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

FINDING OF NO SIGNIFICANT IMPACT FOR THE ISSUANCE OF AN INCIDENTAL HARASSMENT AUTHORIZATION TO LAMONT-DOHERTY EARTH OBSERVATORY TO TAKE MARINE MAMMALS INCIDENTAL TO CONDUCTING A MARINE GEOPHYSICAL SURVEY IN THE NORTHWEST PACIFIC OCEAN, JULY – SEPTEMBER, 2010

NATIONAL MARINE FISHERIES SERVICE

BACKGROUND

The National Marine Fisheries Service (NMFS) received an application from Lamont-Doherty Earth Observatory (L-DEO) requesting an incidental harassment authorization (IHA) pursuant to NMFS' responsibility to authorize the take of small numbers of marine mammals incidental to an otherwise lawful activity, other than commercial fishing, provided that NMFS determines that: (1) the action will have a negligible impact on the affected species or stocks of marine mammals; (2) the action will not have an unmitigable adverse impact on the availability of those species or stocks of marine mammals for taking for subsistence uses; and (3) the permissible methods of taking resulting in the means of affecting the least practicable adverse impact on affected species and stocks and their habitat, and requirements pertaining to the mitigation, monitoring, and reporting of such takes are set forth.

In accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.), NMFS has prepared an Environmental Assessment (EA) titled "*Issuance of an Incidental Harassment Authorization to the Lamont-Doherty Earth Observatory to Take Marine Mammals by Harassment Incidental to a Marine Geophysical Survey on the Shatsky Rise in the Northwest Pacific Ocean, July-September 201.*" This EA incorporates the NSF's Final National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 et seq.) Analysis Pursuant To Executive Order 12114 (NSF, 2010) and an associated report (Report) prepared by LGL Limited Environmental Research Associates (LGL) for NSF, titled, "*Environmental Assessment of a Marine Geophysical Survey by the R/V Marcus G. Langseth on the Shatsky Rise in the Northwest Pacific Ocean, July – September, 2010, (LGL, 2010)*" by reference pursuant to 40 Code of Federal Regulations (CFR) 1502.21 and NOAA Administrative Order (NAO) 216-6 § 5.09(d).

The EA specifically analyzes the fact that L-DEO intends to obtain an IHA from NMFS in order to conduct the seismic survey with the R/V *Marcus G. Langseth* (*Langseth*). The EA assesses the potential impacts to the environment associated with the proposed issuance of an IHA and the potential effects of airgun sounds and signals from multibeam echosounders, sub-bottom profilers, and ocean bottom seismometers on marine species while conducting the seismic survey. The EA evaluates three alternatives: (1) issuance of an IHA and conduct the associated seismic survey in July 20 through September 9, 2010; (2) issuance of an IHA and conduct the corresponding seismic survey at an alternative time; and (3) a no action alternative (i.e., do not issue an IHA and do not conduct the survey).

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NMFS has satisfied the requirements for an authorization for the take of small numbers of 34 species of marine mammals, by Level B harassment only, incidental to the preferred alternative of conducting marine geophysical surveys (seismic surveys) in the northwest Pacific Ocean (NWPO), July through September, 2010. NMFS proposes to issue the IHA with mitigation measures, as described in Alternative 3 of the EA. In addition, NMFS issued a Biological Opinion under the ESA summarizing the results of an interagency consultation. The analyses in the EA, as informed by the Biological Opinion, support the findings and determination.

ANALYSIS

National Oceanographic and Atmospheric Administration Administrative Order (NAO) 216-6 contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 CFR § 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in Fishery Management Plans (FMP)?

Response: The research activities and NMFS' action (i.e., issuing an IHA to L-DEO) are not anticipated to cause substantial damage to ocean and coastal habitats. The action will authorize Level B harassment of marine mammals, incidental to seismic surveys for a short period of time (approximately 17 days of seismic surveys during a research cruise occurring between July 20 and September 9, 2010) in international waters offshore from Japan.

The survey will involve one source vessel, the *Langseth*, which deploys a towed array of 36 airguns. The vessel will deploy the ocean bottom seismometer (OBS) in such a way that creates the least disturbance to the area. Airguns function by venting high-pressure air into the water which creates an air bubble. The airgun array is towed through the water column along the survey lines, introducing acoustic energy (via an oscillating air bubble that transmits sounds downward through the seafloor) into the water column.

The *Langseth* will deploy 28 OBS on the Shatsky Rise and the 23-kilogram OBS anchors will remain upon equipment recovery. Although OBS placement may disrupt a very small area of seafloor habitat and may disturb benthic invertebrates, the impacts are expected to be localized and transitory. The *Langseth* will deploy the OBS in such a way that creates the least disturbance to the area.

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCA), a law implemented by NMFS, governs marine fisheries management in United States federal waters. The proposed seismic survey, located in international waters in the northwest Pacific Ocean, is not within U.S. Federal waters or the U.S. EEZ. There is no essential fish habitat designated within the action area.

2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: The seismic survey and the issuance of an IHA will not have a substantial impact on biodiversity and/or ecosystem function within the affected environment.

The EA analyzed the potential for the seismic survey activity to affect other ecosystem features and biodiversity components, including fish, invertebrates, seabirds, and sea turtles. NMFS' evaluation indicates that any direct or indirect effects of the action would not result in a substantial impact on biodiversity or ecosystem function. Most effects are considered to be short-term and unlikely to affect normal ecosystem function or predatory/prey relationships; therefore, there will not be a substantial impact on marine life biodiversity or on the normal function of the nearshore or offshore environment.

L-DEO will conduct the proposed open-water marine geophysical survey for a short period of time (seismic activities of 17 days total) in deep water (water greater than 1000 meters (m) (3,820 feet (ft)) in depth). As the *Langseth* transits the area while conducting the survey, any displacement of marine fish species by the proposed action would be temporary. Many fish species (i.e., those that do not have swim bladders, have rudimentary swim bladders (such as bottom-dwelling species, including flatfish), or well-developed swim bladders that are not directly connected to the ears) tend to have relatively poor auditory sensitivity and are not likely to be affected by exposure to intense noise. The seismic survey may potentially displace prey items of marine mammals, such as fish. However, prey items would return after the *Langseth* has powered down the airgun array.

The overall response of fishes and squids is to exhibit startle responses and undergo vertical and horizontal movements away from the sound source. NMFS does not expect that the survey would have a substantial cumulative effect on any fish or invertebrate species. Although some loss of fish and other marine life might occur as a result of being in close proximity to the seismic airguns, this loss is, while short-term and adverse, is not expected to be significant.

NMFS conducted additional literature reviews for purposes of the MMPA analyses, and applicable information is included here to support this finding. Sperm whales (*Physeter macrocephalus*) regularly feed on squid and some fishes and may be feeding while in the area during the proposed survey. One study[1] investigating behavioral response of southern calamari squid exposed to seismic survey sound reported that the squid exhibited both startle and avoidance responses. It is expected that sperm whales remaining in this area, although potentially not affected directly, would experience indirect effects from airgun activities through reduced feeding opportunities. Like their prey, sperm whales are expected to follow prey out of the survey area temporarily and re-distribute back into the area once survey activities are complete and prey species return.

[1] McCauley, R.D., J. Fewtrell, A.J. Duncan, C. Jenner, M.-N. Jenner, J.D. Penrose, R.I.T. Prince, A. Adhitya, J. Murdoch, and K. McCabe. 2000b. Marine seismic surveys – a study of environmental implications. APPEA J. 40:692-706.

Available data suggest that sounds from the airguns will diminish dramatically by the time they travel more than 1,000 meters (m) to the ocean floor. The seismic program in the northeast Pacific Ocean is not expected significantly impact benthic and invertebrate communities in the study area.

The existing body of information on the impacts of seismic survey sound on marine invertebrates and benthic fauna is very limited. Recent controlled field experiments[2] on adult crustaceans exposed to seismic energy did not result in any significant pathological impacts on the animals. The study reported that the seismic survey did not: (1) cause any acute or mid-term mortality of the crab; (2) alter feeding behavior; or (3) affect embryo survival or post-hatch locomotion of larvae.

The impacts of the seismic survey on marine mammals and sea turtles are specifically related to acoustic activities, and these are expected to be temporary in nature, negligible, and would not result in substantial impact to marine mammals or to their role in the ecosystem. NMFS anticipates, and would authorize, the incidental, Level B harassment only, in the form of temporary behavioral disturbance, of several species of cetaceans. NMFS does not anticipate that take by injury (Level A harassment), serious injury, or death will occur and expects that harassment takes should be at the lowest level practicable due to the incorporation of the mitigation measures proposed in the DEA and Report. The Level B harassment is not expected to affect biodiversity or ecosystem function. As with marine mammals, sea turtles may experience threshold shifts and behavioral responses.

3) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

Response: The seismic survey activities and the issuance of an IHA will are not expected to have a substantial adverse impact on public health or safety.

The proposed survey area is approximately 1,200 kilometers (km) from the nearest landmass, and will not have an adverse impact on public health and safety.

4) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

Response: The EA evaluates the affected environment and potential effects of L-DEO's action, indicating that only the acoustic activities have the potential to affect marine mammals. These temporary acoustic activities would not affect physical habitat features, such as substrates and water quality. Additionally, the effects from vessel transit and routine operation of one seismic source vessel would not result in substantial damage to ocean and coastal habitats that might constitute marine mammal habitats. The potential for striking marine mammals and sea turtles is a concern with vessel traffic. The probability of a ship strike resulting in an injury or mortality of an animal has been associated with ship speed; however, it is highly unlikely that the proposed seismic survey would increase the rate of serious injury or mortality given the *Langseth's* slow survey speed.

NMFS has determined that the proposed seismic survey may result in some Level B harassment

[2] Christian, J.R., A. Mathieu, D.H. Thomson, D. White, and R.A. Buchanan. 2003. Effect of seismic energy on snow crab (*Chionoecetes opilio*). Environmental Studies Research Funds Report No. 144. Calgary, AB, Canada. November.

(in the form of short-term and localized changes in behavior) of small numbers, relative to the population sizes, of 34 species of marine mammals and five species of sea turtles. In addition to the potential incidental harassment of small numbers of marine mammals not listed under the U.S. Endangered Species Act of 1973 as Amended (ESA; 16 U.S.C. 1531*et seq.*), the seismic surveys may have the potential to incidentally harass the following species listed as threatened or endangered species pursuant to the ESA: the north Pacific right (*Eubalena japonica*), humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), fin (*Balaenoptera physalus*), blue (*Balaenoptera musculus*), and sperm (*Physeter macrocephalus*) whale, and the green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*) sea turtle.

The following mitigation measures are planned for the survey:

(1) establishment of an exclusion zone (EZ) to avoid injury to marine mammals and visual monitoring of the EZ by protected species observers (PSOs);
(2) power-down procedures when PSOs detect marine mammals within the EZ or entering the EZ;
(3) shut-down procedures when PSOs detect marine mammals within the EZ while the airgun array is operating at full volume or during a power-down;
(4) ramp-up procedures; and
(5) procedures for species of concern such as emergency shut-down procedures for North Pacific right whales (*Eubalaena japonica*).

Taking into these measures, responses of marine mammals from the preferred alternative are expected to be limited to avoidance of the area around the seismic operation and short-term behavioral changes, falling within the MMPA definition of "Level B harassment." Avoidance of the survey area and short-term behavioral changes are likely to affect, but not likely to jeopardize the existence of any marine mammals in the area.

NMFS does not anticipate that take by injury (Level A harassment), serious injury, or death will occur and expects that harassment takes should be at the lowest level practicable due to the incorporation of the mitigation measures proposed. Numbers of individuals of all species taken are expected to be small (relative to species or stock abundance), and the take is anticipated to have a negligible impact on the species or stock.

Pursuant to Section 7 of the ESA, NSF and NMFS' OPR, Permits, Conservation, and Education Division, concurrently engaged in formal Section 7 consultation with the OPR's Endangered Species Division, regarding potential effects to ESA-listed species. The OPR's Endangered Species Division has issued a Biological Opinion (BiOp) titled, *Seismic survey by the Lamont-Doherty Earth Observatory in the northwest Pacific Ocean on the Shatsky Rise and Issuance of an Incidental Harassment Authorization pursuant to Section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA), July, 2010*).

The BiOp provides supporting analysis for this FONSI and concludes that:

(1) NSF's actions and NMFS' action of issuing an IHA are not likely to jeopardize the continued existence of blue, fin, sei, north Pacific right, humpback, and sperm whales, and sea turtles.
(2) the activities are not likely to adversely modify or destroy critical habitat, as there is no such designation in international waters.

(3) if NMFS issues the IHA, the Endangered Species Division has issued an incidental take statement (ITS) for the incidental take of blue whales, fin whales, sei whales, humpback whales, sperm whales, and sea turtles.

The Permits, Conservation, and Education Division will incorporate the Relevant Terms and Conditions and Reasonable and Prudent Measures of the BiOp into the IHA.

5) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: No significant social or economic effects are expected from the proposed action. The primary impacts to the natural and physical environment are expected to be acoustic and temporary in nature (and not significant), and not interrelated with significant social or economic impacts.

Issuance of the IHA would not result in inequitable distributions of environmental burdens or access to environmental goods.

NMFS has determined that issuance of the IHA will not adversely affect low-income or minority populations. Finally, there will be no impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses.

6) Are the effects on the quality of the human environment likely to be highly controversial?

Response: There is no significant controversy about the effects of the seismic survey and the issuance of an IHA on the quality of the human environment.

For several years, NMFS has assessed and authorized incidental take for multiple seismic surveys conducted within the same year and has developed relatively standard mitigation and monitoring measures which the public has vetted during each public comment period for over five years. Moreover, the scope of the action is not unusually large or substantial. Nor are the effects unique. The mitigation measures are based on NMFS' past experiences and practices with similar projects.

NSF made available L-DEO's application and NSF's analysis and Report on the agency's website (http://www.nsf.gov/geo/oce/envcomp/index.jsp) for a 30-day public comment period. NMFS also made available the environmental analysis and the Report to the public at (http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications) concurrently with the release of the *Federal Register* notice of request for comments on the proposed IHA (75 FR 28568, May 21, 2010).

The Marine Mammal Commission (Commission) provides comments on all proposed IHAs as part of their established role under the MMPA (§ 202 (a)(2), *humane means of taking marine mammals*). No other organizations or private citizens have submitted comments to date. NMFS evaluated all comments and did not consider any to be controversial with respect to environmental effects of the action.

Generally, the Commission recommended that NMFS: (1) provide additional justification for its preliminary determination that the planned monitoring program will be sufficient to detect, with a high level of confidence, all marine mammals within or entering the identified safety zones; (2) clarify when passive acoustic monitoring would not be used to detect marine mammals or when two observers would not be on duty and the conditions under which these otherwise required components of the monitoring program would not be considered practicable; (3) extend the required monitoring period at start-up to at least one hour before the initiations of seismic activities and one hour before the resumption of airgun activities after a power-down because of a marine mammal sighting within the safety zone; (4) and require that observers collect and analyze data on the effectiveness of ramp-up as a mitigation measure during all such procedures.

NMFS considered these comments as a component of the analysis of the significance of the proposed action. Specific responses will be provided in the *Federal Register* notice announcing the issuance of the IHA. Overall, NMFS does not consider the effects of this action on the quality of the human environment to be highly controversial.

7) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas?

Response: There are no other unique or ecologically critical areas in the action area. The proposed action would only authorize one seismic survey within on the Shatsky Rise in the northwest Pacific Ocean. NMFS's issuance of an incidental harassment authorization is not expected to significantly impact the Shatsky Rise. Detailed information about the affected environment, other marine mammals, and marine life are provided in the EA. Although substantial effects to these areas are not anticipated, any appropriate coordination with the appropriate government organization related to L-DEO's action would be conducted by NSF and the U.S. Department of State.

8) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: The seismic survey and the issuance of an IHA are not expected to have effects on the human environment that would likely be highly uncertain or involve unique or unknown risks. While NMFS' judgments on impact thresholds are based on somewhat limited data, enough is known for NMFS and the IHA-regulated entity (here L-DEO) to develop precautionary measures to minimize the potential for significant impacts on biological resources. The multiple mitigation and monitoring requirements required of L-DEO are designed to ensure the least practicable impact on the affected species or stocks of marine mammals and also to gather additional data to inform future decision-making.

The exact mechanisms of how different sounds may affect certain marine organisms are not fully understood, but there is no substantial dispute about the size, nature, or effect of this particular action. NMFS has been authorizing take for these same types of surveys for years, and monitoring reports received pursuant to the requirements of the authorizations have not indicated that impacts that were not anticipated or authorized occurred as a result of the surveys.

The EA and FONSI acknowledge that there is limited information available on the density of marine mammals in the specific proposed survey area. Density estimates for marine mammals were not available for the region near the Shatsky Rise. However, the EA incorporates survey data from the northeastern Pacific Ocean and eastern tropical Pacific Ocean and then extrapolates marine mammal density information based upon similarities in habitat and oceanographic features that most closely matched those in oceanic regions around the Shatsky Rise. NMFS believes the density estimates used to assess the number of incidental harassments of marine mammals use data that are suitable for application in the marine environment that is affected by this action.

The best available science, including input from prior monitoring reports for seismic surveys, supports NMFS' determination that impacts, if any, are likely to be insignificant and will be reduced substantially through the implementation of the proposed mitigation and monitoring requirements. Therefore, the effects on the human environment are not likely to be highly uncertain or involve unique or unknown risks.

9) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: The proposed action of L-DEO conducting the seismic survey on the Shatsky Rise (via the federal action of NSF funding the survey) and NMFS' proposed action of issuing an IHA to L-DEO that authorizes take (Level B behavioral harassment, only) of a small number of marine mammals, incidental to the conduct of L-DEO's seismic survey are interrelated. The seismic survey and the issuance of an IHA are not expected to result in cumulatively significant impacts when considered in relation to other separate, yet insignificant actions.

The EA specifically analyzes the fact that L-DEO intends to obtain an IHA from NMFS in order to conduct the seismic survey. The EA briefly examined the impact of the seismic survey in light of other human activities within the study area. Although the airgun sounds from the seismic survey have higher source levels than the sounds generated from vessel traffic, tourism, and fishing activities; sounds generated from other human activities have lower peak pressures that occur continuously over extended periods. Thus, the impacts of L-DEO's proposed seismic survey on the Shatsky Rise are expected to be no more than minor and short-term.

NMFS has issued incidental take authorizations for other seismic research surveys (to L-DEO and other parties) that may have resulted in the harassment of marine mammals, but they are dispersed both geographically (throughout the world) and temporally, are short-term in nature, and all use mitigation and monitoring to minimize impacts. There are no other NSF-sponsored seismic surveys scheduled for the Pacific Ocean in 2010.

10) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

Response: The seismic survey and the issuance of an IHA are not expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant scientific, cultural or historical resources.

The proposed seismic survey would occur in international waters and would not take place in any areas listed or eligible for listing in the U.S. National Register of Historic Places. There are no significant cultural or historic resources in the action area. Thus, the federal actions of conducting the seismic survey and issuing an IHA would not cause loss or destruction of any significant cultural or historic resources.

11) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Response: The seismic survey and the issuance of an IHA are not expected to lead to the introduction of any non-indigenous species into the environment because L-DEO would implement all international proactive measures to prevent the spread of non-indigenous species.

The primary concern regarding the introduction or spread of a non-indigenous species from the proposed seismic survey is through ballast water exchange. However, non-indigenous species are not likely to be introduced or spread into the project area through ballast water exchange as the *Langseth* complies with International Maritime Organization (IMO) guidelines and United States Coast Guard (USCG) regulations for Ballast Water Management.

12) Is the proposed action likely to establish a precedent for future actions with significant effects or does it represent a decision in principle about a future consideration?

Response: The seismic survey and the issuance of an IHA are not expected to set a precedent for future actions with significant effects nor represent a decision in principle regarding future considerations.

To ensure compliance with statutory and regulatory standards, NMFS' actions under section 101(a)(5)(D) of the MMPA must be considered individually and be based on the best available information, which is continuously evolving. Issuance of an IHA to a specific individual or organization for a given activity does not guarantee or imply that NMFS will authorize others to conduct similar activities. Subsequent requests for incidental take authorizations would be evaluated upon their own merits relative to the criteria established in the MMPA, ESA, and NMFS implementing regulations on a case-by-case basis.

As mentioned above, NMFS has issued many authorizations for seismic research surveys, and this project has no unique aspects that would suggest it be a precedent for any future actions. For these reasons, the seismic survey and the issuance of an IHA are not precedent setting.

13) Can the proposed action reasonably be expected to violate any Federal, State, or local law or requirements imposed for the protection of the environment?

Response: The seismic survey and the issuance of an IHA would not violate any federal, state, or local laws for environmental protection. Both NSF and L-DEO have fulfilled their Section 7 responsibilities under the ESA (see response to Question 4) and the MMPA (by submitting an application for an IHA) for this action. Also, all requirements have been met to prevent the spread of non-indigenous species into the action area (see response to Question 11).

14) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: The seismic survey and the issuance of an IHA are not expected to result in any significant cumulative adverse effects on target or non-target species incidentally taken by harassment due to seismic survey activities.

NMFS has issued incidental take authorizations for other seismic research surveys (to L-DEO and other agencies) that may have resulted in the harassment of marine mammals, but they are dispersed both geographically (throughout the world) and temporally, are short-term in nature, and all use mitigation and monitoring to minimize impacts.

Cumulative effects refer to the impacts on the environment that result from a combination of past, existing, and imminent human activities. Causal agents of cumulative effects can include multiple causes, multiple effects, effects of activities in more than one locale, and recurring events. As evaluated in the EA, human activities in the region of the proposed seismic survey in and near the Shatsky Rise include vessel traffic, tourism, and fishing activities. Those activities as described in the EA, when conducted separately or in combination with other activities, could affect marine mammals and sea turtles in the survey area.

Because of the relatively short time that the project area will be ensonified (17 days), the action will not result in cumulative adverse effects that could have a substantial effect on the target or any non-target species (See response to Questions 4). The survey will also not be expected to have a substantial cumulative effect on any fish or invertebrate species. Although some loss of fish and other marine life might occur as a result of being in close proximity to the seismic airguns, this loss is not expected to be significant.

The proposed survey does not target any marine mammal or sea turtle and is not expected to result in any significant cumulative adverse effects on the species incidentally taken by harassment due to these activities. The potential temporary behavioral disturbance of marine mammals and sea turtles might result in short-term behavioral effects for these marine species within the ensonified zones, but no long-term displacement of marine mammals, endangered species, or their prey is expected as a result of the survey or the issuance of an IHA.

The issuance of the IHA would also not be expected to have a substantial cumulative effect on any fish, fish habitat or invertebrate species as discussed in this document. Therefore, no cumulative adverse effects on any species are expected due to the seismic survey.

DETERMINATION

In view of the information presented in this document and the analysis contained in this EA, NMFS has determined that the issuance of an IHA for the take, by harassment, of small numbers of marine mammals incidental to L-DEO's July through September, 2010, seismic survey in the northwest Pacific Ocean will not significantly impact the quality of the human environment, as described above, in the EA, and associated Report.

In addition, all beneficial and adverse impacts of the action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary. The EA thereby provides a supporting analysis for this FONSI.

JUL 15 2010

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Date