



BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XG067

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; Issuance of an Incidental Harassment Authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA), as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Chevron to incidentally take, by Level A and/or Level B harassment, seven species of marine mammals during the Long Wharf Maintenance and Efficiency Project (WMEP) in San Francisco Bay, California.

DATES: This Authorization is applicable from June 1, 2018 through May 31, 2019.

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:

www.nmfs.noaa.gov/pr/permits/incidental/construction.htm. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (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 authorization is provided to the public for review.

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

NMFS has defined “negligible impact” in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

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

Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal 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).

Summary of Request

On February 1, 2018, NMFS received a request from Chevron for an IHA to take marine mammals incidental to pile driving and pile removal associated with the WMEP in San Francisco Bay, California. Chevron's request is for take of seven species by Level A and Level B harassment. Neither Chevron nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS has issued an IHA to Chevron authorizing the take of seven species by Level A and Level B harassment. Pile driving and removal will take 28 days and will be timed to occur within the work windows developed for Endangered Species Act (ESA)-listed fish species (June 1 through November 30). The IHA is effective from June 1, 2018 through May 31, 2019. This IHA would cover one year of a larger project for which Chevron intends to request additional take authorizations for subsequent facets of the project.

Description of Planned Activity

Chevron's Richmond Refinery Long Wharf (Long Wharf) located in San Francisco Bay, is the largest marine oil terminal in California. The Long Wharf has existed in its current location since the early 1900s (Figure 1-1 in Application). 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 Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). The purpose of the planned WMEP is to comply with current MOTEMS requirements and to improve safety and efficiency at the Long Wharf. The planned project will involve modifications at four berths (Berths 1, 2, 3, and 4). Modifications to the Long Wharf include replacing gangways and cranes, adding new mooring hooks and standoff fenders, adding new dolphins and catwalks, and modifying the fire water system at Berths 1, 2, 3

and/or 4, as well as the seismic retrofit to the Berth 4 loading platform. The type and numbers of piles to be installed, as well as those that will be removed during the 2018-2022 period are summarized in Table 1.

Table 1. Planned Pile Installation and Removal for Entire Project 2018-2022.

| Item | Description | No. Piles | Pile Installation / Removal Method | |
|------------------------------|--|---|------------------------------------|---------|
| New Installation | 1 | Berth 1 Mooring Hook Dolphin | 13 | Impact |
| | 2 | Berth 1 Outer Breasting Dolphin | 17 | Impact |
| | 3 | Berth 1 Inner Breasting Point | 8 | Impact |
| | 4 | Berth 1 Gangway | 4 | Impact |
| | 5 | Berth 1 Walkways | 0 | - |
| | 6 | Berth 2 South Outside Fender | 10 | Impact |
| | 7 | Berth 2 South Inside Fender | 10 | Impact |
| | 8 | Berth 2 North Inside Fender | 9 | Impact |
| | 9 | Berth 2 North Outside Fender | 10 | Impact |
| | 10 | Berth 2 Main Hose Crane | 4 | Impact |
| | 11 | Berth 2 Aux Crane | 4 | Impact |
| | 12 | Berth 2 Vapor Recovery Hose Crane | 0 | - |
| | 13 | Berth 2 Gangway | 4 | Impact |
| | 14 | Berth 3 Gangway | 4 | Impact |
| | 15 | Berth 4 South Breasting Dolphin | 22 | Impact |
| | 16 | Berth 4 North Breasting Dolphin | 22 | Impact |
| | 17 | Berth 4 Walkways | 0 | - |
| | Total 24-inch Square Concrete Piles | | 141 | |
| | 18 | Berth 4 Loading Platform Retrofit (60-inch-diameter Steel Piles) | 8 | Impact |
| 19 | Berth 4 Barrier Piles (4 Clusters of 13 Composite Piles) | 52 | Vibrate | |
| Total Additional Fill | | 201 | | |
| Permanent Removal | 20 | Berth 1 Pile Removal | -2 | Vibrate |
| | 21 | Berth 2 Pile Removal (106 Wooden - Actual Count) | -106 | Vibrate |
| | 22 | Berth 2 Whaler Removal (excluding wooden Piles) | - | - |
| | 23 | Berth 2 Brace Piles (22-inch Square Concrete Jacketed Timber Piles) | -3 | Cut |
| | 24 | Berth 4 Concrete Pile Removal | -2 | Cut |
| | 25 | Berth 1 Existing Walkway | - | - |
| Total Removal | | -113 | | |
| Net Change | | 88 | - | |
| Temporary Fill | 26 | Berth 1 Pile Removal | 36 | Vibrate |
| | 27 | Berth 2 Pile Removal (106 Wooden - Actual Count) | - | - |
| | 28 | Berth 2 Whaler Removal (excluding wooden Piles) | 12 | Vibrate |

The combined modifications to Berths 1 to 4 would require the installation of 141 new concrete piles to support new and replacement equipment and their associated structures. The Berth 4 loading platform would add eight, 60-inch diameter steel piles as part of the seismic

retrofit. The project would also add four clusters of 13 composite piles each (52 total) as markers and protection of the new batter (driven at an angle) piles on the east side of the Berth 4 retrofit. The project would remove 106 existing timber piles, three existing 22-inch and two existing 24-inch concrete piles. A total of 12 temporary piles would also be installed and removed during the seismic retrofit of Berth 4.

Note that the proposed IHA will only cover pile driving and removal that will occur during the 2018 work season, as provided in Table 2.

Table 2. Pile Driving Summary for 2018 Work Season.

| Pile Type | Pile Driver Type | Number of Piles | Number of Driving Days |
|---|-------------------|-----------------|------------------------|
| 36-inch steel template pile | Vibratory | 8 | 2 |
| Concrete pile removal | Vibratory | 5 | 1 |
| 24-inch concrete | Impact | 8 | 8 |
| 14-inch H pile installation (for temporary fenders) | Vibratory/Impact* | 36 | 12 |
| Timber pile removal | Vibratory | 53 | 5 |

*A vibratory driver will be preferentially used for installation of the temporary H piles. In the event that the pile hits a buried obstruction and can no longer be advanced with a vibratory driver, and impact hammer may be used.

These actions could produce underwater sound at levels that could result in the injury or behavioral harassment of marine mammal species. A detailed description of Chevron’s planned project is provided in the **Federal Register** notice for the proposed IHA (83 FR 18802; April 30, 2018). Since that time, no changes have been made to the planned project activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Comments and Responses

A notice of NMFS's proposal to issue an IHA to Chevron was published in the **Federal Register** on April 30, 2018 (83 FR 18802). That notice described, in detail, Chevron’s activity, the marine mammal species that may be affected by the activity, the anticipated effects on

marine mammals and their habitat, proposed amount and manner of take, and proposed mitigation, monitoring and reporting measures. During the 30-day public comment period, NMFS received one comment letter from the Marine Mammal Commission (Commission); the Commission's recommendations and our responses are provided here, and the comments have been posted online at: www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.

Comment: The Commission commented that the method NMFS used to estimate the numbers of takes during the proposed activities, which summed fractions of takes for each species across project days, does not account for and negates the intent of NMFS' 24-hour reset policy. The Commission also recommends that NMFS develop and share guidance on this issue.

Response: NMFS will share the guidance with the Commission following the completion of internal review and looks forward to discussing the issue with them in the future.

Comment: The Commission requested clarification of certain issues associated with NMFS's notice that one-year renewals could be issued in certain limited circumstances and expressed concern that the process would bypass the public notice and comment requirements. The Commission also suggested that NMFS should discuss the possibility of renewals through a more general route, such as a rulemaking, instead of notice in a specific authorization. The Commission further recommended that if NMFS did not pursue a more general route, that the agency provide the Commission and the public with a legal analysis supporting our conclusion that this process is consistent with the requirements of section 101(a)(5)(D) of the MMPA.

Response: The process of issuing a renewal IHA does not bypass the public notice and comment requirements of the MMPA. The notice of the proposed IHA expressly notifies the public that under certain, limited conditions an applicant could seek a renewal IHA for an additional year. The notice describes the conditions under which such a renewal request could be

considered and expressly seeks public comment in the event such a renewal is sought. Importantly, such renewals would be limited to where the activities are identical or nearly identical to those analyzed in the proposed IHA, monitoring does not indicate impacts that were not previously analyzed and authorized, and the mitigation and monitoring requirements remain the same, all of which allow the public to comment on the appropriateness and effects of a renewal at the same time the public provides comments on the initial IHA. NMFS has, however, modified the language for future proposed IHAs to clarify that all IHAs, including renewal IHAs, are valid for no more than one year and that the agency would consider only one renewal for a project at this time. In addition, notice of issuance or denial of a renewal IHA would be published in the Federal Register, as are all IHAs. Last, NMFS will publish on our website a description of the renewal process before any renewal is issued utilizing the new process.

Comment: The Commission recommended that NMFS review more thoroughly both the applications prior to deeming them complete and its notices prior to submitting them for publication in the **Federal Register** and that NMFS better evaluate the proposed exclusion/shut-down zones that are to be implemented for each proposed incidental take authorization.

Response: NMFS thanks the Commission for its recommendation.

Comment: The Commission expressed concern about what they assert is the lack of adequate time to provide public comments as well as the abbreviated timeframes during which NMFS is able to address public comments. The Commission recommended that NMFS ensure that it publishes and finalizes proposed incidental harassment authorizations sufficiently before the planned start date of the proposed activities to ensure full consideration is given to all comments received.

Response: NMFS provided the required 30-day notice for public comment, and has adequately considered all public comments received in making the necessary findings.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS’s Stock Assessment Reports (SAR; www.nmfs.noaa.gov/pr/sars/) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS’s website. We provided a description of the specified activity in our **Federal Register** notice announcing the proposed authorization (83 FR 18802; April 30, 2018). Please refer to that document; we provide only a summary table here (Table 3).

Table 3. Marine Mammals Potentially Present in the Vicinity of the Project Area.

| Common name | Scientific name | Stock | ESA/MMPA status; Strategic (Y/N) ¹ | Stock abundance (CV, N _{min} , most recent abundance survey) ² | PBR | Annual M/ST ³ |
|---|-------------------------------|-----------------------------------|---|--|-------|--------------------------|
| Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales) | | | | | | |
| Family Eschrichtiidae | | | | | | |
| Gray whale | <i>Eschrichtius robustus</i> | Eastern North Pacific | -/-(N) | 20,990 (0.05, 20,125, 2011) | 624 | 132 |
| Family Balaenidae | | | | | | |
| 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 |
| Order Carnivora – Superfamily Pinnipedia | | | | | | |
| Family Otariidae (eared seals and sea lions) | | | | | | |
| California sea lion | <i>Zalophus californianus</i> | Eastern U.S. stock | -/-(N) | 296,750 (-, 153,337, | 9,200 | 389 |

| | | | | | | |
|---------------------------------|--------------------------------|---------------------------|--------|---------------------------|-------|-----|
| | | | | 2011) | | |
| 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 |

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

2- NMFS marine mammal stock assessment reports online at: www.nmfs.noaa.gov/pr/sars/. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the species' (or similar species') life history to arrive at a best abundance estimate; therefore, there is no associated CV. In these cases, the minimum abundance may represent actual counts of all animals ashore.

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

Note that while humpback whales and Guadalupe fur seals have been observed in the Bay, their typical temporal and/or spatial occurrence is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here.

Humpback whales are rare, though well-publicized, visitors to the interior of San Francisco Bay. A humpback whale journeyed through the Bay and up the Sacramento River in 1985 and re-entered the Bay in the fall of 1990, stranding on mudflats near Candlestick Park (Fimrite 2005). In May 2007, a humpback whale mother and calf spent just over two weeks in San Francisco Bay and the Sacramento River before finding their way back out to sea. Although it is possible that a humpback whale will enter the Bay and find its way into the project area during construction activities, their occurrence is unlikely. Guadalupe fur seals occasionally range into the waters of Northern California and the Pacific Northwest. The Farallon Islands (off central California) and Channel Islands (off southern California) are used as haulouts during these movements (Simon 2016). Juvenile Guadalupe fur seals occasionally strand in the vicinity

of San Francisco, especially during El Niño events. Most strandings along the California coast are animals younger than two years old, with evidence of malnutrition (NMFS 2017c). In the rare event that a Guadalupe fur seal is detected within the Level A or Level B harassment zones, work will cease until the animal has left the area.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

We provided a description of the anticipated effects of the specified activity on marine mammals in our **Federal Register** notice announcing the proposed authorization (83 FR 18802; April 30, 2018). Please refer to that document for our detailed analysis; we provide only summary information here.

The introduction of anthropogenic noise into the aquatic environment from pile driving and removal is the primary means by which marine mammals may be harassed from Chevron's specified activity. The effects of pile driving noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.*, impulsive vs. non-impulsive), the species, age and sex class (*e.g.*, adult male vs. mom with calf), duration of exposure, the distance between the pile and the animal, received levels, behavior at time of exposure, and previous history with exposure (Southall *et al.*, 2007, Wartzok *et al.*, 2004). Animals exposed to natural or anthropogenic sound may experience physical and behavioral effects, ranging in magnitude from none to severe (Southall *et al.*, 2007). In general, exposure to pile driving noise has the potential to result in auditory threshold shifts (permanent threshold shift (PTS) and temporary threshold shift (TTS)) and behavioral reactions (*e.g.*, avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). No new permanent impacts to habitats used by marine mammals would result from the project. Some short-term impacts to prey availability (*e.g.*, fish)

and minor impacts to the immediate substrate may occur as a result of increased turbidity from pile installation and removal but the effects are expected to be temporary and minimal.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of small numbers and the negligible impact determination.

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

Authorized takes would primarily be by Level B harassment, as use of the acoustic source (*i.e.*, pile driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high frequency species and a single phocid species due to larger predicted auditory injury zones. Auditory injury is unlikely to occur for low-frequency, mid-frequency species, or pinniped groups, with the exception of harbor seals. The 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 authorized for this activity. Below we describe how the take is estimated.

Described in the most basic way, 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. Below, we describe these components in more detail and present the authorized 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, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 decibel (dB) re 1 micro pascal (μPa) root mean square (rms) for continuous (*e.g.* vibratory pile-driving, drilling) and above 160 dB re 1 μPa (rms) for non-

explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources. For in-air sounds, NMFS predicts that pinnipeds exposed above received levels of 100 dB re 20 μ Pa (rms) and harbor seals exposed above 90 dB re 20 μ Pa (rms) will be behaviorally harassed.

Chevron's planned activity includes the use of continuous (vibratory driving) and impulsive (impact driving) sources, and therefore the 120 and 160 dB re 1 μ Pa (rms) are applicable.

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Technical Guidance, 2016) 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). The applicant's planned activity includes the use of impulsive (impact driving) and non-impulsive (vibratory driving) sources.

These thresholds are provided in Table 4. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2016 Technical Guidance, which may be accessed at: <http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm>.

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 |
| <p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p>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 μPa²s. 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.</p> | | |

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds.

Pile driving will generate underwater noise that potentially could result in disturbance to marine mammals swimming by the project area. Transmission loss (TL) underwater is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source until the

source becomes indistinguishable from ambient sound. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. A standard sound propagation model, the Practical Spreading Loss model, was used to estimate the range from pile driving activity to various expected SPLs at potential project structures. This model follows a geometric propagation loss based on the distance from the driven pile, resulting in a 4.5 dB reduction in level for each doubling of distance from the source. In this model, the SPL at some distance away from the source (*e.g.*, driven pile) is governed by a measured source level, minus the TL of the energy as it dissipates with distance. The TL equation is:

$$TL = 15\log_{10}(R_1/R_2)$$

Where:

TL is the transmission loss in dB,

*R*₁ is the distance of the modeled SPL from the driven pile, and

*R*₂ is the distance from the driven pile of the initial measurement.

The degree to which underwater noise propagates away from a noise source is dependent on a variety of factors, most notably by the water bathymetry and presence or absence of reflective or absorptive conditions including the sea surface and sediment type. The TL model described above was used to calculate the expected noise propagation from both impact and vibratory pile driving, using representative source levels to estimate the zone of influence (ZOI) or area exceeding specified noise criteria.

Source Levels

Sound source levels from the Chevron site were not available. Therefore, literature values published for projects similar to the Chevron project were used to estimate source levels that could potentially be produced. Results are shown in Table 5.

Modifications at the four berths require the placement of new 24-inch diameter square concrete piles. Approximately one to two of these piles would be installed in one workday, using impact driving methods. 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 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 piles are installed. To estimate the noise effects of the 24-inch square concrete piles, the general values provided by Caltrans (2015a) are shown in Table 5.

To estimate the noise effects of impact driving of 14-inch steel H piles, the values provided by Caltrans were also utilized. These source values are 208 dB peak, 187 rms, and 177 dB SEL (single strike). Based on these levels, impact driving of the 14-inch steel H piles is expected to produce underwater sound exceeded the Level B 160 dB RMS threshold over a distance of 631 meters.

During construction, temporary fendering would be installed at Berth 2 which will be supported by 36 steel 14-inch steel H piles. It is estimated that each pile could be driven in five (5) minutes. Two (2) to four (4) piles would be installed in any single workday for a total of approximately 12 days of installation. For the purposes of calculating the distance to Level A thresholds, four piles per day is assumed. The piles would be removed after the permanent fenders are in place. A vibratory hammer would be used to vibrate the piles to facilitate pulling them from the mud. The best match for estimated source levels is the Port of Anchorage pile

driving test project. During vibratory pile driving associated with the Anchorage project, peak noise levels ranged from 165 to 175 dB, and the RMS ranged between 152 and 168 dB, both measured at approximately 15 meters (50 ft) (Caltrans 2015a).

The source levels for vibratory installation of 36-inch temporary steel piles were from the Explosive Handling Wharf-2 (EHW-2) project located at the Naval Base Kitsap in Bangor, Washington as stated in Caltrans (2015a). During vibratory pile driving measured peak noise levels were approximately 180 dB, and the RMS was approximately 169 dB at a 10 meter (33ft) distance. These temporary piles would require a drive time per pile of approximately 10 minutes. Up to four (4) of these piles could be installed in any single workday for a total of 40 minutes.

The most applicable source values for wooden pile removal were derived from measurements taken at the Port Townsend dolphin pile removal in Washington. During vibratory pile extraction associated with this project, which occurred under similar circumstances, measured peak noise levels were approximately 164 dB, and the RMS was approximately 150 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.

During construction, 106 16-inch timber piles, and seven 18 to 24-inch square concrete piles would be removed. Up to twelve of these piles could be extracted in one workday. Extraction time needed for each pile may vary greatly, but could require approximately 400 seconds (approximately 7 minutes).

Table 5. The sound levels (dB Peak, dB RMS, and dB sSEL) expected to be generated by each hammer and pile type.

| Type of Pile | Hammer Type | Estimated Pressure Level (dB Peak) | Estimated Pressure Level (dB RMS) | Estimated Single Strike Sound Exposure Level (dB SEL) |
|--|-------------|------------------------------------|-----------------------------------|---|
| 24-inch sq. concrete | Impact | 188 | 176 | 166 |
| 14-inch Temporary steel H-pile | Impact | 208 | 187 ¹ | 177 |
| 14-inch Temporary steel H-pile | Vibratory | 180 | 168 ² | -- |
| 36-inch Steel Pipe | Vibratory | 180 | 169 | -- |
| Wood and concrete pile extraction | Vibratory | 164 | 150 ³ | -- |

¹ SL was based on an assumed 10-dB difference between the SELs-s and SPLrms SLs. The SPLrms SL was not reported in Caltrans'

²Measured at 14 m

³Measured at 16 m

When NMFS Technical Guidance (2016) was published, in recognition of the fact that sonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, NMFS 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 will result in some degree of overestimate of Level A 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 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.

Table 6 shows the inputs that were used in the User Spreadsheet to determine cumulative PTS Thresholds. Table 7 shows the Level A Isopleths as determined utilizing inputs from Table 6. Level B isopleths for impact and vibratory driving and extraction are shown in Table 8.

Table 6. Inputs for User Spreadsheet.

| Spreadsheet Tab Used | E.1: Impact Pile Driving (Stationary Source: Impulsive, Intermittent) | E.1: Impact Pile Driving (Stationary Source: Impulsive, Intermittent) | A: Stationary Source: Non-Impulsive, Continuous | A: Stationary Source: Non-Impulsive, Continuous | A: Stationary Source: Non-Impulsive, Continuous |
|---|--|--|--|--|--|
| Pile Type and Hammer Type | 24-inch sq. concrete piles | 14-inch Steel H-pile | 14-inch Steel H-pile | 36-in steel | Wood concrete pile extraction |
| Source Level | 166 (Single strike/shot SEL) | 177 (Single strike/shot SEL) | 168 RMS | 169 RMS | 150 RMS |
| Weighting Factor Adjustment (kHz) | 2 | 2 | 2.5 | 2.5 | 2.5 |
| Number of strikes in 1 h OR number of strikes per pile | 300 | 200 | NA | NA | NA |
| Activity Duration (h) within 24-h period OR number of piles per day | 2 piles | 4 piles | 0.333 | 0.6667 | 1.333 |
| Propagation (xLogR) | 15 | 15 | 15 | 15 | 15 |
| Distance of source level measurement (meters) ⁺ | 10 | 10 | 14 | 10 | 16 |

Table 7. Radial Distances to Level A Isopleth During Impact and Vibratory Driving.

| Project Element Requiring Pile Installation | Distance in meters (feet) | | | | |
|--|----------------------------------|--------------------------------|---------------------------------|-------------------------|--------------------------|
| | Low-Frequency Cetaceans | Mid-Frequency Cetaceans | High-Frequency Cetaceans | Phocid Pinnipeds | Otariid Pinnipeds |
| | | | | | |

| Impact Driving | | | | | |
|--|-------------|---------|-------------|-----------|---------|
| 24 inch square concrete (1-2 per day) | 52 (171) | 2 (6) | 62 (204) | 28 (92) | 2 (7) |
| 14-inch steel H pile (4 per day) | 343 (1,124) | 12 (40) | 408 (1,339) | 183 (602) | 13 (44) |
| Vibratory Driving/Extraction | | | | | |
| 14-inch steel H pile (4 per day) | 13 (46) | 1 (3) | 20 (66) | 8 (26) | 1 (3) |
| 36-inch steel pipe pile (4 per day) | 18 (58) | 2 (6) | 26 (86) | 11 (35) | 1 (2) |
| Wood and concrete pile extraction (12 per day) | 2 (5) | < 1 (3) | 4 (13) | 2 (6) | < 1 (3) |

Table 8. Radial Distances to Level B Isopleths During Impact and Vibratory Driving.

| Pile Type | Distance to Threshold in meters (feet) |
|--|---|
| Impact Driving (160 dB threshold) | |
| 24-inch square concrete | 117 (382) |
| 14-inch steel H pile | 631 (2,070) |
| Vibratory Driving/Extraction (120 dB threshold) | |
| 14-inch steel H pile | 22,188 (72,795) |
| 36-inch steel pipe pile | 18,478 (60,609) |
| Wood and concrete pile extraction | 1,600 (5,249) |

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.

San Francisco Bay has five known harbor seal haulout sites that include Alcatraz Island, Castro Rocks, Yerba Buena Island, Newark Slough, and Mowry Slough. Yerba Buena Island, Alcatraz and Castro Rocks are within or near the areas within ensonified Level B zones. Castro Rocks is the largest harbor seal haulout site in the northern part of San Francisco Bay and is the second largest pupping site in the Bay (Green *et al.* 2002). The pupping season is from March to

June in San Francisco Bay. During the molting season (typically June-July and coincides with the period when piles will be driven) as many as approximately 130 harbor seals on average have been observed using Castro Rocks as a haulout. Harbor seals are more likely to be hauled out in the late afternoon and evening, and are more likely to be in the water during the morning and early afternoon (Green *et al.* 2002). However, during the molting season, harbor seals spend more time hauled out and tend to enter the water later in the evening. During molting, harbor seals can stay onshore resting for an average of 12 hours per day during the molt compared to around 7 hours per day outside of the pupping/molting seasons (NPS 2014). Tidal stage is a major controlling factor of haulout usage at Castro Rocks with more seals present during low tides than high tide periods since it is completely underwater at high tide twice per day (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. However, it is likely that all seals hauled out at the site will be exposed to project related underwater noise at some point each day. The number of harbor seals located at Castro Rocks is based on the highest mean plus the standard error of harbor seals observed at Castro Rocks during recent annual surveys conducted by the National Park Service (NPS) (Codde, S. and S. Allen. 2013, 2015, and 2017), resulting in a value of 176 seals. The same NPS survey determined that harbor seal population in the Central Bay at Alcatraz and Yerba Buena Island is approximately 167 seals (Codde, S. and S. Allen. 2013, 2015, and 2017).

California sea lions haul out primarily on floating docks at Pier 39 in the Fisherman's Wharf area of the San Francisco Marina, approximately 12.5 kilometer (km) (7.8 miles (mi)) southwest of the project area. Based on counts done in 1997 and 1998, the number of California

sea lions that haul out at Pier 39 fluctuates with the highest occurrences in August and the lowest in June. In addition to the Pier 39 haulout, California sea lions haul out on buoys and similar structures throughout the Bay. They are seen swimming off mainly the San Francisco and Marin shorelines within the Bay but may occasionally enter the project area to forage. Over the monitoring period for the Richmond-San Rafael Bridge RSRB, monitors sighted at least 90 California sea lions in the North Bay and at least 57 in the Central Bay (Caltrans 2012). During monitoring for the San Francisco-Oakland Bay Bridge (SFOBB) Project in the central Bay, 69 California sea lions were observed in the vicinity of the bridge over a 17-year period from 2000-2017 (Caltrans 2018), and from these observations, an estimated density of 0.161 animals per square kilometer (km²) is derived (Caltrans 2018).

A small but growing population of harbor porpoises utilizes San Francisco Bay. Harbor porpoises are typically spotted in the vicinity of Angel Island and the Golden Gate (6 and 12 km southwest respectively) with lesser numbers sighted in the vicinity of Alcatraz and around Treasure Island (Keener 2011). Porpoises but may utilize other areas in the Central Bay in low numbers, including the planned project area. However, harbor porpoise are naturally inclined to remain near the shoreline areas and downstream of large landmasses as they are constantly foraging. For this reason, the project area would present a less than likely area to observe harbor porpoise as they would either need to traverse the perimeter of the Bay to arrive there, or would have to swim through the open Bay. Both scenarios are possible, but would represent uncommon behavior. Based on monitoring conducted for the SFOBB project, between 2000-2017 an in-water density of 0.031 animals per km² estimated by Caltrans for this species. However, porpoise occurrence increased significantly in 2017 resulting in a 2017 only density of 0.167 animals per km² (Caltrans 2018).

Small numbers of northern elephant seals 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 0.06 animal per km² (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 planned action would be much lower.

The incidence of northern fur seal in San Francisco Bay depends largely on oceanic conditions, with animals more likely to strand during El Niño events. The likelihood of El Niño conditions occurring in 2018 is currently low, with La Niña or neutral conditions expected to develop (NOAA, 2018).

The range of the bottlenose dolphin has expanded northward along the Pacific Coast since the 1982-1983 El Niño (Carretta *et al.* 2013, Wells and Baldrige 1990). They now occur as far north as the San Francisco Bay region and have been observed along the coast in Half Moon Bay, San Mateo, Ocean Beach in San Francisco, and Rodeo Beach in Marin County. Observations indicate that bottlenose dolphin occasionally enter San Francisco Bay, sometimes foraging for fish in Fort Point Cove, just east of the Golden Gate Bridge (Golden Gate Cetacean Research 2014). Transient individuals of this species occasionally enter San Francisco Bay, but observations indicate that they usually remain in proximity to the Golden Gate near the mouth of the Bay. Beginning in 2015, two individuals have been observed frequently in the vicinity of Oyster Point, located south of San Francisco (GGCR, 2018; Perlman, 2017). Bottlenose dolphins are being observed in San Francisco bay more frequently in recent years. Groups with an average size of five animals have been observed entering the Bay in the vicinity of Yerba

Buena Island at a rate of once per week. They usually are observed over two week spans and then depart for an extended period of time (NMFS, 2017).

Gray whales occasionally enter 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 mi) past the Golden Gate, but gray whales have occasionally been sighted as far north as San Pablo Bay. Pile driving is not expected to occur during this time, and gray whales are not likely to be present at other times of year.

Take Calculation and Estimation

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

The following assumptions are made when estimating potential incidences of take:

- All marine mammal individuals potentially available are assumed to be present within the relevant area, and thus incidentally taken;
- An individual can only be taken once during a 24-h period;
- Exposures to sound levels at or above the relevant thresholds equate to take, as defined by the MMPA.

Limited density data is available for marine mammal species in San Francisco Bay. Estimates here are determined using data taken during marine mammal monitoring associated with RSRB retrofit project, the San Francisco-Oakland Bay Bridge replacement project, and other marine mammal observations for San Francisco Bay. For Pacific harbor seal, data was also derived from recent annual surveys of haulouts in the Bay conducted by the National Park Service (Codde, S. and S. Allen. 2013, 2015, and 2017).

Pacific Harbor Seal

As noted above, take estimates are based on the highest mean plus the standard error of harbor seals observed by NPS at Castro Rocks which equals 176 animals (Codde, S. and S. Allen. 2013, 2015, and 2017). Castro Rocks is inundated with water twice/day during the high tides. So during every work day (7 am to 7 pm) the entire haulout will be in the water twice per day. Of these 176 seals, the proportion that may enter the areas over which the Level B harassment thresholds may be exceeded are estimated as follows:

- **Impact driving of 24-inch concrete piles at all Berths:** It is assumed that 10 percent of the animals that enter the water from Castro Rocks will enter the small Level B zones associated with this pile type as shown in Figure 6-1 in the application. Thus, it is estimated that up to 17.6 individuals per day could be exposed ($176/10 = 17.6$) by entering the Level B harassment zone to the south of Castro Rocks;
- **Impact driving of 14-inch steel H piles:** Impact driving would only occur in the event that a pile encounters an obstruction such as an old timber pile beneath the mud line, which is unlikely to occur. These piles will be preferentially driven with a vibratory driver. Therefore, Level B take for this activity is based on installation using vibratory driver. Level A take is based on installation using impact driving. For the purposes of calculating Level A take, as a proportion of Level B take, it is assumed that approximately 25 percent of the 176 harbor seals using Castro Rocks could approach and be subject to Level B harassment due to the limited amount of time impact driving is expected to occur as well as the size and location of the Level B isopleth (Figure 6-2 in application). Therefore, it is assumed that up to 44 individuals per day could be exposed when this activity is being conducted;
- **Vibratory driving and removal of the 36-inch steel pipe piles at Berth 4:** Isopleths for this vibratory driving encompass Castro Rocks, therefore it is assumed that all of

the estimated 176 animals in the water, could be exposed when these piles are being driven at Berth 4;

- **Vibratory driving/extraction of the 14-inch H piles at Berth 2:** Isopleths for this vibratory driving encompass Castro Rocks, therefore is assumed that all of the 176 animals in the water could be exposed when this activity is being conducted at Berth 2; and
- **Vibratory removal of timber and concrete piles at Berths 1, 2 and 4:** Isopleths for this vibratory removal encompass Castro Rocks, therefore it is assumed that all of the estimated 176 animals in the water could be exposed during these activities.

In order to account for other individuals that may be foraging in the more distant part of the Level B harassment zone, additional take of harbor seal has been estimated based on other harbor seal populations in the Central Bay. Using the same data set (Codde, S. and S. Allen. 2013, 2015, and 2017) that was used for Castro Rocks, a population for the Central Bay of 167 harbor seals was established based on other Central Bay haulouts at Alcatraz and Yerba Buena Island. The area of the Central Bay (bound by the Golden Gate, Richmond Bridge, SFOBB, and adjoining coastline) is approximately 134 km², resulting in a harbor seal density of 1.25 animals per km². The population that hauls out at Castro Rocks is not included in this density estimate because of the proximity of the haulout site to the project and potential take of those harbor seals has been estimated separately using the methods described above. The estimated take based on the Central Bay density is added to the take estimated for the Castro Rocks population, as provided in Table 9 below. Also provided in Table 9 is the estimated Level A take for impact driving of the steel 14-inch H piles, which has been 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.

Table 9. Daily Level A and Level B Harassment Estimate for Pacific Harbor Seal.

| Pile Type | Level B Zone (km ²) | Level A Zone, minus Exclusion Zone (km ²) | Estimated Level B Take per Day | | | Estimated Level A Take per Day-Total |
|--|---------------------------------|---|--|------------------|---------------------|--------------------------------------|
| | | | Central Bay ¹ (1.25 per km ²) | Project Vicinity | Harbor Seal - Total | |
| VIBRATORY DRIVING | | | | | | |
| 14-inch steel H pile | 190.55 | NA | 238.39 | 176 | 414.39 | NA |
| 36-inch steel pile | 176.44 | NA | 220.55 | 176 | 396.55 | NA |
| Timber/Concrete Pile Removal | 7.14 | NA | 8.92 | 176 | 184.92 | NA |
| IMPACT DRIVING | | | | | | |
| 14-inch steel H pile | 1.36 | 0.10 | 1.7* | 44* | 45.7 | 3.36 |
| 24-inch concrete pile | 0.04 | 0 | 0.05 | 17.6 | 17.65 | 0 |
| *Only displayed to provide the calculation of Level A take. Level B take authorized for vibratory driving would cover any level B take from occasional impact driving. | | | | | | |

For impact pile driving of the 14-inch steel H piles, the PTS Zone is large enough to warrant a smaller exclusion zone and the authorization of some Level A harassment for harbor seal so that pile driving can be completed on schedule. A 35 meter shutdown zone (smaller than the Level A Zone) for this species would be established, but individuals that place themselves in the Level A zone but outside of the shut-down zone may experience Level A harassment, if they reside in that area for a long enough duration.

California Sea Lion

The estimated California seal lion density of 0.16 animals per km² previously described was used to calculate potential Level B exposures as shown in Table 10.

Table 10. Daily Level B Harassment Exposure Estimate for California Sea Lion.

| Pile Type | Level B Zone (km ²) | Level B Take Estimate (based on Central Bay density of 0.16 animals per km ²) |
|------------------------------|---------------------------------|---|
| VIBRATORY DRIVING | | |
| 14-inch steel H pile | 190.55 | 30.48 |
| 36-inch steel pile | 176.44 | 28.23 |
| Timber/Concrete Pile Removal | 7.14 | 1.14 |
| IMPACT DRIVING | | |
| 14-inch steel H pile | NA* | NA* |
| 24-inch concrete pile | 0.04 | 0.01 |

* Level B take authorized for vibratory driving would cover any Level B take from occasional impact driving.

Harbor Porpoise

Based on monitoring conducted for the SFOBB project described previously, an in-water density of 0.17 animals per km² was estimated by Caltrans for this species (NMFS 2017b). Using this in-water density and the areas of potential harassment, take is estimated for harbor porpoise as provided in Table 11. Also provided in Table 11 is the estimated Level A take for impact driving, which has been estimated by taking Level B take and multiplying it by the ratio of the Level A zone area to the Level B zone area. A single harbor porpoise could be exposed to Level A harassment during impact driving or 14-inch steel H-piles as shown in Table 11. NMFS, however, conservatively proposes to authorize Level A take of four animals which is the average group size.

Table 11. Daily Level A and Level B Harassment Estimate for Pacific Harbor Porpoise.

| Pile Type | Level B Zone (km ²) | Level A Zone, minus Exclusion Zone (km ²) | Level B Estimate Central Bay In-Water - 0.17 per km ² | Estimated Level A take per day |
|-------------------|---------------------------------|---|--|--------------------------------|
| VIBRATORY DRIVING | | | | |

| | | | | |
|------------------------------|--------|-------|-------|------|
| 14-inch steel H pile | 190.55 | | 32.39 | NA |
| 36-inch steel pile | 176.44 | | 29.99 | NA |
| Timber/Concrete Pile Removal | 7.14 | | 1.21 | NA |
| IMPACT DRIVING | | | | |
| 14-inch steel H pile | 1.36 | 0.32* | 0.23* | 0.05 |
| 24-inch concrete pile | 0.04 | 0 | 0.01 | 0 |

*Only displayed to provide the calculation of Level A take. Level B take authorized for vibratory driving would cover any level B take from occasional impact driving.

For impact pile driving of the 14-inch H piles, the Level A Zone is large enough to warrant the authorization of some Level A. A 250 meter shutdown zone for this species would be established, but individuals that place themselves in the Level A zone but outside of the shutdown zone may experience Level A harassment, if they reside in that area for a long enough duration.

Northern Elephant Seal

Monitoring of marine mammals in the vicinity of the SFOBB produced an estimated density for northern elephant seal of 0.06 animal per km² (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 planned action would be much lower. It is possible that a lone northern elephant seal may enter the Level B harassment area once per day during pile driving, for a total of 28 takes. Level A harassment of this species is not expected to occur and is not authorized by NMFS.

Northern Fur Seal

As noted previously, the incidence of northern fur seal in San Francisco Bay depends largely on oceanic conditions, with animals more likely to strand during El Niño events. The likelihood of El Niño conditions occurring in 2018 is currently low, with La Niña or neutral conditions expected to develop (NOAA, 2018). Given the low probability that fur seals would

enter into the Bay and project area in 2018, Chevron has conservatively requested and NMFS has authorized 10 fur seals takes by Level B harassment. Level A harassment of this species is not anticipated or authorized by NMFS.

Bottlenose Dolphin

When this species is present in San Francisco Bay, it is more typically found close to the Golden Gate. Recently, 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. Reports show that a group normally comes into San Francisco Bay near Yerba Buena Island once per week for approximately 2-week stints and then leaves the Bay (NMFS, 2017b). Chevron assumed groups of five individuals may enter San Francisco Bay and the ensonified area three times during separate two-week spans. Therefore, groups of 5 animals would potentially be exposed at a rate of once per week over six weeks, resulting in up to 30 Level B exposures. As such, NMFS authorizes the take by Level B harassment of 30 bottlenose dolphins. Although a small Level A zone for mid-frequency cetaceans is estimated during impact driving, marine mammal monitoring of the shutdown would ensure that take by Level A harassment does not occur.

Gray Whale

Gray whales are the only whale species that travels far into San Francisco bay with any regularity. They occasionally enter 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 mi) past the Golden Gate, but gray whales have occasionally been sighted as far north as San Pablo Bay. Pile driving is not anticipated to occur during the February through May timeframe and gray whales are not likely to be present at other times of year. In the very unlikely

event that a gray whale or pair of gray whales makes its way close to the project area while pile driving activities are under way, Chevron has requested take by Level B harassment of up to two (2) gray whales per year. NMFS agrees and has authorized the take of 2 gray whales by Level B harassment. No Level A take is authorized.

Tables 12 and 13 summarize the estimate of Level B and Level A harassment, respectively, for each species by pile driving activity for the 2018 construction season. For harbor seals, sea lions, harbor porpoise and elephant seals, the Level B harassment estimates are based on the number of individuals assumed to be exposed per day, the number of days of pile driving expected based on an average installation rate. The Level A harassment estimates are derived from the Level B harassment estimates by taking the Level B harassment total and multiplying it by the fractional ratio of the area of the Level A zone to the Level B zone.

Table 12. Total Estimated Take by Level B Harassment by Species and Pile Type.

| Pile Type | Pile Driver Type | # of Piles | # of Driving Days | Species | | | | | | |
|---|------------------|------------|-------------------|--------------|-------------|-----------------|-------------|------------------|--------------|---------------------|
| | | | | Harbor Seal | CA sea lion | Harbor porpoise | Gray whale* | N. elephant seal | N. fur seal* | Bottlenose dolphin* |
| 36-inch steel template pile** | Vibratory | 8 | 2 | 793.1 | 56.46 | 59.98 | NA | 2 | NA | NA |
| Concrete pile removal | Vibratory | 5 | 1 | 184.92 | 1.14 | 1.21 | NA | 1 | NA | NA |
| 24-inch concrete | Impact | 8 | 8 | 141.2 | 0.08 | 0.08 | NA | 8 | NA | NA |
| 14-inch H pile installation | Impact/Vibratory | 36 | 12 | 4,972.68 | 365.76 | 388.68 | NA | 12 | NA | NA |
| Timber pile removal | Vibratory | 53 | 5 | 924.6 | 5.7 | 6.05 | NA | 5 | NA | NA |
| Total Take by Species (2018) | | | | 7,017 | 429 | 456 | 2 | 28 | 10 | 30 |
| *Take is not calculated by activity type for these species, only a total is given. | | | | | | | | | | |
| **Only the installation of the template piles will occur in 2018. Take associated with their removal will be requested in a subsequent IHA. | | | | | | | | | | |
| *** These piles will be preferentially driven with a vibratory driver, which would have a larger Level B zone than installation with an impact driver. Thus, Level B take for this species is based on installation using vibratory driver, and not an impact driver. | | | | | | | | | | |

Table 13. Authorized Take by Level A Harassment.

| Pile Type | Pile Driver Type | # of Driving Days | Harbor Seal | Harbor porpoise |
|-----------------------------|----------------------|-------------------|-------------|-----------------|
| 36-inch steel template pile | Vibratory | 2 | 0 | 0 |
| Concrete pile removal | Vibratory | 1 | 0 | 0 |
| 24-inch concrete | Impact | 8 | 0 | 0 |
| 14-inch H pile installation | Impact/ Vibratory | 12 | 40 | 4* |
| Timber pile removal | Vibratory | 5 | 0 | 0 |
| Total Take | | | 40 | 4 |

*Harbor porpoise takes were increased to 4 to account for average group size.

Table 14 provides a summary of authorized Level A and Level B takes as well as the percentage of a stock authorized for take.

Table 14. Authorized Take and Percentage of Stock or Population.

| Species | Stock | Authorized Level A Takes | Authorized Level B Takes | Percent population |
|------------------------|-------------------------------|--------------------------|--------------------------|--------------------|
| Harbor seal | California | 40 | 6,977 | 22.6% |
| California sea lion | Eastern U.S. | -- | 429 | <0.01% |
| Harbor porpoise | San Francisco – Russian River | 4 | 451 | 4.5% |
| Northern elephant seal | California Breeding | -- | 28 | <0.01% |
| Gray whale | Eastern North Pacific | -- | 2 | <0.01% |
| Northern fur seal | California | -- | 10 | <0.01% |
| Bottlenose Dolphin | California Coastal | -- | 30 | 6.6% |

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. 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.

Mitigation for Marine Mammals and their Habitat

The following measures would apply to Chevron's mitigation requirements:

- *Seasonal Restriction* — To minimize impacts to listed fish species, pile-driving activities would occur between June 1 and November 30;

- *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 Shutdown Zone* — For all pile driving and removal activities, Chevron will establish a shutdown zone. 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 underwater SPLs are expected to reach or exceed the cumulative SEL thresholds for Level A harassment as provided in Table 7. The shutdown isopleths for pinnipeds (harbor seals, California sea lion, Northern elephant seal, northern fur seal) and mid-frequency cetaceans (bottlenose dolphins) will be set at 15 meters during vibratory driving. A 30 meter shutdown zone during vibratory driving will be established for low-frequency cetaceans (gray whale) and high-frequency cetaceans (harbor porpoise). During impact driving the shutdown zones will be set at 250 meters for high-frequency cetaceans (harbor porpoise), 350 meters for low-frequency cetaceans (gray whales), and 35 meters for pinnipeds (harbor seal, California sea lion, Northern elephant seal, northern fur seal) and mid-frequency cetaceans (bottlenose dolphin);
- *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;
- *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 183 meters and harbor seals and extending to 408 m for harbor porpoises. These are areas

beyond the shutdown zone in which animals could be exposed to sound levels that could result in 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. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence of marine mammals in the project area outside the shutdown zone and thus prepare for a potential cease of activity should the animal enter the shutdown zone. The Level B zones are depicted in Table 11. As shown, the largest Level B zone is equal to 190.55 km², making it impossible for Protected Species Observers (PSOs) to view the entire harassment area. Due to this, Level B exposures will be recorded and extrapolated based upon the number of observed take and the percentage of the Level B zone that was not visible;

- *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;

- *Pile Caps/Cushions* — Chevron will employ the use of pile caps or cushions as sound attenuation devices to reduce impacts from sound exposure during impact pile driving;

- *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 and 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; and

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

Monitoring and Reporting

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

A draft marine mammal monitoring report would be submitted to NMFS within 90 days after the completion of pile driving and removal activities. It will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated marine mammal observation data sheets. Specifically, the report must include:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Deviation from initial proposal in pile numbers, pile types, average driving times, etc.

- Weather parameters (*e.g.*, percent cover, visibility);
- Water conditions (*e.g.*, sea state, tide state);
- For each marine mammal sighting the following must be recorded:
 - (1) Species, numbers, and, if possible, sex and age class of marine mammals;
 - (2) Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;

(3) Location and distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point; and

(4) Estimated amount of time that the animals remained in the Level B zone

- Description of implementation of mitigation measures within each monitoring period (*e.g.*, shutdown or delay);

- Other human activity in the area.

- A summary of the following must be included in the report.

(1) Total number of individuals of each species detected within the Level A and Level B Zones, and estimated take extrapolated across entire Level B zone; and

(2) Daily average number of individuals of each species (differentiated by month as appropriate) detected within the Level B Zone, and estimated take extrapolated across entire Level B zone.

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 or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

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. The plan provides a protocol for hydroacoustic measurements during pile driving operations. Acoustic monitoring would be conducted on a minimum of two of each pile type. Since little data exist for source levels associated with installation of 24-inch square concrete piles (including data on single strike sound exposure level metrics) Chevron would conduct in-situ measurements during installation of eight piles. The SSV testing would be conducted by an acoustical firm with prior experience conducting SSV testing. Final results would be sent to

NMFS. Findings may be used to establish Level A and Level B isopleths during impact and vibratory driving. Any alterations to the shutdown or harassment zones based on testing data must be approved by NMFS. The Hydroacoustic Monitoring Plan is contained on the following NMFS website: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities>.

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 WMEP project as outlined previously have the potential to injure, disturb or displace marine mammals. Specifically, the specified activities may result in Level B harassment (behavioral disturbance) for seven marine mammal species authorized for take from underwater sound generated during pile driving operations. Level A harassment in the form of PTS may also occur to limited numbers of two species. No serious injuries or mortalities are anticipated to occur as a result of Chevron's pile driving activities.

A limited number of animals (40 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 24-inch steel H-piles. Installation of these piles would occur over eight days and impact driving will not be the primary method of installation. The piles will mainly be installed using only vibratory driving. Impact driving will be used only if the vibrated pile encounters an obstruction such as an old sunken pile. It is unlikely that this would occur for all four piles projected to be installed each driving day. An assumption of four piles per day was used to calculate Level A zone sizes. If four piles did require impact installation on a single day it is unlikely that the same individual marine mammal would be within the relatively small Level A zone during the installation of every pile. In most instances impact driving will not be required at all. Furthermore, 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. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in fitness for the affected individuals, and thus would not result in any adverse impact to the stock as a whole.

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 short duration of the 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.

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 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 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 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;
- The relatively short and intermittent duration of in-water construction activities;
- The small percentage of the stock that may be affected by project activities (< 22.8 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 required monitoring and mitigation measures, NMFS finds that the total marine mammal take from the planned activity will have a negligible impact on all affected marine mammal stocks or species.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Section 101(a)(5)(D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of

abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

Table 14 depicts the number of animals that could be exposed to Level A and Level B harassment from work associated with Chevron's project. The analysis provided indicates that authorized takes account for no more than 22.6 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 planned (including the required mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

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

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an 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 determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

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 authorized or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Authorization

NMFS has issued an IHA to Chevron to take seven species of marine mammal incidental to pile driving and removal activities at Chevron's Long Wharf from June 1, 2018 through May 31, 2019 provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: June 7, 2018.

Elaine T. Saiz,

Acting Deputy Director, Office of Protected Resources,

National Marine Fisheries Service.

[FR Doc. 2018-12629 Filed: 6/12/2018 8:45 am; Publication Date: 6/13/2018]