



# MARINE MAMMAL COMMISSION

19 March 2018

Ms. Jolie Harrison, Chief  
Permits and Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3225

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by the Statoil Wind U.S. LLC (Statoil) under section 101(a)(5)(D) of the Marine Mammal Protection Act (the MMPA). Statoil is seeking authorization to take small numbers of marine mammals by harassment incidental to marine site characterization surveys off the coast of New York as part of the Empire Wind Project. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 22 February 2018 notice (83 Fed. Reg. 7655) requesting comments on its proposal to issue the authorization, subject to certain conditions.

## Background

Statoil is proposing to conduct high-resolution geophysical (HRG) and geotechnical surveys to support the siting, design, and deployment of up to three meteorological data buoys approximately 11.5 nmi from Jones Beach, New York. Additionally, one or more cable routes will be established in coastal waters between the lease area and New York, identified as the cable route area. The surveys would begin in March 2018 and would operate during the day and at night for approximately 142 days. Sub-bottom profilers (both shallow-and medium-penetration types) would be used.

NMFS preliminarily has determined that the proposed activities temporarily would modify the behavior of small numbers of 11 marine mammal species. It also anticipates that any impact on the affected species and stocks would be negligible. NMFS does not anticipate any take of marine mammals by death or serious injury and believes that the potential for disturbance will be at the least practicable level because of the proposed mitigation measures. The mitigation, monitoring, and reporting measures include—

- conducting sound source verification measurements and adjusting the Level B harassment zones, as necessary;

- using vessel-based observers to monitor the exclusion zones<sup>1</sup> and the Level B harassment zone<sup>2</sup> for 30 minutes before, during, and for 30 minutes after the HRG surveys;
- using standard ramp-up and delay procedures;
- using shutdown procedures if a marine mammal is sighted within or approaching the designated exclusion zones, with the exception of bow-riding small delphinids;
- using delay and shut-down procedures, if a species for which authorization has not been granted or if a species for which authorization has been granted but the authorized takes are met, approaches or is observed within the Level A and/or B harassment zone<sup>3</sup>;
- using passive acoustic monitoring to detect marine mammals during nighttime operations and to evaluate the effectiveness of mitigation measures during daylight hours;
- using standard vessel strike avoidance procedures and monitoring the NMFS North Atlantic right whale reporting systems during all survey activities;
- working with NMFS to shut down and/or alter the survey activities if a Dynamic Management Area is established in the survey area;
- reporting injured and dead marine mammals to the Office of Protected Resources and the Greater Atlantic Regional Fisheries Office Stranding Coordinator using NMFS's phased approach and suspending activities, if appropriate; and
- submitting field and technical reports and a final comprehensive report to NMFS.

### **Rounding of take estimates**

The method NMFS used to estimate the numbers of takes during the proposed activities, which summed fractions of takes for each species across project days, does not account for and negates the intent of NMFS's 24-hour reset policy. As the Commission has indicated in previous letters regarding this matter<sup>4</sup>, the issue at hand involves policy rather than mathematical accuracy. NMFS developed criteria associated with rounding quite some time ago but has yet to share those criteria with the Commission. Therefore, the Commission again recommends that NMFS share the rounding criteria with the Commission in an expeditious manner.

### **Appropriate threshold for disturbance zone**

NMFS has proposed to authorize takes associated with the use of sub-bottom profilers, which NMFS has characterized as impulsive sources relative to the Level B harassment threshold of 160 dB re 1  $\mu$ Pa. However, researchers have observed that various species of marine mammals respond to sound from sources with similar characteristics (including acoustic deterrent devices, acoustic harassment devices, pingers, echosounders, and multibeam sonars) at received levels below 160 dB re 1  $\mu$ Pa. Previous Commission letters to NMFS regarding the use of sub-bottom profilers (specifically for shallow-penetration sub-bottom profilers or chirps) have pointed out that those sources have temporal and spectral characteristics that suggest a lower, more precautionary Level B

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<sup>1</sup> A 50-m exclusion zone would be established for pinnipeds and delphinids (except harbor porpoises), a 100-m exclusion zone for large whales including sperm whales and mysticetes and harbor porpoises, and a 500-m exclusion zone for North Atlantic right whales.

<sup>2</sup> 1.2 km

<sup>3</sup> The Commission informally noted that NMFS did not include this standard measure in the proposed authorization. NMFS indicated it would be included in the final authorization.

<sup>4</sup> See the Commission's [29 November 2016 letter](#) detailing this issue.

harassment threshold of 120 dB re 1  $\mu$ Pa would be more appropriate than the 160-dB re 1  $\mu$ Pa threshold used by NMFS until such time that NMFS updates its behavior thresholds.

The Commission remains concerned that NMFS's current behavior thresholds do not reflect the current state of understanding regarding the temporal and spectral characteristics of various sound sources and their impacts on marine mammals. Therefore, the Commission recommends that, until the behavior thresholds are updated, NMFS require applicants to use the 120- rather than 160-dB re 1  $\mu$ Pa threshold for acoustic, non-impulsive sources (e.g., sub-bottom profilers/chirps, echosounders, and other sonars including side-scan and fish-finding).

### **Proposed one-year authorization renewals**

For this and other future authorizations, NMFS has indicated that it may issue a one-year incidental harassment authorization renewal<sup>5</sup> on a case-by-case basis without additional public notice when (1) another year of identical, or nearly identical activities, as described in the 'Specified Activities' section of the *Federal Register* notice is planned or (2) the activities would not be completed by the time the incidental harassment authorization expires and a renewal would allow for completion of the authorized activities beyond the timeframe described in the 'Dates and Duration' section of the notice. NMFS would issue a renewal only if—

- the request for renewal was received no later than 60 days prior to the expiration of the current authorization;
- the activities to be conducted either are identical to the previously analyzed and authorized activities or include changes so minor (e.g., reduction in pile size) that they do not affect the previous analyses, take estimates, or mitigation and monitoring requirements;
- a preliminary monitoring report provides the results of the required monitoring to date and those results do not indicate impacts of a scale or nature not previously analyzed or authorized;
- the status of the affected species or stocks and any other pertinent information, including the mitigation and monitoring requirements, remain the same and appropriate; and
- the original determinations under the MMPA remain valid.

The Commission agrees that NMFS should take appropriate steps to streamline the authorization process under section 101(a)(5)(D) of the MMPA to the extent possible. However, the Commission is concerned that the renewal process proposed in the *Federal Register* notice is inconsistent with the statutory requirements. Section 101(a)(5)(D) clearly states that proposed authorizations are subject to publication in the *Federal Register* and elsewhere and an opportunity for public review and comment. NMFS's proposed renewal process would bypass the public notice and comment requirements. Although it is sympathetic to what NMFS is trying to accomplish, the Commission recommends that NMFS refrain from implementing the proposed renewal process.

If NMFS believes that its proposed renewal process is consistent with the applicable

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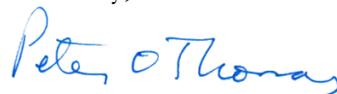
<sup>5</sup> In another recent proposed authorization (83 Fed. Reg. 8456), NMFS clarified that it would issue a second one-year authorization. However, NMFS has yet to specify whether the renewal would be issued as a one-time opportunity, after which time a new authorization application would be required. These specifics should be included in all *Federal Register* notice that details the new proposed renewal process.

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statutory requirements and is intended to be generally applicable to all incidental harassment authorizations that meet the specified criteria, it should not seek to adopt such a process through a brief notice at the end of a specific proposed authorization. That process should be adopted through a more general route, preferably a rulemaking, that provides NMFS's rationale and analysis regarding why it believes the proposed renewal process is consistent with the requirements of section 101(a)(5)(D) of the MMPA and adequate public notice and opportunity for comment. If NMFS adopts the proposed renewal process notwithstanding the Commission's recommendation, the Commission further recommends that NMFS provide it and the public with a legal analysis supporting NMFS's conclusion that such a process is consistent with the requirements under section 101(a)(5)(D) of the MMPA. In addition, if NMFS decides to bypass the notice and comment process in advance of issuing a renewal, it should nevertheless publish notice in the *Federal Register* whenever such a renewal has been issued.

Please contact me if you have questions regarding the Commission's recommendations.

Sincerely,



Peter O. Thomas, Ph.D.  
Executive Director

***By Electronic Mail***

March 26, 2018

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Chief, Permits and Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
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ITP.carduner@noaa.gov

**RE:***Proposed incidental harassment authorizations for marine site characterization surveys off the coast of New York as part of the Empire Wind Project in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0512) (Lease Area) and coastal corridors where one or more cable route corridors will be established.*

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council (“NRDC”), the Wildlife Conservation Society (“WCS”), the National Wildlife Federation, the Conservation Law Foundation, Defenders of Wildlife, Surfrider Foundation, IFAW – International Fund for Animal Welfare, The Nature Conservancy, Southern Environmental Law Center, and our millions of members, we respectfully submit our comments on NMFS’ proposal to issue an incidental harassment authorization to authorize marine site characterization activities off the coast of New York as part of the Empire Wind Project. 83 Fed. Reg. 7,655 (February 22, 2018) [hereafter “Proposed IHA”].<sup>1</sup>

This is an exciting moment for offshore wind in New York and we recognize and celebrate the contribution that the Empire Wind Project could make towards the ambitious offshore wind program for the state. Governor Andrew Cuomo’s commitment to develop 2,400 megawatts of offshore wind power by 2030 solidifies New York as a leader on climate and clean energy and will encourage significant environmental, economic, and public health benefits. Our organizations believe that offshore wind energy can and must advance in an environmentally responsible manner to ensure that it plays a key role in meeting U.S. climate and clean energy goals, while safeguarding vulnerable ocean habitat and wildlife. The following comments are intended to support the Empire Wind Project in achieving this goal, particularly in regard to minimizing marine mammal interactions.

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<sup>1</sup> The technical comments herein were developed by NRDC and WCS marine mammal experts, and are being submitted on behalf of the groups listed here.

In addition to rich wind resources, New York's waters seasonally support at least 37 species of marine mammals, including seven large cetaceans (83 Fed. Reg. 7,659). Of these, five (sperm, blue, fin, sei, and North Atlantic right whales) are listed as "endangered" under the U.S. Endangered Species Act.

## I. BACKGROUND

### A. *The Marine Mammal Protection Act*

Congress enacted the Marine Mammal Protection Act ("MMPA") because "certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities." 16 U.S.C. § 1361(1). The statute seeks to ensure that species and population stocks are not "permitted to diminish beyond the point at which they cease to be a significant functioning element of the ecosystem of which they are a part," and do not "diminish below their optimum sustainable population." *Id.* § 1361(2); *see also Conservation Council for Hawaii v. Nat'l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016). Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species. H.R. Rep. No. 92-707 (Dec. 4, 1971), *as reprinted in* 1972 U.S.C.C.A.N. 4144, 4148. This careful approach to management was necessary because of the vulnerable status of many species and because it is difficult to measure the impacts of human activities on marine mammals in the wild. 16 U.S.C. § 1361(1), (3).

At the heart of the MMPA is its "take" prohibition, which establishes a moratorium on the capture, harassing, hunting, or killing of marine mammals, and generally prohibits any person or vessel subject to the jurisdiction of the United States from taking a marine mammal on the high seas or in waters or on land under the jurisdiction of the United States. 16 U.S.C. §§ 1362(13), 1371(a). Harassment is any act that "has the potential to injure a marine mammal or marine mammal stock in the wild" or to "disturb a marine mammal . . . by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." *Id.* § 1362(18)(A).

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for up to a one-year period, the incidental, but not intentional, "taking by harassment of small numbers of marine mammals of a species or population stock" if the agency determines that such take would have only "a negligible impact on such species or stock." *Id.* § 1371(a)(5)(D)(i). The agency must prescribe regulations to ensure that the activity has "the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance." *Id.* § 1371(a)(5)(D)(ii)(I). NMFS must also establish monitoring and reporting requirements. *Id.* § 1371(a)(5)(D)(ii)(III).

### B. *The status of Atlantic large whales*

As the agency is aware, the conservation status of the North Atlantic right whale is dire. Recent scientific analysis, considered the best available science by the agency,<sup>2</sup> confirms that the species has been declining since 2010 and only approximately 450 individuals were estimated to remain at the end of 2016. At least another 18 individuals have died since that time, leading NMFS to declare an Unusual Mortality Event (“UME”) in June 2017.<sup>3</sup> Moreover, females are more negatively impacted than males, now surviving to only 30-40 years of age with an extended inter-calf interval of approximately ten years.<sup>4</sup> To our knowledge, no calves have been born in this year. If these trends continue, the North Atlantic right whale may be functionally extinct in 20 years or less.<sup>5</sup> Given its critically endangered status, the estimated Level B take of 4.1% of the population (83 Fed. Reg. 7,672) still has the potential to result in population-level impacts; therefore, it is imperative that all potential stressors acting on this species be minimized to the full extent practicable.

In addition to the North Atlantic right whale, UMEs have also been declared for the Atlantic population of humpback whales in April 2017 and minke whales in January 2018.<sup>6</sup> Elevated numbers of humpback whales have been found stranded along the Atlantic Coast since January 2016, and in a little over two years, 62 humpback whale mortalities have been recorded (data through January 30, 2018), with strandings occurring in every state along the east coast, including in the Rockaways, Queens.<sup>7</sup> Twenty-nine minke whales have stranded between Maine and South Carolina from January 2017 to January 2018; 28 of those strandings resulted in mortality.<sup>8</sup> The declaration of three UMEs by the agency in the past year signals a large-scale shift of large whale habitat in the Atlantic, possibly resulting from prey species distributional shifts in response to climate change,<sup>9</sup> and/ or an increase in the abundance of certain prey species as a result of fisheries management,<sup>10</sup> and/ or other unknown factors. These shifts appear to direct whales further north and, in some cases closer to shore, leading to elevated conflicts with human activities

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<sup>2</sup> NOAA-NMFS, “North Atlantic right whale (*Eubalaena glacialis*): Western Atlantic stock,” February 2017. Available at: [https://www.nefsc.noaa.gov/publications/tm/tm241/8\\_F2016\\_rightwhale.pdf](https://www.nefsc.noaa.gov/publications/tm/tm241/8_F2016_rightwhale.pdf).

<sup>3</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>4</sup> Pace III, R.M, Corkeron, P.J., and Kraus, S.D., “State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales,” *Ecology and Evolution*, vol. 7, no. 21, pp. 8730-8741 (2017); Kraus SD, “*Marine mammals in the Anthropocene: Keeping endangered from becoming extinct*,” Plenary speech, Society of Marine Mammalogy Biennial, Halifax, Canada (23 Oct 2017).

<sup>5</sup> Pace III, R.M, *et al.*, “State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales,” *supra note 4*; *see, also*, <https://www.theguardian.com/environment/2017/dec/10/north-atlantic-right-whales-extinct>.

<sup>6</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017humpbackatlanticume.html>; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2018-minke-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

<sup>9</sup> Kessler, R., “A North Atlantic Mystery: Case of the Missing Whales,” *YaleEnvironment360* (November 26, 2013) (and citations therein). Available at: [https://e360.yale.edu/features/a\\_north\\_atlantic\\_mystery\\_case\\_of\\_the\\_missing\\_whales](https://e360.yale.edu/features/a_north_atlantic_mystery_case_of_the_missing_whales).

<sup>10</sup> Atlantic States Marine Fisheries Commission, “SEDAR 40 Stock Assessment Report: Atlantic Menhaden,” SEDAR, North Charleston, SC. 643 pp (2015); Buchheister, A., Miller, T. J., Houde, E.D., Secor, D.H., and Latour, R.J., “Spatial and temporal dynamics of Atlantic menhaden (*Brevoortia tyrannus*) recruitment in the Northwest Atlantic Ocean,” *ICES Journal of Marine Science*, vol. 73, no. 4, pp. 1147-1159 (2016).

in those areas. The two primary causes of the strandings for all three species appear to be entanglement in fishing gear and vessel collisions.<sup>11</sup>

Large whales are a top-order predator seen in increasing numbers in the New York Bight, which, for some species (*i.e.*, humpback whales), is anecdotally coincident with an increase in one of their primary food sources, Atlantic menhaden, after a fisheries quota system was implemented in 2013.<sup>12</sup> In addition to the aforementioned species, endangered fin whales were detected acoustically on the WCS/WHOI buoy on most days (73 percent of recorded days) between June 2016 and October 2017, demonstrating considerable year-round presence within the New York Bight.<sup>13</sup>

Considering the elevated level of threat to federally protected large whale species and populations in the Atlantic, including New York's state waters, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS is obligated to employ the best available information on marine mammal presence and density, and to require any stressors posed by the proposed project to be mitigated to the full extent practicable. This need is particularly acute for the North Atlantic right whale where impacts to even a single animal may result in population-level consequences.

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT<sup>14</sup>

### A. *NMFS must use additional data sources in calculating densities of marine mammals, including the North Atlantic right whale*

In determining the proportion of marine mammal species and populations taken by the proposed activities—a calculation that lies at the heart of the agency's "small numbers" analysis—NMFS relies on estimates of marine mammal densities derived from the habitat-based density model for the U.S. east

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<sup>11</sup> NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 3; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 6; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 6.

<sup>12</sup> Atlantic States Marine Fisheries Commission, "SEDAR 40 Stock Assessment Report: Atlantic Menhaden," *supra* note 10; Buchheister, A., *et al.*, "Spatial and temporal dynamics of Atlantic menhaden (*Brevoortia tyrannus*) recruitment in the Northwest Atlantic Ocean," *supra* note 10.

<sup>13</sup> Antunes, R., Kopelman, A., Sieswerda, P., DiGiovanni, R.A., Spagnoli, C., Granton, C., and Rosenbaum, H., "Occurrence and distribution of large whales in the New York Bight: implications for marine spatial planning of the New York seascape," Oral presentation, Society of Marine Mammalogy Biennial Conference (December 14<sup>th</sup>, 2015).

<sup>14</sup> In addition to sub-sections II.A and II.B, we wish to note three additional inconsistencies in NMFS' analysis. *First*, the best available science on other low- to mid-frequency sources (*e.g.*, Nowacek *et al.* 2004, Kastelein *et al.* 2012, 2015) indicates that takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts. *Second*, the agency incorrectly asserts that potential impacts of the planned surveys would likely be minimal as marine mammals would take measures to avoid the sound (*i.e.*, by moving away from the sound source (*see, e.g.*, 83 F.R. 7,664), even though studies have not found avoidance behavior to be generalizable among species and contexts (*e.g.*, Miller *et al.* 2009, Pirotta *et al.* 2012) and even though such avoidance may itself constitute take under the MMPA. *Third*, the Proposed IHA does not directly account for cumulative impacts. For species as endangered as the North Atlantic right whale, repeated impacts can readily accumulate to population-level harm and therefore must be accounted for by the agency (*e.g.*, accounting for multiple wind energy projects is likely to exceed the 6% population impact threshold selected by the Agency).

coast (*i.e.*, Roberts *et al.* (2016); 83 Fed. Reg. 7,670), which was funded under the agency's CetMap program.<sup>15</sup> The CetMap model represents the best model available for calculating marine mammal densities in the region; nonetheless, as its designers admit,<sup>16</sup> the model is limited. Most notably, in founding its density estimates entirely on shipboard and aerial line-transect surveys, the model necessarily excludes data obtained through passive acoustic monitoring and other long-term sightings data. Our organizations believe that the density maps produced by Roberts *et al.* (2016), utilizing data up until 2014, may not fully reflect the abundance, distribution, and density of marine mammals in the New York Bight, and particularly in light of the recent emerging evidence of a shift in large whale presence and abundance in the region. We have raised these concerns in several meetings and workshops, including presentations and discussions at the BOEM Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species, March 7-9, 2017.

**It should be NMFS' top priority to consider any initial data from the newly launched New York Bight whale monitoring program and other State efforts,<sup>17</sup> existing passive acoustic monitoring data, and the wealth of opportunistic marine mammal sightings data available from whale watching records, and other data sources in future analyses of estimated take.** For example, WCS led an effort to synthesize 33 years of opportunistic sightings of baleen whales in the New York Bight through 2014.<sup>18</sup> The real-time marine mammal detections currently being made by the New York Bight acoustic monitoring buoy deployed by WCS and Woods Hole Oceanographic Institute ("WHOI") is providing important year-round information on sei, fin, humpback, and North Atlantic right whale presence in the New York Bight, and particularly during months where data have not previously been captured.<sup>19</sup> Integration of opportunistic and other sources of data that collect fine-scale information on factors driving marine mammal distribution with those gathered through systematic broad-scale surveys will serve to better reflect current marine mammal presence, abundance, and density in the New York Bight, providing a more accurate assessment of Level B take.

The agency should recognize that estimated densities derived from the Roberts *et al.* (2016) model for the New York Bight may significantly underrepresent the density and seasonal presence of large whales in this region.

*B. NMFS must account for elevated densities of North Atlantic right whale in the spring*

In relying on the density models of Roberts *et al.* (2016) (*see*, Section II.A.), NMFS fails to account for the potentially elevated seasonal presence of the North Atlantic right whale in the New York Bight during

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<sup>15</sup> Roberts J.J., Best B.D., Mannocci L., Fujioka E., Halpin P.N., Palka D.L., Garrison L.P., Mullin K.D., Cole T.V.N., Khan C.B., McLellan W.M., Pabst D.A., and Lockhart G.G., "Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico," *Scientific Reports*, vol. 6, p. 22615 (2016).

<sup>16</sup> *Id.*

<sup>17</sup> *See, e.g.*, [https://remote.normandeau.com/nys\\_overview.php](https://remote.normandeau.com/nys_overview.php) and <https://www.dec.ny.gov/animals/108573.html>.

<sup>18</sup> Antunes, R., *et al.*, "Occurrence and distribution of large whales in the New York Bight: implications for marine spatial planning of the New York seascape," *supra*, note 13; Antunes, R., Kopelman, A., Sieswerda, P., DiGiovanni, Jr., R., Good, C., Spagnoli, C., and Rosenbaum, H.C., "Occurrence and distribution of baleen whales in the New York Bight: establishing baselines in an expansive and complex environment." Manuscript in preparation.

<sup>19</sup> WCS and WHOI acoustic work through blueyork.org and dcs.who.edu.

March and April. In its estimation of take, NMFS elected to average monthly marine mammal density data by season; for spring, this comprised averaging data for March, April, and May into a single estimate (83 Fed. Reg. 7,671). This approach ignores the nuances of the timing of the North Atlantic right whale migration, including evidence of a recent distributional shift resulting in whales being present year-round, in some cases at relatively high densities, in the mid-Atlantic.<sup>20</sup> Averaging modeled densities across years and/ or months, as carried out by the agency in its analysis, prevents the detection of both long-term distributional shifts and monthly changes in the timing of the North Atlantic right whale migration.

In the New York Bight, an extensive database of whale occurrence (1981-2014) comprising multiple data sources indicates that, in the spring, peak sightings of North Atlantic right whales were found to occur in April even though sampling effort was greatest in the summer and early fall.<sup>21</sup> These findings are consistent with those of long-term (2004-2014) and short-term (2008-2009) passive acoustic monitoring data that demonstrate North Atlantic right whales maintain a high level of presence in the New York Bight through the winter and into March and April, before shifting further offshore and northwards in May.<sup>22</sup> A higher expected density of right whales in the New York Bight is reflected by the dates of the NMFS Seasonal Management Area (“SMA”) for New York Harbor, which is in place from November 1<sup>st</sup> through April 30<sup>th</sup><sup>23</sup> (although it is important to note that right whales may occur in the New York Bight, to some extent, year-round and an elevated density is still expected for May).<sup>24</sup> Considering the species’ conservation status (*see*, Section I.B.), **it is incumbent on NMFS to adjust the density estimates it derived from Roberts *et al.* (2016), as needed, to account for the higher relative presence of North Atlantic right whales in the New York Bight, for the months when the surveys are proposed to take place** (March 2018-July 2018; 83 Fed. Reg. 7.656; *see, also*, Section III for mitigation recommendations).

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing “take” under the general authorization provision of the MMPA, NMFS has the burden of meeting the Act’s mitigation standard. Specifically, the agency must prescribe “methods” and “means of effecting the least practicable adverse impact” on marine mammals and set additional “requirements pertaining to the monitoring and reporting of such taking.” 16 U.S.C. § 1371(a)(5)(A)(ii), (D)(vi). In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA,

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<sup>20</sup> Davis, G.E., Baumgartner, M.F., Bonnell, J.M., Bell, J., Berchick, C., Bort Thornton, J., Brault, S., Buchanan, G., Charif, R.A., Cholewiak, D., *et al.*, “Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014,” *Scientific Reports*, vol. 7, p. 13460 (2017).

<sup>21</sup> Antunes, R., *et al.*, “Occurrence and distribution of baleen whales in the New York Bight: establishing baselines in an expansive and complex environment,” *supra*, note 18.

<sup>22</sup> Davis, G.E., *et al.*, “Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014,” *supra* note 20. Muirhead, C.A., Warde, A. W., Biedron, I.S., Mihnovets, A.N., Clark, C.W., and Rice, A.N., “Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight,” *Aquatic Conservation: Marine and Freshwater Ecosystems*. (Published online: February 2, 2018).

<sup>23</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales.” Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

<sup>24</sup> Davis, G.E., *et al.*, Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014, *supra* note 21; Muirhead, C.A., *et al.*, “Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight,” *supra* note 22; C. Good *pers. comm.* to F. Kershaw, March 12, 2018.

as well as the significant risks posed to the North Atlantic right whale and other endangered and threatened marine mammals by the site assessment and characterization activities outlined in the Proposed IHA, NMFS has an obligation to impose robust mitigation and monitoring requirements to protect these species to the maximum extent practicable. As previously stated, the North Atlantic right whale cannot withstand any additional stressors (even the proposed level of take as affecting 4.1 percent of the population [83 Fed. Reg. 7,672] may result in population-level effects); therefore, the implementation of a robust mitigation system is essential to avoid population-level impacts of the proposed survey activities. Below, we recommend specific mitigation and monitoring measures intended to address these concerns:

A. *Seasonal restriction on geophysical surveys from November 1<sup>st</sup> to April 30<sup>th</sup>*

As described above (*see*, Section II.B.), NMFS is proposing to authorize geophysical surveys in the New York Bight at a time when North Atlantic right whales are expected to be present at high densities during their migration. Recent observations of right whale feeding behavior in the northern Mid-Atlantic, off the coasts of southern Massachusetts and Rhode Island, raise the possibility that right whales could also be feeding in the New York Bight.<sup>25</sup> Time and area restrictions designed to protect important habitat are one of the most effective available means to reduce the potential impacts of noise and disturbance on marine mammals, including noise from geophysical surveys of a level capable of potentially causing Level A and Level B harassment.<sup>26</sup> Consistent with such an approach, **we recommend NMFS impose a restriction on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (i.e., >180 dB re 1 uPa) from November 1<sup>st</sup> to April 30<sup>th</sup> in the New York Bight.**<sup>27</sup> This is consistent with both the best available science on the relative density of North Atlantic right whales in the New York Bight in the spring (recognizing that individuals of this species could be present in each month of the year and remain at relatively high densities during the first half of May),<sup>28</sup>

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<sup>25</sup> Muirhead, C.A., *et al.*, “Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight,” *supra* note 22, citing Leiter, S.M., Stone, K.M., Thompson, J.L., Accardo, C.M., Wikgren, B.C., Zani, M.A., Cole, T.V.N., Kenney, R.D., Mayo, C.D., and Kraus, S.D., “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island,” *Endangered Species Research*, vol. 34, pp. 45-59 (2017).

<sup>26</sup> *See, e.g.*, Agardy, T., Aguilar Soto, N., Cañadas, A., Engel, M., Frantzis, A., Hatch, L., Hoyt, E., Kaschner, K., LaBrecque, E., Martin, V., Notarbartolo di Sciara, G., Pavan, G., Servidio, A., Smith, B., Wang, J., Weilgart, L., Wintle, B., and Wright, A., “A global scientific workshop on spatio-temporal management of noise,” Report of workshop held in Puerto Calero, Lanzarote (June 4-6, 2007); Dolman, S., Aguilar Soto, N., Notarbartolo di Sciara, G., and Evans, P., “Technical report on effective mitigation for active sonar and beaked whales,” Working group convened by European Cetacean Society (2009); Memorandum from Dr. Jane Lubchenco, NOAA Administrator, to Ms. Nancy Sutley, CEQ Chair (Jan. 19, 2010); Convention on Biological Diversity, “Scientific synthesis on the impacts of underwater noise on marine and coastal biodiversity and habitats,” UN Doc. UNEP/CBD/SBSTTA/16/INF/12 (2012).

<sup>27</sup> A November 1<sup>st</sup> to April 30<sup>th</sup> seasonal restriction formed a core component of a landmark agreement aimed at protecting the North Atlantic right whale from site assessment and characterization activities in the Mid-Atlantic that was reached between offshore wind developers and the environmental non-governmental organization (“NGO”) community in 2012. *See*, letter from J. Grybowski, J. Gordon, W.L. Davis, S. Kraus, R. Middleton, M. Alt, F. Beinecke, J. Kassel, L. Schweiger, A. Sharpless, A. Downes, and M. Brune to Ms. M. Bornholdt, Renewable Energy Program Manager, Bureau of Ocean Energy Management, regarding “Proposed mitigation measures to protect North Atlantic right whales from site assessment and characterization activities of offshore wind energy development in the mid-Atlantic” (December 12, 2012).

<sup>28</sup> Davis G.E., *et al.*, “Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014,” *supra* note 20; NOAA-NMFS, “Reducing ship strikes to North Atlantic right

and the conservation crisis the species is currently facing, recently recognized by NOAA administrator as the agency's "number one issue."<sup>29</sup>

While existing and potential stressors to the right whale must be minimized as far as possible to enable any chance of the recovery of the species, **it is also incumbent upon the agency to address potential impacts to other species, including endangered fin whales and blue whales, and protected humpback whales, which are all experiencing prolonged seasonal occurrence in the New York Bight, and particularly in light of the UMEs declared for right whales, humpback whales and minke whales.**<sup>30</sup> Acoustic detections indicate blue whales are present in the winter, spring, and summer, and that fin whales are showing presence nearly year-round.<sup>31</sup> These data are suggestive of either continual movements of these populations through the area or that the whales are residing in the region, with fin and humpback whales undertaking feeding, rather than just migrating through.<sup>32</sup> It is therefore imperative that consequences of the proposed North Atlantic right whale seasonal restriction on other endangered and protected species be fully accounted for by the agency (*e.g.*, a seasonal restriction may displace survey activities later into the summer months, which may increase levels of take for other species and populations; consideration of potential risks to other species are particularly pertinent in light of the mass stranding off Madagascar that was caused by equivalent high resolution geophysical ("HRG") survey equipment [83 Fed. Reg. 7,667]).

To elucidate and balance the relative risks to these species, for which we still have relatively limited data, **we strongly recommend that NMFS: 1) fund analyses of recently collected sighting and acoustic data from 2016 to present for all data-holders; and 2) continue to fund and expand surveys and studies** to (i) improve our understanding of distribution and habitat use of marine mammals in the New York Bight and the broader mid-Atlantic region, and (ii) enhance the resolution of population genetic structure for humpback, fin, and blue whales. For any future site assessment and characterization activities, beyond those detailed in the Proposed IHA, or future applications related to construction and operations, the Agency should consider all recently collected and new information on North Atlantic right whales and other marine mammals. **We strongly recommend that NMFS support an expert workshop to consider these data and any new information necessary to inform seasonal restrictions and mitigation measures in time for the November 2018 North Atlantic right whale migration period. Only then can the most effective seasonal restrictions and approaches in a year-round context be considered.** In the absence of such information, we urge the agency to consider the precautionary

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whales," *supra* note 23; Muirhead, C.A., *et al.*, "Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight," *supra* note 22; C. Good *pers. comm.* to F. Kershaw, March 12, 2018; Antunes, R., *et al.*, "Occurrence and distribution of baleen whales in the New York Bight: establishing baselines in an expansive and complex environment," *supra*, note 18.

<sup>29</sup> <http://www.southcoasttoday.com/news/20180303/new-noaa-administrator-calls-whales-agencys-biggest-crisis>

<sup>30</sup> NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 3; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 6; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 6.

<sup>31</sup> Muirhead, C.A., *et al.*, "Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight," *supra* note 22; WCS and WHOI acoustic work through [blueyork.org](http://blueyork.org) and [dcs.whoi.edu](http://dcs.whoi.edu).

<sup>32</sup> *Id.*

measures for the time-period proposed above (*i.e.*, November 1<sup>st</sup> to April 30<sup>th</sup>), as based on the best available science.

*B. Geophysical surveys should commence, with ramp-up, only during daylight hours*

The effectiveness of night vision and infra-red technology in detecting marine mammals, including large whales, has not yet been tested and published for this geographic region. In general, night vision equipment, relying on image intensifying technology, has not been widely used or tested for marine mammal monitoring, and is considered to be heavily affected by environmental conditions often present at sea. Infra-red technology, relying on thermal differences between the target species and the environment, has shown promise for night time detection of a number of marine mammal species from vessels.<sup>33</sup> However, the application of infra-red technology as a mitigation tool is still in development and a number of studies have reported varying results depending on the type of equipment used, the environmental conditions, and the species in question.

We support NMFS' requirement to review and approve night-vision and infra-red equipment prior to the start of surveys. However, NMFS must consider the limitations of each system proposed and ensure that the detection of marine mammals is possible at distances out to and beyond the exclusions zones, in the geographic region in question, and for all relevant endangered and protected species. The reduced temperature differential between the whale blow and the surrounding water expected for the New York Bight during the spring and summer, in contrast to the cooler high-latitude waters, is likely to negatively impact the detection effectiveness of infra-red.<sup>34</sup> These technologies have also not been well tested for detection of North Atlantic right whales and may be relatively ineffective for detecting minke whales,<sup>35</sup> both species of concern in light of the current UMEs declared for the Atlantic coast. The lack of proven effectiveness of night vision and infra-red technology is particularly concerning when paired with the knowledge that not all whales vocalize continuously and thus may not be able to be detected by passive acoustic monitoring alone. This effect may be exacerbated during survey periods as some species, including the North Atlantic right whale, have been observed to stop vocalizing in the presence of anthropogenic noise, consistent with an anti-predator response.<sup>36</sup> As such, even a combination of night vision/ infra-red technology combined with passive acoustic monitoring may not be effective in monitoring the exclusion zone at night.

**We recommend that geophysical surveys commence, with ramp-up, during daylight hours only to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone.** The survey can then continue into nighttime hours. If a right whale is detected in the

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<sup>33</sup> Lathlean, J, and Seuront, L, "Infra-red thermography in marine ecology: methods, previous applications and future challenges," *Marine Ecology Progress Series*, vol. 514, pp.263-277 (2014).

<sup>34</sup> *Id.*

<sup>35</sup> Cuyler, L.C., Wiulsrød, R., and Øritsland, N.A., "Thermal IR Radiation from Free Living Whales", *Marine Mammal Science*, vol. 8, no. 2, pp. 120-134 (1992).

<sup>36</sup> See, e.g., Parks, S.E., Clark, C.W., and Tyack, P.L., "Short- and long-term changes in right whale calling behavior: the potential effects of noise on acoustic communication," *Journal of the Acoustical Society of America*, vol. 122, pp.3725–3731 (2007).

exclusion zone during nighttime hours and the survey is shut down, developers should be required to wait until daylight hours for ramp-up to commence.

We also recommend that **NMFS incentivize developers to partner with scientists to collect data that would increase the understanding of the effectiveness of night vision and infra-red technologies in the New York Bight and broader region**, with a view towards greater reliance on these technologies to commence surveys during nighttime hours in the future.

*C. Minimum radii of exclusion zones should be increased and maintained throughout survey activities*

The Proposed IHA specifies that marine mammal exclusion zones (“EZs”) will be established around HRG equipment and monitored by Protected Species Observers (“PSOs”) during HRG surveys as follows: 50 m EZ for pinnipeds and delphinids (except harbor porpoises); 100 m EZ for large whales, including sperm whales and mysticetes (except North Atlantic right whale), and harbor porpoises; and 500 m EZ for North Atlantic right whales (83 Fed. Reg. 7,673). The agencies define exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance; however, these thresholds significantly underestimate the area of which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (*i.e.*, <160 dB).<sup>37</sup> Again, any potential harassment of the North Atlantic right whale is a significant concern.

**NMFS should require use of sufficient monitoring practices to ensure a 500 m EZ for marine mammals and sea turtles<sup>38</sup> around all vessels conducting activities with noise levels that could result in injury or harassment to these species** (based on the best available science), with the exception of dolphins that, in the determination of PSOs, are voluntarily approaching the vessel. **Additionally, PSOs shall, to the extent feasible, monitor beyond the minimum 500 m EZ to an extended 1000 m EZ for North Atlantic right whales,<sup>39</sup> during the use of geophysical surveys for site assessment and characterization.**

Moreover, in light of the level of endangerment of the North Atlantic right whale and the UMEs also in place for Atlantic populations of humpback whales and minke whale, **NMFS should not allow modifications of the radii of the EZs based on sound source validation data, except in the event that sound source validation data support the extension of the exclusion zones described above.** NMFS should maintain protective EZs, at the distances we recommend above, throughout the site assessment and characterization activities in order to maximize protection for North Atlantic right whales, and other protected species.

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<sup>37</sup> See, e.g., Wright, A.J., “Sound science: Maintaining numerical and statistical standards in the pursuit of noise exposure criteria for marine mammals,” *Frontiers in Marine Science*, vol. 2, (2015).

<sup>38</sup> Letter from J. Grybowski, *et al.* to Ms. M. Bornholdt, *supra*, note 27.

<sup>39</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

*D. A combination of Protected Species Observers and passive acoustic monitoring must be employed at all times*

For even the most conspicuous large whale species, estimates of relative detection probability for a Beaufort sea state of 6 is less than half that for a Beaufort Sea State of 0.<sup>40</sup> Sea state has been demonstrated to have a direct effect on the sighting probability of North Atlantic right whales in the Lower Bay of Fundy and in Roseway Basin of the Southwest Scotian Shelf.<sup>41</sup> In line with Barlow (2015), the probability of sighting a North Atlantic right whale in this area changed by a factor of 0.628 (95% CI: 0.428-0.921) for every unit increase in sea state.<sup>42</sup> Moreover, detectability of other marine mammals is highly dependent on the species and behavior, which has led experts to recommend a combination of monitoring methods be employed to maximize detectability.<sup>43</sup>

These studies indicate the effect of increasing Beaufort Sea State in reducing the probability of detection of large whales, including the North Atlantic right whale. This is a salient consideration in the evaluation of whether or not a species can be adequately protected by species observers alone, given the moderate Beaufort Sea States in the New York Bight during the months when the proposed surveys would take place. Based on the data collected by the National Buoy Data Center (*see*, Table 1),<sup>44</sup> a monthly average Beaufort Sea State of 3 or 4 can be expected in the New York Bight between March and April, with the highest sea states occurring in March.

*Table 1. 2017 monthly average Beaufort Sea State recorded at NOAA National Data Buoy Station 44065 (LLNR 725) – New York Harbor Entrance 00 15 NM SE of Breezy Point, NY. Data source: NOAA National Data Buoy Center (Accessed: March 11, 2018).*

<b>Month</b>	<b>Wind Speed</b> (m/s)	<b>Wave Height</b> (m)	<b>Beaufort Sea State</b>
March	8.14	1.19	4-5
April	5.35	1.18	3-4
May	5.91	1.07	3-4
June	5.22	0.89	3
July	4.65	0.80	3

Given these data, observers are certain to undercount the number of large whales in the mitigation area based on sea state alone. From the findings of Baumgartner *et al.* (2003), we would expect a reduction in

<sup>40</sup> Barlow, J., “Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions,” *Marine Mammal Science*, vol. 31, pp. 923-943 (2015).

<sup>41</sup> Baumgartner, M.F., Cole, T.V.N., Clapham, P.J., and Mate, R., “North Atlantic right whale habitat in the lower Bay of Fundy and on the SW Scotian Shelf during 1999-2001,” *Marine Ecology Progress Series*, vol. 264, pp. 137-154 (2003).

<sup>42</sup> *Id.*

<sup>43</sup> *See, e.g.*, Verfuss, U.K., Gillespie, D., Gordon, J., Marques, T.A., Miller, B., Plunkett, R., Theriault, J.A., Tollit, D.J., Zitterbart, D.P., Hubert, P., and Thomas, L. “Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys,” *Marine Pollution Bulletin*, vol. 126, pp.1-18 (2018).

<sup>44</sup> NOAA-NWS, “National Data Buoy Center,” Available at: <http://www.ndbc.noaa.gov/>.

detection probability of North Atlantic right whales by up to 84.5 percent based on an average Beaufort Sea State of 4, relative to ideal sighting conditions (*i.e.*, Beaufort Sea State = 0). Notably, the detectability of right whales even under ideal sighting conditions is likely to be significantly less than 100 percent given availability and perception biases other than those involving sea state.

In addition to the effect of sighting conditions, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood that they would be detected by PSOs and often go undetected by observers. For example, acoustic surveys have detected right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay<sup>45</sup> even though visual surveys have rarely reported sightings of right whales in the winter off the coast of Massachusetts.<sup>46</sup> Additionally, there is evidence that right whales spend significantly more time at subsurface depths (1-10 m) compared to normal surfacing periods (within 1 m of the surface) when exposed to certain types of acoustic disturbance.<sup>47</sup> These behavioral responses are likely to be heightened when whales are in the proximity of the acoustic disturbance from geophysical surveys, meaning that animals may be less detectable by observers during the survey period relative to other times of the year.<sup>48</sup>

As such, reliance on PSOs as the sole monitoring method is under-protective and should not be endorsed by the agency. Rather, **a combination of visual monitoring by PSOs and passive acoustic monitoring should be implemented during daylight hours. At night, a combination of passive acoustic monitoring and continual visual monitoring using night vision and infra-red should be required.** The number, and schedules, of the NMFS-approved PSOs and passive acoustic monitoring specialists aboard the vessel should be managed so that both visual monitoring (in daylight, or via night vision/infra-red technologies) and passive acoustic monitoring can be carried out 24 hours a day. Specifically, **at least two PSOs should be required to be on shift at any one time during daylight hours and each undertake 180° scanning** (rather than one PSO undertaking 360° scanning; 83 Fed. Reg. 7,675).

#### *E. Vessel strike measures*

Vessel collisions remain one of the leading causes of large whale injury and mortality, and are a primary driver of the UMEs declared by the agency for the North Atlantic right whale and Atlantic populations of humpback whale and minke whale. These data are likely to grossly underestimate the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted

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<sup>45</sup> Morano, J.L., Rice, A.N., Tielens, J.T., Estabrook, B.J., Murray, A., Roberts, B.L., and Clark, C.W., "Acoustically detected year-round presence of right whales in an urbanized migration corridor," *Conservation Biology*, vol. 26, pp. 698-707 (2012).

<sup>46</sup> Winn, H.E., Price, C.A. and Sorenson, P.W., "The distributional biology of the right whale (*Eubalaena glacialis*) in the western North Atlantic," *Report of the International Whaling Commission*, Special Issue, vol. 10, pp. 129-138 (1986); Pittman, S., Costa, B., Kot, C., Wiley, D. and Kenney, R.D., "Cetacean distribution and diversity." *Battista T., Clark R., Pittman S.(eds) An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment*, pp.264-324 (2006).

<sup>47</sup> Nowacek, D.P., Johnson, M.P., Tyack, P.L., "North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli," *Proceedings: Biological Sciences*, vol. 271, pp. 227-231 (2004).

<sup>48</sup> Robertson, F.C., Koski, W. R., Thomas, T. A., Richardson, W. J., Würsig, B., and Trites, A. W., "Seismic operations have variable effects on dive-cycle behavior of bowhead whales," *Endangered Species Research*, vol. 21, pp. 143-160 (2013).

for.<sup>49</sup> Right whales are particularly prone to ship-strike given their slow speeds, their occupation of waters near shipping lanes, and the extended time they spend at or near the water's surface.<sup>50</sup> Some types of anthropogenic noise have been shown to induce near-surfacing behavior in right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>51</sup> It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. As such, the agency has a responsibility to implement mitigation measures to prevent any further vessel collisions for these species, as well as for other species of large whale (*e.g.*, fin whales) that, in light of the broad distributional shifts observed for multiple species, may be at potential future risk of experiencing an Unusual Mortality Event.

As described in the Proposed IHA (83 F.R. 7,657), the HRG surveys will be supported by a vessel approximately 98-180 ft. in length and capable of maintaining course and survey speed of approximately 4 nm per hour. This vessel should also abide by the NMFS SMA and dynamic management area ("DMA") regulations for the North Atlantic right whale, in place between November 1<sup>st</sup> and April 30<sup>th</sup>. Given that the speed of the survey vessel will fall well below 10 knots, we agree with the agency that the risk of vessel collision during the surveys is relatively low.

The Proposed IHA, however, provides no speed restrictions for other vessels associated with the survey that may be operating during the survey months (*e.g.*, crew transfer vessels, survey support vessels). These vessels are often less than 65 ft. in length and thus exempt from the SMA and DMA regulations. As serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length<sup>52</sup> and the fact that mothers and calves are likely to travel close to shore,<sup>53</sup> **a 10 knot speed restriction on all project associated vessels transiting to/ from survey area during March 1<sup>st</sup> through April 30<sup>th</sup> should be required for the proposed survey period.** (This measure should be considered in addition to the seasonal restriction on geophysical surveys recommended in Section III.A.) **In addition, all project vessels operating within the survey area should maintain a speed of 10 knots or less during the entire survey period.**

Additionally, studies of other baleen whales indicate that noise can induce horizontal displacement;<sup>54</sup> this is of particular concern for the Empire Wind Project's proposed survey area, given its adjacency to the shipping lanes serving New York Harbor. If the HRG surveys push a right whale out of a SMA or DMA, that whale may enter an area where vessels are traveling at greater speed, presenting a greater danger of vessel collision. **Indirect ship strike risk resulting from habitat displacement must be accounted for in NMFS' analysis (*see, also, Sections II.E. and II.F.*).**

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<sup>49</sup> Reeves, R.R., Read, A.J., Lowry, L., Katona, S.K., and Boness, D.J., "Report of the North Atlantic Right Whale Program Review," 13-17 March 2006, Woods Hole, Massachusetts (2007) (prepared for the Marine Mammal Commission); Parks, S.E., Warren, J.D., Stamieszkin, K., Mayo, C.A. and Wiley, D., "Dangerous dining: surface foraging of North Atlantic right whales increases risk of vessel collisions." *Biology letters*, vol. 8, no. 1, pp. 57-60 (2011).

<sup>50</sup> NMFS, Recovery plan for the North Atlantic right whale (August 2004).

<sup>51</sup> Nowacek, D.P., *et al.*, Right whales ignore ships but respond to alarm stimuli, *supra* note 47.

<sup>52</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales," *supra* note 23.

<sup>53</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, October 24, 2017.

<sup>54</sup> *E.g.*, Castellote, M., Clark, C.W., and Lammers, M.O., "Acoustic and behavioural changes by fin whales (*Balaenoptera physalus*) in response to shipping and airgun noise," *Biological Conservation*, vol. 147, pp. 115-122 (2012).

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March 26, 2018  
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#### IV. CONCLUSION

Thank you for considering our comments. For all of the above reasons, we urge NMFS to revise its analysis consistent with the agency's statutory obligations and set an important precedent for environmentally responsible offshore wind power development in the United States. We welcome the opportunity to meet with you, and your staff, at any time to discuss these matters.

Sincerely,

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