



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

SEP 15 2016

Stefan Galvez-Abadia
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

Dear Mr. Galvez-Abadia:

Enclosed is an Incidental Harassment Authorization issued to the California Department of Transportation, under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*), to take small numbers of marine mammals by Level B harassment incidental to construction of the East Span of the San Francisco-Oakland Bay Bridge, San Francisco Bay, California.

You are required to comply with the conditions contained in this Authorization. In addition, you must cooperate with any Federal, State or local agency monitoring the impacts of your activities. The Authorization requires monitoring the presence of marine mammals, mitigating adverse impacts to the lowest level practicable, and reporting any behavioral modifications resulting from your activity as observed by qualified individuals.

If you have any questions concerning the Authorization or its requirements, please contact Shane Guan, Office of Protected Resources, NMFS, at (301) 427-8401.

Sincerely,

Donna S. Wieting
Director
Office of Protected Resources

Enclosure



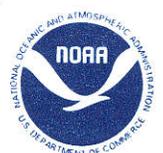


DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE

Incidental Harassment Authorization

The California Department of Transportation (CALTRANS) is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1371(a)(5)(D)) and 50 CFR 216.106, to take, incidentally by Level B harassment, small numbers of marine mammals incidental to construction of a replacement bridge for the East Span of the San Francisco-Oakland Bay Bridge (SFOBB), California:

1. This Authorization is valid from September 19, 2016 until September 18, 2017.
2. This Authorization is valid only for activities involving the construction and dismantling of the East Span of SFOBB, California.
3.
 - (a) The species authorized for incidental harassment takings, Level B harassment only, are: Pacific harbor seal (*Phoca vitulina richardii*), California sea lion (*Zalophus californianus*), northern elephant seal (*Mirounga angustirostris*), northern fur seal (*Callorhinus ursinus*), gray whale (*Eschrichtius robustus*), harbor porpoise (*Phocoena phocoena*), and bottlenose dolphin (*Tursiops truncatus*). A list of authorized take is provided in Table 1.
 - (b) The authorization for taking by harassment is limited to the following acoustic sources and from the following activities:
 - In-water pile driving and pile removal activities; and
 - Piers E4 and E5 demolition via controlled implosion and associated test blasting.
 - (c) The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the West Coast Administrator (206-526-6150), National Marine Fisheries Service (NMFS) and the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at (301) 427-8401, or her designee (301-427-8418).
4. The holder of this Authorization must notify the Chief of the Permits and Conservation Division, Office of Protected Resources, at least 48 hours prior to the start of activities



identified in 3(b) (unless constrained by the date of issuance of this Authorization in which case notification shall be made as soon as possible).

5. Prohibitions

- (a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 9 of this notice. The taking by Level A harassment, injury or death of these species or the taking by harassment, injury or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.
- (b) The taking of any marine mammal is prohibited whenever the required protected species observers (PSOs), required by condition 7(a), are not present in conformance with condition 7(a) of this Authorization.

6. Mitigation

- (a) Time Restriction
In-water pile driving and pile removal activities and the controlled implosion of Piers E4 and E5 shall only be conducted during daylight hours and with enough time for pre and post activity monitoring, and with good visibility when the largest exclusion zone can be visually monitored.
- (b) Installation of Sound Attenuation Systems
 - (i) For in-water 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.
 - (ii) For controlled implosion of Piers E4 and E5, CALTRANS shall install a Blast Attenuation System (BAS) prior to demolition to reduce the shockwave from the implosion.
- (c) Establishment of Exclusion Zones and Zones of Influence
 - (i) For in-water impact pile driving, CALTRANS shall establish exclusion zones with radii 10 m for cetaceans and otariid pinnipeds, 156 m for phocid pinnipeds when driving 14" H-piles, and 183 m for phocid pinnipeds when driving 36" steel piles. The isopleth of these zones are provided in Table 2.
 - (ii) For in-water pile driving and pile removal, CALTRANS shall establish zones of influence (ZOIs) 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), respectively. The isopleth of these zones are provided in Table 2.

- (iii) For Piers E4 and E5 controlled implosion and associated test blasting, CALTRANS shall established exclusions zones and ZOIs that are appropriate to specific marine mammal functional hearing group shall be established. The isopleth of these zones are provided in Table 3.

(d) Exclusion Zone Monitoring for Mitigation Measures

- (i) NMFS-approved protected species observers (PSOs) shall conduct initial survey of the exclusion for 30 minutes to ensure that no marine mammals are seen within the zones before impact pile driving and controlled implosion.
- (ii) If marine mammals are found within the exclusion zones, impact pile driving and/or controlled implosion of the piers 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 small cetacean (harbor porpoise and bottlenose dolphin) 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.
- (iii) 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 PSO(s) must notify the Resident Engineer (or other authorized individual) immediately and implement measures in condition 5(d)(ii).

(e) 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.

(f) Shut-down

- (i) For pile driving activities, if a marine mammal is sighted within the exclusion zone or is approaching the exclusion zone, or within 10 m of the pile driving and pile removal equipment, whichever is smaller, after pile-driving has begun, pile driving shall be shut-down. CALTRANS may resume pile driving after a shut-down measure following condition 5(d)(ii).

(ii) CALTRANS shall implement shutdown if a species for which authorization has not been granted (including but not limited to Guadalupe fur seals) or if a species for which authorization has been granted but the authorized takes are met, approaches or is observed within the Level B harassment zone

(g) Communication

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

7. Monitoring

(a) Protected Species Observers

(i) CALTRANS shall employ NMFS-approved PSOs to conduct marine mammal monitoring for its SFOBB construction activities that involve in-water pile driving and pile removal and controlled pier implosion.

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

(iii) 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.

(iv) For in-water pile driving and pile removal

(A) 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, and attenuated impact pile driving of pipe piles (except pile proofing) for 180- and 190-dB re 1 μ Pa exclusion zones.

(B) CALTRANS shall also monitor 100% of the attenuated impact pile driving for the 160-dB re 1 μ Pa Level B harassment zone and of vibratory pile driving for the 120 dB re 1 μ Pa Level B harassment zone.

(C) 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.

(v) For controlled implosion of Piers E4 and E5:

- (A) A minimum of 8-10 PSOs shall be required during the Piers E4 and E5 controlled implosion so that the exclusion zone, Level B Harassment TTS and Behavioral ZOIs, and surrounding area can be monitored.
- (B) PSOs shall be positioned near the edge of each of the threshold criteria zones and shall utilize boats, barges, and bridge piers and roadway.
- (C) The Lead PSO shall be in constant communication with the Environmental Compliance Manager that will be located with the CALTRANS Engineer and the Blasting Supervisor (or person that will be in charge of detonating the charges) during the implosion.
- (D) Boat or shore surveys shall be conducted immediately after the event and for the three days following the event to determine if there are any injured or stranded marine mammals in the area.
- (E) Monitoring Data Collection:

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

- Species.
- Number of animals (with or without pup/calf).
- Age class (pup/calf, juvenile, adult).
- Identifying marks or color (scars, red pelage, damaged dorsal fin, etc.).
- Position relative to Pier E4 or E5 (distance and direction).
- Movement (direction and relative speed).
- Behavior (logging [resting at the surface], swimming, spyhopping [raising above the water surface to view the area], foraging, etc.)

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

8. Reporting

- (a) CALTRANS shall submit a draft monitoring report within 90 days after completion of the construction work or the expiration of the IHA (if issued), whichever comes earlier. This report would detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed.
- (b) NMFS would have an opportunity to provide comments within 30 days after receiving the draft report, and if NMFS has comments, CALTRANS shall address the comments and submit a final report to NMFS within 30 days.
- (c) If NMFS does not provide comments within 30 days after receiving the report, the draft report is considered to be final.
- (d) In the unanticipated event that the construction activities clearly cause the take of a marine mammal in a manner prohibited by this Authorization (if issued), such as an injury, serious injury, or mortality, CALTRANS shall immediately cease all operations and immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators. The report must include the following information:
 - (i) Time, date, and location (latitude/longitude) of the incident;
 - (ii) Description of the incident;
 - (iii) Status of all sound source use in the 24 hours preceding the incident;
 - (iv) Environmental conditions (e.g., wind speed and direction, sea state, cloud cover, visibility, and water depth);
 - (v) Description of marine mammal observations in the 24 hours preceding the incident;
 - (vi) Species identification or description of the animal(s) involved;
 - (vii) The fate of the animal(s); and
 - (viii) Photographs or video footage of the animal (if equipment is available).

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

- (e) In the event that CALTRANS discovers an injured or dead marine mammal, and the lead 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 Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators. The report must include the same information identified above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with CALTRANS to determine whether modifications in the activities are appropriate.

- (f) In the event that CALTRANS discovers an injured or dead marine mammal, and the lead 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), CALTRANS shall report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators, within 24 hours of the discovery. CALTRANS shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. CALTRANS can continue its operations under such a case.

9. Marine Mammal Stranding Plan

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

- (a) The stranding crew shall prepare treatment areas at the NMFS-designated facility for cetaceans or pinnipeds that may be injured from the implosion. Preparation shall include equipment to treat lung injuries, auditory testing equipment, dry and wet caged areas to hold animals, and operating rooms if surgical procedures are necessary. Equipment to conduct auditory brainstem response hearing testing would be available to determine if any inner ear threshold shifts (TTS or PTS) have occurred.
- (b) A stranding crew and a veterinarian shall be on call near the Piers E4 and E5 sites at the time of the implosion to quickly recover any injured marine mammals, provide emergency veterinary care, stabilize the animal's condition, and transport individuals to the NMFS-designated facility. If an injured or dead animal is found, NMFS (both the regional office and headquarters) shall be notified immediately even if the animal appears to be sick or injured from other than blasting.
- (c) Post-implosion surveys shall be conducted immediately after the event and over the following three days to determine if there are any injured or dead marine mammals in the area.
- (d) Any veterinarian procedures, euthanasia, rehabilitation decisions and time of release or disposition of the animal shall be at the discretion of the NMFS-

designated facility staff and the veterinarians treating the animals. Any necropsies to determine if the injuries or death of an animal was the result of the blast or other anthropogenic or natural causes will be conducted at the NMFS-designated facility by the stranding crew and veterinarians. The results shall be communicated to both CALTRANS and to NMFS as soon as possible with a written report within a month.

10. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals, or if there is an unmitigable adverse impact on the availability of such species or stocks for subsistence uses.
11. A copy of this Authorization must be in the possession of each contractor who performs the in-water pile driving, pile removal, and Piers E4 and E5 controlled implosion work.



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

9/15/16
Date

Table 1. Species/stocks and numbers of marine mammals allowed to be taken by Level B harassment incidental to under this IHA.

Species	Level B Behavioral	Level B TTS
Pacific harbor seal	874	6
California sea lion	111	2
Northern elephant seal	15	1
Harbor porpoise	19	3
Northern fur seal	21	1
Gray whale	1	0
Bottlenose dolphin	12	2

Table 2. Exclusion and Levels A and B Harassment Zones for Various Pile Driving Activities

Pile driving / dismantling activity	Pile Size (m)	Vibratory piling ZOI radius (m)	Impact piling ZOI radius (m)	Exclusion zone radius for cetacean (m)	Exclusion zone radius for otariids (m)	Exclusion zone radius for phocids (m)
Vibratory driving	36 steel	2,000	NA	10	10	43
Impact driving	14" H-pile	NA	1,000	235	95	156
	36" steel pile	NA	1,000	235	95	183

Table 3. Distances to Underwater Blasting Harassment Zones for Piers E4 and E5 Implosion

Species	Level B Criteria		Level A Criteria			Mortality
	Behavioral Response	TTS Dual Criteria*	PTS Dual Criteria*	Gastro-intestinal Track	Lung Injury	
Harbor Seal	2,460 ft (750 m)	1,658 ft (505 m) 104 ft (32 m)	507 ft (155 m) 65 ft (20 m)	<100 ft (30 m)	<100 ft (30 m)	<100 ft (30 m)
California Sea Lion	387 ft (118 m)	261 ft (80 m) 104 ft (32 m)	80 ft (24 m) 65 ft (20 m)	<100 ft (30 m)	<100 ft (30 m)	<100 ft (30 m)
Northern Elephant Seal	2,460 ft (750 m)	1,658 ft (505 m) 104 ft (32 m)	507 ft (155 m) 65 ft (20 m)	<100 ft (30 m)	<100 ft (30 m)	<100 ft (30 m)
Northern fur seal	387 ft (118 m)	261 ft (80 m) 104 ft (32 m)	80 ft (24 m) 65 ft (20 m)	<100 ft (30 m)	<100 ft (30 m)	<100 ft (30 m)
Harbor Porpoise	8,171 ft (2,491 m)	5,580 ft (1,701 m) 400 ft (122 m)	1,777 ft (542 m) 249 ft (76 m)	<100 ft (30 m)	<100 ft (30 m)	<100 ft (30 m)
Bottlenose Dolphin	1,255 ft (383 m)	855 ft (261 m) 202 ft (62 m)	271 ft (83 m) 112 ft (34 m)	<100 ft (30 m)	<100 ft (30 m)	<100 ft (30 m)
<p>Note: * For the TTS and PTS criteria thresholds with dual criteria, the largest criteria distances (i.e., more conservative) are shown in bold.</p>						