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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XC833

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

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

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

SUMMARY: NMFS has received a request from the California Department of Transportation (CALTRANS) for an incidental take authorization to take small numbers of California sea lions, Pacific harbor seals, harbor porpoises, and gray whales, by harassment, incidental to construction activities associated with the East Span of the San Francisco-Oakland Bay Bridge (SF-OBB) in California. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an authorization to CALTRANS to incidentally take, by harassment, small numbers of marine mammals for a period of 1 year.

DATES: Comments and information must be received no later than [insert date 30 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: Comments on the application should be addressed to Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910-3225.

The mailbox address for providing email comments is itp.guan@noaa.gov. NMFS is not responsible for e-mail comments sent to addresses other than the one provided here.

Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size.

Instructions: All comments received are a part of the public record and will generally be posted to <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications> without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

The application used in this document may be obtained by visiting the internet at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>. Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Shane Guan, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

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

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the U.S. can apply for a one-year authorization to incidentally take small numbers of marine mammals by harassment, provided that there is no potential for serious injury or mortality to result from the activity. Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Summary of Request

On April 15, 2013, CALTRANS submitted a request to NOAA requesting an IHA for the possible harassment of small numbers of California sea lions (Zalophus californianus), Pacific harbor seals (Phoca vitulina richardsii), harbor porpoises (Phocoena phocoena), and gray whales (Eschrichtius robustus) incidental to construction associated with a replacement bridge for the East Span of the SF-OBB, in San Francisco

Bay (SFB, or Bay), California. The proposed construction activities would last for approximately three years, starting 2013.

Description of the Specified Activity

An IHA was previously issued to CALTRANS for this activity on January 8, 2013 (78 FR 2371; January 11, 2013), based on activities described on CALTRANS' IHA application dated April 23, 2012. The current IHA expires on January 7, 2014. Since the construction activity would last for approximately additional two years after the expiration of the current IHA, CALTRANS requests to renew its IHA. In its IHA renewal request, CALTRANS also states that there has been no change in the scope of work for the SF-OBB Project from what was outlined in its April 23, 2012, IHA application project description, the Federal Register notice for the proposed IHA (77 FR 50473; August 21, 2012), and the Federal Register notice for the issuance of that IHA (78 FR 2371; January 11, 2013). Refer to these documents for a detailed description of CALTRANS' SF-OBB construction activities.

Since the issuance of the IHA, there has been no in-water pile driving or dismantling activity.

Description of Marine Mammals in the Area of the Specified Activity

General information on the marine mammal species found in California waters can be found in Caretta et al. (2013), which is available at the following URL: <http://www.nmfs.noaa.gov/pr/sars/pdf/po2012.pdf>. Refer to that document for information on these species.

The marine mammals most likely to be found in the SF-OBB area are the California sea lion, Pacific harbor seal, and harbor porpoise. From December through

May gray whales may also be present in the SF-OBB area. Information on California sea lion, harbor seal, and gray whale was provided in the November 14, 2003 (68 FR 64595), Federal Register notice; information on harbor porpoise was provided in the January 26, 2006 (71 FR 4352), Federal Register notice.

Potential Effects on Marine Mammals and Their Habitat

CALTRANS and NMFS have determined that open-water pile driving and pile removal, as well as dredging and dismantling of concrete foundation of existing bridge by saw cutting, flame cutting, mechanical splitting, drilling, pulverizing and/or hydro-cutting, as outlined in the project description, have the potential to result in behavioral harassment of California sea lions, Pacific harbor seals, harbor porpoises, and gray whales that may be swimming, foraging, or resting in the project vicinity while pile driving is being conducted. Pile driving and removal could potentially harass those few pinnipeds that are in the water close to the project site, whether their heads are above or below the surface.

Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak et al. 1999; Schlundt et al. 2000; Finneran et al. 2002; 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is unrecoverable, or temporary (TTS), in which case the animal's hearing threshold will recover over time (Southall et al. 2007). Since marine mammals depend on acoustic cues for vital biological functions, such as orientation, communication, finding prey, and avoiding predators, marine mammals that incur PTS or TTS may have reduced fitness in survival and reproduction, either permanently or temporarily. Repeated noise exposure that leads to TTS could cause PTS.

Measured source levels from impact pile driving can be as high as 214 dB re 1 μ Pa @ 1 m. Although no marine mammals have been shown to experience TTS or PTS as a result of being exposed to pile driving activities, experiments on a bottlenose dolphin (Tursiops truncatus) and beluga whale (Delphinapterus leucas) showed that exposure to a single watergun pulse at a received level of 207 kPa (or 30 psi) peak-to-peak (p-p), which is equivalent to 228 dB (p-p) re 1 μ Pa, resulted in a 7 and 6 dB TTS in the beluga whale at 0.4 and 30 kHz, respectively. Thresholds returned to within 2 dB of the pre-exposure level within 4 minutes of the exposure (Finneran et al. 2002). No TTS was observed in the bottlenose dolphin. Although the source level of pile driving from one hammer strike is expected to be much lower than the single watergun pulse cited here, animals exposed for a prolonged period to repeated hammer strikes could receive more noise exposure in terms of sound exposure level (SEL) than from the single watergun pulse (estimated at 188 dB re 1 μ Pa²-s) in the aforementioned experiment (Finneran et al. 2002).

Noises from dismantling of marine foundations by mechanical means include, but are not limited to, saw cutting, mechanical splitting, drilling and pulverizing. Saw cutting and drilling constitute non-pulse noise, whereas mechanical splitting and pulverizing constitute impulse noise. Although the characteristics of these noises are not well studied, noises from saw cutting and drilling are expected to be similar to vibratory pile driving, and noises from mechanical splitting and pulverizing are expected to be similar to impact pile driving, but at lower intensity, due to the similar mechanisms in sound generating but at a lower power outputs. CALTRANS states that drilling and saw cutting are anticipated to produce underwater sound pressure levels (SPLs) in excess of 120 dB RMS, but are not anticipated to exceed the 180 dB re 1 μ Pa (RMS). The mechanical splitting and

pulverizing of concrete with equipment such as a hammer hoe has the potential to generate high sound pressure levels in excess of 190 dB re 1 μ Pa (RMS) at 1 m.

However, in order for marine mammals to experience TTS or PTS, the animals have to be close enough to be exposed to high intensity noise levels for prolonged period of time. Based on the best scientific information available, the expected received sound levels are far below the threshold that could cause TTS or the onset of PTS.

In addition, chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions. Masking can interfere with detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction.

Masking occurs at the frequency band which the animals utilize. Therefore, since noise generated from in-water pile driving during the SF-OBB construction activities is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds by harbor porpoises. However, lower frequency noises are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey noise. It may also affect communication signals when they occur near the noise band and thus reduce the communication space of animals (e.g., Clark et al. 2009) and cause increased stress levels (e.g., Foote et al. 2004; Holt et al. 2009).

Unlike TS, masking can potentially impact the species at population, community, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could have long-term chronic effects on marine mammal species and populations. Recent science suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than 3 times in terms of SPL) in the world's ocean from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand 2009). All anthropogenic noise sources, such as those from vessels traffic, pile driving, dredging, and dismantling existing bridge by mechanic means, contribute to the elevated ambient noise levels, thus intensifying potential for masking.

Nevertheless, the sum of noise from the proposed SF-OBB construction activities is confined in an area of inland waters (San Francisco Bay) that is bounded by landmass, therefore, the noise generated is not expected to contribute to increased ocean ambient noise. Due to shallow water depth near the Oakland shore, dredging activities are mainly used to create a barge access channel to dismantle the existing bridge. Therefore, underwater sound propagation from dredging is expected to be poor due to the extremely shallowness of the area to be dredged.

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

The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography) and is also difficult to predict (Southall et al. 2007), especially if the detected disturbances appear minor. However, the consequences of behavioral modification could be expected to be biologically significant if the change affects growth, survival, or reproduction. Some of these significant behavioral modifications include:

- Drastic change in diving/surfacing patterns (such as those thought to be causing beaked whale stranding due to exposure to military mid-frequency tactical sonar);
- Habitat abandonment due to loss of desirable acoustic environment; and
- Cessation of feeding or social interaction.

The proposed project area is not believed to be a prime habitat for marine mammals, nor is it considered an area frequented by marine mammals. Therefore, behavioral disturbances that could result from anthropogenic noise associated with SF-OBB construction activities are expected to affect only a limited number of marine mammals on an infrequent basis.

Currently NMFS uses 160 dB re 1 μ Pa (RMS) at received level for impulse noises (such as impact pile driving, mechanic splitting and pulverizing) as the onset of marine mammal behavioral harassment, and 120 dB re 1 μ Pa (RMS) for non-impulse noises (vibratory pile driving, saw cutting, drilling, and dredging).

As far as airborne noise is concerned, based on airborne noise levels measured and on-site monitoring conducted during 2004 under a previous IHA, noise levels from

the East Span project did not result in the harassment of harbor seals hauled out on Yerba Buena Island (YBI). Also, noise levels from the East Span project are not expected to result in harassment of the sea lions hauled out at Pier 39 as airborne and waterborne sound pressure levels (SPLs) would attenuate to levels below where harassment would be expected by the time they reach that haul-out site, 5.7 km (3.5 miles) from the project site. Therefore, no pinniped hauled out would be affected as a result of the proposed pile-driving. A detailed description of the acoustic measurements is provided in the 2004 CALTRANS marine mammal and acoustic monitoring report for the same activity (CALTRANS 2005).

Short-term impacts to habitat may include minimal disturbance of the sediment where individual bridge piers are constructed. Long-term impacts to marine mammal habitat will be limited to the footprint of the piles and the obstruction they will create following installation. However, this impact is not considered significant as the marine mammals can easily swim around the piles of the new bridge, as they currently swim around the existing bridge piers.

Proposed Mitigation Measures

In order to issue an incidental take authorization under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses.

For the proposed CALTRANS SF-OBB construction activities, CALTRANS worked with NMFS and proposed the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity. The primary purpose of these mitigation measures is to detect marine mammals within or about to enter designated exclusion zones corresponding to NMFS current injury thresholds and to initiate immediate shutdown or power down of the piling hammer, making it very unlikely potential injury or TTS to marine mammals would occur, and to reduce Level B behavioral of marine mammals would be reduced to the lowest level practicable.

Use of Noise Attenuation Devices

To reduce impact on marine mammals, CALTRANS shall use a marine pile driving energy attenuator (i.e., air bubble curtain system), or other equally effective sound attenuation method (e.g., dewatered cofferdam) for all impact pile driving, with the exception of pile proofing.

Establishment of Exclusion and Level B Harassment Zones

Before the commencement of in-water construction activities, which include impact pile driving, vibratory pile driving, and mechanical dismantling of existing bridge, CALTRANS shall establish exclusion zones where received underwater sound pressure levels (SPLs) are higher than 180 dB (rms) and 190 dB (rms) re 1 μ Pa for cetaceans and pinnipeds, respectively, and Level B behavioral harassment zones where received underwater sound pressure levels (SPLs) are higher than 160 dB (rms) and 120 dB (rms) re 1 μ Pa for impulse noise sources (impact pile driving) and non-impulses noise sources (vibratory pile driving and mechanic dismantling), respectively. Before the sizes of actual zones are determined based on hydroacoustic measurements, CALTRANS shall

establish these zones based on prior measurements conducted during SF-OBB constructions, as described in Table 1 of this document.

Table 1. Temporary exclusion and Level B harassment zones for various pile driving and dismantling activities

Pile Driving / Dismantling Activities	Pile Size (m)	Distance to 120 dB re 1 μ Pa (rms) (m)	Distance to 160 dB re 1 μ Pa (rms) (m)	Distance to 180 dB re 1 μ Pa (rms) (m)	Distance to 190 dB re 1 μ Pa (rms) (m)
Vibratory Driving	24	2,000	NA	NA	NA
	36	2,000	NA	NA	NA
	Sheet pile	2,000	NA	NA	NA
Attenuated Impact Driving	24	NA	1,000	235	95
	36	NA	1,000	235	95
Unattenuated Proofing	24	NA	1,000	235	95
	36	NA	1,000	235	95
Unattenuated Impact Driving	H-pile	NA	1,000	235	95
Dismantling		2,000	NA	100	100

Once the underwater acoustic measurements are conducted during initial test pile driving, CALTRANS shall adjust the size of the exclusion zones and Level B behavioral harassment zones, and monitor these zones accordingly.

NMFS-approved protected species observers (PSOs) shall conduct initial survey of the exclusion zones to ensure that no marine mammals are seen within the zones before impact pile driving of a pile segment begins. If marine mammals are found within the exclusion zone, impact pile driving of the segment would be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor would wait 15 minutes for pinnipeds and harbor porpoise and 30 minutes for gray whales. If no marine mammals are seen by the observer in that time it can be assumed that the animal has moved beyond the exclusion zone. This 15-minute criterion is based on scientific evidence that harbor seals in San Francisco Bay dive for a mean

time of 0.50 minutes to 3.33 minutes (Harvey and Torok, 1994), and the mean diving duration for harbor porpoises ranges from 44 to 103 seconds (Westgate et al., 1995).

Once the pile driving of a segment begins it cannot be stopped until that segment has reached its predetermined depth due to the nature of the sediments underlying the Bay. If pile driving stops and then resumes, it would potentially have to occur for a longer time and at increased energy levels. In sum, this would simply amplify impacts to marine mammals, as they would endure potentially higher SPLs for longer periods of time. Pile segment lengths and wall thickness have been specially designed so that when work is stopped between segments (but not during a single segment), the pile tip is never resting in highly resistant sediment layers. Therefore, because of this operational situation, if seals, sea lions, or harbor porpoises enter the safety zone after pile driving of a segment has begun, pile driving will continue and marine mammal observers will monitor and record marine mammal numbers and behavior. However, if pile driving of a segment ceases for 30 minutes or more and a marine mammal is sighted within the designated exclusion zone prior to commencement of pile driving, the observer(s) must notify the Resident Engineer (or other authorized individual) immediately and follow the mitigation requirements as outlined previously in this document.

Soft Start

Although marine mammals will be protected from Level A harassment (i.e., injury) through marine mammal observers monitoring a 190-dB exclusion zone for pinnipeds and 180-dB exclusion zone for cetaceans, mitigation may not be 100 percent effective at all times in locating marine mammals. Therefore, in order to provide additional protection to marine mammals near the project area by allowing marine

mammals to vacate the area prior to receiving a potential injury, CALTRANS and its contractor will also “soft start” the hammer prior to operating at full capacity. This should expose fewer animals to loud sounds both underwater and above water. This would also ensure that, although not expected, any pinnipeds and cetaceans that are missed during the initial exclusion zone monitoring will not be injured.

Power Down and Shut-down

As mentioned previously, although power down and shut-down measures will not be required for pile driving and removal activities, these measures are required for mechanical dismantling of the existing bridge. The contractor perform mechanical dismantling work will stop in-water noise generating machinery when marine mammals are sighted within the designated exclusion zones.

Proposed Monitoring and Reporting Measures

In order to issue an ITA 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 ITAs 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.

Visual Monitoring

Besides using monitoring for implementing power down and shut-down measures for mechanical bridge dismantling, marine mammal monitoring will also be conducted to assess potential impacts from CALTRANS construction activities. CALTRANS will

implement onsite marine mammal monitoring for 100% of all unattenuated impact pile driving of H-piles for 180- and 190-dB re 1 μ Pa exclusion zones and 160-dB re 1 μ Pa Level B harassment zone, attenuated impact pile driving (except pile proofing) and mechanical dismantling for 180- and 190-dB re 1 μ Pa exclusion zones. CALTRANS will also monitor 20% of the attenuated impact pile driving for the 160-dB re 1 μ Pa Level B harassment zone, and 20% of vibratory pile driving and mechanic dismantling for the 120-dB re 1 μ Pa Level B harassment zone.

Monitoring of the pinniped and cetacean exclusion zones shall be conducted by a minimum of three qualified NMFS-approved PSOs. Observations will be made using high-quality binoculars (e.g., Zeiss, 10 x 42 power). PSOs will be equipped with radios or cell phones for maintaining contact with other observers and CALTRANS engineers, and range finders to determine distance to marine mammals, boats, buoys, and construction equipment.

Data on all observations will be recorded and will include the following information:

- (1) location of sighting;
- (2) species;
- (3) number of individuals;
- (4) number of calves present;
- (5) duration of sighting;
- (6) behavior of marine animals sighted;
- (7) direction of travel;

- (8) when in relation to construction activities did the sighting occur (e.g., before, “soft-start”, during, or after the pile driving or removal).

The reactions of marine mammals will be recorded based on the following classifications that are consistent with the Richmond Bridge Harbor Seal survey methodology (for information on the Richmond Bridge authorization, see 68 FR 66076, November 25, 2003): (1) No response, (2) head alert (looks toward the source of disturbance), (3) approach water (but not leave), and (4) flush (leaves haul-out site). The number of marine mammals under each disturbance reaction will be recorded, as well as the time when seals re-haul after a flush.

Hydroacoustic Monitoring

The purpose of the underwater sound monitoring during dismantling of concrete foundations via mechanical means is to establish the exclusion zones of 180 dB re 1 μ Pa (rms) for cetaceans and 190 dB re 1 μ Pa (rms) for pinnipeds. Monitoring will occur during the initial use of concrete dismantling equipment with the potential to generate sound pressure levels in excess of 180 dB re 1 μ Pa (rms). Monitoring will likely be conducted from construction barges and/or boats. Measurements will be taken at various distances as needed to determine the distance to the 180 and 190 dB re 1 μ Pa (rms) contours.

The purpose of underwater sound monitoring during impact pile driving will be to verify sound level estimates and confirm that sound levels do not equal or exceed 180 dB re 1 μ Pa (rms).

Reporting

CALTRANS will notify NMFS prior to the initiation of the pile driving and dismantling activities for the removal of the existing east span. NMFS will be informed of the initial sound pressure level measurements for both pile driving and foundation dismantling activities, including the final exclusion zone and Level B harassment zone radii established for impact and vibratory pile driving and marine foundation dismantling activities.

Monitoring reports will be posted on the SFOBB Project's biological mitigation website (www.biomitigation.org) on a weekly basis if in-water construction activities are conducted. Marine mammal monitoring reports will include species and numbers of marine mammals observed, time and location of observation and behavior of the animal. In addition, the reports will include an estimate of the number and species of marine mammals that may have been harassed as a result of activities.

In addition, CALTRANS will provide NMFS with a draft final report within 90 days after the expiration of the IHA. This report should detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed due to pile driving. 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 must be submitted within 30 days after receipt of comments.

In addition, NMFS would require CALTRANS to notify NMFS' Office of Protected Resources and NMFS' Stranding Network within 48 hours of sighting an injured or dead marine mammal in the vicinity of the construction site. CALTRANS shall provide NMFS with the species or description of the animal(s), the condition of the

animal(s) (including carcass condition if the animal is dead), location, time of first discovery, observed behaviors (if alive), and photo or video (if available).

In the event that an injured or dead marine mammal is found by CALTRANS that is not in the vicinity of the SF-OBB construction site, CALTRANS would report the same information as listed above as soon as operationally feasible to NMFS.

Marine Mammal Monitoring Report from Previous IHA

Prior marine mammal monitoring during CALTRANS' pile driving activities and weekly marine mammal observation memorandums (CALTRANS 2007; 2010) indicate that only a small number of harbor seals (a total of 16 individuals since 2006) and 1 California sea lion (a total of 1 individual in 2009) were observed within zones of influence (ZOIs) that could result in behavioral harassment. However, the reports state that none of the animals were observed as being startled by the exposure, which could be an indication that these animals were habituated to human activities in San Francisco Bay. In addition, no harbor porpoise or gray whales were observed during pile driving activities associated to CALTRANS' SF-OBB construction work.

Estimated Take by Incidental Harassment

Marine mammal take estimates are based on marine mammal monitoring reports and marine mammal observations made during pile driving activities associated with the SF-OBB construction work authorized under prior IHAs. For pile driving activities conducted in 2006, 5 harbor seals and no other marine mammals were detected within the isopleths of 160 dB (rms) re 1 μ Pa during impact pile driving where air bubble curtains were deployed for mitigation measures (radius of ZOI at 500 m) (CALTRANS 2007). For pile driving activities conducted in the 2008 and 2009 seasons, CALTRANS

monitored a much larger ZOI of 120 dB (rms) re 1 μ Pa as a result of vibratory pile driving. A total of 11 harbor seals and 1 California sea lion were observed entering the 120 dB (rms) re 1 μ Pa ZOI (CALTRANS). However, despite the ZOI being monitored extended to 1,900 m for the 120 dB isopleths, CALTRANS did not specify which pile driving activities conducted in 2008 and 2009 used an impact hammer and which ones used a vibratory hammer. Therefore, at least some of these animals were not exposed to received level above 160 dB (rms) re μ Pa, and thus should not be considered as “taken” under the MMPA. No harbor porpoise or gray whales were observed during pile driving activities associated to CALTRANS’ SF-OBB construction work (CALTRANS 2007; 2010).

Based on these results, and accounting for a certain level of uncertainty regarding the next phase of construction, NMFS concludes that at maximum 50 harbor seals, 10 California sea lions, 10 harbor porpoises, and 5 gray whales could be exposed to noise levels that could cause Level B harassment as a result of the CALTRAN’ SF-OBB construction activities (Table 2). These numbers represent 0.17%, 0.00%, 0.03%, and 0.11% of the California stock harbor seal, the U.S. stock California sea lion, the Eastern North Pacific stock gray whale, and the San Francisco-Russian River stock harbor porpoise, respectively (Table 2).

Table 2. Estimates of the possible maximum numbers of marine mammals taken by Level B harassment as a result of the proposed CALTRANS’ SF-OBB construction activities

Species	Stocks	Level B takes	Percent population
Harbor seal	California	50	0.17%
California sea lion	U.S.	10	0.00%
Gray whale	Eastern North Pacific	5	0.03%
Harbor porpoise	San Francisco-Russian River	10	0.11%

Negligible Impact and Small Numbers Analyses and Preliminary Determinations

As a preliminary matter, we typically include our negligible impact and small numbers analyses and determinations under the same section heading of our Federal Register Notices. Despite co-locating these terms, we acknowledge that negligible impact and small numbers are distinct standards under the MMPA and treat them as such. The analysis presented below does not conflate the two standards; instead, each has been considered independently and we have applied the relevant factors to inform our negligible impact and small numbers determinations.

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.” In making a negligible impact determination, NMFS considers a variety of factors, including but not limited to: (1) the number of anticipated mortalities; (2) the number and nature of anticipated injuries; (3) the number, nature, intensity, and duration of Level B harassment; and (4) the context in which the takes occur.

The CALTRANS’ specified activities have been described based on best estimates of the planned SF-OBB construction project within the proposed project area. Some of the noises that would be generated as a result of the proposed bridge construction and dismantling project, such as impact pile driving, are high intensity. However, the in-water pile driving for the piles would use small hammers and/or vibratory pile driving methods, coupled with noise attenuation mechanism such as air bubble curtains for impact pile driving, therefore the resulting exclusion zones for potential TS are expected to be extremely small (< 35 m) from the hammer. In addition,

the source levels from vibratory pile driving are expected to be below the TS onset threshold. Therefore, NMFS does not expect that any animals would receive Level A (including injury) harassment or Level B harassment in the form of TTS from being exposed to in-water pile driving associated with SF-OBB construction project.

Based on marine mammal monitoring reports under previous IHAs, only 16 harbor seals and 1 California sea lion were observed within the 120 dB (in 2008 and 2009) or 160 dB (in 2006) ZOIs during in-water pile driving since 2006. NMFS estimates that up to 50 harbor seals, 10 California sea lions, 10 harbor porpoises, and 5 gray whales could be exposed to received levels above 120 dB (rms) during vibratory pile driving or 160 dB (rms) during impact pile driving for the next season of construction activities due to the large numbers of piles to be driven and the extended zones of influence from vibratory pile driving. These are relatively small numbers, representing 0.17% of the California stock of harbor seal population (estimated at 30,196; Carretta et al. 2013), 0.00% of the U.S. stock of California sea lion population (estimated at 296,750; Carretta et al. 2013), 0.11% of the San Francisco-Russian River stock of harbor porpoise population (estimated at 9,189; Carretta et al. 2013), and 0.03% of the Eastern North Pacific stock of gray whale population (estimated at 19,126; Allen and Angliss 2013).

Animals exposed to construction noise associated with the SF-OBB construction work would be limited to Level B behavioral harassment only, i.e., the exposure of received levels for impulse noise between 160 and 180 dB (rms) re 1 μ Pa (from impact pile driving) and for non-impulse noise between 120 and 180 dB (rms) re 1 μ Pa (from vibratory pile driving). In addition, the potential behavioral responses from exposed animals are expected to be localized and short in duration.

These low intensity, localized, and short-term noise exposures (i.e., 160 dB re 1 μ Pa (rms) from impulse sources and 120 dB re 1 μ Pa (rms) from non-impulse sources), are expected to cause brief startle reactions or short-term behavioral modification by the animals. These brief reactions and behavioral changes are expected to disappear when the exposures cease. The maximum estimated 160 dB isopleths from impact pile driving is 500 m from the pile, and the estimated 120 dB maximum isopleths from vibratory pile driving is approximately 2,000 m from the pile. There is no pinniped haul-out area in the vicinity of the pile driving sites. There is no critical habitat or other biologically important area for marine mammals in the vicinity of the proposed SF-OBB construction area. Therefore, these levels of received underwater construction noise from the proposed SF-OBB construction project are not expected to affect marine mammal annual rates of recruitment or survival.

For the reasons discussed in this document, NMFS has preliminarily determined that the impact of in-water pile driving associated with construction of the SF-OBB would result, at worst, in the Level B harassment of small numbers of California sea lions, Pacific harbor seals, harbor porpoises, and potentially gray whales that inhabit or visit SFB in general and the vicinity of the SF-OBB in particular. While behavioral modifications, including temporarily vacating the area around the construction site, may be made by these species to avoid the resultant visual and acoustic disturbance, the availability of alternate areas within SFB and haul-out sites (including pupping sites) and feeding areas within the Bay has led NMFS to preliminarily determine that this action will have a negligible impact on California sea lion, Pacific harbor seal, harbor porpoise, and gray whale species or stocks along the California coast.

In addition, no take by Level A harassment (injury) or death is anticipated and harassment takes should be at the lowest level practicable due to incorporation of the proposed mitigation measures mentioned previously in this document.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action.

Proposed Incidental Harassment Authorization

This section contains a draft of the IHA itself. The wording contained in this section is proposed for inclusion in the IHA (if issued).

- (1) This Authorization is valid from January 8, 2014, through January 7, 2015.
- (2) This Authorization is valid only for activities involving the construction and dismantling of the East Span of SF-OBB, California.
- (3) Species Impacted and Level of Takes
 - (a) The species authorized for takings by incidental harassment are the California sea lion (Zalophus californianus), Pacific harbor seal (Phoca vitulina richardsi), harbor porpoise (Phocoena phocoena), and gray whale (Eschrichtius robustus).
 - (b) The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the Director, Southwest Regional Office, National Marine Fisheries Service, Telephone (562) 980-4000 and the Director, Office of Protected Resources, National Marine Fisheries Service, Telephone (301) 427-8400.
- (4) The holder of this Authorization is required to cooperate with the National Marine Fisheries Service and any other Federal, state or local agencies monitoring the

impacts of the activity on marine mammals. The holder must notify Monica DeAngelis of the Southwest Regional Office (phone: (562) 980-3232) at least 24 hours prior to starting activities.

(5) Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 2. The taking by Level A harassment, injury, serious injury, or death of these species or the taking by harassment, injury, serious injury, or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

(6) Mitigation Requirements

(a) Use of Noise Attenuation Devices

Pile driving energy attenuator (such as air bubble curtain system or dewatered cofferdam) shall be used for all impact pile driving of pipe piles, with the exception of pile proofing and H-piles.

(b) Establishment and Monitoring of Exclusion and Level B Harassment Zones

(i) For all in-water pile driving and mechanical dismantling activities,

CALTRANS shall establish exclusion zones where received underwater sound pressure levels (SPLs) are higher than 180 dB (rms) and 190 dB (rms) re 1 μ Pa for cetaceans and pinnipeds, respectively, and Level B harassment zones where received underwater sound pressure levels (SPLs) are higher than 160 dB (rms) and 120 dB (rms) re 1 μ Pa for impulse noise sources (impact pile driving) and non-impulses noise sources (vibratory pile driving and mechanic dismantling), respectively.

(ii) The sizes of the initial exclusion and Level B harassment zones for different types of activities are provided in Table 1 above. Once hydroacoustic measurements of pile driving and mechanical dismantling activities have been conducted, CALTRANS shall revised the sizes of the zones based on actual measurements.

(iii) NMFS-approved protected species observers (PSOs) shall conduct initial survey of the safety zone to ensure that no marine mammals are seen within the zones before impact pile driving and mechanical dismantling of bridge foundation. If marine mammals are found within the exclusion zones, impact pile driving and/or mechanical dismantling activity of the segment shall be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor would wait 15 minutes for pinnipeds and harbor porpoise and 30 minutes for gray whale. If no marine mammals are seen by the observer in that time it would be assumed that the animal has moved beyond the exclusion zone.

(iv) If the time between pile-segment driving is less than 30 minutes, a new 30-minute survey is unnecessary provided marine mammal monitors continue observations during the interruption. If pile driving ceases for 30 minutes or more and a marine mammal is sighted within the designated safety zone(s) prior to the commencement of pile-driving, the observer(s) must notify the Resident Engineer (or other authorized individual) immediately (see condition 5(e)).

(c) Soft Start

CALTRANS and its contractor shall implement soft start, i.e., starting the pile driving hammer at the lowest power setting and gradually ramp up to full power, prior to operating pile driving hammers at full capacity for both impact and vibratory pile driving.

(d) Power Down and Shut-down

(i) For mechanical dismantling of bridge foundation, construction activities that generate underwater noise must be powered down or shutdown if a marine mammal is observed within the established 180 dB or 190 dB re 1 μ Pa exclusion zones for cetaceans or pinnipeds, respectively.

(ii) For pile driving activities, if a marine mammal is sighted within the exclusion zone after pile-driving has begun, CALTRANS must have a qualified marine mammal observer record the species, numbers and behaviors of the animal(s) and report to Monica DeAngelis at the Southwest Regional Office, National Marine Fisheries Service, (phone: (562) 980-3232) within 24 hours of the incident.

(7) Monitoring Requirements

(a) General.

(1) The holder of this Authorization must designate a minimum of three biologically-trained, on-site protected species observers (PSOs), approved in advance by the National Marine Fisheries Service's Southwest Regional Office, to monitor the area for marine mammals before, during, and after pile driving activities; and before, during, and after mechanical dismantling of marine foundations .

(2) The National Marine Fisheries Service must be informed immediately of any changes or deletions to any portions of the monitoring plan in accordance with condition 7(a) of this Authorization.

(b) Visual Monitoring

(i) CALTRANS shall implement onsite marine mammal monitoring for 100% of all unattenuated impact pile driving of H-piles for 180- and 190-dB re 1 μ Pa exclusion

zones and 160-dB re 1 μ Pa Level B harassment zone, attenuated impact pile driving of pipe piles (except pile proofing) and mechanical dismantling for 180- and 190-dB re 1 μ Pa exclusion zones.

(ii) CALTRANS shall also monitor 20% of the attenuated impact pile driving for the 160-dB re 1 μ Pa Level B harassment zone, and 20% of vibratory pile driving and mechanic dismantling for the 120 dB re 1 μ Pa Level B harassment zone.

(iii) Marine mammal monitoring shall begin at least 30 minutes prior to the start of the activities, through the entire construction activities, and continue to 30 minutes after the construction activities.

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

(v) Data on all observations would be recorded and shall include the following information:

- location of sighting;
- species;
- number of individuals;
- number of calves present;
- duration of sighting;
- behavior of marine animals sighted;
- direction of travel;

- when in relation to construction activities did the sighting occur (e.g., before, “soft-start”, during, or after the pile driving or removal); and
- other human activities in the area.

(c) Hydroacoustic Measurements

At the beginning of pile driving and mechanical dismantling of bridge foundation, CALTRANS shall conduct hydroacoustic measurements to verify the exclusion and Level B harassment zones.

(7) Reporting Requirements

(a) CALTRANS shall notify NMFS of the initial sound pressure level measurements for both pile driving and foundation dismantling activities, including the final exclusion zone and Level B harassment zone radii established for impact and vibratory pile driving and marine foundation dismantling activities, within 72 hours after completion of the measurements.

(b) Monitoring reports shall be posted on the SFOBB Project’s biological mitigation website (www.biomitigation.org) on a weekly basis if in-water construction activities are conducted. Marine mammal monitoring reports shall include species and numbers of marine mammals observed, time and location of observation and behavior of the animal. In addition, the reports shall include an estimate of the number and species of marine mammals that may have been harassed as a result of activities.

(c) CALTRANS shall provide NMFS with a draft final report within 90 days after the expiration of the IHA. This report shall detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed due to pile driving and mechanical dismantling of

bridge foundations. If no comments are received from NMFS within 30 days, the draft final report would be considered the final report. If comments are received, a final report must be submitted within 30 days after receipt of comments.

(8) Notification of Injured or Dead Marine Mammals

(a) In the unanticipated event that CALTRANS' construction activities clearly cause the take of a marine mammal in a manner prohibited by this Authorization, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), CALTRANS shall immediately cease construction operations and immediately report the incident to the Supervisor of Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and NMFS Southwest Regional Stranding Coordinators (Sarah.Wilkin@noaa.gov). The report must include the following information:

- (i) time, date, and location (latitude/longitude) of the incident;
- (ii) type of activity involved;
- (iii) description of the incident;
- (iv) status of all sound source use in the 24 hours preceding the incident;
- (v) water depth;
- (vi) environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- (vii) description of marine mammal observations in the 24 hours preceding preceding the incident;
- (viii) species identification or description of the animal(s) involved;

(ix) the fate of the animal(s); and

(x) photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with CALTRANS to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance.

CALTRANS may not resume their activities until notified by NMFS via letter, email, or telephone.

(b) In the event that CALTRANS 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 (i.e., in less than a moderate state of decomposition as described in the next paragraph), CALTRANS will immediately report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and NMFS Southwest Regional Stranding Coordinators (Sarah.Wilkin@noaa.gov). The report must include the same information identified in Condition 8(a) above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with CALTRANS to determine whether modifications in the activities are appropriate.

(c) In the event that CALTRANS 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 Condition 3 of this Authorization (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), CALTRANS shall report the incident to the Supervisor of the Incidental Take Program,

Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and NMFS Southwest Regional Stranding Coordinators (Sarah.Wilkin@noaa.gov), within 24 hours of the discovery. CALTRANS shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS. CALTRANS can continue its operations under such a case.

(9) A copy of this Authorization must be in the possession of all contractors and marine mammal monitors operating under the authority of this Incidental Harassment Authorization.

National Environmental Policy Act (NEPA)

NMFS prepared an Environmental Assessment (EA) for the take of marine mammals incidental to construction of the East Span of the SF-OBB and made a Finding of No Significant Impact (FONSI) on November 4, 2003. Due to the modification of part of the construction project and the mitigation measures, NMFS reviewed additional information from CALTRANS regarding empirical measurements of pile driving noises for the smaller temporary piles without an air bubble curtain system and the use of vibratory pile driving. NMFS prepared a Supplemental Environmental Assessment (SEA) and analyzed the potential impacts to marine mammals that would result from the modification of the action. A Finding of No Significant Impact (FONSI) was signed on August 5, 2009. A copy of the SEA and FONSI is available upon request (see ADDRESSES).

Endangered Species Act (ESA)

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

Proposed Authorization

NMFS proposes to issue an IHA to CALTRANS for the potential harassment of small numbers of harbor seals, California sea lions, harbor porpoises, and gray whales incidental to construction of a replacement bridge for the East Span of the San Francisco-Oakland Bay Bridge in California, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. NMFS has preliminarily determined that the proposed activity would result in the harassment of only small numbers of harbor seals, California sea lions, harbor porpoises, and possibly gray whales and will have no more than a negligible impact on these marine mammal stocks.

Dated: September 26, 2013.

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

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