much lower percentage of the stock would potentially be affected and, therefore, no adverse impacts to the stock as a whole are expected.

The project is not expected to have significant adverse effects on affected marine mammal habitat. The activities may cause fish to leave the area temporarily. This could impact marine mammals’ foraging opportunities in a limited portion of the foraging range; but, because of the relatively short duration of driving activities and the relatively small area of affected habitat, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences. Furthermore, there are no biologically important areas identified in the project area.

The likelihood that marine mammals will be detected by trained observers is high under the environmental conditions described for the project. The employment of the soft-start mitigation measure during impact driving would also allow marine mammals in or near the shutdown and Level A zone zones to move away from the impact driving sound source. Therefore, the mitigation and monitoring measures are expected to reduce the potential for injury and reduce the amount and intensity of



behavioral harassment. Furthermore, the pile driving activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in other similar locations which have taken place with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment.

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

- No mortality is anticipated or authorized;
- Anticipated incidences of Level A harassment would be in the form of a small degree of PTS to a limited number of animals;
- Anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior;
- No biologically important areas have been identified in the vicinity of the project area;
- The small percentage of the stock that may be affected by project activities (<10.07 percent for all stocks); and
- Efficacy of mitigation measures is expected to minimize the likelihood and severity of the level of harassment.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

#### Small Numbers

As noted above, only small numbers of incidental take may be authorized under Sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

Table 13 depicts the number of animals that could be exposed to Level A and Level B harassment from work

associated with Chevron's proposed project. The analysis provided indicates that authorized take would account for no more than 10.07 percent of the populations of the stocks that could be affected. These are small numbers of marine mammals relative to the sizes of the affected stocks.

Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals 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.

#### Endangered Species Act (ESA)

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.

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

#### Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to Chevron for conducting pile driving and removal activities at Chevron's Long Wharf from June 1, 2019 through May 31, 2020, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

#### Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this Notice of Proposed IHA for the proposed action. We also request comment on the potential for

renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform our final decision on the request for MMPA authorization.

On a case-by-case basis, NMFS may issue a one-year IHA renewal with an expedited public comment period (15 days) when (1) another year of identical or nearly identical activities as described in the Specified Activities section is planned or (2) the activities would not be completed by the time the IHA expires and a second IHA would allow for completion of the activities beyond that described in the Dates and Duration section, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to expiration of the current IHA.

- The request for renewal must include the following:

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

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

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

Dated: April 23, 2019.

**Catherine Marzin,**

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

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