

**FINDING OF NO SIGNIFICANT IMPACT  
FOR THE ISSUANCE OF INCIDENTAL HARASSMENT AUTHORIZATIONS TO TAKE MARINE  
MAMMALS BY HARASSMENT INCIDENTAL TO GEOPHYSICAL SURVEYS IN THE ATLANTIC  
OCEAN**

**INTRODUCTION**

The National Marine Fisheries Service (NMFS) is proposing to issue Incidental Harassment Authorizations (IHA) to five applicants pursuant to Section 101(a)(5)(D) of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. §§ 1631 *et seq.*), and the regulations governing the taking and importing of marine mammals (50 Code of Federal Regulations (CFR) Part 216). These applicants are five companies: Spectrum Geo Inc. (Spectrum), TGS-NOPEC Geophysical Company (TGS), ION GeoVentures (ION), WesternGeco, LLC (Western), and CGG.

NMFS's proposed action is a direct outcome of each applicant's request for an IHA to take marine mammals incidental to their planned geophysical surveys. The IHAs will authorize take, by harassment, of marine mammals incidental to conducting geophysical surveys in various locations along the Mid- and South Atlantic Outer Continental Shelf (OCS). This area is referred to as the "Area of Interest" (AOI). The AOI extends from Delaware to just south of Cape Canaveral, Florida, from the shoreline (excluding estuaries) to 648 kilometers (km) (350 nautical miles (nmi)) from shore, covering a total area of 854,779 km<sup>2</sup>. This area includes the Bureau of Ocean Energy Management's (BOEM) Mid- and South Atlantic Outer Continental Shelf (OCS) Planning Areas, which extend to 200 nmi from shore, as well as additional area out to the maximum constraint line for the extended continental shelf (ECS) as defined under Article 76 of the United Nations Convention on the Law of the Sea (i.e., from 200-350 nmi from shore).

While the applicants' planned geophysical surveys vary in terms of specific characteristics of the acoustic source, total planned survey effort, and specific locations of planned survey lines, all five planned geophysical surveys are designed as two-dimensional (2D) surveys using airgun arrays as an acoustic source and conducting survey effort throughout the AOI. Because use of airgun arrays has the potential to cause marine mammal harassment through the input of sound into the marine environment, these geophysical survey activities require an authorization under Section 101(a)(5)(D) of the MMPA. The MMPA criteria for issuance of an IHA require that the taking of marine mammals authorized by an IHA will have a negligible impact on the species or stock(s), and, where relevant, will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses. Also, only small numbers of takes may be authorized. In addition, an IHA must set forth the permissible methods of taking, other means of effecting the least practicable adverse impact on the species or stock and its habitat, and requirements pertaining to the monitoring and reporting of such takings.

**BACKGROUND**

In 2009, BOEM began preparing the PEIS to evaluate environmental impacts associated with geological and geophysical (G&G) survey activities that may be conducted in the AOI in support of oil and gas, renewable energy, and marine minerals programs. G&G surveys provide information for government and industry to evaluate the potential for offshore oil, gas or methane hydrate resources, non-energy marine mineral resources, and geologic hazards. These G&G survey

activities are subject to permits, notices, authorizations, or conditions of approval (COAs) from BOEM. Therefore, BOEM oversees geophysical data acquisition and executes their permitting authority pursuant to 30 CFR parts 550, 551, 580 and 585, Section 11, Subsections 8(k) and 8(p) of the Outer Continental Shelf Lands Act and Section 388(a) of the Energy Policy Act of 2005. In 2014, BOEM completed the PEIS and issued a Record of Decision (ROD) on July 11, 2014. The 2014 Final PEIS along with other detailed information and documentation is available for review on BOEM's website: [www.boem.gov/Atlantic-G-G-PEIS/](http://www.boem.gov/Atlantic-G-G-PEIS/). The PEIS analysis and the National Oceanic and Atmospheric Administration's (NOAA) participation as a cooperating agency is summarized below.

BOEM determined a programmatic<sup>1</sup> approach was appropriate for several reasons, primarily because data obtained from G&G surveys supports multiple programs and G&G survey activities can occur over large geographical areas. Additional reasons included limitations in available information and uncertainty regarding the timing and actual locations of surveys, and the specific type of G&G surveys to be conducted by future applicants. Therefore, the analysis in the 2014 Final PEIS supports BOEM's planning-level decisions associated with their oversight and permitting authority for geophysical data acquisition and establishes the framework and parameters for subsequent analyses based on the programmatic review.

Using this programmatic approach, BOEM identified and prepared a qualitative analysis of environmental impacts (and where possible, a quantitative analysis) covering a range of various G&G survey activities that could be conducted in support of the Oil and Gas, Renewable Energy, and Marine Minerals Programs. BOEM collaborated with NOAA<sup>2</sup> to prepare a detailed evaluation of potential impacts of G&G survey activities on marine mammals, including the use of airguns, and conducted modeling of potential marine mammal acoustic exposures. BOEM also described standard mitigation for G&G survey activities. At the time of development, the PEIS included the best available scientific information regarding marine mammal density and distribution in the AOI and marine mammal sensitivity to noise, including acoustic harassment thresholds. Information about BOEM's programmatic approach and their requirements for further environmental review are in Chapter 1.7.5 of the 2014 Final PEIS. In addition, the Final PEIS provides a description of potential effects to marine mammals (Chapters 2.2.3.2 and 4.3.2), estimates of marine mammal acoustic exposures (Appendix E), and other information and analysis of impacts to protected resources (Chapters 4.1-4.4 and Appendices D, H, I, and J).

NOAA served as a cooperating agency and participated in the development of BOEM's PEIS because the scope of BOEM's proposed action and alternatives included activities that have the potential to affect resources under NOAA's jurisdiction by law, including marine mammals under NMFS's jurisdiction, and because of NOAA's special expertise. In this capacity, NOAA provided BOEM with technical assistance and input regarding the analysis of impacts for several marine resources. This included critical habitat and threatened and endangered species pursuant to the Endangered Species Act (ESA), marine mammals pursuant to the MMPA, Essential Fish Habitat (EFH) and fishery resources pursuant to the Magnuson-Stevens Fishery Conservation and

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<sup>1</sup> The concept of "programmatic" NEPA analyses is included in the CEQ Regulations, which addresses analyses of "broad actions" and the "tiering" process. Programmatic NEPA reviews add value and efficiency to the decision-making process when they inform the scope of decisions and subsequent tiered NEPA reviews. Programmatic NEPA analyses can facilitate decisions on agency actions that precede project-specific decisions and action. They also provide information and analysis that can be incorporated by reference in future, tiered NEPA reviews.

<sup>2</sup> NMFS served as the lead within NOAA under this cooperating agency agreement, and coordinated internally to address all resources of concern under NOAA's jurisdiction.

Management Act (MSFCMA), and National Marine Sanctuaries pursuant to the National Marine Sanctuaries Act (NMSA). In addition, NOAA provided extensive support to BOEM regarding the effects analysis of marine mammals with the intention of establishing baseline programmatic environmental effects analysis that could be used to support NMFS's analysis under the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and MMPA for potential, future incidental take authorizations (ITA) related to G&G activities.

At the time BOEM completed the Final PEIS and issued a ROD, G&G companies had not submitted applications to NMFS requesting IHAs associated with conducting specific G&G activities. Project-specific requests for MMPA authorizations were thus not evaluated at the time. However, during 2015-2016, NMFS received complete applications from companies requesting IHAs in connection with G&G activities identified in BOEM's Final PEIS.

Following receipt of IHA applications for activities within the scope of BOEM's 2014 Final PEIS, NMFS reviewed the applications and published proposed IHAs in the *Federal Register*. NMFS also independently reviewed and evaluated BOEM's PEIS and determined the Final PEIS to be comprehensive in analyzing the broad scope of G&G survey activities and adequate to support NMFS's consideration for future issuance of ITAs to potential applicants through tiering and incorporation by reference. The Final PEIS also addressed NOAA's required components for adoption because it meets relevant requirements under the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508) and NOAA policy and procedures<sup>3</sup>. Subsequently, NMFS, in accordance with 40 CFR 1506.3 and 1505.2, adopted BOEM's 2014 Final PEIS and issued a separate ROD associated with its decision to review and potentially issue ITAs under the MMPA on a case-by-case basis, as appropriate.

### **ANALYSIS SUMMARY**

The NEPA, CEQ Regulations, and NOAA policy and procedures<sup>4</sup> require all proposals for major federal actions be reviewed with respect to environmental consequences on the human environment. NMFS's issuance of an ITA allowing take of marine mammals, consistent with provisions under the MMPA and incidental to an applicant's lawful activities, is considered a major federal action. Each independent action is considered a major federal action under NEPA, but NMFS has exercised its discretion to analyze the actions as "similar actions" in a single EA due to similar type, timing, and geography, and for efficiency and consistency, as encouraged by the regulations published by CEQ (40 CFR 1508.25(a)(3)). Based on the analysis in BOEM's 2014 Final PEIS and the information presented in the five companies' applications, NMFS determined that preparing a tiered Environmental Assessment (EA) is appropriate for the proposal to issue five separate IHAs. The EA addresses the potential environmental impacts of two alternatives to meet NMFS's purpose and need:

- Alternative 1 (No Action Alternative): For NMFS, denial of an MMPA authorization constitutes the NMFS No Action Alternative, which is consistent with our statutory obligation under the MMPA to grant or deny incidental take authorization requests and to

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<sup>3</sup> See "NOAA's Adoption Requirements," Section 6H on pages 12-13 of the Companion Manual for NOAA Administrative Order (NAO) 216-6A "Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities" issued January 13, 2017.

<sup>4</sup> NOAA Administrative Order (NAO) 216-6A "Compliance with the National Environmental Policy Act, Executive Orders 12114, Environmental Effects Abroad of Major Federal Actions; 11988 and 13690, Floodplain Management; and 11990, Protection of Wetlands" issued April 22, 2016 and the Companion Manual for NAO 216-6A.

prescribe mitigation, monitoring, and reporting with any authorizations. Under NMFS's No Action Alternative, NMFS would not issue the IHAs, and NMFS assumes the companies would not conduct their planned geophysical surveys. The No Action Alternative served as a baseline in the EA against which the impacts of the Preferred Alternative were compared and contrasted.

- Alternative 2 (Preferred Alternative): Under the Preferred Alternative, NMFS would issue IHAs to the five companies for take, by harassment, of marine mammals during the 2D geophysical surveys, taking into account the prescribed means of take, mitigation measures, and monitoring requirements.

The EA also addresses recent regulatory determinations (e.g., critical habitat designations) and new scientific information concerning marine mammals (e.g., marine mammal density data and revised acoustic guidance) that was not available at the time BOEM completed their PEIS in 2014. However, NMFS determined BOEM's evaluation of the direct, indirect, and cumulative impacts on the human environment, including some aspects of marine mammal and ESA-listed species impacts, is adequate and relevant to NMFS's analysis. Therefore, NMFS relied on the analysis in BOEM's Final PEIS, incorporating certain material by reference (per 40 CFR 1502.21) while focusing on analysis of environmental issues specific to NMFS's action (i.e., issuance of the five IHAs). Additional documentation is available for review on NMFS's website: [www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-atlantic](http://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-atlantic).

This Finding of No Significant Impact (FONSI) evaluates the context and intensity of the impacts of the selected alternative—Alternative 2 (Preferred Alternative)—in NMFS's Final EA, "Environmental Assessment: Issuance of Five Incidental Harassment Authorizations to Take Marine Mammals by Harassment Incidental to Geophysical Surveys in the Atlantic Ocean." That EA is hereby incorporated by reference in its entirety. The CEQ Regulations state that the significance of an action should be analyzed both in terms of "context" and "intensity" and lists ten criteria for intensity. The Companion Manual for NOAA Administrative Order 216-6A requires consideration of CEQ's context and intensity criteria (40 CFR 1508.27(a) and 40 CFR 1508.27(b)) along with six additional factors for determining whether the impacts of a proposed action are significant. Each criterion is discussed below with respect to NMFS's proposed action and is considered individually as well as in combination with the others. The preparation of the EA and this FONSI were completed in accordance with NEPA, 40 CFR 1500-1508 and NOAA policy and procedures.

*1. Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?*

NMFS's proposed action is not expected to cause either beneficial or adverse impacts resulting in any significant effects. NMFS is proposing to authorize take incidental to geophysical surveys for marine mammal species expected to occur in the AOI. Therefore, impacts from NMFS's proposed action are expected to be predominantly to marine mammals, which, if affected, would be through the introduction of sound into the marine environment during geophysical surveys. Airguns emit low-frequency noise into the water column, which has the potential to behaviorally disturb marine mammals and, for some species, cause auditory injury. In addition, noise can mask the detection or

interpretation of important sounds. Given their reliance on sound for basic biological functioning (e.g., foraging, mating), marine mammals are the species most vulnerable to increased noise in the marine environment, although marine mammal prey (e.g., fish and squid) may be impacted in some of the same ways. However, NMFS expects its action to have only intermittent, localized impacts on marine mammals and their habitat, due to the fact that surveys will be operating independently of each other in a large geographic area, survey durations will be limited to less than one year, and the prescribed mitigation and monitoring requires that the companies operate outside of specific areas designated to protect the most vulnerable marine mammal species and their most important habitat. While NMFS predicts direct adverse effects to individuals it does not anticipate population-level effects that would rise to the level of significance. Effects to marine mammal populations are expected to be negligible to minor for most species and moderate for beaked whales and sperm whales.

*2. Can the proposed action reasonably be expected to significantly affect public health or safety?*

The issuance of IHAs to companies to authorize take of marine mammals is not likely to have the potential for this kind of effect because the proposed geophysical surveys would take place offshore in a broad area (i.e., not within 30 km of the coastline, and within a large area spanning 854,779 km<sup>2</sup>) and are unlikely to overlap with activities conducted by the public. NMFS only authorizes the take of marine mammal species associated with these surveys, which does not involve the public or expose the public directly (e.g., chemicals, diseases) or indirectly (e.g., food sources) to hazardous or toxic materials in a way that would be linked to the quality of the environment and well-being of humans. Further, resolution of a review process conducted pursuant to the Coastal Zone Management Act resulted in agreements between certain states and companies to avoid areas of public interest (e.g., productive fishing areas).

*3. Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?*

The issuance of IHAs to these companies is not expected to adversely affect historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas because the geophysical surveys take place offshore where these resources are not present. NMFS is requiring a 30 km year-round closure to all survey activity along the coast, with an expanded 90 km closure in place between November and April (or a requirement that comparable protection be achieved through implementation of a NMFS-approved mitigation and monitoring plan at distances between 47-80 km offshore), further minimizing any potential for impacts to these resources. The only potential effects that may result from NMFS's proposed action are potential adverse effects to marine mammals that are the subject of the take authorization, as well as their habitat. Any proposed activity must be consistent with the MMPA and NMFS's implementing regulations and, as applicable, must cause no greater than negligible impacts to affected species or stocks, cause taking determined to be of no greater than small numbers, and include measures sufficient to effect the least practicable adverse impact to marine mammal species or stocks and their habitat. Therefore, it is not likely the issuance of these IHAs to these five applicants could adversely impact these areas at a level that would reach significance under NEPA.

*4. Are the proposed action's effects on the quality of the human environment likely to be highly controversial?*

The underlying activity (i.e., geophysical surveys associated with oil and gas exploration) and NMFS's action (i.e., issuance of IHAs associated with the surveys) are highly controversial—NMFS received over 117,000 public comments during review of its notice of proposed IHAs. However, this public controversy stems in significant part from public association with broader actions that may be taken by BOEM to allow oil and gas development in the U.S. Atlantic Ocean (i.e., actions that are not connected to NMFS's proposed action). Concerns expressed by the public in relation to either the BOEM-permitted surveys, potential future BOEM actions that could allow oil and gas development, or NMFS's proposed action of IHA issuance extend in large part to potential effects that are not actually associated with NMFS's action, e.g., significant oil spills (related to development activity), potential effects to commercial and recreational fisheries, or potential effects to coastal tourism. As stated previously, the effects of NMFS's action are inherently limited to effects on marine mammals and their habitat.

In contrast with the underlying activity itself—whether BOEM's action of permitting the geophysical surveys or NMFS's action of issuing IHAs for marine mammal take incidental to the surveys (the subject of this FONSI)—the proposed action's effects on the quality of the human environment are not highly controversial. NMFS has previously assessed and authorized incidental take of marine mammals for multiple activities involving active acoustic sources, including airguns. NMFS has acted as a cooperating agency in developing BOEM's 2014 PEIS for activities conducted in the Atlantic Ocean, as well as a separate 2017 PEIS developed by BOEM for similar activities in the Gulf of Mexico, and was the lead agency in developing a 2016 PEIS for similar activities in the U.S. Arctic Ocean. NMFS has also completed numerous EAs, with associated FONSI, for substantially similar activities conducted in diverse locations. Given the substantial nature of prior environmental reviews, the effects of the activity are well-understood, and there is no substantial disagreement concerning the scientific methods and analyses used by NMFS. Nor are the environmental effects disproportionate in type or scope from similar activities.

Through NMFS's history of issuing IHAs for substantially similar geophysical survey activities, relatively standard minimum mitigation and monitoring measures have been developed and vetted during past public comment periods and other NEPA reviews. Appropriately, NMFS continues to evaluate mitigation measures in the context of the specific proposals and the evolving science, and in this case, NMFS identified and required an expanded suite of mitigation and monitoring requirements specific to the proposed geophysical surveys. These mitigation and monitoring requirements are more protective than proposed by BOEM or the five companies and ensure the least practicable adverse impact to marine mammals or stocks. NMFS based its analysis and mitigation on the best available science and there is not substantial disagreement over the methods used or impacts anticipated.

The primary anticipated impact is the introduction of sound into the marine environment, though increased noise levels are expected to be localized and temporary. Although there is some lack of consensus within the scientific and stakeholder communities about the potential effects of noise on marine mammals, there is basic understanding regarding the likely effects of noise exposure on individual marine mammals (dependent on species and context), as well as the extent to which such effects may or may not accrue to the extent that effects may occur at the population level. NMFS fully considered all comments in preparing the Final EA and IHAs. Based on the best available scientific literature, as well as consideration of all public comments received, NMFS determined that given the limited duration of the surveys and transient and temporary nature of impacts in any

given location, viewed in concert with the required mitigation and monitoring, the issuance of the five IHAs would each have a negligible impact on the affected marine mammal species or stocks under the MMPA.

*5. Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?*

See related response to question 4 above. As explained, some scientific uncertainties exist regarding the degree and manner in which anthropogenic noise, including that produced through use of airguns, impacts marine mammals; however, the uncertainty is not substantial. There is a substantial body of scientific literature regarding the impacts of noise—and specifically airgun noise—on marine mammals. NMFS has issued IHAs and conducted associated NEPA analyses for similar activities or activities with similar types of marine mammal harassment in numerous locations. Although fewer of these analyses have been conducted for activities in the Atlantic Ocean, we do not expect the action's effects on the human environment to be substantially different. Therefore, we expect any potential effects from the issuance of IHAs to these companies to be similar to prior analyzed activities, which are not likely to be highly uncertain or involve unique or unknown risks. Mitigation and monitoring methods have been evaluated in numerous prior environmental reviews and are expected to be effective in reducing adverse effects to marine mammals from the geophysical survey activities.

*6. Can the proposed action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?*

The 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 future actions. NMFS's actions under MMPA Section 101(a)(5)(D) are considered individually and are based on the best available scientific information, which is continuously evolving, and requests for IHAs are evaluated on their own merits relative to the criteria established in the MMPA and 50 CFR Part 216 on a case-by-case basis. Therefore, issuance of an IHA to a specific entity for a given activity does not guarantee or imply that NMFS will issue future authorizations upon request in relation to similar activities. For these reasons, the issuance of IHAs to the five applicants would not set a precedent. Should future applicants apply for IHAs to conduct additional G&G surveys in the Atlantic Ocean or elsewhere, NMFS will conduct relevant subsequent analyses and evaluate each on a case-by-case basis.

*7. Is the proposed action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?*

The proposed action considered herein is the issuance of five IHAs, and the aggregate effects of such issuance on marine mammals and their habitat. Other relevant actions to be considered in evaluating potentially cumulatively significant impacts include commercial fishing, ship traffic, U.S. Navy training and testing activities, etc. We considered all relevant activities in evaluating the potential for cumulatively significant impacts, including incorporation by reference of substantial analysis provided in BOEM's 2014 Final PEIS. In that analysis, BOEM summarized the potential cumulative impacts to marine mammals and their habitat within the AOI and evaluated such impacts as being "negligible to minor" (Final PEIS, Chapter 4.3.2.3). NMFS's tiered EA concludes similarly that the aggregate impacts of the five geophysical surveys—a much smaller level of activity than that considered by BOEM—considered in context with NMFS's required mitigation,

will not result will not result in cumulatively significant impacts to marine mammals and their habitat when viewed collectively with other past, present, and reasonably foreseeable future actions.

NMFS has prescribed mitigation according to the best available science and information to minimize potential impacts, as required by the MMPA. Furthermore, the five geophysical surveys are limited to various time and space constraints. Specifically, the surveys cannot occur within 30 km of the coast year-round—extended to 90 km from November 1 to April 30 (or with comparable protection achieved through implementation of a NMFS-approved mitigation and monitoring plan at distances between 47-80 km offshore)—and are excluded from various other locations designated to provide the greatest possible benefit to the most sensitive species affected. NMFS does not expect substantial physical overlap between the surveys given the vast spatial extent of the AOI (854,779 km<sup>2</sup>), and each will occur in under one year. Therefore, we find that the aggregate effects of issuance of the five IHAs are effectively minimized and are not significant. When considered incrementally in addition to other activity ongoing in the survey area (i.e. commercial and recreational fisheries, shipping and marine transportation, military activity, recreational boating, etc.), cumulative impacts from the combined potential activity are not expected to be significant.

*8. Can the proposed action reasonably be expected 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?*

The effects of issuance of an IHA are limited to those occurring to marine mammals and their habitat and, therefore, NMFS's proposed action is not expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. Likewise, it is not expected to cause loss or destruction of significant scientific, cultural, or historical resources. Furthermore, the underlying geophysical surveys themselves take place in the open ocean and involve only production of underwater sound—therefore, although known or unknown historical resources may be present, the chance of affecting such resources is so remote and unlikely as to be discountable.

*9. Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973?*

The issuance of IHAs to the five companies is not expected to have a significant impact on endangered or threatened species or critical habitat under the ESA. Based on the results of the ESA section 7 consultation (summarized below) along with mitigation measures designed to avoid or minimize impacts to ESA-listed species and critical habitat, NMFS expects that any impacts to ESA-listed marine mammals, as well as their critical habitat, will be short-term and limited to harassment.

The proposed geophysical surveys may have the potential to affect the following species listed as threatened or endangered under the ESA: North Atlantic right whales, sei whales, fin whales, blue whales, and sperm whales. A 2013 Biological Opinion (BiOp) issued to BOEM under the ESA relevant to this proposed action concluded that potential G&G activity, as outlined in BOEM's Final PEIS, would not likely jeopardize the continued existence of any listed species and would not affect critical habitat. That BiOp reviewed activity under a programmatic approach, based on the programmatic approach in BOEM's Final PEIS, as specific survey details were unknown at the time. However, in 2017, both BOEM and NMFS's Permits and Conservation Division initiated

separate consultation with NMFS's Endangered Species Act Interagency Cooperation Division for issuance of the IHAs (NMFS's action) and geophysical permits (BOEM's action) specific to the five applications—a consultation distinct from the more programmatic approach of the earlier consultation between NMFS and BOEM. In November 2018, NMFS's Endangered Species Act Interagency Cooperation Division found that both BOEM and NMFS's separate actions related to the five geophysical surveys will not jeopardize the continued existence of endangered or threatened species and would not affect critical habitat, and issued a BiOp providing conclusions specific to BOEM's and NMFS's actions relevant to the proposed surveys.

We have preliminarily determined that the proposed geophysical surveys may result in taking by harassment only of small numbers of these five species, and that the total taking, specific to each survey, will result in no greater than a negligible impact on the affected species or stocks. Harassment and other acoustic impacts are expected to be solely an outcome of acoustic exposure from airguns used during these geophysical surveys, and will be temporary in nature. Two of the ESA-listed species, sei and blue whales, are considered so rare in the activity area that they are not expected to be exposed at all, but NMFS has provided a precautionary take authorization. To reduce potential exposure, NMFS is requiring multiple monitoring and mitigation measures for marine mammals. These are described in detail in the EA and notice of proposed IHAs, but in summary include: shutdowns for marine mammals within or entering a 500-m exclusion zone; continuous visual and passive acoustic monitoring before, during, and after the surveys; shutdowns at extended distance for certain sensitive species; time-area closures (e.g., 30-km year-long closure off the coast, certain closures of deep water sites off Cape Hatteras, and 90-km closure off the coast from November 1 through April 30 (or a requirement that comparable protection is achieved through implementation of a NMFS-approved mitigation and monitoring plan at distances between 47-80 km offshore)); ramp-up requirements; vessel strike avoidance measures; and reporting requirements.

The only critical habitat designation within the proposed survey area relevant to NMFS's action is for North Atlantic right whales, which borders the coastline from roughly Cape Fear, North Carolina to just south of Cape Canaveral, Florida. This area is an important migratory route and calving area for right whales from November through April each year. NMFS is requiring stringent mitigation measures to restrict survey activity throughout the designated critical habitat in a way that is expected to entirely avoid impacts to this habitat and whales within it. NMFS's 90 km coastal shutdown (November through April) goes beyond protecting all NARW critical habitat and designated seasonal management areas, but extends such that the majority of expected NARW occurrence would be protected from potential disturbance (alternatively, comparable protection would be achieved through implementation of a NMFS-approved mitigation and monitoring plan at distances between 47-80 km offshore). Separately, if a NARW is observed outside of these closure areas, an extended shutdown requirements of 1.5 km is required to minimize the severity and duration of any potential disturbance.

*10. Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?*

The issuance of an IHA would not violate any federal, state, or local laws for environmental protection, as NMFS has engaged in consultation and conducted analyses as necessary to ensure compliance with relevant environmental protection laws. NMFS's Permits and Conservation Division initiated consultation under section 7 of the ESA with NMFS's Endangered Species Act

Interagency Cooperation Division in June 2017 to consider the effects of issuance of five IHAs. This consultation concluded in November 2018 and found, as described above, that NMFS's action to potentially issue five IHAs would not jeopardize the continued existence of any listed species nor affect critical habitat. As discussed in the EA, NMFS's proposed action will not affect resources of any National Marine Sanctuary, EFH designated pursuant to the MSFCMA, or have reasonably foreseeable effects on the uses or resources of the coastal zone of any state (pursuant to the Coastal Zone Management Act). There are no other environmental laws, regulations, federal permits, or licenses applicable to NMFS for the issuance of IHAs to these five companies.

*11. Can the proposed action reasonably be expected to adversely affect stocks of marine mammals as defined in the Marine Mammal Protection Act?*

Each applicant's proposed geophysical survey activity has the potential to take marine mammals by harassment, as defined by the MMPA. However, while take of numerous individuals is expected, we do not expect adverse impacts at the population level, including stocks of marine mammals. Importantly, effects on individuals or groups of animals does not necessarily translate into an adverse effect to a stock or species, unless such effects result in reduced fitness for those individuals and, ultimately, accrue to the point that there is reduced reproduction or survival leading to effects on annual rates of recruitment or survival for the species. Adverse effects on stocks could potentially result from direct mortality or serious injury or from harassment impacting critical biological functioning and behaviors, such as feeding, mating, calving, or communicating, in a manner that reduces reproductive fitness or survivorship in enough individuals to negatively affect population rates. The loss or serious injury of an individual, or significant reductions in health or reproductive rates, could trigger population impacts if birth rates or emigration do not offset the loss of individuals. For this proposed activity, impacts to marine mammals would occur through noise exposure from use of airguns and associated increases in ambient noise. Prolonged or repeat exposure could lead to physiological effects or behavioral disruption, though the magnitude of impact depends on multiple factors, including biological (e.g., age, sex) and behavioral state (e.g., diving, directionality of the individual at the time of exposure) of the marine mammal(s), as well as characteristics of the sound source and physical environment (e.g., bottom type, weather). However, due to the required mitigation and monitoring and transitory and intermittent nature of the surveys, NMFS does not anticipate the activity having adverse effects on marine mammal species or stocks.

*12. Can the proposed action reasonably be expected to adversely affect managed fish species?*

NMFS expects issuing IHAs to the five companies for the take of marine mammals incidental to conducting geophysical survey activities to cause short-term minor adverse impacts to some managed fish species. No gear type associated with the surveys is anticipated to physically impact important habitat for managed fish species. Individual fish may be directly impacted by noise from use of airguns, but such impacts are expected to be limited to temporary displacement. In addition, marine mammals have not been identified as a prey component of managed fish species in this area, so authorizing the incidental take of marine mammals will not reduce the quantity and/or quality of EFH (see related response to question 13 below).

*13. Can the proposed action reasonably be expected to adversely affect essential fish habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act?*

We do not expect that issuing IHAs to the five applicants for the take of marine mammals incidental

to conducting geophysical survey activities would cause adverse effects to EFH. Effects of NMFS's action—the issuance of IHAs—are limited to impacts to marine mammals and their habitat. The proposed surveys may result in temporarily elevated noise levels within the AOI, but these surveys will be short in duration and intermittent within any specific areas. Therefore, authorizing the take of marine mammals is unlikely to affect water quality or substrate necessary to provide spawning, feeding, breeding or growth to maturity functions for managed fish. In accordance with 2017 guidance issued by NMFS's Office of Habitat Conservation concerning incidental take authorizations and EFH, we determined the issuance of the five IHAs will not result in adverse impacts to EFH and, further, that it will not require separate consultation per Section 305(B)(2) of the MSA as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267).

*14. Can the proposed action reasonably be expected to adversely affect vulnerable marine or coastal ecosystems, including but not limited to, deep coral ecosystems?*

We do not expect our action to impact any vulnerable marine ecosystems, nor any aspects of biodiversity or functioning of marine ecosystems, in a significant manner. As described elsewhere in this document, the impact from our action is limited to impacts to marine mammals and their habitat, due to the potential increased noise levels into the marine environment during the geophysical surveys. The scientific literature does indicate that impacts to marine mammal habitat, in the form of effects to marine mammal prey species, is possible. For example, one recent study investigated zooplankton abundance, diversity, and mortality before and after exposure to airgun noise, finding that the exposure resulted in significant depletion for more than half the taxa present and that there were two to three times more dead zooplankton after airgun exposure compared with controls for all taxa. However, in order to have significant impacts on species such as plankton, the spatial or temporal scale of impact must be large in comparison with the ecosystem concerned. Therefore, while the effect observed in this study is of concern, it would likely warrant greater concern particularly where repeated noise exposure in an area is expected (which it is not here) and, given questions about these findings, further study is warranted. Additional studies have shown that some fish and invertebrate species may experience displacement or behavioral changes as a result of acoustic exposure from airgun surveys, such as temporary displacement or cessation in vocalization. However, any noise impact is expected to be sporadic, temporary, and localized given a mobile sound source over a broad area. Thus, short-term minor adverse effects are likely to occur but are not expected to rise to the level of significance. There are no known impacts from airgun surveys on deep coral ecosystems. As noted, we do not anticipate any physical interactions from survey gear/equipment on the environment, and do not expect that noise production from the surveys would impact coastal ecosystems at all, given the required mitigation (e.g., minimum 30 km coastal standoff distance).

*15. Can the proposed action reasonably be expected to adversely affect biodiversity or ecosystem functioning (e.g., benthic productivity, predator-prey relationships, etc.)?*

We do not expect our action to have a substantial impact on biodiversity or ecosystem functioning within the affected environment. Again, adverse effects are expected to be short-term and minor. The effects of our proposed action are expected to be limited to behavioral response, masking, or stress. These effects are anticipated to be short term and localized. Current research indicates that some fish species and other marine mammal prey (e.g., squid, zooplankton) can be affected by ocean noise, though the degree of impact depends on many environmental and biological conditions. Any potential impacts to fish are expected to be temporary and localized, and result in

short-term displacement at most. Other recent studies show potential impacts on zooplankton, which forms the basis of many food webs, but there is currently no scientific consensus on actual impacts to zooplankton from this activity (see discussion in response to prior question). Impacts are not expected to affect predator-prey relationships or otherwise impact any form of benthic productivity.

*16. Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?*

The proposed geophysical surveys planned by the five companies do not involve methods known or likely to result in the introduction or spread of non-indigenous species, such as through ballast water exchange. The five companies are required to follow strict protocols, as outlined in BOEM's Final PEIS (see Chapter 3.5.1.6), to prevent the introduction, continued existence, or spread of noxious organisms or other non-native species. Therefore, it is not likely that NMFS's issuance of these five IHAs would promote or result in the introduction or spread of invasive species at a level that would reach significance under NEPA.

#### **DETERMINATION**

In view of the information presented in this document, the five IHA applications, the 2018 Final Biological Opinion and EA prepared by NMFS, and the 2014 Final PEIS prepared by BOEM, NMFS determined the issuance of IHAs to the five applicants in accordance with the Preferred Alternative will not significantly impact the quality of the human environment. In addition, we have addressed all beneficial and adverse impacts of the action to reach the conclusion of no significant impacts. Accordingly, the preparation of an Environmental Impact Statement for this action is not necessary.

  
Donna S. Wieting  
Director, Office of Protected Resources,  
National Marine Fisheries Service

NOV 29 2018

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Date