



## NOAA FISHERIES

**PROPOSED ACTION:** Issuance of an Incidental Harassment Authorization to Statoil Wind U.S. LLC for Site Characterization Surveys off the Coast of New York

**TYPE OF STATEMENT:** Environmental Assessment

**LEAD AGENCY:** U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service

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**LOCATION:** Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0512) offshore New York

**ABSTRACT:** This Environmental Assessment analyzes the environmental impacts of the National Marine Fisheries Service, Office of Protected Resources' proposal to issue an Incidental Harassment Authorization, pursuant to section 101(a)(5)(D) of the Marine Mammal Protection Act, to Statoil Wind U.S. LLC for the take of small numbers of marine mammals incidental to Site Characterization Surveys off the Coast of New York.

**DATE:** April 2018

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## LIST OF ACRONYMS AND ABBREVIATIONS

CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	decibel
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
ft	feet
FR	Federal Register
IHA	Incidental Harassment Authorization
m	meter
mi	miles
MMO	Marine Mammal Observer
MMPA	Marine Mammal Protection Act
MSFCMA	Magnuson-Stevens Fishery Conservation Management Act
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OCS	Outer Continental Shelf
OMB	Office of Management and Budget
PSO	Protected Species Observer
PTS	Permanent threshold shift
SAR	NMFS Marine Mammal Stock Assessment Report
TTS	Temporary threshold shift
USFWS	US Fish and Wildlife Service

## **Chapter 1 Introduction and Purpose and Need**

### **1.1 BACKGROUND**

The Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1631 et seq.) prohibits the incidental taking of marine mammals. The incidental take of a marine mammal falls under three categories: mortality, serious injury or harassment (i.e., injury and behavioral effects). Harassment<sup>1</sup> is any act of pursuit, torment or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment) or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns (Level B harassment). Disruption of behavioral patterns includes, but is not limited to, migration, breathing, nursing, breeding, feeding or sheltering. However, there are exceptions to the prohibition on take in Section 101(a)(5)(D) of the MMPA that gives the National Marine Fisheries Service (NMFS) the authority to authorize the incidental but not intentional take of small numbers of marine mammals by harassment provided certain determinations are made and statutory and regulatory procedures are met. Refer to Chapter 2 for details regarding this exception and NMFS' IHA criteria.

NMFS also promulgated regulations to implement the provisions of the MMPA governing the taking and importing of marine mammals, 50 Code of Federal Regulations (CFR) Part 216 and produced Office of Management and Budget (OMB)-approved application instructions (OMB Number 0648-0151) that prescribe the procedures necessary to apply for permits. All applicants must comply with these regulations and application instructions in addition to the provisions of the MMPA.

#### **1.1.1. Applicant's Incidental Take Authorization Request**

On November 9, 2017, NMFS received an application from Statoil Wind U.S. LLC (Statoil) requesting an authorization for take of marine mammals incidental to conducting site characterization surveys in coastal waters and offshore New York. The offshore area is the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) lease area #OCS-A-0512 ("Lease Area") and coastal area is where one or more cable route corridors will be established ("Submarine Cable Corridor") (herein "Project Area" (see Figure 1). After NMFS provided comments on the IHA application submitted November 9, Statoil submitted a revised IHA application in January 2018 with updated information regarding species, take numbers, and additional mitigation measures. NMFS determined that the revised application was adequate and complete on January 7, 2018

Statoil proposes to conduct a geophysical and geotechnical survey to support the characterization of the existing seabed and subsurface geological conditions in the Project Area. Surveys will include the use of the following equipment: multi-beam depth sounder, side-scan sonar, sub-bottom profiler, vibracores, and cone penetration tests (CPTs). The proposed geophysical and geotechnical survey activities are scheduled to last for approximately 142 days (including

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<sup>1</sup> As defined in the MMPA for non-military readiness activities (Section 3 (18)(A))

estimated weather down time). Statoil's proposed site characterization surveys have the potential to effect the following marine mammals in the Project Area:

- North Atlantic right whale (*Eaubalena glacialis*)
- Humpback whale (*Megaptera novaeangliae*)
- Fin whale (*Balaenoptera physalus*)
- Sperm whale (*Physeter macrocephalus*)
- Minke whale (*Balaenoptera acutorostrata*)
- Bottlenose dolphin (*Tursiops truncatus*)
- Short-beaked common dolphin (*Delphinus delphis*)
- Atlantic white-sided dolphin (*Lagenorhynchus acutus*)
- Harbor porpoise (*Phocoena phocoena*)
- Harbor seal (*Phoca vitulina*)
- Gray seal (*Halichoerus grypus*)

## **1.2.Purpose and Need**

### **1.2.1. Description of the Proposed Action**

NMFS proposes to issue an IHA to Statoil pursuant to Section 101(a)(5)(D) of the MMPA and 50 CFR Part 216. The IHA will be valid for one year from the date the IHA is issued, and authorizes takes, by Level B harassment, of marine mammals incidental to marine site characterization surveys in the Project Area. The impacts of the underwater noise associated with marine site characterization surveys have the potential to cause marine mammals within or near the survey area to be behaviorally disturbed, thus, the activity warrants an IHA from NMFS. NMFS's proposed action is a direct outcome of Statoil's request for an IHA to take marine mammals.

### **1.2.2. Purpose:**

The purpose of our proposed action is to authorize take of marine mammals incidental to Statoil's marine site characterization surveys in the Project Area. The IHA, if issued, would provide an exception to Statoil from the take prohibitions contained in the MMPA. To authorize the incidental take of small numbers of marine mammals, NMFS evaluates the best available scientific information to determine whether the take would have a negligible impact on marine mammals or stocks and whether the activity would have an unmitigable impact on the availability of affected marine mammal species for subsistence use. NMFS cannot issue this IHA if it cannot make those findings in the affirmative. In addition, we must prescribe the permissible methods of taking and other means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating

grounds, and other areas of similar significance. If appropriate, we must prescribe means of effecting the least practicable impact on the availability of the species or stocks of marine mammals for subsistence uses. IHAs must also include requirements or conditions pertaining to monitoring and reporting.

### **1.2.3. Need:**

U.S. citizens seeking to obtain authorization for the incidental take of marine mammals under NMFS's jurisdiction must submit such a request (in the form of an application). On January 9, 2018 Statoil submitted an adequate and complete application demonstrating both the need and potential eligibility for an IHA under the MMPA. NMFS now has a corresponding duty to determine whether and how to authorize take of marine mammals incidental to the activities described in Statoil's application. NMFS's responsibilities under section 101(a)(5)(D) of the MMPA and its implementing regulations establish and frame NMFS's proposed action.

Any alternatives considered under NEPA must meet the agency's statutory and regulatory requirements. Our described purpose and need guide us in developing reasonable alternatives for consideration, including alternative means of mitigating potential adverse effects.

## **1.3.The Environmental Review Process**

In accordance with the Council on Environmental Quality (CEQ) Regulations for implementing the National Environmental Policy Act (NEPA), NMFS, to the fullest extent possible, integrates the requirements of NEPA with other regulatory processes required by law or by agency practice so that all procedures run concurrently, rather than consecutively. This includes coordination within National Oceanic Atmospheric Administration (NOAA), (e.g., the Office of the National Marine Sanctuaries) and with other regulatory agencies (e.g., the U.S. Fish and Wildlife Service), as appropriate, during NEPA reviews prior to implementation of a proposed action to ensure that requirements are met. Regarding the issuance of IHAs, we rely substantially on the public process required by the MMPA for proposed IHAs to develop and evaluate relevant environmental information and provide a meaningful opportunity for public participation when we prepare corresponding NEPA documents. We fully consider public comments received in response to the publication of proposed IHAs during the corresponding NEPA review process.

### **1.3.1. National Environmental Policy Act**

NEPA requires federal agencies to examine the environmental impacts of their proposed actions within the United States and its territories. A NEPA analysis is a concise public document that provides an assessment of the potential effects a major federal action may have on the human environment, which includes the natural and physical environment. Major federal actions include activities that federal agencies fully or partially fund, regulate, conduct or approve. Because our issuance of an IHA would allow for the taking of marine mammals, consistent with provisions under the MMPA and incidental to the applicant's activities, we consider this as a major federal action subject to NEPA; therefore, NMFS analyzes the environmental effects associated with authorizing incidental takes of protected species and prepares the appropriate NEPA documentation.

### **1.3.2. Scoping and Public Involvement**

The NEPA process is intended to enable NMFS to make decisions based on an understanding of the environmental consequences and take actions to protect, restore, and enhance the environment. Although agency procedures do not require public involvement prior to finalizing an EA, NMFS relied substantially on the public process pursuant to the MMPA to develop and evaluate environmental information relevant to an analysis under NEPA. NMFS made the IHA application available for public review and comment and, separately, published the proposed IHA in the *Federal Register* (FR) on February 22, 2018 (83 FR 7655). There, NMFS alerted the public it intended to use the MMPA public review process for the proposed IHA to solicit relevant environmental information and provide the public an opportunity to submit comments.

The *Federal Register* included a detailed description of the proposed action resulting from the MMPA incidental take authorization process; consideration of environmental issues and impacts of relevance related to the proposed issuance of the IHA; and potential mitigation and monitoring measures to avoid and minimize potential adverse impacts to marine mammals and their habitat. The *Federal Register* notice of the proposed IHA, the draft EA and the corresponding public comment period were instrumental in providing the public with information on relevant environmental issues and offering the public a meaningful opportunity to provide comments for our consideration in both the MMPA and NEPA decision-making processes.

During the 30-day public comment period following the publishing of the proposed IHA, NMFS received a comment letter from the Marine Mammal Commission (Commission) and a comment letter from a group of non-governmental organizations (NGOs). The Commission expressed concerns regarding the methods used to estimate numbers of incidental takes; the behavioral harassment threshold for acoustic, non-impulsive sources; and NMFS's notice regarding the potential for issuance of one-year IHA renewals under certain limited circumstances. The NGOs expressed concerns regarding marine mammal density estimates used to calculate take; mitigation measures including vessel strike avoidance measures and shutdowns of survey equipment; and, the effectiveness of night vision equipment at detecting marine mammals during nighttime surveys. We considered all comments received in response to the publication of the proposed IHA and used these comments to inform the analysis in this EA and to develop mitigation, monitoring and other conditions for the final IHA. NMFS posted the comments online at: <http://www.nmfs.noaa.gov/pr/permits/incidental>. A more detailed summary of the comments, and NMFS' responses to those comments, will be included in the *Federal Register* notice for the issued IHA, if NMFS determines the IHA should be issued.

#### **1.4. Other Environmental Laws or Consultations**

NMFS must comply with all applicable federal environmental laws and regulations, necessary to implement a proposed action. NMFS' evaluation of and compliance with environmental laws and regulations is based on the nature and location of the applicant's proposed activities and NMFS proposed action. Therefore, this section only summarizes environmental laws and consultations applicable to NMFS' issuance of an IHA to Statoil.

##### **1.4.1 Magnuson-Stevens Fishery Conservation and Management Act**

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801 et seq.), Federal agencies are required to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or

undertaken, by such agency which may adversely affect essential fish habitat (EFH) identified under the MSA.

EFH has been identified in the waters near the Project Area. EFH is present in the study area for several species of shark, flounder, tuna, hake, pout, monkfish, spearfish, squid, cod, herring, bluefish, bass, skate, scup, and butterfish. No habitat areas of particular concern were identified for this area. In accordance with the EFH requirements of the MSA, NMFS notified the Greater Atlantic regional office about this activity, and EFH consultation was not considered necessary for issuance of this IHA.

#### **1.4.2 Endangered Species Act**

The Endangered Species Act (ESA) established protection over and conservation of threatened and endangered species and the ecosystems upon which they depend. An endangered species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the near future throughout all or in a significant portion of its range. The USFWS and NMFS jointly administer the ESA and are responsible for the listing of species (designating a species as either threatened or endangered) and designating geographic areas as critical habitat for threatened and endangered species. The ESA generally prohibits the “take” of an ESA-listed species unless an exception or exemption applies. The term “take” as defined in section 3 of the ESA means to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Section 7(a)(2) requires each federal agency to ensure that any action it authorizes, funds or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. When a federal agency's action may affect a listed species, that agency is required to consult with NMFS and/or the USFWS under procedures set out in 50 CFR Part 402. NMFS and USFWS can also be action agencies under section 7. Informal consultation is sufficient for species the action agency determines are not likely to be adversely affected if NMFS or USFWS concurs with the action agency's findings, including any additional measures mutually agreed upon as necessary and sufficient to avoid adverse impacts to listed species and/or designated critical habitat.

NMFS' issuance of an IHA is a federal action that is also subject to the requirements of section 7 of the ESA. As a result, we are required to ensure that the issuance of an IHA to Statoil is not likely to jeopardize the continued existence of any threatened and endangered species or result in the destruction or adverse modification of critical habitat for these species. Three ESA-listed marine mammal species could potentially occur in the action area: the fin whale, sperm whale, and North Atlantic right whale. All three species were listed in 1970 as endangered throughout their range. The proposed marine site characterization survey activities will not occur within any designated critical habitat areas, and are therefore not likely to result in the destruction or adverse modification of critical habitat for these species.

A Biological Opinion on Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf in Massachusetts, Rhode Island, New York and New Jersey Wind Energy Areas was issued by NMFS' Greater Atlantic Regional Fisheries Office (GARFO) to BOEM in April 2013. OPR initiated consultation with GARFO in February 2018 to amend the existing incidental take statement that is consistent with the IHA. Following issuance of the IHA,

the Biological Opinion may be amended to include an incidental take exemption for these ESA-listed marine mammal species, as appropriate.

### 1.5. Scope of the Environmental Analysis

This EA was prepared in accordance with NEPA (42 USC 4321, et seq.) and CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508). The analysis in this EA addresses potential impacts to the human environment and natural resources, specifically marine mammals and their habitat, resulting from NMFS’ proposed action to authorize incidental takes associated with Statoil’s site characterization surveys. In particular, this EA evaluates the direct, indirect, and cumulative impacts related to authorizing incidental take of marine mammals under the MMPA. The scope of the analysis is limited to the decision for which NMFS is responsible (i.e. whether or not to issue the IHA). This EA is intended to provide focused information on the primary issues and impacts of environmental concern, which is our issuance of the IHA authorizing the take of marine mammals incidental to Statoil’s activity, and the mitigation and monitoring measures to minimize the effects of that take. For these reasons, this EA does not provide a detailed evaluation of the effects to the elements of the human environment listed in Table 1 below.

**Table 1. Components of the human environment not affected by our issuance of an IHA.**

Biological	Physical	Socioeconomic / Cultural
Amphibians	Air Quality	Commercial Fishing
Humans	Essential Fish Habitat	Military Activities
Non-Indigenous Species	Geography	Oil and Gas Activities
Seabirds	Land Use	Recreational Fishing
	Oceanography	Shipping and Boating
	State Marine Protected Areas	National Historic Preservation Sites
	Federal Marine Protected Areas	National Trails and Nationwide Inventory of Rivers
	National Estuarine Research Reserves	Low Income Populations
	National Marine Sanctuaries	Minority Populations
	Park Land	Indigenous Cultural Resources
	Prime Farmlands	Public Health and Safety
	Wetlands	Historic and Cultural Resources
	Wild and Scenic Rivers	Subsistence <sup>2</sup>
	Ecologically Critical Areas	

<sup>2</sup> No subsistence activity currently occurs within the action area

## Chapter 2 Alternatives

### 2.0 Introduction

As described in Chapter 1, the National Marine Fisheries Service (NMFS) Proposed Action is to issue an Incidental Harassment Authorization (IHA) to authorize the take of small numbers of marine mammals incidental to Statoil's proposed site characterization survey activities. NMFS' Proposed Action is triggered by Statoil's request for an IHA per the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*). In accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) Regulations, NMFS is required to consider a range of alternatives to the Proposed Action as well as the No Action. The evaluation of alternatives under NEPA assists NMFS with ensuring that any unnecessary impacts are avoided through an assessment of alternative ways to achieve the purpose and need for our Proposed Action that may result in less environmental harm. For the purposes of this EA, an alternative will only meet the purpose and need if it satisfies the requirements under section 101(a)(5)(D) the MMPA. Therefore, NMFS applied the screening criteria and considerations outlined in Section 2.1 to the alternatives to identify which alternatives to carry forward for analysis. Accordingly, reasonable alternatives are carried forward for evaluation under NEPA while alternatives considered but determined not to meet purpose and need are not carried forward.

### 2.1. Criteria and Considerations for Selecting Alternatives

Under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses ("least practicable adverse impact"). Consideration of the availability of marine mammal species or stocks for taking for subsistence uses pertains only to Alaska, and is therefore not relevant here. NMFS does not have a regulatory definition for "least practicable adverse impact." However, NMFS's implementing regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)). In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, we carefully consider two primary factors:

- (1) The manner in which, and the degree to which, implementation of the measure(s) is expected to reduce impacts to marine mammal species or stocks, their habitat, and their availability for subsistence uses (when relevant). This analysis will consider such things as the nature of the potential adverse impact (such as likelihood, scope, and range), the likelihood that the measure will be effective if implemented, and the likelihood of successful implementation.
- (2) The practicability of the measure for applicant implementation includes consideration of cost and the impact on operations and personnel safety..

While the language of the least practicable adverse impact standard calls for minimizing impacts to affected species or stocks, we recognize that the reduction of impacts to those species or stocks accrues through the application of mitigation measures that limit impacts to individual animals. Accordingly, our analysis focuses on measures designed to avoid or minimize impacts on marine mammals from activities that are likely to increase the probability or severity of population-level effects, including auditory injury or disruption of important behaviors, such as foraging, breeding, or mother/calf interactions. In order to satisfy the MMPA's least practicable adverse impact standard, we propose a suite of basic mitigation protocols that are required regardless of the status of a stock. Additional or enhanced protections are proposed for species whose stocks are in poor health and/or are subject to some significant additional stressor that lessens that stock's ability to weather the effects of the specified activity without worsening its status.

In the evaluation of specific measures for Statoil's proposed site characterization activities, the details of the specified activity will necessarily inform each of the two primary factors discussed above (expected reduction of impacts and practicability), and will be carefully considered to determine the types of mitigation that are appropriate under the least practicable adverse impact standard. Analysis of how a potential mitigation measure may reduce potential adverse impacts on a marine mammal stock or species and practicability of implementation are not issues meaningfully evaluated through a "binary lens". The manner in which, and the degree to which, implementation of a measure is expected to reduce potential impacts, as well as its practicability in terms of these considerations, can vary widely. Expected effects of the activity and of the mitigation as well as status of the stock all weigh into these considerations. Accordingly, the greater the likelihood that a measure will contribute to reducing the probability or severity of adverse impacts to the species or stock, the greater the weight that measure is given when considered in combination with practicability to determine the appropriateness of the mitigation measure, and vice versa. No quantitative formula is provided by the MMPA or by regulation, and it is not reasonable to expect an assessment of the mitigation required to achieve the least practicable adverse impact other than as described here. We discuss consideration of these factors in detail below.

The emphasis given to a measure's ability to reduce the impacts on a species or stock considers the degree, likelihood, and context of the anticipated reduction of impacts to individuals as well as the status of the species or stock. The ultimate impact on any individual from a disturbance event (which informs the likelihood of adverse species- or stock-level effects) is dependent on the circumstances and associated contextual factors, such as duration of exposure to stressors.

Though any proposed mitigation needs to be evaluated in the context of the specific activity and the species or stocks affected, measures with the following goals are often applied to reduce the likelihood or severity of adverse species- or stock-level impacts.

- avoiding or minimizing injury or mortality
- limiting interruption of known feeding, breeding, mother/calf, or resting behaviors; minimizing the abandonment of important habitat (temporally and spatially)
- minimizing the number of individuals subjected to these types of disruptions; and limiting degradation of habitat.



will vary depending on availability, but will be finalized as part of the survey preparations and contract negotiations with the survey contractor, and therefore the final selection of the survey equipment will be confirmed prior to the start of the survey program.

The project includes the following elements:

*High-Resolution Geophysical (HRG) Survey Activities*

- Depth sounding (multibeam echosounder) to determine site bathymetry and elevations;
- Magnetic intensity measurements for detecting local variations in regional magnetic field from geological strata and potential ferrous objects on and below the bottom;
- Seafloor imaging (sidescan sonar survey) for seabed sediment classification purposes, to identify natural and man-made acoustic targets resting on the bottom as well as any anomalous features;
- Shallow penetration sub-bottom profiler (pinger/chirp) to map the near surface stratigraphy (top 0 to 5 m (0 to 16 ft) of soils below seabed);
- Medium penetration sub-bottom profiler (sparker) to map deeper subsurface stratigraphy as needed (soils down to 75 to 100 m (246 to 328 ft) below seabed); and
- Ultra short baseline positioning system (USBL) for position referencing for the dynamic positioning (DP) vessel.

*Geotechnical Survey Activities*

- Vibracores would be taken to determine the geological and geotechnical characteristics of the sediments; and
- Cone Penetration Testing (CPT) would be performed to determine stratigraphy and in-situ conditions of the sediments.

**Table 2. Summary of Representative Survey Equipment.**

HRG System	Representative HRG Survey Equipment	Operating Frequencies	RMS Source Level <sup>1</sup>	Peak Source Level <sup>1</sup>	Pulse Duration (millisec)
Subsea Positioning / USBL	Sonardyne Ranger 2 USBL <sup>2</sup>	35-50kHz	188 dB <sub>rms</sub>	200 dB <sub>Peak</sub>	1
Sidescan Sonar	Klein 3900 Sidescan Sonar	445/900 kHz	220 dB <sub>rms</sub>	226 dB <sub>Peak</sub>	0.0016 to 0.1

Shallow penetration sub-bottom profiler	EdgeTech 512i	0.4 to 12 kHz	179 dB <sub>rms</sub>	186 dB <sub>Peak</sub>	1.8 to 65.8
Medium penetration sub-bottom profiler	SIG ELC 820 Sparker	0.9 to 1.4 kHz	206 dB <sub>rms</sub>	215 dB <sub>Peak</sub>	0.8
Multibeam Echo Sounder	Reson T20-P	200/300/400 kHz	221 dB <sub>rms</sub>	227 dB <sub>Peak</sub>	2 to 6
<p>1 All source levels are measured at 1 m and are from Crocker and Fratantonio (2016) except those for the Sonardyne Ranger 2 USBL which are based on manufacturer specifications (as source levels for the Sonardyne Ranger 2 USBL are not listed in Crocker and Fratantonio (2016))</p>					

The survey activities would be supported by a vessel approximately 30 to 55 m (98 to 180 ft) in length and capable of maintaining course and a survey speed of approximately 4 nm per hour (7.4 kilometers per hour (km/hr)) while transiting survey lines. Surveys would be conducted along tracklines spaced 30 m (98 ft) apart, with tie-lines spaced every 500 m (1640 ft). The multichannel array sub-bottom profiler would be operated on 150-m (492-ft) spaced primary lines, while the single channel array sub-bottom profiler would be operated on 30-m (98-ft) line spacing to meet Bureau of Ocean Energy Management (BOEM) requirements as set out in BOEM’s *Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to Archeological and Historic Property Information to 30 CFR Part 585*.

### 2.2.1. Specified Time and Specified Area

The proposed authorization will be effective for one year from the IHA issuance date, however the actual duration of site characterization surveys is approximate 142 days once they begin.

Statoil’s survey activities will occur in the approximately 79,350-acre Lease Area located approximately 11.5 nautical miles (nm) from Jones Beach, New York and in cable route corridors between the Lease Area and New York, identified as the Cable Route Area (Figure 1) with water depths ranging from 22 to 41 m (72 to 135 ft).

## 2.3. Description of Alternatives

### 2.3.1. Alternative 1 – Issuance of an Authorization with Mitigation Measures

The proposed action constitutes Alternative 1 and is the Preferred Alternative. Under this alternative, we would issue an IHA to Statoil allowing the incidental take, by Level B harassment, of 11 species of marine mammals, subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the IHA, if issued, along with any additional measures based on consideration of public comments.

*Mitigation, Monitoring, and Reporting Measures:*

As described in Section 1.2.1, we must prescribe the means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat. In order to do so, we must consider Statoil's proposed mitigation measures, as well as other potential measures, and assess how such measures could benefit the affected species or stocks and their habitat. Our evaluation of potential measures includes consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, we expect the successful implementation of the measures to minimize adverse impacts to marine mammals; (2) the proven or likely efficacy of the measures to minimize adverse impacts as planned; and (3) the practicability of the measures for applicant implementation.

Any additional mitigation measure proposed by us beyond what the applicant proposes should be able to or have a reasonable likelihood of accomplishing or contributing to the accomplishment of one or more of the following goals:

- Avoidance or minimization of marine mammal injury, serious injury, or death wherever possible;
- A reduction in the numbers of marine mammals taken (total number or number at biologically important time or location);
- A reduction in the number of times the activity takes individual marine mammals (total number or number at biologically important time or location);
- A reduction in the intensity of the anticipated takes (either total number or number at biologically important time or location);
- Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base; activities that block or limit passage to or from biologically important areas; permanent destruction of habitat; or temporary destruction/disturbance of habitat during a biologically important time; and
- For monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

To reduce the potential for disturbance associated with the activities, Statoil has proposed to implement several monitoring and mitigation measures for marine mammals. NMFS has proposed some additional measures. The proposed monitoring and mitigation measures include:

1. Vessel strike avoidance measures: Statoil will ensure that vessel operators and crew maintain a vigilant watch for cetaceans and pinnipeds and slow down or stop their vessels to avoid striking these species. All vessel operators will comply with 10 knot (<18.5 km per hour [km/h]) speed restrictions in any Dynamic Management Area (DMA). All survey vessels will maintain a separation distance of 500 m or greater from any sighted North Atlantic right whale. All vessels will maintain a separation distance of 100 m or greater from any sighted non-delphinoid (*i.e.*, mysticetes and sperm whales) cetaceans. All vessels will maintain a separation distance of 50 m or greater from any sighted

delphinoid cetacean. All vessels will maintain a separation distance of 50 m (164 ft) or greater from any sighted pinniped;

2. Visual monitoring: Visual monitoring of the established exclusion zone(s) for the HRG and geotechnical surveys will be performed by qualified and NMFS-approved protected species observers (PSOs). An observer team comprising a minimum of four NMFS-approved PSOs and two certified Passive Acoustic Monitoring (PAM), operating in shifts, will be stationed aboard either the survey vessel or a dedicated PSO-vessel. PSOs will be responsible for visually monitoring and identifying marine mammals approaching or within the established exclusion zone(s) during survey activities;
3. Passive Acoustic Monitoring (PAM): To support 24-hour HRG survey operations, Statoil will use certified PAM operators with experience reviewing and identifying recorded marine mammal vocalizations, as part of the project monitoring during nighttime operations to provide for optimal acquisition of species detections at night, or as needed during periods when visual observations may be impaired;
4. Implementation of exclusion zone (EZ) shut-down procedures: Exclusion zones during HRG surveys as follows:
  - a. a 500 m EZ for North Atlantic right whales;
  - b. a 100 m EZ for large whales and harbor porpoises; and
  - c. a 50 m EZ for delphinoids and pinnipeds.
5. Ramp-up for HRG activities: A ramp-up procedure will be used at the beginning of HRG survey activities in order to provide additional protection to marine mammals near the Lease Area by allowing them to vacate the area prior to the commencement of survey equipment use. Ramp-up would begin with the power of the smallest acoustic HRG equipment at its lowest practical power output appropriate for the survey. The power would then be gradually turned up and other acoustic sources added such that the source level would increase in steps not exceeding 6 dB per 5-minute period.

Statoil is required to submit a draft monitoring report to NMFS Office of Protected Resources within 90 days after the conclusion of the activities. A final report shall be prepared and submitted within 30 days following resolution of any comments on the draft report from NMFS. A description of the activities conducted by Statoil and the monitoring protocols would be included in the report.

In our *Federal Register* notice for the proposed IHA, which we incorporate by reference, we preliminarily determined that the measures included in the proposed IHA were sufficient to reduce the effects of Statoil's activity on marine mammals to the level of least practicable adverse impact. In addition, we described our analysis of impacts and preliminarily determined that the taking of small numbers of marine mammals, incidental to Statoil's project, would have a negligible impact on the relevant species or stocks and would not have an unmitigable adverse impact on affected species or stocks for taking for subsistence uses. Accordingly, this Preferred Alternative would satisfy the purpose and need of our proposed action under the MMPA—

issuance of the IHA, along with required mitigation and monitoring measures, that meets the standards set forth in section 101(a)(5)(D) of the MMPA and the implementing regulations.

### **2.3.2. Alternative 2 – No Action Alternative**

In accordance with NOAAs implementing procedures, the Companion Manual (CM) for NAO 216-6A, Section 6.B.i, NMFS is defining the No Action alternative as not authorizing the requested incidental take of marine mammals under Section 101(a)(5)(D) of the MMPA. This is consistent with our statutory obligation under the MMPA to either: (1) deny the requested authorization or (2) grant the requested authorization and prescribe mitigation, monitoring, and reporting requirements. Under the No Action Alternative, NMFS would not issue the IHA to Statoil, in which case we assume this applicant would not proceed with their proposed site characterization activities as described in the application. The requested take would not occur and mitigation, monitoring and reporting for marine mammals would not be implemented. Although the No Action Alternative would not meet the purpose and need to allow incidental takes of marine mammals under certain conditions (i.e., when the statutory requirements are satisfied), the CEQ Regulations require consideration and analysis of a No Action Alternative for the purposes of presenting a comparative analysis to the action alternatives. The No Action Alternative, consistent with CEQ Guidance and the CM, serves as a baseline against which the impacts of the Preferred Alternative will be compared and contrasted.

### **2.4. Alternatives Considered but Eliminated from Further Consideration**

NMFS considered whether other alternatives could meet the purpose and need and support Statoil's proposed project. An alternative that would allow for the issuance of an IHA with no required mitigation or monitoring was considered but eliminated from consideration, as it would not be in compliance with the MMPA and therefore would not meet the purpose and need. For that reason, this alternative is not analyzed further in this document.

## **Chapter 3    Affected Environment**

. NMFS reviewed all relevant environmental, cultural, historical, social, and economic resources based on the specific geographic region associated with NMFS's proposed action, alternatives, and the applicants request for an IHA. Based on this review, this section describes the affected environment and existing (baseline) conditions for select resource categories (e.g., marine environment). As explained in Chapter 1, certain resource categories were not carried forward for further consideration or evaluation in this EA (see Table 1 in Section 1.5) and where appropriate, the analysis in the proposed IHA related to select resource categories carried forward is incorporated by reference. Chapter 4 provides an analysis and description of environmental impacts associated with the affected environment.

### **3.1. Biological Environment**

The primary component of the biological environment that would be impacted by the proposed action and alternatives would be marine mammals, which would be directly impacted by the incidental take. We briefly summarize this component of the biological environment here.

#### **3.1.1. Marine Mammal Habitat**

We presented information on marine mammal habitat and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed IHA. In summary, no critical habitat is listed in the Project Area; Northern right whale critical habitat is located outside of the Project area. However, the area is considered part of a biologically significant migratory area for right whales (Waring et al., 2016).

We also presented information on marine mammal habitat (including prey species) and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed IHA. These are further described in Statoil's IHA application. Forage fish and other marine mammal prey are generally anticipated to be present in the project area but not in high densities. Effects on Essential Fish Habitat (EFH) by the project and issuance of the IHA assessed here would be temporary and minor. The main effect would be short-term disturbance that might lead to temporary and localized relocation of the fish species or their food. The actual physical and chemical properties of the EFH will not be impacted.

#### **3.1.2. Ambient Sound**

We presented information on ambient sound and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed IHA.

The need to understand the marine acoustic environment is critical when assessing the effects of anthropogenic noise on marine wildlife. Sounds generated by site characterization surveys such as HRG activities within the marine environment can affect its inhabitants' behavior (e.g., deflection from loud sounds) or ability to effectively live in the marine environment (e.g., masking of sounds that could otherwise be heard).

Ambient sound levels are the result of numerous natural and anthropogenic sounds that can propagate over large distances and vary greatly on a seasonal and spatial scale. These ambient

sounds occupy all frequencies and contributions in ocean soundscape from a few hundred Hz to 200 kHz (NRC, 2003). In typical urban coastal waters such as the one at the proposed action area, the main sources of underwater ambient sound would be associated with:

- Wind and wave action
- Precipitation
- Vessel activities
- Biological sounds (e.g. fish, snapping shrimp)

The contribution of these sources to the background sound levels differs with their spectral components and local propagation characteristics (e.g., water depth, temperature, salinity, and ocean bottom conditions). In deep water, low-frequency ambient sound from 1-10 Hz mainly comprises turbulent pressure fluctuations from surface waves and the motion of water at the air-water interfaces. At these infrasonic frequencies, sound levels depend only slightly on wind speed. Between 20-300 Hz, distant anthropogenic sound (ship transiting, etc.) dominates wind-related sounds. Above 300 Hz, the ambient sound level depends on weather conditions, with wind- and wave-related effects mostly dominating sounds. Biological sounds arise from a variety of sources (e.g., marine mammals, fish, and shellfish) and range from approximately 12 Hz to over 100 kHz. The relative strength of biological sounds varies greatly; depending on the situation, biological sound can be nearly absent to dominant over narrow or even broad frequency ranges (Richardson et al. 1995).

Ambient underwater noise levels in the project area may be high. The Lease Area is within a major shipping channel from ports in the New York area. Vessels will regularly transit through this area, and include large cargo and container ships, tugs, tankers, barges, passenger ships, recreational vessels, and others.

### 3.1.3. Marine Mammals

The marine waters in the Project Area support several species of marine mammals, including pinnipeds and cetaceans; all species that could potentially occur in the proposed survey areas are in Table 3. However, the temporal or spatial occurrence of 26 of the 37 species is such that take of these species is not expected to occur. This is because they have very low densities in the Project Area, are known to occur further offshore than the project area, or are considered very unlikely to occur in the Project Area during the proposed survey due to the species' seasonal occurrence in the area. Therefore these species are not discussed further beyond the information listed Table 3.

**Table 3. Marine Mammals Potentially Present in the Vicinity of the Project Area.**

Common Name	Stock	NMFS MMPA and ESA Status; Strategic (Y/N) <sup>1</sup>	Stock Abundance (CV, N <sub>min</sub> , most recent abundance survey) <sup>2</sup>	PBR <sup>3</sup>	Occurrence and seasonality in the NW Atlantic OCS
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<b>Toothed whales (Odontoceti)</b>					
Atlantic white-sided dolphin <i>(Lagenorhynchus acutus)</i>	W. North Atlantic	--; N	48,819 (0.61; 30,403; n/a)	304	rare
Atlantic spotted dolphin <i>(Stenella frontalis)</i>	W. North Atlantic	--; N	44,715 (0.43; 31,610; n/a)	316	rare
Bottlenose dolphin <i>(Tursiops truncatus)</i>	W. North Atlantic, Offshore	--; N	77,532 (0.40; 56,053; 2011)	561	Common year round
Clymene dolphin <i>(Stenella clymene)</i>	W. North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare
Pantropical Spotted dolphin <i>(Stenella attenuata)</i>	W. North Atlantic	--; N	3,333 (0.91; 1,733; n/a)	17	rare
Risso's dolphin <i>(Grampus griseus)</i>	W. North Atlantic	--; N	18,250 (0.46; 12,619; n/a)	126	rare
Short-beaked common dolphin <i>(Delphinus delphis)</i>	W. North Atlantic	--; N	70,184 (0.28; 55,690; 2011)	557	Common year round
Striped dolphin <i>(Stenella coeruleoalba)</i>	W. North Atlantic	--; N	54,807 (0.3; 42,804; n/a)	428	rare
Spinner Dolphin <i>(Stenella longirostris)</i>	W. North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare
White-beaked dolphin <i>(Lagenorhynchus albirostris)</i>	W. North Atlantic	--; N	2,003 (0.94; 1,023; n/a)	10	rare
Harbor porpoise <i>(Phocoena phocoena)</i>	Gulf of Maine/Bay of Fundy	--; N	79,833 (0.32; 61,415; 2011)	706	Common year round
Killer whale <i>(Orcinus orca)</i>	W. North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare
False killer whale <i>(Pseudorca crassidens)</i>	W. North Atlantic	--; Y	442 (1.06; 212; n/a)	2.1	rare

Long-finned pilot whale <i>(Globicephala melas)</i>	W. North Atlantic	--; Y	5,636 (0.63; 3,464; n/a)	35	rare
Short-finned pilot whale <i>(Globicephala macrorhynchus)</i>	W. North Atlantic	--; Y	21,515 (0.37; 15,913; n/a)	159	rare
Sperm whale <i>(Physeter macrocephalus)</i>	North Atlantic	E; Y	2,288 (0.28; 1,815; n/a)	3.6	Year round in continental shelf and slope waters, occur seasonally to forage
Pygmy sperm whale <sup>4</sup> <i>(Kogia breviceps)</i>	W. North Atlantic	--; N	3,785 (0.47; 2,598; n/a)	26	rare
Dwarf sperm whale <sup>4</sup> <i>(Kogia sima)</i>	W. North Atlantic	--; N	3,785 (0.47; 2,598; n/a)	26	rare
Cuvier's beaked whale <i>(Ziphius cavirostris)</i>	W. North Atlantic	--; N	6,532 (0.32; 5,021; n/a)	50	rare
Blainville's beaked whale <sup>5</sup> <i>(Mesoplodon densirostris)</i>	W. North Atlantic	--; N	7,092 (0.54; 4,632; n/a)	46	rare
Gervais' beaked whale <sup>5</sup> <i>(Mesoplodon europaeus)</i>	W. North Atlantic	--; N	7,092 (0.54; 4,632; n/a)	46	rare
True's beaked whale <sup>5</sup> <i>(Mesoplodon mirus)</i>	W. North Atlantic	--; N	7,092 (0.54; 4,632; n/a)	46	rare
Sowerby's Beaked Whale <sup>5</sup> <i>(Mesoplodon bidens)</i>	W. North Atlantic	--; N	7,092 (0.54; 4,632; n/a)	46	rare
Rough-toothed dolphin <i>(Steno bredanensis)</i>	W. North Atlantic	--; N	271 (1.0; 134; 2013)	1.3	rare

Melon-headed whale <i>(Peponocephala electra)</i>	W. North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare
Northern bottlenose whale <i>(Hyperoodon ampullatus)</i>	W. North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare
Pygmy killer whale ( <i>Feresa attenuata</i> )	W. North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare
<b>Baleen whales (Mysticeti)</b>					
Minke whale <i>(Balaenoptera acutorostrata)</i>	Canadian East Coast	--; N	2,591 (0.81; 1,425; n/a)	162	Year round in continental shelf and slope waters, occur seasonally to forage
Blue whale <i>(Balaenoptera musculus)</i>	W. North Atlantic	E; Y	Unknown (unk; 440; n/a)	0.9	Year round in continental shelf and slope waters, occur seasonally to forage
Fin whale <i>(Balaenoptera physalus)</i>	W. North Atlantic	E; Y	1,618 (0.33; 1,234; n/a)	2.5	Year round in continental shelf and slope waters, occur seasonally to forage
Humpback whale <i>(Megaptera novaeangliae)</i>	Gulf of Maine	--; N	823 (0; 823; n/a)	2.7	Common year round
North Atlantic right whale <i>(Eubalaena glacialis)</i>	W. North Atlantic	E; Y	458 (0; 455; n/a)	1.4	Year round in continental shelf and slope waters, occur seasonally to forage.
Sei whale <i>(Balaenoptera borealis)</i>	Nova Scotia	E; Y	357 (0.52; 236; n/a)	0.5	Year round in continental shelf and slope waters, occur seasonally to forage
<b>Earless seals (Phocidae)</b>					

Gray seal <sup>6</sup> ( <i>Halichoerus grypus</i> )	W. North Atlantic	--; N	27,131 (0.10; 25,908; n/a)	1,554	Unlikely
Harbor seal ( <i>Phoca vitulina</i> )	W. North Atlantic	--; N	75,834 (0.15; 66,884; 2012)	2,006	Common year round
Hooded seal ( <i>Cystophora cristata</i> )	W. North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare
Harp seal ( <i>Phoca groenlandica</i> )	North Atlantic	--; N	Unknown (unk; unk; n/a)	Undet	rare

1 ESA status: Endangered (E), Threatened (T) / MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR (see footnote 3) or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2 CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable. For certain stocks, abundance estimates are actual counts of animals and there is no associated CV. The most recent abundance survey that is reflected in the abundance estimate is presented; there may be more recent surveys that have not yet been incorporated into the estimate. All values presented here are from the 2016 Atlantic SARs.

3 Potential biological removal, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population size (OSP).

4 Abundance estimate includes both dwarf and pygmy sperm whales.

5 Abundance estimate includes all species of *Mesoplodon* in the Atlantic.

6 Abundance estimate applies to U.S. population only, actual abundance is believed to be much larger.

Below is a description of the species that are both common in the survey area south of New York and that have the highest likelihood of occurring, at least seasonally, in the survey area and are thus expected to potentially be taken by the proposed activities. For the majority of species potentially present in the specific geographic region, NMFS has designated only a single generic stock (e.g., “western North Atlantic”) for management purposes. This includes the “Canadian east coast” stock of minke whales, which includes all minke whales found in U.S. waters. For humpback and sei whales, NMFS defines stocks on the basis of feeding locations, i.e., Gulf of Maine and Nova Scotia, respectively. However, our reference to humpback whales and sei whales in this document refers to any individuals of the species that are found in the specific geographic region. In addition, three marine mammal species are listed under the Endangered Species Act (ESA), are known to be present, at least seasonally, in the survey area, and are included in the take request: North Atlantic right whale, fin whale, and sperm whale.

### *North Atlantic Right Whale*

The North Atlantic right whale ranges from the calving grounds in the southeastern United States to feeding grounds in New England waters and into Canadian waters (Waring *et al.*, 2016). Surveys have demonstrated the existence of seven areas where North Atlantic right whales congregate seasonally, including Georges Bank, Cape Cod, and Massachusetts Bay (Waring *et al.*, 2016). In the late fall months (e.g. October), right whales generally disappear from the

feeding grounds in the North Atlantic and move south to their breeding grounds. The proposed survey area is within the North Atlantic right whale migratory corridor. During the proposed survey (*i.e.*, March through August) right whales may be migrating through the proposed survey area and the surrounding waters.

The western North Atlantic population demonstrated overall growth of 2.8 percent per year between 1990 to 2010, despite a decline in 1993 and no growth between 1997 and 2000 (Pace *et al.* 2017). However, since 2010 the population has been in decline, with a 99.99 percent probability of a decline of just under 1 percent per year (Pace *et al.* 2017). Between 1990 and 2015, calving rates varied substantially, with low calving rates coinciding with all three periods of decline or no growth (Pace *et al.* 2017). On average, North Atlantic right whale calving rates are estimated to be roughly half that of southern right whales (*Eubalaena australis*) (Pace *et al.* 2017), which are increasing in abundance (NMFS 2015).

The current abundance estimate for this stock is 458 individuals (Hayes *et al.*, 2018) Data indicates that the number of adult females fell from 200 in 2010 to 186 in 2015 while males fell from 283 to 272 in the same timeframe (Pace *et al.*, 2017). In addition, elevated North Atlantic right whale mortalities have occurred since June 7, 2017. A total of 17 confirmed dead stranded whales (12 in Canada; 5 in the United States), with an additional 5 live whale entanglements in Canada, have been documented to date. This event has been declared an Unusual Mortality Event (UME). More information is available online at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

### *Humpback Whale*

Humpback whales are found worldwide in all oceans. The humpback whale population within the North Atlantic has been estimated to include approximately 11,570 individuals (Waring *et al.*, 2016). Humpbacks occur off southern New England in all four seasons, with peak abundance in spring and summer. In winter, humpback whales from waters off New England, Canada, Greenland, Iceland, and Norway migrate to mate and calve primarily in the West Indies (including the Antilles, the Dominican Republic, the Virgin Islands and Puerto Rico), where spatial and genetic mixing among these groups occurs (Waring *et al.*, 2015). While migrating, humpback whales utilize the mid-Atlantic as a migration pathway between calving/mating grounds to the south and feeding grounds in the north (Waring *et al.* 2007).

Since January 2016, elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through North Carolina. Partial or full necropsy examinations have been conducted on approximately half of the 62 known cases. A portion of the whales have shown evidence of pre-mortem vessel strike; however, this finding is not consistent across all of the whales examined so more research is needed. NOAA is consulting with researchers that are conducting studies on the humpback whale populations, and these efforts may provide information on changes in whale distribution and habitat use that could provide additional insight into how these vessel interactions occurred. Three previous UMEs involving humpback whales have occurred since 2000, in 2003, 2005, and 2006. More information is available at [www.nmfs.noaa.gov/pr/health/mmume/2017humpbackatlanticume.html](http://www.nmfs.noaa.gov/pr/health/mmume/2017humpbackatlanticume.html).

### *Fin Whale*

Fin whales are common in waters of the U. S. Atlantic Exclusive Economic Zone (EEZ), principally from Cape Hatteras northward (Waring *et al.*, 2016). Fin whales are present north of 35-degree latitude in every season and are broadly distributed throughout the western North Atlantic for most of the year (Waring *et al.*, 2016). Fin whales are found in small groups of up to 5 individuals (Brueggeman *et al.*, 1987). The current abundance estimate for the western North Atlantic stock of fin whales is 1,618 individuals (Hayes *et al.*, 2017). The main threats to fin whales are fishery interactions and vessel collisions (Waring *et al.*, 2016).

#### *Minke Whale*

Minke whales can be found in temperate, tropical, and high-latitude waters. The Canadian East Coast stock can be found in the area from the western half of the Davis Strait (45°W) to the Gulf of Mexico (Waring *et al.*, 2016). This species generally occupies waters less than 100 m deep on the continental shelf. There appears to be a strong seasonal component to minke whale distribution in which spring to fall are times of relatively widespread and common occurrence, and when the whales are most abundant in New England waters, while during winter the species appears to be largely absent (Waring *et al.*, 2016). The main threats to this stock are interactions with fisheries, strandings, and vessel collisions.

#### *Sperm Whale*

The distribution of the sperm whale in the U.S. EEZ occurs on the continental shelf edge, over the continental slope, and into mid-ocean regions (Waring *et al.*, 2014). The basic social unit of the sperm whale appears to be the mixed school of adult females plus their calves and some juveniles of both sexes, normally numbering 20-40 animals in all. There is evidence that some social bonds persist for many years (Christal *et al.*, 1998). This species forms stable social groups, site fidelity, and latitudinal range limitations in groups of females and juveniles (Whitehead, 2002). In summer, the distribution of sperm whales includes the area east and north of Georges Bank and into the Northeast Channel region, as well as the continental shelf (inshore of the 100-m isobath) south of New England. In the fall, sperm whale occurrence south of New England on the continental shelf is at its highest level, and there remains a continental shelf edge occurrence in the mid-Atlantic bight. In winter, sperm whales are concentrated east and northeast of Cape Hatteras. The current abundance estimate for this stock is 2,288 (Hayes *et al.*, 2017).

#### *Atlantic White-sided Dolphin*

White-sided dolphins are found in temperate and sub-polar waters of the North Atlantic, primarily in continental shelf waters to the 100-m depth contour from central West Greenland to North Carolina (Waring *et al.*, 2016). There are three stock units: Gulf of Maine, Gulf of St. Lawrence, and Labrador Sea stocks (Palka *et al.*, 1997). The Gulf of Maine population of white-sided dolphins is most common in continental shelf waters from Hudson Canyon (approximately 39°N) to Georges Bank, and in the Gulf of Maine and lower Bay of Fundy. Sighting data indicate seasonal shifts in distribution (Northridge *et al.*, 1997). During January to May, low numbers of white-sided dolphins are found from Georges Bank to Jeffreys Ledge (off New Hampshire), with even lower numbers south of Georges Bank, as documented by a few strandings collected on beaches of Virginia to South Carolina. From June through September, large numbers of white-sided dolphins are found from Georges Bank to the lower Bay of Fundy. From October to December, white-sided dolphins occur at intermediate densities from southern Georges Bank to

southern Gulf of Maine (Payne and Heinemann 1990). Sightings south of Georges Bank, particularly around Hudson Canyon, occur year round but at low densities. The current abundance estimate for this stock is 48,819 (Hayes *et al.*, 2017). The main threat to this species is interactions with fisheries.

#### *Short-beaked Common Dolphin*

The short-beaked common dolphin is found world-wide in temperate to subtropical seas. In the North Atlantic, short-beaked common dolphins are commonly found over the continental shelf between the 100-m and 2000-m isobaths and over prominent underwater topography and east to the mid-Atlantic Ridge (Waring *et al.*, 2016). Only the western North Atlantic stock may be present in the Lease Area. The current abundance estimate for this stock is 70,184 animals (Hayes *et al.*, 2017). The main threat to this species is interactions with fisheries.

#### *Bottlenose Dolphin*

There are two distinct bottlenose dolphin morphotypes: the coastal and offshore forms in the western North Atlantic (Waring *et al.*, 2016). The offshore form is distributed primarily along the outer continental shelf and continental slope in the Northwest Atlantic Ocean from Georges Bank to the Florida Keys and is the only type that may be present in the survey area as the survey area is north of the northern extent of the range of the Western North Atlantic Northern Migratory Coastal Stock. The current abundance estimate for the western north Atlantic stock is 77,532 (Hayes *et al.*, 2017). The main threat to this species is interactions with fisheries.

#### *Harbor Porpoise*

In the Lease Area, only the Gulf of Maine/Bay of Fundy stock may be present. This stock is found in U.S. and Canadian Atlantic waters and is concentrated in the northern Gulf of Maine and southern Bay of Fundy region, generally in waters less than 150 m deep (Waring *et al.*, 2016). They are seen from the coastline to deep waters (>1800 m; Westgate *et al.* 1998), although the majority of the population is found over the continental shelf (Waring *et al.*, 2016). Average group size for this stock in the Bay of Fundy is approximately four individuals (Palka 2007). The current abundance estimate for this stock is 79,883 (Hayes *et al.*, 2017). The main threat to this species is interactions with fisheries, with documented take in the U.S. northeast sink gillnet, mid-Atlantic gillnet, and northeast bottom trawl fisheries and in the Canadian herring weir fisheries (Waring *et al.*, 2016).

#### *Harbor Seal*

The harbor seal is found in all nearshore waters of the North Atlantic and North Pacific Oceans and adjoining seas above about 30°N (Burns, 2009). In the western North Atlantic, they are distributed from the eastern Canadian Arctic and Greenland south to southern New England and New York, and occasionally to the Carolinas (Waring *et al.*, 2016). Haulout and pupping sites are located off Manomet, MA and the Isles of Shoals, ME, but generally do not occur in areas in southern New England (Waring *et al.*, 2016). The current abundance estimate for this stock is 75,834 (Hayes *et al.*, 2017). The main threat to this species is interactions with fisheries.

#### *Gray Seal*

There are three major populations of gray seals found in the world; eastern Canada (western North Atlantic stock), northwestern Europe and the Baltic Sea. The gray seals that occur in the Project Area belong to the western North Atlantic stock, which ranges from New Jersey to Labrador. Current population trends show that gray seal abundance is likely increasing in the U.S. Atlantic EEZ (Waring *et al.*, 2016). Although the rate of increase is unknown, surveys conducted since their arrival in the 1980s indicate a steady increase in abundance in both Maine and Massachusetts (Waring *et al.*, 2016). It is believed that recolonization by Canadian gray seals is the source of the U.S. population (Waring *et al.*, 2016).

### **3.2.Social Environment**

#### **3.2.1. Subsistence**

No significant subsistence activity currently occurs within the action area.

## **Chapter 4 Environmental Consequences**

NMFS reviewed all relevant direct, indirect, cumulative, short-term, and long-term impacts to marine mammals and their habitat associated with our action and alternatives. This chapter describes the potential environmental consequences for the affected resources described in Chapter 3 for each alternative. In addition, we rely on and incorporate by reference, certain information from Statoil's IHA application and the proposed IHA.

Under the MMPA, we have evaluated the potential impacts of Statoil's site characterization survey activities on the affected marine mammal species or stocks to determine whether to authorize incidental take of marine mammals. Under NEPA, we have determined that an EA is appropriate to evaluate the potential significance of environmental impacts resulting from the issuance of an IHA.

### **4.1. Effects of Alternative 1 – Issuance of an IHA with Mitigation Measures**

Alternative 1 is the Preferred Alternative, under which we would issue an IHA to Statoil allowing the incidental take, by Level B harassment, of 11 species of marine mammals, subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the IHA, if issued. We would incorporate the mitigation and monitoring measures and reporting described earlier in this EA (see Section 2.3.1) into a final IHA.

#### **4.1.1. Impacts to Marine Mammal Habitat**

No permanent impacts to marine mammal habitat are proposed to or would occur as a result of an issuance of an IHA or the applicant's proposed site characterization surveys. Statoil's proposed site characterization survey activities would not modify the existing habitat to a measurable extent. Geotechnical surveys may disrupt the sediment, but these impacts are considered minor. Therefore, no restoration of the habitat would be necessary. A temporary, small-scale loss of foraging habitat may occur for marine mammals, if the marine mammals leave the area during site characterization survey activities.

The duration of fish avoidance of this area after surveys cease is unknown. However, the affected area represents an extremely small portion of the total foraging range of marine mammals that may be present in and around the project area.

Because of the relatively short duration of the activities and the relatively small area of the marine mammal habitat that may be affected, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or marine mammal populations.

#### **4.1.2. Impacts to Marine Mammals**

We expect that behavioral disturbance or temporary displacement associated with the Project has the potential to impact marine mammals and comprises the only likely source of effects to marine mammals. The level of impact on marine mammals from site characterization survey activities would vary depending on the species of marine mammal, the distance between the marine mammal and the project activity, the intensity and duration of the activity, and environmental conditions. Our notice of proposed IHA and Statoil's IHA application provide

detailed descriptions of these potential effects of proposed project activities on marine mammals. That information is incorporated herein by reference and summarized below.

The majority of impacts are likely to occur from HRG survey activities. HRG activities associated with the site characterization surveys could cause behavioral modification and temporary displacement of marine mammals within the vicinity of the action area through noise generated from HRG survey equipment. Elevated sound levels could cause behavioral harassment in the form of temporary avoidance of the area. We expect these impacts to be minor because we do not anticipate measurable changes to the population or impacts to rookeries, mating grounds, and other areas of similar significance. These activities are not anticipated to result in injury, serious injury or mortality of any marine mammal species. We expect no long-term or substantial adverse effects on marine mammals, their habitats, or their role in the environment.

**Estimated Take of Marine Mammals by Level B Incidental Harassment**

Geophysical survey activities generate sounds that could potentially harass marine mammals during Statoil’s proposed site characterization surveys.

Currently, NMFS uses 160 dB re 1 μPa as the received level for the onset of Level B harassment from impulsive sound sources (e.g. HRG survey equipment) underwater. Table 4 summarizes the current NMFS marine mammal take criteria.

In August 2016, NMFS released its Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2016), which established new thresholds for predicting auditory injury, which equates to Level A harassment under the MMPA. The August 4, 2016, Federal Register Notice announcing the Guidance (81 FR 51694), provides updated received levels, or acoustic thresholds, above which individual marine mammals under NMFS’ jurisdiction are predicted to experience changes in their hearing sensitivity (either temporary or permanent) for all underwater anthropogenic sound sources. The Guidance established thresholds for marine mammal injury (based on the onset of Permanent Threshold Shift (PTS)) which is considered Level A take; thresholds for Level B take were not revised. Tables 4 and 5 detail in-water acoustic criteria for exposure of marine mammals to Disturbance Thresholds (Level B Harassment) and PTS Onset Acoustic Thresholds (Level A Harassment), respectively.

**Table 4. Current Level B Acoustic Exposure Criteria for Non-explosive Sound Underwater**

Criterion	Criterion Definition	Threshold
Level B Harassment	Behavioral Disruption (for impulse noises)	160 dB re 1 μPa (rms)
Level B Harassment	Behavioral Disruption (for non-impulse noise)	120 dB re 1 μPa (rms)
Level B harassment (airborne)	Behavioral disruption	90 dB (harbor seals) 100dB (other pinnipeds) (unweighted)

**Table 5. In-water Acoustic Criteria for In-water Exposure of Marine Mammals to PTS Onset Acoustic Thresholds (Level A Injury) from Continuous and Impulse Sound Sources.**

Hearing Group	PTS Onset Acoustic Thresholds	SEL <sub>cum</sub> Thresholds
	Impulsive	Continuous
Low-Frequency Cetaceans (7 Hz to 35 kHz)	183 dB	199 dB
Mid-Frequency Cetaceans (150 Hz to 160 kHz)	185 dB	198 dB
High-Frequency Cetaceans (275 Hz to 160 kHz)	155 dB	173 dB
Phocid Pinnipeds (50 Hz to 86 kHz)	185 dB	201 dB
Otariid Pinnipeds (60Hz to 39 kHz)	203 dB	219 dB

Incidental take is estimated for each species by estimating the likelihood of a marine mammal being present within a Level A or Level B harassment zone of influence during HRG surveys. Expected marine mammal presence is determined by marine mammal density estimates in the Project Area during the survey. For all marine mammals, density estimates are available; therefore the following calculation was used to estimate take of marine mammals: density of animals in the area (animals per 100 km<sup>2</sup>) multiplied by the zone of ensonification from the loudest noise producing source associated with the activity multiplied by the number of days of noise generating activities.

Table 6 shows the number of Level A and Level B harassment takes that we propose to authorize in the IHA and the percentage of each population or stock that may be taken as a result of Statoil's activities. The proposed IHA notice and Statoil's IHA application provide detailed descriptions of how these take estimates were derived. NMFS does not expect the proposed activities to impact rates of recruitment or survival for any affected species or stock. Further, the activities would not adversely affect marine mammal habitat.

**Table 6. Total Numbers of Incidental Take of Marine Mammals Proposed for Authorization and Takes as a Percentage of Population.**

Species	Proposed Level A Takes	Proposed Level B Takes	Total Proposed Takes	Total Proposed Takes as a Percentage of Population
North Atlantic right whale	0	18	18	4.1
Humpback whale	0	23	23	2.8
Fin whale	0	96	96	5.9
Sperm whale	0	6	6	0.3
Minke whale	0	38	38	1.5

Bottlenose dolphin	0	1556	1556	2.0
Short-beaked common dolphin	0	1690	1690	2.4
Atlantic white-sided dolphin	0	427	427	0.9
Harbor porpoise	0	2259	2259	2.8
Harbor seal	0	2897	2897	3.8
Gray seal	0	2897	2897	0.6

#### 4.1.3. Impacts to Subsistence

No significant subsistence activity currently occurs within the action area; therefore, we anticipate that Statoil’s site characterization survey activities will not have an effect on subsistence resources in the area.

#### 4.2 Effects of Alternative 2 – No Action Alternative

Where a choice of "no action" by the agency would result in predictable actions by others, this consequence of the "no action" alternative should be included in the analysis.” (CEQ, Forty Questions, 3.A). NMFS’ view is that it is likely that the applicant would choose to undertake its action in compliance with the law rather than proceed without the take authorization. Under the No Action Alternative, NMFS would not issue the IHA to Statoil authorizing take of marine mammals. As a result, the exceptions to the prohibition on take of marine mammals per the MMPA would not apply and Statoil would not conduct the site characterization survey as described in the application. There would be no direct or indirect impacts to marine mammals or their habitat resulting from no action. The marine mammal species and their habitat conditions would remain substantially similar to the condition described in the Affected Environment section of this EA.

#### 4.2 Cumulative Effects

NEPA defines cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR §1508.7). Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.

This section will describe the potential cumulative impacts of the proposed activities on marine mammals in the project area and will evaluate these impacts based on consideration of past, present and future activities and their impacts on this biological resource.

For purposes of this analysis, the range of past, present, and reasonably foreseeable activities that result in cumulative impacts to marine mammal populations in the proposed project area include the following: climate change; marine pollution; disease; increased vessel traffic; marine mammal watching; marine site characterization surveys; and fisheries. In aggregate, these activities are the source for cumulative impacts to regional and worldwide populations of marine mammals, many of which are a small fraction of their former abundance. However, quantifying the biological costs for marine mammals within an ecological framework is a critical missing link to our assessment of cumulative impacts in the marine environment and assessing cumulative effects on marine mammals (Clark *et al.*, 2009). Despite these regional and global anthropogenic and natural pressures, the proposed project is not likely to add an increment of disturbance that would cumulatively result in significant adverse impacts to marine mammals or their habitats.

The proposed site characterization survey activities would represent an additional anthropogenic activity in the Northwest Atlantic Ocean. This activity would be limited to a small area in the Project Area. This section provides a brief summary of the human-related activities affecting the marine mammal species in the action area.

#### **4.2.1 Climate Change**

Climate change is a reasonably foreseeable condition that may result in cumulative effects to ESA-listed species in the Project Area vicinity (NMFS 2011). The 2007 Intergovernmental Panel on Climate Change concluded that there is strong evidence for global warming and associated weather changes, and humans have “very likely” contributed to the problem through burning fossil fuels and adding other “greenhouse gases” to the atmosphere (IPCC 2007). This study involved numerous models to predict changes in temperature, sea level, ice pack dynamics, and other parameters under a variety of future conditions, including different scenarios for how human populations respond to the implications of the study.

Global climate change could significantly affect the marine resources of the Northwest Atlantic Outer Continental Shelf. Possible impacts include temperature and rainfall changes, potentially rising sea levels, and changes to ocean conditions. These changes may affect the coastal marine ecosystem in the proposed project area by increasing the vertical stratification of the water column and changing the intensity and rhythms of coastal winds and upwelling. Such modifications could cause ecosystem regime shifts as the productivity of the regional ecosystem undergoes various changes related to nutrients input and coastal ocean process (USFWS 2011).

It is not clear how governments and individuals would respond to the effects of climate change, or how much future efforts would reduce greenhouse gas emissions. Although the intensity of climate change would depend on how quickly and deeply humanity responds, the models predict that the climate changes observed in the past 30 years would continue at the same or increasing rates for at least 20 years. Although we recognize that climate change is a concern for the sustainability of the entire ecosystem, it is unclear at this time the full extent to which climate change would affect marine mammals. However, given that Statoil’s project activities would include site characterization surveys, and these impacts are temporary in nature, the immediate project is not likely to result in an increase in vessel traffic or add an incremental disturbance that would cumulatively result in significant adverse impacts to marine mammals due to climate change.

#### **4.2.2 Marine Pollution**

Marine mammals are exposed to contaminants via the food they consume, the water in which they swim, and the air they breathe. Point and non-point source pollutants from coastal runoff, at-sea disposal of dredged materials and sewage effluent, marine debris, and potential hazardous material releases from commercial vessels and on-shore users are all lasting threats to marine mammals in the project area. The long-term impacts of these pollutants, however, are difficult to measure.

The persistent organic pollutants (POPs) tend to bioaccumulate through the food chain; therefore, the chronic exposure of POPs in the environment is perhaps of the most concern to high trophic level predators such as marine mammals.

The project activities would be temporary and are not anticipated to cause increased exposure of POPs to marine mammals in the project vicinity due to the small scale and localized nature of the activities.

#### **4.2.3 Disease**

Disease is common in many marine mammal populations and has been responsible for major die-offs worldwide, but such events are usually relatively short-lived. Statoil's site characterization survey activities are not expected to affect the disease rate among marine mammals in the project vicinity.

#### **4.2.4 Vessel Traffic**

The Project Area is near major shipping routes off the east coast of the U.S. Navigation lanes are frequently subject to heavy vessel traffic, which produces underwater noise. These ongoing and future uses and activities contribute to elevated background noise levels in the project area, and increased exposure of marine mammals to vessel strikes. Vessel strike also represents a mortality risk to marine mammals. The North Atlantic right whale is particularly susceptible to vessel strike due to its nearshore habitat, which brings it into close proximity of shipping lanes with high levels of vessel traffic. Vessel strike has been identified as one of the two primary threats to North Atlantic right whales (the other being fishery interactions, described below).

Though vessel strike may adversely impact some marine mammal species in the project area, none of the proposed activities would be directed at vessel traffic. The action would result in a slightly elevated level of vessel traffic as the survey is performed from a vessel. MNFS has required vessel strike avoidance measures in the IHA and has determined the likelihood of vessel strike as a result of the proposed survey to be so low as to be discountable.

While marine mammals might be exposed to vessel-related noises, any disturbance to a particular individual would be limited in space and time. Because vessels follow well-established, common navigation lanes, there is limited potential that incremental effects associated with project vessel traffic would measurably affect marine mammals in the project area. The cumulative adverse effects of the proposed action on the affected populations, when added to the effects of vessel traffic, are not expected to be significant.

#### **4.2.5 Marine Mammal Watching**

Although marine mammal watching is considered by many to be a non-consumptive use of marine mammals with economic, recreational, educational and scientific benefits, it is not without potential negative impacts. One concern is that animals may become more vulnerable to vessel strikes once they habituate to vessel traffic (Swingle *et al.*, 1993; Laist *et al.*, 2001; Jensen and Silber, 2004). Another concern is that preferred habitats may be abandoned if disturbance levels are too high. Several recent research efforts have monitored and evaluated the impacts of people closely approaching, swimming, touching and feeding marine mammals and has suggested that marine mammals are at risk of being disturbed (“harassed”), displaced or injured by such close interactions. Researchers investigating the adverse impacts of marine mammal viewing activities have reported boat strikes, disturbance of vital behaviors and social groups, separation of mothers and young, abandonment of resting areas, and habituation to humans (Nowacek *et al.*, 2001, Bejder et al 2006, Higham et al 2009).

While marine mammal watching operations do occur in the vicinity of the proposed project area, no marine mammal-watching operations are expected to occur within the project area itself. The cumulative adverse effects of the proposed action on the affected populations when added to the effects of marine mammal watching are not expected to be significant.

#### **4.2.6 Marine Site Characterization Surveys**

Marine site characterization surveys associated with offshore wind development in the Northwest Atlantic Ocean are a reasonably foreseeable activity that is expected to result in increased amounts of sound in the marine environment. Similar to the marine site characterization surveys proposed by Statoil, these activities may include both HRG and geotechnical surveys. Marine site characterization activities associated with offshore wind development are reasonably foreseeable in the Northwest Atlantic Ocean, including in areas offshore Massachusetts, Rhode Island, Delaware and Virginia; however, no other marine site characterization activities, aside from those planned by Statoil, are reasonably foreseeable in the Project Area.

While marine mammals might be exposed to noise from marine site characterization activities, any disturbance to a particular individual would be limited in space and time, and disturbance responses are expected to be limited to short-term avoidance of the area where surveys are taking place. Marine mammals may temporarily avoid areas of marine site characterization surveys, but those surveys are not expected to result in any long-term avoidance or any population-level impacts, including impacts to feeding, breeding or sheltering.

The cumulative adverse effects of the proposed action on the affected populations, when added to the effects of reasonably foreseeable marine site characterization surveys, are not expected to be significant.

#### **4.2.7 Fisheries Interactions**

State-managed commercial and sport fisheries represent a past, present and a reasonably foreseeable non-federal activity that may result in cumulative effects to marine mammal species in the waters off New York. Certain fisheries are known to result in adverse impacts to marine mammals. In particular, pot/trap fisheries, some of which occur near shore, have been implicated in entanglement of baleen whales. Research has indicated that approximately 50 North Atlantic right whales (representing approximately 11 percent of the remaining population) become

entangled in fishing gear each year, and about 83 percent of all North Atlantic right whales have been entangled at least once. Entangled whales often drown or die from starvation or injuries; overall, it has been estimated that 58 percent of the right whale deaths since 2009 were due to entanglements.

Though fisheries may adversely impact some marine mammal species in the project area, none of the proposed activities would be directed at commercial or recreational fishing or would likely have any impact on commercial fishing in the action area. No significant direct impacts are expected from the action of issuing an IHA for the incidental take, by Level B harassment only, of small numbers of marine mammals to Statoil. No significant indirect impacts are expected from Statoil conducting site characterization survey activities in the Project Area. The cumulative adverse effects of the proposed action on the affected populations, when added to the effects of fisheries, are not expected to be significant.

#### **4.2.8 Conclusion**

In summary, the analysis herein supports our initial conclusion that, with the incorporation of the proposed monitoring and mitigation measures, the issuance of the IHA to Statoil for take of marine mammals incident to conducting site characterization survey activities would not result in any significant direct, indirect, or cumulative impacts. Based on our MMPA analysis, the limited harassment from Statoil's proposed activities would allow adequate time for the marine mammals to recover from potentially adverse effects. Furthermore, the analysis concluded that the cumulative effects of the project on its own or in combination with other activities are not expected to occur.

Based on the summation of activity in the area provided in this section, NMFS determined that the incremental impact of an IHA for the proposed site characterization survey activities in the Project Area would not be expected to result in a significant cumulative impact to the human environment, taking into account past, present, and reasonably foreseeable future activities. The potential impacts to marine mammals, their habitats, and the human environment in general are expected to be minimal, based on the limited and temporary footprint of the proposed project and the mitigation and monitoring requirements of the IHA.

## **5 List of Preparers and Agencies Consulted**

### Agencies Consulted

As indicated in Chapter 1, we coordinate within NOAA, including ESA Section 7 consultations, and with other regulatory agencies, as appropriate. No other agencies were consulted in the preparation of this EA.

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