ridley, loggerhead, and hawksbill sea turtles had been submitted by the above-named individual. The requested permit has been issued under the authority of the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 *et seq.*) and the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR parts 222–226).

Dr. Landry was issued a 5 year permit to: (1) Examine green sea turtle assemblages in sea grass habitats off of Texas; (2) determine trends in seasonal abundance and movement of green, Kemp's ridley, and loggerhead sea turtles in Texas and Louisiana estuaries; (3) characterize environmental estrogen uptake in green and Kemp's ridley sea turtles at a Texas Superfund site; and (4) document impacts of the Deepwater Horizon oil spill on sea turtle assemblages in the western Gulf of Mexico. Researchers may capture by entanglement or cast net, transport, photograph, measure, weigh, flipper tag, passive integrated transponder tag, blood, fecal, epiphyte and tissue sample, attach satellite transmitters to and release sea turtles.

Issuance of this permit, as required by the ESA, was based on a finding that such permit (1) was applied for in good faith, (2) will not operate to the disadvantage of such endangered or threatened species, and (3) is consistent with the purposes and policies set forth in section 2 of the ESA.

Dated: April 4, 2011.

P. Michael Payne,

Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2011–8593 Filed 4–11–11; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XA314

Takes of Marine Mammals Incidental to Specified Activities; Marine Geophysical Survey in the Pacific Ocean off Costa Rica, April Through June, 2011

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

ACTION: Notice; issuance of an incidental take authorization.

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 Lamont-Doherty Earth Observatory (L–DEO), a part of Columbia University, to take small numbers of marine mammals, by Level B harassment, incidental to conducting a marine geophysical survey in the eastern tropical Pacific (ETP) Ocean off Costa Rica, April through June, 2011.

DATES: Effective April 7 through June 6, 2011.

ADDRESSES: A copy of the IHA and application are available by writing to P. Michael Payne, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910 or by telephoning the contacts listed here. A copy of the application containing a list of the references used in this document may be obtained by writing to the above address, telephoning the contact listed here (*see* **FOR FURTHER INFORMATION CONTACT**) or visiting the Internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications.* The following associated documents are also available at the same internet address: Environmental Assessment (EA) prepared by NMFS, and the finding of no significant impact (FONSI). The NMFS Biological Opinion will be available online at: *http://www.nmfs.noaa.gov/pr/consultation/opinions.htm.* Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address. Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Jeannine Cody, Office of Protected Resources, NMFS, (301) 713–2289, ext. 113.

SUPPLEMENTARY INFORMATION:

Background

Section 101(a)(5)(D) of the MMPA (16 U.S.C. 1371 (a)(5)(D)) directs the Secretary of Commerce to authorize, upon request, the incidental, but not intentional, taking of small numbers of marine mammals of a species or population stock, 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, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Authorization for the incidental taking of small numbers of marine mammals 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). The authorization must set forth the permissible methods of taking, other means of effecting the least practicable adverse impact on the species or stock and its habitat, and requirements pertaining to the mitigation, monitoring and reporting of such takings. NMFS has defined "negligible impact" in 50 CFR 216.103 as "* * * an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Section 101(a)(5)(D) of the MMPA establishes a 45-day time limit for NMFS' review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Within 45 days of the close of the public comment period, NMFS must either issue or deny the authorization. NMFS must publish a notice in the **Federal Register** within 30 days of its determination to issue or deny the authorization.

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

NMFS received an application on November 12, 2010, from L–DEO for the taking by harassment, of marine mammals, incidental to conducting a marine geophysical survey in the eastern tropical Pacific Ocean within the Exclusive Economic Zone (EEZ) of Costa Rica. L–DEO, with research funding from the U.S. National Science Foundation (NSF), plans to conduct the seismic survey from April 7, 2011, through May 9, 2011. Upon receipt of additional information, NMFS determined the application complete

and adequate on January 4, 2011. On February 4, 2011 NMFS published a notice in the **Federal Register** (76 FR 6430) disclosing the effects on marine mammals, making preliminary determinations and including a proposed IHA. The notice initiated a 30-day public comment period.

L–DEO plans to use one source vessel, the R/V *Marcus G. Langseth* (*Langseth*) and a seismic airgun array to image the structures along a major plate-boundary fault off in the ETP off Costa Rica using three-dimensional (3–D) seismic reflection techniques. L–DEO will use the 3–D seismic reflection data to determine the fault structure and the properties of the rocks that lie along the fault zone. In addition to the proposed operations of the seismic airgun array, L–DEO intends to operate a multibeam echosounder (MBES) and a sub-bottom profiler (SBP) continuously throughout the survey.

Acoustic stimuli (*i.e.,* increased underwater sound) generated during the operation of the seismic airgun array, has the potential to cause a short-term behavioral disturbance for marine mammals in the survey area. This is the only anticipated means of marine mammal taking associated with these specified activities. L–DEO has requested and NMFS has authorized the incidental take of 19 species marine mammals by Level B harassment. Take is not expected to result from the use of the MBES or SBP, for reasons discussed in this notice. While ship-strike is the cause of take of marine mammals, NMFS believes the possibility of take from collision with the vessel is so remote as to be discountable because it is a single vessel moving at a relatively slow speed during seismic acquisition within the survey for approximately 32 days. It is likely that any marine mammal would be able to avoid the vessel.

Description of the Specified Activity

L–DEO's planned seismic survey in the ETP off Costa Rica is scheduled to commence on April 7, 2011 and continue for approximately 32 days ending on May 9, 2011. L–DEO will operate the *Langseth* to deploy a seismic airgun array and hydrophone streamers to complete the survey. The *Langseth* will depart from Caldera, Costa Rica on April 7, 2011 and transit to the survey area offshore from Costa Rica. Some minor deviation from these dates is possible, depending on logistics, weather conditions, and the need to repeat some lines if data quality is substandard. Therefore, NMFS plans to issue an authorization that extends to June 6, 2011.

Geophysical survey activities will involve 3–D seismic methodologies to determine the fault structure and the properties of the rocks that lie along the fault zone and to assess the property changes along the fault and determine where the large stress accumulations that lead to large earthquakes occur along the fault zone.

To obtain 3–D images of the fault zone which lies two to nine kilometers (km) below the seafloor, the *Langseth* will deploy a two-string subarray of nine airguns each as an energy source. The identical subarrays will fire alternately, so that no more than 18 airguns will fire at any time during the survey. The receiving system will consist of four 6-km-long hydrophone streamers. As the airgun subarrays are towed along the survey lines, the hydrophone streamers will receive the returning acoustic signals and transfer the data to the on-board processing system. L–DEO also plans to use two or three small fishing vessels around the *Langseth* to ensure that other vessels do not entangle the streamers.

The study (*e.g.,* equipment testing, startup, line changes, repeat coverage of any areas, and equipment recovery) will take place in the EEZ of Costa Rica in water depths ranging from less than 100 meters (m) (328 feet (ft)) to greater than 2,500 m (1.55 miles (mi)). The survey will require approximately 32 days (d) to complete approximately 19 transects in a racetrack configuration that will cover an area of approximately 57 x 12 km (35.4 x 7.5 mi). In all, the survey will complete approximately 2,145 km (1,333 mi) of survey lines with an additional 365 km (227 mi) of turns. Data acquisition will include approximately 672 hours (hr) of airgun operation (28 d x 24 hr).

The scientific team consists of Drs. Nathan Bangs, Kirk McIntosh (Institute for Geophysics, University of Texas) and Eli Silver (University of California at Santa Cruz).

NMFS outlined the purpose of the program in a previous notice for the proposed IHA (76 FR 6430, February 4, 2011). 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 vessel and acoustic source specifications, the reader should refer to the proposed IHA notice (76 FR 6430, February 4, 2011), the application and associated documents referenced above this section.

Comments and Responses

A notice of receipt of the L–DEO application and proposed IHA was published in the **Federal Register** on February 4, 2011 (76 FR 6430). During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission (Commission) only. The Commission's comments are online at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* Following are their comments and NMFS' responses.

Comment 1: The Commission recommends that NMFS require Lamont-Doherty Earth Observatory to: (1) Provide a full description of the Lamont-Doherty Earth Observatory model as it is used to estimate safety and buffer zones; and (2) rerun the model using site-specific information to determine safety and buffer zones and associated takes.

Response: The NSF and L–DEO have revised Appendix A in the draft Environmental Analysis to include information from the calibration study conducted on the *Langseth* in 2007 and 2008. This information is now available in the final Environmental Analysis on NSF's Web site at *http://www.nsf.gov/geo/oce/envcomp/index.jsp.* The revised Appendix A describes the L–DEO modeling process and compares the model results with empirical results of the 2007–2008 *Langseth* calibration experiment in shallow, deep and intermediate water. The conclusions–identified in Appendix A–show that the model represents the actual produced levels, particularly within the first few kilometers, where the predicted safety radii lie. At greater distances, local oceanographic variations begin to take effect, and the model tends to over predict. Further, since the modeling matches the observed measurement data, the authors have concluded that the models can continue to be used for defining exclusion zones, including for predicting mitigation radii for various tow depths. The data results from the studies were peer reviewed and the calibration results, viewed as conservative, were used to determine the cruise-specific exclusion zones.

At present, the L–DEO model does not account for site-specific environmental conditions. The calibration study of the L–DEO model predicted that using site-specific information may actually provide less conservative safety radii at greater distances. As the Commission noted, the Draft Programmatic Environmental Impact Statement/Overseas Environmental Impact Statement (draft PEIS) for Marine Seismic Research Funded by the

National Science Foundation or Conducted by the U.S. Geological Survey (draft PEIS) prepared pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) did incorporate various site-specific environmental conditions in the modeling of the Detailed Analysis Areas. The NEPA process associated with the draft PEIS is still ongoing and the NSF has not yet issued a Record of Decision. Once the NEPA process for the PEIS has concluded, NSF will look at upcoming cruises on a site-specific basis for any impacts not already considered in the draft PEIS.

The IHA issued to L–DEO, under section 101(a)(5)(D) of the MMPA, provides mitigation and monitoring requirements that will protect marine mammals from any injury or mortality. L–DEO is required to comply with the IHA's requirements. These analyses are supported by extensive scientific research and data. NMFS is confident in the peer-reviewed results of the L–DEO seismic equipment calibration studies which, although viewed as conservative, are used to determine cruise-specific exclusion zones and which factor into exposure estimates. NMFS has determined that these reviews are the best scientific data available for review of the IHA application and to support the necessary analyses and determinations under the MMPA, Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*) and NEPA.

Based on NMFS' analysis 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 has determined that the exclusion zones identified in the IHA are appropriate for the survey and that additional field measurement is not necessary at this time. While exposures of marine mammals to acoustic stimuli are difficult to estimate, NMFS is confident that the levels of take authorized herein are estimated based upon the best available scientific information and estimation methodology. The exclusion zones used to estimate exposure are appropriate and sufficient for purposes of supporting NMFS's analyses and determinations required under section 101(a)(5)(D) of the MMPA and its implementing regulations.

Comment 2: The Commission recommends that before issuing the requested IHA, NMFS provide additional justification for its preliminary determination that the planned monitoring program will be sufficient to detect with a high level of confidence, all marine mammals within or entering the identified exclusion zones.

Response: NMFS believes that the planned monitoring program will be sufficient to detect (using visual detection and passive acoustic monitoring (PAM)), with reasonable certainty, marine mammals within or entering identified exclusion zones. This monitoring, along with the required mitigation measures, will result in the least practicable adverse impact on the affected species or stocks and will result in a negligible impact on the affected species or stocks.

At present, NMFS views the combination of visual and passive acoustic monitoring as the most effective mitigation techniques available for detecting marine mammals within or entering the exclusion zone. The final monitoring and mitigation measures are the most effective feasible measures and NMFS is not aware of any additional measures which could meaningfully increase the likelihood of detecting marine mammals in and around the exclusion zone. Further, public comment has not revealed any additional mitigation or monitoring measures that could be feasibly implemented to increase the effectiveness of detection.

L–DEO and NSF (the federal funding agency) are receptive to incorporating proven technologies and techniques to enhance the current monitoring and mitigation program. Until proven technological advances are made, nighttime mitigation measures during operations include combinations of the use of protected species visual observers (PSVOs) for ramp ups, PAM, night vision devices, and continuous shooting of a mitigation gun. Should the airgun array be powered-down, the operation of a single airgun would continue to serve as a sound source deterrent to marine mammals. In the event of a complete airgun array shut down at night for mitigation or repairs, L–DEO suspends the data collection until one half hour after civil dawn (when PSVO's are able to clear the safety zone). L–DEO will not activate the airguns until the entire safety radius is visible for at least 30 minutes.

In cooperation with NMFS, L–DEO will be conducting efficacy experiments of night vision devices (NVD) during a future *Langseth* cruise. In addition, in response to a recommendation from NMFS, L–DEO is evaluating the use of handheld thermal imaging cameras to supplement nighttime mitigation practices. Another federal agency has successfully used these devices while conducting nighttime seismic operations.

Comment 3: The Commission recommends that NMFS propose to L–DEO that it revise its survey design to add pre- and post-seismic survey assessments as a way to assess marine mammal abundance in an area before, during, and after the seismic survey to determine how those numbers differ and to obtain more realistic baseline abundance estimates of marine mammals.

Response: NMFS acknowledges the Commission's concerns and will forward the recommendation to the NSF and L–DEO. Because the cruise's primary focus is marine geophysical research, extending or altering the cruise is not practicable from either an operational or research standpoint for the applicant. Due to the remote location of the survey and the length of time needed to conduct the requested research, there may be little time left for the vessel to operate without the need for refueling and servicing. Second, at sea data collection and analyses to estimate marine mammal abundance are time and resource intensive endeavors—even more so if the intent is to assess abundance in-situ, before, during, and after the seismic survey.

Numerous studies have reported on the distribution of cetaceans inhabiting the ETP and L–DEO has incorporated this data into their analyses. For example, Ferguson and Barlow (2001, 2003) calculated cetacean densities in the ETP based on summer/fall research surveys in 1986–1996; Gerrodette *et al.* (2008) calculated dolphin abundance in the ETP based on summer/fall research surveys in 1986–1990, 1998–2000, 2003, and 2006; and Jackson *et al.,* (2008) described cetacean sightings data collected in a survey area that overlaps with the seismic survey area. NMFS believes that L–DEO's current approach for estimating abundance in the survey area is believed to be the best available approach.

To conclude, there will be significant amounts of transit time during the cruise, which PSVOs will be on watch prior to and after the seismic portions of the survey. The collection of this observational data by PSVOs may provide meaningful baseline data on marine mammals, but it is unlikely that the information would result in any statistically robust conclusions for this particular seismic survey.

Comment 4: The Commission recommends that NMFS require the applicant: (1) To report on the number of marine mammals that were acoustically detected for which a power-down or shutdown of the airguns was initiated; (2) specify if the animals also were visually detected; and (3) compare

the results from the two methods (visual versus acoustic) to help identify their respective weaknesses.

Response: L–DEO reports on the number of acoustic detections made by the PAM system within the post-cruise monitoring reports as required by the IHA. The report also includes a description of any acoustic detections that were concurrent with visual sightings, which allows for a comparison of acoustic and visual detection methods for each cruise.

The post-cruise monitoring reports also include on the following information: the total operational effort in daylight (hours); the total operation effort at night (hours); the total number of hours of visual observations conducted, the total number of sightings, and the total number of hours of acoustic detections conducted.

LGL Ltd., Environmental Research Associates (LGL), a contractor for L–DEO, has processed sighting and density and data, and their publications can be viewed online at: *http://www.lgl.com/index.php?option=com_content&view=article&id=69&Itemid=162&lang=en.* Post-cruise monitoring reports are currently available on the NMFS' MMPA Incidental Take Program website and future reports will also be available on the NSF website should there be interest in further analysis of this data by the public.

Comment 5: The Commission recommends that NMFS condition the authorization to prohibit an eight-minute pause before ramping up after either a power-down or shutdown of the airguns, based on the presence of a marine mammal in the exclusion zone and the *Langseth's* movement. The Commission believes that this limit is inappropriate because it fails to account for the position, swim speed and heading of the observed marine mammal. If a marine mammal sighted in the exclusion zone is moving in the same direction as the *Langseth,* or if it is moving in a different direction but changes its heading, it may remain in the exclusion zone for periods longer than eight minutes.

Response: To clarify, in the instance of a power-down or shutdown based on the presence of a marine mammal in the exclusion zone, L–DEO will restart the airguns to the full operating source level (*i.e.,* 3,300 cubic inches (in^3)) only if the PSVO visually observes the marine mammal exiting the exclusion zone for the full source level within an eight-minute period of the shut-down or power down. The eight-minute period is based on the 180–dB radius for the 18-airgun subarray towed at a depth of seven m (23 ft) in relation to the minimum planned speed of the Langseth while shooting (8.5 km/h; 5.3 mph; 4.6 kts). In the event that a marine mammal would re-enter the exclusion zone after reactivating the airguns, L–DEO would reinitiate a shut-down or power down as required by the IHA.

Should the airguns be inactive or powered down for more than 8 minutes, and the PSVO does not observe the marine mammal leaving the exclusion zone, then L–DEO must wait 15 minutes (for small odontocetes or pinnipeds) or 30 minutes (for mysticetes and large odontocetes) after the last sighting before L–DEO can initiate ramp-up procedures. However, ramp up will not occur as long as a marine mammal is detected within the exclusion zone, which provides more time for animals to leave the exclusion zone, and accounts for the position, swim speed and heading of marine mammals within the exclusion zone.

Finally, L–DEO may need to temporarily perform a shut-down due to equipment failure or maintenance. In this instance, L–DEO will restart the airguns to the full source level within an 8-minute period of the shut-down only if the PSVOs do not observe marine mammals within exclusion zone for the full source level. If the airguns are inactive or powered down for more than eight minutes, then L–DEO would follow the ramp-up procedures required by the IHA. L–DEO would restart the airguns beginning with the smallest airgun in the array and add airguns in a sequence such that the source level of the array does not exceed 6 decibels (dB) per 5-minute period over a total duration of approximately 30 minutes. Again, the PSVOs would monitor the exclusion zones for marine mammals during this time and would initiate a power-down or a shutdown, as required by the IHA.

Comment 6: Extend the monitoring period to at least one hour before initiation of seismic activities and at least one hour before the resumption of airgun activities after a shutdown because of a marine mammal sighting within an exclusion zone.

Response: As the Commission points out, several species of deep-diving cetaceans are capable of remaining underwater for more than 30 minutes; however, for the following reasons NMFS believes that 30 minutes is an adequate length for the monitoring period prior to the start-up of airguns:

(1) Because the *Langseth* is required to monitor before ramp-up of the airgun array, the time of monitoring prior to start-up of any but the smallest array is effectively longer than 30 minutes (ramp-up will begin with the smallest airgun in the array and airguns will be added in sequence such that the source level of the array will increase in steps not exceeding approximately 6 dB per 5-minute period over a total duration of 20 to 30 minutes);

(2) In many cases PSVOs are observing during times when L–DEO is not operating the seismic airguns and would actually observe the area prior to the 30-minute observation period anyway;

(3) The majority of the species that may be exposed do not stay underwater more than 30 minutes; and

(4) All else being equal and if deep-diving individuals happened to be in the area in the short time immediately prior to the pre-start-up monitoring, if an animal's maximum underwater dive time is 45 minutes, then there is only a one in three chance that the last random surfacing would occur prior to the beginning of the required 30-minute monitoring period and that the animal would not be seen during that 30-minute period.

Also, seismic vessels are moving continuously (because of the long, towed array) and NMFS believes that unless the animal submerges and follows at the speed of the vessel (highly unlikely, especially when considering that a significant part of their movements is vertical [deep-diving]), the vessel will be far beyond the length of the exclusion zone radii within 30 minutes, and therefore it will be safe to start the airguns again.

The effectiveness of monitoring is science-based and the requirement that mitigation measures be "practicable." NMFS believes that the framework for visual monitoring will: (1) Be effective at spotting almost all species for which take is requested; and (2) that imposing additional requirements, such as those suggested by the Commission, would not meaningfully increase the effectiveness of observing marine mammals approaching or entering the EZs and thus further minimize the potential for take.

Comment 7: The Commission recommends that, before issuing the requested IHA, NMFS require that observers collect and analyze data on the effectiveness of ramp-up as a mitigation measures during all such procedures.

Response: The IHA requires that PSVOs on the *Langseth* make observations for 30 minutes prior to ramp-up, during all ramp-ups, and during all daytime seismic operations and record the following information when a marine mammal is sighted:

(i) Species, group size, age/size/sex categories (if determinable), behavior

when first sighted and after initial sighting, heading (if consistent), bearing and distance from seismic vessel, sighting cue, apparent reaction to the airguns or vessel (e.g., none, avoidance, approach, paralleling, etc., and including responses to ramp-up), and behavioral pace; and

(ii) Time, location, heading, speed, activity of the vessel (including number of airguns operating and whether in state of ramp-up or power-down), Beaufort wind force sea state, visibility, and sun glare.

One of the primary purposes of monitoring is to result in "increased knowledge of the species" and the effectiveness of monitoring and mitigation measures; the effectiveness of marine mammals reaction to ramp-up would be useful information in this regard. NMFS has asked NSF and L–DEO to gather all data that could potentially provide information regarding the effectiveness of ramp-ups as a mitigation measure. However, considering the low numbers of marine mammal sightings and low numbers of ramp-ups, it is unlikely that the information will result in any statistically robust conclusions for this particular seismic survey. Over the long term, these requirements may provide information regarding the effectiveness of ramp-up as a mitigation measure, provided animals are detected during ramp-up.

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

Twenty-eight marine mammal species may seasonally occur in the survey area, including 20 odontocetes (toothed cetaceans), 6 mysticetes (baleen whales) and two pinnipeds. Of these, 19 cetacean species are likely to occur in the survey area in the ETP during April through June. Five of these species are listed as endangered under the ESA, including the humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), fin (*Balaenoptera physalus*), blue (*Balaenoptera musculus*), and sperm (*Physeter macrocephalus*) whale.

The species of marine mammals expected to be most common in the survey area (all delphinids) include the short-beaked common dolphin (*Delphinus delphis*), spinner dolphin (*Stenella longirostris*), pantropical spotted dolphin (*Stenella attenuata*), striped dolphin (*Stenella coeruleoalba*), melon-headed whale (*Peponocephala electra*), and bottlenose dolphin (Tursiops truncatus).

Two pinnipeds, the California sea lion (*Zalophus californianus*) and the Galápagos sea lion (*Zalophus wollebaeki*), have the potential to transit in the vicinity of the seismic survey, although any occurrence would be rare as they are vagrants to the area. Accordingly, the IHA only addresses requested take authorizations for mysticetes and odontocetes.

NMFS has presented a more detailed discussion of the status of these stocks and their occurrence in the northeastern Pacific Ocean, as well as other marine mammal species that occur in area offshore Costa Rica in the notice of the proposed IHA (76 FR 6430, February 4, 2011).

Potential Effects on Marine Mammals

Acoustic stimuli generated by the operation of the airguns, which introduce sound into the marine environment, may have the potential to cause Level B harassment of marine mammals in the survey area. The effects of sounds from airgun operations might include one of the following: tolerance, masking of natural sounds, behavioral disturbance, temporary or permanent 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, would 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 project would 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, but NMFS expects the disturbance to be localized and short-term.

The notice of the proposed IHA (76 FR 6430, February 4, 2011) included a discussion of the effects of sounds from airguns on mysticetes and odontocetes including tolerance, masking, behavioral disturbance, hearing impairment, and other non-auditory physical effects. NMFS refers the reader to L–DEO's application, environmental analysis and NMFS' EA for additional information on the behavioral reactions (or lack thereof) by all types of marine mammals to seismic vessels.

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 physiological and behavioral effects on marine fish and invertebrates in the notice of the proposed IHA (76 FR 6430, February 4, 2011). 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 reversible which NMFS considered in further detail in the notice of the proposed IHA (76 FR 6430, February 4, 2011) as behavioral modification. The main impact associated with the activity would 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 adverse 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.

L–DEO has based the mitigation measures described herein, to be implemented for the seismic survey, on the following:

(1) Protocols used during previous L–DEO seismic research cruises as approved by NMFS;

(2) Previous IHA applications and IHAs approved and authorized by NMFS; and

(3) Recommended best practices in Richardson *et al.* (1995), Pierson *et al.* (1998), and Weir and Dolman, (2007).

To reduce the potential for disturbance from acoustic stimuli associated with the activities, L–DEO and/or its designees would implement the following mitigation measures for marine mammals:

(1) Exclusion zones;

(2) Power-down procedures;

(3) Shutdown procedures; and

(4) Ramp-up procedures.

Exclusion Zones—L–DEO uses safety radii to designate exclusion zones (EZ) and to estimate take for marine mammals. Table 1 shows the distances at which two sound levels (160- and 180-dB) are expected to be received from the 18-airgun subarray and a single airgun. NMFS (1995, 2000) concluded that cetaceans should not be exposed to pulsed underwater noise at received levels exceeding 180 dB re: 1 μPa. NMFS believes that to avoid the potential for permanent physiological damage (Level A harassment), cetaceans should not be exposed to pulsed underwater noise at received levels exceeding 180 dB re: 1 μPa. The 180-dB level is a shutdown criterion applicable

to cetaceans, as specified by NMFS (2000). NMFS also assumes that cetaceans exposed to levels exceeding 160 dB re: 1 μPa (rms) may experience Level B harassment. L–DEO used these levels to establish the EZ.

If the protected species visual observer (PSVO) detects marine mammal(s) within or about to enter the appropriate exclusion zone, the *Langseth* crew will immediately power down the airgun subarrays, or perform a shut down if necessary (see Shut-down Procedures).

TABLE 1—PREDICTED DISTANCES TO WHICH SOUND LEVELS ≥, 180, AND 160 dB RE: 1 μPa_{rms} COULD BE RECEIVED DURING THE SURVEY USING A 18-AIRGUN SUBARRAY, AS WELL AS A SINGLE AIRGUN TOWED AT A DEPTH OF 7 M IN THE ETP DURING APRIL–MAY, 2011

[Distances are based on model results provided by L–DEO.]

Source and volume	Water depth	Predicted RMS distances (m)	
		180 dB	160 dB
Single Bolt airgun (40 in³)	Shallow < 100 m	296	1,050
	Intermediate 100–1,000 m	60	578
	Deep > 1,000 m	40	385
18-Airgun subarray (3,300 in³)	Shallow < 100 m	1,030	* 19,500
	Intermediate 100–1,000 m	675	5,700
	Deep > 1,000 m	450	3,800

* This is likely an overestimate, as the measured distance for the 36-airgun array operating in shallow waters of the northern Gulf of Mexico was 17,500 m (17.5 km).

Power-down Procedures—A power-down involves decreasing the number of airguns in use such that the radius of the 180-dB zone is decreased to the extent that marine mammals are no longer in or about to enter the EZ. A power down of the airgun subarray can also occur when the vessel is moving from one seismic line to another. During a power-down for mitigation, L–DEO will operate one airgun. The continued operation of one airgun is intended to alert marine mammals to the presence of the seismic vessel in the area. In contrast, a shut down occurs when the *Langseth* suspends all airgun activity.

If the PSVO detects a marine mammal outside the EZ, but it is likely to enter the EZ, L–DEO will power down the airguns before the animal is within the EZ. Likewise, if a mammal is already within the EZ, when first detected L–DEO will power down the airguns immediately. During a power down of the airgun array, L–DEO will also operate the 40-in³ airgun. If a marine mammal is detected within or near the smaller EZ around that single airgun (Table 1), L–DEO will shut down the airgun (see next section).

Following a power-down, L–DEO will not resume airgun activity until the marine mammal has cleared the safety zone. L–DEO will consider the animal to have cleared the EZ if

- A PSVO has visually observed the animal leave the EZ, or
- A PSVO has not sighted the animal within the EZ for 15 min for small odontocetes, or 30 min for mysticetes and large odontocetes, including sperm, pygmy sperm, dwarf sperm, and beaked whales.

During airgun operations following a power-down (or shut-down) whose duration has exceeded the time limits specified previously, L–DEO will ramp-up the airgun array gradually (see Shut-down Procedures).

Shut-down Procedures—L–DEO will shut down the operating airgun(s) if a marine mammal is seen within or approaching the EZ for the single airgun. L–DEO will implement a shut-down:

(1) If an animal enters the EZ of the single airgun after L–DEO has initiated a power down, or (2) If a an animal is initially seen within the EZ of the single airgun when more than one airgun (typically the full airgun array) is operating.

L–DEO will not resume airgun activity until the marine mammal has cleared the EZ, or until the PSVO is confident that the animal has left the vicinity of the vessel. Criteria for judging that the animal has cleared the EZ will be as described in the preceding section.

Ramp-up Procedures—L–DEO will follow a ramp-up procedure when the airgun subarrays begin operating after a specified period without airgun operations or when a power down has exceeded that period. L–DEO proposes that, for the present cruise, this period would be approximately eight minutes. This period is based on the 180-dB radius for the 18-airgun subarray towed at a depth of seven m (23 ft) in relation to the minimum planned speed of the Langseth while shooting (8.5 km/h; 5.3 mph; 4.6 knots). L–DEO has used similar periods (8–10 min) during previous L–DEO surveys.

Ramp-up will begin with the smallest airgun in the array (40-in³). Airguns will be added in a sequence such that the source level of the array will increase in steps not exceeding six dB per five-minute period over a total duration of approximately 30 min. During ramp-up, the PSVOs will monitor the EZ, and if marine mammals are sighted, L–DEO will implement a power down or shut down as though the full airgun array were operational.

If the complete EZ has not been visible for at least 30 minutes prior to the start of operations in either daylight or nighttime, L–DEO will not commence the ramp-up unless at least one airgun (40-in³ or similar) has been operating during the interruption of seismic survey operations. Given these provisions, it is likely that the airgun array will not be ramped up from a complete shut-down at night or in thick fog, because the outer part of the safety zone for that array will not be visible during those conditions. If one airgun has operated during a power-down period, ramp-up to full power will be permissible at night or in poor visibility, on the assumption that marine mammals will be alerted to the approaching seismic vessel by the sounds from the single airgun and could move away. L–DEO will not initiate a ramp-up of the airguns if a marine mammal is sighted within or near the applicable EZs during the day or close to the vessel at night.

NMFS has carefully evaluated the applicant's proposed 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 adverse impact on the affected marine mammal species and stocks and their habitat. Our 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.

Based on our evaluation of the applicant's proposed 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 adverse impacts on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for IHAs 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.

Monitoring

L–DEO would sponsor marine mammal monitoring during the present project, in order to implement the mitigation measures that require real-time monitoring, and to satisfy the anticipated monitoring requirements of the IHA. L–DEO's Monitoring Plan is described below this section. The monitoring work described here has been planned as a self-contained project independent of any other related monitoring projects that may be occurring simultaneously in the same regions. L–DEO is prepared to discuss coordination of its monitoring program with any related work that might be done by other groups insofar as this is practical and desirable.

Vessel-based Visual Monitoring

L–DEO's PSVOs will be based aboard the seismic source vessel and will watch for marine mammals near the vessel during daytime airgun operations and during any start-ups at night. PSVOs will also watch for marine mammals near the seismic vessel for at least 30 min prior to the start of airgun operations after an extended shut down.

PSVOs will conduct observations during daytime periods when the seismic system is not operating for comparison of sighting rates and behavior with and without airgun operations and between acquisition periods. Based on PSVO observations, the airguns will be powered down or shut down when marine mammals are observed within or about to enter a designated EZ.

During seismic operations off Costa Rica, at least three PSVOs will be based aboard the *Langseth.* L–DEO will appoint the PSVOs with NMFS' concurrence. During all daytime periods, two PSVOs will be on duty from the observation tower to monitor and PSVOs will be on duty in shifts of duration no longer than four hours.

During mealtimes it is sometimes difficult to have two PSVOs on effort, but at least one PSVO will be on watch during bathroom breaks and mealtimes. Use of two simultaneous observers increases the effectiveness of detecting animals near the source vessel. However, during meal times, only one PSVO may be on duty.

Two PSVOs will also be on visual watch during all nighttime start-ups of the seismic airguns. A third PSVO will monitor the PAM equipment 24 hours a day to detect vocalizing marine mammals present in the action area. In summary, a typical daytime cruise would have scheduled two PSVOs on duty from the observation tower, and a third PSVO on PAM.

L–DEO will also instruct other crew to assist in detecting marine mammals and implementing mitigation requirements (if practical). Before the start of the seismic survey, L–DEO will give the crew additional instruction regarding how to accomplish this task.

The *Langseth* is a suitable platform for marine mammal observations. When stationed on the observation platform, the eye level will be approximately 21.5 m (70.5 ft) above sea level, and the observer will have a good view around the entire vessel. During daytime, the PSVOs will scan the area around the vessel systematically with reticle binoculars (e.g., 7 × 50 Fujinon), Big-eye binoculars (25 × 150), and with the naked eye. During darkness, night vision devices (NVDs) will be available (ITT F500 Series Generation 3 binocular-image intensifier or equivalent), when required. Laser range-finding binoculars (Leica LRF 1200 laser rangefinder or equivalent) will be available to assist with distance estimation. Those are useful in training observers to estimate distances visually, but are generally not useful in measuring distances to animals directly; that is done primarily with the reticles in the binoculars.

Passive Acoustic Monitoring

Passive Acoustic Monitoring (PAM) will complement the visual monitoring program, when practicable. Visual monitoring typically is not effective during periods of poor visibility or at night, and even with good visibility, is unable to detect marine mammals when they are below the surface or beyond visual range.

Besides the three PSVOs, an additional acoustic Protected Species Observer (PSO) with primary responsibility for PAM will also be aboard the vessel. L–DEO can use acoustical monitoring in addition to visual observations to improve detection, identification, and localization of cetaceans. The acoustic monitoring will serve to alert visual observers (if on duty) when vocalizing cetaceans are detected. It is only useful when marine mammals call, but it can be effective either by day or by night, and does not depend on good visibility. It will be monitored in real time so that the visual observers can be advised when cetaceans are detected. When bearings (primary and mirror-image) to calling cetacean(s) are determined, the bearings will be relayed to the visual observer to help him/her sight the calling animal(s).

The PAM system consists of hardware (i.e., hydrophones) and software. The "wet end" of the system consists of a towed hydrophone array that is connected to the vessel by a cable. The lead in from the hydrophone array is approximately 400 m (1,312 ft) long, the active section of the array is approximately 56 m (184 ft) long, and the hydrophone array is typically towed at depths of less than 20 m (66 ft).

The deck cable is connected from the array to a computer in the laboratory where signal conditioning and processing takes place. The digitized signal is then sent to the main laboratory, where the acoustic PSO monitors the system.

The acoustic PSO will monitor the towed hydrophones 24 h per day during airgun operations and during most periods when the *Langseth* is underway while the airguns are not operating. However, PAM may not be possible if damage occurs to both the primary and back-up hydrophone the arrays during operations. The primary PAM streamer on the Langseth is a digital hydrophone streamer. Should the digital streamer fail, back-up systems should include an analog spare streamer and a hull-

mounted hydrophone. Every effort would be made to have a working PAM system during the cruise. In the unlikely event that all three of these systems were to fail, L–DEO would continue science acquisition with the visual-based observer program. The PAM system is a supplementary enhancement to the visual monitoring program. If weather conditions were to prevent the use of PAM then conditions would also likely prevent the use of the airgun array.

One acoustic PSO will monitor the acoustic detection system at any one time, by listening to the signals from two channels via headphones and/or speakers and watching the real-time spectrographic display for frequency ranges produced by cetaceans. Acoustic PSOs monitoring the acoustical data will be on shift for one to six hours at a time. Besides the PSVO, an additional acoustic PSO with primary responsibility for PAM will also be aboard the source vessel. All PSVOs are expected to rotate through the PAM position, although the most experienced with acoustics will be on PAM duty more frequently.

When a vocalization is detected while visual observations are in progress, the acoustic PSO will contact the visual PSVO immediately, to alert him/her to the presence of cetaceans (if they have not already been seen), and to allow a power down or shut down to be initiated, if required. The information regarding the call will be entered into a database. Data entry will include an acoustic encounter identification number, whether it was linked with a visual sighting, date, time when first and last heard and whenever any additional information was recorded, position and water depth when first detected, bearing if determinable, species or species group (e.g., unidentified dolphin, sperm whale), types and nature of sounds heard (e.g., clicks, continuous, sporadic, whistles, creaks, burst pulses, strength of signal, etc.), and any other notable information. The acoustic detection can also be recorded for further analysis.

PSVO Data and Documentation

PSVOs 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 power down or shut down of the airguns when a marine mammal is within or near the EZ.

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 seismic vessel, sighting cue, apparent reaction to the airguns or vessel (e.g., none, avoidance, approach, paralleling, etc.), and behavioral pace.

2. Time, location, heading, speed, activity of the vessel, sea state, 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 and power downs or shut downs will be recorded in a standardized format. Data will be entered into an electronic database. The accuracy of the data entry will be verified by computerized data validity checks as the data are entered and by subsequent manual checking of the database. These procedures will allow initial summaries of data to be prepared during and shortly after the field program, and will facilitate transfer of the data to statistical, graphical, and other programs for further processing and archiving.

Results from the vessel-based observations will provide:

1. The basis for real-time mitigation (airgun power down or 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 and turtles in the area where the seismic study is conducted.

4. Information to compare the distance and distribution of marine mammals and turtles relative to the source vessel at times with and without seismic activity.

5. Data on the behavior and movement patterns of marine mammals seen at times with and without seismic activity.

L–DEO will submit a report to NMFS and NSF within 90 days after the end of the cruise. The report will describe the operations that were conducted and sightings of marine mammals and turtles near the operations. The report will provide full documentation of methods, results, and interpretation pertaining to all monitoring. The 90-day report will summarize the dates and locations of seismic operations, and all marine mammal sightings (dates, times, locations, activities, associated seismic survey activities). 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.

L–DEO will report all injured or dead marine mammals (regardless of cause) to NMFS as soon as practicable. The report should include the species or description of the animal, the condition of the animal, location, time first found, observed behaviors (if alive) and photo or video, if available.

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].

Only take by Level B harassment is anticipated and authorized as a result of the marine geophysical survey off Costa Rica. Acoustic stimuli (*i.e.,* increased underwater sound) generated during the operation of the seismic airgun array, may have the potential to cause marine mammals in the survey area to be exposed to sounds at or greater than 160 decibels (dB) or cause temporary, short-term changes in behavior. There is no evidence that the planned activities are likely to result in injury, serious injury or mortality to marine mammals within the specified geographic area for which NMFS has issued the IHA. Take by injury, serious injury or mortality is thus neither anticipated nor authorized. NMFS has determined that the he required mitigation and monitoring measures will minimize any potential risk for injury, serious injury or mortality.

NMFS included an in-depth discussion of the methods used to calculate the densities of the marine mammals in the area of the seismic survey in a previous notice for the proposed IHA (76 FR 6430, February 4, 2011). A summary is included here.

L–DEO's estimates are based on a consideration of the number of marine mammals that could be disturbed appreciably by operations with the 18-airgun subarray to be used during approximately 2,145 km (1,333 mi) of survey lines with an additional 365 km (227 mi) of turns offshore Costa Rica.

Density data on the marine mammal species in the proposed survey area are

available from extensive ship-based surveys for marine mammals in the ETP conducted by NMFS' Southwest Fisheries Science Center (SWFSC). L–DEO used densities from two sources: (1) The SWFSC's habitat models that predict density for 15 cetacean species in the ETP; and (2) densities from the surveys conducted during summer and fall 1986–1996, as summarized by Ferguson and Barlow (2001, 2003) for species sighted in SWFSC surveys whose sample sizes were too small to model density.

For the predictive models, the SWFSC developed habitat modeling as a method to estimate cetacean densities on a finer spatial scale compared to traditional line-transect analyses by using a continuous function of habitat variables, e.g., sea surface temperature, depth, distance from shore, and prey density (Barlow *et al.,* 2009). The SWFSC incorporated the models into a web-based Geographic Information System (GIS) developed by Duke University's Department of Defense Strategic Environmental Research and Development Program (SERDP) team and L–DEO used the GIS to obtain mean and maximum densities for 11 cetacean species in the model in the proposed survey area.

L–DEO also used the densities calculated from Ferguson and Barlow (2003) for 5° x 5° blocks that include the proposed survey area (Block 138) and blocks adjacent to 138 that include coastal waters: Blocks 119, 137, 138, 139, 158, and 159. Those blocks included 18,385 km (11,423 mi) of survey effort in Beaufort sea states 0–5, and 3,899 square kilometers (km^2) (1,505 square miles (mi^2)) of survey effort in Beaufort sea states 0–2. L–DEO also obtained densities for an additional seven species that were sighted in one or more of those blocks.

For two endangered species for which there are only unconfirmed sightings in the region, the sei and fin whales, L–DEO assigned low density values (equal to the density of the species with the lowest calculated density). The false killer whale has been sighted near the survey area but not in the seven blocks of Ferguson and Barlow (2003), so it was also assigned the same low density value.

Oceanographic conditions, including occasional El Niño and La Niña events, influence the distribution and numbers of marine mammals present in the ETP, resulting in considerable year-to-year variation in the distribution and abundance of many marine mammal species (e.g., Escorza-Trevino, 2009). Thus, for some species the densities derived from recent surveys may not be representative of the densities that will be encountered during the proposed seismic survey.

L–DEO's estimates of exposures to various sound levels assume that the proposed surveys will be completed. As is typical during offshore ship surveys, inclement weather and equipment malfunctions are likely to cause delays and may limit the number of useful line-kilometers of seismic operations that can be undertaken. L–DEO has included an additional 25 percent of line transects to account for mission uncertainty and follow a precautionary approach. Furthermore, any marine mammal sightings within or near the designated exclusion zones will result in the power down or shut down of seismic operations as a mitigation measure. Thus, the following estimates of the numbers of marine mammals potentially exposed to sound levels of 160 dB re: 1 μPa are precautionary and probably overestimate the actual numbers of marine mammals that might be involved. These estimates also assume that there will be no weather, equipment, or mitigation delays, which is highly unlikely.

L–DEO estimated the number of different individuals that may be exposed to airgun sounds with received levels greater than or equal to 160 dB re: 1 μPa on one or more occasions by considering the total marine area that would be within the 160-dB radius around the operating airgun array on at least one occasion and the expected density of marine mammals. The number of possible exposures (including repeated exposures of the same individuals) can be estimated by considering the total marine area that would be within the 160-dB radius around the operating airguns, including areas of overlap. In the planned survey, the seismic lines are parallel and in close proximity; thus individuals could be exposed on two or more occasions. The area including overlap is 31.9 times the area excluding overlap. Thus a marine mammal that stayed in the survey area during the entire survey could be exposed 32 times (14 times), on average. Given the pattern of the seismic lines, the interval between exposures of a stationary animal would be approximately 18 hours. Moreover, it is unlikely that a particular animal would stay in the area during the entire survey. The number of different individuals potentially exposed to received levels greater than or equal to 160 re: 1 μPa was calculated by multiplying:

(1) The expected species density, either "mean" (i.e., best estimate) or "maximum", times

(2) The anticipated area to be ensonified to that level during airgun operations excluding overlap, which is approximately 3,225 km^2 (2,003 mi^2).

The area expected to be ensonified was determined by entering the planned survey lines into a MapInfo Geographic Information System (GIS), using the GIS to identify the relevant areas by "drawing" the applicable 160-dB buffer (see Table 1) around each seismic line, and then calculating the total area within the buffers. Areas of overlap were included only once when estimating the number of individuals exposed. Applying this approach, approximately 3,225 km^2 (1,245 mi^2) would be within the 160-dB isopleth on one or more occasions during the survey. Because this approach does not allow for turnover in the mammal populations in the study area during the course of the survey, the actual number of individuals exposed could be underestimated. However, the approach assumes that no cetaceans will move away from or toward the trackline as the *Langseth* approaches in response to increasing sound levels prior to the time the levels reach 160 dB, which will result in overestimates for those species known to avoid seismic vessels.

The total 'maximum estimate' of the number of individual cetaceans that could be exposed to seismic sounds with received levels greater than or equal to 160 dB re: 1 μPa during the proposed survey is 7,078 (*see* Table 2). That total includes 38 species of baleen whales, four of which are endangered including: 18 humpback whales or 1.2 percent of the regional population; one sei whale, one fin whale (less than 0.01 percent); and eight blue whales (0.6 percent). In addition, 40 sperm whales (also listed as endangered under the ESA) or 0.15 percent of the regional population could be exposed during the survey, and 19 beaked whales. Most (97 percent) of the cetaceans that could be potentially exposed are delphinids (e.g., short-beaked common, striped, pantropical spotted, striped and spinner dolphins) with maximum estimates ranging from two to 3,077 exposed to levels greater than or equal to 160 dB re: 1 μPa.

TABLE 2—ESTIMATES OF THE POSSIBLE NUMBERS OF MARINE MAMMALS EXPOSED TO DIFFERENT SOUND LEVELS DURING L–DEO'S SEISMIC SURVEY IN THE ETP DURING APRIL–JUNE, 2011

Species	Estimated number of individuals exposed to sound levels ≥ 160 dB re: 1 μPa (maximum)	Approximate percent of regional population (maximum)	Authorized take
Humpback whale	18	1.29%	18
Bryde's whale	10	0.08%	10
Sei whale	0	Not Available	0
Fin whale	0	0.04%	0
Blue whale	8	0.57%	8
Sperm whale	40	0.15%	40
Pygmy/Dwarf sperm whale	0	0.00%	0
Cuvier's beaked whale	15	0.08%	15
Mesoplodon spp.	4	0.01%	4
Rough-toothed dolphin	45	0.04%	45
Bottlenose dolphin	366	0.11%	366
Pantropical spotted dolphin	954	0.06%	954
Spinner dolphin	1,468	0.08%	1,468
Striped dolphin	622	0.06%	622
Short-beaked common dolphin	3,077	0.10%	3,077
Risso's dolphin	91	0.08%	91
Melon-headed whale	233	0.57%	[2] 258
Pygmy killer whale	9	0.08%	[2] 30
False killer whale	0	0.00%	0
Killer whale	2	0.06%	52
Short-finned pilot whale	114	0.02%	114

[1] Maximum estimates are based on densities from Table 3 in L–DEO's application. Takes are not anticipated for the minke whale and Fraser's dolphin.

[2] Requested Take Authorization increased to mean group size in the ETP for baleen whales (Jackson *et al.* 2008) and delphinids (Ferguson *et al.* 2006).

Negligible Impact and Small Numbers Analysis and Determination

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

(1) The number of anticipated mortalities;

(2) The number and nature of anticipated injuries;

(3) The number, nature, and intensity, and duration of Level B harassment; and

(4) The context in which the takes occur.

For reasons stated previously in this document, and in the proposed notice of an IHA (76 FR 6430, February 4, 2011), the specified activities associated with the survey are not likely to cause temporary threshold shift, permanent threshold shift, or other non-auditory injury, serious injury, or death to affected marine mammals because:

(1) The likelihood that, given sufficient notice through relatively slow ship speed, 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 very low and would likely be avoided through the incorporation of the proposed monitoring and mitigation measures;

(3) The fact that cetaceans would have to be closer than 450 m (1,476 ft) in deep water when the 18-airgun subarray is in use at a 7 m (23 ft)) tow depth from the vessel to be exposed to levels of sound believed to have even a minimal chance of causing permanent threshold shift;

(4) The fact that marine mammals would have to be closer than 3,800 m (2.4 mi) in deep water when the full array is in use at a 7 m (23 ft) tow depth from the vessel to be exposed to levels of sound (160 dB) believed to have even a minimal chance at causing hearing impairment; and

(5) The likelihood that marine mammal detection ability by trained observers is high at close proximity from the vessel.

No injuries, serious injuries or mortalities are anticipated to occur as a result of the L–DEO's planned marine geophysical survey, and none are authorized. Only short-term behavioral disturbance is anticipated to occur due to the brief and sporadic duration of the survey activities. Since no injury, serious injury or mortality is expected to occur, and due to the limited nature, degree, and context of behavioral harassment anticipated, the activity is not expected to impact rates of recruitment or survival for any affected stock or species.

While the number of marine mammals potentially incidentally harassed would depend on the distribution and abundance of marine mammals in the vicinity of the survey activity, the number of potential Level B incidental harassment takings (*see* Table 2) is estimated to be small, less than two percent of any of the estimated population sizes based on the data disclosed in Table 2 of this notice.

Based on the analysis contained in this notice 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 the total amount of take by Level B harassment authorized by the IHA issued for L–DEO's seismic survey activities described in this notice within the ETP off Costa Rica will have a negligible impact on the affected species or stocks of marine mammals; and that impacts to affected species or stocks of marine mammals have been mitigated to the lowest level practicable.

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

There are no relevant subsistence uses of marine mammals in the survey area. Thus, the provision requiring that the activity not have an unmitigable impact on the availability of the affected species or stock of marine mammals for subsistence uses is not implicated for this specified activity.

Endangered Species Act

Of the species of marine mammals that may occur in the proposed survey area, five are listed as endangered under the ESA, including the humpback, sei, fin, blue, and sperm whales. Under section 7 of the ESA, NSF had initiated formal consultation with the NMFS, Office of Protected Resources, Endangered Species Division, on this seismic survey. NMFS' Office of Protected Resources, Permits, Conservation and Education Division, also initiated formal consultation under section 7 of the ESA with NMFS' Office of Protected Resources, Endangered Species Division, to obtain a Biological Opinion (BiOp) evaluating the effects of issuing the IHA on threatened and endangered marine mammals and, if appropriate, authorizing incidental take. April, 2011, NMFS issued a BiOp and concluded that the action and issuance of the IHA are not likely to jeopardize the continued existence of the humpback, sei, fin, blue, and sperm whales and leatherback (*Dermochelys coriacea*), green (*Chelonia mydas*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), and olive ridley (*Lepidochelys olivacea*) sea turtles. The BiOp also concluded that designated critical habitat for these species does not occur in the action area and would not be affected by the survey. L–DEO must comply with the Relevant Terms and Conditions of the Incidental Take Statement corresponding to NMFS' BiOp issued to both NSF and NMFS' Office of Protected Resources. L–DEO must also comply with the mitigation and monitoring requirements included in the IHA in order to be exempt under the Incidental Take Statement (ITS) in the BiOp from the prohibition on take of listed endangered marine mammals species otherwise prohibited by Section 9 of the ESA.

National Environmental Policy Act (NEPA)

To meet NMFS' NEPA requirements for the issuance of an IHA to L–DEO, NMFS has prepared an Environmental Assessment (EA) titled "Issuance of an Incidental Harassment Authorization to the Lamont-Doherty Earth Observatory to Take Marine Mammals by Harassment Incidental to a Marine Geophysical Survey on the Shatsky Rise in the Northwest Pacific Ocean, July-September 2010." This EA incorporates the NSF's Environmental Analysis Pursuant To Executive Order 12114 (NSF, 2010) and an associated report (Report) prepared by LGL Limited Environmental Research Associates (LGL) for NSF, titled, "Environmental Assessment of a Marine Geophysical Survey by the R/V Marcus G. Langseth on the Shatsky Rise in the Northwest Pacific Ocean, July—September, 2010, (LGL, 2010)" by reference pursuant to 40 CFR 1502.21 and NOAA Administrative Order (NAO) 216–6 § 5.09(d). NMFS provided relevant environmental information to the public through the notice published on February 4, 2011, and has considered public comments received in response prior to finalizing its EA and deciding whether or not to issue a Finding of No Significant Impact (FONSI). NMFS' EA evaluated the impacts on the human environment of NMFS' authorization of incidental Level B harassment resulting from the specified activity in the specified geographic region. NMFS has concluded that issuance of an IHA would not significantly affect the quality of the human environment and has issued a FONSI. Because the NMFS has made a FONSI, it is not necessary to prepare an environmental impact statement for the issuance of an IHA to L–DEO for this activity. The EA and FONSI for this activity are available upon request (see **ADDRESSES**).

Authorization

NMFS has issued an IHA to L–DEO for the take by Level B harassment of small numbers of marine incidental to conducting a marine geophysical survey in the eastern tropical Pacific (ETP) Ocean off Costa Rica, April through June, 2011, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: April 6, 2011.

James H. Lecky,

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

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DEPARTMENT OF DEFENSE

Office of the Secretary

Cancellation Notice for the Advisory Council on Dependents' Education Meeting

AGENCY: Department of Defense Education Activity (DoDEA), DoD.

ACTION: Notice.

SUMMARY: The meeting of the Department of Defense Advisory Council on Dependents' Education announced on March 1, 2011 (76 FR 11211) under the provisions of the Federal Advisory Committee Act of 1972 (5 U.S.C., Appendix, as amended), and scheduled to occur on Friday, April 22, 2011, 7 a.m. to 12 p.m. Japan Standard Time has been cancelled.

FOR FURTHER INFORMATION CONTACT: Dr. Steve Schrankel at (703) 588–3109 or *Steve.Schrankel@hq.dodea.edu.*

Dated: April 6, 2011.

Morgan F. Park,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 2011–8634 Filed 4–11–11; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Office of the Secretary

Meeting of the Strategic Environmental Research and Development Program, Scientific Advisory Board

AGENCY: Department of Defense.

ACTION: Notice.

SUMMARY: This Notice is published in accordance with Section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92–463). The topic of the meeting on June 16, 2011 is to review continuing research and development projects requesting Strategic Environmental Research and Development Program funds in excess of $1M. This meeting is open to the public. Any interested person may attend, appear before, or file statements with the Scientific Advisory Board at the time and in the manner permitted by the Board.

DATES: Thursday, June 16, 2011 from 8 a.m. to 2:30 p.m.

ADDRESSES: SpringHill Suites by Marriott, Pamlico Room, 300 Hotel Drive, New Bern, NC 28562.

FOR FURTHER INFORMATION CONTACT: Mr. Jonathan Bunger, SERDP Office, 901 North Stuart Street, Suite 303, Arlington, VA or by telephone at (703) 696–2126.