Estimated Number of Respondents: 1,482.

Estimated Time per Response: Sector operations plan and associated National Environmental Policy Act (NEPA) analysis, 640 hr/response; Monitoring service provider initial application, 10 hr/response; Monitoring service provider response to application disapproval, 10 hr/response; Data entry for sector discard monitoring system, 3 min/response; Sector weekly catch report, 4 hr/response; Sector annual report, 12 hr/response; Notification of expulsion from a sector, 30 min/response; Request to transfer Annual Catch Entitlement (ACE), 5 min/response; VMS certification form, 10 min/response; VMS confirmation call, 5 min/response; VMS area and DAS declaration, 5 min/response; VMS trip-level catch report; VMS daily catch reports when fishing in multiple broad stock areas, 15 min/response; Daily VMS catch reports when fishing in the U.S./Canada Management Area and CA II SAPs, 15 min/response; Daily VMS catch reports when fishing in the CA I Hook Gear Haddock SAP, 15 min/response; Daily VMS catch reports when fishing in the Regular B DAS Program, 15 min/response; Pre-trip hail report, 2 min/response; Trip-end hail report, 15 min/response; Forward trip start/end hails to NMFS, 2 min/response; ASM Pre-Trip Notification, 2 min/response; Vessel notification of selection for at-sea monitoring coverage, 5 min/response; at-sea monitor deployment report, 10 min/response; at-sea monitoring service provider catch report to NMFS upon request, 5 min/response; at-sea monitor report of harassment and other issues, 30 min/response; at-sea monitoring service provider contract upon request, 30 min/response; at-sea monitoring service provider information materials upon request, 30 min/response; OLE debriefing of at-sea monitors, 2 hr/response; ASM Database and Data Entry Requirements, 3 min/response; Observer program pre-trip notification, 2 min/response; DAS Transfer Program, 5 min/response; Expedited Submission of Proposed SAPs, 20 hr/response; NAFO Reporting Requirements, 10 min/response.

Estimated Total Annual Burden Hours: 81,126.

Estimated Total Annual Cost to Public: $ 4,298,000 in recordkeeping/reporting costs.

IV. Request for Comments

Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology.

Comments submitted in response to this notice will be summarized and/or included in the request for OMB approval of this information collection; they also will become a matter of public record.

Dated: May 19, 2015.

Sarah Brabson,

NOAA PRA Clearance Officer.

[FR Doc. 2015–12461 Filed 5–21–15; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XD727

Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Southwest Pacific Ocean, East of New Zealand, May to June 2015

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

ACTION: Notice; issuance of an Incidental Harassment Authorization (IHA).

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA), notification is hereby given that NMFS has issued an IHA to the Scripps Institution of Oceanography (SIO), on behalf of SIO and the U.S. National Science Foundation (NSF), to take marine mammals, by Level B harassment, incidental to conducting a low-energy marine geophysical (seismic) survey in the Southwest Pacific Ocean, East of New Zealand, May to June 2015.

DATES: Effective May 18, 2015 to July 30, 2015.

ADDRESSES: A copy of the IHA and the application are available by writing to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910 or by telephone to the contacts listed below (see **FOR FURTHER INFORMATION CONTACT**).

An electronic copy of the IHA application containing a list of the references used in this document may be obtained by writing to the address specified above, telephoning the contact listed here (see **FOR FURTHER INFORMATION CONTACT**) or visiting the Internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental/*. Documents cited in this notice, including the IHA application, may also be viewed by appointment, during regular business hours, at the aforementioned address.

An *Environmental Analysis of a Low-Energy Marine Geophysical Survey by the R/V Roger Revelle in the Southwest Pacific Ocean, East of New Zealand, May to June 2015* (Environmental Analysis) in accordance with the National Environmental Policy Act (NEPA) and the regulations published by the Council of Environmental Quality (CEQ), has been prepared on behalf of NSF and SIO. It is posted at the foregoing site. NMFS has independently evaluated the Environmental Analysis and has prepared a separate NEPA analysis titled *Environmental Assessment on the Issuance of an Incidental Harassment Authorization to the Scripps Institution of Oceanography to Take Marine Mammals by Harassment Incidental to a Low-Energy Marine Geophysical Survey in the Southwest Pacific Ocean, East of New Zealand, May to June 2015*. NMFS also issued a Biological Opinion under section 7 of the Endangered Species Act (ESA) to evaluate the effects of the low-energy seismic survey and IHA on marine species listed as threatened or endangered. The NMFS Biological Opinion is available online at: *http://www.nmfs.noaa.gov/pr/consultations/opinion.htm*.

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 incidental takings shall be granted if NMFS finds

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

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the 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's 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.

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 December 15, 2014, NMFS received an application from SIO, on behalf of SIO and NSF, requesting that NMFS issue an IHA for the take, by Level B harassment only, of small numbers of marine mammals incidental to conducting a low-energy marine seismic survey as well as heat-flow measurements in the Southwest Pacific Ocean, at three sites off the east coast of New Zealand, during May to June 2015. The sediment coring component of the planned project, which was described in the IHA application and NSF and SIO's Environmental Analysis, was not funded and no piston or gravity coring for seafloor samples would be conducted during the low-energy seismic survey. The low-energy seismic survey will take place within the Exclusive Economic Zone (EEZ) and outside the territorial waters of New Zealand. On behalf of SIO, the U.S. Department of State is seeking authorization from New Zealand for clearance to work within the EEZ.

The research will be conducted by Oregon State University and funded by the U.S. National Science Foundation (NSF). SIO plan to use one source vessel, the R/V *Roger Revelle* (*Revelle*), and a seismic airgun array and hydrophone streamer to collect seismic data in the Southwest Pacific Ocean, East of New Zealand. SIO plans to use conventional low-energy, seismic methodology to perform marine-based studies in the Southwest Pacific Ocean (see Figure 1). The studies will involve a low-energy seismic survey and heat-flow measurements from the seafloor to meet a number of research goals. In addition to the proposed operations of the seismic airgun array and hydrophone streamer, SIO intends to operate two additional acoustical data acquisition systems—a multi-beam echosounder and sub-bottom profiler continuously throughout the low-energy seismic survey. NMFS published a notice making preliminary determinations and proposing to issue an IHA on March 20, 2015 (80 FR 15060). The notice initiated a 30-day public comment period.

Acoustic stimuli (*i.e.,* increased underwater sound) generated during the operation of the seismic airgun array have the potential to cause behavioral disturbance for marine mammals in the proposed study area. This is the principal means of marine mammal taking associated with these activities, and SIO requested an authorization to take 35 species of marine mammals by Level B harassment. Take is not expected to result from the use of the multi-beam echosounder and sub-bottom profiler, as the brief exposure of marine mammals to one pulse, or small numbers of signals, to be generated by these instruments in this particular case as well as their characteristics (*e.g.,* narrow-shaped, downward-directed beam emitted from the bottom of the ship) is not likely to result in the harassment of marine mammals. Also, NMFS does not expect take to result from collision with the source vessel because it is a single vessel moving at a relatively slow, constant cruise speed of 5 knots ([kts]; 9.3 kilometers per hour [km/hr]; 5.8 miles per hour [mph]) during seismic acquisition within the study area, for a relatively short period of time (approximately 27 operational days). It is likely that any marine mammal will be able to avoid the vessel.

Description of the Specified Activity

Overview

SIO plans to use one source vessel, the *Revelle,* a two GI airgun array and one hydrophone streamer to conduct the conventional seismic survey as part of the NSF-funded research project *Collaborative Research: The Thermal Regime of the Hikurangi Subduction Zone and Shallow Slow Slip Events, New Zealand*. In addition to the airguns, SIO intends to conduct a bathymetric survey and heat-flow measurements at three sites off the southwest coast of North Island and northeast coast of South Island, New Zealand from the *Revelle* during the low-energy seismic survey.

Dates and Duration

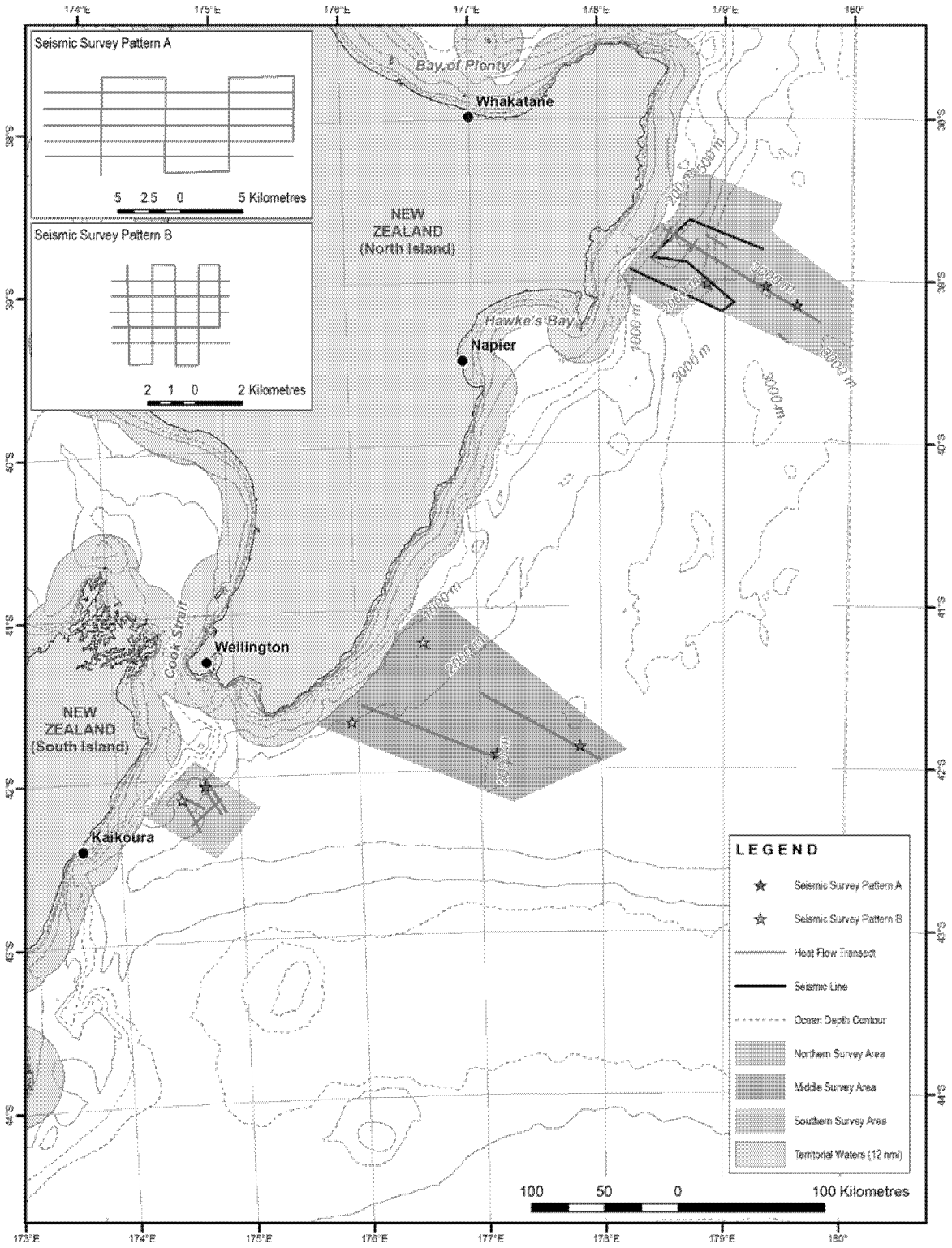
The *Revelle* is expected to depart from Auckland, New Zealand on approximately May 18, 2015 and arrive at Napier, New Zealand on approximately June 18, 2015. Airgun operations will take approximately 135 hours in total, and the remainder of the time will be spent in transit and collecting heat-flow measurements and cores. The total distance the *Revelle* will travel in the region to conduct the proposed research activities (*i.e.,* seismic survey, bathymetric survey, and transit to heat-flow measurement locations) represents approximately 2,000 km (1,079.9 nmi). Some minor deviation from this schedule is possible, depending on logistics and weather (*e.g.,* the cruise may depart earlier or be extended due to poor weather; or there could be additional days of airgun operations if collected data are deemed to be of substandard quality).

Specified Geographic Region

The planned project and survey sites are located off the southeast coast of North Island and northeast coast of the South Island, New Zealand in selected regions of the Southwest Pacific Ocean. The planned survey sites are located between approximately 38.5 to 42.5° South and approximately 174 to 180° East off the east coast of New Zealand, in the EEZ of New Zealand and outside of territorial waters (see Figure 1). Water depths in the study area are between approximately 200 to 3,000 m (656.2 to 9,842.5 ft). The proposed low-energy seismic survey will be collected in a total of nine grids of intersecting lines of two sizes (see Figure 1) at exact locations to be determined in the field during May to June 2015. Figure 1 also illustrates the general bathymetry of the proposed study area. The proposed low-energy seismic survey would be within an area of approximately 1,154 km^2

(336.5 nmi²). This estimate is based on the maximum number of kilometers for the low-energy seismic survey (1,250 km) multiplied by the area ensonified around the planned tracklines (2 x 0.6 km in intermediate water depths and 2 x 0.4 km in deep water depths). The ensonified area is based on the predicted rms radii (m) based on modeling and empirical measurements (assuming 100% use of the two 45 in³ GI airguns in 100 to 1,000 m or greater than 1,000 m water depths), which was calculated to be 600 m (1,968.5 ft) or 400 m (1,312.3 ft).

Figure 1. Locations of the planned low-energy seismic survey and heat-flow probe measurement sites east of New Zealand, May to June 2015.



Detailed Description of the Specified Activity

In support of a research project put forward by Oregon State University (OSU) and to be funded by NSF, SIO plans to conduct a low-energy seismic survey in the Southwest Pacific Ocean, East of New Zealand, from May to June 2015. In addition to the low-energy seismic survey, scientific research activities will include conducting a bathymetric profile survey of the seafloor using transducer-based instruments such as a multi-beam echosounder and sub-bottom profiler; and heat-flow measurements from the seafloor using various methods and equipment at three sites off the southeast coast of North Island and northeast coast of South Island, New Zealand. Water depths in the survey area are approximately 200 to 3,000 meters (m) (656.2 to 9,842.5 feet [ft]). The low-energy seismic survey is scheduled to occur for a total of approximately 135 hours over the course of the entire cruise, which would be for approximately 27 operational days in May to June 2015. The planned low-energy seismic survey will be conducted during the day (from nautical twilight-dawn to nautical twilight-dusk) and night, and for up to approximately 72 hours of continuous operations at a time. The operation hours and survey length will include equipment testing, ramp-up, line changes, and repeat coverage. Some minor deviation from these dates will be possible, depending on logistics and weather. The Principal Investigators are Dr. R. N. Harris and Dr. A. Trehu of OSU.

The planned surveys will allow the development of a process-based understanding of the thermal structure of the Hikurangi subduction zone, and the expansion of this understanding by using regional observations of gas hydrate-related bottom simulating reflections. To achieve the planned project's goals, the Principal Investigators plan to collect low-energy, high-resolution multi-channel system profiles, heat-flow measurements, and sediment cores along transects seaward and landward of the Hikurangi deformation front. Heat-flow measurements will be made in well-characterized sites, increasing the number of publicly available heat-flow and thermal conductivity measurements from this continental margin by two orders of magnitude. Seismic survey data will be used to produce sediment structural maps and seismic velocities to achieve the project objectives. Data from sediment cores will detect and estimate the nature and sources of fluid flow through high permeability pathways in the overriding plate and along the subduction thrust; characterize the hydrocarbon and gas hydrate system to assist with estimates of heat flow from Bottom Simulating Reflectors (BSR), their role in slope stability, and fluid source; and elucidate the response of microbes involved in carbon cycling to changes in methane flux.

The low-energy seismic survey will be collected in a total of 9 grids of intersecting lines of two sizes (see Figure 1) at exact locations to be determined in the field. The water depths will be very similar to those at the nominal survey locations shown in Figure 1. The northern and middle sites off the North Island will be the primary study areas, and the southern site off the South Island will be a contingency area that will only be surveyed if time permits. SIO's calculations assume that 7 grids at the primary areas and two grids at the southern site will be surveyed. The total trackline distance of the low-energy seismic survey will be approximately 1,250 km (including the two South Island contingency sites), almost all in water depths greater than 1,000 m.

The procedures to be used for the survey will be similar to those used during previous low-energy seismic surveys by SIO and NSF and will use conventional seismic methodology. The planned low-energy seismic survey would involve one source vessel, the *Revelle.* SIO will deploy a two Sercel Generator Injector (GI) airgun array (each with a discharge volume of 45 in^3 [290.3 cm^3], in one string, with a total volume of 90 in^3 [580.6 cm^3]) as an energy source, at a tow depth of up to 2 m (6.6 ft) below the surface (more information on the airguns can be found in SIO's IHA application). The airguns in the array will be spaced approximately 8 m (26.2 ft) apart and 21 m (68.9 ft) astern of the vessel. The receiving system will consist of one 600 m (1,968.5 ft) long, 48-channel hydrophone streamer(s) towed behind the vessel (see Table 1). Data acquisition is planned along a series of predetermined lines, almost all (approximately 95%) of which would be in water depths greater than 1,000 m. As the GI airguns are towed along the survey lines, the hydrophone streamer will receive the returning acoustic signals and transfer the data to the onboard processing system. The seismic surveys will be conducted while the heat-flow probe is being recharged. All planned seismic data acquisition activities will be conducted by technicians provided by SIO, with onboard assistance by the scientists who have proposed the study. The vessel will be self-contained, and the crew will live aboard the vessel for the entire cruise.

The planned low-energy seismic survey (including equipment testing, start-up, line changes, repeat coverage of any areas, and equipment recovery) will consist of approximately 1,250 kilometers (km) (674.9 nautical miles [nmi]) of transect lines (including turns) in the study area in the Southwest Pacific Ocean (see Figures 1 of the IHA application). Approximately 95% of the low-energy seismic survey will occur in water depths greater than 1,000 m. In addition to the operation of the airgun array and heat-flow measurements, a multi-beam echosounder and a sub-bottom profiler will also likely be operated from the *Revelle* continuously throughout the cruise. There will be additional airgun operations associated with equipment testing, ramp-up, and possible line changes or repeat coverage of any areas where initial data quality is sub-standard. In SIO's estimated take calculations, 25% has been added for those additional operations.

TABLE 1—PLANNED LOW-ENERGY SEISMIC SURVEY ACTIVITIES IN THE SOUTHWEST PACIFIC OCEAN, EAST OF NEW ZEALAND

Survey length (km)	Total duration (hr) [1]	Airgun array total volume	Time between airgun shots (distance)	Streamer length (m)
1,250 (674.9 nmi)	~135	2 x 45 = 90 in^3 (2 x 1474.8 cm^3)	6 to 10 seconds (18.5 to 31 m or 60.7 to 101.7 ft).	600 (1,968.5 ft)

[1] Airgun operations are planned for no more than approximately 72 continuous hours at a time.

NMFS outlined the purpose of the program in a previous notice of the proposed IHA (80 FR 15060, March 20, 2015). 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, metrics, characteristics of airgun pulses, predicted sound levels of airguns, bathymetric survey, heat-flow measurements, etc., we refer the reader to the notice of the proposed IHA (80 FR 15060, March 20, 2015), the IHA application, EA, and associated documents referenced above this section.

Comments and Responses

A notice of preliminary determinations and proposed IHA for SIO's low-energy seismic survey was published in the **Federal Register** on March 20, 2015 (80 FR 15060). During the 30-day public comment period, NMFS received comments from one private citizen, Dr. Elisabeth Slooten of Otago University, and the Marine Mammal Commission (Commission). The comments are posted online at: *http://www.nmfs.noaa.gov/pr/permits/incidental/*. Following are the substantive comments and NMFS's responses:

Comment 1: The Commission recommends that NMFS adjust density estimates used to estimate the numbers of potential takes by incorporating some measure of uncertainty when available density data originate from other geographical areas and temporal scales and that NMFS formulate a policy or other guidance setting forth a consistent approach for how applicants should incorporate uncertainty in density estimates.

Response: The availability of representative density information for marine mammal species varies widely across space and time. Depending on survey locations and modeling efforts, it may be necessary to consult estimates that are from a different area or season, that are at a non-ideal spatial scale, or that are several years out of date. We continue to evaluate available density information and are continuing progress on guidance that would outline a consistent general approach for addressing uncertainty in specific situations where certain types of data are or are not available.

Comment 2: The Commission recommends that NMFS follow a consistent approach in assessing the potential for taking by Level B harassment from exposure to specific types of sound sources (*e.g.,* echosounders, sub-bottom profilers, side-scan sonar, and fish-finding sonar) by all applicants who propose to use them. SIO will be using such sources during its activities off New Zealand, including when the airgun array will not be in use. The Commission understands that NMFS plans to develop clearer policies and guidance to address these concerns and would welcome to opportunity to work with NMFS as it develops these broadly applicable policies.

Response: NMFS acknowledges the Commission's recommendation and we continue to work on a consistent approach for addressing potential impacts from active acoustic sources. For this low-energy seismic survey, NMFS assessed the potential for multi-beam echosounder and sub-bottom profiler operations to impact marine mammals with the concurrent operation of the airgun array. We assume that, during simultaneous operations of the airgun array and the other active acoustic sources, a marine mammal close enough to be affected by the other active acoustic sources would already be affected by the airguns. Take is not expected to result from the use of the multi-beam echosounder and sub-bottom profiler, as the brief exposure of marine mammals to one pulse, or small number of signals, to be generated by these instruments in this particular case as well as their characteristics (*e.g.,* narrow-shaped, downward-directed beam emitted from the bottom of the ship) is less likely to result in the harassment of marine mammals. Accordingly, NMFS has not authorized take from these other sound sources.

Comment 3: The Commission is concerned that the Lamont-Doherty Earth Observatory of Columbia University's (L–DEO) acoustic modeling used for this low-energy seismic survey is not based on the best available science and does not support its continued use. Therefore, the Commission recommends that NMFS require SIO to have L–DEO re-estimate the proposed exclusion and buffer zones and associated takes of marine mammals using site-specific environmental (including sound speed profiles, bathymetry, and sediment characteristics at a minimum) and operational (including number/type of airguns, tow depth) parameters for the proposed IHA. The reflective/refractive arrivals are the very measurements that ultimately determine underwater sound propagation and should be accounted for in site-specific modeling. Either empirical measurements from the particular survey site or a model that accounts for the conditions in the proposed survey area should be used to estimate exclusion and buffer zones because L–DEO failed to verify the applicability of its model to conditions outside of the Gulf of Mexico. The Commission recommends that NMFS impose the same requirements for all future IHAs submitted by SIO, NSF, Antarctic Support Contract (ASC), L–DEO, USGS, or any other relevant entity. The Commission also continues to believe that SIO and related entities should be held to the same standard as other action proponents (*i.e.,* U.S. Navy, Air Force, Bureau of Ocean Energy Management, and the oil and gas industry).

Response: NMFS acknowledges the Commission's concerns about L–DEO's current acoustic modeling approach for estimating buffer and exclusion zones and also acknowledge that L–DEO did not incorporate site-specific sound speed profiles, bathymetry, and sediment characteristics of the action area in the current approach to estimates those buffer and exclusion zones for this low-energy seismic survey.

In 2015, L–DEO explored solutions to this issue by conducting a retrospective sound power analysis of one of the lines acquired during L–DEO's truncated seismic survey offshore New Jersey in 2014 (Crone, 2015). NMFS presented this information in the notice of the proposed IHA (80 FR 13961, March 17, 2015) for L–DEO's seismic survey. Briefly, Crone's (2015) preliminary analysis, specific to the survey site offshore New Jersey, confirmed that in-situ measurements and estimates of the 160- and 180 dB (rms) isopleths collected by the R/V *Marcus G. Langseth*'s hydrophone streamer in shallow water were smaller that the predicted buffer and exclusion zones proposed for use in the 2015 seismic survey.

SIO's IHA application and NSF and SIO's Environmental Analysis describe the approach to establishing buffer and exclusion zones used for mitigation. In summary, L–DEO acquired field measurements for several array configurations at shallow- and deep-water depths during acoustic verification studies conducted in the northern Gulf of Mexico in 2003 (Tolstoy *et al.,* 2004) and in 2007 and 2008 (Tolstoy *et al.,* 2009). Based on the empirical data from those studies, L–DEO developed a sound propagation modeling approach that conservatively predicts received sound levels as a function of distance from a particular airgun array configuration in deep water. For this low-energy seismic

survey, L–DEO developed the intermediate- and deep-water buffer and exclusion zones for the airgun array based on the empirically-derived measurements from the Gulf of Mexico calibration survey. Following is a summary of two additional analyses of in-situ data that support L–DEO's use of the modeled exclusion zones in this particular case.

In 2010, L–DEO assessed the accuracy of their modeling approach by comparing the sound levels of the field measurements in the Gulf of Mexico study to their model predictions (Diebold *et al.,* 2010). They reported that the observed sound levels from the field measurements fell almost entirely within the predicted mitigation radii curve for deep water (greater than 1,000 m) (Diebold *et al.,* 2010).

In 2012, L–DEO used a similar process to develop mitigation radii (*i.e.,* buffer and exclusion zones) for a shallow-water seismic survey in the northeast Pacific Ocean offshore Washington in 2012. L–DEO conducted the shallow-water seismic survey using an airgun configuration that was approximately 98 percent larger than the total discharge volume planned for this intermediate and deep water survey *(i.e.,* 6,600 cubic inches [in^3] compared to 90 in^3) and recorded the received sound levels on the shelf and slope off Washington using the *Langseth's* 8-km hydrophone streamer. Crone *et al.* (2014) analyzed those received sound levels from the 2012 seismic survey and reported that the actual distances for the buffer and exclusion zones were two to three times smaller than what L–DEO's modeling approach predicted. While the results confirm bathymetry's role in sound propagation, Crone *et al.* (2014) were able to confirm that the empirical measurements from the Gulf of Mexico calibration survey (the same measurements used to inform L–DEO's modeling approach for this survey in shallow water) overestimated the size of the buffer and exclusion zones for the shallow-water 2012 seismic survey off Washington and were thus precautionary, in that particular case.

In summary, at present, L–DEO cannot adjust their modeling methodology to add the environmental and site-specific parameters as requested by the Commission. NMFS will continue to work with the NSF to address this issue of incorporating site-specific information to further inform the analysis and development of mitigation measures in oceanic and coastal areas for future seismic surveys with L–DEO, SIO, and NSF. NMFS will continue to work with L–DEO, SIO, NSF, and the Commission on continuing to verify the accuracy of their modeling approach. However, L–DEO's current modeling approach represents the best available information to reach our determinations for the IHA. As described earlier, the comparisons of L–DEO model results and the field data collected in the Gulf of Mexico, offshore Washington, and offshore New Jersey illustrate a degree of conservativeness built into L–DEO's model for deep water, which NMFS expects to offset some of the limitations of the model to capture the variability resulting from site-specific factors.

L–DEO has conveyed to NMFS that additional modeling efforts to refine the process and conduct comparative analysis may be possible with the availability of research fund and other resources. Obtaining research funds is typically through a competitive process, including those submitted to federal agencies. The use of models for calculating buffer and exclusion zone radii and for developing take estimates is not a requirement of the MMPA Incidental Take Authorization process. Furthermore, NMFS does not provide specific guidance on model parameters nor prescribes a specific model for applicants as part of the MMPA Incidental Take Authorization process. There is a level of variability not only with parameters in the models, but also the uncertainty associated with data used in models, and therefore the quality of the model results submitted by applicants. NMFS, however, considers this variability when evaluating applications. Applicants use models as a tool to evaluate potential impacts, estimate the number of and type of takes of marine mammals, and for designing mitigation. NMFS takes into consideration the model used and its results in determining the potential impacts to marine mammals; however, it is just one component of our analysis during the MMPA consultation process as we also take into consideration other factors associated with the proposed action, (*e.g.,* geographic location, duration of activities, context, intensity, etc.).

There are many different modeling products and services commercially available that applicants could potentially use in developing their take estimates and analyses for MMPA Incidental Take Authorizations. These different models range widely in cost, complexity, and the number of specific factors that one can consider in any particular modeling run. NMFS does not believe that it is appropriate to prescribe the use of any particular modeling package. Rather, NMFS evaluates each applicant's approach independently in the context of their activity. In cases where an applicant uses a simpler model and there is concern that a model might not capture the variability across a parameter(s) that is not represented in the model, conservative choices are often made at certain decision points in the model to help ensure that modeled estimates are buffered in a manner that would not result in the agency underestimating takes or effects. In this case, results have shown that L–DEO's model reliably and conservatively estimates mitigation radii in intermediate and deep water. First, the observed sound levels from the field measurements fell almost entirely below L–DEO's estimated mitigation radii for deep water (Diebold *et al.,* 2010). These conservative mitigation radii are the foundation for SIO's intermediate and deep water radii used in this low-energy seismic survey. Based on Crone *et al.'s* (2014) findings, NMFS finds that L–DEO reasonably estimates sound exposures for this low-energy seismic survey.

Comment 4: The Commission states that NMFS indicated that it discounted 18 marine mammal species with ranges that may potentially occur in the Southwest Pacific Ocean and/or are in the stranding record—NMFS based the presumption on Baker *et al.* (2010) and their categorizing those species as ''vagrants.'' However, many other action proponents include certain species (including Arnoux's beaked whales, pygmy beaked whales, and Risso's dolphins) in their marine mammal impact assessments for seismic activities off New Zealand. Those species also are present in the New Zealand Department of Conservation's sighting database for marine mammals present (either alive or stranded) in New Zealand's waters. Because Arnoux's and pygmy beaked whales are not thoroughly studied and their habitat ranges are poorly understood, the Commission believes that it would have been prudent for NMFS to include them in the proposed IHA since they have been observed dead-stranded in New Zealand. Similarly, the range of Risso's dolphins does overlap with New Zealand waters based on information on various government Web sites, including NMFS's Web site. Further, Risso's dolphins have been observed in New Zealand both alive and dead. The Commission believes the potential to take those marine mammal species exists and recommends that NMFS include Arnoux's beaked whales, pygmy beaked whales, and Risso's dolphins in its IHA and authorize the associated takes.

Response: In Baker *et al.* (2010), the term ''vagrant'' is defined as ''taxa that

are found unexpectedly in New Zealand and whose presence in this region is naturally transitory, or migratory species with fewer than 15 individuals known or presumed to visit per year.'' Based on this, NMFS agrees with the Commission's recommendation that the potential to encounter Arnoux's and pygmy beaked whales and Risso's dolphins exists and has included authorized takes, which are based on encountering an average group size of animals, in the IHA issued to SIO and NSF. Also, as required in the IHA, if any marine mammal species are encountered during airgun operations that are not authorized for take and are likely to be exposed to sound pressure levels greater than or equal to 160 dB re 1 µPa (rms) for airgun operations, then SIO must alter speed or course or shut-down the airguns to prevent take.

Comment 4: The Commission believes that g(0) and f(0) values should be based on the ability of PSOs to detect marine mammals rather than on hypothetically optimal estimates derived from scientific surveys (*e.g.,* from NMFS's shipboard abundance surveys). The Commission also understands that L–DEO (and relevant entities) has been collecting for many years sightings data when the airguns are active and inactive. Those data could be pooled amongst similar survey types (*e.g.,* based on geographical location, array configuration, airgun activity status, vessel-specific observational parameters) to determine rudimentary g(0) and f(0) values—an analysis that has been discussed with NMFS, L–DEO and relevant entities in the past. The Commission acknowledges that those values may not be as accurate as using a well-planned, randomized sampling design typically used during marine mammal scientific surveys, but believes adjusting by those rudimentary values would be preferable to assuming that only those animals detected during the survey equated to the total numbers taken, which is clearly an underestimate of reality.

The Commission recommends that NMFS consult with SIO and other relevant entities (*e.g.,* NSF, ASC, L–DEO, and USGS) to develop, validate, and implement a monitoring program that provides a scientifically sound, reasonably accurate assessment of the types of marine mammal takes and reliable estimates of the numbers of marine mammals taken by incorporating applicable g(0) and f(0) values derived from PSO data collected during seismic surveys. Although the Commission has made this recommendation in numerous previous letters, the Commission believes that NMFS may have misinterpreted it. NMFS recently stated that it does not generally believe it is appropriate to require NSF to collect information in the field to support the development of survey-specific correction factors (80 FR 4892, January 29, 2015). The Commission never suggested that correction factors be developed for every seismic survey. Rather, it is important for NSF, L–DEO, and other relevant entities to continue to collect appropriate sightings data in the field to be pooled to determine g(0) and f(0) values relevant to the various seismic survey types.

Response: NMFS's implementing regulations require that applicants include monitoring that will result in ''an increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while conducting activities . . .'' This could be qualitative or relative in nature, or it could be more directly quantitative. Scientists use g(0) and f(0) values in systematic marine mammal surveys to account for the undetected animals indicated above, however, these values are not simply established and the g(0) value varies across every observer based on their sighting acumen. While NMFS does not generally believe that post-activity take estimates using f(0) and g(0) are required to meet the monitoring requirement of the MMPA, in the context of NSF and SIO's monitoring plan, NMFS agrees that developing and incorporating a way to better interpret the results of their monitoring (perhaps a simplified or generalized version of g(0) and f(0)) is desirable. NMFS is continuing to examine this issue with NSF to develop ways to improve their post-survey take estimates. NMFS will continue to consult with the Commission and NMFS scientists prior to finalizing any future recommendations.

NMFS notes that current monitoring measures for past and current IHAs for research seismic surveys require the collection of visual observation data by PSOs prior to, during, and after airgun operations. This data collection may contribute to baseline data on marine mammals (presence/absence) and provide some generalized support for estimated take numbers (as well as providing data regarding behavioral responses to seismic operation that are observable at the surface). However, it is unlikely that the information gathered from these cruises alone would result in any statistically robust conclusions for any particular species because of the small number of animals typically observed.

Comment 5: Dr. Slooten states that a dedicated large-scale marine mammal survey in the action area is required as no current regional population estimates exist for New Zealand waters (previous surveys have only focused on inshore waters). The estimated potential number of marine mammals affected and the population-level impacts should be assessed using data and analysis from a dedicated marine mammal survey before the start of the low-energy seismic survey. Depending on the result of the dedicated marine mammal survey, NSF and SIO's Environmental Analysis Alternatives 1 (Alternative Survey Timing) or 2 (No Action) may be the appropriate decision and the northern and/or southern survey areas should be removed from the proposed action.

Response: While regional population estimates are not available for waters offshore of New Zealand, in this case, NMFS does not agree that dedicated marine mammal assessment surveys are needed prior to issuing an IHA. When information is unavailable on a local marine mammal population size, NMFS uses either stock or species information on abundance. Also, while information may be lacking for many species of cetaceans or pinnipeds, information on some of the locally-found species is found in SIO's IHA application and Environmental Analysis, see those documents for more information. NSF and SIO are not planning on conducting a large-scale dedicated marine mammal survey in New Zealand prior to the planned low-energy seismic survey and NMFS has not made this a requirement in the IHA.

Comment 6: Dr. Slooten and the Commission state that in the absence of scientifically robust marine mammal data, SIO and NMFS have used anecdotal information from various sources (*i.e.,* including marine mammals survey data from California, Oregon, and Washington [California Current], Eastern Tropical Pacific Ocean, and Southern Ocean) to describe the occurrence of marine mammals and potential takes that are not applicable to New Zealand waters. In this instance, various extrapolations and adjustments are based on numerous assumptions in the absence of applicable density data off New Zealand.

Response: No marine mammal density data are available for the waters east of New Zealand. The waters of New Zealand are likely to have a high diversity of marine mammal species and the impacts on marine mammals should be assessed on the (worldwide or region) population or stock unit level whenever possible. SIO's IHA

application provides information on abundance in the waters of New Zealand (when available), larger water bodies (such as the Pacific Ocean or Southern Ocean), and off of California, Oregon, and Washington (if data were unavailable). NMFS believes that these data are the best scientific information available for estimating impacts on affected marine mammal species and stocks. This is consistent with Congress' recognition that information on marine mammal stock abundance may not always be satisfactory. When information is lacking to define a particular population or stock of marine mammals then impacts are to be assessed with respect to the species as a whole (54 FR 40338, September 29, 1989).

Comment 7: Dr. Slooten states that important information is lacking on the potential for further population fragmentation of Maui's dolphins from SIO and NSF's low-energy seismic survey.

Response: NMFS has reviewed Hamner *et al.* (2012, 2013), cited in the comment. The population of Maui's dolphin is located along approximately 300 km (162 nmi) of the west coast of the North Island of New Zealand, and does not overlap with the planned action area for SIO and NSF's low-energy seismic survey occurring off the east coast of New Zealand. Also, Hector's dolphins (of which Maui's dolphins are a sub-species) are highly coastal and the low-energy seismic survey will occur at least approximately 22.2 km (12 nmi) offshore the east coast of New Zealand. This short-duration low-energy seismic survey is scheduled to occur for a total of approximately 135 hours (approximately 72 hours of continuous operations at a time) over the course of the entire cruise, which would be for approximately 27 operational days in May to June 2015. NMFS anticipates and has authorized takes by Level B (behavioral) harassment of marine mammals to noise exposure from the low-energy seismic survey, which may include temporary avoidance of habitat. No fragmentation of Maui's or Hector's dolphin populations is anticipated.

Comment 8: Dr. Elisabeth Slooten states that SIO did not make contact with marine mammal scientists (*e.g.,* Otago University Marine Mammal Research Group) earlier, in order to obtain sighting data, or reach out about the proposed low-energy seismic survey at the Society of Marine Mammalogy 20th Biennial Conference held in Dunedin, New Zealand during December 2013. Also, many of the Society of Marine Mammalogy's members have active research collaborations with marine mammal scientists in New Zealand and Australia.

Response: SIO and NSF consulted with NMFS's Permits and Conservation Division regarding the IHA and NMFS's Endangered Species Act Interagency Cooperation Division regarding a Biological Opinion under section 7 of the ESA for the low-energy seismic survey in the Southwest Pacific Ocean, East of New Zealand. NMFS consulted and corresponded with New Zealand's Department of Conservation and Dr. Elisabeth Slooten beginning in January 2015. LGL Limited, Environmental Research Associates, on behalf of SIO and NSF, also contacted New Zealand's Department of Conservation and requested the New Zealand cetacean sightings database as well as additional information that might be pertinent to the Environmental Analysis (such as marine mammal densities and habitat modeling). NMFS is not aware if SIO contacted any researchers at the Society of Marine Mammalogy 20th Biennial Conference regarding the low-energy seismic survey in the Southwest Pacific Ocean, East of New Zealand. NMFS has considered the best available information to support the findings for SIO's low-energy seismic survey.

Comment 9: Dr. Slooten states that the use of alternative technologies (Alternative E2 in NSF and SIO's Environmental Analysis) should be further considered and discussed (*e.g.,* commercial viability, feasibility, purpose, financial cost, environmental impacts, etc.) before the start of the low-energy seismic survey.

Response: NMFS issued its IHA for taking marine mammals incidental to the specified activity as described in SIO and NSF's IHA application. As discussed in the NSF/USGS PEIS (Section 2.6), alternative technologies to airguns were considered but eliminated from further analysis as those technologies were not commercially viable. NSF and SIO continue to closely monitor the development and progress of these types of systems; however, at this point and time, these systems are still not commercially available. Geo-Kinetics as a potentially viable option for marine vibroseis does not have a viable towable array and its current testing is limited to transition zone settings. Other possible vibroseis developments lack even prototypes to test. Similarly, engineering enhancements to airguns to reduce high frequencies are currently being developed by the oil, gas, and energy industry, however, at present, these airguns are still not commercially available. NSF, SIO, and L–DEO have maintained contact and are in communication with a number of developers and companies to express a willingness to serve as a test-bed for any such new technologies. As noted in the NSF/USGS PEIS, should new technologies to conduct marine seismic surveys become available, NSF and SIO would consider whether they would be effective tools to meet research goals (and assess any potential environmental impacts).

Of the various technologies cited in the 2009 Okeanos workshop report on alternative technologies to seismic airgun surveys for oil and gas exploration and their potential for reducing impacts on marine mammals, few if any have reached operational viability. While the marine vibrator technology has been long discussed and evaluated, the technology is still unrealized commercially. According to Pramik (2013), the leading development effort by the Joint Industry Programme ''has the goal of developing three competing designs within the next few years.'' Geo-Kinetics has recently announced a commercial product called AquaVib, but that product produces relatively low-power, and is intended for use in very shallow water depths in sensitive environments and the vicinity of pipelines or other infrastructure. The instrument is entirely unsuited to deep-water, long-offset reflection profiling. The BP North America staggered burst technique would have to be developed well beyond the patent stage to be remotely practicable and would require extensive modification and testing of the *Revelle* sound source and recording systems. None of the other technologies considered (*i.e.,* gravity, electromagnetic, Deep Towed Acoustics/Geophysics System developed by the U.S. Navy [DTAGS], etc.) can produce the resolution or sub-seafloor penetration required to resolve sediment thickness and geologic structure at the requisite scales. Improving the streamer signal to noise through improved telemetry (*e.g.,* fiber optic cable) while desirable, would involve replacing the *Revelle's* streamers and acquisition units, requiring a major capital expenditure.

Comment 10: Dr. Slooten states that NMFS, NSF, and SIO should clarify the probability and effectiveness of using PSOs for detecting marine mammals in the proposed action area, especially when considering the distances to which noise from the airgun array propagates. A single PSO would only be able to visually sight a small fraction of the marine mammals in the action area and even close to the vessel (Barlow and Gisiner, 2006). A representative of the

oil and gas industry (*i.e.,* John Hughes, geophysical operations adviser at The Northwood Resource) recently described PSOs on seismic vessels as ''window dressing'' at the New Zealand Petroleum Summit 2015 (Hughes, 2015). The representative's presentation *Myths about Marine Seismic Surveys are Not Facts* can be found online at: *http://webcast.gigtv.com.au/Mediasite/Play/b90807c8ea8641bb93c57f435d4334841d?catalog=44162ae3%E2%80%90ca94%E2%80%904a9bb60c%E2%80%903b08c9b325ef*.

Response: NMFS acknowledges that PSO effectiveness is not 100%, particularly for some deep-diving species of marine mammals (such as beaked whales and *Kogia* spp.), which may be found in the study area and are cryptic at the sea surface and difficult to observe. The *Revelle* will carry three qualified and experienced PSOs. PSOs are appointed by SIO with NMFS concurrence. PSOs aboard the vessel will have had training to detect protected species and two PSOs will be on visual watch during airgun operations, except during mealtimes and restroom breaks, if needed. Also, the vessel's crew will be instructed to observe from the bridge and decks for opportunistic sightings.

Comment 11: Dr. Slooten states that NMFS, NSF, and SIO should describe the effectiveness and biological meaningful reductions in environmental impacts of the mitigation measures (*e.g.,* ramp-up and shut-down) that rely on PSOs visually detecting marine mammals and support these conclusions using scientific evidence.

Response: NMFS is currently unaware of any studies that meaningfully quantitatively describe the general effectiveness of monitoring and mitigation measures in the scientific literature. NMFS acknowledges Dr. Slooten's suggestion for analysis of monitoring and mitigation measures to help identify the effectiveness for seismic surveys. The purpose of a ramp-up is to ''warn'' marine mammals in the vicinity of the airguns and to provide the time for them to leave the area, avoiding any potential injury or impairment of their hearing abilities. The purpose of a shut-down is to turn off the airgun array if a marine mammal enters or is about to enter the exclusion zone, which would avoid exposing the animal to levels of sound that could potentially be injurious. Based on information in monitoring reports from previous NSF-funded seismic surveys, NMFS believes that implementing shut-downs as a mitigation measure reduced incidents of exposures from higher levels of sound from airgun operations on marine mammals. The IHA requires PSOs on the *Revelle* to conduct visual monitoring as well as the establishment of buffer and exclusion zones, ramp-up procedures, shut-down procedures, speed or course alteration, and additional measures for airgun operations in nearshore waters and during low-light hours. NMFS requires SIO and NSF to gather all data that could potentially provide information regarding the effectiveness of mitigation measures it its monitoring report. The information gathered may not result in any statistically robust conclusions for this particular low-energy seismic survey, but over the long term, these requirements may provide information regarding the effectiveness of monitoring and mitigation measures, provided PSOs detect animals.

Comment 12: Dr. Slooten states that NMFS should require shut-downs of the airgun array and other sound sources (*i.e.,* multi-beam echosounder and sub-bottom profiler) during poor visibility and/or nighttime conditions. A cautious approach should be used during poor visibility and/or nighttime conditions as a PSO would be unable to detect marine mammals near the vessel at those times.

Response: NMFS disagrees with the commenters' assessment. NMFS has measures in place and required by the IHA for airgun operations that we believe minimize potential impacts to marine mammals during poor visibility and/or nighttime conditions. No initiation of airgun operations is permitted from a shut-down position at night or during low-light hours (such as in dense fog or heavy rain) when the entire relevant exclusion zone cannot be effectively monitored by the PSO(s) on duty. However, airgun operations may continue into night and low-light hours if the segment(s) of the survey is initiated when the entire relevant exclusion zones are visible and can be effectively monitored. Limiting or suspending the low-energy seismic survey in low visibility conditions or at night would significantly extend the duration of the low-energy seismic survey. NMFS has not specified measures in the IHA requiring a shut-down for other sound sources (*i.e.,* multi-beam echosounder and sub-bottom profiler) during poor visibility and/or nighttime conditions. Take is not expected to result from the use of the multi-beam echosounder and sub-bottom profiler, as the brief exposure of marine mammals to one pulse, or small numbers of signals, to be generated by these instruments in this particular case as well as their characteristics (*e.g.,* narrow-shaped, downward-directed beam emitted from the bottom of the ship) is not likely to result in the harassment of marine mammals.

Comment 13: Dr. Slooten states that NSF and SIO should use and NMFS should require the use of passive acoustic monitoring (PAM) for marine mammals during the low-energy seismic survey, as it should be a routine requirement in U.S. waters.

Response: The NSF/USGS PEIS states that a towed PAM system is used normally for high-energy seismic surveys, and implied that it was not used for low-energy seismic surveys since towing PAM equipment is not practicable in some cases. For high-energy seismic surveys, PAM is practicable because the system is installed on the vessel used for such surveys. These PAM systems are expensive and are not portable from one vessel to another, requires complex logistics, and additional PSOs to be trained to operate the equipment, software, etc. SIO's project in the Southwest Pacific Ocean, East of New Zealand, is considered a low-energy marine seismic survey and is, furthermore, of short duration; therefore, NMFS and SIO has determined that it is not practicable and a towed PAM system will not be used for this specific project. SIO has appointed three PSOs onboard the *Revelle,* with NMFS's concurrence, to monitor and mitigate the buffer and exclusion zones during daylight. Also, NMFS believes that a towed PAM system is not needed to augment visual observations as the buffer and exclusion zones are less than 1,000 m (3,280.1 ft) and can be effectively monitored for marine mammals so that mitigation measures may be implemented, if needed.

Comment 14: Dr. Slooten states that NSF and SIO's Environmental Analysis fails to include several important publications, including Barlow and Gisiner's *Mitigating, monitoring and assessing the effects of anthropogenic sound on beaked whales* (2006).

Response: Barlow and Gisiner (2006) was addressed in the NSF/USGS PEIS (2011) and is therefore not cited specifically in NSF and SIO's Environmental Analysis (2014) or NMFS's EA. A comprehensive literature review on the potential effects of seismic surveys is provided in the NSF/USGS PEIS (2011), and the NSF and SIO Environmental Analysis and NMFS's EA refers to that document. The NSF and SIO Environmental Analysis only includes new relevant publications that were not included in the NSF/USGS PEIS, as noted in Section IV of that document.

NMFS believes that SIO's visual monitoring efforts are successful for detecting marine mammals and, through the implementation of mitigation, successful at minimizing the likelihood of injury or potentially more severe behavioral responses. NMFS expects that the impacts of the seismic survey on marine mammals will be temporary in nature and not result in substantial impacts to marine mammals or to their role in the ecosystem. The IHA anticipates and authorizes, Level B harassment only, in the form of temporary behavioral disturbance, of species of cetaceans. Neither Level A harassment (injury), serious injury, nor mortality is anticipated or authorized, and Level B harassment is not expected to affect biodiversity or ecosystem function. NMFS believes that SIO and NSF's short duration low-energy seismic survey will have a negligible impact on the affected species or stocks of marine mammals in the action area.

Comment 15: Dr. Slooten states that in general, NSF and SIO's Environmental Analysis tends to understate the potential impacts of the proposed action. A second draft of the Environmental Analysis should be prepared, with a more comprehensive literature review including key recent scientific publications that highlight the potential impacts of seismic surveys, to avoid over-representing literature that downplays the impacts.

Response: NMFS disagrees with Dr. Slooten's statement that a second or revised draft Environmental Analysis is warranted to consider any additional scientific literature. Prior to the conduct of the planned low-energy seismic survey in the Southwest Pacific Ocean, East of New Zealand, a comprehensive literature review and potential impacts based on scientific publications are described in the NSF/USGS PEIS (2011), NSF and SIO Environmental Analysis, and NMFS EA. The commenter has not identified any particular potential impacts or studies that have been ''downplayed.'' These documents have been posted on NSF's Environmental Compliance and NMFS's Web sites at: *https://www.nsf.gov/geo/oce/envcomp/index.jsp http://www.nmfs.noaa.gov/pr/permits/incidental/research.htm#scripps_nz_2015.* Also, the commenter has not identified any key scientific publications supporting their statement and did not provide references supporting their statement which limits our ability to respond to the commenter's statements.

Comment 16: Dr. Slooten states that the southern survey area, off New Zealand's South Island is described as a ''contingency area that would only be surveyed if time permits.'' On the basis of currently available scientific data, this is a high risk area in terms of marine mammal density. In addition, the southern survey area has steep depth contours relatively close to shore.

Response: Dr. Slooten provided a brief summary of cetacean sightings off Kaikoura, New Zealand by members of Otago University's Marine Mammal Research Group between 1990 and 2015. The information on the cetacean species present in the action area included year-round resident, frequent visitors (more than 2 sightings per year, every year), and occasional sightings (1 or 2 sightings per year and not every year). The commenter did not provide references or data supporting their statement which limits our ability to respond to the commenter's statement that the southern area off the South Island is ''high risk'' based on marine mammal density. For the concerns regarding the steep depth contours relatively close to shore in the southern survey area, NMFS has added the requirement in the IHA that, to the maximum extent practicable (in consideration of time, fuel, and other operational constraints), SIO will conduct the low-energy seismic survey (especially when near land) from the coast (inshore) and proceed towards the sea (offshore) in order to avoid herding or trapping marine mammals in shallow water.

Comment 17: Dr. Slooten states that NMFS should consider the potential risk factors of a vessel moving from deep water towards a shallower coastal area, and the ship using a multi-beam echosounder and sub-bottom profiler in addition to airguns, based on the stranding of beaked whales in Mexico (Gulf of California) during a NSF-funded seismic survey in 2002 (Taylor, 2004). The multi-beam echosounder and sub-bottom profiler could have been a contributing factor in forcing the beaked whales into shallower water. The beaked whales could have been herded ahead of the ship and found themselves in water that was too shallow to allow them to regulate their nitrogen levels. They may have out-gassed and died from the bends, or travelled rapidly towards the shore to avoid the noise resulting in a stranding.

Response: The multi-beam echosounder and sub-bottom profiler that is currently installed on the *Revelle* was evaluated in the NSF/USGS PEIS and in NSF and SIO's Environmental Analysis, and has been used on at least 6 research low-energy seismic surveys throughout the world (*e.g.,* Eastern Tropical Pacific Ocean, Indian Ocean, Louisville Ridge, South Pacific Ocean, Tropical Western Pacific Ocean) since 2004 without association to any marine mammal strandings.

Regarding the 2002 stranding in the Gulf of California, the multi-beam echosounder and sub-bottom profiler systems were on a different vessel, the R/V *Maurice Ewing* (*Ewing*), and is no longer operated by L–DEO. Although Dr. Slooten suggests that the multi-beam echosounder or sub-bottom profiler system or other acoustic sources on the *Ewing* may have been associated with the 2002 stranding of 2 beaked whales, as noted in Cox *et al.* (2006), ''whether or not this survey caused the beaked whales to strand has been a matter of debate because of the small number of animals involved and a lack of knowledge regarding the temporal and spatial correlation between the animals and the sound source.'' As noted by Yoder (2002), there was no scientific linkage to the event with the *Ewing's* activities and the acoustic sources being used. Hildebrand (2006) has noted that ''the settings for these stranding are strikingly consistent: An island or archipelago with deep water nearby, appropriate for beaked whale foraging habitat. The conditions for mass stranding may be optimized when the sound source transits a deep channel between two islands, such as in the Bahamas (2000), and apparently in the Madeira (2000) incident.''

The tracklines for the current low-energy seismic survey are planned to occur in intermediate and deep water and will not be conducted in a manner that is likely to result in the ''herding of sensitive species'' into canyons and other similar areas. The IHA has included the requirement that to the maximum extent practicable, SIO will conduct the low-energy seismic survey (especially when near land) from the coast (inshore) and proceed towards the sea (offshore) in order to avoid herding or trapping marine mammals in shallow water. Also, this low-energy seismic survey is of short duration and spread out over space and time as it is scheduled to occur for a total of approximately 135 hours (approximately 72 hours of continuous operations at a time) over the course of the entire cruise, which would be for approximately 27 operational days in May to June 2015. Given these conditions, NMFS does not anticipate strandings of marine mammals from use of the planned multi-beam echosounder or sub-bottom profiler.

Comment 18: One private citizen opposed the issuance of an IHA by NMFS and the conduct of the low-energy seismic survey in the Southwest Pacific Ocean, East of New Zealand. The

commenter stated that NMFS should protect marine life from harm.

Response: As described in detail in the notice of the proposed IHA (80 FR 15060, March 20, 2015), as well as in this document, NMFS does not believe SIO's low-energy seismic survey will cause injury, serious injury, or mortality to marine mammals, and no take by injury, serious injury, or mortality is authorized. The required monitoring and mitigation measures that SIO will implement during the low-energy seismic survey will further reduce the potential impacts on marine mammals to the lowest level practicable. NMFS anticipates only behavioral disturbance to occur during the conduct of the low-energy seismic survey.

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

Few scientific systematic surveys for marine mammals have been conducted in the waters of New Zealand, and these mainly consist of single-species surveys in shallow coastal waters (*e.g.,* Dawson *et al.,* 2004; Slooten *et al.,* 2004, 2006). Large-scale, multi-species marine mammal surveys are lacking. Various sources for data on sightings in the planned study area were used to describe the occurrence of marine mammals in the waters of New Zealand, such as opportunistic sighting records presented in previous reports (including the New Zealand Department of Conservation marine mammals sighting database) considered in evaluating potential marine mammals in the planned action area.

New Zealand is considered a ''hotspot'' for marine mammal species richness (Kaschner *et al.,* 2011). The marine mammals that generally occur in the proposed action area belong to three taxonomic groups: mysticetes (baleen whales), odontocetes (toothed whales), and pinnipeds (seals and sea lions). The marine mammal species that could potentially occur within the Southwest Pacific Ocean in proximity to the planned action area East of New Zealand include 33 species of cetaceans (24 odontocetes and 9 mysticetes) and 2 species of pinnipeds (35 total species of marine mammals).

Marine mammal species likely to be encountered in the planned study area that are listed as endangered under the U.S. Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*), are the southern right (*Eubalaena australis*), humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), fin (*Balaenoptera physalus*), blue (*Balaenoptera musculus*), and sperm (*Physeter macrocephalus*) whale. The Maui's dolphin (*Cephalorhynchus hectori maui*) and New Zealand sea lion (*Phocartos hookeri*) are two other species are ranked as ''nationally critical'' in New Zealand (Baker *et al.,* 2010). Maui's dolphin is only found along the west coast of the North Island. The northern range of the New Zealand sea lion is not expected to extend to the planned study area based on New Zealand's National Aquatic Biodiversity Information System (NABIS, 2014) and is not considered further.

In addition to the marine mammal species known to occur in the Southwest Pacific Ocean off the east coast of New Zealand, there are 18 species of marine mammals (12 cetacean and 6 pinniped species) with ranges that are known to potentially occur in the waters of the planned study area, but they are categorized as ''vagrant'' under the New Zealand Threat Classification System (Baker *et al.,* 2010). These include: Dwarf sperm whale (*Kogia sima*), Arnoux's beaked whale (*Berardius arnouxi*), ginkgo-toothed beaked whale (*Mesoplodon ginkgodens*), pygmy beaked whale (*Mesoplodon peruvianis*), Type B, C, and D killer whale (*Orcinus orca*), melon-headed whale (*Peponocephala electra*), Risso's dolphin (*Grampus griseus*), Fraser's dolphin (*Lagenodelphis hosei*), pantropical spotted dolphin (*Stenella attenuata*), striped dolphin (*Stenella coeruleoalba*), rough-toothed dolphin (*Steno bredanensis*), spectacled porpoise (*Phocoena dioptrica*), Antarctic fur seal (*Arctocephalus gazelle*), Subantarctic fur seal (*Arctocephalus tropicalis*), crabeater seal (*Lobodon carcinophagus*), leopard seal (*Hydrurga leptonyx*), Ross seal (*Ommatophoca rossi*), and Weddell seal (*Leptonychotes weddellii*). According to Jefferson *et al.* (2008), the distributional range of Hubb's beaked whale (*Mesoplodon carlhubbsi*) and True's beaked whale (*Mesoplodon mirus*) may also include New Zealand waters. There are no records of Hubb's beaked whale in New Zealand, and only a single record of True's beaked whale, which stranded on the west coast of South Island in November 2011 (Constantine *et al.,* 2014). The spinner dolphin's (*Stenella longirostris*) range includes tropical and subtropical zones 40° North to 40° South, but would be considered vagrant as well. However, these species are not expected to occur where the planned activities will take place. Except for Arnoux's beaked whale, pygmy beaked whale, and Risso's dolphin, these species are not considered further in this document. Table 2 (below) presents information on the habitat, occurrence, distribution, abundance, population, and conservation status of the species of marine mammals that may occur in the planned study area during May to June 2015.

TABLE 2—THE HABITAT, OCCURRENCE, RANGE, REGIONAL ABUNDANCE, AND CONSERVATION STATUS OF MARINE MAMMALS THAT MAY OCCUR IN OR NEAR THE LOW-ENERGY SEISMIC SURVEY AREA IN THE SOUTHWEST PACIFIC OCEAN, EAST OF NEW ZEALAND (SEE TEXT AND TABLES 2 IN SIO'S IHA APPLICATION FOR FURTHER DETAILS)

Species	Habitat	Occurrence	Range	Population estimate	ESA [1]	MMPA [2]
Mysticetes						
Southern right whale (*Eubalaena australis*).	Coastal, shelf, pelagic	Common	Circumpolar 20 to 55° South.	8,000 [3] to 15,000 [4]—Worldwide. 12,000 [12]—Southern Hemisphere. 2,700 [12]—Sub-Antarctic New Zealand.	EN	D
Pygmy right whale (*Caperea marginata*).	Pelagic and coastal	Rare	Circumpolar 30 to 55° South.	NA	NL	NC
Humpback whale (*Megaptera novaeangliae*).	Pelagic, nearshore waters, and banks.	Common	Cosmopolitan Migratory	35,000 to 42,000 [3 12]—Southern Hemisphere.	EN	D
Minke whale (*Balaenoptera acutorostrata* including dwarf sub-species).	Pelagic and coastal	Uncommon	Circumpolar—Southern Hemisphere to 65° South.	720,000 to 750,000 [12 14 15]—Southern Hemisphere.	NL	NC

TABLE 2—THE HABITAT, OCCURRENCE, RANGE, REGIONAL ABUNDANCE, AND CONSERVATION STATUS OF MARINE MAMMALS THAT MAY OCCUR IN OR NEAR THE LOW-ENERGY SEISMIC SURVEY AREA IN THE SOUTHWEST PACIFIC OCEAN, EAST OF NEW ZEALAND (SEE TEXT AND TABLES 2 IN SIO'S IHA APPLICATION FOR FURTHER DETAILS)—Continued

Species	Habitat	Occurrence	Range	Population estimate	ESA [1]	MMPA [2]
Antarctic minke whale (*Balaenoptera bonaerensis*).	Pelagic, ice floes, coastal ..	Uncommon	7° South to ice edge (usually 20 to 65° South).	720,000 to 750,000 [12 14 15]—Southern Hemisphere.	NL	NC
Bryde's whale (*Balaenoptera edeni*).	Pelagic and coastal	Rare	Circumglobal—Tropical and Subtropical Zones.	At least 30,000 to 40,000 [3]—Worldwide. 21,000 [12]—Northwestern Pacific Ocean. 48,109 [13]	NL	NC
Sei whale (*Balaenoptera borealis*).	Primarily offshore, pelagic	Uncommon	Migratory, Feeding Concentration 40 to 50° South.	80,000 [3]—Worldwide ..... 10,000 [14]—South of Antarctic Convergence.	EN	D
Fin whale (*Balaenoptera physalus*).	Continental slope, pelagic ..	Uncommon	Cosmopolitan, Migratory	140,000 [3]—Worldwide ..... 15,000 [14]—South of Antarctic Convergence.	EN	D
Blue whale (*Balaenoptera musculus;* including pygmy blue whale [*Balaenoptera musculus brevicauda*]).	Pelagic, shelf, coastal	Uncommon	Migratory Pygmy blue whale—North of Antarctic Convergence 55° South.	8,000 to 9,000 [3]—Worldwide. 2,300 [12]—True Southern Hemisphere. 1,500 [14]—Pygmy	EN	D
Odontocetes						
Sperm whale (*Physeter macrocephalus*).	Pelagic, deep sea	Common	Cosmopolitan, Migratory	360,000 [3]—Worldwide ..... 30,000 [13]—South of Antarctic Convergence.	EN	D
Dwarf sperm whale (*Kogia sima*).	Shelf, Pelagic	Vagrant	Circumglobal—Tropical and Temperate Zones.	NA	NL	NC
Pygmy sperm whale (*Kogia breviceps*).	Shelf, Pelagic	Uncommon	Circumglobal—Temperate Zones.	NA	NL	NC
Arnoux's beaked whale (*Berardius arnuxii*).	Pelagic	Vagrant	Circumpolar in Southern Hemisphere, 24 to 78° South.	NA	NL	NC
Cuvier's beaked whale (*Ziphius cavirostris*).	Pelagic	Uncommon	Cosmopolitan	600,000 [14 16]	NL	NC
Southern bottlenose whale (*Hyperoodon planifrons*).	Pelagic	Rare	Circumpolar—30° South to ice edge.	500,000 [3]—South of Antarctic Convergence. 600,000 [14 16]	NL	NC
Shepherd's beaked whale (*Tasmacetus shepherdi*).	Pelagic	Rare	Circumpolar—Cold temperate waters Southern Hemisphere.	600,000 [14 16]	NL	NC
Andrew's beaked whale (*Mesoplodon bowdoini*).	Pelagic	Rare	Circumpolar—temperate waters of Southern Hemisphere, 32 to 55° South.	600,000 [14 16]	NL	NC
Blainville's beaked whale (*Mesoplodon densirostris*).	Pelagic	Rare	Circumglobal—tropical and temperate waters.	600,000 [14 16]	NL	NC
Ginkgo-toothed beaked whale (*Mesoplodon ginkgodens*).	Pelagic	Vagrant	Tropical and Temperate waters—Indo-Pacific Ocean.	NA	NL	NC
Gray's beaked whale (*Mesoplodon grayi*).	Pelagic	Common	30° South to Antarctic waters.	600,000 [14 16]	NL	NC
Hector's beaked whale (*Mesoplodon hectori*).	Pelagic	Rare	Circumpolar—cool temperate waters of Southern Hemisphere.	600,000 [14 16]	NL	NC
Hubb's beaked whale (*Mesoplodon carlhubbsi*).	Pelagic	Vagrant	North Pacific Ocean	NA	NL	NC
Pygmy beaked whale (*Mesoplodon peruvianis*).	Pelagic	Vagrant	28° North to 30° South in Pacific Ocean.	NA	NL	NC
Spade-toothed beaked whale (*Mesoplodon traversii*).	Pelagic	Rare	Circumantarctic	600,000 [14 16]	NL	NC
Strap-toothed beaked whale (*Mesoplodon layardii*).	Pelagic	Uncommon	30° South to Antarctic Convergence.	600,000 [14 16]	NL	NC
True's beaked whale (*Mesoplodon mirus*).	Pelagic	Vagrant	Anti-tropical in Northern and Southern Hemisphere.	NA	NL	NC
Killer whale (*Orcinus orca*)	Pelagic, shelf, coastal, pack ice.	Common	Cosmopolitan	80,000 [3]—South of Antarctic Convergence.	NL	NC
False killer whale (*Pseudorca crassidens*).	Pelagic, shelf, coastal	Uncommon	Circumglobal—tropical and warmer temperate water.	NA	NL	NC
Long-finned pilot whale (*Globicephala melas*).	Pelagic, shelf, coastal	Common	Circumpolar—19 to 68° South in Southern Hemisphere.	200,000 [3 5 14]—South of Antarctic Convergence.	NL	NC
Short-finned pilot whale (*Globicephala macrocephalus*).	Pelagic, shelf, coastal	Uncommon	Circumglobal—50° North to 40° South.	At least 600,000 [3]—Worldwide.	NL	NC
Melon-headed whale (*Peponocephala electra*).	Pelagic, shelf, coastal	Vagrant	Circumglobal—40° North to 35° South.	45,000 [3]—Eastern Tropical Pacific Ocean.	NL	NC
Bottlenose dolphin (*Tursiops truncatus*).	Coastal, shelf, offshore	Common	45° North to 45° South	At least 614,000 [3]—Worldwide.	NL ..... C—Fjordland population.	NC

TABLE 2—THE HABITAT, OCCURRENCE, RANGE, REGIONAL ABUNDANCE, AND CONSERVATION STATUS OF MARINE MAMMALS THAT MAY OCCUR IN OR NEAR THE LOW-ENERGY SEISMIC SURVEY AREA IN THE SOUTHWEST PACIFIC OCEAN, EAST OF NEW ZEALAND (SEE TEXT AND TABLES 2 IN SIO'S IHA APPLICATION FOR FURTHER DETAILS)—Continued

Species	Habitat	Occurrence	Range	Population estimate	ESA [1]	MMPA [2]
Dusky dolphin (*Lagenorhynchus obscurus*).	Shelf, slope	Common	Temperate waters—Southern Hemisphere.	12,000 to 20,000 [17]—New Zealand.	NL	NC
Fraser's dolphin (*Lagenodelphis hosei*).	Pelagic	Vagrant	Pantropical—30° North to 30° South.	289,000 [3]—Eastern Tropical Pacific Ocean.	NL	NC
Hector's dolphin (*Cephalorhynchus hectori;* including Maui's dolphin subspecies [*C. h. maui*]).	Nearshore	Rare	Shallow coastal waters—New Zealand (Maui's dolphin—west North Island).	7,400 [17] 55 [19]—Maui's	C	NC
Hourglass dolphin (*Lagenorhynchus cruciger*).	Pelagic, ice edge	Uncommon	33° South to pack ice	144,000 [3] to 150,000 [14]—South of Antarctic Convergence.	NL	NC
Pantropical spotted dolphin (*Stenella attenuata*).	Coastal, shelf, slope	Vagrant	Circumglobal—40° North to 40° South.	At least 2,000,000 [3]—Worldwide.	NL	NC
Spinner dolphin (*Stenella longirostris*).	Mainly nearshore	Vagrant	Circumglobal—40° North to 40° South.	At least 1,200,000 [3]—Worldwide.	NL	NC
Striped dolphin (*Stenella coeruleoalba*).	Off continental shelf, convergence zones, upwelling.	Vagrant	Circumglobal—50 to 40 South.	At least 1,100,000 [3]—Worldwide.	NL	NC
Risso's dolphin (*Grampus griseus*).	Slope, Pelagic	Vagrant	Circumglobal—Tropical and Temperate waters.	At least 330,000 [3]—Worldwide.	NL	NC
Rough-toothed dolphin (*Steno bredanensis*).	Pelagic	Vagrant	Circumglobal—40° North to 35° South.	NA	NL	NC
Short-beaked common dolphin (*Delphinus delphis*).	Pelagic	Common	Circumglobal—tropical and warm temperate waters.	At least 3,500,000 [3]—Worldwide.	NL	NC
Southern right whale dolphin (*Lissodelphis peronii*).	Pelagic	Uncommon	12 to 65° South	NA	NL	NC
Spectacled porpoise (*Phocoena dioptrica*).	Coastal, pelagic	Vagrant	Circumpolar—Southern Hemisphere.	NA	NL	NC
Pinnipeds						
Crabeater seal (*Lobodon carcinophaga*).	Coastal, pack ice	Vagrant	Circumpolar—Antarctic	5,000,000 to 15,000,000 [3 6]—Worldwide.	NL	NC
Leopard seal (*Hydrurga leptonyx*).	Pack ice, sub-Antarctic islands.	Vagrant	Sub-Antarctic islands to pack ice.	220,000 to 440,000 [3 7]—Worldwide.	NL	NC
Ross seal (*Ommatophoca rossii*).	Pack ice, smooth ice floes, pelagic.	Vagrant	Circumpolar—Antarctic	130,000 [3] 20,000 to 220,000 [11]—Worldwide.	NL	NC
Weddell seal (*Leptonychotes weddellii*).	Fast ice, pack ice, sub-Antarctic islands.	Vagrant	Circumpolar—Southern Hemisphere.	500,000 to 1,000,000 [3 8]—Worldwide.	NL	NC
Southern elephant seal (*Mirounga leonina*).	Coastal, pelagic, sub-Antarctic waters.	Uncommon	Circumpolar—Antarctic Convergence to pack ice.	640,000 [9] to 650,000 [3]—Worldwide 470,000—South Georgia Island [11]. 607,000 [17]	NL	NC
Antarctic fur seal (*Arctocephalus gazella*).	Shelf, rocky habitats	Vagrant	Sub-Antarctic islands to pack ice edge.	1,600,000 [10] to 3,000,000 [3]—Worldwide.	NL	NC
New Zealand fur seal (*Arctocephalus forsteri*).	Rocky habitats, sub-Antarctic islands.	Common	North and South Islands, New Zealand. Southern and Western Australia.	135,000 [3]—Worldwide 50,000 to 100,000 [18]—New Zealand.	NL	NC
Subantarctic fur seal (*Arctocephalus tropicalis*).	Shelf, rocky habitats	Vagrant	Subtropical front to sub-Antarctic islands and Antarctica.	Greater than 310,000 [3]—Worldwide.	NL	NC
New Zealand sea lion (*Phocarctos hookeri*).	Shelf, rocky habitats	Rare	Sub-Antarctic islands south of New Zealand.	12,500 [3]	NL	NC

NA = Not available or not assessed.
[1] U.S. Endangered Species Act: EN = Endangered, T = Threatened, DL = Delisted, NL = Not listed, C = Candidate.
[2] U.S. Marine Mammal Protection Act: D = Depleted, S = Strategic, NC = Not Classified.
[3] Jefferson *et al.,* 2008.
[4] Kenney, 2009.
[5] Olson, 2009.
[6] Bengston, 2009.
[7] Rogers, 2009.
[8] Thomas and Terhune, 2009.
[9] Hindell and Perrin, 2009.
[10] Arnould, 2009.
[11] Academic Press, 2009.
[12] IWC, 2014.
[13] IWC, 1981.
[14] Boyd, 2002.
[15] Dwarf and Antarctic minke whale combined.
[16] All Antarctic beaked whales combined.
[17] New Zealand Department of Conservation.
[18] Suisted and Neale, 2004.
[19] 95% confidence interval (48 to 69 animals) from Hamner *et al.* 2012, 2013.

Refer to sections 3 and 4 of SIO's IHA application for detailed information regarding the abundance and distribution, population status, and life history and behavior of these marine mammal species and their occurrence in the planned action area. The IHA application also presents how SIO calculated the estimated densities for the marine mammals in the planned study area. 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.,* seismic airgun operation, vessel movement, and gear deployment) are believed to impact marine mammals. This section is intended as a background of potential effects and does not fully consider either the specific manner in which this activity would be carried out or the mitigation that would be implemented, and how either of those would 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, 35 marine mammal species (33 cetacean and 2 pinniped species) are likely to occur in the low-energy seismic survey area. Of the 30 cetacean species likely to occur in SIO's action area, 9 are classified as low-frequency cetaceans (southern right, pygmy right, humpback, minke, Antarctic minke, Bryde's, sei, fin, and blue whale), 20 are classified as mid-frequency cetaceans (sperm, Cuvier's beaked, Shepherd's beaked, southern bottlenose, Andrew's beaked, Blainville's beaked, Gray's beaked, Hector's beaked, spade-toothed beaked, strap-toothed beaked, killer, false killer, long-finned pilot, and short-finned pilot whale, and bottlenose, dusky, Hector's, hourglass, short-beaked common, and southern right whale dolphin), and 1 is classified as high-frequency cetaceans (pygmy sperm whale) (Southall *et al.,* 2007). Of the 2 pinniped species likely to occur in SIO's proposed action area, 1 is classified as phocid (southern elephant seal) and 1 is classified as otariid (New Zealand 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.

Acoustic stimuli generated by the operation of the airguns, which introduce sound into the marine environment, have the potential to cause Level B harassment of marine mammals in the study area. The effects of sounds from airgun operations 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). Although the possibility cannot be entirely excluded, it is unlikely that the proposed 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 in the notice of the proposed IHA (80 FR 15060, March 20, 2015, some behavioral disturbance is expected. A more comprehensive review of these issues can be found in the NSF/USGS PEIS (2011) and L–DEO's *Final Environmental Assessment of a Marine Geophysical Survey by the R/V Marcus G. Langseth in the Atlantic Ocean off Cape Hatteras, September to October 2014.*

The notice of the proposed IHA (80 FR 15060, March 20, 2015) included a discussion of the effects of sounds from airguns, bathymetric surveys, heat-flow measurements, and other acoustic devices and sources on mysticetes and odontocetes, including tolerance, masking, behavioral disturbance, hearing impairment, and other non-auditory physical effects. The notice of the proposed IHA (80 FR 15060, March 20, 2015) also included a discussion of the effects of vessel movement and collisions as well as entanglement. NMFS refers the readers to SIO's IHA application and Environmental Analysis 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 (80 FR 15060, March 20, 2015). The low-energy seismic survey is not anticipated to have any permanent impact on habitats used by the marine mammals in the study area, including the food sources they use (*i.e.,* fish and invertebrates). Additionally, no physical damage to any habitat is anticipated as a result of conducing airgun operations during the low-energy seismic survey. While NMFS anticipates that the specified activity may result in marine mammals avoiding certain areas due to temporary ensonification, this impact is temporary

and reversible, and was considered in further detail in the notice of the proposed IHA (80 FR 15060, March 20, 2015), as behavioral modification. The main impact associated with the planned 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).

SIO reviewed the following source documents and incorporated a suite of appropriate mitigation measures into the project description.

(1) Protocols used during previous NSF and USGS-funded seismic research cruises as approved by NMFS and detailed in the ''Final Programmatic Environmental Impact Statement/ Overseas Environmental Impact Statement for Marine Seismic Research Funded by the National Science Foundation or Conducted by the U.S. Geological Survey;''

(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 effects from acoustic stimuli associated with the planned activities, SIO must implement the following mitigation measures for marine mammals:

(1) Exclusion zones around the sound source;

(2) Speed and course alterations;

(3) Shut-down procedures; and

(4) Ramp-up procedures.

Exclusion Zones—During pre-planning of the cruise, the smallest airgun array was identified that could be used and still meet the geophysical scientific objectives. SIO use radii to designate exclusion and buffer zones and to estimate take for marine mammals. Table 3 (see below) shows the distances at which one would expect to receive three sound levels (160, 180, and 190 dB) from the two GI airgun array. The 180 and 190 dB level shut-down criteria are applicable to cetaceans and pinnipeds, respectively, as specified by NMFS (2000) and will be used to establish the exclusion and buffer zones.

TABLE 3—PREDICTED AND MODELED (TWO 45 IN^3 GI AIRGUN ARRAY) DISTANCES TO WHICH SOUND LEVELS ≥160, 180, AND 190 DB RE 1 μPA (RMS) COULD BE RECEIVED IN INTERMEDIATE AND DEEP WATER DURING THE PROPOSED LOW-ENERGY SEISMIC SURVEY IN THE SOUTHWEST PACIFIC OCEAN, EAST OF NEW ZEALAND, MAY TO JUNE 2015

Source and total volume	Tow depth (m)	Water depth (m)	Predicted RMS radii distances (m) for 2 GI airgun array		
			160 dB	180 dB	190 dB
Two 45 in^3 GI Airguns. (90 in^3)	2	Intermediate (100 to 1,000).	600 (1,968.5 ft)	100 (328.1 ft)	15 (49.2 ft) *100 would be used for pinnipeds as described in NSF/USGS PEIS.*
Two 45 in^3 GI Airguns (90 in^3).	2	Deep (>1,000)	400 (1,312.3 ft)	100 (328.1 m)	10 (32.8 ft) *100 would be used for pinnipeds as described in NSF/USGS PEIS.*

Based on the NSF/USGS PEIS and Record of Decision, for situations which incidental take of marine mammals is anticipated, SIO has established exclusion zones of 100 m for cetaceans and pinnipeds for all low-energy acoustic sources in water depths greater than 100 m would be implemented.

Received sound levels were modeled by L–DEO for a number of airgun configurations, including two 45 in^3 Nucleus G airguns, in relation to distance and direction from the airguns (see Figure 2 of the IHA application). In addition, propagation measurements of pulses from two GI airguns have been reported for shallow water (approximately 30 m [98.4 ft] depth) in the Gulf of Mexico (Tolstoy *et al.,* 2004). However, measurements were not made for the two GI airguns in deep water. The model does not allow for bottom interactions, and is most directly applicable to deep water. Based on the modeling, estimates of the maximum distances from the GI airguns where sound levels are predicted to be 190, 180, and 160 dB re 1 μPa (rms) in intermediate and deep water were determined (see Table 3 above).

Empirical data concerning the 190, 180, and 160 dB (rms) distances were acquired for various airgun arrays based on measurements during the acoustic verification studies conducted by L–DEO in the northern Gulf of Mexico in 2003 (Tolstoy *et al.,* 2004) and 2007 to 2008 (Tolstoy *et al.,* 2009). Results of the 18 and 36 airgun arrays are not relevant for the two GI airguns to be used in the proposed low-energy seismic survey because the airgun arrays are not the same size or volume. The empirical data for the 6, 10, 12, and 20 airgun arrays indicate that, for deep water, the L–DEO model tends to overestimate the received sound levels at a given distance (Tolstoy *et al.,* 2004). Measurements were not made for the two GI airgun array in deep water; however, SIO proposed to use the safety radii predicted by L–DEO's model for the planned GI airgun operations in intermediate and deep water, although they are likely conservative given the empirical results for the other arrays.

Based on the modeling data, the outputs from the pair of 45 in^3 GI airguns planned to be used during the low-energy seismic survey are considered a low-energy acoustic source in the NSF/USGS PEIS (2011) for marine seismic research. A low-energy seismic source was defined in the NSF/USGS PEIS as an acoustic source whose received level is less than or equal to 180 dB at 100 m (including any single or any two GI airguns and a single pair of clustered airguns with individual volumes of less than or equal to 250 in^3). The NSF/USGS PEIS also established for these low-energy sources a standard exclusion zone of 100 m for all low-energy sources in water depths greater than 100 m. This standard 100 m exclusion zone will be used during the proposed low-energy seismic survey using the pair of 45 in^3 GI airguns. The 180 and 190 dB (rms) radii are the current Level A harassment criteria applicable to cetaceans and pinnipeds, respectively; these levels were used to establish exclusion zones. Therefore, the assumed 180 and 190 dB radii are 100

m for intermediate and deep water. If the PSO detects a marine mammal within or about to enter the appropriate exclusion zone, the airguns will be shut-down immediately.

Speed and Course Alterations—If a marine mammal is detected outside the exclusion zone and, based on its position and direction of travel (relative motion), is likely to enter the exclusion zone, changes of the vessel's speed and/or direct course will be considered if this does not compromise operational safety or damage the deployed equipment. This will be done if operationally practicable while minimizing the effect on the planned science objectives. For marine seismic surveys towing large streamer arrays, course alterations are not typically implemented due to the vessel's limited maneuverability. However, the *Revelle* will be towing a relatively short hydrophone streamer, so its maneuverability during operations with the hydrophone streamer will not be as limited as vessels towing long streamers, thus increasing the potential to implement course alterations, if necessary. After any such speed and/or course alteration is begun, the marine mammal activities and movements relative to the seismic vessel would be closely monitored to ensure that the marine mammal does not approach within the applicable exclusion zone. If the marine mammal appears likely to enter the exclusion zone, further mitigation actions will be taken, including further speed and/or course alterations, and/or shut-down of the airgun(s). Typically, during airgun operations, the source vessel is unable to change speed or course, and one or more alternative mitigation measures will need to be implemented.

Shut-down Procedures—If a marine mammal is detected outside the exclusion zone for the airgun(s) but is likely to enter the exclusion zone, and the vessel's speed and/or course cannot be changed to avoid having the animal enter the exclusion zone, SIO will shut-down the operating airgun(s) before the animal is within the exclusion zone. Likewise, if a marine mammal is already within the exclusion zone when first detected, the airguns will be shut-down immediately.

Following a shut-down, SIO will not resume airgun activity until the marine mammal has cleared the exclusion zone, or until the PSO is confident that the animal has left the vicinity of the vessel. SIO 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, dwarf and pygmy sperm, killer, and beaked whales).

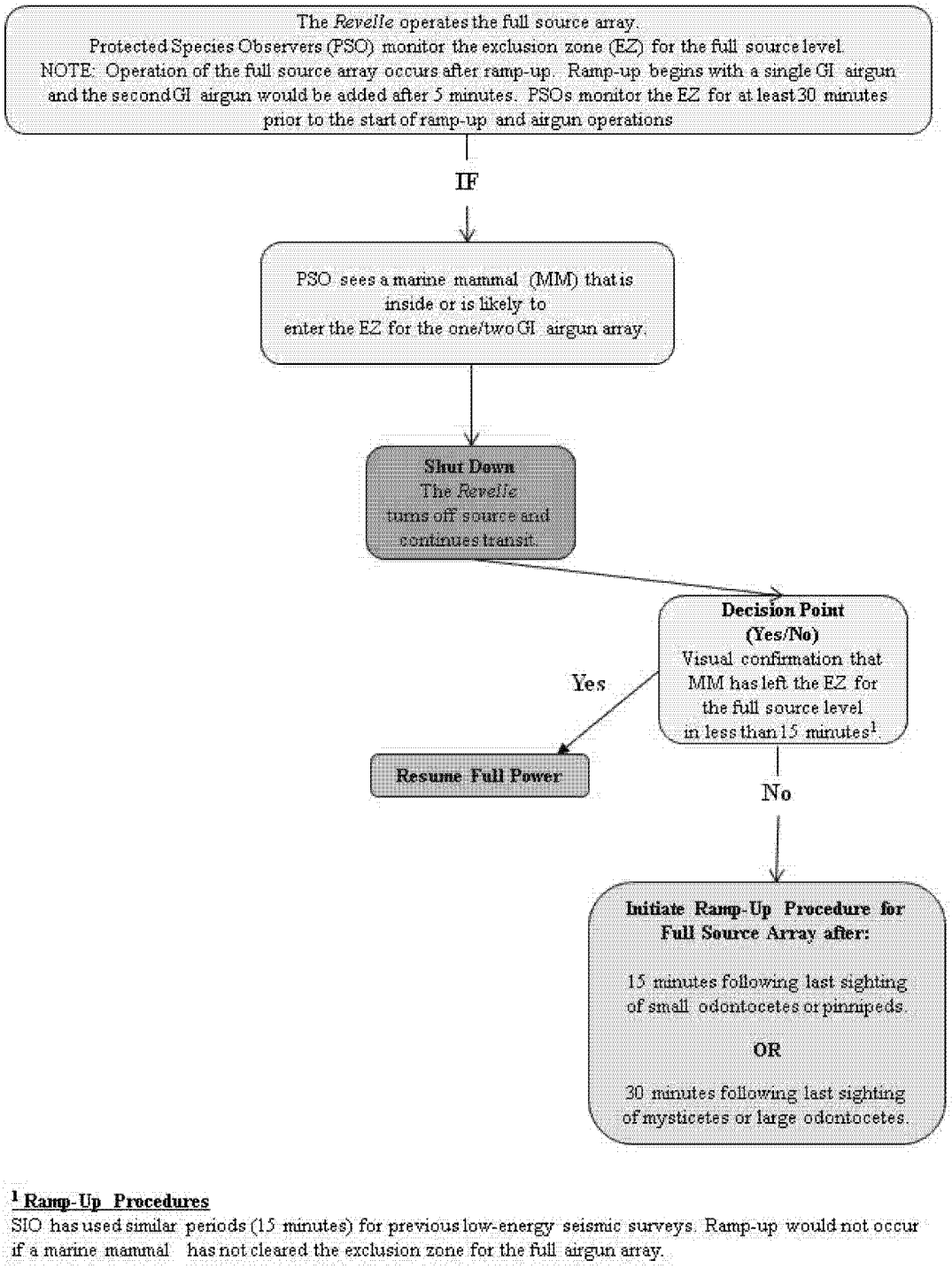
Although power-down procedures are often standard operating practice for seismic surveys, they will not be used during this planned low-energy seismic survey because powering-down from two airguns to one airgun will make only a small difference in the exclusion zone(s) that probably will not be enough to allow continued one-airgun operations if a marine mammal came within the exclusion zone for two airguns.

Ramp-up Procedures—Ramp-up of an airgun array provides a gradual increase in sound levels, and involves a step-wise increase in the number and total volume of airguns firing until the full volume of the airgun array is achieved. The purpose of a ramp-up is to ''warn'' marine mammals in the vicinity of the airguns and to provide the time for them to leave the area, avoiding any potential injury or impairment of their hearing abilities. SIO will follow a ramp-up procedure when the airgun array begins operating after a specified period without airgun operations or when a shut-down has exceeded that period. For the present cruise, this period will be approximately 15 minutes. SIO, L–DEO, USGS, NSF, and ASC have used similar periods (approximately 15 minutes) during previous low-energy seismic surveys.

Ramp-up will begin with a single GI airgun (45 in^3). The second GI airgun (45 in^3) will be added after 5 minutes. During ramp-up, the PSOs will monitor the exclusion zone, and if marine mammals are sighted, a shut-down will be implemented as though both GI airguns were operational.

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, SIO will not commence the ramp-up. Given these provisions, it is likely that the airgun array will not be ramped-up from a complete shut-down during low light conditions, at night, or in thick fog, (*i.e.,* poor visibility conditions) because the outer part of the exclusion zone for that array will not be visible during those conditions. If one airgun has been operating, ramp-up to full power will be permissible during low light, 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 if they choose. SIO will not initiate a ramp-up of the airguns if a marine mammal is sighted within or near the applicable exclusion zones during day or night. NMFS refers the reader to Figure 2, which presents a flowchart representing the ramp-up and shut-down protocols described in this notice.

Figure 2. Current mitigation procedures for low-energy seismic surveys.



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 of 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 airguns, 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 time (total number or number at biologically important time or location) individuals would be exposed to received levels of airguns, 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 airguns, or other activities, 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 or 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 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. SIO 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 has not been modified or supplemented between the notice of the proposed IHA (80 FR 15060, March 20, 2015) and this notice announcing the issuance of the IHA, as none of the comments or new information received from the public during the public comment period required a change to the plan.

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 (airguns) 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 received level, distance from source, and other pertinent information); and
- 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

SIO will conduct marine mammal monitoring during the low-energy seismic survey, in order to implement the mitigation measures that require real-time monitoring and to satisfy the monitoring requirements of the IHA. SIO'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. SIO is prepared to discuss coordination of their monitoring program with any related work that might be done by other groups insofar as this is practical and desirable.

Vessel-Based Visual Monitoring

SIO's PSOs will be based aboard the seismic source vessel and will watch for marine mammals near the vessel during daytime airgun operations and during any ramp-ups of the airguns at night. PSOs will also watch for marine mammals near the seismic vessel for at least 30 minutes prior to the start of airgun operations and after an extended shut-down (*i.e.,* greater than approximately 15 minutes for this low-energy seismic survey). When feasible, PSOs will conduct observations during daytime periods when the seismic system is not operating (such as during transits) for comparison of sighting rates and behavior with and without airgun operations and between acquisition periods. Based on PSO observations, the airguns will be shut-down when marine mammals are observed within or about to enter a designated exclusion zone.

During airgun operations in the Southwest Pacific Ocean, East of New Zealand, at least three PSOs will be based aboard the *Revelle.* At least one PSO will stand watch at all times while the *Revelle* is operating airguns during the low-energy seismic survey; this procedure would also be followed when the vessel is in transit. SIO will appoint the PSOs with NMFS's concurrence. The lead PSO will be experienced with marine mammal species in the Pacific Ocean and/or off the east coast of New Zealand, the second and third PSOs would receive additional specialized training from the lead PSO to ensure that they can identify marine mammal species commonly found in the Southwest Pacific Ocean. Observations will take place during ongoing daytime operations and ramp-ups of the airguns. During the majority of seismic operations, at least one PSO will be on

duty from observation platforms (*i.e.,* the best available vantage point on the source vessel) to monitor marine mammals near the seismic vessel. PSO(s) will be on duty in shifts no longer than 4 hours in duration. Other crew will also be instructed to assist in detecting marine mammals and implementing mitigation requirements (if practical). Before the start of the low-energy seismic survey, the crew will be given additional instruction on how to do so.

The *Revelle* is a suitable platform for marine mammal observations and will serve as the platform from which PSOs will watch for marine mammals before and during airgun operations. The *Revelle* has been used for marine mammal observations during the routine California Cooperative Oceanic Fisheries Investigations (CalCOFI). Two locations are likely as observation stations onboard the *Revelle*. Observing stations are located at the 02 level, with PSO eye level at approximately 10.4 m (34 ft) above the waterline and the PSO will have a good view around the entire vessel. At a forward-centered position on the 02 deck, the view is approximately 240° around the vessel; and one atop the aft hangar, with an aft-centered view includes the 100 m radius around the GI airguns. The PSO eye level on the bridge is approximately 15 m (49.2 ft) above sea level. PSOs will work on the enclosed bridge and adjoining aft steering station during any inclement weather.

Standard equipment for PSOs will be reticle binoculars and optical range finders. Night-vision equipment will be available at night and low-light conditions during the cruise. The PSOs will be in communication with ship's officers on the bridge and scientists in the vessel's operations laboratory, so they can advise promptly of the need for avoidance maneuvers or seismic source shut-down. During daylight, the PSO(s) will scan the area around the vessel systematically with reticle binoculars (*e.g.,* 7 × 50 Fujinon FMTRC–SX), Big-eye binoculars (*e.g.,* 25 × 150 Fujinon MT), optical range-finders (to assist with distance estimation), and the naked eye. These binoculars will have a built-in daylight compass. Estimating distances is done primarily with the reticles in the binoculars. The optical range-finders are useful in training PSOs to estimate distances visually, but are generally not useful in measuring distances to animals directly. At night, night-vision equipment will be available. The PSO(s) will be in direct (radio) wireless communication with ship's officers on the bridge and scientists in the vessel's operations laboratory during seismic operations, so they can advise the vessel operator, science support personnel, and the science party promptly of the need for avoidance maneuvers or a shut-down of the seismic source.

When a marine mammal is detected within or about to enter the designated exclusion zone, the airguns will immediately be shut-down, unless the vessel's speed and/or course can be changed to avoid having the animal enter the exclusion zone. The PSO(s) will continue to maintain watch to determine when the animal is outside the exclusion zone by visual confirmation. Airgun operations will not resume until the animal is confirmed to have left the exclusion zone, or is not observed after 15 minutes for species with shorter dive durations (small odontocetes and pinnipeds) or 30 minutes for species with longer dive durations (mysticetes and large odontocetes, including sperm, dwarf and pygmy sperm, killer, and beaked whales).

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. They will also provide information needed to order a shut-down of the airguns when a marine mammal is within or near the exclusion zone. Observations will also be made during daylight periods when the *Revelle* is underway without seismic airgun operations (*i.e.,* transits to, from, and through the study area) 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 seismic vessel, sighting cue, apparent reaction to the seismic source or vessel (*e.g.,* none, avoidance, approach, paralleling, etc.), and behavioral pace.

2. Time, location, heading, speed, activity of the vessel (including number of airguns operating and whether in state of ramp-up or shut-down), sea state, wind force, visibility, cloud cover, 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. Data will be entered into an electronic database. The data accuracy will be verified by computerized data validity checks as the data are entered and by subsequent manual checking of the database by the PSOs at sea. 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 the following information:

1. The basis for real-time mitigation (airgun 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 seismic study is conducted.

4. Information to compare the distance and distribution of marine mammals relative to the source vessel at times with and without airgun operations.

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

Reporting

SIO will submit a comprehensive 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 near the operations. The report submitted to NMFS and NSF will provide full documentation of methods, results, and interpretation pertaining to all monitoring. The 90-day report would summarize the dates and locations of airgun operations and all marine mammal sightings (*i.e.,* dates, times, locations, activities, and associated seismic survey activities). The report will include, at a minimum:

- Summaries of monitoring effort—total hours, total distances, and distribution of marine mammals through the study 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 airgun operations;

- Sighting rates of marine mammals during periods with and without airgun operations (and other variables that could affect detectability);
- Initial sighting distances versus airgun operations state;
- Closest point of approach versus airgun operations state;
- Observed behaviors and types of movements versus airgun operations activity state;
- Numbers of sightings/individuals seen versus airgun operations state; and
- Distribution around the source vessel versus airgun operations 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. NMFS will review the draft report and provide any comments it may have, and SIO will incorporate NMFS's comments and prepare a final report. After the report is considered final, it would 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), SIO 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*. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of 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 SIO to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. SIO 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 SIO discover 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), SIO shall immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301–427–8401, and/or by email to *Jolie.Harrison@noaa.gov* and *Howard.Goldstein@noaa.gov*. The report must include the same information identified in the paragraph above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS shall work with SIO to determine whether modifications in the activities are appropriate.

Reporting an Injured or Dead Marine Mammal Not Related to the Activities—In the event that SIO 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), SIO shall report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301–427–8401, and/or by email to *Jolie.Harrison@noaa.gov* and *Howard.Goldstein@noaa.gov*, within 24 hours of discovery. SIO shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS. 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 4—NMFS'S CURRENT UNDERWATER ACOUSTIC EXPOSURE CRITERIA

[Impulsive (non-explosive) sound]

Criterion	Criterion definition	Threshold
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).

Level B harassment is anticipated and authorized as a result of the low-energy seismic survey in the Southwest Pacific Ocean, East of New Zealand. Acoustic stimuli (*i.e.,* increased underwater sound) generated during the operation of the seismic airgun array are expected to result in the behavioral disturbance of some marine mammals. NMFS's current underwater exposure criteria for impulsive sound are detailed in Table 4 (above). There is no evidence that the planned activities could result in injury, serious injury, or mortality. The required mitigation and monitoring measures will minimize any potential risk for injury, serious injury, or mortality.

The following sections describe SIO's methods to estimate take by incidental harassment and present the applicant's estimates of the numbers of marine mammals that could be affected. The estimates are based on a consideration of the number of marine mammals that could be harassed during the approximately 135 hours and 1,250 km of seismic airgun operations with the two GI airgun array to be used.

Density Data

There are no known systematic aircraft- or ship-based surveys conducted for marine mammals stock assessments and very limited population information available for marine mammals in offshore waters of the Southwest Pacific Ocean off the east coast of New Zealand. For most cetacean species, SIO and NMFS used densities from extensive NMFS Southwest Fisheries Science Center (SWFSC) cruises (Ferguson and Barlow, 2001, 2003; Barlow, 2003, 2010; Forney, 2007) in one province of Longhurst's (2006) pelagic biogeography, the California Current Province (CALC). That province is similar to the South Subtropical Convergence Province (SSTC) in which the proposed low-energy seismic survey is located, in that productivity is high and large pelagic fish such as tuna occur. Specifically, SIO and NMFS used the 1986 to 1996 data from blocks 35, 36, 47, 48, 59, and 60 of Ferguson and Barlow (2001, 2003), the 2001 data from Barlow (2003) for the Oregon, Washington, and California strata, and the 2005 and 2008 data from Forney (2007) and Barlow (2010), respectively, for the two strata combined. The densities used were effort-weighted means for the 10 locations (blocks or States). The surveys off California, Oregon, and Washington were conducted up to approximately 556 km (300.2 nmi) offshore, and most of those data were from offshore areas that overlap with the above blocks selected from Ferguson and Barlow (2001, 2003).

For pinnipeds, SIO and NMFS used the densities in Bonnell *et al.* (1992) of northern fur seals (*Callorhinus ursinus*) and northern elephant seals in offshore areas of the western U.S. (the only species regularly present in offshore areas there) to estimate the numbers of pinnipeds that might be present off New Zealand.

The marine mammal species that will be encountered during the low-energy seismic survey will be different from those sighted during surveys off the western U.S. and in the Eastern Tropical Pacific Ocean. However, the overall abundances of species groups with generally similar habitat requirements are expected to be roughly similar. Thus, SIO and NMFS used the data described above to estimate the group densities of beaked whales, delphinids, small whales, and mysticetes in the proposed study area. SIO and NMFS then estimated the relative abundance of individual southern species within the species groups using various surveys and other information from areas near the study area, and general information on species' distributions such as latitudinal ranges and group sizes. Group densities from northern species were multiplied by their estimated relative abundance off New Zealand divided by the relative abundance for all species in the species group to derive estimates for the southern species (see Table 3 of the IHA application).

Densities for several cetacean species are available for the Southern Ocean (Butterworth *et al.,* 1994), as follows: (1) For humpback, sei, fin, blue, sperm, killer, and pilot whales in Antarctic Management areas I to VI south of 60° South, based on the 1978/1979 to 1984 and 1985/1986 to 1990/1991 IWC/IDCR circumpolar sighting survey cruises, and (2) for humpback, sei, fin, blue, and sperm whales extrapolated to latitudes 30 to 40° South, 40 to 50° South, 50 to 60° South based on Japanese scouting vessel data from 1965/1966 to 1977/1978 and 1978/1979 to 1987/1988. SIO and NMFS calculated densities based on abundance and surface areas given in Butterworth *et al.* (1994) and used the weighted or mean density for the Regions V and/or VI (whichever is available) due to locations that represent foraging areas or distributions for animals that are likely to move past New Zealand during northerly migrations or breed in New Zealand waters.

The densities used for purposes of estimating potential take do not take into account the patchy distributions of marine mammals in an ecosystem, at least on the moderate to fine scales over which they are known to occur. Instead, animals are considered evenly distributed throughout the assessed study area and seasonal movement patterns are not taken into account, as none are available. 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, using the best available science.

TABLE 5—ESTIMATED DENSITIES AND NUMBERS OF MARINE MAMMAL SPECIES THAT MIGHT BE EXPOSED TO GREATER THAN OR EQUAL TO 160 dB (AIRGUN OPERATIONS) DURING SIO'S LOW-ENERGY SEISMIC SURVEY (APPROXIMATELY 1,250 KM OF TRACKLINES/APPROXIMATELY 1,154 KM^2 ENSONIFIED AREA FOR AIRGUN OPERATIONS) IN THE SOUTHWEST PACIFIC OCEAN, EAST OF NEW ZEALAND, MAY TO JUNE 2015

Species	Density U.S. West Coast/Southern Ocean/estimate used (# of animals/1,000 km^2) [1]	Calculated take from seismic airgun operations (*i.e.,* estimated number of individuals exposed to sound levels ≥160 dB re 1 μPa) [2]	Authorized take [3]	Abundance [4]	Approximate percentage of population estimate (authorized take) [5]	Population trend [6]
Mysticetes						
Southern right whale	0.98/NA/0.98	1.13	2	8,000 to 15,000—Worldwide. 12,000—Southern Hemisphere. 2,700—Sub-Antarctic New Zealand.	0.03—Worldwide ..... 0.02—Southern Hemisphere. 0.07—Sub-Antarctic New Zealand.	Increasing at 7 to 8% per year.
Pygmy right whale	0.39/NA/0.39	0.45	2	NA	NA	NA.
Humpback whale.	0.98/0.25/0.25	0.29	2	35,000 to 42,000—Southern Hemisphere.	<0.01—Southern Hemisphere.	Increasing.
Antarctic minke whale ..	0.59/NA/0.59	0.68	2	720,000 to 750,000—Southern Hemisphere.	<0.01—Southern Hemisphere.	Stable.
Minke whale (including dwarf minke whale sub-species).	0.59/NA/0.59	0.68	2	720,000 to 750,000—Southern Hemisphere.	<0.01—Southern Hemisphere.	NA.

TABLE 5—ESTIMATED DENSITIES AND NUMBERS OF MARINE MAMMAL SPECIES THAT MIGHT BE EXPOSED TO GREATER THAN OR EQUAL TO 160 dB (AIRGUN OPERATIONS) DURING SIO'S LOW-ENERGY SEISMIC SURVEY (APPROXIMATELY 1,250 KM OF TRACKLINES/APPROXIMATELY 1,154 KM^2 ENSONIFIED AREA FOR AIRGUN OPERATIONS) IN THE SOUTHWEST PACIFIC OCEAN, EAST OF NEW ZEALAND, MAY TO JUNE 2015—Continued

Species	Density U.S. West Coast/Southern Ocean/estimate used (# of animals/1,000 km^2) [1]	Calculated take from seismic airgun operations (*i.e.,* estimated number of individuals exposed to sound levels ≥160 dB re 1 μPa) [2]	Authorized take [3]	Abundance [4]	Approximate percentage of population estimate (authorized take) [5]	Population trend [6]
Bryde's whale	0.20/NA/0.20	0.23	2	At least 30,000 to 40,000—Worldwide. 21,000—Northwestern Pacific Ocean 48,109.	<0.01—Worldwide <0.01—Northwestern Pacific Ocean. <0.01	NA.
Sei whale	0.59/0.08/0.08	0.09	2	80,000—Worldwide 10,000—South of Antarctic Convergence.	<0.01—Worldwide 0.02—South of Antarctic Convergence.	NA.
Fin whale	0.59/0.13/0.13	0.15	2	140,000—Worldwide 15,000—South of Antarctic Convergence.	<0.01—Worldwide 0.01—South of Antarctic Convergence.	NA.
Blue whale	0.59/0.05/0.05	0.06	2	8,000 to 9,000—Worldwide. 2,300—True Southern Hemisphere. 1,500—Pygmy	0.03—Worldwide 0.09—True Southern Hemisphere. 0.13—Pygmy	NA.
Odontocetes						
Sperm whale	1.62/1.16/1.16	1.34	10	360,000—Worldwide 30,000—South of Antarctic Convergence.	<0.01—Worldwide 0.03—South of Antarctic Convergence.	NA.
Pygmy sperm whale	0.97/NA/0.97	1.12	5	NA	NA	NA.
Arnoux's beaked whale	NA/NA/NA	NA	8	NA	NA	NA.
Cuvier's beaked whale	0.69/NA/0.69	0.80	2	600,000	<0.01	NA.
Shepherd's beaked whale.	0.46/NA/0.46	0.53	3	600,000	<0.01	NA.
Southern bottlenose whale.	0.46/NA/0.46	0.53	2	50,000—South of Antarctic Convergence 600,000.	<0.01—South of Antarctic Convergence. <0.01	NA.
Andrew's beaked whale	0.46/NA/0.46	0.53	2	600,000	<0.01	NA.
Blainville's beaked whale.	0.23/NA/0.23	0.27	2	600,000	<0.01	NA.
Gray's beaked whale	0.92/NA0.92	1.06	2	600,000	<0.01	NA.
Hector's beaked whale	0.46/NA/0.46	0.53	2	600,000	<0.01	NA.
Pygmy beaked whale	NA/NA/NA	NA	3	NA	NA	NA.
Spade-toothed beaked whale.	0.23/NA/0.23	0.27	2	600,000	<0.01	NA.
Strap-toothed beaked whale.	0.69/NA/0.69	0.80	3	600,000	<0.01	NA.
Killer whale	0.45/5.70/5.70	6.58	12	80,000—South of Antarctic Convergence.	0.02—South of Antarctic Convergence.	NA.
False killer whale	0.27/NA/0.27	0.31	10	NA	NA	NA.
Long-finned pilot whale	0.27/6.41/6.41	7.40	20	200,000—South of Antarctic Convergence.	0.01—South of Antarctic Convergence.	NA.
Short-finned pilot whale	0.45/NA/0.45	0.52	20	At least 600,000—Worldwide.	<0.01—Worldwide	NA.
Bottlenose dolphin	81.55/NA/81.55	94.11	95	At least 614,000—Worldwide.	0.02—Worldwide	NA.
Dusky dolphin	81.55/NA/81.55	94.11	95	12,000 to 20,000—New Zealand.	0.79—New Zealand	NA.
Hector's dolphin	32.62/NA/32.62	37.64	38	7,400	0.51	Declining.
Hourglass dolphin	48.93/NA/48.93	56.47	57	144,000 to 150,000—South of Antarctic Convergence.	0.04—South of Antarctic Convergence.	NA.
Risso's dolphin	NA/NA/NA	NA	10	At least 330,000—Worldwide.	<0.01—Worldwide	NA.
Short-beaked common dolphin.	163.10/NA/163.10	188.22	189	At least 3,500,000—Worldwide.	<0.01—Worldwide	NA.
Southern right whale dolphin.	48.93/NA/48.93	56.46	57	NA	NA	NA.
Pinnipeds						
Southern elephant seal	5.11/NA/5.11	5.90	6	640,000 to 650,000—Worldwide. 470,000—South Georgia Island 607,000.	<0.01—Worldwide or South Georgia Island.	Increasing, decreasing, or stable depending on breeding population.
New Zealand fur seal	12.79/NA/12.79	14.76	15	135,000—Worldwide 50,000 to 100,000—New Zealand.	0.01—Worldwide 0.03—New Zealand.	Increasing.

NA = Not available or not assessed.

[1] Densities based on sightings from NMFS SWFSC, IWC, and Bonnell *et al.* (2012) data.
[2] Calculated take is estimated density multiplied by the area ensonified to 160 dB (rms) around the seismic tracklines, increased by 25% for contingency.
[3] Adjusted to account for average group size.
[4] See population estimates for marine mammal species in Table 3 (above).
[5] Total authorized takes expressed as percentages of the species or regional populations.
[6] Jefferson *et al.* (2008).

Calculation

As described above, 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 U.S. west coast and Southern Ocean as a proxy for the planned study area off the east coast of New Zealand. SIO then 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 (rms) for seismic airgun operations 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 in the area (in the absence of the low-energy seismic survey). The number of possible exposures can be estimated by considering the total marine area that would be within the 160 dB radius (the diameter is 400 m multiplied by 2 for deep water depths, the diameter is 600 m multiplied by 2 for intermediate water depths) around the operating airguns, including areas of overlap. The spacing of tracklines is 500 m (1,640.4 ft) in the smaller grids and 1,250 m (4,101.1 ft) in the larger grids. Overlap was measured using GIS and was minimal (area with overlap is equal to 1.13 multiplied by the area without overlap). The take estimates were calculated without overlap. The 160 dB radii are based on acoustic modeling data for the airguns that may be used during the planned action (see SIO's IHA application). During the low-energy seismic survey, the transect lines are widely spaced relative to the 160 dB distance. As summarized in Table 3 (see Table 1 and Figure 2 of the IHA application), the modeling results for the low-energy seismic airgun array indicate the received levels are dependent on water depth. Since the majority of the planned airgun operations would be conducted in waters 100 to 1,000 m deep or greater than 1,000 m deep, the buffer zone of 600 m or 400 m, respectively, for the two 45 in^3 GI airguns was used.

The number of different individuals potentially exposed to received levels greater than or equal to 160 dB re 1 µPa (rms) from seismic airgun operations was calculated by multiplying:

(1) The expected species density (in number/km^2), times.

(2) The anticipated area to be ensonified to that level during airgun operations (excluding overlap).

The area expected to be ensonified to 160 dB (rms) was determined by entering the planned tracklines into MapInfo GIS using the GIS to identify the relevant areas by ''drawing'' the applicable 160 dB (rms) isopleth around each trackline, and then calculating the total area within the isopleth. Applying the approach described above, approximately 1,153.6 km^2 (including the 25% contingency [approximately 923 km^2 without contingency]) will be ensonified within the 160 dB isopleth for seismic airgun operations on one or more occasions during the planned low-energy seismic survey. The total ensonified area (1,154 km^2 [336.5 nmi^2]) was calculated by adding 847 km^2 (246.9 nmi^2) in deep water, 76 km^2 (22.2 nmi^2), and 230.8 km^2 (67.3 nmi^2) for the 25% contingency.

The take calculations do not explicitly add animals to account for ''turnover,'' the fact that new animals not accounted for in the initial density snapshot could also approach and enter the area ensonified above 160 dB for seismic airgun operations. However, studies suggest that many marine mammals will avoid exposing themselves to sounds at this level, which suggests that there would not necessarily be a large number of new animals entering the area once the seismic survey started. Because this approach for calculating take estimates does not account for turnover in the marine mammal populations in the area during the course of the planned low-energy seismic survey, the actual number of individuals exposed may be underestimated. However, any underestimation is likely offset by the conservative (*i.e.,* probably overestimated) line-kilometer distances (including the 25% contingency) used to calculate the survey area, and the fact that the approach assumes no cetaceans or pinnipeds would move away from or toward the tracklines as the *Revelle* approaches in response to increasing sound levels before the levels reach 160 dB for seismic airgun operations, which is likely to occur and would decrease the density of marine mammals in the survey area. Another way of interpreting the estimates in Table 5 is that they represent the number of individuals that would be expected (in absence of a seismic program) to occur in the waters that would be exposed to greater than or equal to 160 dB (rms) for seismic airgun operations.

SIO's estimates of exposures to various sound levels assume that the planned low-energy seismic survey will be carried out in full; however, the ensonified areas calculated using the planned number of line-kilometers has been increased by 25% to accommodate lines that may need to be repeated, equipment testing, etc. As is typical during offshore seismic surveys, inclement weather and equipment malfunctions would be likely to cause delays and may limit the number of useful line-kilometers of airgun operations that can be undertaken. The estimates of the numbers of marine mammals potentially exposed to 160 dB (rms) received levels are precautionary and probably overestimate the actual numbers of marine mammals that could be involved. These estimates assume that there will be no weather, equipment, or mitigation delays that limit the airgun operations, which is highly unlikely.

Table 5 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 seismic airgun operations during the low-energy seismic survey if no animals moved away from the survey vessel. The total authorized take is presented in column 4 of Table 5.

Encouraging and Coordinating Research

SIO and NSF will coordinate the planned marine mammal monitoring program associated with the low-energy seismic survey with other parties that express interest in this activity and area. SIO and NSF will coordinate with applicable U.S. agencies (*e.g.,* NMFS) and the government of New Zealand, and will comply with their requirements. The planned low-energy seismic survey falls under Level 3 of the ''Code of Conduct for minimizing acoustic disturbance to marine mammals from seismic survey operations'' issued by New Zealand. Level 3 seismic surveys are exempt from the provisions of the Code of Conduct.

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 impact 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 (in the Southwest Pacific Ocean, East of New Zealand study area). 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.) and 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, effects on habitat, and the status of the species.

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

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

(2) The number and nature of anticipated injuries;

(3) The number, nature, intensity, and duration of takes by Level B harassment (all of which are relatively limited in this case);

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

(5) The status of stock or species of marine mammals (*e.g.,* depleted, ESA-listed, decreasing, increasing, stable, impact relative to the size of the population);

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

(7) The effectiveness of monitoring and mitigation measures.

To avoid repetition, the discussion of NMFS's analyses applies to all the species or stocks for which take is being authorized (listed in Table 5), given that the anticipated effects of this short duration low-energy seismic survey on marine mammals are expected to be relatively similar in nature in this case. Additionally, there is no information about the size, status, or structure of any species or stock that would lead to a different analysis for this activity. NMFS has determined that the specified activities associated with the low-energy seismic survey are not likely to cause long-term behavioral disturbance, PTS, or other (non-auditory) injury, serious injury, or death, based on the analysis contained in the notice of the proposed IHA (80 FR 15060, March 20, 2015). NMFS also considered the following factors:

(1) The anticipated impacts of SIO and NSF's low-energy seismic survey on marine mammals are temporary behavioral changes due to avoidance of the action area.

(2) The likelihood that marine mammals approaching the action area will be traveling through the area or opportunistically foraging within the vicinity, as no known breeding, calving, pupping, nursing areas, or haul-outs, overlap with the action area.

(3) 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;

(4) The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the survey area during the operation of the airgun(s) to avoid acoustic harassment;

(5) The expectation that the low-energy seismic survey would have not more than a temporary and minimal adverse effect on any fish or invertebrate species that serve as prey species for marine mammals, and therefore consider the potential impacts to marine mammal habitat minimal.

(6) The relatively low potential for temporary or permanent hearing impairment and the likelihood that it would avoided through the implementation of the required monitoring and mitigation measures (including shut-down measures); and

(7) The high likelihood that trained PSOs would detect marine mammals at close proximity to the vessel.

No injuries, serious injuries, or mortalities are anticipated to occur as a result of the SIO's planned low-energy seismic survey, and none are authorized by NMFS. NMFS anticipates only behavioral disturbance to occur primarily in the form of avoidance behavior to the sound source during the conduct of the low-energy seismic survey. Table 5 of this document outlines the number of authorized Level B harassment takes that are anticipated as a result of these activities. Due to the nature, degree, and context of Level B (behavioral) harassment anticipated and described in the notice of the proposed IHA (80 FR 15060, March 20, 2015 (see ''Potential Effects on Marine Mammals'' section above), NMFS does not expect Level B harassment to affect the ability of marine mammals to survive or reproduce. Additionally, the low-energy seismic survey will not adversely impact marine mammal habitat.

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). While airgun operations are anticipated to occur on consecutive days, the estimated duration of the survey would not last more than a total of approximately 27 operational days, with only a total of approximately 135 hours, meaning that the airgun operations will not be continuous for more than approximately 72 hours at time during the May to June 2015 time period. Additionally, the low-energy seismic survey will be increasing sound levels in the marine environment in a relatively small area surrounding the vessel (compared to the range of the animals), and constantly travelling over distances, so individual animals likely will only be exposed to and harassed by sound for less than a day.

As mentioned previously, NMFS estimates that 35 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 2 and 5 of this document. As shown in those tables, the authorized takes represent small proportions of the overall populations of these marine mammal species where abundance

estimates are available (*i.e.,* less than 1%).

Of the 35 marine mammal species under NMFS jurisdiction that may or are known to likely occur in the study area, six are listed as threatened or endangered under the ESA: Southern right, humpback, sei, fin, blue, and sperm whales. These species are also considered depleted under the MMPA. None of the other marine mammal species that may be taken are listed as depleted under the MMPA. Of the ESA-listed species, incidental take has been authorized for six species. As mitigation to reduce impacts to the affected species or stocks, SIO will be required to cease airgun operations if any marine mammal enters designated exclusion zones. No injury, serious injury, or mortality is expected to occur for any of these species, and due to the nature, degree, and context of the Level B harassment anticipated, and the activity is not expected to impact rates of recruitment or survival for any of these species.

NMFS has determined that, provided that the aforementioned mitigation and monitoring measures are implemented, the impact of conducting a low-energy marine seismic survey in the Southwest Pacific Ocean, May to June 2015, may result, at worst, in a modification in behavior and/or low-level physiological effects (Level B harassment) of certain species of marine mammals.

While behavioral modifications, including temporarily vacating the area during the operation of the airgun(s), may be made by these species to avoid the resultant acoustic disturbance, the availability of alternate areas for species to move to and the short and sporadic duration of the research 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. 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 specified activity is not expected to impact rates of annual recruitment or survival for any affected species or stock, particularly given the required mitigation, monitoring, and reporting measures to minimize impacts. 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 SIO's low-energy seismic survey will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

As mentioned previously, NMFS estimates that 35 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 Tables 2 and 5 of this document.

The estimated numbers of individual cetaceans and pinnipeds that could be exposed to seismic sounds with received levels greater than or equal to 160 dB re 1 μPa (rms) during the low-energy seismic survey (including a 25% contingency) are in Table 5 of this document. Of the cetaceans, 2 southern right, 2 pygmy right, 2 humpback, 2 Antarctic minke, 2 minke, 2 Bryde's, 2 sei, 2 fin, 2 blue, and 10 sperm whales could be taken by Level B harassment during the planned low-energy seismic survey, which would represent 0.03, unknown, 0.1, less than 0.01, less than 0.01, less than 0.01, less than 0.01, 0.03, and 0.03% of the affected worldwide or regional populations, respectively. In addition, 5 pygmy sperm, 8 Arnoux's beaked, 2 Cuvier's beaked, 3 Shepherd's beaked, 2 southern bottlenose, 2 Andrew's beaked, 2 Blainville's beaked, 2 Gray's beaked, 2 Hector's beaked, 3 pygmy beaked, 2 spade-toothed beaked, and 3 strap-toothed beaked could be taken be Level B harassment during the planned low-energy seismic survey, which would represent unknown, unknown, less than 0.01, less than 0.01, less than 0.01, less than 0.01, less than 0.01, less than 0.01, less than 0.01, unknown, less than 0.01, and less than 0.01% of the affected worldwide or regional populations, respectively. Of the delphinids, 12 killer whales, 10 false killer whales, 20 long-finned pilot whales, 20 short-finned pilot whales, 95 bottlenose dolphins, 95 dusky dolphins, 38 Hector's dolphins, 57 hourglass dolphins, 10 Risso's dolphins, 189 short-beaked common dolphins, and 57 southern right whale dolphins could be taken by Level B harassment during the planned low-energy seismic survey, which would represent 0.02, unknown, 0.01, less than 0.01, 0.02, 0.79, 0.51, 0.04, less than 0.01, less than 0.01, and unknown of the affected worldwide or regional populations, respectively. Of the pinnipeds, 15 New Zealand fur seals and 6 southern elephant seals could be taken by Level B harassment during the planned low-energy seismic survey, which would represent 0.01 and less than 0.01 of the affected worldwide or regional population, respectively.

No known current worldwide or regional population estimates are available for 6 species under NMFS's jurisdiction that could potentially be affected by Level B harassment over the course of the IHA. These species are the pygmy right, pygmy sperm, Arnoux's beaked, pygmy beaked, and false killer whales and southern right whale dolphins. Pygmy right whales have a circumglobal distribution and occur throughout coastal and oceanic waters in the Southern Hemisphere (between 30 to 55° South) (Jefferson *et al.,* 2008). Pygmy sperm whales occur in deep waters on the outer continental shelf and slope in tropical to temperate waters of the Atlantic, Indian, and Pacific Oceans. Arnoux's beaked whales occur in deep, cold, temperate, and subpolar waters of the Southern Hemisphere (most south of 40° South) (Jefferson *et al.,* 2008). Pygmy beaked whales occur in deep waters beyond the continental shelf in tropical/warm temperate waters of the Pacific Ocean (between 28° North to 30° South) (Jefferson *et al.,* 2008). False killer whales generally occur in deep offshore tropical to temperate waters (between 50° North to 50° South) of the Atlantic, Indian, and Pacific Oceans (Jefferson *et al.,* 2008). Southern right whale dolphins have a circumpolar distribution and generally occur in deep temperate to sub-Antarctic waters in the Southern Hemisphere (between 30 to 65° South) (Jefferson *et al.,* 2008). Based on these broad distributions and preferences of these species relative to the area where the specified activity will occur, NMFS concludes that the authorized take of these species likely represent small numbers relative to the affected species' overall population sizes, even though we are unable to quantify the take numbers.

NMFS makes its small numbers determination based on the numbers or proportion of marine mammals that will be taken relative to the populations of the affected species or stocks. The authorized take estimates all represent small numbers relative to the affected species or stock size (*i.e.,* less than 1%), with the exception of the six species (*i.e.,* pygmy right, pygmy sperm, Arnoux's beaked, pygmy beaked, and false killer whales and southern right whale dolphins) for which a qualitative rationale was provided.

Endangered Species Act

Of the species of marine mammals that may occur in the planned survey area, six are listed as endangered under the ESA: The southern right, humpback,

sei, fin, blue, and sperm whales. Under section 7 of the ESA, NSF, on behalf of SIO, initiated formal consultation with the NMFS, Office of Protected Resources, Endangered Species Act Interagency Cooperation Division, on this low-energy seismic survey. 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 Office of Protected Resources, Endangered Species Act Interagency Cooperation Division, on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. These two consultations were consolidated and addressed in a single Biological Opinion addressing the direct and indirect effects of these independent actions. In May 2015, NMFS issued a Biological Opinion that concluded that the action is not likely to jeopardize the continued existence of the six listed cetaceans that may occur in the study area and included an Incidental Take Statement (ITS) incorporating the requirements of the IHA as Terms and Conditions of the ITS. Compliance with those Terms and Conditions is likewise a mandatory requirement of the IHA. The Biological Opinion also concluded that designated critical habitat of these species does not occur in the action area and would not be affected by the low-energy seismic survey.

National Environmental Policy Act

With SIO's complete IHA application, NSF and SIO provided NMFS an *Environmental Analysis of a Low-Energy Marine Geophysical Survey by the R/V Roger Revelle in the Southwest Pacific Ocean, East of New Zealand, May to June 2015,* (Environmental Analysis), prepared by LGL Limited, Environmental Research Associates, on behalf of NSF and SIO. The Environmental Analysis analyzes the direct, indirect, and cumulative environmental impacts of the planned specified activities on marine mammals, including those listed as threatened or endangered under the ESA. NMFS, after independently reviewing and evaluating the document for sufficiency and compliance with Council on Environmental Quality (CEQ) NEPA regulations and NOAA Administrative Order 216–6 § 5.09(d), conducted a separate NEPA analysis and prepared an *Environmental Assessment on the Issuance of an Incidental Harassment Authorization to the Scripps Institution of Oceanography to Take Marine Mammals by Harassment Incidental to a Low-Energy Marine Geophysical Survey in the Southwest Pacific Ocean, East of New Zealand, May to June 2015.* This process included a public review period. Following completion of our EA, 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 SIO for conducting a low-energy seismic survey in the Southwest Pacific Ocean, East of New Zealand, incorporating the previously mentioned mitigation, monitoring, and reporting requirements.

Dated: May 15, 2015.

Donna S. Wieting,

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

[FR Doc. 2015–12531 Filed 5–21–15; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Submission for OMB Review; Comment Request

The Department of Commerce will submit to the Office of Management and Budget (OMB) for clearance the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: National Oceanic and Atmospheric Administration (NOAA).

Title: Western Pacific Community Development Program Process.

OMB Control Number: 0648-0612.

Form Number(s): None.

Type of Request: Regular (revision and extension of a currently approved information collection).

Number of Respondents: 5.

Average Hours per Response: 6 hours.

Burden Hours: 30.

Needs and Uses: This request is for revision and extension of a currently approved information collection.

The Federal regulations at 50 CFR part 665 authorize the Regional Administrator of the National Marine Fisheries Service (NMFS), Pacific Island Region to provide eligible western Pacific communities with access to fisheries that they have traditionally depended upon, but may not have the capabilities to support continued and substantial participation, possibly due to economic, regulatory, or other barriers. To be eligible to participate in the western Pacific community development program, a community must meet the criteria set forth in 50 CFR part 665.20, and submit a community development plan that describes the purposes and goals of the plan, the justification for proposed fishing activities, and the degree of involvement by the indigenous community members, including contact information.

This collection of information provides NMFS and the Western Pacific Fishery Management Council (Council) with data to determine whether a community that submits a community development plan meets the regulatory requirements for participation in the program, and whether the activities proposed under the plan are consistent with the intent of the program, the Magnuson-Stevens Fishery Conservation and Management Act, and other applicable laws. The information is also important for evaluating potential impacts of the proposed community development plan activities on fish stocks, endangered species, marine mammals, and other components of the affected environment for the purposes of compliance with the National Environmental Policy Act, the Endangered Species Act and other applicable laws.

Affected Public: Business or other for profit organizations; individuals or households.

Frequency: On occasion.

Respondent's Obligation: Required to obtain or retain benefits.

This information collection request may be viewed at *reginfo.gov*. Follow the instructions to view Department of Commerce collections currently under review by OMB.

Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *OIRA_Submission@omb.eop.gov* or fax to (202) 395–5806.

Dated: May 19, 2015.

Sarah Brabson,

NOAA PRA Clearance Officer.

[FR Doc. 2015–12460 Filed 5–21–15; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XD957

Mid-Atlantic Fishery Management Council (MAFMC); Public Meetings

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

ACTION: Notice of public meetings.