

NOAA FISHERIES

PROPOSED ACTION: Issuance of Incidental Harassment Authorizations to Deepwater Wind for the Take of Marine Mammals Incidental to Construction of the Block Island Wind Farm and Block Island Transmission System

TYPE OF STATEMENT: Environmental Assessment

LEAD AGENCY: U.S. Department of Commerce
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National Marine Fisheries Service

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ABSTRACT: This Environmental Assessment analyzes the environmental impacts of the National Marine Fisheries Service, Office of Protected Resources proposal to issue Incidental Harassment Authorizations, pursuant to Section 101(a)(5)(D) of the Marine Mammal Protection Act, to Deepwater Wind Holdings, LLC for the take of small numbers of marine mammals incidental to construction of the Block Island Wind Farm and Block Island Transmission System in the waters of Rhode Island Sound.

DATE: August 2014

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LIST OF ACRONYMS AND ABBREVIATIONS

Authorization	Incidental Harassment Authorization
BITS	Block Island Transmission System
BIWF	Block Island Wind Farm
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	decibel
DP	dynamically positioned
DWBI	Deepwater Wind Block Island, LLC
DWBIT	Deepwater Wind Block Island Transmission, LLC
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
ft	feet
FR	Federal Register
HDD	horizontal directional drill
Hz	hertz
kHz	kilohertz
m	meter
mi	miles
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
OMB	Office of Management and Budget
PTS	permanent threshold shift
SPUE	sightings per unit effort
TTS	temporary threshold shift
USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
WTG	wind turbine generator

Chapter 1 Introduction and Purpose and Need

1.1. Description of Proposed Action

The Marine Mammal Protection Act (MMPA) prohibits the incidental taking of marine mammals. The incidental take of a marine mammal falls under three categories: mortality, serious injury, or harassment, which includes injury and behavioral effects. The MMPA defines harassment as any act of pursuit, torment, or annoyance which: (1) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (2) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment). There are exceptions to the MMPA’s prohibition on take such as the authority at issue here for us to authorize the incidental taking of small numbers of marine mammals by harassment upon the request of a U.S. citizen provided we follow certain statutory and regulatory procedures and make determinations. We describe this exception set forth in the MMPA at Section 101(a)(5)(D) in more detail in Section 1.2.

The National Marine Fisheries Service (NMFS) proposes to issue separate Incidental Harassment Authorizations (Authorizations) to Deepwater Wind Block Island, LLC (DWBI) and Deepwater Wind Transmission System, LLC (DWBIT)—subsidiaries of Deepwater Wind Holdings, LLC and collectively termed “Deepwater Wind”—under the MMPA for the incidental taking of small numbers of marine mammals incidental to the construction of the Block Island Wind Farm (BIWF) and its associated Block Island Transmission System (BITS), respectively. We do not have the authority to permit, authorize, or prohibit Deepwater Wind’s activities (i.e., the underlying action) under Section 101(a)(5)(D) of the MMPA, as that authority lies with a different Federal agency.

Our proposed action is a direct outcome of Deepwater Wind requesting authorizations under Section 101(a)(5)(D) of the MMPA to take marine mammals, by harassment, incidental to construction of the BIWF and BITS because the associated activities have the potential to take marine mammals during impact and vibratory pile driving and the use of dynamically positioned (DP) vessel thrusters. We anticipate that the disturbance associated with these activities would result in take otherwise prohibited by the MMPA. Deepwater Wind therefore requires authorizations for incidental take and has requested that we provide it through the issuance of Incidental Harassment Authorizations under Section 101(a)(5)(D) of the MMPA.

Our issuance of Authorizations to Deepwater Wind is a major federal action under the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations in 40 CFR §§ 1500-1508, and NOAA Administrative Order (NAO) 216-6. Thus, we are required to analyze the effects on the human environment and determine whether they are significant such that preparation of an Environmental Impact Statement (EIS) is necessary.

This Environmental Assessment (EA), titled “*Issuance of Incidental Harassment Authorizations to Deepwater Wind for the Take of Marine Mammals Incidental to Construction of the Block Island Wind Farm and Block Island Transmission System*” (hereinafter, EA) addresses the potential environmental impacts of two alternatives available to us under Section 101(a)(5)(D) of the MMPA, namely:

- Issue the Authorizations to Deepwater Wind for Level B harassment take of marine mammals under the MMPA during their construction projects, taking into account the prescribed means of take, mitigation measures, and monitoring requirements required in the proposed Authorizations; or
- Not issue the Authorizations to Deepwater Wind in which case, for the purposes of NEPA analysis, we assume that the activities would proceed without the mitigation and monitoring measures prescribed in the proposed Authorizations.

1.1.1. Background on Deepwater Wind’s MMPA Applications

DWBI, a wholly owned indirect subsidiary of Deepwater Wind Holdings, LLC, proposes to develop the BIWF, a 30-megawatt offshore wind farm located approximately 3 miles southeast of Block Island, Rhode Island in Rhode Island Sound. In connection with the BIWF, DWBIT, also a wholly owned indirect subsidiary of Deepwater Wind Holdings, LLC, proposes to develop the BITS, a bi-directional submarine transmission cable that will run from Block Island to the Rhode Island mainland. The proposed activities would begin in late 2014 and last through late 2015. The following specific aspects of the proposed activities are likely to result in the take of marine mammals by Level B harassment by the generation of underwater noise:

BIWF construction activities:

- Impact pile driving used to install the wind turbine generator (WTG) jacket foundations;
- DP vessel thruster use in support of Inter-Array and Export Cable installation.

BITS construction activities:

- Vibratory pile driving used to install and remove the temporary cofferdam for the long-distance HDD landfall construction method on Scarborough State Beach; and
- DP vessel thruster use in support of BITS cable installation.

1.1.2. Marine Mammals in the Action Area

The proposed activities could adversely affect the following marine mammal species under our jurisdiction: Atlantic white-sided dolphins (*Lagenorhynchus acutus*), short-beaked common dolphins (*Delphinus delphis*), harbor porpoises (*Phocoena phocoena*), minke whales (*Balaenoptera acutorostrata*), fin whales (*Balaenoptera physalus*), humpback whales (*Megaptera novaeangliae*), North Atlantic right whales (*Eubalaena glacialis*), gray seals (*Halichoerus grypus*), and harbor seals (*Phoca vitulina*)

1.2. Purpose and Need

The MMPA prohibits “takes” of marine mammals, with a number of specific exceptions. The applicable exception in this case is an authorization for incidental take of marine mammals in Section 101(a)(5)(D) of the MMPA.

Section 101(a)(5)(D) of the MMPA directs the Secretary of Commerce (Secretary) to authorize, upon request, the incidental, but not intentional, taking of small numbers of marine mammals of a species or population stock, by United States citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if we make certain findings and provide a notice of a proposed authorization to the public for review. Entities seeking to obtain authorization for the incidental take of marine mammals under our jurisdiction must submit such a request (in the form of an application) to us.

We have issued regulations to implement the Incidental Take Authorization provisions of the MMPA (50 CFR Part 216) and have produced Office of Management and Budget (OMB)-approved application instructions (OMB Number 0648-0151) that prescribe the procedures necessary to apply for authorizations. All applicants must comply with the regulations at 50 CFR § 216.104 and submit applications requesting incidental take according to the provisions of the MMPA.

Purpose: The primary purpose of our proposed action—the issuance of Authorizations to Deepwater Wind—is to authorize (pursuant to the MMPA) the take of marine mammals incidental to Deepwater Wind’s proposed activities.

To authorize the take of small numbers of marine mammals in accordance with Section 101(a)(5)(D) of the MMPA, we must evaluate the best available scientific information to determine whether the take would have a negligible impact on marine mammals or stocks and not have an unmitigable adverse impact on the availability of affected marine mammal species for certain subsistence uses. We cannot issue an Authorization if it would result in more than a negligible impact on marine mammal species or stocks or if it would result in an unmitigable adverse impact on subsistence.

In addition, we must prescribe, where applicable, 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 (i.e., mitigation), 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. Authorizations must also include requirements or conditions pertaining to the monitoring and reporting of such taking in large part to better understand the effects of such taking on the species. Also, we must publish a notice of a proposed Authorization in the *Federal Register* for public notice and comment.

The purpose of this action is therefore to determine whether the takes resulting from Deepwater Wind's BIWF and BITS construction projects would have a negligible impact on affected marine mammal species or stocks, would not have an unmitigable adverse impact on the availability of marine mammals for taking for subsistence uses, and develop mitigation and monitoring measures to reduce and monitor the potential impacts.

Need: On October 17, 2013 and November 26, 2014, Deepwater Wind submitted adequate and complete applications for the BIWF and BITS, respectively, demonstrating both the need and potential eligibility for issuance of Authorizations in connection with the activities described in Section 1.1.1. We now have a corresponding duty to determine whether and how we can authorize take by Level B harassment incidental to the activities described in Deepwater Wind's applications. Our responsibilities under Section 101(a)(5)(D) of the MMPA and its implementing regulations establish and frame the need for this 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 alternatives for mitigating and monitoring potential adverse effects. Thus, we are developing and analyzing alternative means of developing and issuing Authorizations, which may require the applicant to include additional mitigation and monitoring measures in order for us to make our determinations under the MMPA.

1.3. The Environmental Review Process

NEPA compliance is necessary for all "major" federal actions with the potential to significantly affect the quality of the human environment. Major federal actions include activities fully or partially funded, regulated, conducted, authorized, or approved by a federal agency. Because our issuance of Authorizations would allow for the taking of marine mammals consistent with provisions under the MMPA, we consider this as a major federal action subject to NEPA.

Under the requirements of NAO 216-6 Section 6.03(f)(2)(b) for incidental harassment authorizations, we prepared this EA to determine whether the direct, indirect and cumulative impacts related to the issuance of Authorizations for incidental take of marine mammals under the MMPA during Deepwater Wind's construction of the BIWF and BITS, could be significant. If we deem the potential impacts to be not significant, this analysis, including other analyses incorporated by reference, may support the issuance of a Finding of No Significant Impact (FONSI) for the proposed Authorizations.

1.3.1. Laws, Regulations, or Other NEPA Analyses Influencing the EA's Scope

We have based the scope of the proposed action and nature of the two alternatives (i.e., issue the Authorizations including prescribed means of take, mitigation measures, and monitoring requirements; or not issue the Authorizations) considered in this EA on the relevant requirements in Section 101(a)(5)(D) of the MMPA. Thus, our authority under the MMPA bounds the scope of our alternatives. We conclude that this analysis—when combined with the analyses in the

following documents—fully describes the impacts associated with the proposed Deepwater Wind construction projects with mitigation and monitoring for marine mammals. After conducting an independent review of the information and analyses for sufficiency and adequacy, we incorporate by reference the relevant analyses on Deepwater Wind’s proposed actions as well as a discussion of the affected environment and environmental consequences within the following documents per 40 CFR 1502.21 and NAO 216-6 § 5.09(d):

- our notices of the proposed Authorizations in the *Federal Register* (79 FR 15573, March 20, 2014; 79 FR 16301, March 25, 2014);
- *National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological Opinion, Deepwater Wind: Block Island Wind Farm and Transmission System* (NMFS 2014)
- *Deepwater Wind Block Island Transmission, LLC, Construction of the Block Island Transmission System Incidental Harassment Authorization Package (Application)* (Tetra Tech 2013a);
- *Deepwater Wind Block Island, LLC, Construction of the Block Island Wind Farm Incidental Harassment Authorization Package (Application)* (Tetra Tech 2013b);
- *Block Island Wind Farm and Block Island Transmission System Modification to Environmental Report/Construction and Operations Plan* (Tetra Tech 2013c);
- *Block Island Wind Farm and Block Island Transmission System Environmental Report/Construction and Operations Plan* (Tetra Tech 2012); and
- *Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf* (Programmatic EIS) (BOEM 2008)

MMPA APPLICATION AND NOTICE OF THE PROPOSED AUTHORIZATION

The CEQ regulations (40 CFR §1502.25) encourage federal agencies to integrate NEPA’s environmental review process with other environmental review laws. We rely substantially on the public process for developing proposed Authorizations and evaluating relevant environmental information and providing a meaningful opportunity for public participation as we develop corresponding EAs. We fully consider public comments received in response to our publication of the notice of proposed Authorization during the corresponding NEPA process.

On March 20 and March 25, 2014, we published a notice of proposed Authorization in the *Federal Register* (79 FR 15573; 79 FR 16301) for the BIWF and BITS, respectively, which included the following:

- a detailed description of the proposed action and an assessment of the potential impacts on marine mammals;

- plans for Deepwater Wind’s mitigation and monitoring measures to avoid and minimize potential adverse impacts to marine mammals and their habitat and proposed reporting requirements; and
- our preliminary findings.

We considered Deepwater’s proposed mitigation and monitoring measures that would provide the means of effecting the least practicable impact on marine mammals including: (1) marine mammal exclusion zones; (2) soft-start (ramp-up) procedures; (3) delay and shutdown procedures; (4) DP vessel thruster power reduction; (5) time of day and weather restrictions; and (6) marine mammal ship strike avoidance, including vessel speed restrictions.

Through the MMPA process, we preliminarily determined—provided that Deepwater Wind implements the proposed mitigation and monitoring measures—that the impact on marine mammals of conducting the proposed Block Island Wind Farm and Block Island Transmission System construction activities, from late 2014 through late 2015, would result, at worst, in a temporary modification in behavior of small numbers of certain species of marine mammals in the vicinity of the proposed activity and have a negligible impact on the affected species or stocks.

Within our notices, we requested that the public submit comments, information, and suggestions concerning Deepwater Wind’s requests, the content of our proposed Authorizations, and potential environmental effects related to the proposed issuance of the Authorizations. This EA incorporates by reference and relies on Deepwater Wind’s separate applications, our notices of proposed Authorizations (79 FR 15573, March 20, 2014; 79 FR 16301, March 25, 2014), and other environmental analyses to avoid duplication of analysis and unnecessary length.

In summary, those analyses concluded that with incorporation of monitoring and mitigation measures proposed by Deepwater Wind, the authorized taking of marine mammals results in the temporary modification of small numbers of individual marine mammals. Next, the Authorizations would not result in any direct, indirect, or cumulative significant impacts. Based on our analysis, the intermittent frequency and short duration of the harassment from the Deepwater Wind construction activities would allow adequate time for marine mammals to recover from potentially adverse effects. The analyses concluded that NMFS did not expect that additive or cumulative effects of the construction projects on their own or in combination with other activities would occur. Finally, the environmental analyses did not identify any significant environmental issues or impacts.

1.3.2. Scope of Environmental Analysis

Given the limited scope of the decision for which we are responsible (i.e., issue the Authorizations including prescribed means of take, mitigation measures, and monitoring requirements; or not issue the Authorizations) this EA provides more focused information on the primary issues and impacts of environmental concern related specifically to our issuance of the

Authorizations. This EA does not further evaluate effects to the elements of the human environment listed in Table 1 because previous environmental reviews, listed in Section 1.3.1 of this EA, have shown that Deepwater Wind’s proposed construction activities (i.e., the underlying action) would not significantly affect those components of the human environment. Moreover, those analyses are consistent with our analyses regarding non-significant impacts to marine mammals.

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

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	
	Ecologically Critical Areas	

1.3.3. NEPA Public Involvement Summary

NAO 216-6 established agency procedures for complying with NEPA and the implementing NEPA regulations issued by the CEQ. Consistent with the intent of NEPA and the clear direction in NAO 216-6 to involve the public in NEPA decision-making, we requested comments on the potential environmental impacts described in both of Deepwater’s MMPA applications and in the *Federal Register* notices of the proposed Authorizations. The CEQ regulations further encourage agencies to integrate the NEPA review process with review under the environmental statutes. Consistent with agency practice we integrated our NEPA review and preparation of this EA with the public process required by the MMPA for the proposed issuance of Authorizations.

The *Federal Register* notices of the proposed Authorizations, combined with our preliminary determinations, supporting analyses, and corresponding public comment periods are instrumental in providing the public with information on relevant environmental issues and offering the public a meaningful opportunity to provide comments to us for consideration in both the MMPA and NEPA decision-making processes, including development of this EA.

The *Federal Register* notices of the proposed Authorizations summarized our proposed action (i.e., issuance of Authorizations); stated that we would prepare an EA for the proposed action; and invited interested parties to submit written comments concerning the applications and our preliminary analyses and findings including those relevant to consideration in the EA. The notices of the proposed Authorizations were available for public review and comment from February 2014, through March 2014.

1.3.4. Relevant Comments on Our *Federal Register* Notice

During the 30-day public comment periods on the notices of the proposed Authorizations, we received only one comment letter from the Marine Mammal Commission which provides comments on most proposed Incidental Take Authorizations as part of their established role under the MMPA. We received no other substantive comments from the public and received no requests to view any of the previously completed NEPA documents or other environmental analyses.

We have considered the Marine Mammal Commission comments regarding monitoring and mitigation measures within the context of the MMPA requirement to prescribe means to effect the least practicable impact to marine mammals and their habitat. Consequently, we have determined, based on the best available data that the mitigation measures proposed by Deepwater Wind are the most feasible and effective monitoring and mitigation measures to achieve the MMPA requirement of effecting the least practicable impact on each marine mammal species or stock.

We will provide our response to the Marine Mammal Commission comments in the *Federal Register* notices for the proposed final Authorizations. We fully considered the Marine Mammal Commission's comments in preparing the proposed final Authorizations and this EA. None of their comments led us to substantively change this EA.

1.4. Other Permits, Licenses, or Consultation Requirements

This section summarizes federal, state, and local permits, licenses, approvals, and consultation requirements necessary to implement the proposed action.

1.4.1. National Environmental Policy Act

Issuance of an Authorization is subject to environmental review under NEPA. NMFS may prepare an EA, an EIS, or determine that the action is categorically excluded from further review. While NEPA does not dictate substantive requirements for an Authorization, it requires consideration of environmental issues in federal agency planning and decision making. The procedural provisions outlining federal agency responsibilities under NEPA are provided in the CEQ's implementing regulations (40 CFR §§1500-1508).

1.4.2. Marine Mammal Protection Act

The MMPA and its provisions that pertain to the proposed action are discussed above in Section 1.2.

1.4.3. Magnuson-Stevens Fishery Conservation and Management Act

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), 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 MSFCMA. NMFS' action of authorizing harassment of marine mammals in the form of the proposed Authorizations does not impact EFH; therefore, an EFH consultation was not conducted by NMFS.

1.4.4. Endangered Species Act

Of the species of marine mammals that may occur in the proposed project area, three are listed as endangered under the Endangered Species Act (ESA): North Atlantic right whale, humpback whale, and fin whale. NMFS Northeast Regional Office (now known as the Greater Atlantic Region) issued a Biological Opinion on January 30, 2014, concluding that the Block Island Wind Farm project (which includes both the BIWF and BITS) may adversely affect but is not likely to jeopardize the continued existence of fin whales, humpback whales, or North Atlantic right whales. The effects of the Authorizations on listed marine mammal species fall within the scope of effects analyzed in the Biological Opinion for the Block Island Wind Farm project. Therefore, a new consultation is not required for issuance of the Authorizations. Following the proposed issuance of the Authorizations, an incidental take statement (ITS), with associated reasonable and prudent measures and terms and conditions, will be issued to exempt any take of listed marine mammal species from the take prohibition in section 9 of the ESA. Under the terms of section 7(b)(4) and section 7(o)(2) of the ESA, taking that results from, but is not the purpose of the agency action is not considered to be prohibited under the ESA provided that such taking is in compliance with the terms and conditions of the authorized Incidental Take Statement. The ITS will be appended to the January 30, 2014 Biological Opinion.

Chapter 2 Alternatives

2.1. Introduction

NEPA and the implementing CEQ regulations (40 CFR §§ 1500-1508) require consideration of alternatives to proposed major federal actions and NAO 216-6 provides agency policy and guidance on the consideration of alternatives to our proposed action. An EA must consider all reasonable alternatives. It must also consider the No Action Alternative, even if it does not meet the stated purpose and need. This provides a baseline analysis against which we can compare the other alternatives.

To warrant detailed evaluation as a reasonable alternative, an alternative must meet our purpose and need. In this case, as we previously explained in Chapter 1 of this EA, an alternative only meets the purpose and need if it satisfies the requirements under Section 101(a)(5)(D) of the MMPA. We evaluated each potential alternative against these criteria; identified one action alternative along with the No Action Alternative; and carried these forward for evaluation in this EA.

Alternative 1 includes a suite of mitigation measures intended to minimize potentially adverse interactions with marine mammals. This chapter describes the alternatives and compares them in terms of their environmental impacts and their achievement of objectives.

As described in Section 1.2, the MMPA requires that 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 consider Deepwater Wind'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 measure to minimize adverse impacts to marine mammals; (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation.

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.

2.2. Description of Deepwater Wind’s Proposed Activities

We presented a general overview of Deepwater Wind’s proposed BIWF and BITS construction activities in our *Federal Register* notice for each of the proposed Authorizations (79 FR 15573, March 20, 2014; 79 FR 16301, March 25, 2014). We incorporate those descriptions by reference in this EA and briefly summarize them here.

2.2.1. Specified Time and Specified Area

BITS

Construction activities could begin in late 2014 and are scheduled to be complete by late 2015. The anticipated project work windows are provided in Table 2.

Table 2. Anticipated project work windows.

Activity	Anticipated Work Window
Contracting, mobilization, and verification	January 2014 – December 2014
Onshore short-distance HDD installation	December 2014 – June 2015
Onshore/offshore long-distance HDD installation	January 2015 – June 2015
Onshore cable installation	October 2014 – May 2015
Substation construction	October 2014 – May 2015
Offshore cable installation	April 2015 – August 2015
Landfall demobilization and remediation	May 2015 – June 2015

NMFS is proposing to issue an authorization effective November 1, 2014 through October 31, 2015, based on the anticipated work windows for in-water construction that could result in the incidental take of marine mammals. While project activities may occur for 1 year, in-water vibratory pile driving is only expected to occur for up to of 4 days (2 days each for construction of the cofferdam and 2 days each for removal of the cofferdam). Use of the DP vessel thruster during cable installation activities is expected to occur for 4 to 6 weeks (42 days maximum). Vibratory pile driving would occur during daylight hours only, starting approximately 30 minutes after dawn and ending 30 minutes prior to dusk. Cable installation (and subsequent use of the DP vessel thruster) would be conducted 24 hours per day.

The BITS cable would originate from a manhole on Block Island and traverse federal and state submerged lands in Rhode Island Sound from Block Island to Narragansett for a total distance of 19.8 miles with water depths reaching up to 39 meters (m) (Figure 1). Vibratory pile driving for the temporary offshore cofferdam would occur at a site located off of Scarborough State Beach. The temporary offshore cofferdam would be located between 685.8 m and 1,112.5 m from shore. Terrestrial cables and other terrestrial facilities associated with the BITS will be located in the towns of New Shoreham (Block Island) and Narragansett in Washington County, Rhode Island. Construction staging and laydown for offshore components of the project will occur at the Quonset Point port facility in North Kingstown, also in Washington County, Rhode Island.

BIWF

Construction activities could begin in late 2014 and are scheduled to be complete by late 2015. The anticipated project work windows are provided in Table 3.

Table 3. Anticipated project work windows.

Activity	Anticipated Work Window
Contracting, mobilization, and verification	January 2014 – December 2014
Onshore short-distance HDD installation	December 2014 – June 2015
Onshore/offshore long-distance HDD installation	January 2015 – June 2015
Onshore cable installation	October 2014 – May 2015
Offshore cable installation	April 2015 – August 2015
Landfall demobilization and remediation	May 2015 – June 2015
Foundation fabrication and transportation	October 2015 – September 2015
WTG jacket foundation – non-pile driving activity	April 2015 – July 2015 or August 2015 – October 2015
WTG jacket foundation – pile driving	May 2015 – July 2015 or August 2015 – October 2015
WTG installation and commissioning	July 2015 – December 2015

NMFS is proposing to issue an authorization effective October 31, 2014 through October 30, 2015, based on the anticipated work windows for in-water construction that could result in the incidental take of marine mammals. While project activities may occur for 1 year, in-water pile driving is only expected to occur for up to 20 days (4 days for each WTG). Use of the DP vessel thruster during cable installation activities is expected to occur for 28 days maximum. Impact pile driving would occur during daylight hours only, starting approximately 30 minutes after dawn and ending 30 minutes prior to dusk. Cable installation (and subsequent use of the DP vessel thruster) would be conducted 24 hours per day.

The offshore components of the BIWF will be located in state territorial waters (Figure 1). Construction staging and laydown for offshore construction is planned to occur at the Quonset Point port facility in North Kingstown, Rhode Island. The WTGs will be located on average of about 4.8 kilometers (km) southeast of Block Island, and about 25.7 km south of the Rhode Island mainland. The WTGs will be arranged in a radial configuration spaced about 0.8 km apart. The inter-array cable will connect the five WTGs for a total length of 3.2 km from the northernmost WTG to the southernmost WTG. Water depths along the WTG array and inter-array cable range up to 23.3 meters.

The submarine portions of the export cable will be installed by a jet plow supported by a DP vessel. The export cable will originate at the northernmost WTG and travel 10 km to a manhole on Block Island. Water depths along the export cable submarine route range up to 36.9 m. Terrestrial cables, an interconnection switchyard, and other ancillary facilities associated with the BIWF will be located in the town of New Shoreham in Washington County, Rhode Island.

2.2.2. Construction Activities

BITS

DWBIT plans to construct a bi-directional submarine transmission cable that will run from Block Island to the Rhode Island mainland. Construction of the marine portion of the BITS will involve three activities: cable landfall construction on Block Island using a short-distance HDD from a temporary excavated trench box on Crescent Beach; cable landfall construction on Scarborough State Beach in Narragansett, Rhode Island using a long-distance HDD from a temporary offshore cofferdam; and installation of the submarine BITS cable.

Cable landfall construction may require the installation and removal of a temporary offshore cofferdam, which would involve vibratory pile driving. The generation of underwater noise from vibratory pile driving and the DP vessel thruster may result in the incidental take of marine mammals.

The BITS will interconnect Block Island to the existing Narragansett Electric Company National Grid distribution system on the Rhode Island mainland. In connection with the BITS, DWBI proposes to develop the Block Island Wind Farm, a 30-megawatt offshore wind farm.

BIWF

The BIWF will consist of five, 6-megawatt WTGs, a submarine cable interconnecting the WTGs, and a transmission cable. Construction of the BIWF will involve the following activities: cable landfall construction on Block Island via a short-distance HDD from an excavated trench box located on Crescent Beach, Block Island; jacket foundation installation; inter-array and export cable installation; and WTG installation. Installation of the jacket foundation would require impact pile driving. The generation of underwater noise from impact pile driving and the DP vessel thruster may result in the incidental take of marine mammals.

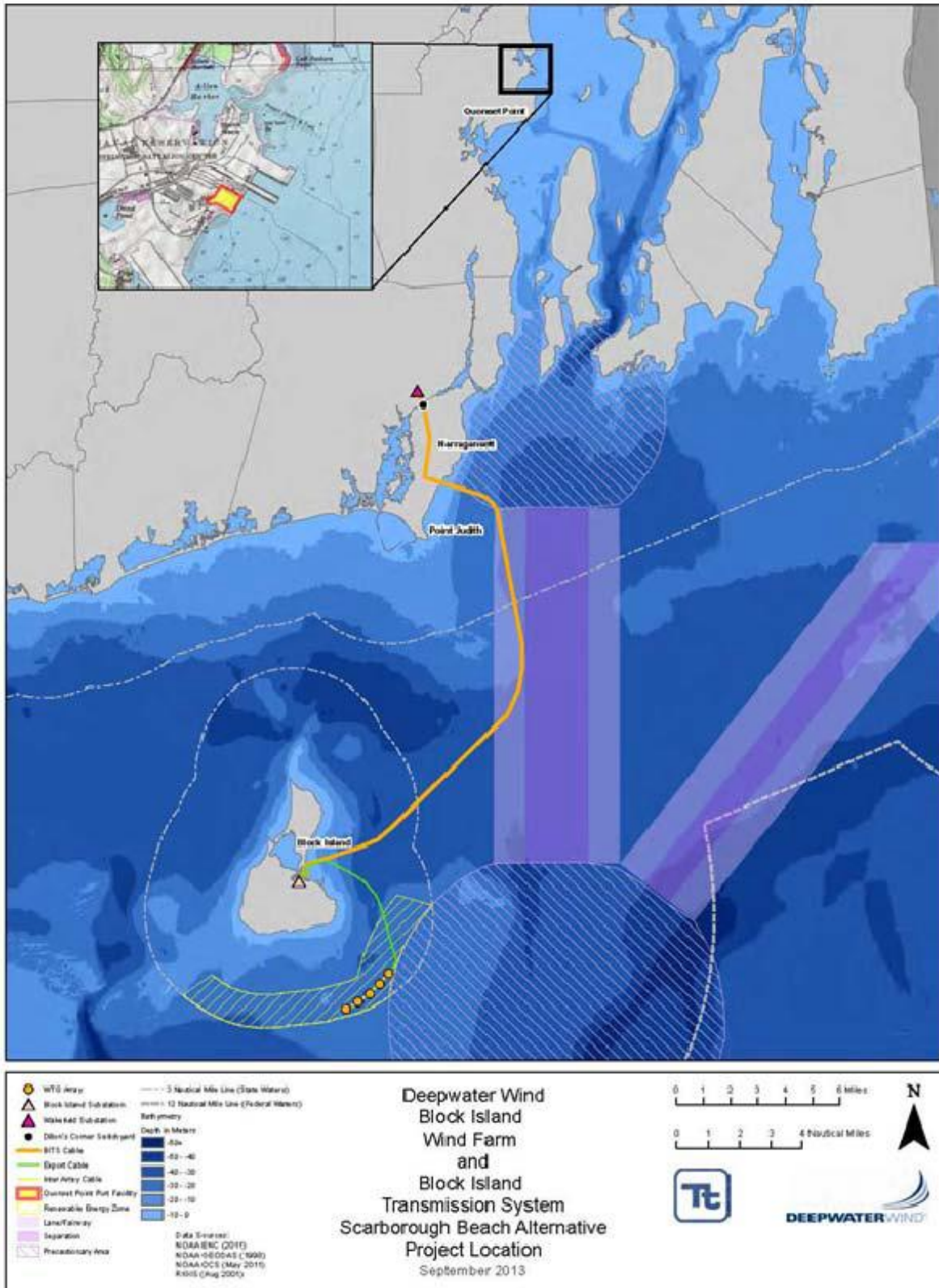


Figure 1. Proposed project area for the BIWF and BITS.

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 Authorizations (valid from late 2014 to late 2015) to Deepwater Wind allowing the incidental take, by Level B harassment, of nine species of marine mammals subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the proposed Authorizations, along with any additions based on consideration of public comments.

Our *Federal Register* notices requesting comments on the proposed Authorizations analyzed the potential impacts of this Alternative in detail. We incorporate those analyses by reference in this EA and briefly summarize the mitigation and monitoring measures and reporting requirements that we would incorporate in the final Authorizations, if issued, in the following sections.

MITIGATION, MONITORING, AND REPORTING MEASURES

To reduce the potential for disturbance associated with their activities, Deepwater Wind has proposed to implement several monitoring and mitigation measures for marine mammals. The proposed monitoring and mitigation measures for each project include:

MITIGATION

BITS

(a) Marine Mammal Exclusion Zone: Protected species observers shall visually monitor an estimated 160-dB isopleth during all vibratory pile driving activity. A minimum of two observers shall be stationed aboard the noise-producing support vessel and shall monitor a 360-degree field of vision. Observers shall begin monitoring at least 30 minutes prior to vibratory pile driving, continue monitoring during vibratory pile driving, and stop monitoring 30 minutes after vibratory pile driving has ended.

(b) Soft-start Procedures: Soft-start procedures shall be implemented at the beginning of each day and if pile driving has stopped for more than 30 minutes. Deepwater Wind shall initiate a set of three strikes from the vibratory hammer at 40 percent energy with a 1-minute waiting period between subsequent three-strike sets. This procedure shall be repeated two additional times before full energy is reached. Deepwater Wind shall not initiate a soft-start if the marine mammal exclusion zone is obscured by fog, inclement weather, poor lighting conditions, etc.

(c) Delay and Shutdown Procedures: Deepwater Wind shall delay vibratory pile driving if a marine mammal is observed within the estimated 160-dB isopleth marine mammal exclusion zone and until the exclusion zone is clear of marine mammals. Deepwater Wind shall stop vibratory pile driving if a marine mammal is seen within the estimated 160-dB isopleth from the sound source at the Scarborough State Beach cofferdam and would not reinitiate vibratory pile driving until the exclusion zone is clear of marine mammals for at least 30 minutes.

(d) DP Thruster Power Reduction: Deepwater Wind shall reduce DP thruster power to the maximum extent possible if a marine mammal approaches or enters the estimated 160-dB isopleth from the vessel. Deepwater Wind shall not increase power until the zone is clear of marine mammals for 30 minutes.

(e) Time of Day and Weather Restrictions: Deepwater Wind shall conduct vibratory pile driving during daylight hours only, starting approximately 30 minutes after dawn and ending 30 minutes before dusk. Deepwater Wind shall not initiate vibratory pile driving until the entire marine mammal exclusion zone is visible. If a soft-start is initiated before the onset of inclement weather, Deepwater Wind may complete that segment of vibratory pile driving.

(f) Vessel Speed Restrictions: All project vessels, regardless of length, shall operate at speeds of 10 knots or less from November 1 through April 30.

(g) Ship Strike Avoidance: Deepwater Wind shall adhere to NMFS guidelines for marine mammal ship strike avoidance (http://www.nmfs.noaa.gov/pr/pdfs/education/viewing_northeast.pdf).

BIWF

(a) Marine Mammal Exclusion Zone: Protected species observers shall visually monitor an estimated 180-dB isopleth during all impact pile driving activity. A minimum of two observers shall be stationed aboard the noise-producing support vessel and shall monitor a 360-degree field of vision. Observers shall begin monitoring at least 30 minutes prior to impact pile driving, continue monitoring during impact pile driving, and stop monitoring 30 minutes after impact pile driving has ended.

(b) Soft-start Procedures: Soft-start procedures shall be implemented at the beginning of each day and if pile driving has stopped for more than 30 minutes. Deepwater Wind shall initiate a set of three strikes from the impact hammer at 40 percent energy with a 1-minute waiting period between subsequent three-strike sets. This procedure shall be repeated two additional times before full energy is reached. Deepwater Wind shall not initiate a soft-start if the marine mammal exclusion zone is obscured by fog, inclement weather, poor lighting conditions, etc.

(c) Delay and Powerdown Procedures: Deepwater Wind shall delay impact pile driving if a marine mammal is observed within the estimated 180-dB isopleth marine mammal exclusion zone and until the exclusion zone is clear of marine mammals. Deepwater Wind shall reduce impact pile driving energy by 50 percent if a marine mammal continues toward or enters the 180 dB isopleth.

(d) DP Thruster Power Reduction: Deepwater Wind shall reduce DP thruster power to the maximum extent possible if a marine mammal approaches or enters the estimated 160-dB

isopleth from the vessel. Deepwater Wind shall not increase power until the zone is clear of marine mammals for 30 minutes.

(e) Time of Day and Weather Restrictions: Deepwater Wind shall conduct impact pile driving during daylight hours only, starting approximately 30 minutes after dawn and ending 30 minutes before dusk unless a situation arises where stopping pile driving would compromise safety (either human health or environmental) and/or the integrity of the project. Deepwater Wind shall not initiate impact pile driving until the entire marine mammal exclusion zone is visible. If a soft-start is initiated before the onset of inclement weather, Deepwater Wind may complete that segment of pile driving.

(f) Vessel Speed Restrictions: All project vessels, regardless of length, shall operate at speeds of 10 knots or less from November 1 through April 30.

(g) Ship Strike Avoidance: Deepwater Wind shall adhere to NMFS guidelines for marine mammal ship strike avoidance (http://www.nmfs.noaa.gov/pr/pdfs/education/viewing_northeast.pdf).

MONITORING

BITS

Deepwater Wind is required to implement the following monitoring requirements.

(a) Visual Monitoring: Protected species observers shall survey beyond the estimated 160-dB isopleths 30 minutes before, during, and 30 minutes after all in-water vibratory pile driving and use of DP vessel thrusters. The observers shall be stationed on the highest available vantage point on the associated operating platform. Observers shall estimate distances to marine mammals visually, using laser range finders, or by using reticle binoculars during daylight hours. During night operations (DP vessel thruster use only), observers shall use night-vision binoculars. Information recorded during each observation shall be used to estimate numbers of animals potentially taken and shall include the following:

- Numbers of individuals observed;
- Frequency of observation;
- Location (i.e., distance from the sound source);
- Vibratory pile driving status (i.e., soft-start, active, post pile driving, etc.);
- DP vessel thruster status (i.e., energy level); and
- Reaction of the animal(s) to relevant sound source (if any) and observed behavior, including bearing and direction of travel.

(b) Acoustic Field Verification: Deepwater Wind shall conduct field verification of the estimated 160-dB isopleths during vibratory pile driving and use of the DP vessel thruster.

Acoustic measurements shall be taken during vibratory pile driving of the last half (deepest sheet pile segment) for any given open-water pile and from two reference locations at two water depths (a depth at mid-water and at about 1 m above the seafloor). If the field measurements show that the 160-dB isopleth is less than or beyond the initially proposed 200-m distance, a new zone may be established accordingly. Deepwater Wind shall notify NMFS within 24 hours if a new marine mammal exclusion zone is established that extends beyond 200 m. Implementation of a smaller zone shall be contingent on NMFS' review and shall not be used until NMFS approves the change. Deepwater Wind shall also perform field verification of the 160-dB isopleth associated with DP vessel thruster use during cable installation. Acoustic measurements shall be taken from two reference locations at two water depths (a depth at mid-water and at about 1 m above the seafloor). Similar to field verification during vibratory pile driving, the DP thruster power reduction zone may be modified as necessary.

BIWF

Deepwater Wind is required to implement the following monitoring requirements.

(a) Visual Monitoring: Protected species observers shall survey the estimated 160-dB isopleths 30 minutes before, during, and 30 minutes after all in-water impact pile driving and DP vessel thruster use. The observers shall be stationed on the highest available vantage point on the associated operating platform. Observers shall estimate distances to marine mammals visually, using laser range finders, or by using reticle binoculars during daylight hours. During night operations (DP vessel thruster use only), observers shall use night-vision binoculars. Information recorded during each observation shall be used to estimate numbers of animals potentially taken and shall include the following:

- Numbers of individuals observed;
- Frequency of observation;
- Location (i.e., distance from the sound source);
- Impact pile driving status (i.e., soft-start, active, post pile driving, etc.);
- DP vessel thruster status (i.e., energy level); and
- Reaction of the animal(s) to relevant sound source (if any) and observed behavior, including bearing and direction of travel.

(b) Acoustic Field Verification: Deepwater Wind shall conduct field verification of the estimated 180-dB isopleths during impact pile driving. Acoustic measurements shall be taken during impact pile driving of the last half (deepest pile segment) for any given open-water pile and from two reference locations at two water depths (a depth at mid-water and at about 1 m above the seafloor). If the field measurements show that the 180-dB isopleth is less than or beyond the initially proposed distances, a new zone may be established accordingly. Deepwater Wind shall notify NMFS within 24 hours if a new marine mammal exclusion zone is established that extends beyond what is initially established. Implementation of a smaller zone shall be

contingent on NMFS' review and shall not be used until NMFS approves the change. Deepwater Wind shall also perform field verification of the 160-dB isopleth associated with DP vessel thruster use during cable installation. Acoustic measurements shall be taken from two reference locations at two water depths (a depth at mid-water and at about 1 m above the seafloor). Similar to field verification during impact pile driving, the DP thruster power reduction zone may be modified as necessary.

REPORTING

BITS and BIWF

Deepwater Wind 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. This report must contain following the informational:

- A summary of the activity and monitoring plan (i.e., dates, times, locations);
- A summary of mitigation implementation;
- Monitoring results and a summary that addresses the goals of the monitoring plan, including the following:
 - Environmental conditions when observations were made:
 - Water conditions (i.e., Beaufort sea state, tidal state)
 - Weather conditions (i.e., percent cloud cover, visibility, percent glare)
 - Date and time survey initiated and terminated
 - Date, time, number, species, and any other relevant data regarding marine mammals observed (for pre-activity, during activity, and post-activity surveys)
 - Description of the observed behaviors (in both the presence and absence of activities):
 - If possible, the correlation to underwater sound level occurring at the time of any observable behavior
- Estimated exposure/take numbers during activities; and
- An assessment of the implementation and effectiveness of prescribed mitigation and monitoring measures.

Additionally, a description of the activities conducted by Deepwater Wind and the monitoring protocols would be included in the report.

In our *Federal Register* notices of proposed Authorizations, which we incorporate by reference, we preliminarily determined that the measures included in the proposed Authorizations were sufficient to reduce the effects of Deepwater Wind's construction activities on marine mammals to the level of least practicable impact. In addition, we described our analysis of impacts and preliminarily determined that the taking of small numbers of marine mammals, incidental to Deepwater Wind's construction activities 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.

We have neither altered the mitigation, monitoring and reporting requirements to be included in the proposed final Authorizations nor have we received any information that would cause us to change our preliminary determinations under the MMPA. Accordingly, this Preferred Alternative would satisfy the purpose and need of our proposed action under the MMPA—issuance of Authorizations, along with required mitigation measures and monitoring 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

We are required to evaluate the No Action Alternative per CEQ NEPA regulations. The No Action Alternative serves as a baseline to compare the impacts of the Preferred and other Alternatives. Under the No Action alternative, we would not issue the Authorizations to Deepwater Wind for the proposed BITS and BIWF projects.

Under the No Action Alternative, Deepwater Wind could choose not to proceed with their proposed activities or to proceed without Authorizations. If they choose the latter, Deepwater Wind would not be exempt from the MMPA prohibitions against the take of marine mammals and would be in violation of the MMPA if take of marine mammals occurs.

For purposes of this EA, we characterize the No Action Alternative as Deepwater Wind not receiving Authorizations and Deepwater Wind conducting the BITS and BIWF construction activities without the protective mitigation and monitoring measures and reporting requirements required by an Authorization under the MMPA. We take this approach to meaningfully evaluate the primary environmental issues—the impact on marine mammals from these activities in the absence of protective measures.

2.4. Alternatives Considered but Eliminated from Further Consideration

NMFS considered whether other alternatives could meet the purpose and need and support Deepwater Wind's proposed BIWF and BITS construction projects. An alternative that would allow for the issuance of Authorizations 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

This chapter describes existing conditions in the proposed action area for the BIWF and BITS construction. Complete descriptions of the physical, biological, and social environment of the action area are contained in the documents listed in Section 1.3.1 of this EA. We incorporate those descriptions by reference and briefly summarize or supplement the relevant sections for marine mammals in the following subchapters.

3.1. Physical Environment

We are required to consider impacts to the physical environment under NAO 216-6. As discussed in Chapter 1, our proposed action and alternatives relate only to the authorization of incidental take of marine mammals and not to the physical environment. Certain aspects of the physical environment are not relevant to our proposed action (see Section 1.3.2 - Scope of Environmental Analysis). Because of the requirements of NAO 216-6, we briefly summarize the physical components of the 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* notices of the proposed Authorizations. There are no feeding areas, rookeries, or mating grounds known to be biologically important to marine mammals within the proposed project area. There is also no designated critical habitat for any ESA-listed marine mammals. Harbor seals haul out on Block Island and points along Narragansett Bay, the most important haul-out being on the edge of New Harbor, about 2.4 km from the proposed BITS landfall on Block Island. The only consistent haul-out locations for gray seals within the vicinity of Rhode Island are around Monomoy National Wildlife Refuge and Nantucket Sound in Massachusetts (more than 80 nautical miles from the proposed project area). NMFS' regulations at 50 CFR 224 designated the nearshore waters of the Mid-Atlantic Bight as the Mid-Atlantic U.S. Seasonal Management Area (SMA) for right whales in 2008. Mandatory vessel speed restrictions are in place in that SMA from November 1 through April 30 to reduce the threat of collisions between ships and right whales around their migratory route and calving grounds.

3.2. Biological Environment

3.2.1. Marine Mammals

We provide information on the occurrence of marine mammals most likely present in the proposed activity areas in Section 1.1.2 of this EA. The marine mammals most likely to be harassed incidental to construction activities associated with the BIWF (impact pile driving; DP vessel thruster use) and BITS (vibratory pile driving; DP vessel thruster use) are: Atlantic white-sided dolphins, short-beaked common dolphins, harbor porpoises, minke whales, fin whales, humpback whales, North Atlantic right whales, gray seals, and harbor seals.

We provided information on the distribution, population size, and conservation status for each species in the *Federal Register* notices for the proposed Authorizations, and we incorporate those descriptions by reference here. We briefly summarize this information here. NMFS' 2012 Stock Assessment Report (Carretta et al. 2013) also provides the latest abundance and life history information about the species described below.

3.2.1.1. Harbor Porpoise

The harbor porpoise inhabits shallow, coastal waters, often found in bays, estuaries, and harbors. In the western Atlantic, they are found from Cape Hatteras north to Greenland. They are likely to occur frequently in Rhode Island waters within all seasons, but are most likely to reach their highest densities in spring when migration brings them toward the Gulf of Maine feeding grounds from their wintering areas offshore and in the mid-Atlantic (Kenney and Vigness-Raposa 2009). After April, they migrate north towards the Gulf of Maine and Bay of Fundy. Kenney and Vigness-Raposa (2009) report that harbor porpoises are among the most abundant cetaceans in Rhode Island coastal waters. Harbor porpoises are the smallest North Atlantic cetacean, measuring at only 1.4 to 1.9 m, and feed primarily on fish, but also prey on squid and crustaceans (Reeves and Read 2003; Kenney and Vigness-Raposa 2009).

Sighting records from the 1978 to 1981 Cetacean and Turtle Assessment Program (CeTAP) surveys showed porpoises in spring exhibited highest densities in the southwestern Gulf of Maine in proximity to the Nantucket Shoals and western Georges Bank, with presence throughout the southern New England shelf and Gulf of Maine (CeTAP 1982). While strandings have occurred throughout the south shore of Long Island and coastal Rhode Island, many sightings have occurred offshore in the outer continental shelf (OCS) area (Kenney and Vigness-Raposa 2009). The North Atlantic harbor porpoise population is likely to be over 500,000 (Kenney and Vigness-Raposa 2009). The current population estimate for harbor porpoise in the Gulf of Maine/Bay of Fundy is 89,054 (Waring et al. 2007; Kenney and Vigness-Raposa 2009).

3.2.1.2. Atlantic White-Sided Dolphin

The Atlantic white-sided dolphin is typically found at a depth of 330 ft (100 m) in the cool temperate and subpolar waters of the North Atlantic, generally along the continental shelf between the Gulf Stream and the Labrador current to as far south as North Carolina (Bulloch 1993; Reeves et al. 2002; Jefferson et al. 2008). They are the most abundant dolphin in the Gulf of Maine and the Gulf of St. Lawrence, but seem relatively rare along the North Atlantic coast of Nova Scotia (Kenney and Vigness-Raposa 2009). This species is highly social and is commonly seen feeding with fin whales (NOAA 1993).

Atlantic white-sided dolphins range between 2.5 and 2.8 m in length, with females being approximately 20 cm shorter than males (Kenney and Vigness-Raposa 2009). This species is highly social and is commonly seen feeding with fin whales. White-sided dolphins feed on a variety of small species, such as herring, hake, smelt, capelin, cod, and squid, with regional and

seasonal changes in the species consumed (Kenney and Vigness-Raposa 2009). Sand lance is an important prey species for these dolphins in the Gulf of Maine during the spring. Other fish prey include mackerel, silver hake, herring, smelt, and several other varieties of gadoids (Kenney and Vigness-Raposa 2009). There are seasonal shifts in the distribution of Atlantic white-sided dolphins off the northeastern U.S. coast, with low abundance in winter between Georges Basin and Jeffrey's Ledge and very high abundance in the Gulf of Maine during spring. During the summer, Atlantic white-sided dolphins are most abundant between Cape Cod and the lower Bay of Fundy. During the fall, the distribution of Atlantic white-sided dolphins is similar to that in the summer, although they are less abundant (Department of the Navy [DoN] 2005). A recent population estimate for Atlantic white-sided dolphins off the U.S. east coast places this species at 63,368 individuals (Waring et al. 2010). Seasonal abundances off the northeast U.S. in spring through fall are 38,000 to 42,000 animals (CeTAP 1982; Kenney and Vigness-Raposa 2009). This species can be found in Rhode Island waters during all seasons of the year, but is usually most numerous in areas farther offshore at depth range of 330 ft (100 m) (Kenney and Vigness-Raposa 2009; Bulloch 1993; Reeves et al. 2002). There have, however, been several unconfirmed reports of this species occurring in Narragansett Bay, usually between fall and winter (Kenney and Vigness-Raposa 2009).

3.2.1.3. Short-Beaked Common Dolphin

The short-beaked dolphin is one of the most widely distributed cetaceans and occurs in temperate, tropical, and subtropical regions (Jefferson et al. 2008). Short-beaked dolphins feed on squids and small fish, including species that school in proximity to surface waters as well as mesopelagic species found near the surface at night (IUCN 2010; NatureServe 2010). They have been known to feed on fish escaping from fishermen's nets or fish that are discarded from boats (NOAA 1993). This species is found between Cape Hatteras and Georges Bank from mid-January to May, although they migrate onto Georges Bank and the Scotian Shelf between mid-summer and fall, where large aggregations occur on Georges Bank in fall (Waring et al. 2007). These dolphins typically gather in schools of hundreds of thousands, although the schools generally consist of smaller groups of 30 or fewer. They are eager bow riders and are active at the surface (Reeves et al. 2002). The short-beaked common dolphin feeds on small schooling fish and squid. While this dolphin species can occupy a variety of habitats, short-beaked common dolphins occur in greatest abundance within a broad band of the northeast edge of Georges Bank in the fall (Kenney and Vigness-Raposa 2009). According to the species stock report, the best population estimate for the western North Atlantic common dolphin is approximately 120,743 individuals (Waring et al. 2009). This species is the second most common cetacean in Rhode Island waters, and is known to occur during all four seasons (Kenney and Vigness-Raposa 2009).

Short-beaked common dolphins can be found either along the 650- to 6,500-ft (200- to 2,000-m) isobaths over the continental shelf and in pelagic waters of the Atlantic and Pacific Oceans. They are present in the western Atlantic from Newfoundland to Florida. The short-beaked

common dolphin is especially common along shelf edges and in areas with sharp bottom relief such as seamounts and escarpments (Reeves et al. 2002). They show a strong affinity for areas with warm, saline surface waters. Off the coast of the eastern United States, they are particularly abundant in continental slope waters from Georges Bank southward to about 35 degrees north (Reeves et al. 2002) and usually inhabit tropical, subtropical, and warm-temperate waters (Waring et al. 2009).

3.2.1.4. North Atlantic Right Whale

The North Atlantic right whale is a strongly migratory species that moves annually between high-latitude feeding grounds and low-latitude calving and breeding grounds. This species was listed as a federally endangered species in 1970 and is one of the most endangered large whale species in the world. The North Atlantic right whale has seen little to no recovery since it was listed as a protected species. This is a drastic difference from the stock found in the Southern Hemisphere, which has increased at a rate of 7 to 8 percent (Knowlton and Kraus 2001). The historic range of this species reached its southern terminus between Florida and northwestern Africa and its northern terminus between Labrador and Norway (Kenney 2002). The present range of the western North Atlantic right whale population extends from the southeastern United States, which is utilized for wintering and calving, to summer feeding and nursery grounds between New England and the Bay of Fundy and the Gulf of St. Lawrence (Kenney 2002; Waring et al. 2007). A right whale satellite tracking study within the northeast Atlantic (Baumgartner and Mate 2005) reported that this species often visited waters exhibiting low bottom water temperatures, high surface salinity, and high surface stratification, most likely for higher food densities. The winter distribution of North Atlantic right whales is largely unknown, although offshore surveys have reported between one and 13 detections annually in northeastern Florida and southeastern Georgia (Waring et al. 2007). A few documented events of right whale calving have been from shallow coastal areas and bays (Kenney 2002). North Atlantic right whales may be found in feeding grounds within New England waters between February and May, with peak abundance in late March (NOAA 2005). While in New England, right whales feed mostly on copepods belonging to the *Calanus* and *Pseudocalanus* genus (Waring et al. 2007). Right whales are considered grazers as they swim slowly with their mouths open. They are the slowest swimming whales and can only reach speeds up to 10 miles (16 km) per hour. They can dive at least 1,000 ft (300 m) and stay submerged for typically 10 to 15 minutes, feeding on their prey below the surface (ACSonline 2004).

The North Atlantic right whale was the first species targeted during commercial whaling operations and was the first species to be greatly depleted as a result of whaling operations (Kenney 2002). North Atlantic right whales were hunted in southern New England until the early twentieth century. Shore-based whaling in Long Island involved catches of right whales year-round, with peak catches in spring during the northbound migration from calving grounds off the southeastern United States to feeding grounds in the Gulf of Maine (Kenney and Vigness-Raposa 2009). Abundance estimates for the North Atlantic right whale population vary. From

the 2003 United States Atlantic and Gulf of Mexico Marine Mammal Stock Assessments, there were only 291 North Atlantic right whales in existence, which is less than what was reported in the North Atlantic Right Whale Recovery Plan written in 1991 (NMFS 1991a; Waring et al. 2004). This is a considerable difference from pre-exploitation numbers, which are thought to be around 1,000 individuals. When the right whale was finally protected in the 1930s, it is believed that the North Atlantic right whale population was roughly 100 individuals (Waring et al. 2004). In 2005, the Western North Atlantic population size was estimated to be at least 345 individuals (Waring et al. 2010)

Right whales have been observed in or near Rhode Island during all four seasons; however, they are most common in the spring when they are migrating and in the fall during their southbound migration (Kenney and Vigness-Raposa 2009).

3.2.1.5. Humpback Whale

The humpback whale was listed as endangered in 1970 due to population decrease resulting from overharvesting. Humpback whales feed on small prey that is often found in large concentrations, including krill and fish such as herring and sand lance (Waring et al. 2007; Kenney and Vigness-Raposa 2009). Humpback whales are thought to feed mainly while migrating and in summer feeding areas; little feeding is known to occur in their wintering grounds. Humpbacks feed over the continental shelf in the North Atlantic between New Jersey and Greenland, consuming roughly 95 percent small schooling fish and 5 percent zooplankton (i.e., krill), and they will migrate throughout their summer habitat to locate prey (Kenney and Winn 1986). They swim below the thermocline to pursue their prey, so even though the surface temperatures might be warm, they are frequently swimming in cold water (NMFS 1991b). Humpback whales from all of the North Atlantic migrate to the Caribbean in winter, where calves are born between January and March (Blaylock et al. 1995).

Humpback whales exhibit consistent fidelity to feeding areas within the northern hemisphere (Stevick et al. 2006). There are six subpopulations of humpback whales that feed in six different areas during spring, summer and fall. These populations can be found in the Gulf of Maine, the Gulf of St. Lawrence, Newfoundland/Labrador, western Greenland, Iceland, and Norway (Waring et al. 2007). The highest abundance for humpback whales is distributed primarily along a relatively narrow corridor following the 328-ft (100-m) isobath across the southern Gulf of Maine from the northwestern slope of Georges Bank, south to the Great South Channel, and northward alongside Cape Cod to Stellwagen Bank and Jeffreys Ledge. Humpback whales migrate from these feeding areas to the West Indies (including the Antilles, the Dominican Republic, the Virgin Islands and Puerto Rico) where they mate and calve their young (NMFS 1991b; Waring et al. 2007). 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).

Through photographic population estimates, humpback whales within the Gulf of Maine (the only region where these whales summer in the United States) have been estimated to consist of 600 individuals in 1979 (NMFS 1991b). According to the species stock assessment report, the best estimate of abundance for the Gulf of Maine stock of humpback whales is 847 individuals (Waring et al. 2010). Humpbacks occur off southern New England in all four seasons, with peak abundance in spring and summer.

3.2.1.6. Fin Whale

The fin whale was listed as federally endangered in 1970. Fin whales' range in the North Atlantic extends from the Gulf of Mexico, Caribbean Sea, and Mediterranean Sea in the south to Greenland, Iceland, and Norway in the north (Jonsgård 1966; Gambell 1985a). They are the most commonly sighted large whales in continental shelf waters from the Mid-Atlantic coast of the United States to Nova Scotia (Sergeant 1977; Sutcliffe and Brodie 1977; CETAP 1982; Hain et al. 1992; Waring et al. 2008). Fin whales, much like humpback whales, seem to exhibit habitat fidelity (Waring et al. 2007; Kenney and Vigness-Raposa 2009). However, fin whales habitat use has shifted in the southern Gulf of Maine, mostly likely due to changes in the abundance of sand lance and herring, both of which are major prey species along with squid, krill, and copepods (Kenney and Vigness-Raposa 2009). While fin whales typically feed in the Gulf of Maine and the waters surrounding New England, mating and calving (and general wintering) areas are largely unknown (Waring et al. 2007). Fin whale abundance off the coast of the northeastern United States is highest between spring and fall, with some individuals remaining during the winter (Hain et al. 1992). A recent estimate of fin whale abundance conducted between Georges Bank and the Gulf of St. Lawrence during the feeding season in August 2006 places the western North Atlantic fin whale populations at 2,269 individuals (Waring et al. 2007). Fin whales are the second largest living whale species on the planet (Kenney and Vigness-Raposa 2009). The gestation period for fin whales is approximately 11 months and calve births occur between late fall and winter. Females can give birth every two to three years.

Fin whales are present in the Rhode Island waters during all four seasons. In spring, summer, and fall, the main center of their distribution is in the Great South Channel area to the east of Cape Cod, which is a well-known feeding ground (Kenney and Winn 1986). Winter is the season of lowest overall abundance, but they do not depart the area entirely. Fin whales are the most common large whale encountered in continental shelf waters south of New England and into the Gulf of Maine. They are the whales most often encountered by local whale-watching operations.

3.2.1.7. Minke Whale

Minke whales are among the most widely distributed of all the baleen whales. They occur in the North Atlantic and North Pacific, from tropical to polar waters. Common minke whales range between 20 and 30 ft 6 and 9 m long (with maximum lengths of 30 to 33 ft [9 to 10 m]) and are

the smallest of the North Atlantic baleen whales (Jefferson et al. 1993; Wynne and Schwartz 1999; Kenney and Vigness-Raposa 2009). The primary prey species for minke whales are most likely sand lance, clupeids, gadoids, and mackerel (Kenney and Vigness-Raposa 2009). These whales basically feed below the surface of the water, and calves are usually not seen in adult feeding areas. Minke whales are almost absent from OCS waters off the western Atlantic in winter; however, they are common in the fall and abundant in spring and summer (CeTAP 1982; Kenney and Vigness-Raposa 2009). The most recent estimate for a subpopulation of minke whales occurring between the Gulf of Maine to the Gulf of St. Lawrence is 3,312 (Waring et al. 2010). Minke whales have been observed in Rhode Island waters during all four seasons. The relative abundance models created by Kenney and Vigness-Raposa (2009) predicted that minke whales would be common in Rhode Island coastal waters between spring and summer, but not during fall or winter. Some documented sightings occurred within the Rhode Island waters in the fall; however, they were not observed during recent surveys conducted in support of the RI Ocean Special Area Management Plan (SAMP) (Kenney and Vigness-Raposa 2009).

As is typical of the baleen whales, minke whales are usually seen either alone or in small groups, although large aggregations sometimes occur in feeding areas (Reeves et al. 2002). Minke populations are often segregated by sex, age, or reproductive condition. Known for their curiosity, minke whales often approach boats.

3.2.1.8. Harbor Seals

Harbor seals are the most abundant seals in eastern United States waters and are commonly found in all nearshore waters of the Atlantic Ocean and adjoining seas above northern Florida; however, their “normal” range is probably only south to New Jersey. While harbor seals occur year-round north of Cape Cod, they only occur during winter migration south of Cape Cod (Rhode Island to New Jersey) (Waring et al. 2007; Kenney and Vigness-Raposa 2009). During the summer, most harbor seals can be found north of New York, within the coastal waters of central and northern Maine, as well as the Bay of Fundy (DoN 2005). Harbor seals are relatively small pinnipeds, with adults ranging between 1.7 and 1.9 m in length, with females being slightly smaller than males (Jefferson et al. 1993; Wynne and Schwartz 1999; Kenney and Vigness-Raposa 2009).

Harbor seals prey upon small to medium-sized fish, followed by octopus and squid, and lastly by shrimp and crabs (Kenney and Vigness-Raposa 2009). Fish eaten by harbor seals include commercially important species such as mackerel, herring, cod, hake, smelt, shad, sardines, anchovy, capelin, salmon, rockfish, sculpins, sand lance, trout, and flounders (Kenney and Vigness-Raposa 2009). They spend about 85 percent of the day diving, and much of the diving is presumed to be active foraging in the water column or on the seabed. They dive to depths of about 30 to 500 feet (10 to 150 meters), depending on location. Harbor seals forage in a variety of marine habitats, including deep fjords, coastal lagoons and estuaries, and high-energy, rocky coastal areas. They may also forage at the mouths of freshwater rivers and streams, occasionally

traveling several hundred miles upstream (Reeves et al. 2002). They haul out on sandy and pebble beaches, intertidal rocks and ledges, and sandbars, and occasionally on ice floes in bays near calving glaciers. Harbor seals are the only marine mammal that reside in Rhode Island waters, including Block Island and Narragansett Bay. Harbor seals are common in all seasons except during the fall, and are known to be found at haul-out sites on Block Island and points along Narragansett Bay (Kenney and Vigness-Raposa 2009). The most important haul-out site is on the edge of New Harbor, approximately 1.5 mi (2.4 km) from the proposed BITS Project landfall on Block Island.

Except for a strong bond between mothers and pups, harbor seals are generally intolerant of close contact with other seals. Nonetheless, they are gregarious, especially during the molting season, which occurs between spring and autumn, depending on geographic location. They may haul out to molt at a tide bar, sandy or cobble beach, or exposed intertidal reef. During this haulout period, they spend most of their time sleeping, scratching, yawning, and scanning for potential predators such as humans, foxes, coyotes, bears, and raptors (Reeves et al. 2002). In late autumn and winter, harbor seals may be at sea continuously for several weeks or more, presumably feeding to recover body mass lost during the reproductive and molting seasons and to fatten up for the next breeding season (Reeves et al. 2002).

3.2.1.9. Gray Seal

The gray seal occurs in cold temperate to sub-arctic waters in the North Atlantic, and is partitioned into three major populations occurring in eastern Canada, northwestern Europe, and the Baltic Sea (Jefferson et al. 2008; Kenney and Vigness-Raposa 2009). The western North Atlantic stock is considered to be the same population as the one found in eastern Canada, and ranges between New England and Labrador (Waring et al. 2007). As exhibited in harbor seal populations, gray seals occur most often in the waters off of Maine during winter and spring, and spend summer and fall off northern Maine and in Canadian waters (DoN 2005). Gray seals exhibit sexual dimorphism, with adult males reaching 2.3 m long and females reaching 2.0 m (Jefferson et al. 1993; Wynne and Schwartz 1999; Kenney and Vigness-Raposa 2009). The gray seal is primarily found in coastal waters and forages in OCS regions (Lesage and Hammill 2001).

Gray seals are gregarious, gathering to breed, molt, and rest in groups of several hundred or more at island coasts and beaches or on land-fast ice and pack-ice floes. They are thought to be solitary when feeding and telemetry data indicates that some seals may forage seasonally in waters close to colonies, while others may migrate long distances from their breeding areas to feed in pelagic waters between the breeding and molting seasons (Reeves et al. 2002). Gray seals molt in late spring or early summer and may spend several weeks ashore during this time. When feeding, most seals remain within 45 miles (72 kilometers) of their haulout sites. Gray seals feed on numerous fish species and cephalopods (Kenney and Vigness-Raposa 2009). Gray seal scat samples from Muskeget Island, Massachusetts, included species such as sand lance, skates, flounder, silver hake, and gadids (Kenney and Vigness-Raposa 2009).

Gray seals form colonies on rocky island or mainland beaches, though some seals give birth in sea caves or on sea ice, especially in the Baltic Sea. Gray seals prefer haulout and breeding sites that are surrounded by rough seas and riptides where boating is hazardous. Pupping colonies have been identified at Muskegat Island (Nantucket Sound), Monomoy National Wildlife Refuge, and in eastern Maine (Rough 1995). The gray seal colony of Massachusetts has more than 5,600 seals total and there are more than 1,700 individuals in Maine (Waring et al. 2007). This species has been reported with greater frequency in Rhode Island waters in recent years, likely due to a population rebound in southern New England and the mid-Atlantic (Kenney and Vigness-Raposa 2009); however, most gray seals present are juveniles dispersing in the spring. The only consistent haul-out locations within the vicinity of Rhode Island are along the sandy shoals around Monomoy and Nantucket in Massachusetts (Kenney and Vigness-Raposa 2009). According to Kenney and Vigness-Raposa (2009), gray seal occurrence is low in the Rhode Island waters; however, as stated previously, the population for this species has been increasing.

Chapter 4 Environmental Consequences

This chapter of the EA analyzes the impacts of the two alternatives and addresses the potential direct, indirect, and cumulative impacts of our issuance of Authorizations. Deepwater's applications, our notices of proposed Authorizations, and other related environmental analyses identified previously, facilitate an analysis of the direct, indirect, and cumulative effects of our proposed issuance of Authorizations.

Under the MMPA, we have evaluated the potential impacts of Deepwater Wind's construction activities in order 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 proposed action.

4.1. Effects of Alternative 1 – Issuance of Authorizations with Mitigation Measures

Alternative 1 is the Preferred Alternative where we would issue Authorizations to Deepwater Wind allowing the incidental take, by Level B harassment, of nine species of marine mammals from late 2014 through late 2015, subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the Authorizations, if issued. We would incorporate the mitigation and monitoring measures and reporting described earlier in this EA into the final Authorizations.

4.1.1. Impacts to Marine Mammal Habitat

Our proposed action (i.e., the issuance of Authorizations for the take of marine mammals) would have no additive or incremental effect on the physical environment beyond those resulting from Deepwater Wind's proposed BIWF and BITS projects. The MMPA Authorization would not impact physical habitat features, such as substrates and/or water quality, as the Authorization only allows for the take of marine mammals by Level B harassment and includes mitigation measures to reduce impacts to marine mammals and their habitat. More information on potential impacts to marine mammal habitat resulting from the BIWF and BITS construction is contained in Deepwater Wind's applications, our proposed Authorization notices, and the environmental analyses discussed in Section 1.3.1 of this EA, which are incorporated herein by reference. Impacts to those aspects of the physical environment relevant to our proposed action (i.e., marine mammal habitat) are summarized below.

The BIWF and BITS construction involve activities that would disturb the seafloor and potentially affect benthic and finfish communities. Cofferdam installation, offshore cable installation by jet plowing, and impacts from construction vessel anchor placement and/or sweep would cause either the temporary displacement or loss of benthic and finfish resources in the immediate areas of disturbance. Installation activities would also result in temporary localized increases in turbidity. This may result in a temporary loss of forage items and a temporary reduction in the amount of benthic habitat available for foraging marine mammals in the immediate proposed project area. However, the amount of habitat affected represents a very

small percentage of the available foraging habitat in the proposed project areas. Impacts from the permanent loss/conversion of habitat from the cable installation and the WTGs will be also be negligible, and will only be associated with the presence of cable armoring along the cable route and the physical footprint of the WTG jacket foundation. As such, it is reasonable to conclude that effects to marine mammals from loss or modification of habitat will be insignificant or *de minimis*. It is likely that during the BIWF and BITS construction marine mammals may temporarily shift their foraging efforts to other areas within or around the project area due to disturbances to the seafloor and associated benthic habitat and resources.

Increased underwater sound levels from cofferdam installation, jet plowing, and use of the DP vessel thruster may temporarily result in marine mammals avoiding or abandoning the area. Effects on the movement of individual marine mammals are likely to be temporary and are not likely to affect marine mammal nourishment or result in any injury or mortality.

Because of the generally temporary nature of the disturbance, the availability of similar habitat and resources in the surrounding area, and the lack of important or unique marine mammal habitat, 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 their populations.

4.1.2. Impacts to Marine Mammals

Potential impacts of the BITS and BIWF construction activities on marine mammals mainly involve acoustic effects; however, potential effects from fuel spills, marine debris, and vessel impact will also be discussed.

4.1.2.1 Acoustic

Acoustic effects relate to noise propagation associated with the following in-water activities:

BIWF construction activities:

- Impact pile driving used to install the wind turbine generator (WTG) jacket foundations; and
- DP vessel thruster use in support of Inter-Array and Export Cable installation.

BITS construction activities:

- Vibratory pile driving used to install and remove the temporary cofferdam for the long-distance HDD landfall construction method on Scarborough State Beach; and
- DP vessel thruster use in support of BITS cable installation.

BIWF and BITS construction activities are not anticipated to result in injury, serious injury, or mortality of any marine mammal species and none is proposed to be authorized. NMFS expects that impacts to marine mammals would be in the form of behavioral harassment only. Our notices of proposed Authorization, Deepwater Wind's applications, Deepwater Wind's *Block Island*

Wind Farm and Block Island Transmission System Environmental Report/Construction and Operations Plan, and NMFS's 2014 Biological Opinion provide detailed descriptions of these potential effects of the proposed project activities on marine mammals. That information is incorporated herein by reference.

Estimated Take of Marine Mammals by Level B Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

BIFW and BITS construction activities that have the potential to harass marine mammals, as defined by the MMPA, include noise associated with vibratory pile driving of the temporary cofferdam, noise associated with impact pile driving, and noise associated with the use of DP vessel thrusters during cable installation. Harassment could take the form of masking, temporary threshold shift, avoidance, or other changes in marine mammal behavior. NMFS anticipates that impacts to marine mammals would be in the form of behavioral harassment and no take by injury, serious injury, or mortality is proposed. NMFS does not anticipate take resulting from vessel strike. We do not anticipate marine mammals to be impacted by vessel movement because a limited number of vessels would be involved in construction activities and they would mostly move at slow speeds over a relatively shallow, nearshore area throughout construction.

NMFS' current acoustic exposure criteria are shown in Table 4 below. Deepwater Wind's modeled distances to these acoustic exposure criteria are shown in Table 5. Details on the model characteristics and results are provided in the Underwater Acoustic Report at the end of Deepwater Wind's applications for the BIWF and BITS (Tetra Tech 2013a and 2013b). Deepwater Wind and NMFS believe that these estimates represents the worst-case scenario and that the actual distance to the Level B harassment threshold may be shorter.

Table 4. NMFS' current acoustic exposure criteria.

Non-Explosive Sound		
Criterion	Criterion Definition	Threshold
Level A Harassment (Injury)	Permanent Threshold Shift (PTS) (Any level above that which is known to cause TTS)	180 dB re 1 microPa-m (cetaceans) / 190 dB re 1 microPa-m (pinnipeds) root mean square (rms)
Level B Harassment	Behavioral Disruption (for impulse noises)	160 dB re 1 microPa-m (rms)
Level B Harassment	Behavioral Disruption (for continuous, noise)	120 dB re 1 microPa-m (rms)

Table 5. Deepwater Wind’s modeled distances to acoustic exposure criteria.

Activity		
BITS	Distance to Level B Harassment (120 dB)	Distance to Level A Harassment (180/190 dB)
Vibratory pile driving (for long-distance HDD)	>40 km	N/A*
DP vessel thruster use	4,750 m	N/A*
BIWF	Distance to Level B Harassment (160 or 120 dB)	Distance to Level A Harassment (180/190 dB)
Impact pile driving (hammer energy = 600 kJ)	7,000 m	600 m
Impact pile driving (hammer energy = 200 kJ)	3,600 m	200 m
DP vessel thruster use	4,750 m	<5 m

*Sound levels from vibratory pile driving or use of the DP vessel thruster would not reach the Level A harassment threshold of 180/190 dB (cetaceans/pinnipeds) during the proposed BITS project.

Deepwater Wind estimated species densities within the BIWF and BITS project areas in order to estimate the number of marine mammal exposures to sound levels above 120 dB (continuous noise) or 160 dB (impulsive noise). Deepwater Wind used sightings per unit effort (SPUE) from Kenney and Vigness-Raposa (2009) for relative cetacean abundance and the Northeast Navy OPAREA Density Estimates (DoN 2007) for seal abundance. Based on multiple reports, harbor seal abundance off the coast of Rhode Island is thought to be about 20 percent of the total abundance for southern New England. Because the seasonality and habitat use of gray seals off the coast of Rhode Island roughly overlaps with harbor seals, Deepwater Wind applied this 20 percent estimate to both pinniped species. The density estimates relied upon for the proposed Authorizations are from 2007 and 2009 and represent the best scientific data available. NMFS is not aware of any efforts to collect more recent density estimates than those relied upon here.

Estimated Takes for BITS:

Estimated takes were calculated by multiplying the average highest species density (per 100 km²) by the zone of influence (maximum ensonified area of 120 dB), multiplied by a correction factor of 1.5 to account for marine mammals underwater, multiplied by the number of days of the specified activity. A detailed description of Deepwater Wind’s model used to calculate zones of influence is provided in the Underwater Acoustic Report at the end of their Incidental Harassment Authorization application (Tetra Tech 2013a). Methods used to calculate estimated takes for the BITS project are fully described in our notice of proposed Authorization.

Deepwater’s requested take numbers are provided in Table 6 and this is also the number of takes NMFS is proposing to authorize (Table 7). Deepwater Wind’s calculations do not take into

account whether a single animal is harassed multiple times or whether each exposure is a different animal. Therefore, the numbers in Table 7 are the maximum number of animals that may be harassed during vibratory pile driving and cable installation (i.e., Deepwater Wind assumes that each exposure event is a different animal). These estimates do not account for mitigation measures that Deepwater Wind would implement during vibratory pile driving and cable installation.

Table 6. Deepwater Wind’s estimated take for the BITS project.

Common Species Name	Estimated Winter Density (per 100 km ²)	Estimated Spring Density (per 100 km ²)	Estimated Take by Level B Harassment	Maximum Seasonal Density (per 100 km ²)	Estimated Take by Level B Harassment	Total Estimated Take
	Vibratory Pile Driving			DP Vessel Thruster		
Atlantic white-sided dolphin	2.12	1.23	438	2.12	18	456
Short-beaked common dolphin	2.04	2.59	604	2.59	38	644
Harbor porpoise	0.00	0.74	97	0.74	11	108
Minke whale	0.19	0.12	40	0.19	3	43
Fin whale	0.30	0.62	121	2.15	32	153
Humpback whale	0.00	0.11	15	0.11	2	17
North Atlantic right whale	0.00	0.06	7	0.06	1	8
Gray seal	14.16	14.16	739	14.16	41	780
Harbor seal	9.74	9.74	509	9.74	29	538

Table 7. Species information and take authorized by NMFS.

Common Species Name	Authorized Take	Abundance of Stock	Percentage of Stock Potentially Affected	Population Trend
Atlantic white-sided dolphin	456	23,390	1.95%	N/A
Short-beaked common dolphin	644	120,743	0.53%	N/A
Harbor porpoise	108	89,054	0.12%	N/A
Minke whale	43	8,987	0.48%	N/A
Fin whale	153	3,985	3.84%	N/A
Humpback whale	17	11,570	0.15%	Increasing
North Atlantic right whale	8	444	1.80%	Increasing
Gray seal	780	348,900	0.22%	Increasing
Harbor seal	538	99,340	0.54%	N/A

Estimated Takes for BIWF:

Estimated takes were calculated by multiplying the average highest species density (per 100 km²) by the zone of influence, multiplied by a correction factor of 1.5 to account for marine mammals underwater, multiplied by the number of days of the specified activity. A detailed description of the Deepwater Wind’s model used to calculate zones of influence is provided in the Underwater Acoustic Report at the end of their application (Tetra Tech 2013b). Methods used to calculate estimated takes for the BIWF project are fully described in our notice of proposed Authorization.

Deepwater Wind’s requested take numbers are provided in Table 8 and this is also the number of takes NMFS is proposing to authorize (Table 9). Deepwater Wind’s calculations do not take into account whether a single animal is harassed multiple times or whether each exposure is a different animal. Therefore, the numbers in Table 9 are the maximum number of animals that may be harassed during impact pile driving (i.e., Deepwater Wind assumes that each exposure event is a different animal). These estimates do not account for mitigation measures that Deepwater Wind would implement during the specified activities.

Table 8. Deepwater Wind's estimated take for the BIWF project.

Common Species Name	Maximum Seasonal Density (per 100 km ²)	Estimated Take by Level B Harassment	Maximum Seasonal Density (per 100 km ²)	Estimated Take by Level B Harassment	Total Estimated Take
	Impact Pile Driving		DP Vessel Thruster		
Atlantic white-sided dolphin	7.46	201	1.23	13	214
Short-beaked common dolphin	8.21	221	2.59	28	249
Harbor porpoise	0.47	13	0.74	8	21
Minke whale	0.44	12	0.14	2	14
Fin whale	1.92	52	2.15	23	75
Humpback whale	0.11	3	0.11	2	5
North Atlantic right whale	0.04	2	0.06	1	3
Gray seal	14.16	77	14.16	30	107
Harbor seal	9.74	53	9.74	21	74

Table 9. Species information and take authorized by NMFS.

Common Species Name	Authorized Take	Abundance of Stock	Percentage of Stock Potentially Affected	Population Trend
Atlantic white-sided dolphin	214	23,390	0.91%	N/A
Short-beaked common dolphin	249	120,743	0.21%	N/A
Harbor porpoise	21	89,054	0.02%	N/A
Minke whale	14	8,987	0.16%	N/A

Fin whale	75	3,985	1.88%	N/A
Humpback whale	5	11,570	0.04%	Increasing
North Atlantic right whale	3	444	0.67%	Increasing
Gray seal	107	348,900	0.03%	Increasing
Harbor seal	74	99,340	0.07%	N/A

DWBIT did not request, and NMFS is not proposing, take of marine mammals by injury, serious injury, or mortality. NMFS expects that take would be in the form of behavioral harassment. During BITS construction, exposure to sound levels above 120 dB during vibratory pile driving would not last for more than 12 hours per day for 4 non-consecutive days. During BIWF construction, exposure to sound levels above 160 dB during impact pile driving would not last for more than 12 hours per day for 20 non-consecutive days. Exposure to sound levels above 120 dB during use of the DP vessel thruster may last for 24 hours per day for 42 days during BITS construction and 28 days during BIWF construction. While use of the DP thruster may last for consecutive days, the vessel would be moving and therefore not focused on one specific area for the entire duration. Given the duration and intensity of the activity, and the fact that shipping contributes to the ambient sound levels around Rhode Island, NMFS does not anticipate the take estimates to impact annual rates of recruitment or survival. Animals may temporarily avoid the immediate area, but are not expected to permanently abandon the area. Marine mammal habitat may be impacted by elevated sound levels and sediment disturbance, but these impacts would be temporary. Furthermore, there are no feeding areas, rookeries, or mating grounds known to be biologically important to marine mammals within the proposed project area. There is also no designated critical habitat for any ESA-listed marine mammals.

The mitigation measures described in Section 2.3.1 are expected to reduce the number and/or severity of takes and prevent exposure of marine mammals to PTS thresholds or other injury (Level A harassment) through the monitoring of marine mammal exclusion zones, soft-start and delay/shutdown procedures, DP thruster power reduction, and time of day and weather restrictions. Mandatory vessel speed restrictions and adherence to NMFS ship strike avoidance guidelines will reduce the risk of vessel collisions with marine mammals. Finally, monitoring and reporting measure will provide data needed to assess the anticipated impact of the proposed activities upon marine mammal species or stocks, and increase our knowledge of the species.

4.1.2.2. Fuel Spills and Marine Debris

Marine debris can physically harm marine mammals and other marine species through ingestion or entanglement. Accidental fuel spills and releases can also harm these species if ingested or inhaled.

Fuel or chemical spills, were they to occur, will be relatively small. If a fuel spill occurs, marine mammals will likely move away from the most concentrated areas, and the presence of the vessels involved in spill control and cleanup will discourage the presence of marine mammals. Deepwater Wind will maintain individual Spill Prevention, Control and Countermeasure (SPCC) Plans during construction. In addition, each member of the construction crew will be responsible for ensuring that debris is not discharged into the marine environment.

Deepwater Wind did not request, and NMFS is not anticipating or authorizing, take from fuel spills and/or marine debris during construction of the BIWF and BITS.

4.1.2.3. Vessel Strike

Vessels and in-water structures have the potential to cause physical disturbance to marine mammals. Various types of vessels already use the water surrounding Rhode Island and Block Island in particular. Vessel collisions are more of a threat to baleen whales than any other marine species (Wiley et al. 1995). Research indicates that most vessel collisions with whales resulting in serious injury or death occur when a ship is traveling over speeds of 14 knots (Laist et al. 2001).

In 2008, NMFS published a final rule in the *Federal Register* instituting the Mid-Atlantic Seasonal Management Area (SMA), with a mandatory speed restriction to reduce the threat of ship collisions with right whales (73 FR 60173, October 10, 2008). The SMA was established to provide additional protection for right whales and the timing, duration, and geographic extent of the speed restrictions were specifically designed to reflect right whale movement, distribution, and aggregation patterns. Mandatory 10-knot vessel speed restrictions are currently in place for vessels 65 feet or longer in that SMA from November 1 through April 30 to reduce the threat of collisions between ships and right whales around their migratory route and calving grounds.

Right whales have been observed in or near Rhode Island during all four seasons; however, they are most common in the spring when they are migrating and in the fall during their southbound migration (Kenney and Vigness-Raposa 2009). The BITS project area is located outside of the Mid-Atlantic SMA, while portions of the BIWF project area fall within the SMA. To minimize the potential for vessel collision with right whales and other marine mammal species all Deepwater Wind vessels associated with the BITS and BIWF construction, regardless of their length, will operate at speeds of 10 knots or less from the November 1 to April 30 time period, regardless of whether they are inside or outside of the designated SMA. In addition, all Deepwater Wind vessels will adhere to NMFS guidelines for marine mammal ship strike avoidance (http://www.nmfs.noaa.gov/pr/pdfs/education/viewing_northeast.pdf), including maintaining a distance of at least 1,500 feet from right whales, at least 100 feet from all other whales, and having dedicated protected species observers who will communicate with the captain to ensure that all measures to avoid whales are taken. All marine mammal activity in the BITS and BIWF project areas will be monitored to ensure that the chances for possible collisions

are minimized. Environmental training of construction personnel will stress individual responsibility for marine mammal awareness and reporting. All personnel onboard construction vessels will receive training, a component of which will be training on marine mammal sighting and reporting. Sightings will be reported to the environmental inspector for a determination of the appropriate response.

NMFS believes that the size of right whales, their slow movements, and the amount of time they spend at the surface will make them extremely likely to be spotted by protected species observers during construction activities within the BITS and BIWF project areas. NMFS does not anticipate any marine mammals to be impacted by vessel movement because only a limited number of vessels will be involved in construction activities and they will mostly move at slow speeds (generally less than 5 knots) and follow a predictable course throughout construction. Marine mammals would be able to easily avoid these vessels and are likely already habituated to the presence of numerous vessels. Their habit of avoiding areas with increased vessel traffic due to increased ambient noise further reduces the likelihood of collision.

Deepwater Wind did not request, and NMFS is not anticipating or authorizing, take from vessel strike during construction of the BIWF and BITS. We do not anticipate marine mammals to be impacted by vessel movement because a limited number of vessels would be involved in construction activities and they would move at slow speeds throughout construction.

4.2. Effects of Alternative 2 – No Action Alternative

Under the No Action Alternative, we would not issue Authorizations to Deepwater Wind for the BIWF and BITS construction. As a result, Deepwater Wind would not receive an exemption from the MMPA prohibitions against the take of marine mammals and would be in violation of the MMPA if take of marine mammals occurs.

The impacts to elements of the human environment resulting from the No Action Alternative—constructing the BIWF and BITS in the absence of required protective measures for marine mammals under the MMPA—would be greater than those impacts resulting from Alternative 1, the Preferred Alternative.

4.2.1. Impacts to Marine Mammal Habitat

Under the No Action Alternative, the action would have no additive or incremental effects on the physical environment beyond those resulting from Deepwater Wind's construction activities, which we evaluated in the referenced documents. This Alternative would result in similar effects on the physical environment as Alternative 1.

4.2.2. Impacts to Marine Mammals

4.2.2.1. Acoustic

Under the No Action Alternative, Deepwater’s construction activities would likely result in increased amounts of Level B harassment to marine mammals and possibly takes by injury (Level A harassment), serious injury, or mortality—specifically related to acoustic stimuli—due to the absence of mitigation and monitoring measures required under the Authorizations. While it is difficult to provide an exact number of takes that might occur under the No Action Alternative, the numbers would be expected to be larger than those presented in Tables 6 and 8 above because Deepwater Wind would not be required to abide by the protective measures and reporting requirements included for the Preferred Alternative.

If the activities proceeded without the protective measures and reporting requirements required by final Authorizations under the MMPA, the direct, indirect, and cumulative effects on the human or natural environment of not issuing the Authorization would include the following:

- Marine mammals within the project areas could experience injury (Level A harassment) and potentially serious injury or mortality. The lack of mitigation measures required in the Authorizations could lead to exposure of marine mammals to PTS thresholds because marine mammal exclusion zones would not be monitored;
- Increases in the number of behavioral responses and frequency of changes in animal distribution because of the lack of mitigation measures required in the Authorizations. Thus, the incidental take of marine mammals would likely occur at higher levels than we have already identified and evaluated in our *Federal Register* notices on the proposed Authorizations; and
- We would not be able to obtain the monitoring and reporting data needed to assess the anticipated impact of the activities upon the species or stock; and increased knowledge of the species as required under the MMPA.

4.1.2.2. Fuel Spills and Marine Debris

With the No Action Alternative, impacts to marine mammals in the BIWF and BITS project areas would be expected to be similar to those for Alternative 1 (Preferred Alternative).

4.1.2.3. Vessel Strike

With the No Action Alternative, impacts to marine mammals in the BIWF and BITS project areas would be expected to be similar to those for the Alternative 1 (Preferred Alternative).

Even in the absence of mitigation and monitoring measures required by the Authorizations, Deepwater Wind would still adhere to the mandatory vessel speed restrictions and marine

mammal ship strike avoidance guidelines for right whales and other whales outlined in NMFS's Biological Opinion.

4.3. Compliance with Necessary Laws – Necessary Federal Permits

We have determined that the issuances of Authorizations are consistent with the applicable requirements of the MMPA, MSFMCA, ESA, and our regulations. Please refer to Section 1.4 of this EA for more information.

4.4. Unavoidable Adverse Impacts

Deepwater Wind's applications, our notices of proposed Authorizations, and other environmental analyses identified previously summarize unavoidable adverse impacts to marine mammals or the populations to which they belong or on their habitats occurring in the proposed project areas. We incorporate those documents by reference.

We acknowledge that the incidental takes authorized would potentially result in unavoidable adverse impacts. However, we do not expect Deepwater Wind's BIWF and BITS construction activities to have adverse consequences on the viability of marine mammals in the Atlantic Ocean or in Rhode Island Sound, and we do not expect the marine mammal populations in those areas to experience reductions in reproduction, numbers, or distribution that might appreciably reduce their likelihood of surviving and recovering in the wild. We expect that the numbers of individuals of all species taken by harassment would be small (relative to species or stock abundance), that the proposed BIWF and BITS construction and the take resulting from the proposed construction activities would have a negligible impact on the affected species or stocks of marine mammals.

The MMPA requirement of ensuring the proposed action has no unmitigable adverse impact to subsistence uses does not apply here because there are no permitted subsistence uses of marine mammals in the region.

4.5. 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.

Past, present, and foreseeable impacts to marine mammal populations include the following: commercial whaling; climate change affecting the prey base and habitat quality as a result of global warming; ship strikes; fishing gear entanglement; exposure to biotoxins and the resulting bioburden; acoustic masking from anthropogenic noise; competition with commercial fisheries; and killer whale predation. These activities account for cumulative impacts to regional and worldwide populations of marine mammals, many of whom 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, available trend information indicates that most local populations of marine mammals in the Atlantic Ocean are stable or increasing (Carretta et al. 2013).

The proposed BIWF and BITS construction projects would add another, albeit temporary, activity in the northwest Atlantic Ocean in nearshore and offshore areas off the coast of Rhode Island and Block Island. These activities would be limited to a small area in Rhode Island Sound for a relatively short period of time. This section provides a brief summary of the human-related activities potentially affecting the marine mammal species in the action area. Additional information on cumulative effects can be found in the Bureau of Ocean Energy Management's (BOEM) Programmatic EIS (BOEM 2008), Deepwater Wind's Environmental Report (Tetra Tech 2012), and NMFS' Biological Opinion (NMFS 2014), which are incorporated by reference. The cumulative impact analyses from those documents concluded that the BIWF and BITS projects are not expected to add significantly to the impacts from past, present, and reasonably foreseeable future activities for marine mammals.

NMFS does not expect that the BIWF and BITS project activities would have any adverse cumulative effect on any marine mammals species. Impacts are expected to be temporary in nature, negligible, and would not result in substantial impacts to marine mammals or to their role in the ecosystem.

4.5.1. Alternative Energy Development

Portions of the proposed BIWF and BITS project are located within the Rhode Island Renewable Energy Zone, which was designated as a suitable site within Rhode Island state waters for offshore renewable energy development. There are currently no other renewable energy projects or other offshore development projects existing or proposed within the Rhode Island Renewable Energy Zone. Based on communication with local officials, Deepwater Wind is not aware of other reasonably foreseeable energy-related infrastructure projects in the action area of the onshore facilities associated with the BIWF and BITS projects.

4.5.2. Climate Change

BOEM's (2008) Programmatic EIS details the potential cumulative effects of climate change on marine mammals in the OCS study area. NMFS' 2014 Biological Opinion includes a discussion of cumulative effects of predicted climate change on federally-listed marine mammals in the BIWF and BITS project areas. We incorporate these documents and their climate change analyses by reference.

While debated, climate change researchers generally anticipate: 1) the frequency and intensity of droughts and floods will change across the nation; 2) a warming of about 0.2°C (0.4°F) per

decade; and 3) a rise in sea level (NAST 2000). A warmer and drier climate will reduce stream flows and increase water temperature resulting in a decrease of dissolved oxygen and an increase in the concentration of nutrients and toxic chemicals due to reduced flushing. Sea level is expected to continue rising; during the 20th century global sea level increased 15 to 20 cm (6-8 inches).

NMFS recognizes that climate change and warming of the region could affect the prey base and habitat quality for marine mammals in the action area. Nonetheless, NMFS does not anticipate that the issuances of Authorizations to Deepwater Wind nor Deepwater Wind's construction activities would result in any noticeable contributions to climate change. Moreover, given the slow rate of climate change, there will be no additive or synergistic effects in the near term from climate change on the marine mammals listed in the Authorizations resulting from the authorization of take during the construction phase of the BIWF and BITS projects for marine mammals.

4.5.3. Ocean Pollution

Human activities in the project areas causing pollution are reasonably certain to continue in the future, as are impacts from them on marine mammal. However, the level of impacts cannot be projected. Sources of contamination in the project areas include atmospheric loading of pollutants, stormwater runoff from coastal development, groundwater discharges, and industrial development. Chemical contamination may have an effect on marine mammal species reproduction and survival. Marine mammals sometimes mistake plastics and other marine debris as food and ingest the garbage, which can ultimately lead to mortality because of malnutrition, choking, or other problems. This EA assumes ocean pollution effects in the future would be similar to those in the past. Furthermore, there will be no additive or synergistic effects from ocean pollution on the marine mammals listed in the Authorizations resulting from the authorization of take.

4.5.4. Commercial and Recreational Fishing

Commercial and recreational fishing constitute a significant use of the ocean off the coast of Rhode Island and Block Island. Commercial fishing, including ground fish, pelagic, and invertebrate fisheries, is an economically important activity within Rhode Island Sound. Accounting for dollar value, catch is dominated by lobster and squid, followed by shellfish (quahog and scallop) and other fish such as monkfish, summer flounder, and scup (NMFS 2010). The fish species taken commercially are managed by the New England Fishery Management Council, Mid-Atlantic Fishery Management Council, the Atlantic States Marine Fisheries Commission, and NMFS through a number of fisheries management plans.

Rhode Island's major premier commercial fishing port is located at Point Judith in the town of Narragansett. The Point Judith commercial pier is owned and managed by the state (RI Department of Environmental Management), primarily for commercial fishing as noted above.

In 2010, Point Judith ranked as the 4th largest port in New England and 26th largest U.S. port in dollar value of landings. For perspective, in 2005 Point Judith was ranked the 15th largest port in the U.S. for value of landings and 22nd for landings weight (NMFS 2010).

The majority of the BIWF and BITS project areas support commercial fishing activities, including both fixed and mobile gear. Fishing effort is variable both seasonally and yearly, depending on individual fisherman preferences, vessel type, species, regulatory environment, and market demand. Fishing effort also varies in location and intensity throughout the year because fishermen follow their target species on their seasonal migrations.

Marine recreational fishing, including both recreational anglers and recreational fishing aboard private boats and party and charter boats, is a major recreational activity for Rhode Islanders, as well as a major tourist attraction that brings in visitors from out-of-state, and in turn has a significant economic impact. As reported in the RI Ocean SAMP (2011), according to the NOAA Fisheries Marine Recreational Fisheries Statistics Survey program, during 1999 through 2008, an average of nearly 385,000 people participated in recreational ocean fishing in Rhode Island each year, making over 785,000 fishing trips annually. These figures include both Rhode Island residents and out-of-state fishermen. While the economic value to Rhode Island associated with recreational fishing peripheral activities (charter fees, gas, bait, provisions, lodging) is difficult to quantify, licensing fees alone generated \$249,746 with the issuance of 38,224 licenses in 2011 under the Rhode Island Saltwater Recreational Fishing License Program enacted in April 2010 (RIDEM 2011).

The most commonly targeted recreational species include Atlantic bonito, Atlantic cod, black sea bass, bluefish, scup, striped bass, summer flounder, winter flounder, tautog, and yellowfin tuna (NMFS 2009). Input provided by fishermen to the RI Ocean SAMP mapping effort indicates that all state waters surrounding Block Island, including the BIWF and BITS project areas, are fished recreationally for these species.

Commercial and recreational fishing activities could result in by-catch of marine mammals, entanglement in fishing gear, and reduce prey availability for marine mammals. This EA assumes that effects from fishing activities in the future would be similar to those in the past. Furthermore, there will be no additive or synergistic effects from commercial and recreational fishing activities on the marine mammals listed in the Authorizations resulting from the authorization of take.

4.5.5. Geophysical Surveys

Cape Wind Energy Project

In April 2014, NMFS issued an Authorization to Cape Wind Associates (CWA) to take marine mammals, by harassment, incidental to pre-construction high resolution survey activities in Nantucket Sound. CWA will conduct the high resolution geophysical survey in order to acquire

remote-sensing data around Horseshoe Shoal which will be used to characterize resources at or below the seafloor. The purpose of the survey is to identify any submerged cultural resources that may be present and to generate additional data describing the geological environment within the survey area. The survey will satisfy the mitigation and monitoring requirements for “cultural resources and geology” in the environmental stipulations of BOEM’s lease. The survey is part of the first phase of the larger Cape Wind Energy Project, which involves the installation of 130 wind turbine generators on Horseshoe Shoal over a 2-year period. The survey will collect data along predetermined track lines using a towed array of instrumentation, which will include a side scan sonar, magnetometer, shallow-penetration subbottom profiler, multibeam depth sounder, and medium-penetration subbottom profiler. Survey activities will not result in any disturbance to the sea floor. In the EA prepared by NMFS for the issuance of the Authorization to CWA, NMFS concluded that the geophysical survey would result in at worst a temporary modification of behavior (Level B harassment) of some individuals of five species of marine mammals, and the potential for temporary or permanent hearing impairment would be avoided through the incorporation of the mitigation and monitoring measures described in the EA. NMFS further concluded that issuance of the Authorization to CWA would not be expected to result in a cumulative significant impact to the human environment from past, present, and future activities.

BOEM prepared the Final EIS for the Cape Wind Energy Project (BOEM 2009). In summary, BOEM’s analysis concluded that the specific mitigation, monitoring, and reporting measures built into the long-term Cape Wind Energy Project, as part of BOEM or other federal or state-required conservation measures (e.g., lease requirements), are expected to effectively minimize the chance for vessel strikes, as well as reduce the potential for acoustic and other types of harassment during construction and operation of the proposed facility. BOEM concluded that the long-term Cape Wind energy project is not expected to add significantly to the impacts from past, present, and reasonably foreseeable future activities for marine mammals.

NMFS does not anticipate any additive or synergistic effects from CWA’s or other Cape Wind Energy Project-related activities on the marine mammals listed in the Authorizations resulting from the authorization of take.

Seismic Surveys

NMFS has issued Incidental Take Authorizations for seismic surveys throughout the Atlantic Ocean, but the surveys are dispersed both geographically and temporally, are short-term in nature, and all of the authorization holders would be required to use mitigation and monitoring measures to minimize impacts to marine mammals and other living marine resources in the activity area. In 2009, NMFS issued a 1-year Authorization to Rice University for the Level B harassment of small numbers of marine mammals, incidental to a low-energy marine seismic survey in the waters around Martha’s Vineyard. The limited duration, sound propagation, and authorized take of that survey was not expected to result in any long-term impacts to marine mammals. There are no seismic surveys currently scheduled in the nearshore or offshore waters

of Rhode Island and Block Island or elsewhere off the coast of southern New England, and therefore, NMFS is unaware of any synergistic impacts to marine resources associated with reasonably foreseeable future actions that may be planned or occur within the same region of influence.

4.5.6. Marine Transportation

There are two main shipping lanes within Rhode Island Sound, the charted approach to Narragansett Bay and the charted approach to Buzzards Bay. To prevent collisions, commercial ship traffic passing through the approaches to Narragansett Bay and Buzzards Bay is directed by Traffic Separation Schemes, consisting of shipping lanes, separation zones, and precautionary areas. Smaller commercial and recreation vessels that are not entering or departing Buzzards Bay and Narragansett Bay can be found throughout Block Island and Rhode Island Sounds. The BIWF and BITS project areas are routinely navigated by a variety of commercial and recreational vessels, with recreational vessels, such as sailing and power-driving craft, being more prevalent seasonally during the spring to fall. These waters are among the busiest waterways in New England as they provide access to Narragansett Bay, Long Island Sound, and Buzzards Bay.

Multiple passenger ferries operate within Block Island and Rhode Island Sounds. Ferry service is provided year-round to Block Island's Old Harbor located along the eastern side of the island. The three major ferry operators are Block Island Ferry Services, Viking Fast Ferries, and Interstate Navigation Ferry Services. These operators provide year-round service from Point Judith, Rhode Island, and seasonal service from Newport, Rhode Island; New London, Connecticut; and Montauk, New York. The ferries follow pre-determined routes and may make up to 130 trips per week combined during peak season (CGH 2012).

Cruise ships and local sightseeing vessels, such as those owned and operated by Royal Caribbean International and Cunard Lines, frequently travel through Rhode Island Sound en route to Newport or to tour the local area. Commercial vessels also travel through the Rhode Island Sound to reach the Port of Providence, which sees significant ship calls from tankers, and Fall River, Massachusetts, which see significant ship calls from dry cargo vessels.

Private and commercial vessels, including fishing vessels, operating in the BIWF and BITS project areas have the potential to interact with marine mammals. The effects of fishing vessels, recreational vessels, or other types of commercial vessels on marine mammal species may involve disturbance or injury/mortality due to collisions, entanglement in anchor lines, and underwater sound mainly related to propeller cavitation. It is important to note that minor vessel collisions may not kill an animal directly, but may weaken or otherwise affect it so it is more likely to become vulnerable to effects such as entanglement. Marine mammals may also be affected by fuel oil spills resulting from vessel accidents. Fuel oil spills could affect animals through the food chain. However, these spills typically involve small amounts of material that are unlikely to adversely affect listed species. Larger oil spills may result from severe accidents,

although these events would be rare and involve small areas. No direct adverse effects on marine mammals resulting from fishing vessel fuel spills have been documented.

This EA assumes that effects from marine transportation activities in the future would be similar to those in the past. Furthermore, there will be no additive or synergistic effects from marine transportation activities on the marine mammals listed in the Authorizations resulting from the authorization of take.

4.5.7. Conclusion

Based on the summation of activity in the area provided in this section, NMFS determined that the incremental impact of Authorizations for Deepwater Wind's BIWF and BITS projects in Rhode Island Sound would not be expected to result in a cumulative significant impact to the human environment from past, present, and future activities. 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 and mitigation and monitoring requirements of the Authorizations.

Chapter 5 List of Preparers and Agencies Consulted

Agencies Consulted

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