DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XD188

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Conductor Pipe Installation Activities at Harmony Platform in Santa Barbara Channel Offshore of California

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

ACTION: Notice; issuance of an Incidental Take Authorization (ITA).

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA) regulations, notification is hereby given that NMFS has issued an Incidental Harassment Authorization (IHA) to the ExxonMobil Production Company (ExxonMobil), a Division of ExxonMobil Corporation, to take marine mammals, by Level B harassment only, incidental to installing six conductor pipes via hydraulic hammer driving at the Harmony Platform, Santa Ynez Production Unit, located in the Santa Barbara Channel offshore of California.

DATES: Effective September 17, 2014, through September 16, 2015.

ADDRESSES: A copy of the final IHA and application are available by writing to Jolie Harrison, Supervisor, Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910, by telephoning the contacts listed here, or by visiting the Internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications.*

NMFS prepared an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), which is also available at the same Internet address. NMFS also issued a Biological Opinion under section 7 of the Endangered Species Act (ESA) to evaluate the effects of the conductor pipe installation activities and IHA on marine species listed as threatened and endangered. Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Howard Goldstein or Jolie Harrison, 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 (Secretary) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals, by United States 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 the incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking 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.''

Except with respect to certain activities not pertinent here, the MMPA defines ''harassment'' as: Any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Summary of Request

On March 3, 2014, NMFS received an application from ExxonMobil for the taking of marine mammals incidental to installing six conductor pipes by hydraulic hammering at the Harmony Platform, Santa Ynez Production Unit, in the Santa Barbara Channel offshore of California. Along with the IHA application, NMFS received an addendum titled ''Assessment of Airborne and Underwater Noise from Pile Driving Activities at the Harmony Platform.'' NMFS determined that the application was adequate and complete on April 28, 2014.

The project's estimated dates are from mid-September to mid-December 2014, but the planned action could occur anytime within a 12-month period from the effective date of the IHA. Acoustic stimuli (i.e., increased underwater and airborne sound) generated during the conductor pipe installation activities are likely to result in the take of marine mammals. Take, by Level B harassment only, of 32 species of marine mammals is anticipated to result from the activities.

Description of the Specified Activity

Overview

ExxonMobil plans to install six conductor pipes by hydraulic hammering at the Harmony Platform, Santa Ynez Production Unit, in the Santa Barbara Channel offshore of California.

Dates and Duration

ExxonMobil estimates that the planned conductor pipe installation activities will occur from mid-September to mid-December 2014, but the planned activities could occur anytime within a 12-month period from the effective date of the planned IHA. Precise scheduling is not presently available due to logistical and regulatory uncertainties. The estimated duration of the planned project is 91 days. Under normal working conditions, the planned project is expected to include approximately 84 days of installation activity on the Harmony Platform bounded by 7 days of project mobilization/demobilization activities. It will take approximately 14 days to install each conductor pipe (6 conductors × 14 days = 84 days). Figure 2–1 of the IHA application includes a timeline of pile-driving activities over the approximate three month duration.

Specified Geographic Region

Harmony Platform is located in the Santa Barbara Channel, which is approximately 100 km (54 nmi) long and 40 km (21.6 nmi) wide, situated between the Channel Islands and the east-west trending coastline of California. The Santa Barbara Channel is the site of several other producing oil fields, including Ellwood, Summerland, Carpinteria offshore, and Dos Cuadras. The Santa Barbara basin is the prominent feature of the Santa Barbara Channel, with sill depths of approximately 250 m (820.2 ft) and 450 m (1,467.4 ft) at eastern and western entrances, respectively, with shallow (60 m or 196.9 ft) inter-island passages to the south. Harmony Platform's geographical position is 34° 22′ 35.906″ North, 120° 10′ 04.486″ West, at a water depth of 366 m (1,200.8 ft) on the continental slope below a relatively

steep (7.5%) descent. The Harmony Platform is 43.5 km (27 miles) southwest of Santa Barbara, California (see Figure 1 of the IHA application). It is 4.7 km (2.5 nmi) from the shelf break, which is typically defined at the 100 m (328.1 ft) isobaths (USGS, 2009). It is 3.3 km (1.8 nmi) from the nearest buffered 200 m (656.2 ft) contour, which has been noted for its association with higher recorded densities of cetacean species (Redfern *et al.,* 2013). It is also located 10 to 15 km (5.4 to 8.1 nmi) north of a common traffic route used by vessels to access the ports of Long Beach and Los Angeles. Figure 1–1 of the IHA application includes the location of the Harmony Platform, general site bathymetry, and Santa Barbara area boundaries.

Detailed Description of the Specified Activity

ExxonMobil plans to install six conductor pipes by hydraulic hammering at Harmony Platform. The conductor pipe installation activities are estimated to occur from mid-September to mid-December 2014, but the action could occur anytime within a 12-month period from the effective date of the IHA. Harmony Platform is located 10 kilometers (km) (5.4 nautical miles [nmi]) off the coast of California, between Point Conception and the City of Santa Barbara. Harmony Platform is one of three offshore platforms in ExxonMobil's Santa Ynez Production Unit, and is located in the Hondo field (Lease OCS–P 0190) at a water depth of 336 meters (1,200.8 ft). Harmony Platform was installed on June 21, 1989 with the sole purpose of producing crude oil and gas condensate. It began production of crude oil, gas and gas condensate on December 30, 1993. A conductor pipe is installed prior to the commencement of drilling operations for oil and gas wells. It provides protection, stability/structural integrity, and a conduit for drill cuttings and drilling fluid to the platform. It also prevents unconsolidated sediment from caving into the wellbore, and provides structural support for the well loads. Drilling activities are currently ongoing at Harmony Platform utilizing the existing conductors and wells. The platform jacket structure (see Figure 1–2 of the IHA application) currently has conductors installed in 51 out of 60 slots, as approved by the Bureau of Ocean Energy Management (BOEM, formerly the Minerals Management Service [MMS]) in the original Development Production Plan. Addition of eight straight conductors at the Harmony Platform was approved by the Bureau of Safety and Environmental Enforcement (BSEE) on February 11, 2013 to maintain current production levels from the existing platform. Conductor installation with a hydraulic hammer is consistent with approved development plans, and is the same method that was used to install conductors on all three Santa Ynez Production Unit platforms from 1981 (Hondo) through 1993 (Harmony and Heritage). Pipe-driving the conductors is the only proven installation method that enables management of potential interferences with the existing platform infrastructure that will also reach the target depth. Non-pipe-driving conductor installation methods are not deemed feasible at this time due to increased risk to platform structural integrity, offset well collision, and shallow-hole broaching.

The total length of a single conductor pipe is approximately 505 m (1,656.8 ft). Each conductor consists of multiple sections of 66.04 centimeter (cm) (26 inch [in]) diameter steel pipe that will be sequentially welded end-to-end from an upper deck of the platform (see Figure 1–2 of the IHA application), and lowered into the 366 m water column through metal rings (conductor guides) affixed to the jacket structure that orient and guide the conductor. Once the conductor reaches the sediment surface, gravity-based penetration (i.e., the conductor will penetrate the seabed under its own weight) is expected to reach approximately 30 m (98.4 ft) below the seabed. A hydraulic hammer (S–90 IHC) with a manufacturer's specified energy range of 9 to 90 kiloJoules (kJ) will be located on the drill deck and used to drive the conductor to a target depth of approximately 90 to 100 m (295.3 to 328.1 ft) below the seabed; therefore, only roughly 60 m (196.9 ft) of each 505 m (1,656.8 ft) long conductor pipe will require hydraulic driving. The S–90 IHC hydraulic hammer will sit on the conductor throughout pile-driving operations, but a ram internal to the hammer will stroke back and forth using hydraulic pressure to impart energy to the conductor. No physical dropping of a weight will be employed to drive the conductor.

The S–90 IHC hydraulic hammer has an estimated blow rate of about 46 blows per minute. The portion of a complete conductor that must be actively driven (hammered) into the seafloor consists of 5 to 7 sections, which are sequentially welded end-to-end. Setup and welding will take 3.5 to 7.3 hours per section, mostly depending on the type of welding equipment used (e.g., automated welder). Impact hammer pipe-driving will take an estimated 2.5 to 3.3 hours for each section, depending primarily on sediment physical properties, which affect penetration rate. Complete installation of each conductor is estimated at approximately 14 days based on 24-hour (continuous) operations. Table 1–1 of the IHA application presents a summary of driving activities and estimated number of joints [requiring welding] for each conductor pipe). Figure 1–3 of the IHA application shows the estimated time in days for each of these activities that are required to install a single conductor pipe. ExxonMobil conservatively assumes that active hammering will be 3.3 hours, followed by 7.3 hours of hammer downtime (i.e., ''quiet time,'' a time at which other activities are performed in preparation for the next section of pile) over approximately 53 hours (2.2 days) of the approximately 14 days required to install one conductor pipe. This schedule produces 4.125 days (99 hours) of cumulated hammer driving for all six conductors over the project duration. Figure 1–4 depicts the 3.3 hour pile-drive/7.3 hour downtime cycle for an isolated 24-hour period, showing a maximum of 9.4 hours of hammer driving. In the event that efficiencies produce a 2.5 hour drive/3.5 hour downtime cycle, a maximum of 10 hours of hammer pile-driving could occur in a single 24-hour period. The complete installation of the conductor pipes is estimated at 14 days of continuous operation.

TABLE 1—SUMMARY OF CONDUCTOR PIPE INSTALLATION ACTIVITIES AND ASSOCIATED CHARACTERISTICS OF EACH CONDUCTOR PIPE AT HARMONY PLATFORM

Conductor pipe activity	Pipe length (m)	Estimated number of joints	Pile-driving required	Estimated number of days [3]
Installation level to sea level	49 (160.8 ft)	4	No	2
Sea level to seafloor	366 (1,200.8 ft)	28	No	5.6

TABLE 1—SUMMARY OF CONDUCTOR PIPE INSTALLATION ACTIVITIES AND ASSOCIATED CHARACTERISTICS OF EACH CONDUCTOR PIPE AT HARMONY PLATFORM—Continued

Conductor pipe activity	Pipe length (m)	Estimated number of joints	Pile-driving required	Estimated number of days [3]
From 0 to ~30 m below seafloor	30 [1] (98.4 ft)	3	No	0.9
From ~30 m to ~90 m below seafloor	60 (196.9 ft)	5 to 7	Yes [2]	0.69
Hammer downtime	NA	NA	No	1.52
Clean up and completion	NA	NA	No	3.6

[1] Estimated range of gravity-based penetration.
[2] See Figure 1–4 of the IHA application.
[3] See Figure 1–3 of the IHA application.

NMFS provided a detailed description of the planned activities in a previous notice for the proposed IHA (79 FR 36743, June 30, 2014). The activities to be conducted have not changed between the proposed IHA notice and this final notice announcing the issuance of the IHA. For a more detailed description of the authorized action, including site bathymetry and sediment physical characteristics, hydrodynamics and water column physical properties, platform and acoustic source specifications, metrics, characteristics of sound sources, predicted sound levels of impact hammer pile-driving, etc., the reader should refer to the notice of the proposed IHA (79 FR 36743, June 30, 2014), the IHA application, addendum, and associated documents referenced above this section.

Comments and Responses

A notice of the proposed IHA for ExxonMobil's conductor pipe installation activities was published in the **Federal Register** on June 30, 2014 (79 FR 36743). During the 30-day public comment period, NMFS received comments from approximately 4,700 private citizens (as supporters of SierraRise and Sierra Club), Center for Biological Diversity (CBD), California Coastal Commission (CCC), and the Marine Mammal Commission (Commission). The comments are online at: *http://www.nmfs.noaa.gov/pr/permits/incidental/.* Following are the substantive comments and NMFS's responses:

MMPA Concerns

Comment 1: The Commission states that the densities used to estimate the numbers of takes were derived using two different methods. For humpback, blue, and fin whales, ExxonMobil and NMFS stated that they used densities from Redfern *et al.* (2013) because those data were derived in the same project area—the Santa Barbara Channel. However, the estimated densities for blue and fin whales in the **Federal Register** notice do not match the upper boundary of the density contours from Redfern *et al.* (2013), which are shown in Table 6–3 and 6–4 of ExxonMobil's IHA application. Those figures indicate that the density should be 0.006 whales/km^2 (not 0.008) for blue whales and 0.0065 whales/km^2 (not 0.004) for fin whales. Therefore, the Commission recommends that NMFS revise the density estimates for blue and fin whales to reflect the density information from Redfern *et al.* (2013).

Response: NMFS concurs with the Commission's recommendation. The densities of blue and fin whales in the IHA application and the notice of the proposed IHA (79 FR 36743, June 30, 2014) are slightly below the upper boundary contours displayed in Redfern *et al.* (2013). NMFS agrees that the density estimates should be 0.006 for the blue whale and 0.0065 for the fin whale. These minor corrections to the density estimates have only a minor effect on the calculated takes by Level B harassment, as shown in the table below. However, NMFS has increased the authorized takes for fin and blue whales to account for group size.

TABLE 2—PROPOSED AND CORRECTED DENSITY ESTIMATES FOR TWO OF THE SPECIES/STOCKS PROPOSED TO BE TAKEN INCIDENTAL TO EXXONMOBIL'S CONDUCTOR PIPE INSTALLATION ACTIVITIES

Species	Density estimates from Table 5 of the **Federal Register** notice of the proposed IHA	Corrected density from Redfern *et al.* (2013)	Calculated takes/requested takes from Table 5 of the **Federal Register** notice of the proposed IHA	Corrected calculated takes/ authorized takes
Fin whale (*Balaenoptera physalus*)	0.004	0.0065	0.005/1	0.00392/2
Blue whale (*Balaenoptera musculus*)	0.008	0.006	0.011/1	0.000362/2

Comment 2: The Commission states that for the species/stocks that are derived from Redfern *et al.* (2013), ExxonMobil and NMFS derived density estimates by dividing each species/stock's abundance estimate by the area of the Santa Barbara Channel (12,593 km^2). The abundance estimates used by NMFS (in Table 5 of the notice of the proposed IHA [79 FR 36743, June 30, 2014]) were different from those used by ExxonMobil (in Table 3–1 of its IHA application). Although the reason for this discrepancy is not provided, it appears to the Commission that the abundance estimates in Table 5 of the **Federal Register** notice of the proposed IHA (79 FR 36743, June 30, 2014) were taken from the NMFS 2013 Pacific Stock Assessment Report (Carretta *et al.,* 2013). However, NMFS's derived density estimates were incorrect for four of the species identified. Table 3 (below) lists the four marine mammal species in question, NMFS's density estimates, and the Commission's corrected densities, based on the abundance estimates provided by NMFS in Table 5 of the **Federal Register** notice of the proposed IHA (79 FR 36743, June 30, 2014).

TABLE 3—PROPOSED AND CORRECTED DENSITY ESTIMATES, IN ANIMALS/KM², FOR FOUR OF THE SPECIES/STOCKS PROPOSED TO BE TAKEN INCIDENTAL TO EXXONMOBIL'S CONDUCTOR PIPE INSTALLATION ACTIVITIES

Species	Density estimates from Table 5 of the **Federal Register** notice of the proposed IHA	Corrected density estimates, derived from abundance estimates in Table 5 of the **Federal Register** notice of the proposed IHA
Gray whale	0.5067	1.519
Cuvier's beaked whale	0.17	0.523
Mesoplodon spp.	0.08	0.055
Bottlenose dolphin	0.11	0.080

Therefore, the Commission recommends that NMFS revise the density estimates for gray whales, Cuvier's beaked whales, *Mesoplodon* spp., and common bottlenose dolphins to reflect the best available abundance estimates from Carretta *et al.* (2013); the corrected density estimates should then be used in NMFS's revised take estimates.

Response: The differences in the calculated densities reported in the IHA application (Tables 3–1 and 6–1 and the notice of the proposed IHA (79 FR 36743, June 30, 2014) were largely due to differences in abundance estimates and/or assumptions on seasonal variability (gray whale only), or due to combining abundance estimates of closely related stocks of selected species (e.g., killer whales). Where available, NMFS uses the abundance estimates for NMFS 2013 Pacific Stock Assessment Report (Caretta *et al.,* 2013). Therefore, NMFS concurs with the Commission's recommendation regarding gray whales, Cuvier's beaked whales, *Mesoplodon* spp. beaked whales, and bottlenose dolphins, and has revised the abundance estimates and associated calculated and corrected density estimates. NMFS notes that these corrections produce little or no change in the number of calculated takes by Level B harassment for each of the identified species. An explanation of the density estimates and authorized take for each of the four species referenced in the Commission's comments follows:

• The gray whale density in the notice of the proposed IHA (79 FR 36743, June 30, 2014) is incorrect and should be approximately 1.5, based on the NMFS 2013 Stock Abundance Report. However, the corrected density estimate produces no change in the estimated take of 10 animals, which was increased (made more conservative based on group size and the schedule moving into the fall season, which is a higher density time period to account for the southward migration.

• The Cuvier's beaked whale density estimate in the notice of the proposed IHA (79 FR 36743, June 30, 2014) is incorrect and should be approximately 0.523. The notice of the proposed IHA also gave an incorrect abundance estimate for this species (6,950). The abundance of Cuvier's beaked whale abundance is 6,590 based on NMFS 2013 Stock Abundance Report (Caretta *et al.*, 2013). Based on the corrected density estimate of 0.523 and a corrected abundance estimate of 6,590 animals, NMFS estimates that approximately 4 animals may be taken.

• NMFS provided a density estimate of 0.08 for the *Mesoplodon* spp. beaked whale in the notice of the proposed IHA (79 FR 36743, June 30, 2014) based on an abundance of 1,024. Using the abundance estimate of 694 in the NMFS 2013 Stock Assessment Report, NMFS agrees with the Commission that the density estimate is 0.0551. This produces an estimated calculated take of approximately 1 animal using either abundance estimate. However, NMFS is authorizing take of 2 animals based on group size.

• The bottlenose dolphin density estimate in the notice of the proposed IHA (79 FR 36743, June 30, 2014) is incorrect and should be approximately 0.08, based on the offshore abundance of the stock. Common bottlenose dolphin densities in the IHA application and notice of the proposed IHA (79 FR 36743, June 30, 2014) were 0.11 based on an abundance of 1,329, derived from combining the coastal and offshore stocks (323 + 1,006). However, California coastal bottlenose dolphins are found within one km (0.54 nmi) of shore primarily from Point Conception south into Mexican waters, at least as far south as San Quintin, Mexico; therefore, we do not expect the coastal stock to be taken by the conductor pipe installation activities and do not consider this stock further in this analysis (Hansen, 1990; Caretta *et al.,* 1998; Defran and Weller, 1999). In southern California, animals are found within 500 m (0.27 nmi) of shoreline 99% of the time and within 250 m (0.13 nmi) 90% of the time (Hanson and Defran, 1993). The original calculated take estimates for bottlenose dolphins was 0.15, based on a density of 0.11. The corrected calculated take estimate is 0.4829, based on the corrected density of 0.0799. However, the corrected density estimate produces no change in the estimated take of 10 animals, which was increased (made more conservative) based on group size.

Comment 3: The Commission states that ExxonMobil estimated the numbers of marine mammal takes by multiplying the species specific densities by the area of the Level B harassment buffer zone (0.3188 km²) and the duration of the proposed conductor pipe installation activities. ExxonMobil calculated the latter as a total of 4.125 days for all six conductor pipes, apparently by summing each period of proposed conductor pipe installation activities and then dividing that cumulative exposure time by 24 hours to determine the number of days of exposure. Because pipe-driving sessions are interspersed between periods of no pipe-driving, summing across only pipe-driving periods underestimates the number of days of actual exposure. Instead, ExxonMobil should have summed across the entire pipe-driving timeframe, which includes period of no pipe-driving to determine the number of days animals would be exposed, because each day of pipe-driving has the potential to expose either the same animals repeatedly or different animals.

The Commission states that the take estimates should account for multiple days of exposure rather than aggregated hours of exposure. In this instance, ExxonMobil should have added 3.3 hours of estimated pile-driving per section to 7.3 hours of downtime per

section for a total of 10.6 hours per section of pipe. Multiplying that by the projected seven sections to be driven for each conductor pipe would result in a total of 74.2 hours, which when divided by 24 hours per day equated to 3.1 days of potential exposure per pipe. Using that method would yield a total of 18.6 days of potential exposure (3.1 days per conductor pipe multiplied by 6 pipes), which more accurately represents the total duration of proposed conductor pipe installation activities for all six conductor pipes. Accordingly, the Commission recommends that NMFS revise its take estimates for all species/stocks to account for the total number of days of potential exposure (i.e., 18.6 days), ensuring a more accurate estimate of potential takes.

The CBD also states that NMFS underestimates the impacts as the planned conductor pipe installation activities are intermittent and not continuous as described in the notice of the proposed IHA (79 FR 36743, June 30, 2014). Authorizing take based on this assumption underestimates actual take, which would occur over a much greater amount of time as it could impact communication and navigation of marine mammals in the action area.

Response: NMFS concurs with the Commission's recommendations and has revised the take calculations to account for 18.6 days of potential exposure. See Table 7 for the updated re-calculated take estimates and authorized take numbers.

Comment 4: The Commission states that ExxonMobil adjusted its take estimates by a factor of at least 10 for a number of species to account for group size. NMFS based its proposed take estimates on ExxonMobil's requested takes for all species except two—sperm whales and short-beaked common dolphins. NMFS proposed takes for a single sperm whale and 45 common dolphins, derived directly from density estimates with no adjustment for group size. Those two species typically occur in groups that may exceed the requested numbers of takes. Sperm whales typically occur in groups of 2 to 10 whales (Barlow *et al.,* 2005), and common dolphins occur in groups of hundreds to thousands of animals (Reeves *et al.,* 2002). If those species were to be observed in the vicinity of the project area, they likely would occur in numbers that exceed the requested number of takes. That could result in actual takes exceeding the authorized numbers of takes and/or premature shut-down of the proposed activities. In other similar situations, NMFS has increased the requested number of takes of a particular species to reflect the mean group size of that species (e.g., Table 4 in 78 FR 33811). Therefore, to ensure that the requested numbers of takes reflect numbers of individuals of each species that may be observed in the project area, the Commission recommends that NMFS increase its estimated numbers of takes for sperm whales and short-beaked common dolphins to reflect the minimum typical group size for each species (i.e., at least 2 and 450 animals, respectively).

Response: NMFS concurs with the Commission's recommendation and has increased the takes of sperm whales and short-beaked common dolphins from 1 and 45 to 2 and 450, respectively. NMFS has also increased the authorized take numbers for humpback (from 1 to 2), minke (from 1 to 2), sei (from 1 to 2), fin (from 1 to 2), blue (from 1 to 2), Baird's beaked (from 1 to 6), Cuvier's beaked (from 1 to 4), *Mesoplodon* spp. (from 1 to 2), killer (from 1 to 10), and short-finned pilot whales (from 1 to 40) as well as northern right whale dolphins (from 1 to 100) to account for average group size (Jefferson *et al.,* 2008).

Comment 5: The CBD states that NMFS underestimates the harmful impact of the proposed conductor pipe installation activities on endangered blue whales. The Santa Barbara Channel is important blue whale habitat. The global blue whale population has been reduced by commercial whaling from over 300,000 to likely fewer than 10,000 individuals. Blue whales off California are part of a population comprised of about 1,647 animals; scientists estimate that even three human-caused deaths each year will impede the recovery of the California population. Nine blue whales have died from collisions with ships from 2007 to 2011; this means that human-caused mortality of blue whales already exceeds the sustainable amount.

Response: NMFS fully considered the potential impacts of the planned conductor pipe installation activities on endangered blue whales. As described in the notice of the proposed IHA (79 FR 36743, June 30, 2014), NMFS anticipates only low level disturbance of blue whales, if any, in the form of Level B harassment. NMFS is authorizing take of two blue whale by Level B harassment only; no injury, serious injury, or mortality is anticipated or authorized. The potential impacts of the conductor pipe installation activities are expected to be temporary and are is not expected to have adverse consequences on the affected stock, including reductions in reproduction, numbers, or distribution that might appreciably reduce the stock's likelihood of surviving and recovering in the wild.

NMFS's Office of Protected Resources, Permits and Conservation Division, also initiated and engaged in formal consultation under section 7 of the ESA with NMFS's West Coast Regional Office, Protected Resources Division, on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. NMFS's West Coast Regional Office, Protected Resources Division issued a Biological Opinion addressing the effects of the proposed action on threatened and endangered species, including the blue whale. The Biological Opinion concluded that the proposed action is not likely to jeopardize the continued existence of the blue whale.

Comment 6: The CBD states that blue whales congregate throughout the Santa Barbara Channel (it hosts the world's densest summer seasonal congregation), and Harmony Platform is in the region that is an important area for blue whales. A recent tagging study determined the areas of highest use by blue whales off the West Coast. Researchers tagged 171 blue whales between 1993 and 2008, and the area of highest use was the western area in the Santa Barbara Channel (see Figure 1 of CBD's comments). The study showed that blue whales use the entire area of waters in southern California, but that the Santa Barbara Channel is the most heavily used. Between June and November, high densities of blue whales spend time feeding on the abundant planktonic krill in the area of this project (see Figure 2 of CBD's comments). The blue whales use the project area for foraging, and the conductor pipe installation activities will interfere with this important life function. Blue whales will be exposed to sounds that could have auditory damage, but could also be displaced from important foraging grounds.

Response: Harmony Platform, which is located at 34 22′35.906″ North and 120 10′04.48 West, is on the coastal side of the shipping lane in the Santa Barbara Channel (see Figure 1–1 of the IHA application). Based on Figure 1 from CBD's letter (adapted from Irvine [2014]), this location is in the lowest density area of blue whales in the U.S. Exclusive Economic Zone near the Channel Islands based on satellite tracks, with only 1 to 5 blue whales observed from 1998 to 2008. The highest density area (20 to 26 blue whales) shown in Figure 1 of CBD's letter is located further offshore from the shipping channel, and roughly coincides with the area of highest krill density in the California Current reported by Santora *et al.* (2011), which is approximately 30 to 50 km (16.2 to 27

nmi) from Harmony Platform. These distribution correlations are expected given that krill comprise the majority of the blue whale's diet, and indicate that blue whales rarely forage or congregate within 5 to 10 km (2.7 to 5.4 nmi) of Harmony Platform, which is well outside of the expected 325 m buffer zone for Level B harassment. NMFS anticipates only low level disturbance of blue whales, if any, in the form of Level B harassment, as Harmony Platform is located in an area of lowest blue whale density and second lowest krill density in the California Current (see Santora *et al.,* 2011, Figure 5). NMFS does not expect the conductor pipe installation activities to displace blue whales from foraging grounds.

Comment 7: CBD states that new science shows that blue whales, and possible other baleen whales, are highly susceptible to behavioral disturbance from noise pollution. The Goldbogen *et al.* (2013) study raises substantial concern because it demonstrates the potential impacts of high intensity noise on the essential life functions of blue whales. The study found that mid-frequency sonar can disrupt feeding and displace blue whales from high-quality prey patches, significantly impacting their foraging ecology, individual fitness, and population health. Even fairly low-received levels can have an adverse impact.

Response: The Goldbogen *et al.* (2013) study analyzed behavioral responses of tagged blue whales in response to simulated military sonar and other mid-frequency sounds used during a controlled exposure experiment in feeding areas within the Southern California Bight. The study concluded that the responses of animals to mid-frequency sonar were complex, dependent on the behavioral state and sound exposure factors, and represented a general avoidance response of a perceived threat that appeared to subside quickly after sound exposure. ExxonMobil's conductor pipe installation activities would not generate the same sound characteristics as the military sonar and other mid-frequency sounds that were used during those controlled exposure experiments. Moreover, the IHA requires ExxonMobil to implement monitoring and mitigation measures to avoid exposing marine mammals, including blue whales, to sounds levels that could have potential adverse impacts. As described in the notice of the proposed IHA (79 FR 36743, June 30, 2014), NMFS anticipates only low level disturbance of marine mammals in the form of Level B harassment from ExxonMobil's activities. NMFS does not anticipate significant impacts to the foraging behavior, individual fitness, or population health of blue whales in the action area.

Comment 8: The CBD states that the best available science indicates western North Pacific gray whales may be present in the survey area. Recently, a tagged western North Pacific gray whale traveled all the way from Sakhalin Island, Russia, to the west coast of North America, indicating that the population may merge with the eastern North Pacific population during migration and may therefore be taken by activity. There are currently an estimated 155 western North Pacific gray whales left in the world. With such low population numbers, the take of even one of these whales would have greater than negligible impacts on the species or stock.

Response: Western North Pacific gray whales are not expected to occur in the action area. There is evidence of movement between ''eastern'' and ''western'' populations of North Pacific gray whales, but the evidence thus far only supports low inter-area movements. For gray whales that migrate along the continental U.S., evidence from photo-identification work supports only seven confirmed western gray whale sightings (as well as a single satellite-tracked individual) ever in the central and eastern Pacific Ocean compared to roughly 20,000 individuals composing the eastern North Pacific population, which has been tracked for decades (Mate *et al.,* 2011; Burdin *et al.,* 2011; Weller *et al.,* 2011). These sightings occurred along Alaska, Washington, and Oregon, where foraging could occur. Urban *et al.* (2012) matched 13 individuals through photo-identification between summer feeding grounds in Russia and winter breeding lagoons in Mexico. The only motivation for an individual to continue further south (beyond foraging opportunities) is to participate in breeding and calving in lagoons of Baja California (Mexico) and the Gulf of California. However, numerous studies have found that genetic exchange between eastern and western populations is not occurring to a significant level (Leduc *et al.,* 2002; Lang *et al.,* 2004; Weller *et al.,* 2004b; Lang *et al.,* 2005; Swartz *et al.,* 2006; Weller *et al.,* 2006a; Weller *et al.,* 2007; Brownell Jr. *et al.,* 2009; Kanda *et al.,* 2010; Lang *et al.,* 2010b; Burdin *et al.,* 2011). Moore and Weller (2012) determined the probability of taking a single gray whale from the western population during the proposed Makah Indian Tribe hunt as 0.014 to 0.051 during a single year. NMFS does not expect western North Pacific gray whales to occur in the action area due to the lack of documented trans-Pacific movement (particularly as far as the action area) as well as the lack of rationale for gray whales from the western population to move through the area.

Comment 9: The CBD states that the North Pacific right whale is a potentially impacted species for which no take may be authorized. There are an estimated 25 to 30 individuals in the eastern stock of North Pacific right whales, making it the most highly endangered large whale in the world (Wade *et al.,* 2011). Although NMFS notes that North Pacific right whales may be present in the project area, it assumes, without support, that no North Pacific right whales will be taken.

Response: The North Pacific right whale is rarely found off the U.S. west coast. The majority of North Pacific right whale sightings from the eastern North Pacific stock occur in the Bering Sea and adjacent areas of the Aleutian Islands and Gulf of Alaska. Sightings of this species have been reported as far south as central Baja California in the eastern North Pacific, as far south as Hawaii in the central North Pacific, and as far north as the sub-Arctic waters of the Bering Sea and Sea of Okhotsk in the summer. Data from passive acoustic monitoring indicates that North Pacific right whales are present year-round in the southeastern Bering Sea, with peaks in the late summer (August to September). Although individuals may travel south from the high-latitudes of the Bering Sea to lower-latitudes, animals that have been sighted in waters off Hawaii or tropical Mexico have been considered extralimital for this species (Brownell *et al.,* 2001). The North Pacific right whale has not been observed near Harmony Platform. Therefore, no takes of North Pacific right whales are anticipated or authorized by NMFS. Although North Pacific right whales are not expected to occur in the action area, NMFS's Office of Protected Resources, Permits and Conservation Division also considered the conservation status, rarity, and habitat of ESA-listed marine mammals (including the North Pacific right whale) when developing mitigation measures for the conductor pipe installation activities. Included in the IHA are special procedures for situations or species of concern (see ''Mitigation'' section below). If a North Pacific right whale is visually sighted during the conductor pipe installation activities, the pipe-driving activities must be shut-down regardless of the distance of the animal(s) to the sound source. The pipe-driving will not resume firing until 30

minutes after the last documented whale visual sighting.

Comment 10: The CBD states that sperm whales reach peak abundance in California from April through mid-June and from the end of August through mid-November, which is during the time of the proposed conductor pipe installation activities. Any take of a sperm whale would have greater than negligible impacts on the stock because NMFS must take into account the cumulative take of sperm whales from other activities, including incidental catch by fisheries. The California drift gillnet fishery, which operates primarily in southern California from August through January, took an estimated sixteen endangered sperm whales in the 2010 to 2011 fishing season (Caretta and Enriquez, 2012). Including both fishery and ship-strike mortality, the average annual rate of kill and serious injury is four sperm whales, exceeding the potential biological removal level of 1.5 (Caretta *et al.,* 2012). With an estimated 971 sperm whales in the population, this level of anthropogenic take cannot be considered a negligible impact.

Response: Sperm whale abundance varied off California between 1979/1980 and 1991 (Barlow, 1994) and between 1991 and 2008 (Barlow and Forney, 2007). The most recent estimate from 2008 is the lowest to date, in sharp contrast to the highest abundance estimates obtained from NMFS's 2001 and 2005 surveys. However, there is no reason to believe that the population has declined; the most recent survey estimate likely reflects inter-annual variability in the study area. To date, there has not been a statistical analysis to detect trends in abundance. NMFS's 2013 Stock Assessment Report estimated a sperm whale abundance of 971 individuals for the California/Oregon/Washington stock. A new analysis by Moore and Barlow (in press) estimates a population abundance of approximately 21,31 animals (1,332 minimum).

NMFS expects potential impacts by Level B harassment only to sperm whales; no injury, serious injury, or mortality is anticipated or authorized. The potential impacts are expected to be temporary and the action is not expected to have adverse consequences on the stock, including reductions in reproduction, numbers, or distribution that might appreciably reduce the stock's likelihood of surviving and recovering in the wild. Based on our analysis of the likely effects of the action on sperm whales and their habitat, and taking into consideration the implementation of the required monitoring and mitigation measures (see ''Mitigation'' below), NMFS finds that the take of small numbers of sperm whales by Level B harassment incidental to ExxonMobil's conductor pipe installation activities will have a negligible impact on the affected marine mammal species or stocks.

NMFS's Office of Protected Resources, Permits and Conservation Division, also initiated and engaged in formal consultation under section 7 of the ESA with NMFS's West Coast Regional Office, Protected Resources Division, on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. NMFS's West Coast Regional Office, Protected Resources Division issued a Biological Opinion addressing the effects of the proposed action on threatened and endangered species, including the sperm whale. The Biological Opinion concluded that the proposed action is not likely to jeopardize the continued existence of the sperm whale.

Comment 11: The CCC states that sea surface temperatures off of southern California and in the eastern north Pacific Ocean at large have been above normal for several months, and with an apparent El Nino event emerging in the equatorial Pacific Ocean later this year, are likely to remain elevated through the fall, winter, and into 2015. As a consequence of the unusually warm waters, marine mammal species more typical of subtropical latitudes have been sighted off of southern California and in the Santa Barbara Channel. These species may continue to be present in numbers and locations beyond those that can be reflected accurately by density estimates derived from long term survey and abundance datasets. These include cetaceans such as Bryde's whales (*Balaenoptera brydei*), false killer whales (*Pseudorca crassidens*), and short-finned pilot whales (*Globicephala macrorhynchus*), which have rarely been seen off the California coast in recent years. In light of these unusual environmental conditions, it may be necessary for NMFS to consider whether additional species could be exposed to the conductor pipe installation activities, and to revisit the species abundance assumptions underlying its incidental take calculations for the species already evaluated in the proposed IHA.

Response: NMFS has received anecdotal reports from the public, whale watching companies, and other sources of recent sightings of Bryde's, false killer, and short-finned pilot whales. As discussed in the notice of the proposed IHA (79 FR 36743, June 30, 2014), these three species are generally found south of the Santa Barbara Channel and are unlikely to be found in the action area. Bryde's whales are extremely rare in the Southern California Bight, with fewer than ten confirmed sightings from August 2006 to September 2010 (Smultea *et al.,* 2012). NMFS West Coast Regional Office has received reports of up to 4 individual Bryde's whales sighted in the summer of 2014 and has had a total of 12 sightings ever documented in the past. NMFS West Coast Regional Office has received reports of up to 40 short-finned pilot whales sighted off the Channel Islands and elsewhere. A group of approximately 50 short-finned pilot whales were sighted off the coast of Dana Point in Orange County in June 2014. A group of approximately 40 to 70 false killer whales were sighted off the coast of Dana Point in March 2014. NMFS concurs with the CCC's recommendation and has authorized take, by Level B harassment, for Bryde's, false killer, and short-finned pilot whales based on the possibility of encountering a single individual Bryde's whale or a group of false killer and/or short-finned pilot whales in the action area of the planned conductor pipe installation activities at Harmony Platform. NMFS has also revisited the species abundance assumptions for all of the marine mammal species and has adjusted density estimates for those that occur in the California Current ecosystem. See Table 7 for the revised density estimates and authorized take numbers for these marine mammal species.

Comment 12: The CBD is concerned with NMFS's conclusion to exclude consideration of Guadalupe fur seals, which are rarely sighted animals with ranges within the action area.

Response: NMFS does not expect Guadalupe fur seals to be in the immediate action area or exposed to sounds generated by the conductor pipe installation activities. Guadalupe fur seals occur primarily near Guadalupe Island, Mexico, their primary breeding area. They are found north of the U.S.-Mexican border with a very small number of adults and pups observed on San Miguel Island (the western-most Channel Island in the Southern California Bight). Guadalupe fur seal strandings have occurred in California and north into Washington, which indicates that they must transit through southern California from Mexico to these areas where they have stranded. However, the encounter rate in the action area is considered to be very low. While they could potentially transit through the general area, NMFS considers it unlikely that they would be exposed to levels of sound associated

with take, given their rare occurrence in the area, the duration of the activities, and the size of the ensonified area.

Mitigation

Comment 13: The CBD states that the mitigation measures are inadequate to ensure the least practicable adverse impact. If NMFS decides to approve the action it must require additional monitoring and mitigation measures to implement the least practicable impact on marine mammals.

Response: NMFS's Office of Protected Resources, Permits and Conservation Division considered a number of mitigation measures before issuing the IHA, including measures proposed by ExxonMobil and additional measures recommended by the public. NMFS's Office of Protected Resources, Permits and Conservation Division has determined that the monitoring and mitigation measures required by the IHA provide the means of effecting the least practicable impact on species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Comment 14: The CBD states that NMFS must fully analyze time-area restrictions as a mitigation measure. NMFS must not allow pipe-driving when blue whales aggregate in the Santa Barbara Channel during June through November. The western portion of the Santa Barbara Channel, where Harmony Platform is located, provides a core area for the blue whales, and pipe-driving should be restricted in this important habitat for blue whales. This closure should further be extended to avoid overlap with the presence of other whales.

Response: NMFS disagrees with the CBD that time-area restrictions are necessary as a mitigation measure. The Harmony Platform is located at 34 22' 35.906'' North and 120 10' 04.48'' West, on the coastal side of the shipping lane in the Santa Barbara Channel (see Figure 1 of the IHA application). Based on Figure 1 in CBD's comment letter (adapted from Irvine, 2014), this location is in the lowest density of blue whales in the U.S. Exclusive Economic Zone near the Channel Islands based on satellite tracks, with only 1 to 5 blue whales observed from 1998 to 2008 (yellow zone in Figure 1). The highest density area shown in Figure 1 (20 to 26 blue whales) is located further offshore from the shipping lane, and roughly coincides with the area of highest krill density in the California Current reported by Santora *et al.* (2011), which is approximately 30 to 50 km from Harmony Platform. These distribution correlations are expected given that krill comprise the majority of the blue whale's diet, and indicate that blue whales rarely forage or congregate within 5 to 10 km of Harmony Platform. Therefore, given that the areas of highest blue whale density and krill density near the Channel Islands are well outside the 325 m buffer zone for the pipe-driving activities, NMFS disagrees that time-area restrictions for the blue whale are necessary.

Comment 16: The CBD states that NMFS must fully analyze larger exclusion zones as a mitigation measure. The use of more accurate thresholds would lead to larger exclusion zones. Additionally, the modeled distances disagree with measured sound levels for other pile-driving activities. The exclusion zone of 3.5 m for pinnipeds and 10 m for cetaceans is woefully inadequate to mitigate Level A harassment. Bailey *et al.* (2010) measured 205 dB of broadband sound at 10 m from the pile-driving source. While the source was louder at 226 dB in that study, it indicates that the exclusion zone should be much larger.

Response: NMFS disagrees with the CBD's comment. For a response to CBD's comment regarding NMFS' thresholds for Level A harassment, see the response to comment 21 (below) X. NMFS and ExxonMobil are not aware of any available in-situ measurements of underwater sound using a 90 kJ impact hammer with a 66 cm (26 in) diameter steel, 426.7 to 457.2 m (1,400 to 1,500 ft) pipe, in which case, acoustic modeling is an appropriate and oft-used scientifically defensible method available to estimate the buffer and exclusion zones established for potential impact and mitigation purposes. A detailed acoustic modeling report by JASCO titled ''Assessment of Airborne and Underwater Noise from Pile Driving Activities at the Harmony Platform'' was provided to NMFS with the IHA application, and includes detailed information on the computer model, uncertainties, and associated input parameters used to calculate distance to the buffer (Level B harassment) and exclusion (Level A harassment) zones. NMFS evaluated the report and determined that it provided sufficient support to establish predicted buffer and exclusion zones. Moreover, these predicted underwater and in-air sound levels will be assessed for accuracy when the monitoring data is analyzed after installation of the first conductor pipe, and the buffer and exclusion zones will be revised as necessary for the installation of the remaining pipes based on the results of the sound source verification.

Bailey *et al.* (2010) assessed the potential effects of underwater noise levels during pile-driving at an offshore windfarm on marine mammals; however, the piles and pile-driving technical details as well as the sound analysis in that study are different than those planned to be used during ExxonMobil's conductor pipe installation activities. The Bailey *et al.* (2010) study was conducted for the installation of wind turbines using much shorter ''piles'' in water depths of approximately 40 m (131.2 ft) (hammer specifications unknown); therefore, the underwater and in-air noise estimates and corresponding buffer and exclusion zones are not comparable between the two projects. This is because underwater sound propagation is a function of sound source energy and frequency, water depth and physical structure (e.g., salinity, temperature), bottom sediment type (hardness, porosity), and pipe material (e.g., steel, concrete) and size; all of which differ between the Bailey *et al.* (2010) site and the Harmony Platform site.

Comment 16: The CBD states that NMFS must fully analyze air bubble curtains, which can reduce sound by 20 to 30 dB depending on their design, or explore the use of other noise reduction technologies (e.g., pile caps, dewatered cofferdams, and other physical barriers) for mitigating underwater sound from impact hammer pipe-driving.

Response: NMFS and ExxonMobil evaluated the potential use of air bubble curtains to reduce the underwater sound generated during pipe-driving activities in a water depth of 365.8 m (1,200 ft). The use of an air bubble curtain is not feasible due to interference of the jacket infrastructure at Harmony Platform, and the water depth and current speed (greater than 10 meters per second) at the activity site, which prevents the ability to maintain a constant air bubble density along the conductor length that would be effective at reducing underwater sound from the conductor pipe installation activities. The conductor pipes are being installed in 365.8 m of water through 76.2 cm (30 in) guides that are attached to structural members on the Harmony Platform; therefore, an air bubble curtain would be ineffective at reducing the output sound level, as bubbles would be dispersed and carried by currents away from the pipe and redirected by interference from the surrounding jacket members and conductor infrastructure. Because the conductors pass through 365.8 m of water column, another issue that eliminated this sound reduction

technique from consideration was that the air nozzles used to generate the air bubbles would most likely freeze-up before reaching the sea bottom due to the pressure and cold temperatures of the water, which would render the air bubble curtain ineffective. All known applications of air bubble curtains that have effectively reduced sound by 20 to 30 dB have been used at depths shallower than 365.8 m and in waters with current velocities that are less than those commonly encountered in Santa Barbara Channel.

NMFS and ExxonMobil also evaluated the potential use of a dewatered cofferdam to reduce the underwater sound generated during conductor pipe installation activities. The installation of a dewatered cofferdam around each conductor installation is not feasible due to the 365.8 ft water depth and corresponding pressure. In addition, each conductor has a limited footprint and has subsea interference from the jacket infrastructure. Also, a cofferdam would have to be driven into the sea bottom at a depth of 365.8 m to provide structural stability and protection from water currents, which would create additional potential impacts to marine mammals in the action area.

NMFS and ExxonMobil also explored a physical noise abatement technology using flexible air-filled resonators that are lowered in multiple long hoses along the sides of each conductor prior to conductor pipe installation activities. The resonators would be filled with air in a hose-like structure that would close the gap around the conductors. This technology is not fully developed, and the scale of this noise abatement system would be unprecedented and impossible to install around Harmony Platform. The deepest known noise abatement system was installed in approximately 36.6 m (120 ft) of water, which is just one tenth of the depth where the planned conductor pipe installation activities will occur. This technology also has the same limitations as a bubble curtain, in that it uses air as the delivery system to fill the resonator and attenuate sound. At a water depth of 365.8 m, air would likely form hydrates prior to filling the resonators, which would render this approach ineffective.

Comment 17: The CBD states that NMFS must fully analyze and should restrict conductor pipe installation activities so that they do not occur during low visibility. The action is a 24-hour, continuous activity with pipe-driving potentially happening at night and during low visibility. The PSOs are ineffective at night and during low visibility. This means that during those times the exclusion zone will not be effective in mitigating take by Level A harassment. Furthermore, artificial lighting, while better for PSOs, brings hazards to migratory birds.

Response: NMFS disagrees with the CBD's comment. The IHA does consider and address conductor pipe installation activities during low-visibility and nighttime conditions. If inclement weather conditions (i.e., fog, rain, or rough Beaufort sea state) limit or impair PSO's visibility of the water's surface to less than 30.5 m (100 ft) within the action area, all noise-generating conductor pipe installation activities must be stopped until visibility improves. To facilitate visual monitoring during non-daylight hours, the exclusion zones must be illuminated by lights to allow for more effective viewing of the area by the PSO on-duty.

ExxonMobil is providing artificial lighting for conductor pipe installation activities during nighttime and low visibility operations at the +15 ft level of the Harmony Platform that will provide adequate visibility to allow observation of the 3.5 m and 10 m exclusion zones for pinnipeds and cetaceans, respectively, as well as the surrounding areas. The lighting will only be on for those periods when conductor pipes are being driven at night or during periods of low visibility which typically occur for only a short period of time during the activities using the impact hammer. The artificial lighting that will be installed will have light shields attached to direct the light downward toward the water. Note that the Harmony Platform has existing lighting to allow for safe operations and to comply with regulations. ExxonMobil will continue its current monitoring practices throughout the planned conductor pipe installation activities, and will note any increase in bird activity during nighttime operations.

Monitoring and Reporting

Comment 18: The Commission states that the accurate characterization of the sizes of the buffer and exclusion zones is critical for implementing mitigation measures and estimating the numbers of animals taken. In the past, the Commission has recommended a rapid turnaround of the in-situ sound source verification analysis to ensure that buffer and exclusion zones are the appropriate size. However, in at least one instance, rapid turnaround has resulted in errors, as occurred with ION's measurements of source levels during its 2012 Arctic in-ice survey. In that case, the size of the exclusion zone was decreased from that modeled based on erroneous field-report results. The error was not discovered until the end of the field season, when it was determined that the in-season adjustments resulted in unauthorized Level A harassment takes of bowhead whales. Since the purpose of sound source verification is to ensure protection of marine mammals, one way to reduce risk to marine mammals would be to allow only for expansion, but not contraction, of the buffer and/or exclusion zones after in-situ adjustment in the size of the buffer and/or exclusion zones if the size(s) of the estimated zones are determined to be too small. The CCC also supports an adaptive approach to adjusting the buffer and exclusion zones based on in-situ data collected during the sound source verification. The process of adjusting the zones should begin from a protective baseline.

Response: Monitoring will be performed during all impact hammer pipe-driving operations. Hydrophones will be deployed prior to the start of impact hammer pipe-driving the first pipe section. Data will be collected and analyzed upon completion of the conductor pipe's last pipe section. Monitoring equipment will be redeployed prior to installation of the remaining five conductor pipes. Upon completion of the first conductor pipe, acoustic data will be retrieved from the near field (approximately 10 m) and far field (approximately 325 to 500 m) recorders, analyzed, and compared to the predicted rms radii distances for the buffer and exclusion zones. ExxonMobil will consult with NMFS prior to proceeding with conductor pipe installation activities in the event that acoustic field data indicate that predicted radii distances for the buffer and exclusion zones need to adjusted (either expanded or contracted). Distances will be recalculated using field data, and monitoring equipment will be redeployed at the corrected distances prior to installation of the remaining conductor pipes, following authorization from NMFS. The planned extended down period (non-hammering) between the completion of the first pipe installation and the start of the second pipe installation will be used to determine the actual size of buffer and exclusion zones (i.e., Level B and Level A harassment zones) to ensure that the radii estimated from acoustic modeling are not too small.

Comment 19: The CCC states that due to the uncertainties with modeling, site specific, and/or seasonal oceanographic conditions, they request being provided copies of the monitoring reports referenced in the notice of the proposed IHA (79 FR 36743, June 30, 2014) for

ExxonMobil's conductor pipe installation activities. If monitoring indicates impacts greater than anticipated, CCC intends to continue to work with NMFS to assure the activity can be modified accordingly to minimize effects on marine mammals.

Response: NMFS will provide copies of the in-water and in-air monitoring and sound source verification report for ExxonMobil's conductor pipe installation activities to the CCC when the document has been completed (after the first conductor pipe has been installed and, the in-situ measurements taken). NMFS will also provide the final 90-day monitoring report required by the IHA to the CCC and make it publicly available on our Web site at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#iha.*

Acoustic Thresholds

Comment 20: CBD states that NMFS's current 160 dB threshold for Level B harassment in the notice of the proposed IHA (79 FR 36743, June 30, 2014) does not reflect the best available science and is not sufficiently conservative. CBD state that in particular, the 160 dB threshold is non-conservative, because the scientific literature establishes that behavioral disruption can occur at substantially lower received levels for some species.

Response: NMFS's practice has been to apply the 160 dB received level threshold for underwater impulse sound levels to determine whether take by Level B harassment occurs. Specifically, NMFS derived the 160 dB threshold data from mother-calf pairs of migrating gray whales (Malme *et al.,* 1983, 1984) and bowhead whales (Richardson *et al.,* 1985, 1986) responding to airgun operations. NMFS acknowledge there is more recent information bearing on behavioral reactions to sound sources such as pile-driving, seismic airguns, sonars, electromechanical devices, etc., but those data only illustrate how complex and context-dependent the relationship is between the various sound sources, and do not, as a whole, invalidate the current threshold. Accordingly, it is not a matter of merely replacing the existing threshold with a new one. NMFS discussed the science on this issue qualitatively in our analysis of potential effects to marine mammals in the **Federal Register** notice of the proposed IHA (79 FR 36743, June 30, 2014). NMFS is currently developing revised acoustic guidelines for assessing the effects of anthropogenic sound on marine mammals. Until NMFS finalizes these guidelines (a process that includes internal agency review, public notice and comment, and peer review), NMFS will continue to rely on the existing criteria for Level A and Level B harassment shown in Table 4 of the notice of the proposed IHA (79 FR 36743, June 30, 2014).

As mentioned in the **Federal Register** notice of the proposed IHA (79 FR 36743, June 30, 2014), NMFS expects that the onset for behavioral harassment is largely context dependent (e.g., behavioral state of the animals, distance from the sound source, etc.) when evaluating behavioral responses of marine mammals to acoustic sources. Although using a uniform sound pressure level of 160 dB for the onset of behavioral harassment for impulse noises may not capture all of the nuances of different marine mammal reactions to sound, it is an appropriate way to manage and regulate anthropogenic noise impacts on marine mammals until NMFS finalizes its acoustic guidelines.

Comment 21: CBD states that NMFS's use of the 180 and 190 dB thresholds for estimating Level A harassment and the likelihood of temporary and/or permanent threshold shift do not consider the best available science and is not sufficiently conservative. CBD cites Kastak *et al.* (2008), Lucke *et al.* (2009), Wood *et al.* (2012) and Kajawa and Liberman (2009).

Response: As explained in the notice of the proposed IHA (79 FR 36743, June 30, 2014), ExxonMobil will be required to establish a 180 and 190 dB re 1 µPa exclusion zone for marine mammals before the conductor pipe installation activities begin. NMFS expects that the required platform-based visual monitoring of the exclusion zones is appropriate to implement mitigation measures to prevent Level A harassment. If the PSOs observe marine mammals approaching the exclusion zone, ExxonMobil must shut-down pipe driving to ensure that the marine mammal does not approach the applicable exclusion radius. The avoidance behaviors discussed in the notice of the proposed IHA (79 FR 36743, June 30, 2014) also supports our expectations that individuals will avoid exposure at higher levels.

NMFS's current Level A thresholds, which identify levels above which PTS could be incurred, were designed to be precautionary in that they were based on levels were animals had incurred TTS. NMFS is currently working on finalizing acoustic guidance that will identify revised TTS and PTS thresholds that references the studies identified by CBD. In order to ensure the best possible product, the process for developing the revised thresholds includes both peer and public review (both of which have already occurred) and NMFS will begin applying the new thresholds once the peer and public input have been addressed and the acoustic guidance is finalized.

Regarding the Lucke *et al.* (2009) study, the authors found a threshold shift (TS) of a harbor porpoise after exposing it to airgun noise (single pulse) with a received sound pressure level (SPL) at 200.2 dB (peak–to-peak) re 1 µPa, which corresponds to a sound exposure level of 164.5 dB re 1 μPa^2 s after integrating exposure. NMFS currently uses the root-mean-square (rms) of received SPL at 180 dB and 190 dB re 1 µPa as the threshold above which permanent threshold shift (PTS) could occur for cetaceans and pinnipeds, respectively. Because the pipe-driving noise is a broadband impulse, one cannot directly extrapolate the equivalent of rms SPL from the reported peak-to-peak SPLs reported in Lucke *et al.* (2009). However, applying a conservative conversion factor of 16 dB for broadband signals from seismic surveys (Harris *et al.,* 2001; McCauley *et al.,* 2000) to correct for the difference between peak-to-peak levels reported in Lucke *et al.* (2009) and rms SPLs; the rms SPL for TTS would be approximately 184 dB re 1 µPa, and the received levels associated with PTS (Level A harassment) would be higher. This is still above the current 180 dB rms re 1 µPa threshold for injury. Yet, NMFS recognizes that the temporary threshold shift (TTS) of harbor porpoise is lower than other cetacean species empirically tested (Finneran *et al.,* 2002; Finneran and Schlundt, 2010; Kastelein *et al.,* 2012). NMFS considered this information in the notice of the proposed IHA (79 FR 36743, June 30, 2014).

A Thompson *et al.* (1998) telemetry study on harbor (*Phoca vitulina*) and grey seals (*Halichoerus grypus*) suggested that avoidance and other behavioral reactions by individual seals to small airgun sources may at times be strong, but short-lived. The researchers conducted 1-hour controlled exposure experiments exposing individual seals fitted with telemetry devices to small airguns with a reported source level of 215–224 dB re 1 µPa (peak-to-peak) (Thompson *et al.,* 1998; Gordon *et al.,* 2003). The researchers measured dive behavior, swim speed heart rate and stomach temperature (indicator for feeding), but they did not measure hearing threshold shift in the animals. The researchers observed startle responses, decreases in heart rate, and temporary cessation of feeding. In six out of eight trials, harbor seals exhibited strong avoidance behaviors, and swam

rapidly away from the source (Thompson *et al.,* 1998; Gordon *et al.,* 2003). One seal showed no detectable response to the airguns, approaching within 300 m (984 ft) of the source (Gordon *et al.,* 2003). However, they note that the behavioral responses were short-lived and the seals' behavior returned to normal after the trials (Thompson *et al.,* 1998; Gordon *et al.,* 2003). The study does not discuss temporary threshold shift or permanent threshold shift in harbor seals and the estimated rms SPL for this survey is approximately 200 dB re 1 μPa, well above NMFS's current 180 dB rms re 1 μPa threshold for injury for cetaceans and NMFS' current 190 dB rms re 1 μPa threshold for injury for pinnipeds (accounting for the fact that the rms sound pressure level (in dB) is typically 16 dB less than the peak-to-peak level).

In a study on the effect of non-impulsive sound sources on marine mammal hearing, Kastak *et al.* (2008) exposed one harbor seal to an underwater 4.1 kHz pure tone fatiguing stimulus with a maximum received sound pressure of 184 dB re 1 μPa for 60 seconds (Kastak *et al.,* 2008; Finneran and Branstetter, 2013). A second 60-second exposure resulted in an estimated threshold shift of greater than 50 dB at a test frequency of 5.8 kHz (Kastak *et al.,* 2008). The seal recovered at a rate of −10 dB per log (min). However, 2 months post-exposure, the researchers observed incomplete recovery from the initial threshold shift resulting in an apparent permanent threshold shift of 7 to 10 dB in the seal (Kastak *et al.,* 2008). NMFS notes that pipe-driving using an impact hammer sound is an impulsive source, and the context of Kastak *et al.* (2008) study is related to the effect of non-impulsive sounds on marine mammals.

NMFS also considered two other Kastak *et al.* (1999, 2005) studies. Kastak *et al.* (1999) reported TTS of approximately 4–5 dB in three species of pinnipeds (harbor seal, California sea lion, and northern elephant seal) after underwater exposure for approximately 20 minutes to sound with frequencies ranging from 100 to 2,000 Hz at received levels 60 to 75 dB above hearing threshold. This approach allowed similar effective exposure conditions to each of the subjects, but resulted in variable absolute exposure values depending on subject and test frequency. Recovery to near baseline levels was reported within 24 hours of sound exposure. Kastak *et al.* (2005) followed up on their previous work, exposing the same test subjects to higher levels of sound for longer durations. The animals were exposed to octave-band sound for up to 50 minutes of net exposure. The study reported that the harbor seal experienced TTS of 6 dB after a 25-minute exposure to 2.5 kHz of octave-band sound at 152 dB (183 dB SEL). The California sea lion demonstrated onset of TTS after exposure to 174 dB (206 dB SEL).

NMFS acknowledges that PTS could occur if an animal experiences repeated exposures to TTS levels. However, an animal would need to stay very close to the sound source for an extended amount of time to incur a serious degree of PTS, which in this case would be highly unlikely due to the required mitigation measures in place to avoid Level A harassment and the expectation that a mobile marine mammal would generally avoid an area where received sound pulse levels exceed 160 dB re 1 μPa (rms) (review in Richardson *et al.,* 1995; Southall *et al.,* 2007).

NMFS also considered recent studies by Kujawa and Liberman (2009) and Lin *et al.* (2011). These studies found that despite completely reversible threshold shifts that leave cochlear sensory cells intact, large threshold shifts (40 to 50 dB) could cause synaptic level changes and delayed cochlear nerve degeneration in mice and guinea pigs, respectively. NMFS notes that the high level of TTS that led to the synaptic changes shown in these studies is in the range of the high degree of TTS that Southall *et al.* (2007) used to calculate PTS levels. It is not known whether smaller levels of TTS would lead to similar changes. NMFS, however, acknowledges the complexity of noise exposure on the nervous system, and will re-examine this issue as more data become available.

In contrast, a recent study on bottlenose dolphins (Schlundt, *et al.,* 2013) measured hearing thresholds at multiple frequencies to determine the amount of TTS induced before and after exposure to a sequence of impulses produced by a seismic airgun. The airgun volume and operating pressure varied from 40 to 150 in^3 and 1,000 to 2,000 psi, respectively. After three years and 180 sessions, the authors observed no significant TTS at any test frequency, for any combinations of airgun volume, pressure, or proximity to the dolphin during behavioral tests (Schlundt, *et al.,* 2013). Schlundt *et al.* (2013) suggest that the potential for airguns (or in this case pipe-driving using an impact hammer) to cause hearing loss in dolphins is lower than previously predicted, perhaps as a result of the low-frequency content of airgun impulses compared to the high-frequency hearing ability of dolphins. Although the sounds from pipe-driving using an impact hammer are not equivalent to those produced by a seismic airgun, they are both considered impulse sounds.

Comment 22: CBD states that NMFS must consider that even behavioral disturbance can amount to Level A take if it interferes with essential life functions.

Response: NMFS notes that Level B take has been defined previously in this document and specifically relates to behavioral disturbance. NMFS acknowledge that behavioral harassment in certain contexts, or continued over long durations, may, in certain situations have impacts on health and fitness of marine mammals. The discussion of whether these more severse impacts on individuals (which could lead to population-level impacts) occur as a result of any particular project are included in the negligible impact analysis. They are also considered qualitatively in the development of mitigation measures, via consideration of biologically important areas in the analysis and for time-area closures, or other important factors. Please see the response to comment 21 for a discussion of studies addressing PTS (Level A harassment).

Comment 23: CBD requested that NMFS use a behavioral threshold below 160 dB for estimating take based on results reported in Bain and Williams (2006), Clark and Gagnon (2006), MacLeod *et al.* (2006), Risch *et al.* (2012), and DeRuiter *et al.* (2013).

Response: NMFS is constantly evaluating new science and how to best incorporate it into our decisions. This process involves careful consideration of new data and how it is best interpreted within the context of a given management framework. Each of these articles emphasizes the importance of context (e.g., behavioral state of the animals, distance from the sound source, etc.) in evaluating behavioral responses of marine mammals to acoustic sources.

These papers and the studies discussed in the notice of the proposed IHA (79 FR 36743, June 30, 2014) note that there is variability in the behavioral responses of marine mammals to noise exposure. However, it is important to consider the context in predicting and observing the level and type of behavioral response to anthropogenic signals (Ellison *et al.,* 2012). There are many studies showing that marine mammals do not show behavioral responses when exposed to multiple pulses at received levels at or above 160 dB re 1 μPa (e.g., Malme *et al.,* 1983; Malme *et al.,* 1984; Richardson *et al.,* 1986; Akamatsu *et al.,* 1993; Madsen

and Mohl, 2000; Harris *et al.,* 2001; Miller *et al.,* 2005; and Weir, 2008). And other studies show that whales continue important behaviors in the presence of seismic pulses (e.g., Richardson *et al.,* 1986; McDonald *et al.,* 1995; Greene *et al.,* 1999a, 1999b; Nieukirk *et al.,* 2004; Smultea *et al.,* 2004; Holst *et al.,* 2005, 2006; Dunn and Hernandez, 2009).

In a passive acoustic research program that mapped the soundscape in the North Atlantic, Clark and Gagnon (2006) reported that some fin whales stopped singing for an extended period starting soon after the onset of a seismic survey in the area. The study did not provide information on received levels or distance from the sound source. The authors could not determine whether or not the whales left the area ensonified by the survey, but the evidence suggests that most if not all singers remained in the area (Clark and Gagnon, 2006). Support for this statement comes from the fact that when the survey stopped temporarily, the whales resumed singing within a few hours and the number of singers increased with time (Clark and Gagnon, 2006). Also, they observed that one whale continued to sing while the seismic survey was actively operating (Figure 4; Clark and Gagnon, 2006).

The authors conclude that there is not enough scientific knowledge to adequately evaluate whether or not these effects on singing or mating behaviors are significant or would alter survivorship or reproductive success (Clark and Gagnon, 2006). Thus, to address CBD's concerns related to the results of this action, it is important to note that ExxonMobil's action area is well away from any known breeding/calving grounds for low frequency cetaceans, thereby reducing further the likelihood of causing an effect on marine mammals.

MacLeod *et al.* (2006) discussed the possible displacement of fin and sei whales related to distribution patterns of the species during a large-scale seismic survey offshore the west coast of Scotland in 1998. The authors hypothesized about the relationship between the whale's absence and the concurrent seismic activity, but could not rule out other contributing factors (Macleod *et al.,* 2006; Parsons *et al.,* 2009). NMFS would expect that marine mammals may briefly respond to underwater sound produced by the pipe-driving activities by slightly changing their behavior or relocating a short distance. Based on the best available information, NMFS expects short-term disturbance reactions that are confined to relatively small distances and durations (Thompson *et al.,* 1998; Thompson *et al.,* 2013), with no long-term effects on recruitment or survival.

Risch *et al.* (2012) documented reductions in humpback whale (*Megaptera novaeangliae*) vocalizations in the Stellwagen Bank National Marine Sanctuary concurrent with transmissions of the Ocean Acoustic Waveguide Remote Sensing (OAWRS) low-frequency fish sensor system at distances of 200 km (108 nmi) from the source. The recorded OAWRS produced series of frequency modulated pulses and the signal received levels ranged from 88 to 110 dB re 1 μPa (Risch *et al.,* 2012). The authors hypothesize that individuals did not leave the area but instead ceased singing and noted that the duration and frequency range of the OAWRS signals (a novel sound to the whales) were similar to those of natural humpback whale song components used during mating (Risch *et al.,* 2012). Thus, the novelty of the sound to humpback whales in the study area provided a compelling contextual probability for the observed effects (Risch *et al.,* 2012). However, the authors did not state or imply that these changes had long-term effects on individual animals or populations (Risch *et al.,* 2012), nor did they necessarily rise to the level of an MMPA take. Thus, to address CBD's concerns related to the results of this study, NMFS again notes that the ExxonMobil's action area is well away from any known breeding/calving grounds for low frequency cetaceans, thereby reducing further the likelihood of causing an effect on marine mammals.

With repeated exposure to sound, many marine mammals may habituate to the sound at least partially (Richardson & Wursig, 1997). Bain and Williams (2006) examined the effects of a large airgun array (maximum total discharge volume of 1,100 in^3) on six species in shallow waters off British Columbia and Washington: harbor seal, California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopias jubatus*), gray whale (*Eschrichtius robustus*), Dall's porpoise (*Phocoenoides dalli*), and the harbor porpoise. Harbor porpoises showed ''apparent avoidance response'' at received levels less than 145 dB re 1 μPa at a distance of greater than 70 km (37.8 nmi) from the seismic source (Bain and Williams, 2006). However, the tendency for greater responsiveness by harbor porpoise is consistent with their relative responsiveness to boat traffic and some other acoustic sources (Richardson *et al.* 1995; Southall *et al.,* 2007). In contrast, the authors reported that gray whales seemed to tolerate exposures to sound up to approximately 170 dB re 1 μPa (Bain and Williams, 2006) and Dall's porpoises occupied and tolerated areas receiving exposures of 170 to 180 dB re 1 μPa (Bain and Williams, 2006; Parsons *et al.,* 2009). The authors observed several gray whales that moved away from the airguns toward deeper water where sound levels were higher due to propagation effects resulting in higher noise exposures (Bain and Williams, 2006). However, it is unclear whether their movements reflected a response to the sounds (Bain and Williams, 2006). Thus, the authors surmised that the gray whale data (i.e., voluntarily moving to areas where they are exposed to higher sound levels) are ambiguous at best because one expects the species to be the most sensitive to the low-frequency sound emanating from the airguns (Bain and Williams, 2006).

DeRuiter *et al.* (2013) recently observed that beaked whales (considered a particularly sensitive species to sound) exposed to playbacks (i.e., simulated) of U.S. tactical mid-frequency sonar from 89 to 127 dB re 1 μPa at close distances responded notably by altering their dive patterns. In contrast, individuals showed no behavioral responses when exposed to similar received levels from *actual* U.S. tactical mid-frequency sonar operated at much further distances (DeRuiter *et al.,* 2013). As noted earlier, one must consider the importance of context (for example, the distance of a sound source from the animal) in predicting behavioral responses. Regarding the public comments submitted by Clark *et al.* (2012) in reference to NMFS's use of the current acoustic exposure criteria; please refer to our earlier response to CBD.

None of these studies on the effects of airgun noise on marine mammals point to any associated mortalities, strandings, or permanent abandonment of habitat by marine mammals. Bain and Williams (2006) specifically conclude that ''. . . although behavioral changes were observed, the precautions utilized in the SHIPS survey did not result in any detectable marine mammal mortalities during the survey, nor were any reported subsequently by the regional marine mammal stranding network . . .'' The ExxonMobil's 160-dB threshold radius will likely not reach the threshold distances reported in these studies.

Currently NMFS is in the process of revising its behavioral noise exposure criteria based on the best and most recent scientific information. NMFS will use these criteria to develop methodologies to predict behavioral responses of marine mammals exposed to sound associated with conductor pipe

installation activities (primary source impact hammer operations). Although using a uniform sound pressure level of 160-dB re 1 μPa for the onset of behavioral harassment for impulse noises may not capture all of the nuances of different marine mammal reactions to sound, it is an appropriate way to manage and regulate anthropogenic noise impacts on marine mammals until NMFS finalizes its acoustic guidelines.

Comment 24: The CCC states that it applies a more conservative approach to permitting pile-driving in state waters and recommends using the model-generated 160-dB threshold as the initial exclusion zone that would trigger a shut-down of conductor pipe installation activities using the impact hammer if marine mammals are sighted by PSOs approaching or entering this area. The more protective 160 dB exclusion zone generated by modeling could subsequently be reduced if in-situ measurements taken during the sound source verification indicate that this is warranted. If use of the model-generated 160 dB threshold for this purpose was found to be infeasible, the CCC staff would recommend an alternate strategy of imposing an additional protective buffer to the model-generated 180 and 190 dB based exclusion zones.

Response: NMFS expects that acoustic stimuli resulting from the impact hammer pipe-driving associated with the conductor pipe installation activities has the potential to result in Level B harassment of marine mammals. NMFS disagrees with the CCC's recommendation to use the model-generated 160 dB threshold for underwater sounds as the initial exclusion zone that would trigger a shut-down for all marine mammals. Current NMFS practice, regarding exposure of marine mammals to high-level underwater sounds is that cetaceans and pinnipeds exposed to impulsive sounds at or above 180 and 190 dB (rms), respectively, have the potential to be injured (i.e., Level A harassment). NMFS considers the potential for Level B (behavioral) harassment to occur when marine mammals are exposed to sounds below injury thresholds but at or above the 160 dB (rms) threshold for impulse sounds (e.g., impact pile-driving) and the 120 dB (rms) threshold for continuous noise (e.g., vibratory pile-driving). No vibratory pile-driving is planned for ExxonMobil's planned activities in the Santa Barbara Channel.

The CCC's recommendation to use the estimated 160 dB exclusion zone as a trigger for shut-down is inconsistent with existing NMFS practice, and would effectively expand the Level A harassment exclusion zone for cetaceans and pinnipeds. It should be noted that a much larger exclusion zone for triggering shut-downs of conductor pipe installation activities has the potential to result in operational delays which could extend impact hammer pipe-driving time and/or result of losing a conductor pipe because successful completion of installation relies on consistent movement of the steel pipe through the bed sediment.

NMFS also disagrees with the CCC's recommendation regarding the use of a protective buffer to the model-generated 180 and 190 dB based exclusion zones. Monitoring will be performed during all impact hammer pipe-driving operations. Hydrophones will be deployed prior to the start of impact hammer pipe-driving the first pipe section. Data will be collected and analyzed upon completion of the conductor pipe's last pipe section. Monitoring equipment will be redeployed prior to installation of the remaining five conductor pipes. Upon completion of the first conductor pipe, acoustic data will be retrieved from the near field (approximately 10 m) and far field (approximately 325 to 500 m) recorders, analyzed, and compared to the predicted rms radii distances for the buffer and exclusion zones. ExxonMobil will consult with NMFS prior to proceeding with conductor pipe installation activities in the event that acoustic field data indicate that predicted radii distances for the buffer and exclusion zones need to adjusted (either expanded or contracted). Distances will be recalculated using field data, and monitoring equipment will be redeployed at the corrected distances prior to installation of the remaining conductor pipes, following authorization from NMFS. The planned extended down period (non-hammering) between the completion of the first pipe installation and the start of the second pipe installation will be used to determine the actual size of buffer and exclusion zones (i.e., Level B and Level A harassment zones) to ensure that the radii estimated from acoustic modeling are not determined to be too small.

NMFS and ExxonMobil acknowledges that in-situ measurements of the sound may not agree with the modeled acoustic data due to uncertainties and model limitations identified by the CCC; however, it is not possible to improve model accuracy without obtaining data from the field. For this reason, a sound source verification will be conducted during the driving of the impact hammer for the first conductor pipe. The data collected and analyzed will be used to establish more accurate buffer and exclusion zones, and refine the acoustic model, if needed, before installation of the second conductor pipe begins.

Finally, the CCC cites IHAs issued previously by NMFS as precedent for its recommended approach to establishing exclusion zones using the 160 dB threshold as the trigger for implementing a shut-down procedure. Based on the citation provided by CCC (e.g., Naval Base Kitsap wharfs/piers, 2011 and 2014), it is not clear whether the CCC believes there are additional examples of precedent or what specific action is referred to for 2011 (no references are provided in the CCC's letter, and NMFS issued two IHAs for construction activities at Naval Base Kitsap in 2011). However, referring to the 2014 example, in which NMFS issued an IHA to the Navy for take that could occur incidental to the third year of work associated with construction of a wharf (79 FR 43429, July 25, 2014), the exclusion zone was in fact established on the basis of in-situ sound source measurements, following initial definition based on modeling results. This approach was identical to that described by NMFS in our notice of the proposed IHA (79 FR 36743, June 30, 2014), and the example does not provide supportive precedent for the CCC's recommendation.

Effects Analyses

Comment 25: The CBD states that NMFS's evaluation in the notice of the proposed IHA (79 FR 36743, June 30, 2014) regarding the impacts from loss of prey on foraging are unknown; therefore, NMFS must get such data and analyze it to make its negligible impact determination.

Response: NMFS disagrees with the CBD's comment. The anticipated effects on marine mammal habitat, including effects on potential prey and potential foraging habitat were described in the notice of the proposed IHA (79 FR 36743, June 30, 2014). Secondary effects, such as impacts to prey and habitat, are very important to NMFS's analysis and are considered in both the negligible impact analysis as well as qualitatively in the development of mitigation measures, via consideration of biologically important areas in the analysis and for time-area closures, or other important factors.

NEPA Concerns

Comment 26: The CBD states that NMFS must comply fully with the National Environmental Policy Act (NEPA). The CBD states that NMFS notes that it will complete an EA prior to its decision on the IHA. Based on

multiple factors in NEPA's regulations, that the proposed activities do constitute a significant impact, and NMFS should prepare a full EIS. The purpose and need for the action is unclear and unnecessary. The IHA application does not fully explain the need and purpose of the additional conductor pipes. The notice of the proposed IHA (79 FR 36743, June 30, 2014) states that the conductors are ''to maintain current production levels from the existing platform.'' This indicates that there is no need for the proposed action because maintenance of the current production levels should be able to be attained through the status quo.

Response: In accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), NMFS completed an EA titled, ''Environmental Assessment on the Issuance of an Incidental Harassment Authorization to ExxonMobil Production Company to Take Marine Mammals by Harassment Incidental to Conductor Pipe Installation Activities at Harmony Platform in the Santa Barbara Channel Offshore of California.''

NMFS's EA includes all required components, including a brief discussion of need for the proposed action, a listing of the alternatives to the proposed action, a description of the affected environment, a brief discussion of the environmental impacts of the proposed action and alternatives, and sufficient evidence and analysis for determining whether to prepare an EIS or a Finding of No Significant Impact (FONSI).

NOAA Administrative Order (NAO) 216–6 contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 CFR 1508.27 state that the significance of an action should be analyzed both in terms of ''context'' and ''intensity.'' NMFS evaluated the significance of this action based on the NAO 216–6 criteria and CEQ's context and intensity criteria. Based on this evaluation, NMFS determined that issuance of this IHA to ExxonMobil would not significantly impact the quality of the human environment and issued a FONSI. Accordingly, preparation of an EIS is not necessary. NMFS's determination and evaluation of the NAO 216–6 criteria and CEQ's context and intensity criteria are contained within the FONSI issued for this action, which is available on NMFS's Web site at: *http://www.nmfs.noaa.gov/pr/permits/incidental/.*

Comment 27: The CBD states NMFS must consider the additional suggested mitigation measures as alternatives in its NEPA analysis. An environmental review must ''inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.'' NMFS must ''rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.'' In addition, an agency must discuss measures designed to mitigate its action's impact on the environment. Accordingly, time-area closures, larger exclusion zones, low-visibility limitations, and noise reducing techniques should be considered in the range of alternatives.

Response: In accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), NMFS completed an EA titled, ''Environmental Assessment on the Issuance of an Incidental Harassment Authorization to ExxonMobil Production Company to Take Marine Mammals by Harassment Incidental to Conductor Pipe Installation Activities at Harmony Platform in the Santa Barbara Channel Offshore of California.'' The EA analyzes the impacts on the human environment of the issuance of an IHA by NMFS to ExxonMobil for conductor pipe installation activities at Harmony Platform in Santa Barbara Channel. It includes an evaluation of two alternatives:

(1) Issuance of an IHA with mitigation measures, and

(2) A no action alternative (i.e., do not issue an IHA and do not conduct the seismic survey).

The EA also included a section on alternatives that were considered but eliminated from further consideration. NMFS considered whether other alternatives could meet the purpose and need and support ExxonMobil's conductor pipe installation activities. NMFS considered an alternative with additional mitigation measures; including the specific measures suggested by CBD, but eliminated that alternative from further consideration because the additional mitigation measures were considered not practicable or not likely to minimize adverse impacts. NMFS also considered an alternative that would allow for the issuance of an IHA with no required mitigation or monitoring but eliminated that alternative from further consideration, as it would not be in compliance with the MMPA and therefore would not meet the purpose and need.

The EA will be available on the NMFS ITA Web site at: *http://www.nmfs.noaa.gov/pr/permits/incidental/.*

Comment 29: The CBD states that NMFS has a duty to consider the indirect impacts of its action. Indirect effects ''are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.'' Although the purpose of the conductor pipes is unclear, any changes in production, drilling, waste, techniques, or lifetime of the oil and gas operations at Harmony Platform must be fully disclosed and adequately evaluated. If, for example, the conductor pipes will be used for or enable hydraulic fracturing or other unconventional well stimulation techniques then the environmental effects must evaluated.

Response: Changes to the production, drilling, waste, techniques, or lifetime of the oil and gas operations at Harmony Platform are regulated by the Bureau of Ocean Energy Management and the Bureau of Safety and Environmental Enforcement. As stated in the notice of the proposed IHA (79 FR 36743, June 30, 2014), ExxonMobil requested an IHA from NMFS to take marine mammals, by harassment, incidental to installing six conductor pipes at Harmony Platform. In accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.), NMFS completed an EA to evaluate the environmental effects of authorizing the take of marine mammals incidental to ExxonMobil's activities. The EA considers the direct, indirect, and cumulative impacts related to the issuance of an IHA authorizing the take of marine mammals incidental ExxonMobil's activities.

NMFS notes that all produced fluids from ExxonMobil's offshore Santa Ynez Production Unit are routed to the onshore treating facilities located in Las Flores Canyon, where it is treated and re-routed via pipeline, and discharged under an existing Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) permit. ExxonMobil has not used hydraulic fracturing on any of the wells on the three platforms in the Santa Ynez Production Unit located offshore of California. ExxonMobil has not and does not plan to use hydraulic fracturing or other unconventional well techniques in its offshore operations.

Comment 29: The CBD states that NMFS must also look at the cumulative effects (past, present, and reasonably foreseeable future actions) of the action. For example, the Santa Barbara Channel is a busy shipping lane which means that the cumulative effects of noise

pollution from ship traffic and ship strikes must be evaluated. Whales fleeing pile-driving activities may be forced into shipping lanes to continue their foraging. Additionally, hydraulic fracturing activities from offshore oil and gas platforms in the area threaten endangered species and marine mammals in numerous ways—from oil spills and vessel strikes to air and water pollution. More than half of the platforms in federal waters discharge their wastewater, which can include toxic fracking chemicals, into the ocean. Harmony Platform alone is permitted to discharge over 33,000 barrels of wastewater into the ocean each year.

Response: The NMFS EA analyzes the effects of NMFS's issuance of an IHA with mitigation and monitoring measures for the conductor pipe installation activities in light of other past, present, and reasonably foreseeable actions in the area including (1) other impact pipe-driving activities; (2) research activities; (3) military testing and training activities; (4) oil and gas activities; (5) vessel traffic, noise, and collisions; (6) commercial and recreational fishing; and (7) climate change. The EA concludes that the impacts of the issuance of an IHA for ExxonMobil's proposed conductor pipe installation activities in the Santa Barbara Channel offshore of California are expected to be no more than minor and short-term with no potential to contribute to cumulatively significant impacts.

NMFS notes that Harmony Platform is located on the coastal side of the shipping lane in Santa Barbara Channel, while foraging areas are concentrated on the seaward side of the shipping lane; thus the whales would not be forced into the area busy with vessel traffic to forage. The shipping channel is located 12 to 14 km (6.5 to 7.6 nmi) from the Harmony Platform, and underwater sounds are within normal ambient ranges at the platform (e.g., 120 dB). As stated previously in this document, ExxonMobil does not perform hydraulic fracturing at Harmony Platform or elsewhere offshore of California. All produced water, including any fluids that are produced through the wells, are treated at the Las Flores Canyon facility and discharged as permitted under the Clean Water Act.

General Concerns

Comment 30: Numerous private citizens, as supporters of SierraRise and Sierra Club, and the CBD, oppose the issuance of the IHA to ExxonMobil. They call on the government to stop destructive actions in the Santa Barbara Channel that lead to impairment, injury, and death of marine mammals. ExxonMobil's conductor pipe installation activities could lead to the death of many whales, otters, and more animals that are already threatened by toxic fracking fluids that have been dumped into their water. The commenters state that marine mammals deserve a safe, healthy ocean environment to live in, a healthy ocean is more important than more climate-killing offshore drilling.

Response: As described in detail in the **Federal Register** notice for the proposed IHA (79 FR 36743, June 30, 2014), as well as in this document, NMFS anticipates only behavioral disturbance to occur during the conductor pipe installation activities. NMFS has determined that ExxonMobil's conductor pipe installation activities will not cause injury, serious injury, or mortality to marine mammals managed under NMFS's jurisdiction, and not takes by injury, serious injury, or mortality are authorized. Further, ExxonMobil is required to implement a number of mitigation and monitoring measures during the impact hammer pipe-driving activities, which are described below in the ''Mitigation'' and ''Monitoring and Reporting'' sections. NMFS has determined that the required mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance. The sea otter is managed by the U.S. Fish and Wildlife Service.

Comment 31: The CBD states that NMFS should consider the environmental impacts of the activity on nearby marine protected areas (MPAs), reserves, and the Channel Islands National Marine Sanctuary that are located in the vicinity of the conductor pipe installation activities.

Response: NMFS has considered environmental impacts of the conductor pipe installation activities on nearby MPAs as well as the Channel Islands National Marine Sanctuary. Individual mainland MPAs in southern California include: Point Conception State Marine Reserve (SMR), Kashtayit State Marine Conservation Area (SMCA), Naples SMCA, Campus Point SMCA, Goleta Slough SMCA, Point Dume SMCA, Point Dume SMR, Point Vicente SMCA, Abalone Cove SMCA, Bolsa Chica Basin SMCA, Upper Newport Bay SMCA, Crystal Cove SMCA, Laguna Beach SMR, Laguna Beach SMCA, Dana Point SMCA, Batiquitos Lagoon SMCA, Swami's SMCA, San Elijo Lagoon SMCA, San Diego-Scripps Coastal SMCA, Matlahuayl SMR, South La Jolla SMR, South La Jolla SMCA, Famosa Slough SMCA, Cabrillow SMR, and Tijuana River Mouth SMCA. Individual island MPAs include: Richardson Rock SMR and Federal MR, San Miguel Island Special Closure, Harris Point SMR and Federal MR, Judith Rock SMR, Carrington Point SMR, Skunk Point SMR, South Point SMR and Federal MR, Painted Cave SMCA, Gull Island SMR and Federal MR, Anacapa Island Special Closure, Anacapa Island SMR and Federal MR, Anacapa Island SMCA and Federal MCA, Footprint SMR and Federal MR, Begg Rock SMR, Santa Barbara Island MR and Federal MR, Arrow Point to Lion Head Point SMCA, Blue Cavern SMCA, Bird Rock SMCA, Long Point SMR, Casino Point SMCA, Lover's Cover SMCA, Farnsworth Onshore SMCA, Farnsworth Offshore SMCA, and Cat Harbor SMCA. The closest MPAs, which are Naples SMCA and Point Conception SMR, are over 18.5 km (10 nmi) east-southeast and 27.8 km (15 nmi) west-northwest at its closest boundary to Harmony Platform, respectively. Sound levels generated during the planned conductor pipe installation activities will not have significant consequences on MPAs because all MPAs are a minimum of 18.5 km from the Harmony Platform and the platform is not in shallow water depths.

The Channel Islands National Marine Sanctuary is about 25.9 km (14 nmi) southwest at its closest boundary to Harmony Platform. NMFS has contacted Channel Islands National Marine Sanctuary regarding ExxonMobil's planned conductor pipe installation activities and the associated issuance of an IHA. NMFS has determined that a consultation under the National Marine Sanctuary Act is not necessary as the planned action is not anticipated to have impacts on sanctuary resources.

Comment 32: The CBD states that noise from conductor pipe installation activities can impact EFH and NMFS must fully comply with its statutory obligation to consult on the impact of federal activities on essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The EFH consultation should include an evaluation of the effects of the action on EFH, proposed mitigation, and make conservation recommendations.

Response: NMFS disagrees with the commenter's assessment. NMFS's issuance of an IHA and the mitigation and monitoring measures required by the IHA would not affect ocean and coastal habitat or EFH. Therefore, NMFS, Office of Protected Resources,

Permits and Conservation Division determined that an EFH consultation is not required.

Comment 33: The CBD states that NMFS must comply fully with the Endangered Species Act (ESA) and develop a robust Biological Opinion based on the best available science. The proposed conductor pipe installation activities may have harmful impacts on ESA-listed marine mammals (including North Pacific right, humpback, sei, fin, blue, and sperm whales, as well as southern sea otters and Guadalupe fur seals), which must be fully and accurately vetted through the consultation process. Accordingly, NMFS must complete consultation and obtain any take authorization before authorizing the proposed activities. They further urge NMFS to establish more stringent mitigation measures to avoid adverse impacts to ESA-listed species.

Response: Section 7(a)(2) of the ESA requires that each federal agency insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. Of the species of marine mammals that may occur in the action area, several are listed as endangered under the ESA, including the North Pacific right, Western North Pacific gray, humpback, sei, fin, blue, and sperm whales as well as the Guadalupe fur seal. Although critical habitat is designated for the North Pacific right whale, no critical habitat for North Pacific right whales occurs in the action area. The North Pacific right whale critical habitat in the Pacific Ocean can be found online at: *http://www.nmfs.noaa.gov/pr/pdfs/criticalhabitat/northpacificrightwhale.pdf.*

NMFS's Office of Protected Resources, Permits and Conservation Division, initiated and engaged in formal consultation under section 7 of the ESA with NMFS's West Coast Regional Office, Protected Resources Division, on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. NMFS's West Coast Regional Office, Protected Resources Division issued a Biological Opinion addressing the effects of the proposed actions on threatened and endangered species as well as designated critical habitat in September 2014. The Biological Opinion concluded that NMFS's issuance of an IHA to ExxonMobil is not likely to jeopardize the existence of any threatened and endangered species and would have no effect on critical habitat. NMFS's West Coast Regional Office, Protected Resources Division, relied on the best scientific and commercial data available in conducting its analysis.

NMFS's Office of Protected Resources, Permits and Conservation Division also considered the conservation status and habitat of ESA-listed marine mammals. Included in the IHA are special procedures for situations or species of concern (see ''Mitigation'' section below). If a North Pacific right whale is visually sighted during the conductor pipe installation activities, the pipe-driving activities must be shut-down regardless of the distance of the animal(s) to the sound source. The pipe-driving will not resume firing until 30 minutes after the last documented whale visual sighting. Concentrations of humpback, sei, fin, blue, and/or sperm whales will be avoided if possible (i.e., exposing concentrations of animals to 160 dB), and the activities 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.). NMFS's West Coast Regional Office, Protected Resources Division, issued an Incidental Take Statement (ITS) incorporating the requirements of the IHA as Terms and Conditions of the ITS. Compliance with the ITS is likewise a mandatory requirement of the IHA. NMFS's Office of Protected Resources, Permits and Conservation Division has determined that the mitigation measures required by the IHA provide the means of effecting the least practicable impact on species or stocks and their habitat, including ESA-listed species.

Comment 34: The CBD states that NMFS must comply fully with the Coastal Zone Management Act (CZMA). The CZMA requires that applicants for federal permits to conduct an activity affecting a natural resource of the coastal zone of a state ''shall provide in the application to the licensing or permitting agency a certification that the proposed activity complies with the enforceable policies of the state's approved program and that such activity will be conducted in a manner consistent with the program.'' CBD states that marine species that will be affected by the project are ''natural resources'' protected by California's coastal management program, and that California should be given the opportunity to review the IHA for consistency with their coastal management programs.

Response: As the lead federal agency for the IHA, NMFS considered whether the action would have effects on the coastal resources of any state along the U.S. West Coast. As concluded in the notice of the proposed IHA (79 FR 36743, June 30, 2014), any potential impacts from the conductor pipe installation activities would mainly be to marine species in close proximity to the Harmony Platform and would be of a short duration and temporary in nature. The Harmony Platform is located at 34° 22′35.906″ North and 120°10′04.48″ West, which is located approximately 10 km (5.4 nmi) off the coast of California, in federal waters. NMFS discussed issuance of the IHA and ExxonMobil's planned conductor pipe installation activities with the California Coastal Commission. Therefore, NMFS has concluded that we have met all of the responsibilities under the CZMA.

Comment 35: The CBD is concerned that ExxonMobil is not in full compliance with the Outer Continental Shelf Lands Act (OCSLA). The CBD states that NMFS provided no support for its statement that the proposed conductor pipe installation activities are considered in the existing Development and Production Plan.

Response: The OCSLA is administered by the Department of the Interior. NMFS does not have the regulatory authority to permit ExxonMobil's activities under the OCSLA. As stated in the notice of the proposed IHA (79 FR 36743, June 30, 2014), ExxonMobil requested an IHA from NMFS to take marine mammals, by harassment, incidental to installing six conductor pipes at Harmony Platform in the Santa Barbara Channel. Consistent with its regulatory authority under the MMPA, NMFS determined that authorizing the take of small numbers of marine mammals by Level B harassment incidental to ExxonMobil's activities would have a negligible impact on marine mammals species or stocks and would not have an unmitigable adverse impact on the availability of species or stocks for taking for subsistence uses, and prescribed the permissible methods of taking by harassment pursuant such activity and other means of effecting the least practicable impact on species or stocks and their habitat.

Description of the Marine Mammals in the Area of the Specified Activity

The marine mammals that generally occur in the planned action area belong to four taxonomic groups: mysticetes (baleen whales), odontocetes (toothed whales), pinnipeds (seals and sea lions), and fissipeds (sea otters). The marine mammal species that potentially occur within the Pacific Ocean in proximity to the action area in the Santa Barbara

Channel off the coast of California (ranging from Point Conception and south, including the entire Southern California Bight) include 31 species of cetaceans (whales, dolphins, and porpoises) and 6 species of pinnipeds. The southern sea otter (*Enhydra lutris nereis*) is listed as threatened under the ESA and is managed by the U.S. Fish and Wildlife Service and is not considered further in this IHA notice.

Marine mammal species listed as threatened or endangered under the U.S. Endangered Species Act of 1973 that could potentially occur in the action area (ESA; 16 U.S.C. 1531 *et seq.*), include the North Pacific right (*Eubalaena japonica*), Western North Pacific population gray (*Eschrichtius robustus*), humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), fin (*Balaenoptera physalus*), blue (*Balaenoptera musculus*), and sperm (*Physeter macrocephalus*) whale as well as the Guadalupe fur seal (*Arctocephalus townsendi*). Of those threatened and endangered species, the humpback, sei, fin, blue, and sperm whale are likely to be encountered in the action area.

Cetaceans occur throughout the Santa Barbara Channel action area, including nearby the Harmony Platform, from the surf zone to open ocean environments beyond the Channel Islands. Distribution is influenced by a number of factors, but primary among these are patterns of major ocean currents, bottom relief, and sea surface temperature. These physical oceanographic conditions affect prey abundance, which may attract marine mammals during periods of high productivity, and vice versa. Water movement is near continuous, varying seasonally, and is generally greatest from late spring to early fall in response to varying wind stress. This phenomenon is much greater in the western Santa Barbara Channel. This near continuous movement of water from the ocean bottom to the surface creates a nutrient-rich, highly productive environment for marine mammal prey (Jefferson *et al.,* 2008). Most of the large cetaceans are migratory, but many small cetaceans do not undergo extensive migrations. Instead, they undergo local or regional dispersal, on a seasonal basis or in response to food availability. Population centers may shift on spatial scales exceeding 100 km (54 nmi) over small time scales (days or weeks) (Dailey and Bonnell, 1993).

Systematic surveys (1991 to 1993, 1996, 2001, 2005) in the southern California region have been carried out via aircraft (Carretta and Forney, 1993) and vessel (Ferguson and Barlow, 2001; Barlow, 2003) by NMFS. In addition, a vessel survey in the U.S. Exclusive Economic Zone (EEZ), and out to 556 km (300.2 nmi) offshore of California, Oregon, and Washington, was conducted in the summer and fall of 2005 by NMFS (Forney, 2007). Many other regional surveys have also been conducted (Carretta, 2003). Becker (2007) analyzed data from vessel surveys conducted since 1986, and compiled marine mammal densities. There are 31 cetacean and 6 pinniped species with ranges that are known to occur in the Eastern North Pacific Ocean waters of the project area. These include the North Pacific right whale, dwarf sperm whale (*Kogia sima*), harbor porpoise (*Phocoena phocoena*), Steller sea lion (*Eumatopias jubatus*), and Guadalupe fur seal. However, these species are extremely rare, found in the Channel Islands, or are primarily found north or south of the Santa Barbara Channel, and are unlikely to be found in the action area. The harbor porpoise occurs north of Point Conception, California. Guadalupe fur seals are most common at Guadalupe Island, Mexico, which is their primary breeding ground (Melin and Delong, 1999). Although adult and juvenile males have been observed at San Miguel Island, California, since the mid-1960's, and in the late 1990's a pup was born on the islands (Melin and Delong, 1999), more recent sightings are extremely rare. These species are not considered further in this document. Table 4 (below) presents information on the occurrence, abundance, distribution, population status, and conservation status of the species of marine mammals that may occur in the project area during September to December 2014.

TABLE 4—THE HABITAT, OCCURRENCE, RANGE, REGIONAL ABUNDANCE, AND CONSERVATION STATUS OF MARINE MAMMALS THAT MAY OCCUR IN OR NEAR THE PIPE INSTALLATION PROJECT AREA OFF THE COAST OF CALIFORNIA IN THE PACIFIC OCEAN

[See text and Tables 3–1 in ExxonMobil's IHA application for further details]

Species	Habitat	Occurrence	Range	Best population estimate (Minimum) [1]	ESA [2]	MMPA [3]
Mysticetes						
North Pacific right whale (*Eubalaena japonica*).	Coastal and pelagic	Rare	North Pacific Ocean between 20 to 60° North.	NA (26)—Eastern North Pacific stock.	EN	D
Gray whale (*Eschrichtius robustus*).	Coastal and shelf	Transient during seasonal migrations.	North Pacific Ocean, Gulf of California to Arctic—Eastern North Pacific stock.	19,126 (18,107)—Eastern North Pacific stock 155 (142)—Western North Pacific population.	DL—Eastern North Pacific stock EN—Western North Pacific population.	NC—Eastern North Pacific stock D—Western North Pacific population
Humpback whale (*Megaptera novaeangliae*).	Pelagic, nearshore waters, and banks.	Seasonal, sightings near northern Channel Islands.	Cosmopolitan	1,918 (1,855)—California/Oregon/Washington (CA/OR/WA) stock.	EN	D
Minke whale (*Balaenoptera acutorostrata*).	Pelagic and coastal	Less common in summer, small number around northern Channel Islands.	Tropics and sub-tropics to ice edges.	478 (202)—CA/OR/WA stock.	NL	NC
Bryde's whale (*Balaenoptera edeni*).	Pelagic and coastal	Rare, infrequent summer off California.	Tropical and sub-tropical zones between 40° North and 40° South.	NA—No stock for CA/OR/WA.	NL	NC

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[See text and Tables 3–1 in ExxonMobil's IHA application for further details]

Species	Habitat	Occurrence	Range	Best population estimate (Minimum) [1]	ESA [2]	MMPA [3]
Sei whale (*Balaenoptera borealis*).	Primarily offshore, pelagic.	Rare, infrequent summer off California.	Tropical to polar zones, favor mid-latitude temperate areas.	126 (83)—Eastern North Pacific stock.	EN	D
Fin whale (*Balaenoptera physalus*).	Continental slope, pelagic.	Year-round presence	Tropical, temperate, and polar zones of all oceans.	3,051 (2,598)—CA/OR/WA stock.	EN	D
Blue whale (*Balaenoptera musculus*).	Pelagic, shelf, coastal.	Seasonal, arrive April to May, common late-summer to fall off Southern California.	Tropical waters to pack ice edges.	1,647 (1,551)—Eastern North Pacific stock.	EN	D
			Odontocetes			
Sperm whale (*Physeter macrocephalus*).	Pelagic, deep sea	Common year-round, more likely in waters >1,000 m.	Tropical waters to pack ice edges.	971 (751)—CA/OR/WA stock.	EN	D
Pygmy sperm whale (*Kogia breviceps*).	Pelagic, slope	Seaward of 500 to 1,000 m, Limited sightings in Southern California Bight.	Tropical to warm temperate zones (temperate preference).	579 (271)—CA/OR/WA stock.	NL	NC
Dwarf sperm whale (*Kogia sima*).	Deep waters off the shelf.	Rare	Tropical to warm temperate zones (warmer preference).	NA—CA/OR/WA stock.	NL	NC
Baird's beaked whale (*Berardius bairdii*).	Pelagic	Primarily along continental slope late spring to early fall.	North Pacific Ocean and adjacent seas.	847 (466)—CA/OR/WA stock.	NL	NC
Cuvier's beaked whale (*Ziphius cavirostris*).	Pelagic	Possible year-round occurrence.	Cosmopolitan	6,590 (4,481)—CA/OR/WA stock.	NL	NC
Blainville's beaked whale (*Mesoplodon densirostris*).	Pelagic	Rare, continental slope region, generally seaward of 500 to 1,000 m depth.	Temperate and tropical waters worldwide.	694 (389)—*Mesoplodon* spp. CA/OR/WA stock.	NL	NC
Perrin's beaked whale (*Mesoplodon perrini*).	Pelagic	Rare, continental slope region, generally seaward of 500 to 1,000 m depth.	North Pacific Ocean	694 (389)—*Mesoplodon* spp. CA/OR/WA stock.	NL	NC
Lesser beaked whale (*Mesoplodon peruvianis*).	Pelagic	Rare, continental slope region, generally seaward of 500 to 1,000 m depth.	Temperate and tropical waters Eastern Pacific Ocean.	694 (389)—*Mesoplodon* spp. CA/OR/WA stock.	NL	NC
Stejneger's beaked whale (*Mesoplodon stejnegeri*).	Pelagic	Rare, continental slope region, generally seaward of 500 to 1,000 m depth.	North Pacific Ocean	694 (389)—*Mesoplodon* spp. CA/OR/WA stock.	NL	NC
Ginkgo-toothed beaked whale (*Mesoplodon ginkgodens*).	Pelagic	Rare, continental slope region, generally seaward of 500 to 1,000 m depth.	Temperate and tropical waters Indo-Pacific Ocean.	694 (389)—*Mesoplodon* spp. CA/OR/WA stock.	NL	NC
Hubbs' beaked (*Mesoplodon carlhubbsi*).	Pelagic	Rare, continental slope region, generally seaward of 500 to 1,000 m depth.	North Pacific Ocean	694 (389)—*Mesoplodon* spp. CA/OR/WA stock.	NL	NC
Killer whale (*Orcinus orca*).	Pelagic, shelf, coastal, pack ice.	Varies on inter-annual basis, likely in winter (January to February).	Cosmopolitan	240 (162)—Eastern North Pacific Offshore stock 346 (346)—Eastern North Pacific Transient stock 354 (354)—West Coast Transient stock.	NL	NC
False killer whale (*Pseudorca crassidens).*	Pelagic	Rare	Tropical to warm temperate zones.	NA—No stock for CA/OR/WA.	NL	NC
Short-finned pilot whale (*Globicephala macrorhynchus*).	Pelagic, shelf, coastal.	Uncommon, more common before 1982.	Warm temperate to tropical waters, ~50° North to 40° South.	760 (465)—CA/OR/WA stock.	NL	NC

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[See text and Tables 3–1 in ExxonMobil's IHA application for further details]

Species	Habitat	Occurrence	Range	Best population estimate (Minimum) [1]	ESA [2]	MMPA [3]
Bottlenose dolphin (*Tursiops truncatus*).	Offshore, inshore, coastal, estuaries.	Offshore stock—Year-round presence Coastal stock—Limited, small population within 1 km of shore.	Tropical and temperate waters between 45° North and South.	1,006 (684)—CA/OR/WA Offshore stock 323 (290)—California Coastal stock.	NL	NC
Striped dolphin (*Stenella coeruleoalba*).	Off continental shelf	Occasional visitor	Tropical to temperate waters, 50° North to 40° South.	10,908 (8,231)—CA/OR/WA stock.	NL	NC
Short-beaked common dolphin (*Delphinus delphis*).	Shelf, pelagic, seamounts.	Common, more abundant in summer.	Tropical to temperate waters of Atlantic and Pacific Ocean.	411,211 (343,990)—CA/OR/WA stock.	NL	NC
Long-beaked common dolphin (*Delphinus capensis*).	Inshore	Common, more inshore distribution, year-round presence.	Nearshore and tropical waters.	107,016 (76,224)—California stock.	NL	NC
Pacific white-sided dolphin (*Lagenorhynchus obliquidens*).	Offshore, slope	Common, year-round, more abundant November to April.	Temperate waters of North Pacific Ocean.	26,930 (21,406)—CA/OR/WA, Northern and Southern stock.	NL	NC
Northern right whale dolphin (*Lissodelphis borealis*).	Pelagic	Common, more abundant November to April.	North Pacific Ocean, 30 to 50° North.	8,334 (6,019)—CA/OR/WA stock.	NL	NC
Risso's dolphin (*Grampus griseus*).	Deep water, seamounts.	Common, present in summer, more abundant November to April.	Continental slope and outer shelf of tropical to temperate waters.	6,272 (4,913)—CA/OR/WA stock.	NL	NC
Dall's porpoise (*Phocoenoides dalli*).	Shelf, slope, offshore	Common, more abundant November to April.	North Pacific Ocean, 30 to 62° North.	42,000 (32,106)—CA/OR/WA stock.	NL	NC
Harbor porpoise (*Phocoena phocoena*).	Coastal and inland waters.	AK to Point Conception, CA.	Shallow temperate to sub-polar waters of Northern Hemisphere.	NA	NL	NC
Pinnipeds						
California sea lion (*Zalophus californianus*).	Coastal, shelf	Common, Channel Island breeding sites in summer.	Eastern North Pacific Ocean—Alaska to Mexico.	296,750 (153,337)—U.S. stock.	NL	NC
Steller sea lion (*Eumetopias jubatus*).	Coastal, shelf	Rare	North Pacific Ocean—Central California to Korea.	49,685 (45,916)—Western stock 58,334 to 72,223 (52,847)—Eastern stock.	EN—Western stock DL—Eastern stock.	D
Pacific harbor seal (*Phoca vitulina richardii*).	Coastal	Common, haul-outs and rookeries in Channel Islands, bulk of stock north of Point Conception.	Coastal temperate to polar regions in Northern Hemisphere.	30,196 (26,667)—California stock.	NL	NC
Northern elephant seal (*Mirounga angustirostris*).	Coastal, pelagic when not migrating.	Common, haul-outs and rookeries in Channel Islands, December to March and April to August, spend 8 to 10 months at sea.	Eastern and Central North Pacific Ocean—Alaska to Mexico.	124,000 (74,913)—California breeding stock.	NL	NC
Northern fur seal (*Callorhinus ursinus*).	Pelagic, offshore	Common, small population breeds on San Miguel Island May to October.	North Pacific Ocean—Mexico to Japan.	12,844 (6,722)—California stock.	NL	NC
Guadalupe fur seal (*Arctocephalus townsendi*).	Coastal, shelf	Rare, observed in Channel Islands.	California to Baja California, Mexico.	7,408 (3,028)—Mexico to California stock.	T	D

TABLE 4—THE HABITAT, OCCURRENCE, RANGE, REGIONAL ABUNDANCE, AND CONSERVATION STATUS OF MARINE MAMMALS THAT MAY OCCUR IN OR NEAR THE PIPE INSTALLATION PROJECT AREA OFF THE COAST OF CALIFORNIA IN THE PACIFIC OCEAN—Continued

[See text and Tables 3–1 in ExxonMobil's IHA application for further details]

Species	Habitat	Occurrence	Range	Best population estimate (Minimum) [1]	ESA [2]	MMPA [3]
Fissipeds						
Southern sea otter (*Enhydra lutris nereis*).	Coastal	Mainland coastline from San Mateo County to Santa Barbara County, CA San Nicolas Island.	North Pacific Rim—Japan to Mexico.	2,826 (2,723)—California stock.	T	D

NA = Not available or not assessed.
[1] NMFS Marine Mammal Stock Assessment Reports.
[2] U.S. Endangered Species Act: EN = Endangered, T = Threatened, DL = Delisted, and NL = Not listed.
[3] U.S. Marine Mammal Protection Act: D = Depleted, S = Strategic, and NC = Not Classified.

Further detailed information regarding the biology, distribution, seasonality, life history, and occurrence of these marine mammal species in the planned project area can be found in sections 3 and 4 of ExxonMobil's IHA application. NMFS has reviewed these data and determined them to be the best available scientific information for the purposes of the IHA.

Potential Effects of the Specified Activity on Marine Mammals

This section includes a summary and discussion of the ways that the types of stressors associated with the specified activity (e.g., impact hammer pipe-driving) have been observed to impact marine mammals. This discussion may also include reactions that we consider to rise to the level of a take and those that we do not consider to revise to the level of take (for example, with acoustics), we may include a discussion of studies that showed animals not reacting at all to sound or exhibiting barely measureable avoidance). This section is intended as a background of potential effects and does not consider either the specific manner in which this activity will be carried out or the mitigation that will be implemented, and how either of those will shape the anticipated impacts from this specific activity. The ''Estimated Take by Incidental Harassment'' section later in this document will include a quantitative analysis of the number of individuals that are expected to be taken by this activity. The ''Negligible Impact Analysis'' section will include the analysis of how this specific activity will impact marine mammals and will consider the content of this section, the ''Estimated Take by Incidental Harassment'' section, the ''Mitigation'' section, and the ''Anticipated Effects on Marine Mammal Habitat'' section to draw conclusions regarding the likely impacts of this activity on the reproductive success or survivorship of individuals and from that on the affected marine mammal populations or stocks.

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms have been derived using auditory evoked potentials, anatomical modeling, and other data, Southall *et al.* (2007) designate ''functional hearing groups'' for marine mammals and estimate the lower and upper frequencies of functional hearing of the groups. The functional groups and the associated frequencies are indicated below (though animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

- Low-frequency cetaceans (13 species of mysticetes): functional hearing is estimated to occur between approximately 7 Hz and 30 kHz;
- Mid-frequency cetaceans (32 species of dolphins, six species of larger toothed whales, and 19 species of beaked and bottlenose whales): functional hearing is estimated to occur between approximately 150 Hz and 160 kHz;
- High-frequency cetaceans (eight species of true porpoises, six species of river dolphins, *Kogia* spp., the franciscana (*Pontoporia blainvillei*), and four species of cephalorhynchids): functional hearing is estimated to occur between approximately 200 Hz and 180 kHz; and
- Phocid pinnipeds in water: functional hearing is estimated to occur between approximately 75 Hz and 100 kHz;
- Otariid pinnipeds in water: functional hearing is estimated to occur between approximately 100 Hz and 40 kHz.

As mentioned previously in this document, 32 marine mammal species managed under NMFS jurisdiction (28 cetacean and 4 pinniped species) are likely to occur in the action area. Of the 28 cetacean species likely to occur in ExxonMobil's action area, 7 are classified as low-frequency cetaceans (i.e., gray, humpback, minke, Bryde's, sei, fin, and blue whale), 19 are classified as mid-frequency cetaceans (i.e., sperm, Baird's beaked, Cuvier's beaked, Blainville's beaked, Perrin's beaked, Lesser beaked, Stejneger's beaked, Ginkgo-toothed beaked, Hubb's beaked, killer, false killer, and short-finned pilot whale, as well as bottlenose, striped, short-beaked common, long-beaked common, Pacific white-sided, northern right whale, and Risso's dolphin), 2 are classified as high-frequency cetaceans (i.e., pygmy sperm whale and Dall's porpoise), 2 are classified as phocids (i.e., harbor and northern elephant seal), and 2 are classified as otariid pinnipeds (i.e., California sea lion and northern fur seal) (Southall *et al.,* 2007). A species' functional hearing group is a consideration when we analyze the effects of exposure to sound on marine mammals.

Current NMFS practice, regarding exposure of marine mammals to high-level underwater sounds is that cetaceans and pinnipeds exposed to impulsive sounds at or above 180 and 190 dB (rms), respectively, have the potential to be injured (i.e., Level A harassment). NMFS considers the potential for Level B (behavioral) harassment to occur when marine mammals are exposed to sounds below injury thresholds but at or above the 160 dB (rms) threshold for impulse sounds

(e.g., impact pile-driving) and the 120 dB (rms) threshold for continuous noise (e.g., vibratory pile-driving). No vibratory pile-driving is planned for ExxonMobil's planned activities in the Santa Barbara Channel. Current NMFS practice, regarding exposure of marine mammals to high-level in-air sounds, as a threshold for potential Level B harassment, is at or above 90 dB re 20 μPa for harbor seals and at or above 100 dB re 20 μPa for all other pinniped species (Lawson *et al.,* 2002; Southall *et al.,* 2007). NMFS has not established a threshold for Level A harassment for marine mammals exposed to in-air noise; however, Southall et al. (2007) recommends 149 dB re 20 μPa (peak) (flat) as the potential threshold for injury from in-air noise for all pinnipeds.

Acoustic stimuli generated by the conductor pipe installation activities, which introduce sound into the marine environment and in-air, may have the potential to cause Level B harassment of marine mammals in the action area. The effects of sounds from impact hammer pile-driving activities might include one or more of the following: tolerance, masking of natural sounds, behavioral disturbance, temporary or permanent hearing impairment, or non-auditory physical or physiological effects (Richardson *et al.,* 1995; Gordon *et al.,* 2004; Nowacek *et al.,* 2007; Southall *et al.,* 2007). Permanent hearing impairment, in the unlikely event that it occurred, will constitute injury, but temporary threshold shift (TTS) is not an injury (Southall *et al.,* 2007). Although the possibility cannot be entirely excluded, it is unlikely that the planned project will result in any cases of temporary or permanent hearing impairment, or any significant non-auditory physical or physiological effects. Based on the available data and studies described here, some behavioral disturbance is expected.

The notice of the proposed IHA (79 FR 36743, June 30, 2014) included a discussion of the effects of impact hammer pile-driving on mysticetes, odontocetes, and pinnipeds including tolerance, masking, behavioral disturbance, hearing impairment, other non-auditory physical effects, and airborne sound effects. NMFS refers readers to that document, ExxonMobil's IHA application and addendum and NMFS's EA for additional information on the behavioral reactions (or lack thereof) by all types of marine mammals to pile-driving activities.

Anticipated Effects on Marine Mammal Habitat, Fish, and Invertebrates

NMFS included a detailed discussion of the potential effects of this action on marine mammal habitat, including anticipated effects on potential prey and anticipated effects on potential foraging habitat in the notice of the proposed IHA (79 FR 36743, June 30, 2014). The conductor pipe installation activities will not result in any permanent impact on habitats used by the marine mammals in the action area, including the food sources they use (i.e., fish and invertebrates), and there will be not physical damage to any habitat. While NMFS anticipates that the specified activity may result in marine mammals avoiding certain areas due to temporary ensonification, this impact to habitat is temporary and inconsequential, which was considered in further detail in the notice of the proposed IHA (79 FR 36743, June 30, 2014), as behavioral modification. The main impact associated with the activity will be temporarily elevated noise levels and the associated direct effects on marine mammals.

Mitigation

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

ExxonMobil incorporated a suite of appropriate mitigation measures into its project description (see Section 11 of the IHA application). NMFS re-evaluated these mitigation measures after receiving public comments on the notice of the proposed IHA.

To reduce the potential for disturbance from acoustic stimuli associated with the proposed activities, ExxonMobil and/or its designees will implement the following mitigation measures for marine mammals:

(1) Buffer and exclusion zones around the sound source;

(2) Hours of operation;

(3) Shut-down procedures;

(4) Ramp-up procedures; and

Special procedures for situations or species of concern.

Exclusion Zones—ExxonMobil uses radii to designate exclusion and buffer zones and to estimate take for marine mammals. Table 5 (see below) shows the distances at which one will expect marine mammal exposures to three received sound levels (160, 180, and 190 dB) from the impact hammer. The 180 and 190 dB level shut-down criteria are applicable to cetaceans and pinnipeds, respectively, as specified by NMFS (2000). ExxonMobil used these levels to establish the exclusion and buffer zones.

TABLE 5—MODELED MAXIMUM DISTANCES TO WHICH IN-WATER SOUND LEVELS ≥190, 180 AND 160 dB re 1 μPa (rms) AND IN-AIR SOUND LEVELS ≥90 (FOR HARBOR SEALS) AND 100 dB re 20 μPa (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

Source	Water depth (m)	Predicted RMS radii distances (m) for in-water pile-driving			Modeled RMS radii distances (m) for in-air pile-driving	
		160 dB	180 dB	90 dB	190 dB	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)

Based on the modeling, exclusion zones (for triggering a shut-down) for Level A harassment will be established for cetaceans and pinnipeds at 3.5 m (11.5 ft) and 10 m (32.8 ft) from the conductor pipe sound source, respectively. These shut-down zones will be monitored by a dedicated PSO. If the PSO detects a marine mammal(s) within or about to enter the appropriate exclusion zone, the pile-driving activities will be shut-down immediately. If marine mammals are present within the shut-down zone before impact pile-driving activities begin, start of operations will be delayed until the exclusion zones are clear for at least 30 minutes. If marine mammals

appear in the shut-down zone during pile-driving activities, the PSO will instruct the hammer operator to halt all operations in a safe, but immediate manner. Pile-driving activities will only resume once the exclusion zone has been cleared for at least 30 minutes. In the unlikely event that the marine mammal enters the exclusion zone during pile-driving activities, the exposure and behaviors will be documented and reported by the PSO and NMFS will be contacted within 24 hours. A non-PSO safety spotter will also be assigned to the lower deck observation area. All personnel operating at the lower observation levels will be required to wear appropriate personal protective equipment.

Hours of Operation—The planned activities will be conducted on a continual 24-hour basis; therefore, some of the 2.5 to 3.3 hours of active impact pile-driving periods will be expected to occur during non-daylight hours. To facilitate visual monitoring during non-daylight hours, the exclusion zones will be illuminated to allow more effective viewing by the PSO. Lighting will not be expected to attract marine mammals. The areas where the exclusion zones occur fall within the jacket structure of the platform, and therefore could be easily illuminated by lights and monitored during non-daylight hours. For the buffer zone, which will extend out to 325 m (1,066.3 ft) from the conductor pipe, PSOs will be stationed on an upper deck of the Harmony Platform to monitor for marine mammals during the pile-driving activities. During non-daylight hours, PSOs will utilize night-vision devices and other appropriate equipment to monitor marine mammals. If nighttime visual aids are insufficient, ExxonMobil plans to use daytime visual counts of marine mammals as an estimate of the number of marine mammals present during non-daylight hours (within a 24-hour period), noting that diurnal activities for most marine mammals are expected to vary somewhat.

Shut-down Procedures—ExxonMobil will shut-down the operating hammer if a marine mammal is detected outside the exclusion zone, and the sound source will be shut-down before the animal is within the exclusion zone. Likewise, if a marine mammal is already within the exclusion zone when first detected, the sound source will be shut-down immediately.

Following a shut-down, ExxonMobil will not resume pile-driving activities until the marine mammal has cleared the exclusion zone. ExxonMobil will consider the animal to have cleared the exclusion zone if:

- A PSO has visually observed the animal leave the exclusion zone, or
- A PSO has not sighted the animal within the exclusion zone for 15 minutes for species with shorter dive durations (i.e., small odontocetes and pinnipeds), or 30 minutes for species with longer dive durations (i.e., mysticetes and large odontocetes, including sperm, pygmy and dwarf sperm, killer, and beaked whales).

All visual monitoring will be conducted by qualified PSOs. Visual monitoring will be conducted continuously during active pile-driving activities. PSOs will not have any tasks other than visual monitoring and will conduct monitoring from the best vantage point(s) practicable (e.g., on the Harmony Platform or other suitable location) that provides 360° visibility of the Level A harassment exclusion zones and Level B harassment buffer zone, as far as possible. The PSO will be in radio communication with the hammer operator during pile-driving activities, and will call for a shut-down in the event a pinniped or cetacean appears to be headed toward its respective exclusion zone for cetaceans and pinnipeds.

Ramp-up Procedures—Ramp-up (sometimes referred to as a ''soft-start'') of the impact hammer provides a gradual increase in sound levels until the full sound level is achieved. The purpose of a ramp-up is to ''warn'' marine mammals in the vicinity of the impact hammer and to provide the time for them to leave the area avoiding any potential injury or impairment of their hearing abilities. A ramp-up consists of 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.

The buffer zone will be monitored by PSOs beginning 30 minutes before pile-driving activities, during pile-driving, and for 30 minutes after pile-driving stops. During ramp-up, the PSOs will monitor the exclusion zone, and if marine mammals are sighted, a shut-down will be implemented.

If the complete exclusion zone has not been visible for at least 30 minutes prior to the start of operations in either daylight or nighttime, ExxonMobil will not commence the ramp-up. ExxonMobil will not initiate a ramp-up of the impact hammer if a marine mammal is sighted within or near the applicable exclusion zones during the day or close to the Harmony Platform at night.

Special Procedures for Situations of Species of Concern—It is unlikely that a North Pacific right whale will be encountered during the conductor pipe installation activities, but if so, the pipe-driving activities will be shut-down immediately if one is visually sighted at any distance from the Harmony Platform because of its rarity and conservation status. The pipe-driving activities shall not resume (with ramp-up) until 30 minutes after the last documented North Pacific right whale visual sighting. Concentrations of humpback, sei, fin, blue and/or sperm whales shall be avoided if possible (i.e., exposing concentrations of animals to 160 dB), and the sound source shall be shut-down if necessary. For purposes of this planned 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.).

Oil Spill Plan—ExxonMobil has developed an Oil Spill Response Plan and it is on file with BOEM.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's mitigation measures and has considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. NMFS's evaluation of potential measures included consideration of the following factors in relation to one another:

(1) The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;

(2) The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and

(3) The practicability of the measure for applicant implementation, including consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the activity.

Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

(1) Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).

(2) A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of hammer pile-driving, or other activities expected to result in the take of marine mammals (this goal may

contribute to 1, above, or to reducing harassment takes only).

(3) A reduction in the number of times (total number or number at biologically important time or location) individuals will be exposed to received levels of hammer pile-driving, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

(4) A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of hammer pile-driving, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).

(5) Avoidance of minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

(6) For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on NMFS's evaluation of the applicant's measures, as well as other measures considered by NMFS or recommended by the public, NMFS has determined that the mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an 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 action area. ExxonMobil submitted a marine mammal monitoring plan as part of the IHA application. It can be found in Section 13 of the IHA application. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

(1) An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;

(2) An increase in our understanding of how many marine mammals are likely to be exposed to levels of sound from impact hammer pile-driving activities that we associate with specific adverse effects, such as behavioral harassment, TTS or PTS;

(3) An increase in our understanding of how marine mammals respond to stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:

- Behavioral observations in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Physiological measurements in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict receive level, distance from the source, and other pertinent information);
- Distribution and/or abundance comparisons in times or areas with concentrated stimuli versus times or areas without stimuli;

(4) An increased knowledge of the affected species; and

(5) An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

Monitoring

ExxonMobil will conduct to sponsor marine mammal monitoring during the conductor pipe installation activities, in order to implement the mitigation measures that require real-time monitoring, and to satisfy the anticipated monitoring requirements of the IHA. ExxonMobil's ''Monitoring Plan'' is described below this section. ExxonMobil understand that this monitoring plan will be subject to review by NMFS and that refinements may be required. Two main types of monitoring will be performed for this planned project: (1) In-situ measurement of sound pressure levels; and (2) visual observations of the number and type of marine mammals that enter sound exposure zones. In-situ acoustic data will be used to validate model predictions of sound pressure levels near and with distance from the conductor pipe sound source, including the predicted maximum distances for the buffer and exclusion zones. If measured results differ from modeled results, measured data will be used to revise buffer and exclusion zone boundaries to reflect actual conditions during planned project activities. Data from visual monitoring will be used to validate take estimate calculations.

Acoustic Monitoring

Acoustic monitoring using hydrophones and microphones will be conducted to obtain and validate modeled in-water and in-air sound levels during the pipe-driving activities. Each hydrophone (in-water) and microphone (in-air) will be calibrated following the manufacturer's recommendations prior to the start of the planned project and checked for accuracy and precision at the end of the data collection for each conductor pipe or as practical during conductor pipe installation activities. Environmental data will be collected to supplement the acoustic monitoring and include: wind speed and direction, air temperature, humidity, near-surface water temperature, weather conditions, and other appropriate factors that could contribute to influencing either in-air or in-water sound transmission levels. Prior to deploying monitoring equipment, the acoustics specialist will be provided with the hammer model and size, hammer energy settings, and projected blows per minute for the conductor pipe segments requiring hammer pipe-driving. Background in-air and in-water sound levels will be measured at Harmony Platform in the absence of pipe-driving activities to obtain an ambient noise level, and recorded over a frequency range of 10 Hz to 20 kHz. Ambient noise level measurements will be conducted before, during, and after the project. The measured in-air and in-water sound data will be used to recalibrate and refine the sound propagation model used to determine the buffer and exclusion zones. Also, sound pressure levels associated with ramp-up techniques will be measured.

In-Water Monitoring—Acoustic monitoring will 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.

These distances represent the 180 dB and 160 dB (rms) modeled sound levels. The following general approach will be used to measure in-water sound levels:

- Acoustic monitoring will 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 hammering has stopped. Pre- and post-hammer conductor pipe installation data will be used to determine ambient/background noise levels.
- A stationary hydrophone system with the ability to measure and record sound pressure levels will be deployed at a minimum of two monitoring locations (stations). SPLs will be recorded in voltage, converted to microPascals (μPa), and post-processed to decibels (dB [re 1 μPa]). For the first conductor pipe installation, hydrophones are placed at 14 to 30 m (+/−1 m) and at 325 to 500 (+/−33 m) 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 water surface to avoid potential inferences for surface water energy, and to target the depth range of maximum occurrence of marine mammals most likely in the area during the operations. The equipment will obtain data for the most likely depth range of marine mammal occurrence. Horizontal displacement of +/−10% may be expected for instrument movement due to the water depth and forces from tides, currents, and storms. Additional hydrophone mooring systems may 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.
- At a minimum, the following sound data will 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 (blow), and total number of strikes per continuous impact hammer conductor pipe installation period for each conductor.

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

In-Air Monitoring—Reference measurements will be made at approximately 10 to 20 m (32.8 to 65.6 ft) from the initial hammer strike position using a stationary microphone. The microphone will be placed as far away from other large sound sources as practical. The in-air buffer zone predicted for pinnipeds (non-harbor seal, 100 dB re 20 μPa) was estimated at 41 m (134.5 ft) from the hammer impact point on the conductor pipe. In-air sound levels will be recorded at several points around the base of the Harmony Platform at sea level to validate modeled sound levels. Distances closer to the sound source may be monitored for model validation purposes, but only if safety issues are not introduced. Recorded data will be recorded as dB (re 20 μPa, A-weighted and unweighted) for comparison to in-air noise thresholds for Level B harassment for pinnipeds.

Sound Source Verification—At the initiation of 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 zones 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.

Platform-Based Visual Monitoring

ExxonMobil's PSOs will be based aboard the Harmony Platform and will watch for marine mammals near the platform during conductor pipe installation activities during daytime and nighttime pipe-driving activities. Visual monitoring for marine mammals will be performed at a minimum during periods of active hammer pipe-driving throughout the planned project following general procedures in Baker *et al.* (2013). Monitoring by PSOs will begin at least 30 minutes before the start of impact hammer pipe-driving, continue through an estimated 2.5 to 3.3 hours of pipe-driving, and conclude 30 minutes after pipe-driving stops (up to 4.3 hours of monitoring per a period of pipe-driving). Five to 7 periods of impact hammer pipe-driving will be required for each conductor pipe. When feasible, PSOs will conduct observations during periods when the impact hammer pipe-driving is not operating for comparison of sighting rates and behavior with and without operations and between pipe-driving periods. In addition to monitoring during pipe-driving activities, baseline monitoring of marine mammals will be performed up to one week before and one week after conductor pipe installation, as well as selected periods in between impact hammer pipe-driving activities.

The exclusion zone will be monitored to prevent injury to marine mammal species. Based on PSO observations, the impact hammer pipe-driving will be shut-down when marine mammals are observed within or about to enter the designated exclusion zone. The exclusion zone is a region in which a possibility exists of adverse effects on animal hearing or physical effects. A comprehensive monitoring plan will be developed to ensure compliance with the IHA for this project.

Methods—There will be a team of 3 PSOs based aboard Harmony Platform conducting monitoring during active hammer pipe-driving periods. Visual observations will take place during active hammering periods which includes both daylight and nighttime operations. This monitoring will occur for approximately 4.3 hours (3.3 hour monitoring plus 0.5 hour pre- and post-hammering) during a single hammering phase followed by approximately 6.3 hours of off-duty rest. A total of 5 to 7 observation periods corresponding to the driving of the pipe segments will be anticipated for each of the six conductors. It is possible that an impact hammer pipe-driving session will take less than 3.3 hours and that the ''rest interval'' for the visual monitors separating driving segments will be less than 6.3 hours. If driving and rest intervals are reduced and additional segments are added (e.g., seven instead of five), two alternating teams of three PSOs may be required. At the conclusion of impact hammer pipe-driving activities for a single conductor pipe, PSOs may be transferred to shore to await the next active pipe-driving phase.

PSOs will be placed at the best practicable vantage point(s) (e.g., lower platform level, upper platform level) to monitor the applicable buffer and exclusion zones for marine mammals. The PSOs will have authority to implement shut-down/delay ramp-up procedures, if applicable, by calling the hammer operator for a shut-down via radio communication. For the buffer zone, two PSOs will be stationed on an

upper platform deck where they have a clear view of the monitoring area. They will be approximately 180 degrees apart and each will monitor approximately one-half of the corresponding buffer zone and beyond with binoculars and other appropriate equipment. For exclusion zone area, one PSO will concurrently monitor the applicable radii for pinnipeds and cetaceans, respectively, from a lower level observation post that provides a clear view of the sea surface around the actively driven conductor pipe. The lower observation area will be illuminated during nighttime observations. Visual aids may be used but will not be required, providing the PSO has a clear view of the sea surface with the naked eye. A non-PSO safety spotter will also be assigned to the lower deck observation area. The safety spotter will be available to deter errant California sea lions using NMFS-recommended methods (see below) (NMFS, 2008).

All personnel operating on the Harmony Platform will be required to receive required training and wear appropriate personal protective equipment. Personal protective equipment is specific to the task, location, and environmental conditions (e.g., weather, operations risks). It includes items such as floatation vests, hard hats, steel-toed shoes, gloves, fire-resistant clothing, gear, eye protection, and other protective equipment. Details on specific personal protective equipment items required for PSO and acoustic monitoring will be determined via the regular work risk assessment process, and will be presented in the associated monitoring plans for the project.

Equipment for monitoring will include hearing protection from where observations are made from high noise areas of the platform, marine radios with headsets, time keeping device (e.g., watch or cell phone), day and night range finding binoculars (7 x 50 or greater), notebooks with standardized recording forms, species identification guides, and a project-specific monitoring plan approved by NMFS (to be submitted separately).

PSO Qualifications—Monitoring will be conducted by qualified PSOs defined in Baker *et al.* (2013) and approved by NMFS. PSOs dedicated to the planned project will have no other activity-related tasks.

PSO Data and Documentation

PSOs will record data to estimate the numbers of marine mammals exposed to various received sound levels and to document apparent disturbance reactions or lack thereof. Data will be used to estimate numbers of animals potentially ''taken'' by harassment (as defined in the MMPA). They will also provide information needed to order a shut-down of the impact hammer when a marine mammal is within or near the exclusion zone. Visual observations will also be made during pipe-driving activities as well as daytime periods from the Harmony Platform when the regular operations will be underway without pipe-driving activities to collect baseline biological data.

When a sighting is made, the following information about the sighting will be recorded:

1. 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 sound source (e.g., none, avoidance, approach, paralleling, etc., and including responses to ramp-up), speed of travel, and duration of presence.

2. Date, time, location, heading, speed, activity of the conductor pipe installation activities, weather conditions, Beaufort sea state and wind force, visibility, and sun glare.

The data listed under (2) will 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.

All observations, as well as information regarding ramp-ups or shut-downs will be recorded in a standardized format.

Results from the platform-based visual observations will provide the following information:

1. The basis for real-time mitigation (impact hammer shut-down).

2. Information needed to estimate the number of marine mammals potentially taken by harassment, which must be reported to NMFS.

3. Data on the occurrence, distribution, and activities of marine mammals in the area where the conductor pipe installation activities are conducted.

4. Information to compare the distance and distribution of marine mammals relative to the source platform at times with and without pipe-driving activities.

5. Data on the behavior and movement patterns of marine mammals seen at times with and without pipe-driving activities.

Reporting

ExxonMobil will submit a comprehensive report to NMFS within 90 days after the end of the conductor pipe installation activities and the expiration of the IHA (if issued). The report would describe the pipe-driving activities that were conducted and sightings of marine mammals near the operations. The report submitted to NMFS will provide full documentation of methods, results, and interpretation pertaining to all monitoring. The 90-day report will summarize the dates and location of impact hammer pipe-driving activities and all marine mammal sightings (i.e., dates, times, locations, activities, and associated seismic survey activities). The report will minimally include:

- Summaries of monitoring effort—total hours, total distances, and distribution of marine mammals through the activity period accounting for Beaufort sea state and other factors affecting visibility and detectability of marine mammals;
- Analyses of the effects of various factors influencing detectability of marine mammals including Beaufort sea state, number of PSOs, and fog/glare;
- Species composition, occurrence, and distribution of marine mammals sightings including date, water depth, numbers, age/size/gender, and group sizes; and analyses of the effects of activities;
- Sighting rates of marine mammals during periods with and without impact hammer pipe-driving activities (and other variables that could affect detectability);
- Initial sighting distances versus operational activity state;
- Closest point of approach versus operational activity state;
- Observed behaviors and types of movements versus operational activity state;
- Numbers of sightings/individuals seen versus operational activity state; and
- Distribution around the platform versus operational activity state.

The report will also include estimates of the number and nature of exposures that could result in ''takes'' of marine mammals by harassment or in other ways (based on presence in the buffer and/or exclusion zones). After the report is considered final, it will be publicly available on the NMFS Web site at: *http://www.nmfs.noaa.gov/pr/permits/incidental/*.

Reporting Prohibited Take—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., ship-strike, gear interaction, and/or entanglement), ExxonMobil will

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 email 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:

- Time, date, and location (latitude/longitude) of the incident;
- Type of activity involved;
- 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 all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities 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 or 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 will 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 email 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 the paragraph above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with ExxonMobil to determine whether modifications to 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 the IHA (e.g., previously wounded animal, carcass with moderate or advanced decomposition, or scavenger damage), ExxonMobil will report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301–427–8401, and/or by email 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 discovery. ExxonMobil will 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.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines ''harassment'' as: Any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

TABLE 6—NMFS'S CURRENT UNDERWATER AND IN-AIR ACOUSTIC EXPOSURE CRITERIA

Criterion	Criterion definition	Threshold
Impulsive (Non-Explosive) Sound		
Level A harassment (injury)	Permanent threshold shift (PTS) (Any level above that which is known to cause TTS).	180 dB re 1 μPa-m (root means square [rms]) (cetaceans). 190 dB re 1 μPa-m (rms) (pinnipeds).
Level B harassment	Behavioral disruption (for impulsive noise)	160 dB re 1 μPa-m (rms).
Level B harassment	Behavioral disruption (for continuous noise)	120 dB re 1 μPa-m (rms).
In-Air Sound		
Level A harassment	NA	NA.
Level B harassment	Behavioral disruption	90 dB re 20 μPa (harbor seals). 100 dB re 20 μPa (all other pinniped species). NA (cetaceans).

Level B harassment is anticipated and authorized as a result of the conductor pipe installation activities at the Harmony Platform in the Santa Barbara Channel offshore of California. Acoustic stimuli (i.e., increased underwater and in-air sound) generated during the pipe-driving activities are expected to result in the behavioral disturbance of some marine mammals. There is no evidence that the planned activities could result in injury, serious injury, or mortality for which ExxonMobil seeks the IHA. The required mitigation and monitoring measures will minimize any potential risk for injury, serious injury, or mortality.

The following sections describe ExxonMobil and NMFS's methods to estimate take by incidental harassment and present the total take authorized incidental to the conductor pipe installation activities at the Harmony Platform in the Santa Barbara Channel offshore of California. The estimated takes were calculated using information on sound source levels, sound propagation, maximum distances from the sound source to Level A and Level B harassment exposure thresholds, and estimated density of marine mammals in the action area. Take estimates were calculated for in-water (cetaceans and pinnipeds) and in-air (pinnipeds only). The estimates are based on the following information:

- Thresholds for marine mammals to in-water and in-air noise;
- Sound levels at the conductor pipe from hammer strike;
- Sound propagation (transmission/spreading loss) through the environment (i.e., air, water);
- Maximum distances from the sound sources to the corresponding impact zones (based on Level A and Level B harassment thresholds) for marine mammals;
- Density estimate for each species of marine mammals (calculated as stock abundance divided by 12,592 km^2 [3,671.2 nmi^2]area [except where noted]); and
- Number of takes for each species of marine mammals within a group (calculated as density multiplied by buffer/exclusion zone multiplied by days of activity).

Sound levels for impulsive (impact) pipe-driving by the hammer and propagation through water and in-air at the Harmony Platform were modeled by JASCO Applied Sciences, Ltd. The modeling results are presented in JASCO's acoustic modeling report as an addendum to the IHA application titled ''Assessment of Airborne and Underwater Noise from Pile Driving Activities at the Harmony Platform.'' Methods used to estimate marine mammal densities and takes for the action area in the Santa Barbara Channel are presented in Sections 6.1.5 and 6.1.6 of the IHA application for likely exposures to species of marine mammals.

Densities of marine mammal species likely to occur in the action area of the Santa Barbara Channel were taken directly from scientific literature or calculated using corresponding abundances in NMFS Stock Assessment Reports. Density estimates for sperm and Baird's beaked whale, and short-beaked common, Pacific white-sided, Risso's, and northern right whale dolphin, and Dall's porpoise were determined using the Strategic Environmental and Development Program (SERDP)/National Aeronautics and Space Administration (NASA)/NOAA Marine Animal Mapper and OBIS–SEAMAP database using NMFS Southwest Fisheries Science Center (SWFSC) summer densities for the California Current ecosystem. Density estimates for the blue, fin, and humpback whale were taken directly from Redfern *et al.* (2013), using the upper limit reported for the density contour that includes the Harmony Platform. Redfern *et al.* (2013) estimated densities for these three species using NMFS sightings collected from primarily August through November over a period from 1991 to 2009 throughout the Santa Barbara Channel. Results for blue, fin, and humpback whales are presented in Figures 6–3, 6–4, and 6–5 of the IHA application. These densities are considered more accurate than those based on reported stock abundances because even though they are for the same monthly period and geographical location, they include a correction factor to correct for non-observational periods. For calculated densities of likely affected marine mammal species, stock abundances, which generally range from the state of Washington to northern Baja California, Mexico, were assumed to be concentrated within the 12,593 km^2 (3,671.5 nmi^2) action area in the Santa Barbara Channel. The action area includes the Harmony Platform, and extends 18 km (9.7 nmi) to the north, 60 km (32.4 nmi) to the west, and 70 km (37.8 nmi) to the south of Point Conception, California. The eastern boundary is 35 km (18.9 nmi) east of Anacapa Island. Use of this area produces a conservative density estimate because the geographical range of each marine mammal species evaluated is much greater than 70 km (nmi) of the coastline selected to represent the action area, including season-specific ranges for species that migrate (e.g., gray whale). For marine mammal species potentially exposed to in-air noise, pinniped densities were calculated by dividing the stock abundance for each marine mammal species by the 1,130 m^2 (12,163.2 ft^2) impact area of the Harmony Platform near sea level where the animals could potentially haul-out and/or have their heads out of the water. Tables 6–7 and 6–8 of the IHA application describe the calculated densities and estimated take by marine mammal species as well as associated data for the in-water and in-air sound thresholds, respectively. Although there is some uncertainty about the representativeness of the data and the assumptions used in the calculations below, the approach used here is believed to be the best available approach.

TABLE 7—ESTIMATED DENSITIES AND POSSIBLE NUMBER OF MARINE MAMMAL SPECIES THAT MIGHT BE EXPOSED TO GREATER THAN OR EQUAL TO 160 dB (PIPE-DRIVING ACTIVITIES) DURING EXXONMOBIL'S CONDUCTOR PIPE INSTALLATION ACTIVITIES IN THE SANTA BARBARA CHANNEL OFFSHORE OF CALIFORNIA

Species	Density in action area (#/km^2)[1]	Calculated take from pipe-driving activities in-water (i.e., estimated number of individuals exposed to sound levels ≥160 dB re 1 μPa)[4]	Calculated take from pipe-driving activities in-air (i.e., estimated number of individuals exposed to sound levels ≥90 dB re 20 μPa for harbor seals and 90 dB re 20 μPa for all other pinnipeds)[5]	Total authorized Take[6]	Abundance[7]	Approximate percentage of population/stock estimate (for authorized take)[8]	Population trend[7]
Mysticetes							
North Pacific right whale.	NA	0	0	0	NA (26)—Eastern North Pacific stock.	NA	NA.

TABLE 7—ESTIMATED DENSITIES AND POSSIBLE NUMBER OF MARINE MAMMAL SPECIES THAT MIGHT BE EXPOSED TO GREATER THAN OR EQUAL TO 160 dB (PIPE-DRIVING ACTIVITIES) DURING EXXONMOBIL'S CONDUCTOR PIPE INSTALLATION ACTIVITIES IN THE SANTA BARBARA CHANNEL OFFSHORE OF CALIFORNIA—Continued

Species	Density in action area (#/km²)[1]	Calculated take from pipe-driving activities in-water (i.e., estimated number of individuals exposed to sound levels ≥160 dB re 1 μPa)[4]	Calculated take from pipe-driving activities in-air (i.e., estimated number of individuals exposed to sound levels ≥90 dB re 20 μPa for harbor seals and 90 dB re 20 μPa for all other pinnipeds)[5]	Total authorized Take[6]	Abundance[7]	Approximate percentage of population/ stock estimate (for authorized take)[8]	Population trend[7]
Eastern North Pacific Gray whale.	1.5188	3.063	0	10	19,126 (18,107)—Eastern North Pacific stock 155 (142)—Western North Pacific population.	0.05	Increasing over past several decades—Eastern North Pacific stock.
Humpback whale	[3] 0.0055	0.0332	0	2	1,918 (1,855)—CA/OR/WA stock.	0.1	Increasing.
Minke whale	0.04	0.2418	0	2	478 (202)—CA/OR/WA stock.	0.42	NA.
Bryde's whale	NA	0	0	2	NA	NA	NA.
Sei whale	0.01	0.0605	0	2	126 (83)—Eastern North Pacific stock.	1.58	NA.
Fin whale	[3] 0.0065	0.0392	0	2	3,051 (2,598)—CA/OR/WA stock.	0.07	Increasing.
Blue whale	[2] 0.006	0.00362	0	2	1,647 (1,551)—Eastern North Pacific stock.	0.12	NA.
Odontocetes							
Sperm whale	[2] 0.0000542	0.000327	0	2	971 (751)—CA/OR/WA stock.	0.21	NA.
Pygmy sperm whale	0.05	0.302	0	1	579 (271)—CA/OR/WA stock.	0.17	NA.
Dwarf sperm whale	NA	0	0	0	NA—CA/OR/WA stock	NA	NA.
Baird's beaked whale ...	[2] 0.001224	0.0074	0	6	847 (466)—CA/OR/WA stock.	0.71	NA.
Cuvier's beaked whale	0.5233	3.1633	0	4	6,590 (4,481)—CA/OR/WA stock.	0.06	Declining off CA/OR/WA.
Mesoplodon beaked whale.	0.0551	0.3331	0	2	694 (389)—CA/OR/WA stock.	0.29	Declining off CA/OR/WA.
Killer whale	0.07464	0.4512	0	10	240 (162)—Eastern North Pacific stock 346 (346)—Eastern North Pacific Transient stock 354 (354)—West Coast Transient stock.	4.17/2.89/2.82	NA—Eastern North Pacific Offshore stock; NA—Eastern North Pacific Transient stock; Increasing—West Coast Transient stock.
False killer whale	NA	0	0	50	NA	NA	NA.
Short-finned pilot whale	0.06	0.3627	0	40	760 (465)—CA/OR/WA stock.	5.26	NA.
Bottlenose dolphin	0.0799	0.4829	0	10	1,006 (684)—CA/OR/WA stock.	0.99	NA—CA/OR/WA Offshore stock; NA—CA Coastal stock.
Striped dolphin	[2] 0.002711	0.0164	0	20	10,908 (8,231)—CA/OR/WA stock.	0.18	NA.
Short-beaked common dolphin.	[2] 0.946007	5.7186	0	450	411,211 (343,990)—CA/OR/WA stock.	0.11	Varies with oceanographic conditions.
Long-beaked common dolphin.	8.5	51.3825	0	120	107,016 (76,224)—CA stock.	0.11	Increasing over last 30 years.
Pacific white-sided dolphin.	[2] 0.068630	0.4149	0	30	26,930 (21,406)—CA/OR/WA stock.	0.11	NA.
Northern right whale dolphin.	[2] 0043996	0.2659	0	100	8,334 (6,019)—CA/OR/WA stock.	1.19	NA.
Risso's dolphin	[2] 0.053323	0.3223	0	10	6,272 (4,913)—CA/OR/WA stock.	0.16	NA.
Dall's porpoise	0.028931	0.1749	0	50	42,000 (32,106)—CA/OR/WA stock.	0.12	NA.
Harbor porpoise	0	0	0	0	NA	NA	NA.
Pinnipeds							
California sea lion	23.6	142.662	17.997	143 + 18 = 161	296,750 (153,337)—U.S. stock.	0.05	Increasing.
Steller sea lion	NA	0	0	0	49,685 (42,366)—Western stock 58,334 (72,223)—Eastern stock.	NA	Declining—Western stock; Increasing—Eastern stock; Declining in CA.
Pacific harbor seal	2.4	14.508	5.491	15 + 6 = 21	30,196 (26,667)—CA stock.	0.07	Increased 1981 to 2004.

TABLE 7—ESTIMATED DENSITIES AND POSSIBLE NUMBER OF MARINE MAMMAL SPECIES THAT MIGHT BE EXPOSED TO GREATER THAN OR EQUAL TO 160 dB (PIPE-DRIVING ACTIVITIES) DURING EXXONMOBIL'S CONDUCTOR PIPE INSTALLATION ACTIVITIES IN THE SANTA BARBARA CHANNEL OFFSHORE OF CALIFORNIA—Continued

Species	Density in action area (#/km²)[1]	Calculated take from pipe-driving activities in-water (i.e., estimated number of individuals exposed to sound levels ≥160 dB re 1 μPa)[4]	Calculated take from pipe-driving activities in-air (i.e., estimated number of individuals exposed to sound levels ≥90 dB re 20 μPa for harbor seals and 90 dB re 20 μPa for all other pinnipeds)[5]	Total authorized Take[6]	Abundance[7]	Approximate percentage of population/stock estimate (for authorized take)[8]	Population trend[7]
Northern elephant seal	9.85	59.5433	7.512	60 + 8 = 68	124,000 (74,913)—CA breeding stock.	0.05	Increasing through 2005.
Northern fur seal	0.79	4.7756	0.602	5 + 1 = 6	12,844 (6,722)—California stock.	0.05	Increasing.
Guadalupe fur seal	NA	0	0	0	7,408 (3,028)—Mexico to CA stock.	NA	Increasing.

NA = Not available or not assessed.
[1] Planned action area (12,593 km²) in the Santa Barbara Channel off the coast of California.
[2] OBIS–SEAMAP SERDP–SDSS NMFS SWFSC summer density data for the California Current ecosystem.
[3] Redfern *et al.* (2013)
[4] Calculated take is the estimated number of animals in the in-water ensonified buffer zone multiplied by the number of days (18.6).
[5] Calculated take is the estimated number of animals in the in-air ensonified buffer zone multiplied by the number of days (18.6).
[6] Authorized take includes calculated takes for animals in the ensonified in-water and in-air buffer zones. Authorized takes for cetaceans were increased to account for group size.
[7] NMFS Marine Mammal Stock Assessment Reports (Caretta *et al.,* 2013)
[8] Total authorized (and calculated) takes expressed as percentages of the species or stock.

Numbers of marine mammals that might be present and potentially disturbed are estimated based on the available data about marine mammal distribution and densities in the Santa Barbara Channel action area. ExxonMobil estimated the number of different individuals of marine mammal species that may be exposed to in-water and in-air sounds with received levels greater than or equal to 160 dB re 1 μPa (rms) and in-air sounds with received levels greater than or equal to 90 dB re 20 μPa (rms) (for harbor seals)/100 dB re 20 μPa (rms) (for all other pinniped species) for impact hammer pipe-driving activities on one or more occasions by considering the total marine area that will be within the 160 dB in-water radius and 90 dB (for harbor seals)/100 dB (for all other pinniped species) in-air radius around the impact hammer pipe-driving on at least one occasion and the expected density of marine mammals in the area (in the absence of the conductor pipe installation activities). The number of possible exposures can be estimated by considering the total marine area that will be within the in-water 160 dB radius and in-air 90 dB (for harbor seals)/100 dB (for all other pinniped species) radius around the impact hammer pipe-driving activities. The in-water 160 dB and in-air 90dB (harbor seal)/100 dB (for all other pinniped species) radii are based on acoustic modeling data for the impact hammer pipe-driving activities that may be used during the action (see the addendum to the IHA application). It is unlikely that a particular animal will stay in the area during the entire impact hammer pipe-driving activities.

The number of different individuals potentially exposed to received levels greater than or equal to 160 dB re 1 μPa (rms) for in-water noise and 90 dB re 20 μPa (rms) (for harbor seals)/100 dB re 20 μPa (rms) (for all other pinniped species) for in-air noise from impact hammer pipe-driving activities was calculated by multiplying:

(1) The expected species density (in number/km²), times

(2) The anticipated area to be ensonified to that level during conductor pipe installation (buffer zone = π x [maximum distance]²), times

(3) The number of days of the conductor pipe installation activities.

NMFS notes that ExxonMobil had estimated the total number of days of the conductor pipe installation activities as 4.125 in its application, based on the total number of estimated hours of impact pipe-driving. NMFS received comments during the public comment period stating that this approach underestimates the number of days of actual exposure to the installation activities because pipe-driving sessions will be interspersed between periods of no pipe-driving. Specifically, the Commission commented that ExxonMobil should have added 3.3 hours of estimated pile-driving per section to 7.3 hours of downtime per section for a total of 10.6 hours per section of pipe. Multiplying that by the projected seven sections to be driven for each conductor pipe would result in a total of 74.2 hours, which when divided by 24 hours per day equates to 3.1 days of potential exposure per pipe. Using this method would yield a total of 18.6 days of potential exposure (3.1 days per conductor pipe multiplied by 6 pipes), which more accurately represents the total duration of proposed conductor pipe installation activities for all six conductor pipes. NMFS agrees, and revised the total number of days of installation activities to 18.6.

Applying the approach described above, approximately 0.3318 km² will be ensonified within the in-water 160 dB isopleth and approximately 0.0053 km²/0.0475 km² will be ensonified within the in-air 90 dB (harbor seals)/100 dB (for all other pinniped species) isopleths for impact hammer pipe-driving activities (assuming omnidirectional spreading of sound from the conductor pipe) during the conductor pipe installation activities. The take calculations within the action area account for animals in the initial density snapshot and account for new (i.e., turnover) or previously exposed animals over an approximate 18.6 day period that approach and enter the area ensonified above or equal to the 160 dB isopleth for in-water noise and 90/100 dB isopleth for in-air noise from the impact hammer pipe-driving activities; however, studies suggest that many marine mammals will avoid exposing themselves to sounds at these levels, which suggests that there will not necessarily be a large number of new animals entering the action area once the conductor pipe installation activities

started. Also, the approach assumes that no cetaceans or pinnipeds will move away or toward the Harmony Platform. The take estimates represent the number of individuals that are expected (in absence of conductor pipe installation activities) to occur over an approximate 18.6 day period of time in the waters that will be exposed to greater than or equal to 160 dB (rms) in-water and greater than or equal to 90/100 dB (rms) in-air for impact hammer pipe-driving activities.

ExxonMobil's estimates of exposures to various sound levels assume that the planned activities will be carried out in full. The estimates of the numbers of marine mammals potentially exposed to 160 dB (rms) for in-water noise and 90 dB re 20 μPa (rms) (for harbor seals)/100 dB re 20 μPa (rms) (for all other pinniped species) for in-air noise received levels are precautionary and probably overestimate the actual numbers of marine mammals that could be involved. These estimates include standard contingencies for weather, equipment, or mitigation delays in the time planned for the planned activities. The authorized takes were increased for certain marine mammal species (i.e., gray, humpback, minke, sei, fin, blue, sperm, Baird's beaked, Cuvier's beaked, Mesoplodont beaked, killer, and short-finned pilot whales and bottlenose, striped, short-beaked common, long-beaked common, Pacific white-sided, northern right whale, and Risso's dolphins and Dall's porpoise) to account for group behavior. Based on recommendations from the CCC received during the 30-day public comment period on the notice of the proposed IHA (79 FR 36743, June 30, 2014), NMFS has authorized takes for Bryde's whales and false killer whales, which are considered warmer water species.

Table 7 shows the estimates of the number of different individual marine mammals anticipated to be exposed to greater than or equal to 160 dB re 1 μPa (rms) for the conductor pipe installation activities if no animals moved away from the Harmony Platform. No takes by Level A harassment have been authorized. The total take authorization is given in the fifth column of Table 7.

Encouraging and Coordinating Research

ExxonMobil will coordinate the planned marine mammal monitoring program associated with the conductor pipe installation activities with researchers and other parties that express interest in this activity, area, and anthropogenic sound effects on marine mammals. ExxonMobil will coordinate with applicable U.S. agencies (e.g., NMFS), and will comply with their requirements.

ExxonMobil supports research on marine mammals and sound in the environment through academic, industry, and private sector collaborations. ExxonMobil is a founding member and largest contributor to the Sound and Marine Life Joint Industry Program (JIP) through the International Oil and Gas Producers (OGP), and the International Association of Geophysical Contractors (IAGC). Through JIP and other venues, ExxonMobil provides annual funding and support for fundamental and applied scientific research to better understand the effects of anthropogenic sound on marine life. ExxonMobil also conducts internal research and monitoring programs specific to sound effects from exploration and production activities. These efforts have helped produce effective mitigation strategies and techniques to reduce potential sound effects on marine mammals from their operations and those from the oil and gas industry as a whole. More information on selected examples of ExxonMobil's involvement and contributions to scientific research on marine mammals and sound can be found in section 14 of the IHA application.

Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses

Section 101(a)(5)(D) of the MMPA also requires NMFS to determine that the authorization will not have an unmitigable adverse effect on the availability of marine mammal species or stocks for subsistence use. There are no relevant subsistence uses of marine mammals implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks will not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Analysis and Determinations

Negligible Impact

Negligible impact is ''an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival'' (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes, alone, is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be ''taken'' through behavioral harassment, NMFS must consider other factors such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

In making a negligible impact determination, NMFS evaluated factors such as:

(1) The number of anticipated injuries, serious injuries, or mortalities;

(2) The number, nature, and intensity, and duration of Level B harassment (all relatively limited); and

(3) The context in which the takes occur (i.e., impacts to areas of significance, impacts to local populations, and cumulative impacts when taking into account successive/contemporaneous actions when added to baseline data);

(4) The status of stock or species of marine mammals (i.e., depleted, not depleted, decreasing, increasing, stable, impact relative to the size of the population);

(5) Impacts on habitat affecting rates of recruitment/survival; and

(6) The effectiveness of monitoring and mitigation measures.

As described above and based on the following factors, the specified activities associated with the conductor pipe installation activities are not likely to cause PTS, or other non-auditory injury, serious injury, or death. The factors include:

(1) The likelihood that marine mammals are expected to move away from a noise source that is annoying prior to its becoming potentially injurious;

(2) The potential for temporary or permanent hearing impairment is relatively low and will likely be avoided through the implementation of the required monitoring and mitigation (i.e., shut-down) measures;

(3) The fact that cetaceans and pinnipeds will have to be closer than 10 m and 3.5 m, respectively, during impact hammer pipe-driving activities to be exposed to levels of underwater sound believed to have a minimal chance of causing a permanent threshold shift (PTS; i.e., Level A harassment); and

(4) The likelihood that marine mammal detection ability by trained

PSOs is high at close proximity to the platform.

No injuries, serious injuries, or mortalities are anticipated to occur as a result of ExxonMobil's planned conductor pipe installation activities, and none are authorized by NMFS. Table 7 of this document outlines the number of authorized Level B harassment takes that are anticipated as a result of these activities. NMFS's practice has been to apply the 160 dB re 1 μPa (rms) received level threshold for underwater impulse sound levels to determine whether take by Level B harassment occurs. Southall *et al.* (2007) provide a severity scale for ranking observed behavioral responses of both free-ranging marine mammals and laboratory subjects to various types of anthropogenic sound (see Table 4 in Southall *et al.* [2007]). Current NMFS practice, regarding exposure of marine mammals to high-level in-air sounds, as a threshold for potential Level B harassment, is at or above 90 dB re 20 μPa for habor seals and at or above 100 dB re 20 μPa for all other pinniped species (Lawson *et al.,* 2002; Southall *et al.,* 2007). NMFS has not determined Level A harassment thresholds for marine mammals for in-air noise.

As mentioned previously, NMFS estimates that 32 species of marine mammals under its jurisdiction could be potentially affected by Level B harassment over the course of the IHA. The population estimates for the marine mammal species that may be taken by Level B harassment were provided in Table 4 and 7 of this document. Due to the nature, degree, and context of Level B (behavioral) harassment anticipated and described (see ''Potential Effects on Marine Mammals'' section above) in this notice, the planned activity is not expected to impact rates of annual recruitment or survival for any affected species or stock, particularly given NMFS's and the applicant's requirement to implement mitigation, monitoring, and reporting measures to minimize impacts to marine mammals. Additionally, the conductor pipe installation activities will not adversely impact marine mammal habitat.

For the marine mammal species that may occur within the action area, there are no known designated or important feeding and/or reproductive areas. Many animals perform vital functions, such as feeding, resting, traveling, and socializing, on a diel cycle (i.e., 24 hr cycle). Behavioral reactions to noise exposure (such as disruption of critical life functions, displacement, or avoidance of important habitat) are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall *et al.,* 2007). Potential impacts are not likely to be significant from the pipe-driving activities as the use of the impact hammer will occur over 30 intermittent intervals of 2.5 to 3.3 hours each interspersed with period of downtime, for a cumulative total of about 18.6 days of potential exposure spread out over a 91-day period. Additionally, the conductor pipe installation activities will be increasing sound levels in the marine environment in a relatively small area surrounding the Harmony Platform (compared to the range of the animals), and some animals may only be exposed to and harassed by sound for less than a day.

Of the 37 marine mammal species under NMFS jurisdiction that may or are known to likely to occur in the action area, seven are listed as threatened or endangered under the ESA: North Pacific right, western North Pacific gray whale, humpback, sei, fin, blue, and sperm whale and Guadalupe fur seal. These species are also considered depleted under the MMPA. Of these ESA-listed species, incidental take has been requested to be authorized for humpback, sei, fin, blue, and sperm whales. There is generally insufficient data to determine population trends for the other depleted species in the action area. To protect these animals (and other marine mammals in the action area), ExxonMobil must cease impact hammer pipe-driving activities if any marine mammal enters designated exclusion zones. No injury, serious injury, or mortality is expected to occur and due to the nature, degree, and context of the Level B harassment anticipated, and the activities are not expected to impact rates of recruitment or survival.

NMFS has determined, provided that the aforementioned mitigation and monitoring measures are implemented, the impact of conducting pipe-driving activities in the Santa Barbara Channel off the coast of California, may result, at worst, in a modification in behavior and/or low-level physiological effects (Level B harassment) of certain species of marine mammals.

Changes in diving/surfacing patterns, habitat abandonment due to loss of desirable acoustic environment, and cessation of feeding or social interaction are some of the significant behavioral modifications that could potentially occur as a result of the conductor pipe installation activities. While behavioral modifications, including temporarily vacating the area during the impact hammer pipe-driving activities, may be made by these marine mammal species to avoid the resultant acoustic disturbance, the availability of alternate areas within these areas for species and the short and sporadic duration of the conductor pipe installation activities have led NMFS to determine that the taking by Level B harassment from the specified activity will have a negligible impact on the affected species in the specified geographic region. NMFS believes that the length of the conductor pipe installation activities (approximately 18.6 days total), the requirement to implement mitigation measures (e.g., shut-down of impact hammer pipe-driving activities), and the inclusion of the monitoring and reporting measures, will reduce the amount and severity of the potential impacts from the activity to the degree that it will have a negligible impact on the species or stocks in the action area. Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the required monitoring and mitigation measures, NMFS finds that the total marine mammal take from ExxonMobil's conductor pipe installation activities will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

The estimate of the number of individual cetaceans and pinnipeds that could be exposed to pipe-driving sounds with received levels greater than or equal to 160 dB re 1 μPa (rms) for all marine mammals for in-water sound levels and at or above 90 dB re 20 μPa for harbor seals and at or above 100 dB re 20 μPa for all other pinniped species for in-air sound levels during the conductor pipe installation activities is in Table 7 of this document.

In total, 10 gray, 2 humpback, 2 minke, 2 Bryde's, 2 sei, 2 fin, 2 blue, and 2 sperm whale could be taken by Level B harassment during the conductor pipe installation activities, which will represent 0.05, 0.05, 0.2, unknown, 0.8, 0.03, 0.06, and 0.21% of the stock populations, respectively. Some of the cetaceans potentially taken by Level B harassment are delphinids and porpoises with estimates of 1 pygmy sperm, 6 Baird's beaked, 4 Cuvier's beaked, 2 *Mesoplodon* spp. beaked, 10 killer, 50 false killer, and 40 short-finned pilot whale, 10 bottlenose, 20 striped, 450 short-beaked common, 120 long-beaked common, 20 Pacific white-sided, 100 northern right whale, and 10 Risso's dolphin as well as 50 Dall's porpoise, which will represent 0.17, 0.71, 0.06, 0.29, 4.17/2.89/2.82, unknown, 5.26, 0.99, 0.18, 0.11, 0.11,

0.11, 1.19, 0.16, and 0.12% of the affected stock populations, respectively. The pinnipeds that could potentially be taken by Level B harassment are the California sea lion, Pacific harbor and northern elephant seal, and northern fur seal with estimates of 161, 21, 68, and 6 individuals, which will represent 0.05, 0.07, 0.05, and 0.05% of the affected stock populations, respectively.

NMFS has determined that the authorized take estimates represent small numbers relative to the affected species or stocks sizes (i.e., all are less than 6%). Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS finds that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks. See Table 7 for the authorized take numbers of marine mammals.

No known current regional population or stock abundance estimates for the northeast Pacific Ocean offshore of California are available for the two species under NMFS's jurisdiction that could potentially be affected by Level B harassment over the course of the IHA. These species include the Bryde's whale and false killer whale. Bryde's whales are distributed worldwide in tropical and sub-tropical waters and their occurrence in the action area is rare. Surveys have shown them to be common and distributed throughout the eastern tropical Pacific Ocean with a concentration around the equator east of 110° West and a reduction west of 140° West. Bryde's whales in California are likely to belong to a larger population inhabiting at least the eastern part of the tropical Pacific Ocean. In the western North Pacific Ocean, Bryde's whale abundance in the early 1980s was estimated to be 22,000 to 24,000 (Tillman and Mizroch, 1982; Miyashita, 1986). Bryde's whale abundance has never been estimated for the entire eastern Pacific Ocean; however, a portion of that stock in the eastern tropical Pacific Ocean was estimated as 13,000 (Wade and Gerrodette, 1993). The false killer whale is distributed worldwide throughout warm temperate and tropical oceans and their occurrence in the action area is rare. In the North Pacific Ocean, this species is well known from southern Japan, Hawaii, and the eastern tropical Pacific Ocean. This species occurs in the U.S. waters of the northern Gulf of Mexico, Hawaiian Islands, around Palmyra and Johnston Atolls, and American Samoa.

These two species did not have density model outputs within the SERDP/NASA/NOAA and OBIS–SEAMAP database. However, limited OBIS–SEAMAP sightings data exist for these species within or adjacent to the action area. Even where the limited number of sightings suggests that density is very low and encounters are less likely, for any species with OBIS–SEAMAP sightings data within or adjacent to the action area, NMFS believes it is wise to include coverage for potential takes. Generally, to quantify this coverage, NMFS assumed that ExxonMobil could potentially encounter one group of each species during the conductor pipe installation activities, and NMFS thinks it is reasonable to use the average group size to estimate the take from these potential encounters. Therefore, even though we do not have abundance data for these species, because of the limited sightings and low probability of encountering them, we have predicted take of no more than one individual group of each of these species of animals during the conductor pipe installation activities. Qualitatively, given what is known about cetacean biology and the range of these species, one group as a portion of the total population abundance within the U.S. EEZ would be considered small for both species.

Endangered Species Act

Of the species of marine mammals that may occur in the action area, several are listed as threatened or endangered under the ESA, including the North Pacific right, western North Pacific gray, humpback, sei, fin, blue, and sperm whale and Guadalupe fur seal. ExxonMobil did not request take of endangered North Pacific right whales, western North Pacific gray whales, or Guadalupe fur seals due to the low likelihood of encountering these species during the pipe-driving activities. NMFS's Office of Protected Resources, Permits and Conservation Division, initiated formal consultation under section 7 of the ESA with NMFS's West Coast Regional Office, Protected Resources Division, to obtain a Biological Opinion evaluating the effects of issuing the IHA to ExxonMobil under section 101(a)(5)(D) of the MMPA on threatened and endangered marine mammals. NMFS's Biological Opinion concluded that the action and issuance of the IHA are not likely to jeopardize the continued existence of listed species and included an Incidental Take Statement incorporating the requirements of the IHA as Terms and Conditions. The Biological Opinion also concluded that designated critical habitat of these species does not occur in the action area.

National Environmental Policy Act

To meet National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) requirements published by the Council of Environmental Quality (CEQ) and NOAA Administrative Order 126–6, Environmental Review Procedures for Implementing the National Environmental Policy Act, NMFS conducted a NEPA analysis to evaluate the effects of authorizing the take of marine mammals. NMFS prepared an Environmental Assessment titled ''Environmental Assessment on the Issuance of an Incidental Harassment Authorization to ExxonMobil Production Company to Take Marine Mammals by Harassment Incidental to Conductor Pipe Installation Activities at Harmony Platform in the Santa Barbara Channel offshore of California.'' NMFS has determined that the issuance of the IHA is not likely to result in significant impacts on the human environment and issued a Finding of No Significant Impact (FONSI).

Authorization

NMFS has issued an IHA to ExxonMobil for the take, by Level B harassment, of small numbers of marine mammals incidental to conducting conductor pipe installation activities at Harmony Platform in Santa Barbara Channel offshore of California, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: September 19, 2014.

Perry F. Gayaldo,

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

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