



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

SEP 17 2014

Bryan L. Chapman
Senior Regulatory Specialist
ExxonMobil Production Company
P.O. Box 4358
Houston, Texas 77210-4358

Dear Mr. Chapman:

Enclosed is an Incidental Harassment Authorization (IHA) issued to the ExxonMobil Production Company, under the authority of section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*), to harass small numbers of marine mammals, by Level B harassment, incidental to the conductor pipe installation activities at Harmony Platform in the Santa Barbara Channel offshore of California during September 2014 to September 2015.

You are required to comply with the conditions contained in the IHA. In addition, you must submit a report to the National Marine Fisheries Service's (NMFS) Office of Protected Resources within 90 days of the completion of the project. The IHA also requires monitoring of marine mammals by qualified individuals before, during, and after conductor pipe installation activities using an impact hammer for pile-driving and reporting of marine mammal observations, including species, numbers, and behavioral modifications potentially resulting from these activities.

If you have any questions concerning the IHA or its requirements, please contact Howard Goldstein, or Jolie Harrison, Office of Protected Resources, NMFS, at 301-427-8401.

Sincerely,

Donna S. Wieting
Director
Office of Protected Resources

Enclosures



Incidental Harassment Authorization

The National Marine Fisheries Service (NMFS) hereby authorizes the ExxonMobil Production Company (ExxonMobil), P.O. Box 4358, Houston, Texas 77210-4358, under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1371(a)(5)(D)), to harass small numbers of marine mammals incidental to conducting conductor pipe installation activities at the Harmony Platform in the Santa Barbara Channel off the coast of California:

1. This Incidental Harassment Authorization (IHA) is valid from September 17, 2014 through September 16, 2015.
2. This IHA is valid only for ExxonMobil's activities associated with conductor pipe installation activities that shall occur in the following specified geographic area:

(a) In the Santa Barbara Channel offshore of California, the Harmony Platform is located at 34° 22' 35.906" North, 120° 10' 04.486" West. The water depth at the action area is 366 meters (m) (1,200.8 feet [ft]) on the continental slope below a relative steep descent, and 4.7 kilometer (km) (2.5 nautical miles [nmi]) from the shelf break. The conductor pipe installation activities will be conducted 10 km (5.4 nmi) off the California coast, between Point Conception and the city of Santa Barbara, in the U.S. Exclusive Economic Zone, as specified in ExxonMobil's IHA application and addendum.

3. Species Authorized and Level of Takes

(a) The incidental taking of marine mammals, by Level B harassment only, is limited to the following species in the waters of the Pacific Ocean off the coast of California:

(i) Mysticetes – see Table 1 (attached) for authorized species and take numbers.

(ii) Odontocetes – see Table 1 (attached) for authorized species and take numbers.

(iii) Pinnipeds – see Table 1 (attached) for authorized species and take numbers.

(iv) If any marine mammal species are encountered during conductor pipe installation activities that are not listed in Table 1 (attached) and are likely to be exposed to sound pressure levels (SPLs) greater than or equal to 160 dB re 1 μ Pa (rms) for impulse underwater noise from impact hammer conductor pipe installation and/or at or above 100 dB re 20 μ Pa (rms) for all pinnipeds species

except harbor seals (which is at or above 90 dB re 20 μ Pa (rms) for in-air noise, then ExxonMobil must shut-down the operations to prevent take.

(b) The taking by injury (Level A harassment), serious injury, or death of any of the species listed in Condition 3(a) above or the taking of any kind of any other species of marine mammal is prohibited and may result in the modification, suspension or revocation of this IHA.

4. The methods authorized for taking by Level B harassment are limited to the following acoustic sources without an amendment to this IHA:

(a) Conductor pipe installation using hydraulic impact hammer driving.

5. The taking of any marine mammal in a manner prohibited under this IHA must be reported immediately to the Office of Protected Resources, National Marine Fisheries Service (NMFS), at 301-427-8401.

6. Mitigation and Monitoring Requirements

ExxonMobil is required to implement the following mitigation and monitoring requirements when conducting the specified activities to achieve the least practicable impact on affected marine mammal species or stocks:

Buffer and Exclusion Zones

(a) Establish a 160 dB re 1 μ Pa (rms) buffer zone for cetaceans and pinnipeds as well as 180 dB re 1 μ Pa (rms) exclusion zone for cetaceans and 190 dB re 1 μ Pa (rms) exclusion zone for pinnipeds for in-water sounds before the conductor pipe installation activities begin so that underwater sounds associated with operations no longer exceed levels that are potentially harmful to marine mammals. Establish a 90 dB re 20 μ Pa (rms) buffer zone for Pacific harbor seals (*Phoca vitulina richardii*) and/or 100 dB re 20 μ Pa (rms) for all other pinnipeds for in-air sounds before the conductor pipe installation activities begin so that in-air sounds associated with operations no longer exceed levels that are potentially harmful to marine mammals. See Table 2 (attached) for distances for buffer and exclusion zones.

Protected Species Observers and Visual Monitoring

(b) Utilize three, NMFS-qualified, Protected Species Observers (PSOs) to visually watch for and monitor marine mammals near the impact hammer source during daytime and nighttime conductor pipe installation activities.

(i) The Harmony Platform's crew shall also assist in detecting marine mammals, when practicable.

- (ii) PSOs shall be stationed at the best practicable vantage point(s) (on the lower platform level, and upper platform level) of the Harmony Platform to monitor the applicable buffer and exclusion zone for marine mammals during the conductor pipe installation activities. For the buffer zone, two PSOs shall be stationed on the upper platform level. For the exclusion zone, one PSO shall be concurrently stationed on the lower platform level. The lower platform level shall be illuminated during nighttime visual observations.
 - (iii) PSO(s) shall have access to reticle binoculars (greater than or equal to 7 x 50) and night-vision devices.
 - (iv) PSO(s) shifts shall last no longer than 5 hours at a time.
 - (v) PSO(s) shall also make observations during daytime periods when the conductor pipe installation activities are not occurring for comparison of animal abundance and behavior, when feasible. In addition, to monitoring during conductor pipe installation activities, baseline monitoring for marine mammals shall be performed up to up to one week before and one week after conductor pipe installation activities, as well as selected period in between impact hammer conductor pipe installation activities.
- (c) PSO(s) shall record the following information when a marine mammal is sighted:
- (i) Species, group size, age/size/sex categories (if determinable), behavior when first sighted and after initial sighting, heading (if consistent), bearing and distance from platform, sighting cue, apparent reaction to the conductor pipe installation activities (e.g., none, avoidance, approach, paralleling, etc., and including responses to ramp-up), speed of travel, and duration of presence; and
 - (ii) Date, time, location, heading, speed, activity of the conductor pipe installation activities (including whether in state of ramp-up or shut-down), monitoring and mitigation measures implemented (or not implemented), weather conditions, Beaufort sea state and wind force, visibility, and sun glare; and
 - (iii) The data listed under Condition 6(b)(ii) shall also be recorded at the start and end of each observation watch and during a watch whenever there is a change in one or more of the variables.
 - (iv) If inclement weather conditions (i.e., fog, rain, or rough Beaufort sea state) limits or impairs PSO's visibility of the water's surface to less than 30.5 m (100 ft) within the action area, then all noise-generating conductor pipe installation activities shall be stopped until visibility improves.

Visual Monitoring at the Start of the Impact Hammer Conductor Pipe Installation Activities

(d) Visually observe the surface of the water for the entire extent of the in-water buffer zone (160 dB re 1 μ Pa [rms]) for cetaceans and pinnipeds and in-water exclusion zones (180 dB re 1 μ Pa [rms] for cetaceans and 190 dB re 1 μ Pa [rms] for pinnipeds) as well as in the in-air buffer zone for harbor seals (90 dB re 20 μ Pa) and for all other pinnipeds (100 dB re 20 μ Pa) (see Table 2 [attached] for distances) using two NMFS-qualified PSOs, for at least 30 minutes prior to starting the impact hammer (day or night).

(i) If the PSO(s) sees a marine mammal within the exclusion zone (corresponding to a shut-down procedure), ExxonMobil must delay the conductor pipe installation activities until the marine mammal(s) has left the area. If the PSO(s) sees a marine mammal that surfaces within the exclusion zone (corresponding to a shut-down procedure), then dives below the surface, the PSO(s) shall wait 30 minutes. If the PSO(s) sees no marine mammals during that time, they should assume that the animal has moved beyond the exclusion zone.

(ii) If for any reason the entire radius cannot be seen for the entire 30 minutes (i.e., rough seas, fog, darkness), or if marine mammals are near, approaching, or in the exclusion zone, the impact hammer may not be ramped-up.

Ramp-up Procedures

(e) Implement a "ramp-up" procedure when starting up at the beginning of conductor pipe installation activities, which means starting with an initial set of three strikes from the impact hammer at 40% energy, followed by a 30 second waiting period, then two subsequent three strike sets. During ramp-up, the PSOs shall monitor the exclusion zone, and if marine mammals are sighted within the exclusion zone (corresponding to a shut-down procedure), a shut-down shall be implemented. Therefore, initiation of ramp-up procedures from shut-down requires that the PSOs be able to view the full exclusion zone as described in Condition 6(a) (above).

Shut-down Procedures

(f) Shut-down the conductor pipe installation activities if a marine mammal is detected approaching, about to enter, or located within the relevant exclusion zone (as defined in Table 2, attached). A shut-down means all operating impact hammers are shut-down (i.e., turned off). If any marine mammal is sighted within the relevant exclusion zone prior to conductor pipe installation activities, the hammer operator (or other authorized individual) shall delay conductor pipe installation activities until the animal has moved outside the exclusion zone or the animal is not resighted within for 15 minutes for species with shorter dive durations (small odontocetes and pinnipeds) or 30 minutes for species with longer dive durations (mysticetes and large odontocetes, including sperm

[*Physeter macrocephalus*], pygmy sperm [*Kogia breviceps*], dwarf sperm [*Kogia sima*], killer [*Orcinus orca*], and beaked whales).

(g) Following a shut-down, the conductor pipe installation activities shall not resume until the PSO(s) has visually observed the marine mammal(s) exiting the exclusion zone and is not likely to return, or has not been seen within the exclusion zone for 15 minutes for species with shorter dive durations (small odontocetes and pinnipeds) or 30 minutes for species with longer dive durations (mysticetes and large odontocetes, including sperm, killer, and beaked whales).

(h) Following a shut-down and subsequent animal departure from the exclusion zone, conductor pipe installation activities may resume following ramp-up procedures described in Condition 6(e).

Conductor Pipe Installation Activities at Night

(i) To facilitate visual monitoring during non-daylight hours, the exclusion zones shall be illuminated by lights to allow for more effective viewing of the area by the PSO on-duty.

Special Procedures for Situations or Species of Concern

(j) If a North Pacific right whale (*Eubalaena japonica*) is visually sighted, the conductor pipe installation activities shall be shut-down regardless of the distance of the animal(s) to the sound source. The conductor pipe installation activities shall not resume pipe driving until 30 minutes after the last documented whale visual sighting.

(k) Concentrations of humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), fin (*Balaenoptera physalus*), blue (*Balaenoptera musculus*), and/or sperm (*Physeter macrocephalus*) whales will be avoided (i.e., exposing detected concentrations of animals approaching, about to enter, or located within the 160 dB buffer zone), and the sound source will be shut-down if necessary. For purposes of the conductor pipe installation activities, a concentration or group of whales will consist of three or more individuals visually sighted that do not appear to be traveling (e.g., feeding, socializing, etc.).

In-Water Monitoring

(l) Acoustic monitoring shall be performed at a minimum of two fixed stations located at 14 to 30 m (45.9 to 98.4 ft) and approximately 325 to 500 m (+/-33 m 10%, 1,066.3 to 1,640.4 ft) depending on the conductor pipe sound source location to the monitoring location.

(m) The following general approach shall be used to measure in-water sound levels: Acoustic monitoring shall be conducted over the entire conductor pipe installation period for each conductor pipe, starting approximately 1 hour prior to conductor pipe installation

through 1 hour after impact hammer has stopped. Pre- and post-hammer conductor pipe installation data shall be used to determine ambient/background noise levels.

(i) A stationary hydrophone system with the ability to measure and record sound pressure levels (SPL) shall be deployed at a minimum of two monitoring locations. SPLs shall be recorded in voltage, converted to microPascals (μPa), and post-processed to decibels (dB [re 1 μPa]). For the first conductor pipe installation, hydrophones shall be placed at 14 to 30 m (+/-1 m) and at 325 to 500 m (+/-10%) depending on the conductor pipe sound source location to the monitoring location at depths ranging from 10 to 30 m (32.8 to 98.4 ft) below the surface to avoid potential interferences for surface water energy, and to target the depth range of maximum occurrence of marine mammals most likely in the area during the operations. If necessary, additional hydrophone mooring systems shall be deployed at additional distances and/or depths. Following each successive conductor pipe installation, the water depth and geographical orientation of the hydrophone may be changed to validate modeled SPLs at varying water depths and direction.

(ii) At a minimum, the following sound data shall be analyzed (post-processed) from recorded sound levels: absolute peak overpressure and under pressure levels for each conductor pipe; average, minimum, and maximum sound pressure levels (rms), integrated from 3 Hz to 20 kHz; average duration of each hammer strike, and total number of strikes per continuous impact hammer conductor pipe installation period for each conductor pipe.

(iii) In the event that field measurements indicate different SPL (rms) values than those predicted by modeling for either the maximum distances of the buffer or exclusion zones from the sound source, corresponding boundaries for the buffer and exclusion zones shall be increased/decreased accordingly, following NMFS notification and concurrence.

In-Air Monitoring

(n) Reference measurements shall be made approximately 10 to 20 m (32.8 to 65.6 ft) from the initial hammer strike position using a stationary microphone. The microphone shall be placed as far away from other large sound sources as practical. In-air sound levels shall be recorded at several points from the base of the Harmony Platform at sea level to validate modeled sound levels. Recorded data shall be recorded as dB (re 20 μPa) for comparison to in-air noise thresholds for Level B harassment for pinnipeds.

Sound Source Verification

(o) At the initiation of the conductor pipe installation activities using the impact hammer (i.e., the installation of the first pipe), direct measurements will be taken in the near and

far field of the received levels of underwater and in-air sound versus distance and direction from the sound source using calibrated hydrophones. The acoustic data from the sound source verification will be analyzed as quickly as reasonably practicable in the field and used to verify and adjust (based on the predicted distances) the buffer and exclusion zone distances. The field report will be made available to NMFS for review and approval and PSOs after completing the measurements and before beginning the installation of the remaining conductor pipes.

7. Reporting Requirements

ExxonMobil is required to:

(a) Submit a draft report on all activities and monitoring results to the Office of Protected Resources, NMFS, within 90 days of the completion of ExxonMobil's conductor pipe installation activities at the Harmony Platform in the Santa Barbara Channel off the coast of California. This report must contain and summarize the following information:

(i) Dates, times, locations, heading, speed, weather, sea conditions (including Beaufort sea state and wind force), and associated activities during all conductor pipe installation activities and marine mammal sightings;

(ii) Species, number, location, distance from the platform, and behavior of any marine mammals, as well as associated conductor pipe installation activities (number of ramp-up and shut-downs), observed throughout all monitoring activities.

(iii) An estimate of the number (by species) of marine mammals that: (A) are known to have been exposed to the conductor pipe installation activities (based on visual observation) at received levels greater than or equal to 160 dB re 1 μ Pa (rms), and/or 180 dB re 1 μ Pa (rms) for cetaceans and 190 dB re 1 μ Pa (rms) for pinnipeds with a discussion of any specific behaviors those individuals exhibited; and (B) may have been exposed (based on modeled values for the impact) to the conductor pipe installation activities at received levels greater than or equal to 160 dB re 1 μ Pa (rms), and/or 180 dB re 1 μ Pa (rms) for cetaceans and 190 dB re 1 μ Pa (rms) for pinnipeds with a discussion of the nature of the probable consequences of that exposure on the individuals that have been exposed.

(iv) A description of the implementation and effectiveness of the: (A) Terms and Conditions of the Biological Opinion's Incidental Take Statement (ITS) (attached); and (B) mitigation measures of the IHA. For the Biological Opinion, the report shall confirm the implementation of each Term and Condition, as well as any conservation recommendations, and describe their effectiveness, for minimizing the adverse effects of the action on Endangered Species Act-listed marine mammals.

(b) Submit a final report to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, within 30 days after receiving comments from NMFS on the draft report. If NMFS decides that the draft report needs no comments, the draft report shall be considered to be the final report.

Reporting Prohibited Take

(c) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this IHA, such as an injury (Level A harassment), serious injury or mortality (e.g., equipment interaction, and/or entanglement), ExxonMobil shall immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by e-mail to Jolie.Harrison@noaa.gov and Howard.Goldstein@noaa.gov and the West Coast Regional Stranding Coordinator (562-980-3230). The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the incident; description of the circumstances during and leading up to the incident; status of all sound source use in the 24 hours preceding the incident; water depth; environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility); description of marine mammal observations in the 24 hours preceding the incident; species identification or description of the animal(s) involved; the fate of the animal(s); and 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 ExxonMobil to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. ExxonMobil may not resume their activities until notified by NMFS via letter, email, or telephone.

Reporting an Injured or Dead Marine Mammal with an Unknown Cause of Death

In the event that ExxonMobil 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), ExxonMobil shall immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by e-mail to Jolie.Harrison@noaa.gov and Howard.Goldstein@noaa.gov, and the NMFS West Coast Regional Office (1-866-767-6114) and/or to the West Coast Regional Stranding Coordinator (562-980-3230). The report must include the same information identified in Condition 7(a) above. Activities may continue while NMFS

reviews the circumstances of the incident. NMFS shall work with ExxonMobil to determine whether modifications in the activities are appropriate.

Reporting an Injured or Dead Marine Mammal Not Related to the Activities

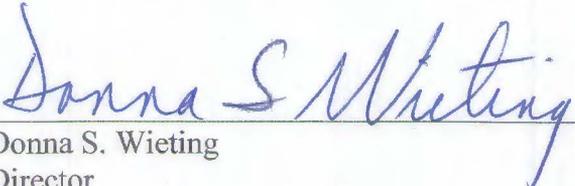
In the event that ExxonMobil discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in Condition 2 of this IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), ExxonMobil shall report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by e-mail to Jolie.Harrison@noaa.gov and Howard.Goldstein@noaa.gov, and the NMFS West Coast Regional Office (1-866-767-6114) and/or to the West Coast Regional Stranding Coordinator (562-980-3230), within 24 hours of the discovery. ExxonMobil shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. Activities may continue while NMFS reviews the circumstances of the incident.

Endangered Species Act Biological Opinion and Incidental Take Statement

8. ExxonMobil is required to comply with the Terms and Conditions of the Incidental Take Statement (ITS) corresponding to NMFS's Biological Opinion issued to both ExxonMobil and NMFS's Office of Protected Resources (attached).
9. A copy of this IHA and the ITS must be in the possession of all contractors and PSO(s) operating under the authority of this IHA.

Penalties and Authorization Sanctions

10. Any person who violates any provision of this IHA is subject to civil and criminal penalties, permit sanctions, and forfeiture as authorized under the MMPA.
11. This IHA may be modified, suspended or withdrawn if ExxonMobil 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.



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

SEP 17 2014

Date

Attachment

Table 1. Authorized take numbers, by Level B harassment, for each marine mammal species during ExxonMobil’s conductor pipe installation activities in the Santa Barbara Channel off the coast of California.

Species	Authorized Take in the Santa Barbara Channel Action Area
Mysticetes	
North Pacific right whale (<i>Eubalaena japonica</i>)	0
Gray whale – Eastern North Pacific stock (<i>Eschrichtius robustus</i>)	10
Humpback whale (<i>Megaptera novaeangliae</i>)	2
Minke whale (<i>Balaenoptera acutorostrata</i>)	2
Bryde’s whale (<i>Balaenoptera edeni</i>)	2
Sei whale (<i>Balaenoptera borealis</i>)	2
Fin whale (<i>Balaenoptera physalus</i>)	2
Blue whale (<i>Balaenoptera musculus</i>)	2
Odontocetes	
Sperm whale (<i>Physeter macrocephalus</i>)	2
Pygmy sperm whale (<i>Kogia breviceps</i>)	1
Dwarf sperm whale (<i>Kogia sima</i>)	0
Baird’s beaked whale (<i>Berardius bairdii</i>)	6
Cuvier’s beaked whale (<i>Ziphius cavirostris</i>)	4
Unidentified Mesoplodont beaked whale (<i>Mesoplodon</i> spp. includes Blainville’s beaked whale [<i>Mesoplodon densirostris</i>], Perrin’s beaked whale [<i>Mesoplodon perrini</i>], Lesser beaked whale	2

[<i>Mesoplodon peruvianis</i>], Stejneger's beaked whale [<i>Mesoplodon stejnegeri</i>], Ginkgo-toothed beaked whale [<i>Mesoplodon ginkgodens</i>], and Hubb's beaked whale [<i>Mesoplodon carlhubbsi</i>])	
Killer whale (<i>Orcinus orca</i>)	10
False killer whale (<i>Pseudorca crassidens</i>)	50
Short-finned pilot whale (<i>Globicephala macrorhynchus</i>)	40
Bottlenose dolphins (<i>Tursiops truncatus</i>)	10
Striped dolphin (<i>Stenella coeruleoalba</i>)	20
Short-beaked common dolphin (<i>Delphinus delphis</i>)	450
Long-beaked common dolphin (<i>Delphinus capensis</i>)	120
Pacific white-sided dolphin (<i>Lagenorhynchus obliquidens</i>)	30
Northern right whale dolphin (<i>Lissodelphis borealis</i>)	100
Risso's dolphin (<i>Grampus griseus</i>)	10
Dall's porpoise (<i>Phocoenoides dalli</i>)	50
Harbor porpoise (<i>Phocoena phocoena</i>)	0
Pinnipeds	
California sea lion (<i>Zalophus californianus</i>)	161
Steller sea lion (<i>Eumetopias jubatus</i>)	0
Pacific harbor seal (<i>Phoca vitulina richardii</i>)	21
Northern elephant seal (<i>Mirounga angustirostris</i>)	68
Northern fur seal (<i>Callorhinus ursinus</i>)	6
Guadalupe fur seal (<i>Arctocephalus townsendi</i>)	0

Table 2. Modeled maximum distances to which in-water sound levels greater than or equal to 160, 180, and 190 dB re 1 μ Pa (rms) and in-air sound levels greater than or equal to 90 (for harbor seals) and 100 dB re 20 μ Pa (rms) (for all other pinnipeds) could be received during the impact hammer pile-driving activities (based on maximum hammer energy of 90 kJ) in the Santa Barbara Channel off the coast of California. The buffer and exclusion zone radii are used for triggering mitigation.

Source	Water Depth (m)	Predicted RMS Radii Distances (m) for In-Water Pile-Driving			Modeled RMS Radii Distances (m) for In-Air Pile-Driving	
		Level B Harassment Zone 160 dB	Shut-down Exclusion Zone for Cetaceans 180 dB	Shut-down Exclusion Zone for Pinnipeds 190 dB	Level B Harassment Zone for Harbor Seal 90 dB	Level B Harassment Zone for All Other Pinnipeds 100 dB
90 kJ Impact Hammer Pile-Driver	366	325 (1,066.3 ft)	10 (32.8 ft)	3.5 (11.5 ft)	123 (403.5 ft)	41 (134.5 ft)