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 the National Science Foundation and Antarctic Support Contract to Take Marine Mammals Incidental to Conducting a Low-Energy Marine Geophysical Survey in the Ross Sea, January to April 2015

National Marine Fisheries Service

BACKGROUND

We (National Marine Fisheries Service, Office of Protected Resources, Permits and Conservation Division) propose to issue an Incidental Harassment Authorization (IHA) to the National Science Foundation (NSF) and Antarctic Support Contract (ASC), under the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1631 *et seq.*) for the incidental taking of small numbers of marine mammals, incidental to the conduct of a low-energy marine geophysical (seismic) survey and icebreaking activities in International Waters (i.e., high seas) in the Ross Sea, January through February 2015.

Our proposed action results from NSF and ASC's request for an authorization to take marine mammals, by harassment, incidental to conducting a low-energy marine seismic survey in the Ross Sea. NSF and ASC's seismic survey activities, which have the potential to cause marine mammals to be behaviorally disturbed, warrant an Incidental Take Authorization from us under section 101(a)(5)(D) of the MMPA.

In accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), we completed an Environmental Assessment (EA), titled *Issuance of an Incidental Harassment Authorization to the National Science Foundation and Antarctic Support Contract to Take Marine Mammals by Harassment Incidental to a Low-Energy Marine Geophysical Survey in the Ross Sea, January to April 2015*. The EA focuses primarily on the environmental effects of authorizing the incidental take of marine mammals incidental to NSF and ASC's activities.

This EA also incorporates by reference the following documents per 40 CFR 1502.21 and NOAA Administrative Order (NAO) 216-6 § 5.09(d):

- NSF's *Initial Environmental Evaluation/Environmental Assessment to Perform Marine Geophysical Survey, Collect Bathymetric Measurements, and Conduct Sediment Coring by the RVIB Nathaniel B. Palmer in the Ross Sea*; and
- NSF's 2011 *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.*

NMFS has prepared this Finding of No Significant Impact (FONSI) to evaluate the significance of the impacts of NMFS's action. This FONSI presents our selected alternative—Alternative 1 (Preferred Alternative), titled "Issuance of an Authorization with Mitigation Measures," and our

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conclusions regarding the impacts related to our proposed action. Based on our review of NSF and ASC's proposed low-energy seismic survey and the mitigation and monitoring measures contained in Alternative 1, we have determined that no significant impacts to the human environment would occur from implementing the Preferred Alternative.

ANALYSIS

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 below this section is relevant to making a FONSI 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 (EFH) as defined under the Magnuson-Stevens Act (MSA) and identified in Fishery Management Plans (FMP)?**

   Response: Our proposed action of issuing an IHA for the take of marine mammals incidental to the conduct of a low-energy seismic survey cannot reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or EFH as defined under the MSA and identified in FMPs. The acoustic sources are not expected to affect physical habitat features, such as substrates and water quality. Additionally, the effects from vessel transit, icebreaking activities, and the airgun operations of a single vessel would not result in substantial damage to ocean and coastal habitats, including marine mammal habitat. Commercial fishing, vessel traffic, tourism, and other activities in the study area generate noise throughout the year. The additional noise produced by an airgun array and icebreaking activities is comparatively minor in terms of total additional acoustic energy and will be brief relative to the other activities. The mitigation and monitoring measures required by the IHA would not affect ocean and coastal habitats or EFH. The coring is not expected to cause substantial damage to the ocean and coastal habitats because it will be limited to a small area (a total of approximately 0.6 m^2 at 32 sampling sites, at each sampling location up to 176 cm^2 of seafloor would be disturbed by deployment of the coring devices), and any disturbed benthic habitats would be re-established through infaunal mixing.

   No EFH has been identified in the proposed study area. NMFS, Office of Protected Resources, Permits and Conservation Division has determined that the issuance of an IHA for the taking of marine mammal incidental to a low-energy marine seismic survey in the Ross Sea will not have an adverse impact on EFH; therefore, an EFH consultation is not required.

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 proposed action is not expected to have a substantial impact on biodiversity or ecosystem function within the affected environment. The effects of our proposed action would be limited to temporary behavioral responses (such as brief masking of natural sounds) and temporary changes in animal distribution. These effects would be short-term and localized. No injury (Level A harassment), serious injury, or mortality is anticipated or authorized.

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

Response: The proposed action is not reasonably expected to have a substantial adverse impact on public health or safety because the proposed activities would occur in the open ocean, away from any populated area. The IHA would require constant monitoring for marine mammals and other marine life during seismic operations, which would effectively eliminate the possibility of any humans being inadvertently exposed to levels of sound that might have adverse effects. Although the conduct of the low-energy seismic survey may carry some risk to the personnel involved (i.e., boat or mechanical accidents during surveys), the applicant and those individuals working with the applicant would be required to be adequately trained or supervised in performance of the underlying activity (i.e., the low-energy seismic survey) to minimize such risk to personnel. The low-energy seismic survey is not expected to have any adverse impacts on traffic and transportation, as this is only a single working sound source vessel that will be at sea for a relatively short period of time (i.e., approximately 27 operational days) over a relatively small geographic area. Also, there is little risk of exposure to hazardous materials or wastes, risk of contracting diseases, or risk of damage from a natural disaster.

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 proposed action may result in limited adverse effects to 18 species of marine mammals, 5 of which are listed under the Endangered Species Act of 1973 (ESA; 16 U.S.C. §1531 *et seq*). We have determined that the proposed low-energy seismic survey may result in some Level B harassment (in the form of short-term and localized changes in behavior) of small numbers of marine mammals. The impacts of the low-energy seismic survey on marine mammals are specifically related to acoustic activities, and these are expected to be temporary in nature, and would not result in substantial impact to marine mammals or to their role in the ecosystem. Take is not expected to result from the use of the single-beam echosounder, multi-beam echosounder, acoustic Doppler current profiler, 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 is not likely to result in the harassment of marine mammals.

The proposed action may have the potential to adversely affect the following species listed as threatened or endangered marine mammals under the ESA: humpback, sei, fin, blue, and sperm whales. No designated critical habitat exists near the study area. Pursuant to section 7 of the ESA, the NMFS, Office of Protected Resources, Permits and Conservation Division, consulted with NMFS, Office of Protected Resources, ESA Interagency Coordination Division on the issuance of an IHA under section 101(a)(5)(D) of the MMPA, because the action of issuing the IHA may affect threatened and endangered species under NMFS's jurisdiction. In January 2015, the ESA Interagency Coordination Division issued a Biological Opinion, which concluded that the issuance of an IHA to NSF and ASC for the proposed low-energy seismic survey is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of any designated critical habitat.

The following mitigation measures will be required to minimize adverse effects to protected marine mammals:

(1) proposed exclusion zones to avoid injury to marine mammals and visual monitoring of the exclusion zones by Protected Species Visual Observers (PSOs);
(2) shut-down procedures when PSOs detect marine mammals within or about to enter the exclusion zone while the airgun array is operating;
(3) ramp-up procedures; and
(4) speed or course alteration of the vessel to avoid marine mammals entering the exclusion zone.

Taking these measures into consideration, we expect the responses of marine mammals from the preferred alternative to be limited to avoidance of the area around the airgun operations and short-term behavioral changes, falling within the MMPA definition of "Level B harassment." Numbers of individuals of all marine mammal species taken by harassment are expected to be small (relative to species or stock abundance), and the take is anticipated to have a negligible impact on any species or stock.

We do not anticipate that marine mammal take by injury (Level A harassment), serious injury, or mortality would occur, nor have we authorized take by injury, serious injury or mortality. We also expect that harassment takes should be at the lowest level practicable due to the incorporation of the mitigation measures required by the IHA.

We do not anticipate that issuance of the IHA or the proposed low-energy seismic survey will adversely affect other non-target species. The proposed low-energy seismic survey may cause some fish and invertebrates to avoid the area around the airgun operations and to have short-term behavioral changes, but any such impacts would be temporary and reversible and would not result in any permanent adverse effects; therefore, the proposed low-energy seismic survey is anticipated to have a negligible impact on non-target species.

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

Response: 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. We have determined that issuance of the IHA will not adversely affect low-income or minority populations. Further, there will be no impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses. Therefore, we do not expect significant social or economic effects to result from our issuance of the IHA.

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

Response: The effects of the proposed action are not likely to be highly controversial. Specifically, there is not a substantial dispute about the size, nature, or effect of potential impacts from NMFS's proposed action.

For at least 10 years, NMFS has assessed and authorized incidental take for multiple seismic surveys (specifically for scientific research purposes) conducted within the same year and has developed relatively standard mitigation and monitoring measures, all of which have been vetted to the public many times during past public comment periods. Previous projects of this type required marine mammal monitoring and monitoring reports, which have been reviewed by us to ensure that activities have a negligible impact on marine mammals. In no case have impacts to marine mammals, as determined from monitoring reports, exceeded our analyses under the MMPA and NEPA. The scope of this action is no different than past seismic surveys for scientific research purposes, is not unusually large or substantial, and will include the same or similar mitigation and monitoring measures required in past seismic surveys.

NMFS made NSF and ASCS's draft IEE/EA available to the public on the NMFS permit website (http://www.nmfs.noaa.gov/pr/permits/incidental.htm/) concurrently with the release of the *Federal Register* notice of requests for comments on the proposed IHA (79 FR 68512, November 17, 2014). During the 30-day public comment period, NMFS received comments from one private citizen and the Marine Mammal Commission. Specific responses to public comments will be provided in the *Federal Register* notice announcing the issuance of the IHA. Although one member of the public (a private citizen) raised concern over the effects of the survey, we have determined, based on the best available scientific literature, the limited duration of the project, and the low-level effects to marine mammals, that our IHA will not result in significant impacts to the human environment.

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, EFH, or ecologically critical areas?**

Response: There are no unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, EFH, or ecologically critical areas that could be affected by the proposed action; therefore, no impacts to these resources are anticipated. There is no EFH and there are no habitats of particular concern (HAPC) in the proposed study area. All proposed activities would occur in the marine environment and would not impact terrestrial resources. No discharges to the marine environment are proposed within the project area; therefore, there would be no impacts to water resources. The Ross Sea region is not currently designated a Marine Protected Area.

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

Response: NMFS does not expect the proposed action to have effects on the human environment that would be highly uncertain or involve unique or unknown risks. The potential risks of low-energy seismic surveys resulting in elevated sound levels are not unique or unknown, nor is there significant uncertainty about impacts. NMFS has issued IHAs for marine mammal take for similar types of oceanographic research seismic surveys for over 10 years. In no case have impacts to marine mammals from these past activities, as determined from monitoring reports, exceeded our analysis under the MMPA or NEPA. The scope of this action is no different than past research seismic surveys, is not unusually large or substantial, and will include the same or similar mitigation and monitoring measures required in past seismic surveys. Therefore, any potential effects from the issuance of our IHA are expected to be

similar to prior activities and are not likely to be highly uncertain or involve unique or unknown risks. The best available science, including input from prior monitoring reports for seismic surveys, supports our determination that adverse impacts are unlikely and will be minimized through the implementation of the proposed mitigation and monitoring requirements.

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

Response: The proposed action is not related to other actions with individually insignificant but cumulatively significant impacts. The EA and the documents it references analyzed the issuance of an IHA for the take of marine mammals incidental to conducting a low-energy seismic survey in light of other human activities within the study area. We expect the following combination of activities to result in no more than minor and short-term impacts to marine mammals in the survey area in terms of overall disturbance effects: (a) our issuance of an IHA with prescribed mitigation and monitoring measures for the low-energy seismic survey; (b) past, present, and reasonably foreseeable future research in the Ross Sea; (c) vessel traffic, noise, and collisions; and (d) fishing and tourism.

The proposed activities of NSF and ASC conducting the low-energy seismic survey in the Ross Sea and our proposed action of issuing an IHA to NSF and ASC for the incidental take (Level B [behavioral] harassment) of a small number of marine mammals are interrelated. The low-energy seismic survey conducted under the requirements of an IHA authorizing Level B harassment of marine mammals is not expected to result in cumulatively significant impacts when considered in relation to other separate actions with individually insignificant effects.

NMFS has issued IHAs for other research seismic surveys that may have resulted in the harassment of marine mammals, but these research seismic surveys are dispersed both geographically (throughout the world) and temporally, are short-term in nature, and use mitigation and monitoring measures to minimize impacts to marine mammals and to minimize other potential adverse environmental impacts in the action area. There are no other low-energy seismic surveys currently scheduled for the same time in the Ross Sea.

There were two additional research seismic surveys that were conducted in the Dumont d'Urville Sea off the coast of East Antarctica in January to March 2014 and Scotia Sea and South Atlantic Ocean in September to October 2014. Both surveys are dispersed both geographically and temporally, are short-term in nature, and the IHA holder (NSF and ASC) would be required to use mitigation and monitoring measures to minimize other potential adverse environmental impacts in the activity area.

These research activities, when conducted separately or in combination with other activities, have the potential to affect marine mammals in the study area. Any cumulative effects caused by the addition of the seismic survey impacts on marine mammals would be extremely limited and would not rise to the level of "significant," especially considering the timeframe (January to February 2015) and limited duration (not more than 27 operational days) of the proposed activities, the location of the proposed study area away from known areas of importance to marine mammals, and the mitigation and monitoring requirements in the IHA.

The cumulative effects section of the EA and the material incorporated by reference go into more detail regarding other past, present, and reasonably foreseeable future actions, and they conclude that the impacts of NSF and ASC's proposed low-energy seismic survey in the Ross Sea are expected to be no more than minor and short-term with no potential to contribute to cumulatively significant impacts.

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 proposed action would not 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, as none are known to exist at the site of the proposed low-energy seismic survey and because the proposed action is not expected to alter any physical resources.

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

Response: The proposed action is not an undertaking with the potential to introduce or spread non-indigenous species. The RVIB *Nathaniel B. Palmer* complies with all international and U.S. national ballast water requirements to prevent the spread of a non-indigenous species.

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 proposed action would not set a precedent for future actions with significant effects, nor represent a decision in principle about a future consideration. Each MMPA authorization applied for under section 101(a)(5) must contain information identified in our implementing regulations. We consider each activity specified in an application separately and, if we issue an IHA, we must determine that the impacts from the specified activity would result in a negligible impact to the affected species or stocks. Our issuance of an IHA may inform the environmental review for future projects, but would not establish a precedent or represent a decision in principle about a future consideration.

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

Response: The proposed action would not result in any violation of Federal, State, or local laws for environmental protection. We have fulfilled our section 7 responsibilities under the ESA (see response to Question 4) and the MMPA for this action. The applicant is required to obtain any additional Federal, state, and local permits necessary to carry out the proposed activities.

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 proposed action cannot reasonably be expected to result in cumulative adverse effects that could have a substantial effect on target or non-target species. We have determined

that marine mammals may exhibit behavioral changes such as avoidance of or changes in movement within the action area. However, we do not expect the authorized harassment to result in significant cumulative adverse effects on the affected species or stocks, because any harassment would be temporary and negligible and is not expected to result in long-term or substantial adverse effects. We do not expect our issuance of an IHA to result in any significant cumulative adverse effects on target or non-target species incidentally taken by harassment due to elevated sound levels.

We have issued Incidental Take Authorizations for other seismic research surveys (to Scripps Institution of Oceanography, Lamont-Doherty Earth Observatory of Columbia University, U.S. Geological Survey, 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 measures to minimize impacts to marine mammals. As evaluated in the EA and documents incorporated by reference, other human activities in the area of the proposed low-energy seismic survey include vessel traffic, noise, and collisions; commercial fishing; commercial whaling; and climate change. These activities, when conducted separately or in combination with other activities, have the potential to affect marine mammals in the study area. However, because of the relatively short time that the project area will be ensonified (not more than 27 operational days) and the mitigation measures that will be required by the IHA, the action will not result in synergistic or cumulative adverse effects that could have a substantial effect on any species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting EA, titled *Issuance of an Incidental Harassment Authorization to the National Science Foundation and Antarctic Support Contract to Take Marine Mammals by Harassment Incidental to a Low-Energy Marine Geophysical Survey in the Ross Sea, January to February 2015,* we have determined that issuance of an IHA to NSF and ASC in accordance with Alternative 1 of the EA would not significantly impact the quality of the human environment, as described in this FONSI and in the EA. 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.

JAN 22 2015

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National Marine Fisheries Service

Date