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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XD163

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Construction of the Block Island Wind Farm

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with regulations implementing the Marine Mammal Protection Act (MMPA), notification is hereby given that NMFS has issued an Incidental Harassment Authorization (IHA) to Deepwater Wind Block Island, LLC (DWBI) to take marine mammals, by harassment, incidental to construction of the Block Island Wind Farm.

DATES: Effective October 31, 2014, through October 30, 2015.

A copy of the IHA and application are available by writing to Jolie Harrison, Supervisor, Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910.

An electronic copy of the application and a list of references used in this document may be obtained by visiting the internet at: http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications. NMFS prepared an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) in August 2014, which are available at the same internet address. Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: John Fiorentino, Office of Protected Resources, NMFS, (301) 427-8477.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

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].

Summary of Request

On March 11, 2013, NMFS received an application from DWBI for the taking of marine mammals incidental to construction of the Block Island Wind Farm. The application went through a series of revisions and the final version was submitted on October 17, 2013. NMFS determined that the application was adequate and complete on December 2, 2013.

DWBI plans to develop the Block Island Wind Farm (BIWF), a 30-megawatt offshore wind farm. The planned activity could begin in late 2014 and last through late 2015; however, portions of the project will only occur for short, sporadic periods of time over the 1-year period. The following specific aspects of the planned activities are likely to result in the take of marine mammals: impact pile driving and the use of dynamically positioned (DP) vessel thrusters. Take, by Level B Harassment only, of individuals of nine species is anticipated to result from the specified activity.

Description of the Specified Activity

Overview

The BIWF will consist of five, 6-megawatt wind turbine generators (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 horizontal directional drill (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 will 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.

In connection with the BIWF, Deepwater Wind Block Island Transmission System, LLC (a different applicant) plans to construct the Block Island Transmission System, a bi-directional submarine transmission cable that will run from Block Island to the Rhode Island mainland. Incidental take of marine mammals resulting from construction of the Block Island Transmission System will be assessed separately.

Dates and Duration

Construction activities could begin in late 2014 and are scheduled to be complete by December 2015. The anticipated project work windows are provided in Table 1.

Table 1. 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 proposed 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 will occur during daylight hours only, starting approximately 30 minutes after dawn and ending 30 minutes prior to dusk, unless a situation arises where stopping pile driving will compromise safety (either human health or environmental) and/or the integrity of the project. Cable installation (and subsequent use of the DP vessel thruster) will be conducted 24 hours per day.

Specified Geographic Region

The offshore components of the BIWF will be located in state territorial waters. 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 (Figure 1.2-1 of DWBI's application). Water depths along the WTG array and inter-array cable range up to 23.3 meters (m).

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.

Detailed Description of Activities

The following sections provide additional details associated with each portion of the BIWF construction.

1. Landfall Construction

On Block Island, DWBI plans to bring the export cable ashore via a short-distance HDD. DWBI will use the short-distance HDD to install either a steel or high density polyethylene conduit for the cable under the beach. The excavated trench on Crescent Beach will be approximately 2 to 3 m wide, 4 m deep, and 11 m long. Spoils from the trench excavation will be stored on the respective beach and returned to the trench after cable installation. The HDD will enter through the shore side of the excavated trench and the cable conduit will be installed between the trench and the manhole. The export cable will then be pulled from the excavated trench into the respective manhole through the newly installed conduit. Sheet piling installations will occur at low tide.

The coupling of land-based vibrations and nearshore sounds into the underwater acoustic field is not well understood and cannot be accurately predicted using current models. However, because the excavation for the cable trench and the HDD installation on the beach will occur onshore and because sand is generally a very poor conductor of vibrations, NMFS considers it unlikely that the underwater noise generated from either of these installations will result in harassment of marine mammals.

A jet plow, supported by a DP cable installation barge, will be used to install the export cable below the seabed. The jet plow will be positioned over the trench at the mean low water mark on Crescent Beach and be pulled from shore by the cable installation barge.

2. Jacket Foundation Installation

Offshore installation of the WTG jacket foundations will be carried out from a derrick barge moored to the seabed. Each jacket foundation will be lifted from the derrick barge, placed onto the seafloor, leveled, and made ready for piling. The piles will then be inserted above sea

level into each corner of the jacket foundation in two segments. First, the lead sections of the piles will be inserted into the jacket foundation legs and then driven into the seafloor. Then, the second length of the piles will be placed on the lead pile section and welded into place. The jacket foundation piles will then be driven into the seafloor to the final penetration design depth or until refusal, whichever comes first. DWBI anticipates a final pile depth of up to 76.2 m. For the purpose of analysis, DWBI assumes that impact pile driving will start with a 200 kilojoule (kJ) rated hydraulic hammer, followed by a 600 kJ rated hammer to reach final design penetration. A 1,000-kilowatt unit will power the hammers. Changing out the hammers from 200 to 600 kJ will be required once the driving forces become ineffective, and will take about 30 to 60 minutes to complete, during which time impact pile driving will cease. Once pile driving is complete, the top of the piles will be welded to the jacket foundation legs using shear plates and cut to allow for horizontal placement of the WTG transition deck. Finally, the boat landing and transition decks will be welded into place.

Pile driving activities will occur during daylight hours only, unless a situation arises where stopping pile driving will compromise safety (either human health or environmental) and/or the integrity of the project. Installation of each jacket foundation will require 7 days to complete; the duration of pile driving within this timeframe is anticipated to be 4 days for each jacket foundation. The jacket foundations will be installed one at a time at each WTG location for a total of 5 weeks assuming no delays due to weather or other circumstances.

3. Offshore Cable Installation

DWBI will use a jet plow, supported by a DP cable installation barge, to install the export cable and inter-array cable below the seabed. The jet plow will be positioned over the trench and pulled from shore by the cable installation vessel. The jet plow will likely be a rubber-tired or

skid-mounted plow with a maximum width of about 4.6 m, and pulled along the seafloor behind the cable-laying barge with assistance of a non-DP material barge. High-pressure water from vessel-mounted pumps will be injected into the sediments through nozzles situated along the plow, causing the sediments to temporarily fluidize and create a liquefied trench. DWBI anticipates a temporary trench width of up to 1.5 m. As the plow is pulled along the route behind the barge, the cable will be laid into the temporary, liquefied trench through the back of the plow. The trench will be backfilled by the water current and the natural settlement of the suspended material. Umbilical cords will connect the submerged jet plow to control equipment on the vessel to allow the operators to monitor and control the installation process and make adjustments to the speed and alignment as the installation proceeds across the water.

The export cable and inter-array cable will be buried to a target depth of 1.8 m beneath the seafloor. The actual burial depth depends on substrate encountered along the route and could vary from 1.2 to 2.4 m. If less than 1.2 m burial is achieved, DWBI may elect to install additional protection, such as concrete matting or rock piles. At each of the WTGs, the inter-array cable will be pulled into the jacket foundation through J-tubes installed on the sides of the jacket foundations. At the J-tubes, additional cable armoring such as sand bags and/or rocks will be used to protect the inter-array cable.

A DP vessel will be used during cable installation in order to maintain precise coordinates. DP systems maintain their precise coordinates in waters through the use of automatic controls. These control systems use variable levels of power to counter forces from current and wind. During cable-lay activities, DWBI expects that a reduced 50 percent power level will be used by DP vessels. DWBI modeled scenarios using a source level of 180 dB re 1 micro Pascal for the DP vessel thruster, assuming water depths of 7, 10, 20, and 40 m, and

thruster power of 50 percent. Detailed information on the acoustic modeling for this source is provided in Appendix A of DWBI's application (see ADDRESSES).

Depending on bottom conditions, weather, and other factors, installation of the export cable and inter-array cable is expected to take 2 to 4 weeks. This schedule assumes a 24-hour work window with no delays due to weather or other circumstances.

4. WTG Installation

The WTGs will be installed upon completion of the jacket foundations and the pull-in of the inter-array cable. The WTGs will be transported by a transportation barge to the BIWF from a temporary storage facility on the mainland. The transportation barge will set up at the installation site adjacent to a jack-up material barge. The jack-up barge legs will be lowered to the seafloor to provide a level work surface and begin the WTG installation. The WTGs will be installed in sections with the lower tower section lifted onto the transition deck followed by the upper tower section.

Installation of each WTG will require 2 days to complete, assuming a 24-hour work window and no delays due to weather or other circumstances. None of the activities associated with installation of the WTGs is expected to result in the harassment of marine mammals.

Comments and Responses

A proposed IHA and request for public comments was published in the Federal Register on March 25, 2014 (79 FR 16301). During the 30-day public comment period, NMFS only received comments from the Marine Mammal Commission (Commission). The Commission's comments are summarized and addressed below. All comments have been compiled and posted at http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications.

Comment 1: The Commission recommended that NMFS require DWBI to provide information regarding the data and assumptions used to derive cetacean density estimates.

Response: As stated in section 6 of their application (see ADDRESSES), DWBI used sightings per unit effort (SPUE) reported in Kenney and Vigness-Raposa (2009) to derive density estimates for cetacean species in the project area. SPUE is derived by using a measure of survey effort and number of individual cetaceans sighted. SPUE allows for comparison between discrete units of time (i.e., seasons) and space within a project area. SPUE calculated by Kenney and Vigness-Raposa (2009) was derived from a number of sources, all of which are referenced in the application.

Comment 2: The Commission recommended that NMFS require DWBI to address apparent inconsistencies in marine mammal species density estimates between different BIWF activities (impact pile driving and DP vessel thruster use) and in the density estimates for some marine mammal species for this project with those for the related Block Island Transmission System (BITS) project.

Response: The proposed activity for construction of the BIWF could begin in late 2014 and last through late 2015; however, portions of the project will only occur for short, sporadic periods of times over the 1-year period. Therefore the estimates of take of marine mammals were calculated based on density estimates during the predicted seasons within which the specific BIWF activity will occur. The estimates of take for the BITS were also based on the density estimates during the predicted season of the proposed activity. In addition, the location of activities for the BIWF are further offshore and to the south of activities as described for the BITS. Density estimates, as reported by Kenney and Vigness-Raposa (2009), are temporally and

spatially variable. Therefore, the maximum seasonal densities within the project areas differ given the specific location and time of year of the activity described.

Comment 3: The Commission recommended that NMFS include in each Federal Register notice for proposed incidental harassment authorizations a sufficiently detailed description of the status and distribution of the species of marine mammals likely to be affected by the proposed activities to allow the public to review and comment on the proposed authorization as a stand-alone document.

Response: As required by regulation, section 4 of DWBI's application included a detailed description of the status, distribution, and seasonal distribution of the affected species or stocks of marine animals likely to be affected by such activities (see ADDRESSES). As such, the DWBI application was referenced accordingly in the FR notice for the proposed IHA and request for public comments (79 FR 16301, March 25, 2014). Further, the internet website for the NMFS Marine Mammal Stock Assessment Reports, which contain information on the biology and local distribution of species potentially affected by this project, was provided in the FR notice for the proposed IHA.

Comment 4: The Commission recommended that NMFS require DWBI to provide estimated source levels associated with HDD and jet plowing activities, and to provide take estimates associated with those activities.

Response: Neither HDD nor jet plow noise were modelled for harassment because all the noise associated with these activities will be in-air. More specifically, the HDD rig will be located on land at Scarborough and Crescent Beaches. As discussed in the FR notice for the proposed IHA and request for public comments (79 FR 16301, March 25, 2014), the coupling of land-based vibrations and nearshore sounds into the underwater acoustic field is not well

understood and cannot be accurately predicted using current models. However, because the HDD installation on the beach will occur onshore and because sand is generally a very poor conductor of vibrations, NMFS considers it unlikely that the underwater noise generated from the HDD installation will result in harassment of marine mammals. Regarding jet plow noise, all compressors will be located on the vessel itself and will not affect the surrounding underwater environment. Therefore, noise associated with jet plow activities was also discounted by NMFS as a potential source of harassment.

Comment 5: To reduce the potential for vessel strikes with endangered North Atlantic right whales, the Commission recommended that NMFS require DWBI vessels to reduce speeds to 10 knots or less from November 1 to April 30 in all areas of operation.

Response: In 2008, NMFS promulgated a regulation implementing a mandatory 10-knot speed limit for vessels 65 feet or greater in length in designated seasonal management areas (SMAs) to reduce the threat of ship collisions with right whales (see 50 CFR 224.105). The SMAs were established to provide 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. The vessel speed restriction is in effect in the mid-Atlantic 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). Portions of the BIWF project area are located within the Mid-Atlantic SMA; thus, to minimize the potential for vessel collision with right whales and other marine mammal species all DWBI vessels associated with the 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 DWBI vessels associated with the BIWF construction will adhere to NMFS guidelines for marine mammal ship striking avoidance (available online at: http:/www.nmfs.noaa.gov/pr/pdfs/education/viewing_northeast.pdf), including maintaining a distance of at least 1,500 feet from right whales and having dedicated protected species observers who will communicate with the captain to ensure that all measures to avoid whales are taken. 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 BIWF project area. 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 move at slow speeds throughout construction.

Description of Marine Mammals in the Area of the Specified Activity

There are 34 marine mammal species with possible or confirmed occurrence in the area of the specified activity (Table 2).

Table 2. Marine mammal species with possible or confirmed occurrence in the project area.

Common Name	**Scientific Name**	**Status**	**Occurrence**	**Seasonality**	**Range**	**Abundance**
Toothed whales (Odontocetes) Atlantic white-sided dolphin	Lagenorhynchus acutus	-	Confirmed	Year-round	North Carolina to Canada	23,390
Atlantic spotted dolphin	Stenella frontalis					50,978
Bottlenose dolphin	Tursiops truncatus	Strategic (northern coastal stock)				9,604
Short-beaked	Delphinus	-	Common	Year-round	North	120,743

common dolphin	delphis				Carolina to Canada	
Harbor porpoise	Phocoena phocoena	Strategic	Common	Year-round	North Carolina to Greenland	89,054
Killer whale	Orcinus orca					Unknown
False killer whale	Pseudorca crassidens					Unknown
Long-finned pilot whale	Globicephala malaena					12,619
Short-finned pilot whale	Globicephala macrohynchus					24,674
Risso's dolphin	Grampus griseus					20,479
Striped dolphin	Stenella coeruleoalba					94,462
White-beaked dolphin	Lagenorhynchus albirostris					2,003
Sperm whale	Physeter macrocephalus	Endangered				4,804
Pygmy sperm whale	Kogia breviceps	Strategic				395
Dwarf sperm whale	Kogia sima					395
Cuvier's beaked whale	Ziphius cavirostris	Strategic				3,513
Blainville's beaked whale	Mesoplodon densirostris					3,513
Gervais' beaked whale	Mesoplodon europaeus	Strategic				3,513
True's beaked whale	Mesoplodon mirus	Strategic				3,513
Bryde's whale	Balaenoptera edeni					
Northern bottlenose whale	Hyperoodon ampullatus					
Baleen whales (Mysticetes) Minke whale	Balaenoptera acutorostrata	-	Common (spring and summer)	Spring, summer, fall	Caribbean to Greenland	8,987
Blue whale	Balaenoptera musculus	Endangered				Unknown
Fin whale	Balaenoptera physalus	Endangered	Common	Year-round	Caribbean to Greenland	3,985
Humpback whale	Megaptera novaeangliae	Endangered	Confirmed	Year-round	Caribbean to Greenland	11,570
North Atlantic right whale	Eubalaena glacialis	Endangered	Confirmed	Year-round	Southeastern U.S. to Candada	444
Sei whale	Balaenoptera borealis	Endangered				Unknown
Pinnipeds Gray seals	Halichoerus grypus	-	Confirmed	Year-round	New England to	348,900

					Canada	
Harbor seals	Phoca vitulina	-	Common	Spring, summer, winter	Florida to Canada	99,340
Hooded seals	Cystophora cristata					Unknown
Harp seal	Phoca groenlandica					Unknown
West Indian manatee	Trichechus manatus	Endangered				3,802

The highlighted species in Table 2 are pelagic and/or northern species, or are so rarely sighted that their presence in the project area, and therefore take, is unlikely. These species are not considered further in this IHA notice. The West Indian manatee is managed by the U.S. Fish and Wildlife Service and is also not considered further in this IHA notice. Further information on the biology and local distribution of these species can be found in section 4 of DWBI's application (see ADDRESSES), and the NMFS Marine Mammal Stock Assessment Reports, which are available online at: http://www.nmfs.noaa.gov/pr/species/.

Potential Effects of the Specified Activity on Marine Mammals

The FR notice of proposed IHA (79 FR 16301, March 25, 2014) included a summary and discussion of the ways that the types of stressors associated with the specified activity (i.e., impact pile driving and use of the DP vessel thruster) have been observed to impact marine mammals. The "Estimated Take by Incidental Harassment" section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The "Negligible Impact Analysis" section includes the analysis of how this specific activity will impact marine mammals and considers the content of the "Potential Effects of the Specified Activity on Marine Mammals" section, the "Estimated Take by Incidental Harassment" section, the "Mitigation" section, and the "Anticipated Effects on Marine Mammal Habitat" section to draw conclusions regarding the likely impacts of this activity on the

reproductive success or survivorship of individuals, and from that on the affected marine mammal populations or stocks.

Potential effects of the specified activities on marine mammals involve acoustic effects related to sound produced by in-water impact pile driving and use of DP vessel thrusters. Detailed information on these effects was provided in the proposed IHA (79 FR 16301, March 25, 2014) and that information has not changed.

Anticipated Effects on Marine Mammal Habitat

There are no feeding areas, rookeries, or mating grounds known to be biologically important to marine mammals within the 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 BIWF 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 project area). NMFS' regulations at 50 CFR 224.105 designated the nearshore waters of the Mid-Atlantic Bight as the Mid-Atlantic SMA for right whales. 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.

The BIWF involves activities that will disturb the seafloor and potentially affect benthic and finfish communities. Installation of the inter-array cable and export cable will result in the temporary disturbance of no more than 3.7 and 11.6 acres of seafloor, respectively. These installation activities will also result in temporary and localized increases in turbidity around the project area. DWBI may also install additional protective armoring in areas where the burial

depth achieved is less than 1.2 m. DWBI expects that additional protection will be required at a maximum of 1 percent of the entire submarine cable, resulting in a conversion of up to 0.4 acres of soft substrate to hard substrate along the cable route. During the installation of additional protective armoring at the cable crossings and as necessary along the cable route, anchors and anchor chains will temporarily impact about 1.8 acres of bottom substrate during each anchoring event.

The installation of the five WTGs will result in a total impact of about 0.35 acres. In this area, soft substrate will be permanently converted to hard substrate. Construction activities associated with the installation of the jacket foundations and WTGs will also result in the temporary disturbance of 28.9 acres of substrate from the placement of jack-up barge spuds, vessel anchors, and associated anchor sweep. Additional disturbance is also expected within the top few inches of substrate from the anchor chains during foundation installation as they rest on the seafloor or sweep across the bottom in response to bottom currents.

Jet-plowing and impacts from construction vessel anchor placement and/or sweep will cause either the displacement or loss of benthic and finfish resources in the immediate areas of disturbance. This may result in a temporary loss of forage items for marine mammals and a temporary reduction in the amount of benthic habitat available for foraging marine mammals in the immediate project area. However, the amount of habitat affected represents a very small percentage of the available marine mammal foraging habitat in the project area. Increased underwater sound levels may temporarily result in marine mammals avoiding or abandoning the area.

Because of the 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.

Mitigation

In order to issue an incidental take authorization (ITA) under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (where relevant).

Mitigation Measures

DWBI will implement the following mitigation measures during impact pile driving and use of the DP vessel thruster:

1. Marine Mammal Exclusion Zone

At the onset of pile driving when the 200 kJ impact pile driving hammer is in use, protected species observers will visually monitor a 200-m radius exclusion zone around each jacket foundation to reduce the potential for injury of marine mammals. After changing to the 600 kJ impact pile driving hammer, protected species observers will visually monitor a 600-m radius exclusion zone. These distances are estimated to be the respective 180-dB isopleths based on DWBI's sound exposure model. A minimum of two observers will be stationed aboard each noise-producing construction support vessel. Each observer will visually monitor a 360-degree field of vision from the vessel. Observers will 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. If a marine mammal is seen approaching or entering the relevant 180-dB isopleth (200-m or 600-m) exclusion zones during impact pile driving (and

following a 50 percent reduction in energy; see "Delay and Powerdown Procedures" below), DWBI will stop impact pile driving unless it is determined that the reduction will compromise safety (either human health or environmental) and/or the integrity of the project.

2. Soft-start Procedures

DWBI will use a soft-start (or ramp-up) procedure at the beginning of impact pile driving to alert marine mammals in the area. This procedure will require an initial set of three strikes from the impact hammer at 40 percent energy with a 1-minute waiting period between subsequent 3-strike sets. DWBI will repeat the procedure two additional times. DWBI will initiate a soft-start at the beginning of each day of pile driving, at the beginning of each pile segment, and if pile driving stops for more than 30 minutes. DWBI will not initiate a soft-start if the monitoring zone is obscured by fog, inclement weather, poor lighting conditions, etc.

3. Delay and Powerdown Procedures

DWBI will delay impact pile driving if a marine mammal is observed within the relevant 180-dB isopleth exclusion zone and until the exclusion zone is clear of marine mammals. DWBI will reduce impact pile driving if a marine mammal is seen within or approaching the 200-m or 600-m exclusion zone. DWBI will reduce the hammer energy by 50 percent to a ramp-up level. If a marine mammal continues to move towards the sound source, DWBI will stop impact pile driving operations until the exclusion zone is clear of marine mammals for at least 30 minutes.

4. DP Thruster Power Reduction

A constant tension must be maintained during cable installation and any significant stoppage in vessel maneuverability during jet plow activities will result in damage to the cable. Therefore, during DP vessel operations, DWBI will reduce DP thruster power to the maximum extent possible if a marine mammal approaches or enters a 5-m radius from the vessel (estimated

to be the 160-dB isopleth from the vessel). This reduction will not be implemented at the risk of compromising safety and/or the integrity of the BIWF. DWBI will not increase power until the 5-m zone is clear of marine mammals for 30 minutes.

5. Time of Day and Weather Restrictions

DWBI will conduct impact pile driving during daylight hours only, starting approximately 30 minutes after dawn and ending 30 minutes before dusk. If a soft-start is initiated before the onset of inclement weather, DWBI may complete that segment of impact pile driving. DWBI will not initiate new impact pile driving activities until the entire monitoring zone is visible.

6. Vessel Speed Restrictions

All DWBI vessels, regardless of length and location, will operate at speeds of 10 knots or less from November 1 through April 30.

7. Ship Strike Avoidance

DWBI will adhere to NMFS guidelines for marine mammal ship strike avoidance (http:/www.nmfs.noaa.gov/pr/pdfs/education/viewing_northeast.pdf).

Mitigation Conclusions

NMFS has carefully evaluated the applicant's mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;

- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has determined that the mitigation measures provide the means of effecting the least practicable impact on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an ITA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for ITAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

1. An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;
2. An increase in our understanding of how many marine mammals are likely to be exposed to levels of continuous noise from use of a DP vessel thruster that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS;

3. An increase in our understanding of how marine mammals respond to stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:
    - Behavioral observations in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
    - Physiological measurements in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
    - Distribution and/or abundance comparisons in times or areas with concentrated stimuli versus times or areas without stimuli;
4. An increased knowledge of the affected species; and
5. An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

Monitoring Measures

DWBI submitted a marine mammal monitoring plan as part of the IHA application. It can be found in section 12 of their application (see ADDRESSES).

1. Visual Monitoring

DWBI will use two protected species observers (in addition to those used for mitigation) to visually monitor the Level B harassment zone during all impact pile driving. During use of the 200 kJ impact pile driving hammer, a 3.6-km radius will be monitored, and during use of the 600 kJ impact pile driving hammer, a 7-km radius (or maximum distance visible) will be

monitored. DWBI will also use two protected species observers to visually monitor a 5-m radius around the vessel during DP vessel thruster use. Observers will 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 will use night-vision binoculars. Observers will record their position using hand-held or vessel global positioning system units for each sighting, vessel position change, and any environmental change. Each observer will scan the surrounding area for visual indication of marine mammal presence. Observers will be located from the highest available vantage point on the associated operational platform (e.g., support vessel, barge or tug), estimated to be at least 6 m above the waterline.

Prior to initiation of construction work, all crew members on barges, tugs, and support vessels will undergo environmental training, a component of which will focus on the procedures for sighting and protection of marine mammals. DWBI will also conduct a briefing with the construction supervisors and crews and observers to define chains of command, discuss communication procedures, provide an overview of the monitoring purposes, and review operational procedures. The DWBI Construction Compliance Manager (or other authorized individual) will have the authority to stop or delay impact pile driving activities if deemed necessary.

2. Acoustic Field Verification

DWBI will conduct field verification of the estimated 200-m and 600-m exclusion zones during impact pile driving to determine whether the proposed distances correspond accurately to the relevant isopleths.

DWBI will take acoustic measurements during impact pile driving of the last half (deepest pile segment) for any given open-water pile and will also measure 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 determine that the actual Level A (180-dB isopleth) and Level B (160-dB isopleth) harassment zones are less than or beyond the proposed distances, a new zone shall be established accordingly. DWBI will notify NMFS and the USACE within 24 hours if a new marine mammal exclusion zone is established that extends beyond the proposed 200-m or 600-m distances. Implementation of a smaller zone will be contingent on NMFS' review and will not be used until NMFS approves the change.

DWBI will also perform field verification of the 160-dB isopleth associated with DP vessel thruster use during cable installation. DWBI will take acoustic measurements 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 Measures

Observers will record dates and locations of construction operations; times of observations; location and weather; details of marine mammal sightings (e.g., species, age, numbers, behavior); and details of any observed take.

DWBI will provide the following notifications and reports during construction activities:

- Notification to NMFS and the U.S. Army Corps of Engineers (USACE) within 24-hours of beginning construction activities and again within 24-hours of completion;
- Detailed report of field-verification measurements within 7 days of completion (including: sound levels, durations, spectral characteristics, DP thruster use, etc.) and notification to NMFS and the USACE within 24-hours if a new zone is established;

- Notification to NMFS and USACE within 24-hours if field verification measurements suggest a larger marine mammal exclusion zone;
- Final technical report to NMFS and the USACE within 120 days of completion of the specified activity documenting methods and monitoring protocols, mitigation implementation, marine mammal observations, other results, and discussion of mitigation effectiveness.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner not permitted by the authorization (if issued), such as an injury, serious injury, or mortality (e.g., ship-strike, gear interaction, and/or entanglement), DWBI shall immediately cease the specified activities and immediately report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and John.Fiorentino@noaa.gov and the Greater Atlantic Region Stranding Coordinator at 978-281-9300 (Mendy.Garron@noaa.gov). The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);

- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

DWBI shall not resume its activities until we are able to review the circumstances of the prohibited take. We will work with DWBI to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. DWBI may not resume their activities until notified by us via letter, email, or telephone.

In the event that DWBI discovers an injured or dead marine mammal, and the lead visual observer determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition), DWBI shall immediately report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and John.Fiorentino@noaa.gov and the Greater Atlantic Region Stranding Coordinator at 978-281-9300 (Mendy.Garron@noaa.gov). The report must include the same information identified in the paragraph above this section. Activities may continue while we review the circumstances of the incident. We will work with DWBI to determine whether modifications in the activities are appropriate.

In the event that DWBI discovers an injured or dead marine mammal, and the lead visual observer determines that the injury or death is not associated with or related to the authorized activities (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), DWBI will report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, at 301-427-8401 and/or by

email to Jolie.Harrison@noaa.gov and John.Fiorentino@noaa.gov and the Greater Atlantic Region Stranding Coordinator at 978-281-9300 (Mendy.Garron@noaa.gov), within 24 hours of the discovery. DWBI will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to us.

Estimated Take by 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].

Project activities that have the potential to harass marine mammals, as defined by the MMPA, include 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 will be in the form of behavioral harassment and no take by injury, serious injury, or mortality is authorized. NMFS does not anticipate take resulting from the movement of vessels associated with construction because there will be a limited number of vessels moving at slow speeds over a relatively shallow, nearshore area.

NMFS' current acoustic exposure criteria for estimating take are shown in Table 3 below. DWBI's modeled distances to these acoustic exposure criteria are shown in Table 4. Details on the model characteristics and results are provided in the Underwater Acoustic Report at the end of DWBI's application (see ADDRESSES). DWBI and NMFS believe that this estimate

represents the worst-case scenario and that the actual distance to the Level B harassment threshold may be shorter.

Table 3. 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 4. DWBI's modeled distances to acoustic exposure criteria.

Activity	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

DWBI estimated species densities within the project area in order to estimate the number of marine mammal exposures to sound levels above 120 dB (continuous noise) or 160 dB (impulsive noise). DWBI 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, DWBI applied this 20 percent estimate to both pinniped species. The 2007 and 2009 density estimates relied upon for this authorization 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 were calculated by multiplying the average highest species density (per 100 km^2) 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 DWBI's model used to calculate zones of influence is provided in the Underwater Acoustic Report at the end of their application (see ADDRESSES).

DWBI used a zone of influence of 89.6 km^2 and a total construction period of 20 days to estimate take from impact pile driving. This zone of influence is based on use of the largest 600 kJ impact hammer. Jacket foundation installation (requiring impact pile driving) is scheduled to occur between the months of May through July or August through October. DWBI used a zone of influence of 25.1 km^2 and a maximum installation period of 28 days to estimate take from use of the DP vessel thruster during cable installation. The zone of influence represents the average ensonified area across the three representative water depths along the cable route (10 m, 20 m, and 40 m). DWBI expects cable installation to occur between April and August.

To be conservative, DWBI based take calculations on the highest seasonal species density over which impact pile driving and use of the DP vessel thruster was scheduled to occur. DWBI's requested take numbers are provided in Table 5 and this is also the number of takes NMFS is authorizing. DWBI'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 5 are the maximum number of animals that may be harassed during impact pile driving

(i.e., DWBI assumes that each exposure event is a different animal). These estimates do not account for mitigation measures that DWBI will implement during the specified activities.

DWBI did not request, and NMFS is not authorizing, take from vessel strike. We do not anticipate marine mammals to be impacted by vessel movement because a limited number of vessels will be involved in construction activities and they will move at slow speeds (10 knots or less) throughout construction.

Table 5. DWBI'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 6. 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

Analysis and Preliminary Determinations

Negligible Impact

Negligible impact is "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival" (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes, alone, is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

DWBI did not request, and NMFS is not anticipating or authorizing, take of marine mammals by injury, serious injury, or mortality. NMFS expects that take will be in the form of behavioral harassment. Exposure to sound levels above 160 dB during impact pile driving will 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 28 days. While use of the DP thruster may last for consecutive days, the vessel will be moving and therefore not focused on one specific area for the entire duration. 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 will be temporary. Furthermore, there are no feeding areas, rookeries, or mating

grounds known to be biologically important to marine mammals within the project area. There is also no designated critical habitat for any ESA-listed marine mammals. The mitigation measures are expected to reduce the number and/or severity of takes by (1) giving animals the opportunity to move away from the sound source before the pile driver reaches full energy; (2) reducing the intensity of exposure within a certain distance by reducing the DP vessel thruster power; and (3) preventing animals from being exposed to sound levels reaching 180 dB during impact pile driving.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from DWBI's BIWF project is not likely to have an effect on annual rates of recruitment or survival of the affected species or stocks. Therefore the take from the project will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

The numbers of individual animals that may be exposed to sound levels above 160 dB (impact pile driving) and 120 dB (DP vessel thruster) is small relative to the affected species or stock sizes (Table 6). The authorized take numbers are the maximum numbers of animals that are expected to be harassed during the BIWF project; it is possible that some of these exposures may occur to the same individual. NMFS finds that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks will not have

an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

There are three marine mammal species that are listed as endangered under the ESA: fin whale, humpback whale, and North Atlantic right whale. Under section 7 of the ESA, the USACE (the federal permitting agency for the actual BIWF construction) consulted with NMFS on the BIWF project. NMFS also consulted internally on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. NMFS Northeast Region (now known as the Greater Atlantic Region) issued a Biological Opinion on January 30, 2014, concluding that the Block Island Wind Farm project may adversely affect but is not likely to jeopardize the continued existence of fin whale, humpback whale, or North Atlantic right whale. The effects of the IHA 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 this IHA. Following the issuance of the IHA, 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. The ITS will be appended to the January 30, 2014 Biological Opinion.

National Environmental Policy Act (NEPA)

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500-1508), and NOAA Administrative Order 216-6, NMFS prepared an Environmental Assessment (EA) analyzing the potential impacts of the issuance of an IHA for the proposed activities. The final EA was prepared in August 2014 and NMFS made a Finding

of No Significant Impact for this action. These documents are available on our website at http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications. Accordingly, an Environmental Impact Statement is not required and none was prepared.

Dated: September 4, 2014.

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Perry F. Gayaldo,
Deputy Director,
Office of Protected Resources,
National Marine Fisheries Service.

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