

March 26, 2021

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**RE: Failure to Adequately Protect Endangered and Protected Marine Mammals During  
Marine Site Characterization Surveys Required for Offshore Wind Energy  
Development**

Dear Ms. Wieting and Ms. Harrison,

We are writing to express our profound concern regarding flaws in the incidental harassment authorizations (“IHAs”) issued by the National Marine Fisheries Service (“NMFS”) for marine site characterization surveys required for offshore wind energy development. We are submitting these comments on the Proposed IHA developed by NMFS in response to the request by Skipjack Offshore Energy, LLC. 86 Fed. Reg. 11,239 (Feb. 24, 2021). However, our comments summarize our overarching concerns regarding the agency’s IHA process for marine site characterization activities required for offshore wind energy development. As such, we request that these comments be considered in relation to all offshore wind energy for marine site characterization activities authorized off the U.S. East Coast.

The Biden-Harris Administration has set forth an ambitious and necessary goal for the nation to have net-zero global greenhouse gas emissions by mid-century or before. Our organizations are united in support of responsibly developed offshore wind energy as a critically needed climate change solution, and we have long advocated for policies and actions needed to bring it to scale in an environmentally protective manner. Responsible development of offshore wind energy avoids, minimizes, and mitigates impacts to ocean wildlife and habitat and traditional ocean uses, meaningfully engages stakeholders from the start, and uses best available science and data to ensure science-based and stakeholder-informed decision making.

The rapid transition to a clean energy economy is of paramount importance to wildlife and the environment that face unprecedented impacts from climate change. It is imperative, however, that all offshore wind energy development activities move forward with strong protections in place for coastal and marine habitats and wildlife. We can and must develop this resource thoughtfully and responsibly, using science-based measures to avoid, minimize, mitigate, and monitor impacts on valuable and

vulnerable wildlife. This must include a specific focus on ensuring sufficient measures are in place to protect our most vulnerable threatened and endangered species and a robust plan for pre, during, and post construction monitoring that can enable effective adaptive management strategies.

The duty to advance offshore wind energy development in a manner protective of wildlife and the environment extends to site characterization surveys that occur prior to, and during, offshore wind energy construction. We are extremely concerned that NMFS is not currently aligned with that view. Between March 2018 and July 2020, our groups submitted 12 comment letters to NMFS on proposed IHAs for marine site characterization surveys associated with 12 offshore wind Lease Areas and associated potential export cable route corridors from Massachusetts to North Carolina (*see* Attachment 1). In these letters, we consistently identified recurring flaws in NMFS' incidental take analyses and recommended measures to mitigate and monitor potential impacts to endangered and protected marine mammals—actions critical to environmentally responsible offshore wind energy development. We are heartened to see that in some instances developers are going beyond sub-standard NMFS requirements to adopt more protective measures, but NMFS should require even stronger protections of all developers.

Despite our urging, NMFS has made no meaningful improvements to the IHAs issued; in fact, NMFS has weakened the required mitigation and monitoring measures over time and repeatedly modified individual IHAs after issuance at industry request. This trend is irresponsible in light of the worsening conservation status of a number of species, including the critically endangered North Atlantic right whale, and the significant increase in the number and geographic and temporal scale of marine site characterization surveys.

In this letter, we summarize our overarching concerns and necessary improvements, and request a meeting with you and your staff to discuss how the new Administration should adjust its current IHA process to reflect requirements under the Marine Mammal Protection Act (“MMPA”) and its commitment to sustainable development of renewable energy sources. We have previously submitted similar comments to NMFS<sup>1</sup> and incorporate new information and additional concerns in this letter.

In brief, NMFS must:

- A. Incorporate additional data sources into calculations of marine mammal density and take;
- B. Analyze cumulative impacts to North Atlantic right whales and other endangered and protected marine mammal species and stocks as part of the take estimation and permitting process;
- C. Not adjust take numbers downward for large whales based on unproven mitigation measures;
- D. Require mitigation measures that meet the least practicable adverse impact standard;
- E. Strengthen its vessel speed restrictions to mitigate the harm of increased vessel traffic; and
- F. Prohibit extensions of any one-year IHA through a truncated 15-day comment period as is contrary to the MMPA.

We also submit our recommendations for advancing monitoring and mitigation during offshore wind energy development.

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<sup>1</sup> In response to 85 Fed. Reg. 48,179 (Aug. 10, 2020).

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

Congress enacted the 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.”<sup>2</sup> 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.”<sup>3</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>4</sup> This careful approach to management was deemed 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.<sup>5</sup>

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.<sup>6</sup> 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.”<sup>7</sup>

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than 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.”<sup>8</sup> The agency must prescribe permissible methods of taking 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.”<sup>9</sup> NMFS must also establish monitoring and reporting requirements.<sup>10</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>11</sup>

## **II. The Status of Marine Mammals in the Northwestern Atlantic**

### *A. North Atlantic right whales*

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<sup>2</sup> 16 U.S.C. § 1361(1).

<sup>3</sup> *Id.* § 1361(2); see also *Conservation Council for Hawaii v. NMFS*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2015).

<sup>4</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.A.N. 4144, 4148.

<sup>5</sup> 16 U.S.C. § 1361(1), (3).

<sup>6</sup> *Id.* § 1362(13), 1371(a).

<sup>7</sup> *Id.* § 1362(18)(A).

<sup>8</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>9</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>10</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>11</sup> *Id.* § 1371(a)(5)(D)(iii).

The survival of the North Atlantic right whale rests on a knife-edge. The best population estimate for the end of 2019 is just 356 individuals,<sup>12</sup> representing a more “precipitous drop than previous years.”<sup>13</sup> Moreover, the best population estimate for the end of 2018 has been revised down from 409 individuals<sup>14</sup> to 380 individuals.<sup>15</sup> The new 2019 and revised 2018 estimate a significant decrease in survival during the last three years as a result of the ongoing unusual mortality event (“UME”).<sup>16</sup> Additionally, scientists from the New England Aquarium now believe that “low birth rates coupled with whale deaths means there could be no females left in the next 10 to 20 years.”<sup>17</sup> The decline of the species over the past decade is also deeply disturbing. According to NMFS’ Draft Biological Opinion,<sup>18</sup> an unnerving 201 North Atlantic right whales were killed from 2010 to 2019.<sup>19</sup> This number is an underestimate, as documented serious injuries and deaths only represent a small fraction of whales that are injured or killed by human activities.<sup>20</sup> A recently published scientific study concludes only 29 percent (2 standard error = 2.8 percent) of North Atlantic right whale carcasses were detected from 2010 to 2017.<sup>21</sup> Further, females are more negatively affected than males by the lethal and sublethal effects of human activity, now surviving to only 30-40 years of age with an extended inter-calf interval of approximately ten years.<sup>22</sup> Calf survival is also severely diminished. Three calves born during the last two calving seasons are

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<sup>12</sup> Pettis, H.M., Pace III, R. M., and Hamilton, P.K., “North Atlantic Right Whale Consortium 2020 Annual Report Card,” Report to the North Atlantic Right Whale Consortium (2020). Available at: [https://www.narwc.org/uploads/1/1/6/6/116623219/2020narwcreport\\_cardfinal.pdf](https://www.narwc.org/uploads/1/1/6/6/116623219/2020narwcreport_cardfinal.pdf). The estimate reflects the best population estimate for the start of 2019 (366 individuals) minus the recorded whale deaths that occurred in 2019 (10).

<sup>13</sup> *Id.* at 4.

<sup>14</sup> Pettis, H.M., Pace III, R. M., and Hamilton, P.K., “North Atlantic Right Whale Consortium 2019 Annual Report Card,” Report to the North Atlantic Right Whale Consortium (2019). Available at: <https://www.narwc.org/uploads/1/1/6/6/116623219/2019reportfinal.pdf>. The estimate reflects the best population estimate for the start of 2018 (412 individuals) minus the recorded whale deaths that occurred in 2018 (3).

<sup>15</sup> Pettis, H.M., *et al.*, “North Atlantic Right Whale Consortium 2020 Annual Report Card,” *supra*. The estimate reflects the best population estimate for the start of 2018 (383 individuals) minus the recorded whale deaths that occurred in 2018 (3).

<sup>16</sup> The completion of 2019 data and the processing of additional 2020 data, along with further examination of the model, may help determine whether there is, in fact, a downward bias and if so, how large it is. *Id.* at 4; NMFS has noted that these preliminary estimates are lower than expected because of updated photo-identification data and the worse-than-expected impact of the ongoing Unusual Mortality Event. Email from Colleen Coogan to the Atlantic Large Whale Take Reduction Team, Re: To ALWTRT: Preliminary January 2019 North Atlantic right whale population estimate, Oct. 26, 2020; *see, also*, NMFS, “2017-2021 North Atlantic right whale Unusual Mortality Event.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2021-north-atlantic-right-whale-unusual-mortality-event>.

<sup>17</sup> Davie, E., “New population estimate suggests only 356 North Atlantic right whales left,” CBC News (Oct. 29, 2020). Available at: <https://www.cbc.ca/news/canada/nova-scotia/356-north-atlantic-right-whales-left-2020-population-1.5779931>.

<sup>18</sup> Draft “Endangered Species Act Section 7 Consultation on the: (a) Authorization of the American Lobster, Atlantic Bluefish, Atlantic Deep-Sea Red Crab, Mackerel/Squid/Butterfish, Monkfish, Northeast Multispecies, Northeast Skate Complex, Spiny Dogfish, Summer Flounder/Scup/Black Sea Bass, and Jonah Crab Fisheries and (b) Implementation of the New England Fisheries Management Council’s Omnibus Essential Fish Habitat Amendment 2, Consultation No. GARFO-2017-00031” (hereinafter “Draft BiOp”).

<sup>19</sup> Draft BiOp at 225.

<sup>20</sup> Sharp, S.M., McLellan, W.A., Rotstein, D.S., Costidis, A.M., Barco, S.G., Durham, K., Pitchford, T.D., Jackson, K.A., Daoust, P.-Y., Wimmer, T., Couture, E.L., Bourque, L., Frasier, T., Frasier, B., Fauquier, D., Rowles, T., Hamilton, P.K., Pettis, H., and Moore, M.J., “Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis*, mortalities between 2003 and 2018,” *Diseases of Aquatic Organisms*, vol. 135, pp. 1-31 (2019).; Pace III, R. M., Williams, R., Kraus, S. D., Knowlton, A. R. and Pettis, H. M., “Cryptic mortality of North Atlantic right whales,” *Conservation Science and Practice*, art. e346 (2021).

<sup>21</sup> Pace III, R. M., *et al.*, *id.*

<sup>22</sup> Corkeron, P., Hamilton, P., Bannister, J., Best, P., Charlton, C., Groch, K.R., Findlay, K., Rowntree, V., Vermeulen, E., and Pace, R.M., “The recovery of North Atlantic right whales, *Eubalaena glacialis*, has been constrained by human-caused mortality,” *Royal Society Open Science*, vol 5, art. 180892 (2018).

already either confirmed or likely dead due to vessel strikes.<sup>23</sup> One of the calves' mothers has been declared seriously injured due to the strike that killed her calf, one mother has not been resighted, and the third has been seriously injured from entanglement in fishing gear.<sup>24</sup> A fourth calf was found to have died of natural causes.<sup>25</sup> In 2019, North Atlantic right whales were listed as a NOAA "Species in the Spotlight" indicating that they are one of nine marine species to be at greatest risk of extinction in the United States.<sup>26</sup> In July 2020, the International Union for Conservation of Nature ("IUCN") reclassified the North Atlantic right whale from "endangered" to "critically endangered" on the IUCN Red List of Threatened Species, one step away from "extinction."<sup>27</sup>

### *B. Other large whale species*

Ongoing UMEs exist for other large whales, including the Gulf of Maine stock of humpback whales that NMFS has proposed to classify as a "strategic stock" under the MMPA.<sup>28</sup> Alarming, 105 minke whales have stranded between Maine and South Carolina from January 2017 to March 2021 (data through March 19, 2021).<sup>29</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over four years, 147 humpback whale mortalities have been recorded (data through March 19, 2021), with strandings occurring in every state along the East Coast.<sup>30</sup> The declaration of these UMEs by NMFS in the past few years for three large whale species for which anthropogenic impacts are a significant cause of mortality,<sup>31</sup> and the recent classification of humpback whales as a "strategic stock" by the agency, demonstrates an increasing risk to whales from human activities along the East Coast.

### *C. Dolphins and other marine mammals*

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<sup>23</sup> NMFS, "2017-2021 North Atlantic right whale Unusual Mortality Event." Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2021-north-atlantic-right-whale-unusual-mortality-event>.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> NMFS, "North Atlantic right whale – In the Spotlight." Available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale#spotlight>.

<sup>27</sup> Cooke, J.G., "Eubalaena glacialis," *The IUCN Red List of Threatened Species*, e.T41712A162001243 (2020). Available at: <https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T41712A162001243.en>.

<sup>28</sup> NMFS, "2020 Draft Marine Mammal Stock Assessment Reports, US Atlantic and Gulf of Mexico Draft Marine Mammal Stock Assessment," p. 496 (2020). Available at: <https://s3.amazonaws.com/media.fisheries.noaa.gov/2020-12/Draft%202020%20Atlantic-Gulf-marine%20mammal%20stock%20assessment%20reports.pdf?null>.

<sup>29</sup> NMFS, "2017-2021 Minke whale Unusual Mortality Event along the Atlantic Coast." Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2021-minke-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>30</sup> NMFS, "2016-2021 Humpback whale Unusual Mortality Event along the Atlantic Coast." Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2021-humpback-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>31</sup> *Id.*; NMFS, "2017-2021 North Atlantic right whale Unusual Mortality Event," *supra*; NMFS, "2017-2021 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra*.

In addition to endangered and protected large whales, the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin is of concern. The stock is considered to be both strategic and depleted under the MMPA due to the number of annual human-caused mortalities and previous UMEs.<sup>32</sup>

We also note that the waters off Cape Hatteras, North Carolina, have the highest marine mammal biodiversity of any area along the East Coast, and compare favorably to other locations internationally renowned for their diversity of species, including waters off Northwest Spain, New Zealand, and South Africa.<sup>33</sup> Nine families and 34 species (29 cetaceans, 4 pinnipeds, and 1 manatee) were recorded for the entire coast of North Carolina in a recent study.<sup>34</sup> In addition to the diversity of species, marine mammals also occur at unusually high densities off Cape Hatteras compared to other areas along the East Coast.<sup>35</sup> In light of the outstanding importance for marine mammals, including the aforementioned strategic species and stocks, this area demands special attention from NMFS during the IHA permitting process.

#### *D. NMFS permitting standards*

NMFS is obligated under both the ESA and the MMPA to protect the North Atlantic right whale from additional harmful impacts of human activities and required by the MMPA to consider the full range of potential impacts on all marine mammal species, including endangered fin and sei whales, the strategic stock of humpback whales, minke whales, and strategic stocks of small cetaceans, that are known to utilize the proposed survey area(s) and surrounding regions before issuing an IHA with appropriate avoidance, minimization, mitigation, and monitoring measures. NMFS must use the best available scientific information on marine mammal presence and density, as required by law.<sup>36</sup> Considering the elevated threat to federally protected species and populations in the Atlantic, and that climate-driven changes in oceanographic conditions, and resulting shifts in prey distribution, are rapidly changing the spatial and temporal patterns of habitat use by North Atlantic right whales and other large whale species,<sup>37</sup>

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<sup>32</sup> Hayes, S.A., Josephson, E., Maze-Foley, K., and Rosel, P.E. (eds.), “U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2017,” *NOAA Technical Memorandum NMFS-NE-245*, at pp. 110-124 (Sept. 2018). Available at: <https://repository.library.noaa.gov/view/noaa/22730>. See, also, NMFS, “U.S. Atlantic and Gulf of Mexico Draft Marine Mammal Stock Assessment,” at 202. Available at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports>.

<sup>33</sup> Byrd, B.L., Hohn, A.A., Lovewell, G.N., Altman, K.M., Barco, S.G., Friedlaender, A., Harms, C.A., McLellan, W.A., Moore, K.T., Rosel, P.E., and Thayer, V.G., “Strandings as indicators of marine mammal biodiversity and human interactions off the coast of North Carolina.” *Fishery Bulletin*, vol. 112, pp.1-23 (2014).

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

<sup>35</sup> Halpin, P.N., Read, A.J., Fujioka, E.I., Best, B.D., Donnelly, B.E.N., Hazen, L.J., Kot, C., Urian, K., LaBrecque, E., Dimatteo, A., and Cleary, J., “OBIS-SEAMAP: The world data center for marine mammal, sea bird, and sea turtle distributions.” *Oceanography*, vol. 22, pp.104-115 (2009).

<sup>36</sup> 16 U.S.C. § 1362(19), § 1362(27).

<sup>37</sup> See, e.g., 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); Davis, G.E., Baumgartner, M.F., Corkeron, P.J., Bell, J., Berchok, C., Bonnell, J.M., Thornton, J.B., Brault, S., Buchanan, G.A., Cholewiak, D.M. and Clark, C.W., “Exploring movement patterns and changing distributions of baleen whales in the western North Atlantic using a decade of passive acoustic data,” *Global change biology*, vol. 26, p.4812 (2020); Guilpin, M., Lesage, V., McQuinn, I., Brosset, P., Doniol-Valcroze, T., Jeanniard-du-Dot, T. and Winkler, G., “Repeated Vessel Interactions and Climate-or Fishery-Driven Changes in Prey Density Limit Energy Acquisition by Foraging Blue Whales,” *Frontiers in Marine Science*, vol. 7, p.626 (2020); Record, N., Runge, J., Pendleton, D., Balch, W., Davies, K., Pershing, A., Johnson, C., Stamieszkin, K., Ji, R., Feng, Z. and Kraus, S., “Rapid Climate-Driven Circulation Changes Threaten Conservation of Endangered North Atlantic

NMFS must ensure that any potential stressors posed by the proposed surveys, and the cumulative impacts of surveys across multiple projects, are mitigated to effectuate the least practicable impact on affected species and stocks.<sup>38</sup>

### III. Concerns Regarding Current Incidental Harassment Authorizations for Marine Site Characterizations Surveys and Necessary Improvements

#### A. NMFS must incorporate additional data sources into calculations of marine mammal density and take

To comply with statutory requirements of the MMPA, NMFS must base its IHA analysis on the best available scientific information.<sup>39</sup> However, in determining the proportion of marine mammal species and populations taken by the proposed activities specified for individual IHAs—a calculation that lies at the heart of the agency’s “small numbers” analysis—NMFS has chosen to rely on estimates of marine mammal densities derived from the habitat-based density model (the “Roberts et al.” model) produced by the Duke University Marine Geospatial Ecology Laboratory.<sup>40</sup> While this model has been updated to incorporate additional data sources, including in Cape Cod Bay, and two or more years of data,<sup>41</sup> it still excludes important data sources.

**Of particular concern is NMFS’ continuing assertion that the lease areas and cable routes south of Nantucket and Martha’s Vineyard are situated only within the North Atlantic right whale migratory corridor,<sup>42</sup> rather than acknowledging that North Atlantic right whales are now regularly observed aggregating socially and foraging in these areas year-round.** This omission is irresponsible in light of NMFS’ current work to develop new regulations to reduce entanglement of North Atlantic right whales,<sup>43</sup> for which the importance of this area as a new aggregation and foraging site forms a central point of consideration. A recent NMFS Technical Memorandum authored by the agency’s North Atlantic right whale “Expert Working Group” describes the area “South of the Islands” as “core” North

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Right Whales,” *Oceanography*, vol. 32, pp. 162-169 (2019); Santora, J.A., Mantua, N.J., Schroeder, I.D., Field, J.C., Hazen, E.L., Bograd, S.J., Sydeman, W.J., Wells, B.K., Calambokidis, J., Saez, L. and Lawson, D., “Habitat compression and ecosystem shifts as potential links between marine heatwave and record whale entanglements,” *Nature Communications*, vol. 11, pp.1-12 (2020); Silber, G.K., Lettrich, M.D., Thomas, P.O., Baker, J.D., Baumgartner, M., Becker, E.A., Boveng, P., Dick, D.M., Fiechter, J., Forcada, J. and Forney, K.A., “Projecting marine mammal distribution in a changing climate,” *Frontiers in Marine Science*, vol. 4, p.413 (2017).

<sup>38</sup> 16 U.S.C. § 1371(a)(5)(D)(ii)(I).

<sup>39</sup> 16 U.S.C. § 1362(19), § 1362(27).

<sup>40</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., Khan, C.B. and McLellan, W.A., “Habitat based cetacean density models for the U.S. Atlantic and Gulf of Mexico,” *Scientific Reports*, vol. 6, p.22615 (2016); Roberts J.J., Mannocci L., and Halpin P.N., “Final Project Report: Marine Species Density Data Gap Assessments and Update for the AFTT Study Area, 2016-2017 (Opt. Year 1).” Document version 1.4. Report prepared for Naval Facilities Engineering Command, Atlantic by the Duke University Marine Geospatial Ecology Lab, Durham, NC (2017); Roberts J.J., Mannocci L., Schick R.S., and Halpin P.N., “Final Project Report: Marine Species Density Data Gap Assessments and Update for the AFTT Study Area, 2017-2018 (Opt. Year 2).” Document version 1.2 - 2018-09-21. Report prepared for Naval Facilities Engineering Command, Atlantic by the Duke University Marine Geospatial Ecology Lab, Durham, NC. (2018).

<sup>41</sup> *Id.*

<sup>42</sup> *See, e.g.*, 85 Fed. Reg. at 37,872 (Jun. 24, 2020).

<sup>43</sup> *See, e.g.*, “Atlantic Large Whale Take Reduction Team Meeting—Key Outcomes Memorandum,” Providence, Rhode Island, April 23-26, 2019 (October 2019). Available at: <https://www.fisheries.noaa.gov/webdam/download/97751765>.

Atlantic right whale foraging habitat during the “Winter/Spring/Summer/Fall.”<sup>44</sup> The Roberts et al. model does not adequately capture this increase in habitat use by right whales and, therefore, levels of take based solely on those models will most certainly be underestimates. The Expert Working Group specifically notes the need to improve the North Atlantic right whale habitat model and recommends “a coordinated and unified modeling approach [with Canada] to provide distribution and density predictions across the range of NARW habitat.”<sup>45</sup>

Similarly, NMFS defined the North Atlantic right whale migratory corridor as a biologically important area (“BIA”) in 2015 before evidence emerged of the new foraging areas south of Martha’s Vineyard and Nantucket. While helpful in identifying key areas of importance, the BIAs are not comprehensive and are intended to be periodically reviewed and updated to reflect the best available scientific information.<sup>46</sup> Until the current review is completed for the East Coast, NMFS should not rely on the North Atlantic right whale migratory corridor BIA as the sole indicator of habitat importance for the species.

NMFS must require that all available data are used to ensure that any potential shifts in North Atlantic right whale habitat usage are reflected in estimations of marine mammal density and take. Additional data can be obtained from sightings databases (e.g., NOAA Right Whale Sighting Advisory System;<sup>47</sup> NEFSC Monthly DMA analysis<sup>48</sup>), and passive acoustic monitoring efforts (e.g., Robots4Whales detections;<sup>49</sup> NEFSC Acoustic Indicators of Right Whale Occurrence<sup>50</sup>). Further, from February 2017 through June 2018, and October 2018 to August 2019, monthly standardized marine mammal aerial surveys were flown in the Massachusetts and Rhode Island and Massachusetts Wind Energy Areas (“WEAs”) by the New England Aquarium. Right whales were seen in every season and all but 6 of the 29 months surveyed.<sup>51</sup> As part of the New England Aquarium Study, a digital acoustic monitoring instrument at Nomans Land

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<sup>44</sup> Oleson, E.M., Baker, J., Barlow, J., Moore, J.E., and Wade, P., “North Atlantic Right Whale Monitoring and Surveillance: Report and Recommendations of the National Marine Fisheries Service’s Expert Working Group.” NOAA Technical Memorandum NMFS-OPR-64 (August 2020), at Fig. 1. Available at: <https://www.fisheries.noaa.gov/resource/document/north-atlantic-right-whale-monitoring-and-surveillance-report-and-recommendations>.

<sup>45</sup> *Id.*, at 22.

<sup>46</sup> “However, these BIAs are meant to be living documents that should be routinely reviewed and revised to expand the number of species covered and to update the existing BIAs as new information becomes available.” Van Parijs, S. M., “Letter of introduction to the Biologically Important Areas issue.” *Aquatic Mammals*, vol. 41, p.1 (2015).

<sup>47</sup> NOAA Fisheries, “NOAA Right Whale Sighting Advisory System.” Available at: <https://apps-nefsc.fisheries.noaa.gov/psb/surveys/MapperiframeWithText.html>.

<sup>48</sup> NOAA Fisheries, “Interactive DMA Analyses.” Northeast Fisheries Science Center, updated September 2019. Available at: <https://apps-nefsc.fisheries.noaa.gov/psb/surveys/interactive-monthly-dma-analyses/>.

<sup>49</sup> Woods Hole Oceanographic Institution, “Robots4Whales.” Available at: <http://dcs.whoi.edu/>; *See, also*, WCS/WHOI, “Autonomous real-time marine mammal detections, New York Bight buoy.” Available at: [http://dcs.whoi.edu/nyb0218/nyb0218\\_buoy.shtml](http://dcs.whoi.edu/nyb0218/nyb0218_buoy.shtml); WCS/WHOI, “Autonomous real-time marine mammal detections, New York Bight buoy NW.” Available at: [http://dcs.whoi.edu/nybnw0120/nybnw0120\\_buoy.shtml](http://dcs.whoi.edu/nybnw0120/nybnw0120_buoy.shtml); WCS/WHOI, “Autonomous real-time marine mammal detections, New York Bight buoy SE.” Available at: [http://dcs.whoi.edu/nybse0120/nybse0120\\_buoy.shtml](http://dcs.whoi.edu/nybse0120/nybse0120_buoy.shtml).

<sup>50</sup> Northeast Fisheries Science Center, “Acoustic Indicators of Right Whale Occurrence.” Available at: <https://apps-nefsc.fisheries.noaa.gov/psb/surveys/interactive-monthly-dma-analyses/>.

<sup>51</sup> Quintana, E., Kraus, S., and Baumgartner, M., “Megafauna aerial surveys in the Wind Energy Area of Massachusetts and Rhode Island with emphasis on large whales. Summary Report – Campaign 4, 2017-2018.” New England Aquarium and Woods Hole Oceanographic Institution (December 2019); Redfern, J., Pendleton, D., O’Brien, O., Ganley, L., Hodge, B. and McKenna, K., “Tools to identify and minimize risk to marine mammals,” Presentation to the Massachusetts Habitat Working Group (Dec. 11, 2020).



station detected right whales throughout the sampling period.<sup>52</sup> During the 2018 Atlantic Marine Assessment Program for Protected Species (“AMAPPS”) ship-based surveys,<sup>53</sup> two *foraging* right whales were sighted within the Massachusetts WEA by NMFS researchers studying the potential linkages between biological and physical oceanography and marine mammal sightings on April 7. Additional sightings in the North Atlantic right whale consortium database document 47 right whales in the WEA from March 18, 2018 to April 11, 2018. A study funded by the Bureau of Offshore Energy Management (“BOEM”) using an autonomous vehicle for real-time monitoring of marine mammals from December 2019 through March 2020, and again from December 2020 through February 2021, on Cox Ledge acoustically detected right whales in all months of the study.<sup>54</sup> NMFS should take immediate steps to collate and integrate these and more recent data sets to more accurately reflect marine mammal presence for future IHAs and other work.

As a general matter, the Roberts et al. model does not differentiate between species of pilot whale or seal, or between stocks of bottlenose dolphin, including the depleted and strategic Western North Atlantic Southern Migratory Coastal Stock of bottlenose dolphin. To make up for the general data, NMFS authorizes the total take for each stock of bottlenose dolphins and all pilot whale and seal species.<sup>55</sup> However, the MMPA requires that the agency look at the impact to both species and marine mammal stocks to support a negligible impact finding. A record that provides “general discussions with little, if any, relevance to the population-level effects on specific species and stock, and to conclusory statements that no such effects are expected,” is inadequate.<sup>56</sup> Miscalculation of take levels based on incomplete data could have serious implications for the future conservation of these species and stocks.

*B. NMFS must analyze cumulative impacts to North Atlantic right whales and other endangered and protected marine mammal species and stocks as part of the take estimation and permitting process*

The spatial and temporal scale of site characterization surveys has increased significantly over the last three years. For example, the Final IHA issued to Orsted Wind Power LLC in 2019, authorizes surveys conducted across a geographic area spanning waters off Massachusetts, Rhode Island, and New York twenty-four hours a day for up to a year, utilizing between five and nine survey vessels at any one time (representing 666 “vessel days”).<sup>57</sup> The number of authorizations granted to different applicants in the same geographic region has also increased. This is particularly true of the Lease Areas and associated potential export cable routes off Rhode Island and Massachusetts where there are currently eight separate

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<sup>52</sup> *Id.*

<sup>53</sup> Northeast Fisheries Science Center and Southeast Fisheries Science Center, “2018 Annual Report of a Comprehensive Assessment of Marine Mammal, Marine Turtle, and Seabird Abundance and Spatial Distribution in US waters of the Western North Atlantic Ocean – AMAPPS II.” (2019). Available at: <https://www.fisheries.noaa.gov/resource/publication-database/atlantic-marine-assessment-program-protected-species>.

<sup>54</sup> Woods Hole Oceanographic Institution, “Autonomous Real Team Marine Mammal Detections: Cox Ledge, Winter 2019-2020,” Available at: [http://dcs.whoi.edu/cox1219/cox1219\\_we16.shtml](http://dcs.whoi.edu/cox1219/cox1219_we16.shtml).

<sup>55</sup> See, e.g., 85 Fed. Reg. at 36,537 (Jun. 17, 2020).

<sup>56</sup> *Conservation Council for Hawaii v. NMFS*, 97 F. Supp. 3d 1210, 1223 (D. Haw. 2015).

<sup>57</sup> 84 Fed. Reg. at 36,055 (Jul. 26, 2019).

wind energy projects in various stages of development.<sup>58</sup> Each project has, or will need to, request authorization from NMFS to carry out site assessment and characterization activities that will then be undertaken concurrently or sequentially in space and time.

The operation of multiple, large-scale geophysical surveys within the same area at the same time presents significant potential for cumulative disturbance of strategic and otherwise vulnerable marine mammal species and stocks. The agency acknowledges that “[a]ny disturbance to marine mammals is likely to be in the form of temporary avoidance or alteration of opportunistic foraging behavior near the survey location,”<sup>59</sup> but makes no attempt to account for cumulative impacts from multiple sound sources operating concurrently and continuously across the survey areas. Additionally, “vessel days” are treated equally by the agency in terms of potential impacts to marine mammals<sup>60</sup> even though there are times of year when some species have higher vulnerability to noise exposure from the survey activities being undertaken (e.g., during foraging periods), or may have reduced ability to avoid noise exposure due to multiple survey vessels operating in the same vicinity at the same time.

**We are extremely concerned about the cumulative impacts of survey activities in the Lease Areas and associated potential cable export routes off Rhode Island and Massachusetts on North Atlantic right whales.** These areas coincide directly with year-round “core” North Atlantic right whale foraging habitat<sup>61</sup> and well as ESA critical habitat.<sup>62</sup> Protection of North Atlantic right whales during foraging, and the protection of their foraging habitat, must be one of NMFS’ highest priorities. Foraging areas with suitable prey density are limited relative to the overall distribution of North Atlantic right whales, and a decreasing amount of habitat is available for resting, pregnant and lactating females.<sup>63</sup> This means that unrestricted and undisturbed access to suitable areas, when they exist, is extremely important for the species to maintain its energy budget.<sup>64</sup> Scientific information on North Atlantic right whale functional ecology also shows that the species employs a “high-drag” foraging strategy that enables them to selectively target high-density prey patches, but is energetically expensive.<sup>65</sup> Thus, if access to prey is limited in any way, the ability of the whale to offset its energy expenditure during foraging is jeopardized. In fact, researchers have concluded: “[R]ight whales acquire their energy in a relatively short period of intense foraging; even moderate changes in their feeding behavior or their prey energy density are likely

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<sup>58</sup> See, BOEM, “Atlantic OCS Renewable Energy – Massachusetts to South Carolina,” (March 30, 2020). Available at: <https://www.boem.gov/sites/default/files/images/Map%20of%20Atlantic%20OCS%20renewable%20energy%20areas.jpg>

<sup>59</sup> See, e.g., 84 Fed. Reg. at 36,054 (Jul. 26, 2019), at 36,065.

<sup>60</sup> *Id.*

<sup>61</sup> Oleson, E.M., et al., “North Atlantic Right Whale Monitoring and Surveillance: Report and Recommendations of the National Marine Fisheries Service’s Expert Working Group,” *supra*.

<sup>62</sup> 81 Fed. Reg. at 4,837 (Jan. 27, 2016).

<sup>63</sup> Van der Hoop, J., Nousek-McGregor, A.E., Nowacek, D.P., Parks, S.E., Tyack, P., and Madsen, P., “Foraging rates of ram-filtering North Atlantic right whales,” *Functional Ecology*, vol. 33, pp. 1290-1306 (2019); Plourde, S., Lehoux, C., Johnson, C. L., Perrin, G., and Lesage, V. “North Atlantic right whale (*Eubalaena glacialis*) and its food: (I) a spatial climatology of Calanus biomass and potential foraging habitats in Canadian waters,” *Journal of Plankton Research*, vol. 41, pp. 667-685 (2019); Lehoux, C., Plourde S., and Lesage, V., “Significance of dominant zooplankton species to the North Atlantic Right Whale potential foraging habitats in the Gulf of St. Lawrence: a bioenergetic approach,” DFO Canadian Science Advisory Secretariat (CSAS) Research Document 2020/033 (2020). Gavrilchuk, K., Lesage, V., Fortune, S., Trites, A.W., and Plourde, S., “A mechanistic approach to predicting suitable foraging habitat for reproductively mature North Atlantic right whales in the Gulf of St. Lawrence,” DFO Canadian Science Advisory Secretariat (CSAS) Research Document 2020/034 (2020).

<sup>64</sup> *Id.*

<sup>65</sup> Van der Hoop, J., et al., *id.*

to negatively impact their yearly energy budgets and therefore reduce fitness substantially.”<sup>66</sup> North Atlantic right whales are already experiencing significant food-stress: juveniles, adults, and lactating females have significantly poorer body condition relative to southern right whales and the poor condition of lactating females may cause a reduction in calf growth rates.<sup>67</sup> NMFS must ensure undisturbed access to foraging habitat to adequately protect the species.

The best available scientific information shows that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging behavior may lead to population-level effects and is of critical concern.<sup>68</sup> Currently, NMFS undertakes take analyses and prescribes mitigation measures on a project-by-project basis, leading to inconsistency, inefficiency, and inadequacy. **NMFS must carefully analyze the cumulative impacts from the proposed survey activities on the North Atlantic right whale and other endangered and protected species and stocks and ensure appropriate mitigation of these cumulative impacts. It is vital that the agency advance a programmatic incidental take regulation for site characterization activities.**<sup>69</sup> This will ensure NMFS considers alternatives and mitigation measures at the scale at which impacts will occur and may potentially help increase the pace of environmentally responsible offshore wind energy development along the East Coast.

*C. NMFS must not adjust take numbers downward for large whales based on unproven mitigation measures*

In a number of IHAs, NMFS elected to adjust take numbers of endangered large whales downward by as much as 100 percent, based on assumptions that marine mammals will avoid the sound and the presumed effectiveness of mitigation measures. For example, in the IHA for Bay State Wind, issued in 2018, the agency elected to adjust take numbers of North Atlantic right whales to zero “due to the implementation of a 500 m shutdown zone [i.e., exclusion zone or “EZ”], which is greater than the 400 m Level B behavioral harassment zone.”<sup>70</sup> For Avangrid Renewables, LLC (issued in 2019), NMFS adjusted take

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<sup>66</sup> *Id.*

<sup>67</sup> Christiansen, F., Dawson, S.M., Durban, J.W., Fearnbach, H., Miller, C.A., Bejder, L., Uhart, M., Sironi, M., Corkeron, P., Rayment, W., Leunissen, E., Haria, E., Ward, R., Warick, H.A., Kerr, I., Lynn, M.S., Pettis, H.M., & Moore, M.J., “Population comparison of right whale body condition reveals poor state of the North Atlantic right whale,” *Marine Ecology Progress Series*, vol. 640, pp. 1-16 (2020).

<sup>68</sup> *See, e.g., id*; Van der Hoop, J., *et al.*, “Foraging rates of ram-filtering North Atlantic right whales,” *supra*.

<sup>69</sup> *See* Letter from National Wildlife Federation, Natural Resources Defense Council, National Audubon Society, Conservation Law Foundation, Defenders of Wildlife, Sierra Club, Mass Audubon, New Hampshire Audubon, NY4WHALES, Southern Environmental Law Center, Surfrider, and Whale and Dolphin Conservation, submitted to the Program Manager, Office of Renewable Energy, Bureau of Ocean Energy Management, re: “Vineyard Wind 1 Construction and Operations Plan Supplement to the Draft Environmental Impact Statement.” Docket ID: BOEM-2020-0005 (July 27, 2020). Some of our groups have mirrored this recommendation in comments to BOEM. To best account for the impacts of the simultaneous development of multiple lease areas on the North Atlantic right whale, we have stressed that BOEM prepare a full Programmatic Environmental Impact Statement (“EIS”) encompassing all U.S. East Coast renewable energy development as soon as possible to inform future offshore wind development. It would be highly beneficial to collectively consider available information on North Atlantic right whales in U.S. Atlantic waters to build a picture of responsible development accounting for the lifespan and migratory movements of the species, which have the potential to overlap with every Lease Area along the U.S. East Coast on a twice-yearly basis (*i.e.*, northern and southern migration). A Programmatic EIS is also particularly timely given the climate-driven shifts in North Atlantic right whale habitat use observed over the past decade as well as significant changes in their conservation status and major threats.

<sup>70</sup> 83 Fed. Reg. at 22,458 (May 15, 2018).

numbers of endangered North Atlantic right whales and fin whales to zero as “the calculated numbers of potential acoustic exposures above the 160 dB threshold are small” and based on the implementation of a 500-m exclusion zone for North Atlantic right whales and a 200-m exclusion zone for fin whales that are greater than or, in the case of fin whales, equal to the calculated Level B harassment zone.<sup>71</sup> In the IHA for Mayflower Wind issued in 2020, NMFS adjusted take numbers for North Atlantic right whales and other large whale species downward by 50 percent, acknowledging risk to the species during the night:

“... expect[s] the proposed mitigation measures, including a 500-m exclusion zone for right whales (which exceeds the Level B harassment zone by over 350-m), will be effective in reducing the potential for takes by Level B harassment, but there is still a risk that right whales may not be detected within the Level B harassment zone during periods of diminished visibility, particularly at night.”<sup>72</sup>

While Level B takes for the North Atlantic right whale and other endangered and protected species must be minimized, **we do not share the agency’s confidence that it can successfully mitigate Level B harassment simply through the implementation of the IHA mitigation measures currently required.**<sup>73</sup>

Our reasons are threefold. First, NMFS’ reliance on a 160 dB threshold for behavioral harassment is not supported by the best available scientific information and grossly underestimates Level B take.<sup>74</sup> Second, the agency relies on the assumption that marine mammals will take measures to avoid the sound<sup>75</sup> even though studies have not found avoidance behavior to be generalizable among species and contexts<sup>76</sup> and

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<sup>71</sup> 84 Fed. Reg. at 17,400 (Apr. 25, 2019).

<sup>72</sup> 85 Fed. Reg. at 37,866 (May 25, 2020).

<sup>73</sup> *E.g.*, In support of the adjustment of take numbers authorized for the Avangrid Renewables, LLC. project, the agency reflects on the success of required monitoring during previous geophysical surveys conducted off the U.S. East Coast: “Marine mammal monitoring reports submitted after the completion of HRG surveys indicated that authorized take numbers have never been exceeded.”<sup>73</sup> The assumption inherent in this statement is that the number and nature of takes are possible to accurately determine by what has largely been visual monitoring. Moreover, the agency is proposing to authorize solely Level B take, which is highly unlikely to be detected by visual observation. 84 Fed. Reg. 17,384 (April 25, 2019).

<sup>74</sup> *See, e.g.*, Gomez, C., Lawson, J.W., Wright, A.J., Buren, A.D., Tollit, D. and Lesage, V. “A systematic review on the behavioural responses of wild marine mammals to noise: the disparity between science and policy,” *Canadian Journal of Zoology*, vol. 94, pp. 801-819 (2016); Tyack, P.L., and Thomas, L. “Using dose-response functions to improve calculations of the impact of anthropogenic noise,” *Aquatic Conservation: Marine and Freshwater Ecosystems*, vol. 29, pp. 242-253 (2019). *See, also*, Letter from the Marine Mammal Commission to Ms. Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, regarding the IHA requested by Orsted Wind LLC. (June 13, 2018). Available at: <https://www.mmc.gov/wp-content/uploads/18-06-13-Harrison-Orsted-Bay-State-IHA.pdf>. The Marine Mammal Commission “...remains concerned that NMFS’ 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., parametric SBPs, chirps, echosounders, and other sonars including side-scan and fish-finding).”

<sup>75</sup> *See, e.g.*, “We expect that all potential takes would be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area, reactions that are considered to be of low severity and with no lasting biological consequences (e.g., Southall et al., 2007).” 85 Fed. Reg. at 37,872.

<sup>76</sup> Miller, P. J. O., Johnson, M. P., Madsen, P. T., Biassoni, N., Quero, M., and Tyack, P. L., “Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico,” *Deep Sea Research Part I: Oceanographic Research Papers*, 56, pp. 1168-1181 (2009); Pirota, E., Milor, R., Quick, N., Moretti, D., Di Marzio, N., Tyack, P., Boyd, I., and Hastie, G., “Vessel noise affects beaked whale behavior: results of a dedicated acoustic response

even though avoidance may itself constitute take under the MMPA.<sup>77</sup> Third, we agree with the Marine Mammal Commission that until the effectiveness of mitigation measures are determined, it is premature to include any related assumptions to reduce the numbers of marine mammal takes.<sup>78</sup>

Disturbingly, we have also witnessed an erosion in the strength of mitigation measures in recent IHAs that NMFS has issued compared to previous IHA authorizations for the region, even as the conservation status of the North Atlantic right whale and other species has continued to deteriorate. For example, NMFS required multiple Protected Species Observers (“PSO”), night vision and infrared technology, and passive acoustic monitoring for Bay State Wind in 2018. In subsequent IHAs, NMFS required the use of PSOs as the sole monitoring method<sup>79</sup> and, by Fall 2019, NMFS further weakened requirements to only a single PSO as the primary means of detecting marine mammals during the day, requiring neither night vision or infrared technology nor real-time passive acoustic monitoring.<sup>80</sup>

Collectively, the agency’s assumptions regarding acoustic thresholds and mitigation effectiveness are unfounded and NMFS cannot justify any reduction in the number of takes authorized based on these faulty assumptions.

*D. NMFS must require mitigation measures that meet the least practicable adverse impact standard*

In authorizing “take” by incidental harassment under the general authorization provision of the MMPA, NMFS 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.”<sup>81</sup> Knowing the cumulative risks posed to the North Atlantic right whale and other protected marine mammal stocks by increased site assessment and characterization activities, NMFS has an obligation to impose robust mitigation requirements to protect these species to the maximum extent practicable.

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study,” *PloS ONE*, vol. 7, e42535 (2012). *See, also*, Letter from the Marine Mammal Commission to Ms. Jolie Harrison, Supervisor, Incidental Take Program, Permits and Conservation, Office of Protected Resources, National Marine Fisheries Service, regarding the NMFS 5 September 2014 notice (79 Fed. Reg. 53025) and the letter of authorization (LOA) application submitted by the U.S. Department of the Navy seeking issuance of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act (the MMPA). (September 15, 2015). Available at: [https://www.mmc.gov/wp-content/uploads/Navy\\_GOA\\_ANPR\\_091514.pdf](https://www.mmc.gov/wp-content/uploads/Navy_GOA_ANPR_091514.pdf). The Marine Mammal Commission “knows of no scientifically established basis for predicting the extent to which marine mammals will abandon their habitat based on the presence of vessels or aircraft. That would be essential information for adjusting the estimated numbers of takes.”

<sup>77</sup> 16 U.S.C. § 1362(18)(A)(ii).

<sup>78</sup> *See, e.g.*, Letter from the Marine Mammal Commission to Naval Facilities Engineering Command, Pacific MITT Supplemental EIS/OEIS Project Manager regarding the U.S. Navy’s (the Navy) Draft Supplemental Environmental Impact Statement/Overseas Environmental Impact Statement (DSEIS) for training and research, development, testing, and evaluation (testing) activities conducted within the Mariana Islands Training and Testing (MITT) study area (Phase III; 84 Fed. Reg. 677) (February 11, 2019). Available at: <https://www.mmc.gov/wp-content/uploads/19-02-11-Naval-Facilities-Engineering-Command-Pacific-MITT-DSEIS.pdf>.

<sup>79</sup> *See, e.g.*, 84 Fed. Reg. at 31,032 (Jun. 28, 2019); 84 Fed. Reg. at 52,464 (Oct. 2, 2019).

<sup>80</sup> *See, e.g.*, 84 Fed. Reg. at 66,156 (Dec. 3, 2019); 85 Fed. Reg. at 55,415 (Sep. 8, 2020).

<sup>81</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

The following site assessment and characterization mitigation measures would help ensure adequate protections for the North Atlantic right whale; many offer protections to other endangered and protected species and stocks as well.

a. Seasonal and diel restrictions

**It is most protective to avoid and reduce impacts in the first instance by separating harmful activities from the species potentially affected.** NMFS should prohibit site assessment and characterization activities involving equipment with noise levels that could cause injury or harassment to North Atlantic right whales (based on the best available science, we consider source levels greater than 180 dB re 1  $\mu$ Pa (SPL) at 1-meter at frequencies between 7 and 35 kHz to be potentially harmful to low-frequency cetaceans<sup>82</sup>) during periods of highest risk to right whales. These periods are defined as times of highest relative density of animals during their migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present, as supported by review of the best available scientific information at the time of the activity.

Further, while NMFS must minimize existing and potential stressors to the North Atlantic right whale to promote the survival and recovery of the species, the agency must also address potential impacts to other protected whale species, particularly in light of the UMEs declared for the strategic stock of humpback whales and minke whales,<sup>83</sup> as well as the several other strategic stocks that populate the Atlantic seaboard. It is therefore imperative that NMFS fully account for the consequences of the proposed North Atlantic right whale seasonal restriction on other protected species. NMFS should also advance a robust and effective near real-time monitoring and mitigation system for North Atlantic right whales and other endangered and protected species (*see* Section IV: “Advancing Monitoring and Mitigation During Offshore Wind Energy Development”).

In addition, when geophysical survey equipment with the potential to injure or harass protected species and stocks is deployed, NMFS should require that work commence, with ramp up, only during daylight hours and good visibility conditions to maximize the probability that marine mammals are detected and confirmed clear of the exclusion zone before activities begin. The activity can then continue into periods of darkness and low visibility. If the activity is halted or delayed because of documented or suspected North Atlantic right whale presence in the area, NMFS should require developers to wait until daylight hours and good visibility conditions to recommence.

b. Adequate monitoring of exclusion zones

As noted above, the 160 dB threshold for behavioral harassment is not supported by best available scientific information and grossly underestimates Level B take (*see* Section III(C)). **For the North**

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<sup>82</sup> *See, e.g.,* Gomez, C., *et al.*, “A systematic review on the behavioural responses of wild marine mammals to noise: the disparity between science and policy,” *supra*. Tyack, P.L., and Thomas, L., “Using dose-response functions to improve calculations of the impact of anthropogenic noise,” *supra*.

<sup>83</sup> NMFS, “2018-2020 North Atlantic right whale Unusual Mortality Event,” *supra*; NMFS, “2016-2020 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra*; NMFS, “2017-2020 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra*.

**Atlantic right whale, NMFS should establish an exclusion zone of 1,000-meters around each vessel conducting activities with noise levels that could result in injury or harassment to this species (i.e., source levels > 180 dB re 1  $\mu$ Pa (SPL) at 1-meter at frequencies between 7 and 35 kHz).** NMFS should establish a minimum exclusion zone of 500 meters for all other large whale species and strategic stocks of small cetaceans. We agree with NMFS' previous requirements that observations must begin at least 30 minutes prior to the commencement of geophysical survey activity and should be conducted throughout the time of geophysical survey activity. NMFS should require that activity be halted or delayed if a North Atlantic right whale or other species is detected in the relevant exclusion zone.

As noted above in Section C, **NMFS has established a wholly inadequate standard for visual monitoring during marine site characterization surveys and has weakened that inadequate standard over time.** Recently, NMFS approved an IHA that required only a single PSO to be on duty during daylight hours and 30 minutes prior to and during nighttime ramp-ups of HRG equipment,<sup>84</sup> stating that “[v]isual PSOs would coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts...”<sup>85</sup> It is not possible for a single PSO to continually visually monitor 360°. NMFS' minimum requirement of a single PSO is underprotective. Furthermore, PSOs are unable to visually monitor the exclusion area during darkness and periods of low visibility. NMFS must require the use of infrared equipment to support visual monitoring by PSOs during periods of darkness.<sup>86</sup>

Moreover, visual observations are not enough. Studies suggest that North Atlantic right whales exhibit behaviors that reduce their likelihood of detection by PSOs. These behavioral responses may 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.<sup>87</sup> Other endangered and protected large whales pose similar monitoring challenges. There are also sighting condition limitations. 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>88</sup>

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<sup>84</sup> 85 Fed. Reg. at 45,590-45,591 (Jul. 29, 2020).

<sup>85</sup> *Id.*

<sup>86</sup> Lathlean, J. and Seuront, L., “Infra-red thermography in marine ecology: methods, previous applications and future challenges,” *Marine Ecology Progress Series*, vol. 514, p. 263-277 (2014); Smith, H.R., Zitterbart, D.P., Norris, T.F., Flau, M., Ferguson, E.L., Jones, C.G., Boebel, O. and Moulton, V.D., “A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada,” *Marine Pollution Bulletin*, vol. 154, p.111026 (2020); Zitterbart, D.P., Smith, H.R., Flau, M., Richter, S., Burkhardt, E., Beland, J., Bennett, L., Cammareri, A., Davis, A., Holst, M. and Lanfredi, C., “Scaling the Laws of Thermal Imaging–Based Whale Detection,” *Journal of Atmospheric and Oceanic Technology*, vol. 37, pp.807-824 (2020). In addition, NMFS must consider the limitations of the infrared system proposed and ensure that the detection of marine mammals is possible at distances out to and beyond the exclusion zones, in the geographic region in question, and for all relevant endangered and protected species. These technologies have not been well tested for detection of North Atlantic right whales, and may be relatively ineffective for detecting minke whales, both species of concern in light of the current UMEs declared for the Atlantic coast. Further, NMFS should encourage developers to partner with scientists and collect data that increases our understanding of the effectiveness of infrared technologies, with a view towards greater reliance on these technologies to commence surveys during nighttime hours in the future.

<sup>87</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, p. 143-160 (2013).

<sup>88</sup> Barlow, J., “Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions,” *Marine Mammal Science*, vol. 31, p. 923-943 (2015); Baumgartner, M.F., Cole, T.V.N., Clapham, P.J., and Mate, B.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, p. 137-154 (2003). 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

Based on data collected by the National Buoy Data Center,<sup>89</sup> a monthly average Beaufort Sea State of at least 3 or 4 can be expected in lease areas situated along the East Coast, year-round. Given these data, observers alone are certain to underestimate the total number of large whales in the mitigation area based on sea state.

NMFS' failure to require using passive acoustic monitoring at any time during geophysical surveys is extremely concerning. **NMFS should require passive acoustic monitoring at all times—not only during nighttime hours—to maximize the probability of detection for North Atlantic right whales, and ideally other protected species and stocks**, including during periods of fog, precipitation, and high sea states, when PSOs and infrared technologies are less effective. It should be noted that passive acoustic monitoring without visual observers would also be insufficient as individuals may not continually vocalize. At minimum, NMFS should always require a combination of agency-approved PSOs to visually detect whales and passive acoustic monitoring to detect vocalizations in real or near-real time when noise levels that could result in injury or harassment to the species are being conducted. The passive acoustic monitors for this and future wind development projects should be part of a migratory corridor-wide network of passive acoustic monitors organized by NOAA and BOEM in collaboration with state governments as well as private, academic and non-profit partners.

c. Reduction of underwater noise

According to NOAA's "Ocean Noise Strategy Roadmap:"

“[W]here noise is concerned, mitigation should be broadly designed to do one of two things: (1) reduce the temporal or spatial overlap of ensonified areas with marine taxa (or acoustic habitat) in particular times, places or circumstances, and/or (2) reduce the sound level at the source (which may include replacing the source with a different type of source capable of the same function).”<sup>90</sup>

In addition, simulation studies comparing the level of risk reduction associated with technologies that allow for reduced source levels and current exclusion zone mitigation practices indicate that there will be very few instances where mitigation using visual observers can achieve a greater risk reduction than would be achieved by a reduction in source level.<sup>91</sup> Thus, reducing sound emissions at the source is one the most effective means of mitigating the impacts of noise on protected species.

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(Baumgartner et al. 2003). 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. 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. From the findings of Baumgartner et al. (2003), a reduction in detection probability of North Atlantic right whales by up to 84.5 percent based on an average Beaufort Sea State of 4 would be expected, relative to ideal sighting conditions (*i.e.*, Beaufort sea state = 0). Notably, the detectability of North Atlantic 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.

<sup>89</sup> NOAA-NWS, "National Data Buoy Center." Available at: <http://www.ndbc.noaa.gov/>.

<sup>90</sup> Gedamke, J., *et al.*, "Ocean Noise Strategy Roadmap," NOAA Fisheries, (2016), at 23. Available at: [https://cetsound.noaa.gov/Assets/cetsound/documents/Roadmap/ONS\\_Roadmap\\_Final\\_Complete.pdf](https://cetsound.noaa.gov/Assets/cetsound/documents/Roadmap/ONS_Roadmap_Final_Complete.pdf).

<sup>91</sup> Leaper, R., Calderan, S., and Cooke, J., "A simulation framework to evaluate the efficiency of using visual observers to reduce the risk of injury from loud sound sources," *Aquatic Mammals*, vol. 41, pp. 375-387 (2015).



**NMFS must require IHA applicants to minimize the impacts of underwater noise to the fullest extent feasible, including through the use of best available technology and methods to minimize sound levels from geophysical surveys.** For example, NMFS should require developers to select sub-bottom profiling systems, and operate those systems at power settings, that achieve the lowest practicable source level for the objective. NMFS currently has no such requirements.

*E. NMFS must strengthen its vessel speed restrictions to mitigate the harm of increased vessel traffic*

**Vessel strikes are a leading cause of large whale injury and mortality and have been implicated as one of the major causes of death underlying the UMEs for North Atlantic right whales, humpback whales, and minke whales,<sup>92</sup> with North Atlantic right whales being particularly vulnerable.<sup>93</sup>**

Moreover, the number of recorded vessel collisions of large whales each year is likely a gross underestimate of the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted for.<sup>94</sup> In fact, observed carcasses of North Atlantic right whales from all causes of death may have only accounted for 36 percent of all estimated death during 1990-2017, with detection rates dropping to 29 percent for the period of 2010-2017.<sup>95</sup> Detection rates may be similarly low for other large whale species, and even lower for species that receive relatively less surveillance effort.

Serious injury or mortality can occur from a vessel traveling above ten knots, irrespective of length<sup>96</sup> and vessels of any length travelling below this speed still pose a serious risk.<sup>97</sup> The NOAA Fisheries Large Whale Ship Strike Database reveals that blood was seen in the water in at least half of the cases where a vessel known to be less than 65 feet in length struck a whale, evidencing potential serious injury or mortality.<sup>98</sup> As small vessel collisions with whales are under-reported they may comprise a greater

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<sup>92</sup> NMFS, “2017-2021 North Atlantic right whale Unusual Mortality Event,” *supra*; NMFS, “2016-2021 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra*; NMFS, “2017-2021 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra*.

<sup>93</sup> Nowacek, D.P., *et al.*, “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli.” *Proceedings of the Royal Society B*, vol. 271 (2004); Cusano, D.A., *et al.*, “Implementing conservation measures for the North Atlantic right whale: considering the behavioral ontogeny of mother-calf pairs,” *supra*.

<sup>94</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, prepared for the Marine Mammals Commission, (2007); 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, p. 57-60 (2011).

<sup>95</sup> Pace III, R. M., Williams, R., Kraus, S. D., Knowlton, A. R. and Pettis, H. M., “Cryptic mortality of North Atlantic right whales,” *Conservation Science and Practice*, e346 (2021).

<sup>96</sup> NMFS, “Reducing vessel strikes to North Atlantic right whales.” Available at: <https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales#:~:text=March%2026%2C%202021.,Vessel%20Speed%20Restrictions,endangered%20North%20Atlantic%20right%20whales>. To reflect the risk posed by vessels of any length, the Commonwealth of Massachusetts established a mandatory vessel speed restriction for all vessels (including under 20 meters) in the Cape Cod Bay SMA.

<sup>97</sup> Kelley, D.E., Vlasic, J.P. and Brilliant, S.W., “Assessing the lethality if ship strikes on whales using simple biophysical models,” *Marine Mammal Science*, vol. 37, pp. 251-267 (2020).

<sup>98</sup> Jensen, A.S. and Silber, G.K., “*Large Whale Ship Strike Database*,” U.S. Department of Commerce, NOAA Technical Memorandum NMFS-OPR-25 (Jan. 2004) at 12–37

proportion of strikes than reflected in the NOAA database.<sup>99</sup> The recent report of the death of a month-old North Atlantic right whale calf after it was struck by a 54-foot sportfishing boat, and the serious injury of its mother by the same or second vessel, is a clear demonstration that smaller vessels pose an unacceptable risk.<sup>100</sup> Small vessels striking whales also pose a risk to human safety. Small vessels involved in whale strikes have suffered cracked hulls, damage to propellers and rudders, and blown engines.<sup>101</sup> Passengers have been knocked off their feet or thrown from the boat upon impact with a whale.<sup>102</sup> In carrying out its own analysis on the effectiveness of the right whale vessel speed rule, NMFS determined that “the number of documented and reported small vessel collisions with whales necessitates further action both as it relates to potential regulations and outreach to this sector of the mariner community.”<sup>103</sup>

**Vessel strikes are one of the main factors driving the North Atlantic right whale to extinction.** Since 2017, just over half of the known or suspected causes of mortality for the species have been attributed to vessel strikes.<sup>104</sup> Mothers and calves are extremely vulnerable. Three North Atlantic right whale calves born during the last two calving seasons have been killed as a result of vessel strikes. On January 8, 2020, the newborn calf of right whale #2360 was seriously injured by a passing vessel off the coast of Georgia.<sup>105</sup> The prognosis for survival was determined to be poor, and neither the calf nor its mother have been seen since January 16.<sup>106</sup> A second calf born last season was found dead on June 25, 2020 off the coast of New Jersey.<sup>107</sup> The examination of the carcass indicated that this calf had been struck twice; a non-fatal strike occurred several weeks before the collision killing the whale.<sup>108</sup> Given the close association between mothers and calves, adverse impacts to the mothers from vessel strike events cannot be ruled out.<sup>109</sup> As previously discussed, a one-month old calf was found stranded in Florida in February 13, 2021 with fatal injuries. The calf’s mother, “Infinity” #3230, was documented with serious injuries suggestive of a vessel strike on February 16, 2021. This species cannot sustain further anthropogenic mortalities of reproductive females or their calves.

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<sup>99</sup> Hill, A.N., Karniski, C., Robbins, J., Pitchford, T., Todd, S., and Asmutis-Silvia, R., “Vessel collision injuries on live humpback whales, *Megaptera novaeangliae*, in the southern Gulf of Maine,” *Marine Mammal Science*, vol. 33, pp. 558–573 (2017).

<sup>100</sup> NMFS, “2017-2021 North Atlantic right whale Unusual Mortality Event,” *supra*; *see, also*, <https://www.miamiherald.com/news/local/environment/article249313950.html>.

<sup>101</sup> Jensen, A.S. and Silber, G.K., “*Large Whale Ship Strike Database*,” *supra*.

<sup>102</sup> Bigfish123, Comment to *Collision at Sea*, The Hull Truth (May 1, 2009, 5:44 am). Available at: <http://www.thehulltruth.com/boating-forum/222026-collision-sea.html>.

<sup>103</sup> NMFS, “North Atlantic Right Whale (*Eubalaena glacialis*) Vessel Speed Rule Assessment” (2020). Available at: [https://media.fisheries.noaa.gov/2021-01/FINAL\\_NARW\\_Vessel\\_Speed\\_Rule\\_Report\\_Jun\\_2020.pdf?null](https://media.fisheries.noaa.gov/2021-01/FINAL_NARW_Vessel_Speed_Rule_Report_Jun_2020.pdf?null).

<sup>104</sup> NMFS, “2017-2021 North Atlantic right whale Unusual Mortality Event,” *supra*.

<sup>105</sup> NMFS, “North Atlantic Right Whale Calf Injured by Vessel Strike” (Jan. 13, 2020). Available at: <https://www.fisheries.noaa.gov/feature-story/north-atlantic-right-whale-calf-injured-vessel-strike>.

<sup>106</sup> *Id.*

<sup>107</sup> NMFS, “Dead North Atlantic Right Whale Sighted off New Jersey” (Jun. 29, 2020). Available at: <https://www.fisheries.noaa.gov/feature-story/dead-north-atlantic-right-whale-sighted-new-jersey>.

<sup>108</sup> *Id.*

<sup>109</sup> NMFS, “North Atlantic Right Whale Calf Stranded Dead in Florida” (Feb. 14, 2021), <https://www.fisheries.noaa.gov/feature-story/north-atlantic-right-whale-calf-stranded-dead-florida>

North Atlantic right whales are particularly prone to vessel 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>110</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of vessel strike at relatively moderate levels of exposure.<sup>111</sup> NMFS itself notes that noise can induce flight responses, behavioral disturbances, and habitat avoidance.<sup>112</sup> Because of the noise associated with geophysical surveys, site assessment and characterization activities could cause horizontal displacement<sup>113</sup> and push a North Atlantic right whale out of a speed restriction zone (SMA or DMA) into an area where vessels are traveling at greater speed, presenting an even greater danger of vessel collision. NMFS' analysis must also account for habitat displacement producing an indirect vessel strike.

NMFS should therefore act conservatively and implement mitigation measures to prevent any further vessel strikes for North Atlantic right whales or other species of large whale currently experiencing a UME (*i.e.*, humpback whales and minke whales), as well as species such as fin and sei whales. The broad distributional shifts observed for multiple species, as well as mixed species feeding aggregations observed in the regions where site assessment and characterization will be undertaken, pose an increased risk of vessel strike for large whales. This may potentially exacerbate current UMEs or increase the risk of additional species experiencing a UME in the future.

NMFS' previously issued authorizations acknowledge that vessel strikes can kill animals, that speed is a factor, and that North Atlantic right whales are particularly vulnerable because they are "generally unresponsive to vessel sound" and "more susceptible to vessel collisions,"<sup>114</sup> yet these authorizations only discuss the impacts of survey vessels that generally travel at speeds of less than four knots.<sup>115</sup> This ignores the impacts of all other project vessels on right whales (*e.g.*, crew transfer vessels). NMFS implicitly authorizes project vessels to travel at speeds greater than 10 knots at all other times, unless a right whale is actually observed within 500 meters.<sup>116</sup> This is wholly insufficient. *First*, any interaction between a vessel and whale poses a risk of serious injury or mortality. This is true irrespective of the number of other vessels operating in the same location. An addition of even a single vessel traveling at speeds over 10 knots pose an unacceptable risk. *Second*, the dire conservation status of the North Atlantic right whale means that even a single vessel strike will have population-level consequences. *Third*, NMFS' own analysis shows that mariner compliance with voluntary speed reduction measures (*i.e.*, DMAs) is extremely low (approximately 35 to 47 percent)<sup>117</sup> indicating mandatory speed reduction requirements are necessary to provide protection.

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<sup>110</sup> NMFS, "Recovery plan for the North Atlantic right whale (*Eubalaena glacialis*) Revision" prepared by the Office of Protected Resources, National Marine Fisheries Service" (August 2004).

<sup>111</sup> Nowacek, D.P., *et al.*, "North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli," *supra*.

<sup>112</sup> *See, e.g.*, 85 Fed. Reg. at 37,860-37,862 (Jun. 24, 2020).

<sup>113</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).

<sup>114</sup> *See, e.g.*, 85 Fed. Reg. at 37,862 (Jun. 24, 2020) (citing Nowacek *et al.*, 2004).

<sup>115</sup> *See, e.g.*, 85 Fed. Reg. at 37,866 (Jun. 24, 2020)

<sup>116</sup> *See, e.g., id.*

<sup>117</sup> NMFS, "North Atlantic Right Whale (*Eubalaena glacialis*) Vessel Speed Rule Assessment," *supra*.

**Vessel strikes pose an unacceptable risk. NMFS must require all offshore wind energy related project vessels operating within or transiting to/from survey areas, regardless of size, to observe a 10-knot speed restriction during the entire survey period.**<sup>118</sup> An exception may be made in limited circumstances where the best available scientific information demonstrates that whales do not use the area at any time.

*F. NMFS must prohibit extensions of any one-year authorizations through a truncated 15-day comment period as is contrary to the MMPA*

On March 7, 2019, NMFS began issuing notice of a new reauthorization process for a multitude of permits. Specifically, NMFS requests comment on the potential one-year renewal of authorizations on a case-by-case basis for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met. As we describe below, this appears to be a misinterpretation of the law by the previous Administration that could be easily remedied to comply with the process and provide adequate opportunity for public input.

For several reasons, our organizations have repeatedly opposed this process as contrary to law. First, NMFS' proposal to provide one-year renewals does not comport with the plain language of the MMPA. Section 101(a)(D)(i) unambiguously states that incidental harassment authorizations are valid for periods of not more than one year.<sup>119</sup> Second, the statute is clear on its face that a 30-day comment period is required in all instances.<sup>120</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency's implementation of the IHA process: "As approved by the Committee, the [MMPA] involves a number of basic concepts," one being that "the public is invited and encouraged to participate fully in the agency decision-making process."<sup>121</sup> When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."<sup>122</sup> Third, the legislative history removes any doubt that this 30-day comment period applies even in cases where a new application extends the IHA for another year without change.<sup>123</sup>

The agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy, or on a permit-by-permit basis as it purports to do here.<sup>124</sup> Moreover, NMFS has not supplied a sufficient explanation for why it might assert that the statutory language of Sec. 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute's objectives.<sup>125</sup>

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<sup>118</sup> NMFS need not wait to finalize a new rulemaking on the North Atlantic right whale vessel speed rule to impose these restrictions as conditions of offshore wind permitting.

<sup>119</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>120</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>121</sup> H.R. Rep. No. 92-707, at 4151 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151.

<sup>122</sup> *Id.* at 4146.

<sup>123</sup> H.R. Rep. No. 103-439, at 29 (1994).

<sup>124</sup> *See Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 842–43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.").

<sup>125</sup> *See Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a "'reasonable' explanation of how an agency's interpretation serves the statute's objectives is the stuff of which a 'permissible' construction is made").

Should the agency wish to establish its new IHA renewal process as a reasonable interpretation of an ambiguous statutory provision, it should do so through notice-and-comment rulemaking or comparable process with the appropriate indicia of formality. In so doing, NMFS must also explain why applicants whose activities may result in the incidental harassment of marine mammals over more than one year should not be required to apply for authorization to do so through the incidental take regulation procedure established by Sec. 101(a)(5)(A)(i), which provides for authorizing incidental take during periods of “not more than five consecutive years each.”<sup>126</sup> Where Congress established clear and distinct statutory processes for authorizing incidental take via harassment for one-year periods versus periods extending more than one year and up to five years, NMFS must justify how its proposed unlawful hybrid administrative extension process, with a curtailed comment period, is consistent with both statutorily-established processes.

NMFS’ statement regarding Incidental Harassment Authorization Renewals on its website<sup>127</sup> fails to provide a clear and legally adequate justification for its purported new reauthorization process especially in light of the burden the foreshortened comment period places on interested members of the public to review and formulate comments, all within 15 calendar days. As NMFS apparently intends the new reauthorization process to become the rule rather than the exception, it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

Finally, as a separate but related issue, the agency has also demonstrated a new, concerning pattern of repeatedly modifying its IHAs after they have been issued in response to developer’s requests to incidentally harass more marine mammals than previously authorized. For example, in late 2020 NMFS modified Dominion’s IHA for geophysical surveys off Virginia to authorize the Level B harassment of 90 times more Atlantic spotted dolphin than it was originally permitted to do.<sup>128</sup> And at the time of this letter, the agency is proposing to once again modify the same IHA to accommodate higher take levels of common dolphin during the same survey period.<sup>129</sup> Given the declining conservation statuses of multiple marine mammals on the East Coast, it is irresponsible for the agency to adopt such a reactive approach to IHA permitting that appears to favor industry flexibly over marine mammal protection.

#### **IV. Advancing Monitoring and Mitigation During Offshore Wind Energy Development**

While the best available scientific information justifies the use of seasonal restrictions to temporally separate survey activity from North Atlantic right whales in some areas, it is becoming increasingly clear that there may not be a time of “low risk” for this species. The population size is now so small that any individual-level impact is of great concern. In addition, climate-driven changes in oceanographic conditions, and resulting shifts in prey distribution, are rapidly changing the spatial and temporal patterns

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<sup>126</sup> 16 U.S.C. § 1371(a)(5)(A)(i) (emphasis added). *See also id.* at § 1371(a)(5)(A)(i)(I) (negligible impact finding must evaluate total of such taking “during each five-year (*or less*) period concerned”) (emphasis added).

<sup>127</sup> *See, e.g., NOAA Fisheries*, “Incidental Take Authorizations under Marine Mammal Protection Act,” last updated June 24, 2020, <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>128</sup> 85 Fed. Reg. 81,879 (Dec. 17, 2020).

<sup>129</sup> 86 Fed. Reg. 13,695 (Mar. 10, 2021).

of habitat use for North Atlantic right whales and other large whale species.<sup>130</sup> Therefore, **we recommend NMFS work, with relevant experts and stakeholders, towards developing a robust and effective near real-time monitoring and mitigation system for North Atlantic right whales and other endangered and protected species (e.g., fin, sei, minke, and humpback whales) during offshore wind energy development.**

The ability to reliably detect North Atlantic right whales and other species on a near real-time basis and adjust survey (and future construction) activities accordingly (e.g., if a North Atlantic right whale is detected with X meters distance of the survey/construction area on Day 1, no survey/construction activity will be undertaken on Day 2) would enable NMFS to adaptively manage and mitigate risks to protected species in near real-time while affording flexibility to offshore wind energy developers. This approach could be used in conjunction with seasonal restrictions in North Atlantic right whale foraging areas (e.g., off southern New England), or potentially year-round in the Mid-Atlantic region where a changing climate is leading to novel spatial and temporal habitat-use patterns. A near real-time monitoring and mitigation approach would also minimize risks to other protected species that may be present at high densities at times when North Atlantic right whales are expected to be present in lower numbers (e.g., humpback whale and fin whale foraging aggregations that occur in the summer months in the New York Bight). An added benefit is that the biological data collected during construction could be used to inform future wind energy development activities and adaptive management.

There are several technologies in various stages of development that would allow near real-time detection of protected species (e.g., Robots4Whales<sup>131</sup>) and convey that information to decisionmakers (e.g., “Mysticetus”<sup>132</sup>) to inform mitigation action. Near real-time monitoring systems are already being deployed to mitigate risks to North Atlantic right whales. For example, an unmanned acoustic glider capable of auto-detecting North Atlantic right whale calls is currently informing decisions being made by Transport Canada on when to impose vessel speed restrictions in the Laurentian Channel. Ten-knot speed limits can be issued within an hour of North Atlantic right whales being detected.<sup>133</sup> NMFS should evaluate the current status of near real-time detection technologies and develop recommendations for an integrated near real-time monitoring and mitigation system that combines, at minimum, both visual and acoustic detections.

It is also of paramount importance that NMFS encourage and promote adaptive management and robust long-term monitoring to assess impacts as offshore wind energy is developed and operational. This is imperative considering the effects of a changing climate on large whale species and other

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<sup>130</sup> Davis, G.E., et al., “Exploring movement patterns and changing distributions of baleen whales in the western North Atlantic using a decade of passive acoustic data,” *supra* note 87; 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); Record, N., Runge, J., Pendleton, D., Balch, W., Davies, K., Pershing, A., Johnson, C., Stamieszkin, K., Ji, R., Feng, Z. and Kraus, S., “Rapid Climate-Driven Circulation Changes Threaten Conservation of Endangered North Atlantic Right Whales,” *Oceanography*, vol. 32, pp. 162-169 (2019).

<sup>131</sup> Woods Hole Oceanographic Institution WHOI and WHOI/WCS, “Robots4Whales,” *supra* note 39.

<sup>132</sup> Available at: <https://www.mysticetus.com/>.

<sup>133</sup> See, e.g., CBC News, “Underwater glider helps save North Atlantic Right Whales from Ship Strikes” (Aug. 30, 2020). Available at: <https://www.cbc.ca/news/canada/new-brunswick/nb-north-atlantic-right-whales-underwater-glider-1.5701984>.

cumulative anthropogenic stressors. Offshore wind energy remains a relatively nascent technology in the U.S. and it is therefore imperative that the impact of offshore wind operations on marine wildlife and the ocean ecosystem be closely monitored to guide the industry's adaptive management and future development. It is vital that we gain an understanding of baseline environmental conditions prior to large-scale offshore wind energy development in the United States. To this end, NMFS must coordinate with BOEM to establish and fund a robust, long-term scientific plan to monitor the effects of offshore wind energy development on marine mammals and other species before, during, and after large-scale commercial projects are constructed. Without strong baseline data collection and environmental monitoring in place, we risk losing the ability to detect and understand potential impacts and set an under-protective precedent for future offshore wind energy development. Such monitoring must inform and drive future mitigation as well as potential practical changes to existing operations to reduce any potential impacts to natural resources and wildlife. **We are extremely concerned that no such long-term monitoring requirements are currently in place for the first commercial-scale projects in the United States.**

## **V. Conclusion**

NMFS' current approach to authorizing incidental take of marine mammals during marine site characterization activities for offshore wind energy development remains inadequate and not compliant with the law. Our groups request the opportunity to meet with you and your staff to further discuss these issues and necessary improvements in more detail. For further discussion, please contact Michael Jasny (mjasny@nrdc.org) at the Natural Resources Defense Council.

Sincerely,

Michael Jasny  
Director, Marine Mammal Protection Project  
Natural Resources Defense Council

Erica Fuller  
Senior Attorney  
Conservation Law Foundation

Catherine Bowes  
Program Director, Offshore Wind Energy  
National Wildlife Federation

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Vicki Nichols Goldstein  
Founder & Executive Director  
Inland Ocean Coalition

Guy Jacob  
Conservation Chair  
Nassau Hiking & Outdoor Club

Patrick Comins  
Executive Director  
Connecticut Audubon Society

ATTACHMENTS:

1. "ENGO Comments on Proposed IHAs 2018-2020"

CC: Mr. James F. Bennett, Program Manager, Renewable Energy Program, Bureau of Ocean Energy Management

***By Electronic Mail***

March 26, 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  
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](http://blueyork.org) and [dcs.whoi.edu](http://dcs.whoi.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 and 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).*

Month	Wind Speed (m/s)	Wave Height (m)	Beaufort Sea State
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).

Ms. Jolie Harrison  
March 26, 2018  
Page 14

#### 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,

Francine Kershaw, Ph.D.  
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Natural Resources Defense Council

Howard Rosenbaum, Ph.D.  
Director, Ocean Giants Program  
Senior Conservation Scientist, Global Conservation  
Wildlife Conservation Society

Catherine Bowes  
Program Director, Offshore Wind Energy  
National Wildlife Federation

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Jane Davenport  
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Defenders of Wildlife

Matt Gove  
Mid-Atlantic Policy Manager  
Surfrider Foundation

CT Harry  
Marine Campaigner  
IFAW – International Fund for Animal Welfare

Ms. Jolie Harrison  
March 26, 2018  
Page 15

Carl LoBue  
NY Oceans Program Director  
The Nature Conservancy

David Carr  
General Counsel  
Southern Environmental Law Center



***By Electronic Mail***

May 4, 2018

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys Off the Coast of Delaware as Part of the Skipjack Wind Project**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, the National Wildlife Federation, the Conservation Law Foundation, Defenders of Wildlife, Southern Environmental Law Center, Surfrider Foundation, Sierra Club, IFAW – International Fund for Animal Welfare, the Wildlife Conservation Society, and our millions of members, we respectfully submit our comments on the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“Proposed IHA”) to authorize marine site characterization activities off the coast of Delaware as part of the Skipjack Wind Project, in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0482) (Lease Area) and along potential submarine cable routes to a landfall location in Maryland or Delaware. *See* 83 Fed. Reg. 14,417 (Apr. 4, 2018).

This is an exciting moment for offshore wind in the Mid-Atlantic and we recognize and celebrate the contribution that the Skipjack Wind Project could make in providing clean energy for Maryland. 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 the ambitious climate and clean energy goals in the region, while safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, Delaware’s waters seasonally support at least 14 species of marine mammals, including six large cetaceans (83 Fed. Reg. 14,421 at Table 2). Of these, four (sperm, fin, sei, and North Atlantic right whales) are listed as “endangered” under the U.S. Endangered Species Act. In addition, the Western North Atlantic Northern Migratory Coastal stock of bottlenose dolphin is “depleted” under the Marine Mammal Protection Act (“MMPA”) and is therefore considered to be a “strategic stock” by NMFS (83 Fed. Reg. 14,425). The following comments are intended to support the Skipjack Wind Project in achieving the goal of advancing offshore wind in a manner sustainable for wildlife, particularly marine mammals.

Our organizations have a number of concerns pertinent to NMFS’ negligible impact analysis and mitigation and monitoring requirements, which are discussed in the comments that follow. Given the

importance of the agency ensuring adequate mitigation measures for North Atlantic right whales, we have summarized our specific recommendations for improved North Atlantic right whale mitigation below:

- NMFS should impose a seasonal restriction on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1 uPa) from November 1<sup>st</sup> to April 30<sup>th</sup>;
- Geophysical surveys should commence, with ramp up, during daylight hours only to maximize the probability that North Atlantic right whales are detected and are confirmed clear of the exclusion zone (“EZ”);
- NMFS should require that Protected Species Observers (“PSOs”), to the extent feasible, monitor an extended 1,000 meter (“m”) exclusion zone for North Atlantic right whales;
- A combination of visual monitoring by PSOs and passive acoustic monitoring should be implemented for surveys taking place both during the day and at night; and
- A 10 knot speed restriction on all project associated vessels transiting to/ from the survey area during November 1<sup>st</sup> through April 30<sup>th</sup> should be required, and all project vessels operating within the survey area should maintain a speed of 10 knots or less during the entire survey period.

## I. BACKGROUND

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

Congress enacted the 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>1</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>2</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>3</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>4</sup> Given its critically endangered status, even the low levels of Level B take authorized (83 Fed. Reg. 14,434 at Table 6) still have the potential to result in population-level impacts; therefore, it is imperative that all potential stressors acting on this species be minimized and mitigated 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>5</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.<sup>6</sup> Twenty-nine minke whales have stranded between Maine and South Carolina from January 2017 to January 2018; at least 28 of those strandings resulted in mortality.<sup>7</sup> The declaration of three UMEs by the agency in the past year signals a large-scale

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<sup>1</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>2</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>3</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>4</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 3; *see, also*, <https://www.theguardian.com/environment/2017/dec/10/north-atlantic-right-whales-extinct>.

<sup>5</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>6</sup> *Id.*

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

shift of large whale habitat in the Atlantic, possibly resulting from prey species distributional shifts in response to climate change,<sup>8</sup> and/ or an increase in the abundance of certain prey species as a result of fisheries management,<sup>9</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 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>10</sup>

Considering the elevated level of threat to federally protected large whale species and populations in the Atlantic, including Delaware'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.

*C. North Atlantic right whale seasonality and distribution off the coast of Delaware*

Research on North Atlantic right whale distribution and seasonality in the Delaware and Maryland wind energy areas ("WEAs") has consistently detected presence in the area from November to April. Two years (November 2014 to November 2016) of passive acoustic monitoring data recorded in and around the Maryland WEA—an area only nine nautical miles from the Skipjack Wind Project area—detected North Atlantic right whales, as well as fin and humpback whales, most frequently between November and April.<sup>11</sup> Monthly aerial surveys conducted between July 2013 and July 2015 identified right whales to the east of the Maryland WEA (5 sightings of 13 whales) in January and February.<sup>12</sup> Eleven whales were detected in a single day in January 2015, indicating that pulses of right whales may travel through the region.<sup>13</sup> Several of the whales were observed with open mouths—often consistent with feeding behavior.<sup>14</sup> The months of elevated occurrence are also supported by the dates of the Seasonal Management Area ("SMA") for Delaware Bay,<sup>15</sup> the period for which a "Biologically Important Area" has been defined by

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<sup>8</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>9</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).

<sup>10</sup> NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 2; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 5; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 5.

<sup>11</sup> Bailey, H., Wingfield, J., Fandel, A., Fouda, L., Garrod, A., Lyubchich, S., Hodge, K.B., and Rice, A.N. *Determining offshore use by marine mammals and ambient noise levels using passive acoustic monitoring. Progress Report*. Project period 1st July 2017 – 31st August 2017. Sponsor Grant Number: 14-14-1916 BOEM. (Aug. 31, 2017).

<sup>12</sup> Barco, S., Burt, L., DePerte, A., and DiGiovanni, Jr., R. *Marine Mammal and Sea Turtle Sightings in the Vicinity of the Maryland Wind Energy Area July 2013-June 2015*. VAQF Scientific Report # 2015-06, prepared for the Maryland Department of Natural Resources. (2015).

<sup>13</sup> *Id.*

<sup>14</sup> Virginia Aquarium Stranding Response Program (VAQS). Unpublished data.

<sup>15</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales." Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

the Agency,<sup>16</sup> long-term passive acoustic monitoring data,<sup>17</sup> and 30 years of visual sightings data, which additionally indicates that pregnant females and mother-calf pairs are migrating through the area in the fall and spring, respectively.<sup>18</sup> Survey results from adjacent states (New Jersey, Virginia, North Carolina, and Georgia) are concordant with the distribution and seasonality of right whales off Delaware and Maryland from November 1<sup>st</sup> to April 30<sup>th</sup>.<sup>19</sup>

Beyond the recognized Biologically Important Area identified by NOAA,<sup>20</sup> the area is not formally identified as a habitat “hotspot;” however, a sizable proportion of the migrating right whale population will pass through or near the site and, as such, the Skipjack Wind Project is located in an important part of the overall right whale migratory corridor. Shoreward of the WEA, 30 years of sightings data demonstrate that 50 percent of mother-calf pairs were sighted within 6.88 miles of the coast, and 50 percent of other demographic groups were sighted within 8.5 miles of the coast.<sup>21</sup> As such, it can be assumed that during migration, approximately 50 percent of right whales will travel shoreward of the Skipjack Wind Project and many others will pass through the site. Moreover, location analysis of North Atlantic right whale calls showed most calls occurred across the entirety of the Maryland WEA and that their distribution extended further offshore. The eastern edge and offshore of the WEA overlaps with high ship traffic resulting from the approach to Delaware Bay.

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT<sup>22</sup>

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

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<sup>16</sup> LaBrecque, E., Curtice, C., Harrison, J., van Parijs, S.M., and Halpin, P.N., “Biologically important areas for cetaceans within U.S. waters—East coast region.” *Aquatic Mammals* 41: 17-29 (2015).

<sup>17</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>18</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>19</sup> Whitt, A.D., Dudzinski, K., and Laliberté, J.R., “North Atlantic right whale distribution and seasonal occurrence in nearshore waters off New Jersey, USA, and implications for management,” *Endangered Species Research*, 20: 59-69 (2013); Hodge, K.B., Muirhead, C.A., Morano, J.L., Clark, C.W., and Rice, A.N., “North Atlantic right whale occurrence near wind energy areas along the mid-Atlantic US coast: implications for management,” *Endangered Species Research*, 28: 225-234 (2015); Salisbury, D.P., Clark, C.W., and Rice, A.N., “Right whale occurrence in the coastal waters of Virginia, U.S.A.: Endangered species presence in a rapidly developing energy market,” *Marine Mammal Science*, 32: 508-519 (2016).

<sup>20</sup> LaBrecque, E., *et al.*, “Biologically important areas for cetaceans within U.S. waters—East coast region,” *supra* note 16.

<sup>21</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, October 24, 2017.

<sup>22</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).

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 Coast (*i.e.*, Roberts *et al.* (2016); 83 Fed. Reg. 7,670), which was funded under the agency’s CetMap program.<sup>23</sup> The CetMap model represents the best model available for calculating marine mammal densities in the region; nonetheless, as its designers admit,<sup>24</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 for the U.S. East Coast, particularly in light of the recent emerging evidence of a shift in large whale presence and abundance in the region.<sup>25</sup> We have raised these concerns in several meetings and workshops, including presentations and discussions at the Bureau of Ocean Energy Management (“BOEM”) Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species, March 7-9, 2017. The agency should recognize that estimated densities derived from the Roberts *et al.* (2016) model for the waters off Delaware may significantly underrepresent the density and seasonal presence of large whales and other marine mammals in this region.

The Roberts *et al.* (2016) model similarly provides a lack of resolution for the Western North Atlantic Northern Migratory Coastal stock of bottlenose dolphins. This is demonstrated in the Proposed IHA, in which the Agency equally distributes proposed numbers of take between this strategic stock under the MMPA and the Western North Atlantic Offshore stock, which has not been identified as a stock of concern by federal or state agencies. Misappropriation of take levels for the depleted migratory coastal bottlenose dolphin could have serious implications for the future conservation status of the stock. Specifically, this approach results in an estimated 17.3 percent of the migratory coastal population being subjected to harassment commensurate to Level B take (83 Fed. Reg. 14,435, at Table 6); in the context of this depleted and strategic stock, the Agency’s intention to equate such a high level of proposed authorized take with the small numbers and negligible impact provisions of the MMPA is unsupportable.

**It should be NMFS’ top priority to consider any initial data from State monitoring efforts,<sup>26</sup> existing passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources in future analyses of estimated take.** 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 off Delaware, providing a more accurate assessment of Level B take.

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<sup>23</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>24</sup> *Id.*

<sup>25</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 17.

<sup>26</sup> See, <http://energy.maryland.gov/Pages/Info/renewable/offshorewind-resources.aspx>

*B. NMFS must consider North Atlantic right whale density in December and May in its take analysis*

In relying on the density models of Roberts *et al.* (2016) (*see*, Section II.A.), NMFS also fails to account for the potentially elevated seasonal presence of the North Atlantic right whale off Delaware during December and May. In its estimation of take, NMFS reasons that “...as GSOE [Garden State Offshore Energy, LLC] expects the proposed survey is very likely to occur in the summer and fall, and it is very unlikely that surveys will occur in May and December; therefore, months were selected for the density calculation that were expected to be most representative of actual marine mammal densities that would be encountered by the proposed survey and to avoid the potential for density estimates to be skewed by data for months that are less likely to be actively surveyed.” 83 Fed. Reg. 14,434. This approach is irresponsible on the part of the agency. The Roberts *et al.* (2016) density models are readily available for all months of the year and, as such, the agency should carry out a full analysis reflective of all the months that surveys may potentially be carried out. According to the Proposed IHA, “the site characterization surveys would occur between May 15, 2018, and December 31, 2018.” 83 Fed. Reg. 14,418. Irrespective of GSOE’s intention to commence the surveys in June and complete the work by the end of November, there are many plausible scenarios where survey schedules may change or be delayed, forcing work to continue into December. As described in Section I.C., best available science demonstrates that North Atlantic right whale density is expected to occur between November 1<sup>st</sup> and April 30<sup>th</sup> off Delaware. **It is incumbent upon the agency to account for these contingencies and analyze levels of take for the entire duration of the activities specified in the Proposed IHA (*i.e.*, May 15<sup>th</sup> to December 31<sup>st</sup>, 2018);** this is particularly important for a species as endangered as the North Atlantic right whale (*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, 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. The North Atlantic right whale population cannot withstand any additional stressors; therefore, the implementation of a robust mitigation system is essential to avoid population-level impacts of the proposed survey activities. We consider the current proposed mitigation measures to be inadequate in terms of reducing potential impacts to right whales, even to a single estimated Level B take. 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*, Sections I.C. and II.B.), NMFS is proposing to authorize geophysical surveys off Delaware at a time when North Atlantic right whales are expected to be present at high densities during their migration. 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>27</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., source level >180 dB re 1 uPa) from November 1<sup>st</sup> to April 30<sup>th</sup> off Delaware.**<sup>28</sup> This is consistent with both the best available science on the relative density of North Atlantic right whales off Delaware in the fall and spring (recognizing that individuals of this species could be present in each month of the year),<sup>29</sup> and the conservation crisis the species is currently facing, recently recognized by Michael Pentony, the new Regional Administrator for NOAA Fisheries Greater Atlantic Regional Office, as the agency's "number one issue."<sup>30</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, protected humpback whales, and the depleted Northern Migratory Coastal stock of bottlenose dolphin; this action is particularly pertinent in light of the UMEs declared for right whales, humpback whales and minke whales.**<sup>31</sup> Acoustic detections indicate that fin and humpback whales are present in the fall, winter, and spring, and that all species may be present, albeit at relatively low levels, year-round.<sup>32</sup> Importantly, the Western North Atlantic Northern Migratory Coastal stock of bottlenose dolphin utilizes the project area extensively for foraging during the summer,<sup>33</sup> when survey activity will also be concentrated. 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

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<sup>27</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>28</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>29</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 17; C. Good *pers. comm.* to F. Kershaw, March 12, 2018.

<sup>30</sup> See, <http://www.southcoasttoday.com/news/20180303/new-noaa-administrator-calls-whales-agencys-biggest-crisis>

<sup>31</sup> NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 2; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 5; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 5.

<sup>32</sup> Bailey, H., et al., *Determining offshore use by marine mammals and ambient noise levels using passive acoustic monitoring. Progress Report*, *supra* note 11.

<sup>33</sup> *Id.*



of the mass stranding off Madagascar that was caused by equivalent high resolution geophysical (“HRG”) survey equipment [83 Fed. Reg. 14,430-31]).

To elucidate and balance the relative risks to these species, for which we still have relatively limited data, **we strongly recommend that NMFS—prior to any site assessment and characterization activities beyond those detailed in this Proposed IHA, or future applications related to construction and operations—undertake additional surveys and analysis. NMFS should: 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 off Delaware and the broader mid-Atlantic region, and (ii) enhance the resolution of population genetic structure for humpback and fin whales.

**Further, NMFS should support an expert workshop to consider any existing 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 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>34</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 waters off Delaware and the broader Mid-Atlantic region 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>35</sup> These technologies have also not been well tested for detection of North Atlantic right whales and may be

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<sup>34</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>35</sup> *Id.*

relatively ineffective for detecting minke whales,<sup>36</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>37</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 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 off Delaware 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 EZs will be established around HRG equipment and monitored by 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. 14,435-36). 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.*, received level <160 dB).<sup>38</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>39</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 1,000 m EZ for**

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<sup>36</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>37</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).

<sup>38</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>39</sup> Letter from J. Grybowski, *et al.* to Ms. M. Bornholdt, *supra*, note 28.

**North Atlantic right whales**,<sup>40</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 if 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 to maximize protections for North Atlantic right whales, and other protected species.

*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>41</sup> Sea state has been demonstrated to have a direct effect on the siting probability of North Atlantic right whales in the Lower Bay of Fundy and in Roseway Basin of the Southwest Scotian Shelf.<sup>42</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>43</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>44</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 a species can be adequately protected by species observers alone, given the moderate Beaufort Sea States off Delaware Bay 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>45</sup> a monthly average Beaufort Sea State of 3 or 4 can be expected off Delaware Bay between May and December, with the highest sea states occurring in May and from September to December.

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<sup>40</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

<sup>41</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>42</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>43</sup> *Id.*

<sup>44</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>45</sup> NOAA-NWS, "National Data Buoy Center," Available at: <http://www.ndbc.noaa.gov/>.

*Table 1. Long-term monthly average wind speed (1998-2008), wave height (1986-2008) and corresponding Beaufort Sea State recorded at NOAA National Data Buoy Station 44009 (LLNR 168) – DELAWARE BAY 26 NM Southeast of Cape May, NJ. Data source: NOAA National Data Buoy Center (Accessed: April 17, 2018).*

Month	Wind Speed (knots)	Wave Height (m)	Beaufort Sea State
May	11.0	1.1	4
June	10.0	0.9	3
July	9.5	0.9	3
August	9.7	1.0	3
September	11.3	1.2	4
October	12.9	1.3	4
November	14.2	1.3	4
December	14.9	1.4	4

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 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>46</sup> even though visual surveys have rarely reported sightings of right whales in the winter off the coast of Massachusetts.<sup>47</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>48</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>49</sup>

<sup>46</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>47</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>48</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>49</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).

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, we agree with the combination of passive acoustic monitoring and continual visual monitoring using night vision and infra-red described in the Proposed IHA (83 Fed. Reg. 14,436). The number of NMFS-approved PSOs and passive acoustic monitoring specialists aboard the vessel appear adequate to enable both visual monitoring (in daylight, or via night vision/ infra-red technologies) and passive acoustic monitoring to be carried out 24 hours a day. Indeed, passive acoustic monitoring specialists will be “on call” to assist with monitoring during times of poor visibility during the day (83 Fed. Reg. 14,438). It therefore seems immediately practicable for a combination of visual and passive acoustic monitoring to take place during the daytime with minimal impact to the developer.

#### *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 existing UMEs. 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 for.<sup>50</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>51</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>52</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 UME.

As described in the Proposed IHA (83 Fed. Reg. 14,418-19), the HRG surveys will be supported by vessels approximately 100-200 ft. and 250-300 ft. in length and capable of maintaining course and survey speed of approximately 2-5 knots. These vessels 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; however, the Proposed IHA provides no speed restrictions for other vessels associated with the survey that may be operating during the survey months (*e.g.*, tug boat used in dynamic positioning of the larger survey vessel; 83 Fed. Reg. 14,419). These vessels may be less than 65 ft. in length and thus exempt from the SMA and DMA regulations. As serious

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<sup>50</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>51</sup> NMFS, Recovery plan for the North Atlantic right whale (August 2004).

<sup>52</sup> Nowacek, D.P., *et al.*, “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli,” *supra* note 48.

injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length,<sup>53</sup> and since mothers and calves are likely to travel close to shore,<sup>54</sup> **a 10 knot speed restriction on all project associated vessels transiting to/ from survey area during November 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>55</sup> this is of particular concern for the Skipjack Wind Project's proposed survey area, given its adjacency to the shipping lanes serving Delaware Bay. 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.).**

#### 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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Project Scientist, Marine Mammal Protection and Oceans, Nature Program  
Natural Resources Defense Council

Catherine Bowes  
Program Director, Offshore Wind Energy  
National Wildlife Federation

Priscilla M. Brooks, Ph.D.  
Vice President and Director of Ocean Conservation  
Conservation Law Foundation

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<sup>53</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales," *supra* note 15.

<sup>54</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, October 24, 2017.

<sup>55</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).

Ms. Jolie Harrison  
May 4, 2018  
Page 15

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***By Electronic Mail***

June 4, 2018

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys Off of Rhode Island, Massachusetts, and New York as requested by Deepwater Wind New England, LLC.**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, the National Wildlife Federation, the Conservation Law Foundation, Defenders of Wildlife, Surfrider Foundation, IFAW – International Fund for Animal Welfare, the Wildlife Conservation Society, Mass Audubon, and our millions of members, we respectfully submit our recommendations for the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“Proposed IHA”) to authorize Deepwater Wind New England, LLC., to conduct marine site characterization surveys off the coast of Rhode Island and Massachusetts in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0486) (“Lease Area”) and along potential submarine cable routes to a landfall location in Rhode Island, Massachusetts, or New York. *See* 83 Fed. Reg. 19,711 (May. 4, 2018).

This is an exciting moment for offshore wind in New England and we recognize and celebrate the contribution that the offshore wind projects associated with these surveys could make in providing clean energy for New York, Rhode Island, and Massachusetts. It is our view that offshore wind energy can and must advance in an environmentally responsible manner to ensure that it meets ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters off Rhode Island and Massachusetts seasonally support at least 14 species of marine mammals, including six large cetaceans (83 Fed. Reg. 19,715 at Table 2). Of these large whales, four (sperm, fin, sei, and North Atlantic right whales) are listed as “endangered” under the U.S. Endangered Species Act. The following comments are intended to support Deepwater Wind New England, LLC., in achieving the goal of advancing offshore wind in a manner sustainable for wildlife, and particularly marine mammals.

Our organizations have a number of concerns pertinent to NMFS’ negligible impact analysis and the mitigation and monitoring requirements that will be necessary to ensure adequate mitigation measures for



North Atlantic right whales. We have summarized our specific recommendations for improved North Atlantic right whale mitigation below:

- NMFS must impose a seasonal restriction on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1 uPa) from November 1<sup>st</sup> to May 14<sup>th</sup>;
- Geophysical surveys should commence, with ramp up, during daylight hours only to maximize the probability that North Atlantic right whales are detected and are confirmed clear of the exclusion zone (“EZ”);
- NMFS should require that Protected Species Observers (“PSOs”), to the extent feasible, monitor an extended minimum 1,000 meter (“m”) exclusion zone for North Atlantic right whales;
- A combination of visual monitoring by PSOs and passive acoustic monitoring should be implemented for surveys taking place both during the day and at night; and
- All project vessels operating within the survey area should maintain a speed of 10 knots or less during the entire survey period. Transiting vessels should observe a 10 knot speed restriction from November 1<sup>st</sup> through April 30<sup>th</sup> in New York State waters and the Block Island Seasonal Management Area (“SMA”), and from February 1<sup>st</sup> to May 14<sup>th</sup> in Rhode Island and Massachusetts state waters outside the Block Island SMA.

## I. BACKGROUND

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

Congress enacted the 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>1</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>2</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>3</sup> To our knowledge, no calves have been born in 2018. If these trends continue, scientists predict the North Atlantic right whale may be functionally extinct in 20 years or less.<sup>4</sup> Given its critically endangered status, even the low levels of Level B take authorized (83 Fed. Reg. 19,728 at Table 7) still have the potential to result in population-level impacts; therefore, it is imperative that all potential stressors acting on this species be minimized and mitigated 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>5</sup> Elevated numbers of humpback whales have been found stranded along the Atlantic Coast since January 2016, and in a little over two years, 63 humpback whale mortalities have been recorded (data through May 29, 2018), with strandings occurring in every state along the East Coast.<sup>6</sup> Twenty-nine minke whales have stranded between Maine

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<sup>1</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>2</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>3</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>4</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 3; *see, also*, <https://www.theguardian.com/environment/2017/dec/10/north-atlantic-right-whales-extinct>.

<sup>5</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>6</sup> *Id.*; *see, also*, <https://www.newsday.com/long-island/suffolk/whale-washed-ashore-fire-island-1.18812449>.

and South Carolina from January 2017 to January 2018; at least 28 of those strandings resulted in mortality.<sup>7</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>8</sup> and/ or an increase in the abundance of certain prey species as a result of fisheries management,<sup>9</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 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>10</sup>

When issuing an IHA, NMFS is obligated to use the best available information on marine mammal presence and density.<sup>11</sup> Considering the elevated level of threat to federally protected large whale species and populations in the Atlantic, including Rhode Island, Massachusetts, and New York state waters, and emerging evidence of dynamic shifts in the distribution of large whale habitat, any stressors posed by the proposed project must be mitigated to the fullest extent practicable.

*C. North Atlantic right whale seasonality and distribution off the coasts of Rhode Island and Massachusetts, and east of Long Island, New York*

The best available science demonstrates that November 1<sup>st</sup> through at least May 14<sup>th</sup> represents the time period of highest risk to North Atlantic right whales, defined as times of highest relative density of animals during their migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior), are expected to be present.

North Atlantic right whales are present within and close to the Lease Area year-round; however, based on sightings and acoustic data, North Atlantic right whales are most consistently present within or near the Lease Area at their highest densities from November 1<sup>st</sup> through mid-May.<sup>12</sup> Historically, seasonally consistent aggregations of North Atlantic right whales have been observed feeding and possibly mating within or close to the Lease Area from at least March through April, leading the area to be considered by

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

<sup>8</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>9</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).

<sup>10</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 2; NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 5; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 5.

<sup>11</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>12</sup> Kraus, S.D., Leiter, S., Stone, K., Wikgren, B., Mayo, C., Hughes, P., Kenney, R.D., Clark, C.W., Rice, A.N., Estabrook, B., and Tielens, J., “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” OCS Study, BOEM 2016-054, pp. 118 (2016); 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.A., and Kraus, S.D., “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA,” *Endangered Species Research*, vol. 34, pp. 45-59 (2017).

scientists as a North Atlantic right whale “hotspot” from March to May.<sup>13</sup> More recently, however, North Atlantic right whales were observed feeding in the vicinity of the Lease Area during the first half of May for the first time in 2017,<sup>14</sup> indicative of a broader distributional shift that has resulted in the occurrence of North Atlantic right whales at greater densities off Rhode Island and Massachusetts later in the year, through May and into the summer months.<sup>15</sup> Pregnant females are known to travel through the area in November and December and females of reproductive age are also present in the area in February and March, with April appearing particularly important for mothers and calves.<sup>16</sup>

North Atlantic right whales also occur in the waters off New York year-round at varying densities.<sup>17</sup> Long-term (2004-2014) and short-term (2008-2009) passive acoustic monitoring data demonstrate North Atlantic right whales maintain a high level of presence off New York through the winter and into March and April, before shifting further offshore and northwards in May.<sup>18</sup> A higher expected density of North Atlantic right whales off New York is reflected by the dates of the NMFS SMAs for New York Harbor and adjacent waters to east of Long Island extending to Block Island, which are in place from November 1<sup>st</sup> through April 30<sup>th</sup>.<sup>19</sup> 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>20</sup> however, elevated densities are still expected for May.<sup>21</sup>

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT<sup>22</sup>

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<sup>13</sup> Leiter, S.M., *et al.*, *id.*

<sup>14</sup> Quintana, E., “Monthly report No. 3: May 2017,” Report prepared for the Massachusetts Clean Energy Center by the New England Aquarium, pp. 26 (May 15, 2017).

<sup>15</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>16</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>17</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 15; Muirhead, C.A., Warde, A. W., Biedron, I.S., Mihnovevets, 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); C. Good *pers. comm.* to F. Kershaw, March 12, 2018.

<sup>18</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 15.; Muirhead, C.A., *et al.*, “Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight,” *supra* note 15.

<sup>19</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales.” Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

<sup>20</sup> 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>21</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 15; Muirhead, C.A., *et al.*, “Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight,” *supra* note 15.

<sup>22</sup> In addition to Section II, 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

A. *In order to use the best scientific information available, NMFS must include additional data sources when calculating densities of marine mammals, including the North Atlantic right whale*

For the Proposed IHA to be consistent with the MMPA, NMFS must base its analysis on the best available science. 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 Coast (*i.e.*, Roberts *et al.* (2016); 83 Fed. Reg. 19,727), which was funded under the agency’s CetMap program.<sup>23</sup> However, the CetMap model, as its designers admit,<sup>24</sup> 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.<sup>25</sup> It is our view that the density maps produced by Roberts *et al.* (2016), utilizing data up until 2014, do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast, particularly in light of the recent emerging evidence of a shift in large whale presence and abundance in the region (*see*, Section I.C).<sup>26</sup>

We have raised these concerns in several meetings and workshops, including presentations and discussions at the Bureau of Ocean Energy Management (“BOEM”) Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species, March 7-9, 2017. The agency should recognize that estimated densities derived from the Roberts *et al.* (2016) model for the waters off Rhode Island, Massachusetts, and New York may significantly underrepresent the density and seasonal presence of large whales and other marine mammals in this region and calculate densities using additional available data sources.

**It should be NMFS’ top priority to consider any initial data from State monitoring efforts,<sup>27</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources in future analyses of estimated take.** 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 off Rhode Island, Massachusetts, and New York, providing a more accurate assessment of Level B take.

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have not found avoidance behavior to be generalizable among species and contexts (*e.g.*, Miller et al. 2009, Pirodda 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).

<sup>23</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>24</sup> *Id.*

<sup>25</sup> *E.g.*, Kraus, S.D., *et al.*, “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” *supra* note 12.

<sup>26</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 15.

<sup>27</sup> *See*, <http://www.masscec.com/offshore-wind-marine-wildlife-surveys>

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing “take” under the general authorization provision of the MMPA, NMFS 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, 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. The North Atlantic right whale population cannot withstand any additional stressors; therefore, the implementation of a robust mitigation system is essential to avoid population-level impacts of the proposed survey activities. We consider the current proposed mitigation measures to be inadequate in terms of reducing potential impacts to North Atlantic right whales, even to three estimated Level B takes (83 Fed. Reg. 19,728 at Table 7).

**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 May 14<sup>th</sup>*

As described above (*see*, Section I.A), NMFS is proposing to authorize geophysical surveys off Rhode Island, Massachusetts, and New York at a time when North Atlantic right whales are expected to be present at high densities. 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>28</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.*, source level >180 dB re 1 uPa) from November 1<sup>st</sup> to May 14<sup>th</sup> off Rhode Island and Massachusetts.**<sup>29</sup> This is consistent with both the best available science on the relative

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<sup>28</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>29</sup> A November 1<sup>st</sup> to April 30<sup>th</sup> seasonal restriction for pile driving and a February 1<sup>st</sup> to April 30<sup>th</sup> seasonal restriction for geophysical surveying formed a core component of a landmark agreement aimed at protecting the North Atlantic right whale from construction site assessment and characterization activities in the Rhode Island and Massachusetts Wind Energy Area that was reached between offshore wind developers and the environmental non-governmental organization (“NGO”) community in 2012. *See*, letter from J. Grybowski, F. Beinecke, J. Kassel, J. Lyon, M. Alt, J. Savitz, 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 Rhode Island and Massachusetts Wind Energy Area” (May 7, 2014). The dates of the seasonal restrictions have since been revised, as reflected in our current letter, based on the best available science.

density of North Atlantic right whales off Rhode Island and Massachusetts in the fall, winter, and spring (recognizing that individuals of this species could be present in each month of the year; *see*, Section I.C),<sup>30</sup> and the conservation crisis the species is currently facing, recently recognized by Michael Pentony, the new Regional Administrator for NOAA Fisheries Greater Atlantic Regional Office, as the agency's "number one issue."<sup>31</sup>

While existing and potential stressors to the North Atlantic 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 endangered and protected species; this action is particularly pertinent in light of the UMEs declared for North Atlantic right whales, humpback whales and minke whales.**<sup>32</sup> Sightings data and acoustic detections indicate that fin whales are present at high densities year-round, humpback whales are present at high densities in the winter, spring and summer, and that minke whales are present at high densities in the spring summer and fall; humpback and minke whales may be present, albeit at relatively low levels, year-round.<sup>33</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. 19,723-24]).

**NMFS should consider any existing siting and acoustic data and any new information that improves our understanding of marine mammal distribution and habitat use in the region in order 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 these new analyses, the agency should adopt the time-period proposed above (*i.e.*, November 1<sup>st</sup> to May 14<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 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

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<sup>30</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 15; C. Good *pers. comm.* to F. Kershaw, March 12, 2018.

<sup>31</sup> *See*, <http://www.southcoasttoday.com/news/20180303/new-noaa-administrator-calls-whales-agencys-biggest-crisis>

<sup>32</sup> NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 2; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 5; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 5.

<sup>33</sup> Kraus, S.D., *et al.*, "Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report," *supra* note 12.

promise for night time detection of a number of marine mammal species from vessels.<sup>34</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 waters in the Northeastern region, particularly during the spring and summer, in contrast to the far cooler high-latitude waters, is likely to negatively impact the detection effectiveness of infra-red.<sup>35</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>36</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>37</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 North Atlantic right whale is detected in the 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 **encourage developers to partner with scientists to collect data that would increase the understanding of the effectiveness of night vision and infra-red technologies off Rhode Island, Massachusetts, 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 EZs will be established around HRG equipment and monitored by PSOs during HRG surveys as follows: 25 m EZ for harbor porpoises; 200 m EZ for ESA-

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<sup>34</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>35</sup> *Id.*

<sup>36</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>37</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).



listed cetaceans, including sperm whales and mysticetes (except North Atlantic right whale); and 500 m EZ for North Atlantic right whales (83 Fed. Reg. 19,728-29). The agency determined that no exclusion zones are warranted for non-ESA-listed marine mammals based on the estimated distances to isopleths corresponding with Level A harassment thresholds (83 Fed. Reg. 19,729). In addition to the above described EZs, PSOs will visually monitor and record the presence of all marine mammals within 500 meters. 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.*, received level <160 dB).<sup>38</sup> Again, any potential harassment of the North Atlantic right whale is a significant concern. In addition, under the auspices of the MMPA, NMFS has a responsibility to mitigate Level A and Level B take to the full extent practicable for *all* protected species, not only those that are ESA-listed.

**NMFS should require use of sufficient monitoring practices to ensure a 500 m EZ for marine mammals<sup>39</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 1,000 m EZ for North Atlantic right whales,**<sup>40</sup> during the use of geophysical surveys for site assessment and characterization. NMFS should maintain protective EZs, at the minimum distances we recommend above, throughout the site assessment and characterization activities to maximize protections for North Atlantic right whales, and other protected species. The EZ distance should be extended beyond these minimum distances in the case that sound source validation data support such an extension.

*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>41</sup> Sea state has been demonstrated to have a direct effect on the siting probability of North Atlantic right whales in the Lower Bay of Fundy and in Roseway Basin of the Southwest Scotian Shelf.<sup>42</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>43</sup> Moreover, detectability of other marine mammals is

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<sup>38</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>39</sup> Letter from J. Grybowski, *et al.* to Ms. M. Bornholdt, *supra* note 19.

<sup>40</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

<sup>41</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>42</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>43</sup> *Id.*

highly dependent on the species and behavior, which has led experts to recommend a combination of monitoring methods be employed to maximize detectability.<sup>44</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 a species can be adequately protected by species observers alone, given the moderate Beaufort Sea States off Block Island 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>45</sup> a monthly average Beaufort Sea State of 3 or 4 can be expected off Block Island, in close vicinity to the Lease Area, between June and December, with the highest sea states from August to December.

*Table 1. Monthly average wave height for 2016 and corresponding Beaufort Sea State recorded at NOAA National Data Buoy Station 44097 – Block Island, RI (154). Data source: NOAA National Data Buoy Center (Accessed: May 19, 2018).*

Month	Wave Height (m)	Beaufort Sea State
June	1.0	3
July	0.9	3
August	0.9	4
September	1.3	4
October	1.6	4
November	1.5	4
December	1.8	4

Given these data, observers are certain to underestimate 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 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 North Atlantic 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 North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay<sup>46</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of

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<sup>44</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>45</sup> NOAA-NWS, "National Data Buoy Center," Available at: <http://www.ndbc.noaa.gov/>.

<sup>46</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).

Massachusetts.<sup>47</sup> Additionally, there is evidence that North Atlantic 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>48</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>49</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.** Passive acoustic monitoring should be undertaken from a vessel other than the survey vessel, or a stationary unit or glider, to ensure that the hydrophone is not masked by vessel or survey noise. In addition, the equipment bandwidth needs to be sufficient for detecting North Atlantic right whale vocalizations as well as other low-frequency vocalizing species. At night, we agree with the combination of passive acoustic monitoring and continual visual monitoring using night vision and infra-red described in the Proposed IHA (83 Fed. Reg. 19,729). The number of NMFS-approved PSOs and passive acoustic monitoring specialists aboard the vessel appear adequate to enable both visual monitoring (in daylight, or via night vision/ infra-red technologies) and passive acoustic monitoring to be carried out 24 hours a day. Indeed, passive acoustic monitoring specialists will be “on call” to assist with monitoring during times of poor visibility during the day (83 Fed. Reg. 19,729). It therefore seems immediately practicable for a combination of visual and passive acoustic monitoring to take place during the daytime with minimal impact to the developer.

#### *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 existing UMEs. 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 for.<sup>50</sup> North Atlantic 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>51</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>52</sup> It is possible that HRG

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<sup>47</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>48</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>49</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).

<sup>50</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>51</sup> NMFS, Recovery plan for the North Atlantic right whale (August 2004).

<sup>52</sup> Nowacek, D.P., *et al.*, “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli,” *supra* note 48.

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 UME.

As described in the Proposed IHA (83 Fed. Reg. 19,712), the HRG surveys will be supported by a vessel approximately 65-220 ft. (20-70 m) in length, which will maintain a survey speed of up to approximately five knots. Near shore surveys will be performed by shallow draft vessels approximately 29.5-75.5 ft. (9-23 m) in length, which will also maintain a survey speed of up to five knots when transiting survey lines. Deep geotechnical surveys will be supported by a dynamically positioned vessel, jack-up vessel, or anchored vessel approximately 131-328 ft. (40-100 m) in length, supported by a tug boat. These vessels should 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 a lethal vessel collision during the surveys is relatively low; however, the Proposed IHA provides no speed restrictions for other vessels associated with the survey that may be operating during the survey months (*i.e.*, shallow draft vessels and tug boats used in dynamic positioning of the larger survey vessel; 83 Fed. Reg. 19712). These vessels may be 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>53</sup> and since mothers and calves are likely to travel close to shore,<sup>54</sup> **a 10 knot speed restriction on all project associated vessels transiting to/ from survey area during November 1<sup>st</sup> through April 30<sup>th</sup> in New York state waters and the adjacent Block Island SMA, and from February 1<sup>st</sup> to May 14<sup>th</sup> in Rhode Island and Massachusetts state waters outside of the Block Island SMA, 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>55</sup> If the HRG surveys push a North Atlantic 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.**

#### IV. CONCLUSION

Thank you for considering our comments. For the above reasons, it is our view that NMFS must revise its analysis to be consistent with the agency’s statutory obligations. We welcome the opportunity to meet with you, and your staff, at any time to discuss these matters.

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<sup>53</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales,” *supra* note 19.

<sup>54</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, October 24, 2017.

<sup>55</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).

Ms. Jolie Harrison  
June 4, 2018  
Page 14

Sincerely,

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Natural Resources Defense Council

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National Wildlife Federation

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Jack Clarke  
Director, Advocacy Department  
Mass Audubon

***By Electronic Mail***

June 14, 2018

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys Off the Coast of Massachusetts for the Bay State Wind Project.**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, the National Wildlife Federation, the Conservation Law Foundation, Mass Audubon, NY4WHALES, IFAW – International Fund for Animal Welfare, Defenders of Wildlife, Surfrider Foundation, and our millions of members, we respectfully submit our recommendations for the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“Proposed IHA”) to authorize Orsted (U.S.), LLC./Bay State Wind, LLC., to conduct marine site characterization surveys off the coast of Massachusetts in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0500) (the “Lease Area”) as part of the Bay State Wind Project. *See* 83 Fed. Reg. 22,443 (May 15, 2018).

This is an exciting moment for offshore wind in New England and we recognize and celebrate the contribution that the Bay State Wind Project could make in providing clean energy for the region. It is our view that offshore wind energy can and must advance in an environmentally responsible manner to ensure that it meets ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters off Massachusetts seasonally support at least 38 species of marine mammals, including seven large cetaceans (83 Fed. Reg. 22,447 at Table 2). Of these large whales, five (sperm, fin, sei, blue, and North Atlantic right whales) are listed as “endangered” under the U.S. Endangered Species Act. The following comments are intended to support the Bay State Wind Project in achieving its goal to advance offshore wind in a manner sustainable for wildlife, and particularly marine mammals.

Our organizations have a number of concerns pertinent to NMFS’ negligible impact analysis and the mitigation and monitoring requirements that will be necessary to ensure adequate mitigation measures for North Atlantic right whales. We have summarized our specific recommendations for improved North Atlantic right whale mitigation below:

- In the case of unforeseen delays, NMFS must impose a seasonal restriction on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1 uPa) from November 1<sup>st</sup> to May 14<sup>th</sup>;
- Geophysical surveys should commence, with ramp up, during daylight hours only to maximize the probability that North Atlantic right whales are detected and are confirmed clear of the exclusion zone (“EZ”);
- NMFS should require that Protected Species Observers (“PSOs”), to the extent feasible, monitor an extended minimum 1,000 meter (“m”) exclusion zone for North Atlantic right whales;
- A combination of visual monitoring by PSOs and passive acoustic monitoring should be implemented for surveys taking place both during the day and at night; and
- All project vessels operating within the survey area should maintain a speed of 10 knots or less during the entire survey period. If site characterization and assessment activities are delayed into the fall and winter, a 10 knot speed restriction on all project associated vessels transiting to/ from the survey area from February 1<sup>st</sup> through May 14<sup>th</sup> should be required.

## I. BACKGROUND

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

Congress enacted the 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>1</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>2</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>3</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>4</sup> Given its critically endangered status, any level of disturbance may have the potential to result in population-level impacts; therefore, it is imperative that all potential stressors acting on this species be minimized and mitigated 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>5</sup> Elevated numbers of humpback whales have been found stranded along the Atlantic Coast since January 2016, and in a little over two years, 63 humpback whale mortalities have been recorded (data through May 29, 2018), with strandings occurring in every state along the East Coast.<sup>6</sup> Twenty-nine minke whales have stranded between Maine and South Carolina from January 2017 to January 2018; at least 28 of those strandings resulted in

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<sup>1</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); 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). We note that the Proposed IHA implies that the North Atlantic right whale has been in decline only since the start of the unusual mortality event (UME) in 2017 (83 Fed. Reg. 22,464); however, Pace et al. (2017) confirms the right whale has been experiencing a steady decline since 2010, which subsequently accelerated with the onset of the 2017 UME.

<sup>2</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2018-north-atlantic-right-whale-unusual-mortality-event>.

<sup>3</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 1; 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>4</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 3; *see, also*, <https://www.theguardian.com/environment/2017/dec/10/north-atlantic-right-whales-extinct>.

<sup>5</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2018-humpback-whale-unusual-mortality-event-along-atlantic-coast>; 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>6</sup> *Id.*; *see, also*, <https://www.newsday.com/long-island/suffolk/whale-washed-ashore-fire-island-1.18812449>.



mortality.<sup>7</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>8</sup> and/ or an increase in the abundance of certain prey species as a result of fisheries management,<sup>9</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 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>10</sup>

When issuing an IHA, NMFS is obligated to use the best available information on marine mammal presence and density. 16 U.S.C. §§ 1362(19), §§ 1362(27). Considering the elevated level of threat to federally protected large whale species and populations in the Atlantic, including off the state of Massachusetts, and emerging evidence of dynamic shifts in the distribution of large whale habitat, any stressors posed by the proposed project must be mitigated to the fullest extent practicable.

### *C. North Atlantic right whale seasonality and distribution off Massachusetts*

The best available science demonstrates that November 1<sup>st</sup> through at least May 14<sup>th</sup> represents the time period of highest risk to North Atlantic right whales off Massachusetts, defined as times of highest relative density of animals during their migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior), are expected to be present.

North Atlantic right whales are present within and close to the Lease Area year-round; however, based on sightings and acoustic data, North Atlantic right whales are most consistently present within or near the Lease Area at their highest densities from November 1<sup>st</sup> through mid-May.<sup>11</sup> Historically, seasonally consistent aggregations of North Atlantic right whales have been observed feeding and possibly mating within or close to the Lease Area from at least March through April, leading the area to be considered by scientists as a North Atlantic right whale “hotspot” from March to May.<sup>12</sup> More recently in 2017, however, North Atlantic right whales were observed feeding in the vicinity of the Lease Area during the

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

<sup>8</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>9</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).

<sup>10</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 2; NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 5; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 5.

<sup>11</sup> Kraus, S.D., Leiter, S., Stone, K., Wikgren, B., Mayo, C., Hughes, P., Kenney, R.D., Clark, C.W., Rice, A.N., Estabrook, B., and Tielens, J., “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” OCS Study, BOEM 2016-054, pp. 118 (2016); 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.A., and Kraus, S.D., “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA,” *Endangered Species Research*, vol. 34, pp. 45-59 (2017).

<sup>12</sup> Leiter, S.M., *et al.*, *id.*

first half of May for the first time,<sup>13</sup> indicative of a broader distributional shift resulting in the occurrence of North Atlantic right whales at greater densities off Rhode Island and Massachusetts through May and into the summer months.<sup>14</sup> Pregnant females are known to travel through the area in November and December and females of reproductive age are also present in the area in February and March, with April appearing particularly important for mothers and calves.<sup>15</sup>

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT<sup>16</sup>

### A. *In order to use the best scientific information available, NMFS must include additional data sources when calculating densities of marine mammals, including the North Atlantic right whale*

For the Proposed IHA to be consistent with the MMPA, NMFS must base its analysis on the best available science. 16 U.S.C. §§ 1362(19), §§ 1362(27). 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 Coast (*i.e.*, Roberts *et al.* (2016); 83 Fed. Reg. 22,457), which was funded under the agency’s CetMap program.<sup>17</sup> However, the CetMap model, as its designers admit,<sup>18</sup> 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.<sup>19</sup> It is our view that the density maps produced by Roberts *et al.* (2016), utilizing data up until 2014, do not fully reflect the abundance, distribution, and density of marine

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<sup>13</sup> Quintana, E., “Monthly report No. 3: May 2017,” Report prepared for the Massachusetts Clean Energy Center by the New England Aquarium, pp. 26 (May 15, 2017).

<sup>14</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>15</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>16</sup> In addition to Section II, 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, Pirodda *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).

<sup>17</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>18</sup> *Id.*

<sup>19</sup> *E.g.*, Kraus, S.D., *et al.*, “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” *supra* note 11.

mammals for the U.S. East Coast, particularly in light of the recent emerging evidence of a shift in large whale presence and abundance in the region (*see*, Section I.C).<sup>20</sup>

We have raised these concerns in several meetings and workshops, including presentations and discussions at the Bureau of Ocean Energy Management (“BOEM”) Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species, March 7-9, 2017. The agency should recognize that estimated densities derived from the Roberts *et al.* (2016) model for the waters off Rhode Island, Massachusetts, and New York may significantly underrepresent the density and seasonal presence of large whales and other marine mammals in this region and calculate densities using additional available data sources.

**It should be NMFS’ top priority to consider any initial data from State monitoring efforts,<sup>21</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources in future analyses of estimated take.** 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 off Massachusetts, providing a more accurate assessment of Level B take.

*B. NMFS should not adjust take numbers for North Atlantic right whale based on mitigation measures*

The agency elects to adjust take numbers of North Atlantic right whales to zero “due to the implementation of a 500 m shutdown zone [*i.e.*, exclusion zone or “EZ”], which is greater than the 400 m Level B behavioral harassment zone” (83 Fed. Reg. 22,458). While we appreciate NMFS’ refusal to authorize a single Level B take for the North Atlantic right whale, as is necessary given the species’ dire conservation status, we do not share the Agency’s level of confidence that it is possible to mitigate all potential for Level B harassment through the implementation of a 500 m EZ during a time of year when North Atlantic right whales are expected to be present in the Lease Area, albeit in relatively lower numbers. Our reasons are twofold: (i) the agency’s reliance on a 160 dB threshold for behavioral harassment that is not supported by best available science (*see*, footnote #11); and (ii) the monitoring protocols the agency prescribes for the EZ are under-protective (*see*, Section III.D for further discussion).

The agency has a responsibility to implement robust mitigation measures to prevent any Level B takes for the North Atlantic right whale, as well as for other species of large whale. As noted by the agency’s decision to authorize a number of Level A takes for harbor porpoise: “This is warranted due to the small size of the species, in combination with some higher sea states and weather conditions that could make harbor porpoises more difficult to observed at the 75 m shut down zone.” (83 Fed. Reg. 22,459) The agency further emphasizes: “...out of an abundance of caution, NMFS proposes to authorize Level A take for harbor porpoises.” (83 Fed. Reg. 22,459) However, in the case of the North Atlantic right whale, NMFS states: “it is reasonable to expect that North Atlantic right whales will be able to be observed such

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<sup>20</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 14.

<sup>21</sup> *See*, <http://www.masscec.com/offshore-wind-marine-wildlife-surveys>

that shut down would occur well beyond the threshold for potential for behavioral harassment.” (83 Fed. Reg. 22,459) Considering the significant concerns regarding the effectiveness of the monitoring protocols required by the agency (*see*, Section III), the assumption of essentially perfect monitoring of the 500 m EZ is not supported. The concerns regarding visibility for harbor porpoise also hold true for the North Atlantic right whale, which is known to be cryptic even in calm conditions (*see*, Sections III.D and III.E), and will be monitored across a much larger EZ of 500 m. NMFS’ should extend its “abundance of caution” to the North Atlantic right whale and not make the questionable assumption that the potential for Level B harassment to the North Atlantic right whale, following mitigation, is zero.

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing “take” under the general authorization provision of the MMPA, NMFS 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, 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. The North Atlantic right whale population cannot withstand any additional stressors; 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 May 14<sup>th</sup>*

As described above (*see*, Section I.C), NMFS is proposing to authorize geophysical surveys off Massachusetts at a time when North Atlantic right whales may be present. The survey period is intended to commence no earlier than June 1<sup>st</sup>, 2018, and will last for approximately 60 days, weather depending (83 Fed. Reg. 22,444). Similarly, the Export Cable Route surveys are expected to start no sooner than June 1<sup>st</sup>, 2018, and will last approximately 40 days (83 Fed. Reg. 22,444). It is therefore highly unlikely that the surveys will extent into the time period that we consider of greatest risk for North Atlantic right whales at times they are at their highest density (November 1<sup>st</sup> to May 14<sup>th</sup>). However, a specific end date for the surveys is not specified.<sup>22</sup> As the Proposed IHA will be issued for one year, poor weather conditions or other unforeseen circumstances may delay surveys into the fall. In that case, 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.*, source level >180 dB re 1 uPa) from November 1<sup>st</sup> to May 14<sup>th</sup> off Massachusetts.<sup>23</sup> We also note that, while North Atlantic right whales may not be present in

<sup>22</sup> In fact, two alternative time periods for the duration of the surveys are described in the IHA: June through September (83 Fed. Reg. 22,461) and “April-June; October” (83 Fed. Reg. 11,464).

<sup>23</sup> A November 1<sup>st</sup> to April 30<sup>th</sup> seasonal restriction for pile driving and a February 1<sup>st</sup> to April 30<sup>th</sup> seasonal restriction for geophysical surveying formed a core component of a landmark agreement aimed at protecting the North Atlantic right whale from construction site assessment and characterization activities in the Rhode Island and Massachusetts Wind Energy Area that was reached between offshore wind developers and the environmental non-governmental organization (“NGO”) community in 2012. *See*, letter from J. Grybowski, F. Beinecke, J. Kassel, J. Lyon, M. Alt, J. Savitz, A. Downes, and M. Brune, to Ms. M. Bornholdt, Renewable Energy Program Manager, Bureau of Ocean Energy Management, regarding “Proposed mitigation

their highest densities during the summer months, they are increasingly present in the area during this time.<sup>24</sup> As such, NMFS must ensure that adequate mitigation measures (*see*, Sections III.B. through III.E. for our recommendations) are in place to protect the North Atlantic right whale throughout the year.

*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>25</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.

The agency should review and approve night vision and infra-red equipment prior to the start of surveys. In doing so, 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 waters in the Northeastern region, particularly during the spring and summer, in contrast to the far cooler high-latitude waters, is likely to negatively impact the detection effectiveness of infra-red.<sup>26</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>27</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

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measures to protect North Atlantic right whales from site assessment and characterization activities of offshore wind energy development in the Rhode Island and Massachusetts Wind Energy Area” (May 7, 2014). The dates of the seasonal restrictions have since been revised to November 1<sup>st</sup> through May 14<sup>th</sup>, as reflected in our current letter, based on the best available science. 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 endangered and protected species; this action is particularly pertinent in light of the UMEs declared for right whales, humpback whales and minke whales (Kraus et al. 2016). It is therefore imperative that consequences of the any 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; NMFS should consider any existing 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 measures for the time-period proposed (*i.e.*, November 1<sup>st</sup> to May 14<sup>th</sup>), as based on the best available science.

<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 14.

<sup>25</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>26</sup> *Id.*

<sup>27</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).

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>28</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 North Atlantic right whale is detected in the 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 encourage developers to partner with scientists to collect data that would increase the understanding of the effectiveness of night vision and infra-red technologies off Massachusetts, and the 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 EZs will be established around HRG equipment and monitored by PSOs during HRG surveys as follows: 75 m EZ for harbor porpoises; 100 m EZ for large whales, including sperm whales and mysticetes (except North Atlantic right whale); and 500 m EZ for North Atlantic right whales (83 Fed. Reg. 22,459). In addition to the above described EZs, PSOs will visually monitor and record the presence of all marine mammals within 400 m. 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.*, received level <160 dB).<sup>29</sup> Again, any potential harassment of the North Atlantic right whale is a significant concern. Moreover, the agency is demonstrating inconsistency in its EZ requirements for different Lease Areas without explanation or justification.<sup>30</sup>

**NMFS should require use of sufficient monitoring practices to ensure a 500 m EZ for marine mammals<sup>31</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

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<sup>28</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).

<sup>29</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>30</sup> See, *e.g.*, 83 Fed. Reg. 19,711-19,736, which specifies: 25 m EZ for harbor porpoises; 200 m EZ for ESA-listed cetaceans, including sperm whales and mysticetes (except North Atlantic right whale); and 500 m EZ for North Atlantic right whales. No exclusion zones are warranted for non-ESA-listed marine mammals. PSOs will visually monitor and record the presence of all marine mammals within 500 meters.

<sup>31</sup> Letter from J. Grybowski, *et al.* to Ms. M. Bornholdt, *supra*, note 23.

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 1,000 m EZ for North Atlantic right whales,**<sup>32</sup> during the use of geophysical surveys for site assessment and characterization. NMFS should maintain protective EZs, at the minimum distances we recommend above, throughout the site assessment and characterization activities to maximize protections for North Atlantic right whales and other protected species. The EZ distance should be extended beyond these minimum distances in the case that sound source validation data support such an extension.

*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>33</sup> Sea state has been demonstrated to have a direct effect on the siting probability of North Atlantic right whales in the Lower Bay of Fundy and in Roseway Basin of the Southwest Scotian Shelf.<sup>34</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>35</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>36</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 a species can be adequately protected by species observers alone, given the moderate Beaufort Sea States off Block Island 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>37</sup> a monthly average Beaufort Sea State of 3 or 4 can be expected off Block Island, in close vicinity to the Lease Area, between June and December, with the highest sea states from August to December.

*Table 1. Monthly average wave height for 2016 and corresponding Beaufort Sea State recorded at NOAA National Data Buoy Station 44097 – Block Island, RI (154). Data source: NOAA National Data Buoy Center (Accessed: May 19, 2018).*

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<sup>32</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

<sup>33</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>34</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>35</sup> *Id.*

<sup>36</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>37</sup> NOAA-NWS, “National Data Buoy Center,” Available at: <http://www.ndbc.noaa.gov/>.

Month	Wave Height (m)	Beaufort Sea State
June	1.0	3
July	0.9	3
August	0.9	4
September	1.3	4
October	1.6	4
November	1.5	4
December	1.8	4

Given these data, observers are certain to underestimate 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 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 North Atlantic 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 North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay<sup>38</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>39</sup> Indeed, aerial surveys were found to detect North Atlantic right whales on only two-thirds of the days they were acoustically detected in Cape Cod Bay, Massachusetts, from 2001 to 2005.<sup>40</sup> Additionally, there is evidence that North Atlantic 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>41</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>42</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.** Indeed, passive acoustic monitoring specialists will be

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<sup>38</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>39</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>40</sup> Clark, C.W., Brown, M.W., and Corkeron, P., "Visual and acoustic surveys for North Atlantic right whales, *Eubalaena glacialis*, in Cape Cod Bay, Massachusetts, 2001-2005: Management Implications," *Marine Mammal Science*, vol. 26, pp. 837-854 (2010).

<sup>41</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>42</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).



available to assist with monitoring, coordination, and effectiveness testing of equipment during the day (83 Fed. Reg. 22,461). The number of NMFS-approved PSOs and passive acoustic monitoring specialists aboard the vessel appear adequate to enable both visual monitoring (in daylight, or via night vision/ infra-red technologies) and passive acoustic monitoring to be carried out 24 hours a day. It therefore seems immediately practicable for a combination of visual and passive acoustic monitoring to take place during the daytime with minimal impact to the developer.

At night, we agree with the combination of passive acoustic monitoring and continual visual monitoring using night vision and infra-red described in the Proposed IHA (83 Fed. Reg. 22,461). In addition, we support the protocol for shutdown upon passive acoustic detection of a North Atlantic right whale, without the need for confirmation by a visual observer (83 Fed. Reg. 22,461); in the case that it's not possible for the vocalizing individual to be localized by the PAMGuard software, the activities should be shut down out of full precaution for the species.

In addition, the hydrophone array (83 Fed. Reg. 22,461) should be designed so the hydrophone is not masked by vessel or survey noise. We support the inclusion of both broadband and low frequency hydrophones (83 Fed. Reg. 22,461), which will serve to ensure that North Atlantic right whale vocalizations, as well as other low- and mid-frequency vocalizing species, can be detected.

#### *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 existing UMEs. 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 for.<sup>43</sup> North Atlantic 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>44</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>45</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 UME.

As described in the Proposed IHA (83 Fed. Reg. 22,447), the HRG surveys will be supported by up to two small vessels up to approximately 72 ft. (22 m) in length, and up to three large vessels approximately 170 ft. (52 m) in length. An autonomous surface vessel ("ASV") of approximately 41 ft (12.5) in length may also be used (83 Fed. Reg. 22,446). Vessel speed during surveys is not specified. These vessels

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<sup>43</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>44</sup> NMFS, Recovery plan for the North Atlantic right whale (August 2004).

<sup>45</sup> Nowacek, D.P., *et al.*, "North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli," *supra* note 41.

should abide by the NMFS dynamic management area (“DMA”) regulations for the North Atlantic right whale; in addition, all vessels operating from November 1<sup>st</sup> through July 31<sup>st</sup> will operate at speeds of 10 knots or less (83 Fed. Reg. 22,460).

Given that the speed of the survey vessels will fall well below 10 knots, we agree with the agency that the risk of a lethal vessel collision during the surveys is relatively low; however, the Proposed IHA provides no speed restrictions for the ASV or other support vessels that may be operating during the survey months. Vessels less than 65 ft. in length are exempt from NMFS’ regulations. As serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length,<sup>46</sup> and since mothers and calves are likely to travel close to shore,<sup>47</sup> **all project vessels operating within the survey area should maintain a speed of 10 knots or less during the entire survey period.** If, due to unforeseen circumstances, site characterization and assessment activities are delayed into the fall and winter, **a 10 knot speed restriction on all project associated vessels transiting to/ from the survey area from February 1<sup>st</sup> through May 14<sup>th</sup> should be required to protect feeding whales and mother-calf pairs.** (This measure should be considered in addition to the seasonal restriction on geophysical surveys recommended in Section III.A).

Additionally, studies of other baleen whales indicate that noise can induce horizontal displacement.<sup>48</sup> If the HRG surveys push a North Atlantic right whale out of a 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.**

#### IV. CONCLUSION

Thank you for considering our comments. For the above reasons, it is our view that NMFS must revise its analysis to be consistent with the agency’s statutory obligations. We welcome the opportunity to meet with you, and your staff, at any time to discuss these matters.

Sincerely,

Francine Kershaw, Ph.D.  
Project Scientist, Marine Mammal Protection and Oceans, Nature Program  
Natural Resources Defense Council

Catherine Bowes  
Program Director, Offshore Wind Energy  
National Wildlife Federation

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<sup>46</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales.” Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

<sup>47</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, October 24, 2017.

<sup>48</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).

Ms. Jolie Harrison  
June 14, 2018  
Page 14

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***By Electronic Mail***

May 24, 2019

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Activities in the OCS-A 0508 Lease Area and the Coastal Waters off North Carolina and Virginia**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, National Wildlife Federation, Southern Environmental Law Center, North Carolina Wildlife Federation, Oceanic Preservation Society, Mass Audubon, Defenders of Wildlife, WDC North America, NY4WHALES, Gotham Whale, Ocean Conservation Research, Conservation Law Foundation, Inland Ocean Coalition, International Marine Mammal Project of the Earth Island Institute, and Sanctuary Education Advisory Specialists SEAS LLC., and our millions of members, we respectfully submit our recommendations for the National Marine Fisheries Service's ("NMFS") proposal to issue an incidental harassment authorization ("Proposed IHA") to Avangrid Renewables, LLC ("Avangrid") for marine site characterization surveys off the coast of North Carolina in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0508) (the "Lease Area") and the coastal waters off North Carolina and Virginia where one or more cable route corridors will be established. *See* 84 Fed. Reg. 17,384 (April 25, 2019).

This is an exciting moment for offshore wind in North Carolina and we recognize and celebrate the contribution that Avangrid's wind project could make in providing clean energy for the state and region. We have applauded the multiple steps North Carolina has taken to address climate change and to support offshore wind and clean energy. It is our view that offshore wind energy can and must advance in an environmentally responsible manner, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters off North Carolina represent an area of outstanding marine mammal diversity, including five large and eight small cetacean species.<sup>1</sup> Of the five large whale species, three (fin whale, sei whale, and North Atlantic right whale) are listed as endangered under the Endangered Species Act ("ESA") and as depleted and strategic stocks under the Marine Mammal Protection Act ("MMPA"). Two small whale species (short-finned pilot whale and long-finned pilot whale) are designated as strategic stocks while the Western North Atlantic Southern Migratory Coastal stock of

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<sup>1</sup> 84 Fed. Reg. at 17,387, Table 2.

bottlenose dolphin is designated as both a depleted and strategic stock. The following comments are intended to support Avangrid in achieving its goal to advance offshore wind in a manner sustainable for marine wildlife, and particularly marine mammals.

Our organizations have a number of concerns pertinent to NMFS' negligible impact analysis and the mitigation and monitoring requirements that will be necessary to ensure adequate mitigation measures for North Atlantic right whales and other priority species. We recommend the Proposed IHA be updated to include the following protections:

- Notwithstanding that Avangrid intends to complete its activities this summer, NMFS should impose a seasonal restriction on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa) from November 1 to April 30 in case delays occur;
- Geophysical surveys should commence, with ramp up, during daylight hours only to maximize the probability that marine mammals are detected and confirmed clear of the exclusion zone ("EZ");
- NMFS should require that Protected Species Observers ("PSOs"), to the extent feasible, monitor an extended minimum 1,000 meter ("m") EZ for North Atlantic right whales and establish a standard 500 m EZ for other species;
- PSOs should adhere to a shift schedule of two-on/two-off to ensure no individual PSO is responsible for monitoring more than 180° of the EZ at any one time;
- A combination of visual monitoring by PSOs and passive acoustic monitoring should be used at all times that survey work is underway; and
- All vessels operating within the survey area, including support vessels, should maintain a speed of 10 knots or less during the entire survey period. If site characterization and assessment activities are delayed into the fall and winter, a 10-knot speed restriction on all project-associated vessels transiting to/from the survey area from November 1 through April 30 should also be required.
- Additionally, we object to NMFS' proposed process to consider extending any one-year IHA with a truncated 15-day comment period. As discussed below, that proposed process is contrary to the MMPA.

## I. BACKGROUND

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

Congress enacted the 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."<sup>2</sup> The statute seeks to ensure

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<sup>2</sup> 16 U.S.C. § 1361(1).

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.”<sup>3</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>4</sup> 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.<sup>5</sup>

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.<sup>6</sup> 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.”<sup>7</sup>

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than 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.”<sup>8</sup> The agency must prescribe permissible methods of taking 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.”<sup>9</sup> NMFS must also establish monitoring and reporting requirements.<sup>10</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>11</sup>

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

As the agency is aware, the conservation status of the North Atlantic right whale is dire. Although the species has been listed as endangered under the ESA for decades, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial fishing gear and ship strikes. In the last two years, at least 20 animals are known to have been killed, and the population is now estimated to be no more than 420 individuals. Moreover, females are more negatively affected than males

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<sup>3</sup> *Id.* § 1361(2); see also *Conservation Council for Hawaii v. Nat’l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>4</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

<sup>5</sup> 16 U.S.C. § 1361(1), (3).

<sup>6</sup> 16 U.S.C. §§ 1362(13), 1371(a).

<sup>7</sup> *Id.* § 1362(18)(A).

<sup>8</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>9</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>10</sup> *Id.* § 1371(a)(5)(D)(ii)(III).

<sup>11</sup> *Id.* § 1371(a)(5)(D)(iii).

by the lethal and sublethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately ten years.<sup>12</sup>

In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”),<sup>13</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect. Moreover, ongoing UMEs exist for the Atlantic populations of minke whales (since January 2017) and humpback whales (since January 2016).<sup>14</sup> Alarming, 59 minke whales have stranded between Maine and South Carolina from January 2017 to March 2019.<sup>15</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over three years, 88 humpback whale mortalities have been recorded (data through February 18, 2019), with strandings occurring in every state along the East Coast.<sup>16</sup> The declaration of these three large whale UMEs by the agency in the past few years, for which anthropogenic impacts are a significant cause of mortality, demonstrates an increasing risk to whales from human activities along the U.S. East Coast.

Given the highly endangered status of the North Atlantic right whale, NMFS is obligated by both the ESA and the MMPA to protect this species from additional harmful impacts of human activities. The agency is also obligated by the MMPA to consider the full range of potential impacts on all marine mammal species, including minke and humpback whales, that are known to utilize the survey area and surrounding areas before issuing an IHA with appropriate protection, mitigation, and monitoring measures. NMFS must use the best available scientific information on marine mammal presence and density, as required by law.<sup>17</sup> Considering the elevated level of threat to all federally protected large whale species and populations in the Atlantic, including waters of North Carolina and Virginia, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed surveys are mitigated to effectuate the least practicable impact on affected species and stocks.<sup>18</sup>

### *C. North Atlantic right whale seasonality and distribution off North Carolina and Virginia*

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<sup>12</sup> Pace III, R.M. *et al.*, “State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales,” *Ecology and Evolution*, vol. 7, no. 21, pp. 8730-41 (2017); Corkeron, P., *et al.* “The recovery of North Atlantic right whales, *Eubalaena glacialis*, has been constrained by human-caused mortality.” *Royal Society Open Science*, vol 5, art. 180892 (2018).

<sup>13</sup> NOAA-NMFS “2017-2019 North Atlantic Right Whale Unusual Mortality Event.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2019-north-atlantic-right-whale-unusual-mortality-event>.

<sup>14</sup> NOAA-NMFS, “2016-2019 Humpback whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2019-humpback-whale-unusual-mortality-event-along-atlantic-coast>; “2017-2019 Minke whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2019-minke-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>15</sup> *Id.*

<sup>16</sup> NOAA-NMFS, “2016-2019 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 14; *see also* <https://www.newsday.com/long-island/suffolk/whale-washed-ashore-fire-island-1.18812449>.

<sup>17</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>18</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

North Atlantic right whales are present within and close to the Lease Area year-round; however, based on acoustic data<sup>19</sup> and aerial surveys,<sup>20</sup> North Atlantic right whales are most consistently present within or near the Lease Area at their highest densities from November through April. This period captures both the southward migration in the fall and early winter, when pregnant females may be traveling through the area, and the northward migration in the late winter and early spring, when mothers and calves may be traveling through the Lease Area or the more coastal cable route corridor survey area.<sup>21</sup> This is in line with the dates of the Seasonal Management Area (“SMA”) currently in place for Virginia from November 1 through April 30, extending 37 kilometers (“km”) offshore the entrance of Chesapeake Bay.<sup>22</sup>

The best available scientific information therefore demonstrates that November 1 through April 30 represents the time period of highest risk to North Atlantic right whales off North Carolina and Virginia, based on times of highest relative density of animals during their migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present.<sup>23</sup> That said, given that North Atlantic right whales were detected on approximately 10 percent of days throughout the year, there is clear need for strong and effective mitigation measures to be in place year-round.<sup>24</sup>

*D. The waters off North Carolina are recognized as a global hotspot of marine mammal diversity*

The Lease Area is located adjacent to one of the most diverse and biologically productive marine ecosystems in the world; the Cape Hatteras Special Research Area (“CHSRA”) encompasses a 2,288

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<sup>19</sup> Hodge, K.B., *et al.* “North Atlantic right whale occurrence near wind energy areas along the mid-Atlantic US coast: implications for management.” *Endangered Species Research*, vol. 28, p. 225-234 (2015); Salisbury, D.P., Clark, C.W., and Rice, A.N. “Right whale occurrence in the coastal waters of Virginia, USA: Endangered species presence in a rapidly developing energy market.” *Marine Mammal Science*, vol. 32, p. 508-519 (2016); 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.” *Scientific Reports*, no 7, art. 13460 (2017). There is also some indication, based on acoustic data collected in close vicinity to the Lease Area and cable route corridor survey area, that right whale densities start to increase as early as October; however, the authors conclude that the November 1<sup>st</sup> through April 30<sup>th</sup> period when the majority of right whales are present (Salisbury, D.P., *et al.*, *id.*).

<sup>20</sup> Mallette, S.D., *et al.*, “Occurrence of Baleen Whales along the Continental Shelf Region of the VACAPES OPAREA off southern Virginia: Final Report.” Prepared for U.S. Fleet Forces Command. Submitted to Naval Facilities Engineering Command Atlantic, Norfolk, Virginia, under Contract No. N62470-15-D-8006, Task Order 48, issued to HDR, Inc., Virginia Beach, Virginia (July 2018). North Atlantic right whales were cited during the winter and spring. Available at: [https://www.navy-marinespeciesmonitoring.us/files/8415/3383/3682/Mallette\\_et\\_al\\_2018\\_-\\_Occurrence\\_of\\_Baleen\\_Whales\\_along\\_the\\_Continental\\_Shelf\\_Region\\_of\\_the\\_VACAPES\\_OPAREA\\_off\\_southern\\_Virginia\\_-\\_Final\\_Report.pdf](https://www.navy-marinespeciesmonitoring.us/files/8415/3383/3682/Mallette_et_al_2018_-_Occurrence_of_Baleen_Whales_along_the_Continental_Shelf_Region_of_the_VACAPES_OPAREA_off_southern_Virginia_-_Final_Report.pdf).

<sup>21</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>22</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales.” Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

<sup>23</sup> Over a dozen wildlife conservation organizations recently endorsed a suite of Best Management Practices (“BMPs”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. The BMPs include criteria to define times of highest risk to North Atlantic right whales. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Available at: <https://www.nrdc.org/resources/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy>.

<sup>24</sup> Salisbury, D.P., Clark, C.W., and Rice, A.N. “Right whale occurrence in the coastal waters of Virginia, USA: Endangered species presence in a rapidly developing energy market,” *supra* note 19.



square mile region (35°N lat., 75°W lon., 36°25'N lat., and 74°35'W lon.; Figure 1). Uniquely positioned where the warm Gulf Stream swings close to shore and meets the cool Labrador Current to the north, the waters off Cape Hatteras are a site of dynamic ocean fronts that support significant and diverse concentrations of marine life throughout the water column.<sup>25</sup> Upwelling supports an abundance of plankton, squid, and forage fish that, in turn, support the greatest known biodiversity of marine mammals and other large marine predators off the East Coast. The position of Cape Hatteras between the temperate ecosystem to the north and the subtropical ecosystem to the south also means that many species ranges have either their southern or northern terminus at the Cape.<sup>26</sup> The overlap of two different biological assemblages results in exceptionally high levels of biodiversity.

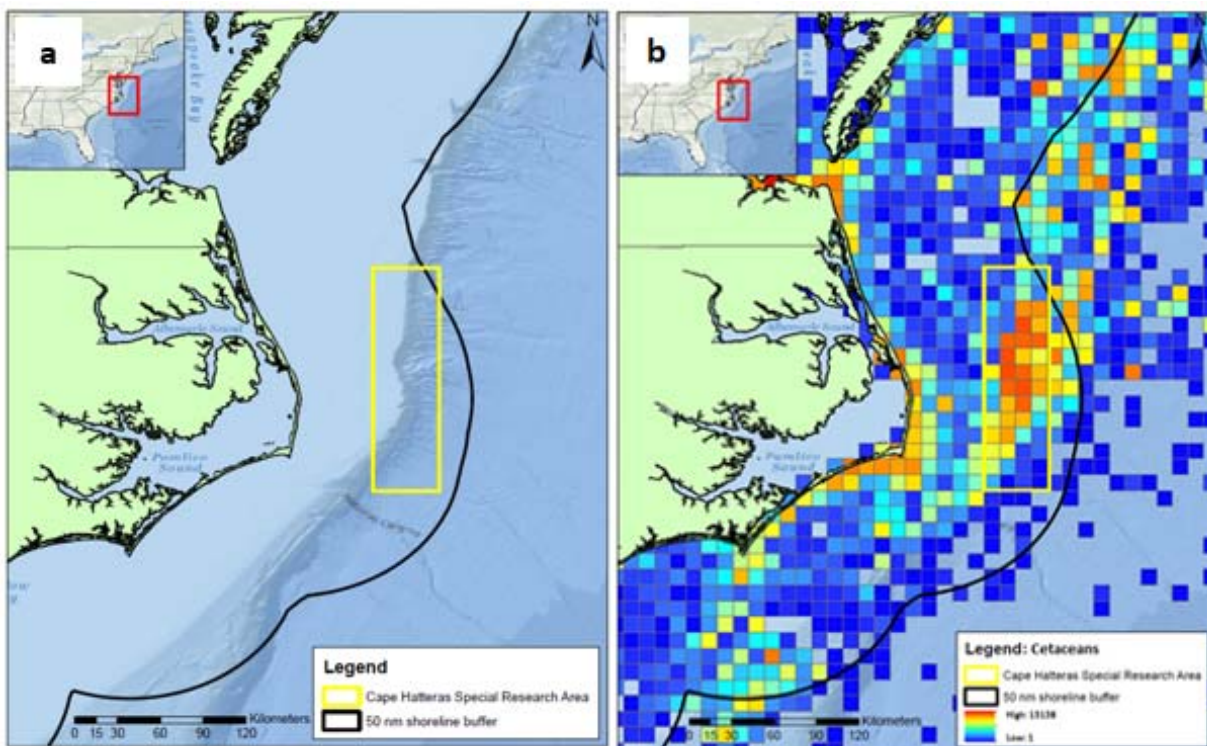


Figure 1a.) The boundaries of the Cape Hatteras Special Research Area. The Lease Area lies immediately to the west of the northwestern boundary at ~75°W; 1b.) Density of individual animals recorded in OBIS-SEAMAP for 30 species of cetaceans.<sup>27</sup> Note the relatively high densities of marine mammals occurring within the CHSRA and the cable route corridor close to the coasts of North Carolina and Virginia.

<sup>25</sup> Magnuson, J.J., et al. "Responses of Macrofauna to Short-Term Dynamics of a Gulf Stream Front on the Continental Shelf." *Coastal Upwelling*, vol. 1, p. 441-448 (1981); Atkinson, L.P., and Targett, T.E. "Upwelling along the 60-m isobath from Cape Canaveral to Cape Hatteras and its relationship to fish distribution." *Deep Sea Research Part A. Oceanographic Research Papers*, vol. 30, p. 221-226 (1983); Churchill, J.H. and Cornillon, P.C., "Gulf Stream water on the shelf and upper slope north of Cape Hatteras." *Continental Shelf Research*, vol. 11, p. 409-421 (1991).

<sup>26</sup> Schick, R.S., et al., "Community structure in pelagic marine mammals at large spatial scales." *Marine Ecology Progress Series*, vol. 434, p. 165-181 (2011); Best, B.D., et al., "Online cetacean habitat modeling system for the US east coast and Gulf of Mexico." *Endangered Species Research*, vol. 18, p. 1-15 (2012).

<sup>27</sup> Halpin, P.N., et al., "OBIS-SEAMAP: The world data for marine mammal, sea bird, and sea turtle distributions." *Oceanography*, vol. 22, p. 104-155 (2009).

The waters off Cape Hatteras have the highest marine mammal biodiversity of any area along the U.S. East Coast, and compare favorably to other locations internationally renowned for their diversity of species, including waters off Northwest Spain, Hawaii, San Diego, and Cape Cod.<sup>28</sup> Nine families and 34 species (29 cetaceans, 4 pinnipeds, and 1 manatee) were recorded for the entire coast of North Carolina in a recent study.<sup>29</sup> In addition to the diversity of species, marine mammals also occur at unusually high densities off Cape Hatteras compared to other areas along the East Coast.<sup>30</sup> The CHSRA was designated in 2009 by NMFS as a location that exhibited high fishing effort and high pilot whale bycatch rates. Considering the high levels of marine mammal diversity observed within the CHSRA, we consider these boundaries to be a helpful proxy to define the area of highest relative diversity and habitat-use for marine mammals in the region (Figure 1).

Residency intervals, within-season sightings, and documentation of feeding behaviors suggest the waters off Virginia, including the cable route corridor survey area, and perhaps the broader mid-Atlantic region, provide important seasonal foraging habitat for at least some, primarily juvenile, humpback whales.<sup>31</sup> Between year sightings suggest that as many as 20 percent of identified whales occur in a relatively small study area in consecutive years.<sup>32</sup> In addition to endangered baleen whales (*see also* Section I.B.), three strategic stocks of small cetaceans—long-finned and short-finned pilot whales, and the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin—are found off Cape Hatteras and use habitat within the Lease Area and cable route corridor survey area. Pilot whales are vulnerable to entanglement in fishing gear. Short-finned pilot whales interact with the pelagic longline fishery for swordfish and tuna, and are the most frequently taken marine mammal in this fishery,<sup>33</sup> with take recently exceeding the level of potential biological removal.<sup>34</sup> Long-finned pilot whales are also at risk. Both species are afforded protections in the pelagic longline fishery through the NMFS Atlantic Pelagic Longline Take Reduction Plan.<sup>35</sup> The Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin is considered to be depleted under the MMPA due to the number of annual human-caused mortalities and previous UMEs.<sup>36</sup>

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<sup>28</sup> Byrd, B., *et al.*, “Strandings as indicators of marine mammal biodiversity and human interactions off the coast of North Carolina.” *Fishery Bulletin*, vol. 112, p. 1-12 (2014).

<sup>29</sup> *Id.*

<sup>30</sup> Halpin, P.N., *et al.*, “OBIS-SEAMAP: The world data for marine mammal, sea bird, and sea turtle distributions,” *supra* note 27.

<sup>31</sup> Mallette, S.D., *et al.*, “Seasonality and site-fidelity of humpback whales off the mid-Atlantic region of the U.S.” Poster Presentation, Virginia Aquarium and Marine Science Center Foundation. Available at: [https://www.navy-marinespeciesmonitoring.us/files/5115/1941/4653/Mallette\\_SMM\\_2017\\_poster.pdf](https://www.navy-marinespeciesmonitoring.us/files/5115/1941/4653/Mallette_SMM_2017_poster.pdf).

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

<sup>33</sup> Garrison, L.P., *et al.*, “Interactions between marine mammals and pelagic longline fishing gear in the U.S. Atlantic Ocean between 1992 and 2004.” *Fisheries Bulletin*, vol. 105, p. 408-417 (2007).

<sup>34</sup> Hayes, S.A., *et al.*, “U.S. Atlantic and Gulf of Mexico marine mammal stock assessments – 2016.” NOAA Technical Memorandum, NMFS-NE-241, pp. 274 (2017).

<sup>35</sup> 74 Fed. Reg. 23,349 (May 19, 2009).

<sup>36</sup> Hayes, S.A., *et al.*, “U.S. Atlantic and Gulf of Mexico marine mammal stock assessments – 2016,” *supra* note 34 at p. 110-124. Updated April 2018.

While the Lease Area lies to the west of the CHSRA and does not coincide directly with the highest relative levels of diversity and abundance of marine mammals, **it is crucial that the agency afford special attention to the general importance of the waters off North Carolina to marine mammals when permitting offshore wind development activities in this region, and requires strong mitigation measures capable of protecting multiple species in the Lease Area and cable route corridors.**

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT<sup>37</sup>

### A. *To fulfill the statutory requirement of considering the best scientific information available, NMFS must analyze additional data sources when calculating densities of marine mammals, including the North Atlantic right whale*

For the Final IHA to be consistent with the MMPA, NMFS must base its analysis on the best available scientific information.<sup>38</sup> 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 Coast,<sup>39</sup> which was funded under the agency’s CetMap program<sup>40</sup> and recently updated with new modeling results.<sup>41</sup> However, the CetMap model, as its designers admit,<sup>42</sup> is limited. Most notably, in founding its density estimates entirely on shipboard and aerial line-transect surveys, the model necessarily excludes data obtained through additional sightings data, passive acoustic monitoring, and satellite telemetry.<sup>43</sup> It is our view that the density maps produced by Roberts *et al.* do not fully reflect the

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<sup>37</sup> In addition to Section II, 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.*, 84 Fed. Reg. at 17,395: “Marine mammals are likely to avoid the HRG survey activity, especially harbor porpoises.”)), 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).

<sup>38</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>39</sup> Roberts J.J., *et al.*, “Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico,” *Scientific Reports*, vol. 6, p. 22615 (2016); 84 Fed. Reg. 17,399.

<sup>40</sup> *See*, <https://cetsound.noaa.gov/cda-index>.

<sup>41</sup> In the calculation of take, the agency notes that “[t]he highest seasonal density estimates during the duration of the proposed survey area were used to estimate take (*i.e.*, summer or fall)” but later states that “[f]or both survey segments, species densities...were averaged by season (spring and summer) based on the proposed HRG survey schedule” (84 Fed. Reg. 17,399). We seek clarification from the agency in the issued IHA on the seasons that data were averaged for to estimate take.

<sup>42</sup> Roberts, J.J., *et al.*, “Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico,” *supra* at note 39.

<sup>43</sup> *See, e.g.*, Hodge, K.B., *et al.*, “North Atlantic right whale occurrence near wind energy areas along the mid-Atlantic US coast: implications for management,” *supra* note 19; Salisbury, D.P., *et al.*, “Right whale occurrence in the coastal waters of Virginia, U.S.A.: Endangered species presence in a rapidly developing energy market,” *supra* note 19; Baird, R.W., *et al.*, “Spatial Use by Cuvier’s Beaked Whales and Short-finned Pilot Whales Satellite Tagged off Cape Hatteras, North Carolina: 2017 Annual Progress Report.” Prepared for U.S. Fleet Forces Command. Submitted to Naval Facilities Engineering Command Atlantic, Norfolk, Virginia, under Contract No. N62470-15-D-8006, Task Order 50, issued to HDR Inc., Virginia Beach, Virginia

abundance, distribution, and density of marine mammals for the U.S. East Coast and therefore should not be the only information source relied upon when estimating take. 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 off North Carolina and Virginia, providing a more accurate assessment of Level B take.<sup>44</sup> **It should be NMFS' top priority to consider any initial data from State monitoring efforts,<sup>45</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources, and to take steps now to develop a dataset (see also recommendations in Section III.A.) that more accurately reflects marine mammal presence so that it is in hand for future IHA authorizations and other work.**

*B. NMFS should not adjust take numbers for endangered whales based on mitigation measures*

The agency elects to adjust take numbers of endangered North Atlantic right whales and fin whales to zero as “the calculated numbers of potential acoustic exposures above the 160 dB threshold are small” and the implementation of a 500 m EZ for North Atlantic right whales and a 200 m EZ for fin whales that are greater than or, in the case of fin whales, equal to the calculated Level B behavioral harassment zone.<sup>46</sup> While we appreciate NMFS’ refusal to authorize a single Level B take for the North Atlantic right whale, as is necessary given the species’ dire conservation status, we do not share the agency’s level of confidence that it is possible to mitigate all potential for Level B harassment through the implementation of an EZ during a time of year when North Atlantic right whales are expected to be present in the Lease Area. We are equally concerned in the case of fin whales. Our reasons are twofold: (i) the agency’s reliance on a 160 dB threshold for behavioral harassment is not supported by best available scientific information (see footnote #37); and (ii) the monitoring protocols the agency prescribes for the EZ are under-protective (see Section III.D. for further discussion).

Moreover, in support of the number of takes authorized and presumed effectiveness of mitigation measure for the Avangrid project, the agency reflects on its success during previous HRG conducted off the U.S. East Coast: “Marine mammal monitoring reports submitted after the completion of HRG surveys indicated that authorized take numbers have never been exceeded.”<sup>47</sup> The assumption inherent in this statement is that the number and nature of takes are possible to accurately determine by what has largely been visual monitoring. Moreover, the agency is proposing to authorize solely Level B take, which is highly unlikely to be detected by visual observation. **Collectively, the agency’s assumptions regarding**

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(March 2018); Mallette, S.D., *et al.*, “Occurrence of Baleen Whales along the Continental Shelf Region of the VACAPES OPAREA off southern Virginia: Final Report,” *supra* note 20.

<sup>44</sup> See, e.g., Virgili, A., *et al.*, “Combining multiple visual surveys to model the habitat of deep-diving cetaceans at the basin scale.” *Global Ecology and Biogeography*, vol. 28, p. 300 (2019).

<sup>45</sup> E.g., Mallette S.D., *et al.*, “Offshore energy planning for Marine Protected Species off of Virginia’s coast: A synthesis of aerial surveys in the proximity of the Virginia wind energy area, 2012-2015.” VAQF Scientific Report 2016-04 (2016). Available at: <https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/FY14Task95-04-14.pdf>.

<sup>46</sup> 84 Fed. Reg. at 17,400.

<sup>47</sup> 84 Fed. Reg. at 17,386.

**mitigation effectiveness are unfounded and cannot be used to justify any reduction in the number of takes authorized.**

*C. NMFS should be consistent in its acknowledgement that the use of certain HRG survey equipment can potentially result in Level A take*

The use of certain HRG equipment has the potential to result in Level A take; the risk is relatively greater for species in the high-frequency hearing band, such as harbor porpoise. While the agency acknowledges this fact in its calculation of the Level A harassment zone,<sup>48</sup> it also discounts this possibility in other instances: for example, “Based on the frequency ranges of the potential equipment to be used in support of the HRG survey activities; the ultra-short baseline (USB) positioning system and the sub-bottom profilers (shallow and medium penetration) operate within the established marine mammal hearing ranges and have the potential to result in Level B harassment of marine mammals.”<sup>49</sup> The agency does not mention the *potential* for Level A take even though it later references the stranding event of 100 melon-headed whales in Madagascar in 2008 associated with the use of a 12-kHz multibeam echosounder.<sup>50</sup> Moreover, for previous IHA applications, the agency has, “out of an abundance of caution,” authorized Level A take for harbor porpoises.<sup>51</sup> It is surprising, therefore, that the agency does not here elect to express the same level of caution for an area with an outstanding diversity of mid- and high-frequency hearing specialists. Also, the proposed cable route corridor surveys include shallow, coastal waters, and which may increase the likelihood of animals becoming trapped between the sound source and the shore.<sup>52</sup> **The agency should acknowledge the *potential* for Level A take on small cetaceans and reconsider its analysis of Level A take on harbor porpoise and other acoustically sensitive species.**

*D. The new IHA extension process does not comport with the plain language of the statute*

NMFS states that it may issue a second one-year IHA for the Avangrid site characterization surveys on an expedited basis, with only 15 days allowed for public comment, should various criteria be met.<sup>53</sup> NMFS has requested comment on this proposed process as well as on the proposed IHA.

NMFS’ proposed process does not comport with the plain language of the statute. Section 101(a)(D)(i) plainly states that incidental harassment authorizations are valid for periods of not more than one year.<sup>54</sup> The statute is also clear on the timing of when the agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>55</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency’s implementation of the IHA process. “As approved by the

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<sup>48</sup> 84 Fed. Reg. at 17,398 at Table 5.

<sup>49</sup> 84 Fed. Reg. at 17,386.

<sup>50</sup> 84 Fed. Reg. at 17,395).

<sup>51</sup> See, e.g., 83 Fed. Reg. at 22,459.

<sup>52</sup> 84 Fed. Reg. at 17,395.

<sup>53</sup> 84 Fed. Reg. at 18,381.

<sup>54</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>55</sup> *Id.* § 1371(a)(5)(D)(iii).

Committee, the [MMPA] involves a number of basic concepts,” one of those concepts being that “the public is invited and encouraged to participate fully in the agency decision-making process.”<sup>56</sup> When NMFS adheres to this process, “the public is assured of the right to be informed of actions taken or proposed.”<sup>57</sup>

With respect to NMFS’ proposal to allow only a 15-day comment period for an application to extend the IHA by another year, the legislative history of the 1994 Amendments clearly demonstrates Congress intended NMFS to provide a full 30-day comment period in this scenario: “[I]n some instances, a request will be made for an authorization identical to one issued the previous year. In such circumstances, the Committee expects the Secretary to act expeditiously in complying with the notice and comment requirements,” specifically established by the statute.<sup>58</sup> Notably, NMFS supplies no legal rationale for why it is authorized to issue an identical IHA for a second year while cutting in half the comment period the statute requires. The agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy, or on a permit-by-permit basis as it purports to do here.<sup>59</sup>

Nor has NMFS supplied any explanation for why it might assert that the statutory language of sec. 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute’s objectives.<sup>60</sup> Should the agency wish to establish its new IHA renewal process as a reasonable interpretation of an ambiguous statutory provision, it should do so through notice-and-comment rulemaking or comparable process with the appropriate indicia of formality.

In so doing, NMFS must also explain why applicants whose activities may result in the incidental harassment of marine mammals over more than one year should not be required to apply for authorization to do so through the incidental take regulation procedure established by sec. 101(a)(5)(A)(i), which provides for authorizing incidental take during periods of “*not more than* five consecutive years each.”<sup>61</sup> Where Congress established clear and distinct statutory processes for authorizing incidental take via harassment for one-year periods versus periods extending more than one year and up to five years, NMFS must justify how its proposed unlawful hybrid administrative extension process, with a curtailed comment period, is consistent with both statutorily-established processes.

Providing a clear and legally adequate justification for its purported new reauthorization process is especially important in light of the burden the foreshortened comment period places on interested members of the public to review not only the original authorization and supporting documents but also the draft monitoring reports, the renewal request, and the proposed renewed authorization and then to formulate comments, all within 15 calendar days. Especially given that NMFS apparently intends the new

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<sup>56</sup> H.R. Rep. No. 92-707, at 4151 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151.

<sup>57</sup> *Id.* at 4146.

<sup>58</sup> H.R. Rep. No. 103-439, at 29 (1994).

<sup>59</sup> See *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 842–43 (1984) (“If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.”).

<sup>60</sup> See *Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a “‘reasonable’ explanation of how an agency’s interpretation serves the statute’s objectives is the stuff of which a ‘permissible’ construction is made”).

<sup>61</sup> 16 U.S.C. § 1371(a)(5)(A)(i) (emphasis added). See also *id.* at § 1371(a)(5)(A)(i)(I) (negligible impact finding must evaluate total of such taking “during each five-year (*or less*) period concerned”) (emphasis added).



reauthorization process to become the rule rather than the exception,<sup>62</sup> it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing “take” by incidental harassment under the general authorization provision of the MMPA, NMFS 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.”<sup>63</sup> In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA, as well as the significant risks posed to the North Atlantic right whale and other endangered and/or strategic marine mammal stocks by the site assessment and characterization activities outlined in the Proposed IHA, NMFS has an obligation to impose robust avoidance, mitigation, and monitoring requirements to protect these species to the maximum extent practicable. The North Atlantic right whale population cannot withstand any additional stressors; therefore, the implementation of a robust impact avoidance, minimization, and mitigation system is essential to prevent adverse impacts of the proposed survey activities. Below, we recommend specific avoidance, mitigation, and monitoring measures intended to address these concerns.

#### A. *Seasonal restriction on geophysical surveys from November 1 to April 30*

As described above (*see* Section I.C.), NMFS is proposing to authorize geophysical surveys off North Carolina at a time when North Atlantic right whales may be present.<sup>64</sup> The survey period is intended to commence no earlier than June 1, 2019 and is anticipated to last for approximately 37 days.<sup>65</sup> It is therefore highly unlikely that the surveys will extent into the time period that we consider of highest risk for North Atlantic right whales (November 1 to April 30).<sup>66</sup> However, an end date for the surveys is not specified. As the Proposed IHA will be issued for one year, poor weather conditions or other unforeseen circumstances may delay surveys into the fall. In that case, **we recommend NMFS impose a restriction**

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<sup>62</sup> Beginning on March 7, 2019, NMFS has issued notice of this new reauthorization process for a multitude of permits. *See, e.g.*, 84 Fed. Reg. 8312 (Mar. 7, 2019); 84 Fed. Reg. 8316 (Mar. 7, 2019); 84 Fed. Reg. 11,508 (Mar. 27, 2019); 84 Fed. Reg. 13,246 (Apr. 4, 2019); 84 Fed. Reg. 14,200 (Apr. 9, 2019); 84 Fed. Reg. 15,598 (Apr. 16, 2019); 84 Fed. Reg. 17,384 (Apr. 25, 2019); 84 Fed. Reg. 17,784 (Apr. 26, 2019); 84 Fed. Reg. 17,788 (Apr. 26, 2019); 84 Fed. Reg. 18,346 (Apr. 30, 2019); 84 Fed. Reg. 18,495 (May 1, 2019); 84 Fed. Reg. 18,801 (May 2, 2019); 84 Fed. Reg. 18,809 (May 2, 2019); 84 Fed. Reg. 20,336 (May 9, 2019).

<sup>63</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

<sup>64</sup> Salisbury, D.P., Clark, C.W., and Rice, A.N. “Right whale occurrence in the coastal waters of Virginia, USA: Endangered species presence in a rapidly developing energy market,” *supra* note 19; 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 19.

<sup>65</sup> 84 Fed. Reg. at 17,385.

<sup>66</sup> The “Best Management Practices for North Atlantic Right Whales During Offshore Wind Energy Construction and Operations along the U.S. East Coast” published by environmental groups on March 1, 2019, define periods of “highest risk” to right whales as: “times of highest relative density of animals during their migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present, as supported by review of the best available science at the time of development.” Available at: <https://www.nrdc.org/sites/default/files/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy-construction-operations-along-us-east-coast-20190301.pdf>.

**on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa) from November 1 to April 30 off North Carolina and Virginia.**<sup>67</sup> We also note that, as North Atlantic right whales may be present in the survey area during the summer months,<sup>68</sup> NMFS must ensure that adequate mitigation measures (*see* Sections III.B. through III.E. for our recommendations) are in place to protect this and other priority species throughout the year.

While existing and potential stressors to the North Atlantic right whale must be minimized as far as possible to promote the survival and recovery of the species, **it is also incumbent upon the agency to address potential impacts to other endangered and protected whale species, particularly in light of the UMEs declared for right whales, humpback whales and minke whales,**<sup>69</sup> **as well as the several strategic and/or depleted stocks of small cetaceans that inhabit the region** (*see* Sections I.B. through I.D.). 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 in the year, which may increase levels of take for other species and populations, including juvenile humpback whales that show site fidelity to the survey area;<sup>70</sup> consideration of potential risks to other species is particularly pertinent in light of the mass stranding off Madagascar that was caused by the use of comparable HRG survey equipment).<sup>71</sup>

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 for all data-holders; and 2) continue to fund and expand surveys and studies** to improve our understanding of distribution and habitat use of marine mammals off North Carolina and Virginia, including the Lease Area, as well as the broader mid-Atlantic region. Only then can the most effective seasonal restrictions and mitigation measures be considered in a year-round context. In the absence of such information, we urge the agency to consider the precautionary measures for the time-period proposed above (*i.e.*, November 1 to April 30), as based on the best available scientific information.

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

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<sup>67</sup> A November 1<sup>st</sup> to April 30<sup>th</sup> seasonal restriction for pile driving and a February 1<sup>st</sup> to April 30<sup>th</sup> seasonal restriction for geophysical surveying formed a core component of a landmark agreement aimed at protecting the North Atlantic right whale from construction site assessment and characterization activities in the mid-Atlantic Wind Energy Areas that was reached between offshore wind developers and the environmental NGO community in 2012. *See* letter from J. Grybowski, F. Beinecke, J. Gordon, J. Kassel, W. L. Davis, L. Schweiger, S. Kraus, A. Sharpless, R. Middleton, A. Downes, M. Alt, 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 Wind Energy Areas” (December 12, 2012).

<sup>68</sup> Hodge, K.B., *et al.* “North Atlantic right whale occurrence near wind energy areas along the mid-Atlantic US coast: implications for management,” *supra* note 19; 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 19.

<sup>69</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 13; NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 14; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 14.

<sup>70</sup> Mallette, S.D., *et al.*, “Seasonality and site-fidelity of humpback whales off the mid-Atlantic region of the U.S.” *supra* note 31.

<sup>71</sup> 84 Fed. Reg. at 17,395.



The effectiveness of night vision and infrared 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. Infrared 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>72</sup> However, the application of infrared 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.

The agency should review and approve night vision and infrared equipment prior to the start of surveys. In doing so, 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 exclusion zones, in the geographic region in question, and for all relevant endangered and protected species. The reduced temperature differential between whale blow and the surrounding water expected for to occur in the mid-Atlantic, particularly during the spring and summer, in contrast to the far cooler high-latitude waters, is likely to negatively impact the detection effectiveness of infrared.<sup>73</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>74</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 infrared 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>75</sup> Thus, even a combination of night vision/infrared 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 North Atlantic right whale is detected in the exclusion zone during nighttime hours and the survey is shut down, developers should be required to wait until daylight hours for ramp-up to resume. We also recommend that NMFS encourage developers to partner with scientists to collect data that would increase the understanding of the effectiveness of night vision and infrared technologies off North Carolina, Virginia, and the broader mid-Atlantic region, with a view towards greater reliance on these technologies to commence surveys during nighttime hours in the future.

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<sup>72</sup> Lathlean, J. and Seuront, L., “Infra-red thermography in marine ecology: methods, previous applications and future challenges,” *Marine Ecology Progress Series*, vol. 514, p. 263-277 (2014).

<sup>73</sup> *Id.*

<sup>74</sup> Cuyler, L.C., Wiulsrød, R., and Øritsland, N.A., “Thermal IR Radiation from Free Living Whales,” *Marine Mammal Science*, vol. 8, p. 120-134 (1992).

<sup>75</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, p. 3725–3731 (2007).

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

The Proposed IHA specifies that marine mammal EZs will be established around HRG equipment and monitored by PSOs during HRG surveys as follows: 100 m EZ for “other large cetaceans,” i.e., humpback whale, minke whale, pilot whale, and Risso’s dolphin; 200 m EZ for sei and fin whale; and 500 m EZ for North Atlantic right whales.<sup>76</sup> As the agency states that a standard Level B harassment zone of 200 m radial distance from the survey equipment is being considered for all marine mammal species,<sup>77</sup> the proposed 100 m EZ distance for other large cetaceans is not, therefore, protective of these species from Level B harassment according to the agency’s reasoning. Moreover, the definition of EZ radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (i.e., received level <160 dB).<sup>78</sup> Again, any potential harassment of the North Atlantic right whale is a significant concern. In addition, the agency appears to offer no protection for harbor porpoise in its EZ requirements, even though the species has been proven extremely sensitive to noise. This seems to be based on the unsupported assumption that “[m]arine mammals are likely to avoid the HRG survey, especially harbor porpoises.”<sup>79</sup> Moreover, the agency is therefore demonstrating inconsistency in its EZ requirements for different Lease Areas without explanation or justification.<sup>80</sup>

**NMFS should require use of sufficient monitoring practices to ensure a 500 m EZ for all marine mammals<sup>81</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 should, to the extent feasible, monitor beyond the minimum 500 m EZ to an extended 1,000 m EZ for North Atlantic right whales.<sup>82</sup>** NMFS should maintain protective EZs, at the minimum distances we recommend above, throughout the site assessment and characterization activities to maximize protections for North Atlantic right whales and other protected species. The EZ distance should be extended beyond these minimum distances in the case that sound source validation data support such an extension.

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

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<sup>76</sup> 84 Fed. Reg. at 17,401.

<sup>77</sup> *Id.*

<sup>78</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>79</sup> 84 Fed. Reg. 17,395.

<sup>80</sup> See, e.g., 83 Fed. Reg. 19,711-19,736, which specifies: 25 m EZ for harbor porpoises; 200 m EZ for ESA-listed cetaceans, including sperm whales and mysticetes (except North Atlantic right whale); and 500 m EZ for North Atlantic right whales. No exclusion zones are warranted for non-ESA-listed marine mammals. PSOs will visually monitor and record the presence of all marine mammals within 500 meters.

<sup>81</sup> Letter from J. Grybowski, *et al.*, to Ms. M. Bornholdt, *supra* note 67.

<sup>82</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

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>83</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>84</sup> In line with Barlow (2015),<sup>85</sup> 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>86</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>87</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 a species can be adequately protected by species observers alone, given the moderate Beaufort sea states in the vicinity of the Lease Area 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>88</sup> a monthly average Beaufort sea state of 3 or 4 can be expected in close vicinity to the Lease Area, between June and December, with the highest sea states from September to December.

*Table 1. Monthly average wave height for 2018 and corresponding Beaufort sea state recorded at NOAA National Data Buoy Station 44100 – Duck FRF 26m, NC (430). Data source: NOAA National Data Buoy Center (Accessed: May 20, 2019).*

Month	Wave Height (m)	Beaufort Sea State
June	0.8	3
July	1.1	3-4
August	0.6	3
September	1.4	4
October	1.2	4
November	1.4	4
December	1.3	4

Given these data, observers are certain to underestimate the number of large whales in the mitigation area based on sea state alone. From the findings of Baumgartner *et al.* (2003),<sup>89</sup> we would expect a reduction

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<sup>83</sup> Barlow, J., “Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions,” *Marine Mammal Science*, vol. 31, p. 923-943 (2015).

<sup>84</sup> Baumgartner, M.F., *et al.*, “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, p. 137-154 (2003).

<sup>85</sup> Barlow, J., “Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions,” *supra* note 83.

<sup>86</sup> *Id.*

<sup>87</sup> *See, e.g.*, Verfuss, U.K., *et al.*, “Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys.” *Marine Pollution Bulletin*, vol. 126, p.1-18 (2018).

<sup>88</sup> NOAA-NWS, “National Data Buoy Center.” Available at: <http://www.ndbc.noaa.gov/>.

<sup>89</sup> Baumgartner, M.F., *et al.*, “North Atlantic right whale habitat in the lower Bay of Fundy and on the SW Scotian Shelf during 1999-2001,” *supra* note 84.

in 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 North Atlantic 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 therefore often go undetected by observers. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay,<sup>90</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>91</sup> In fact, aerial surveys were found to detect North Atlantic right whales on only two-thirds of the days they were acoustically detected in Cape Cod Bay, Massachusetts, from 2001 to 2005.<sup>92</sup> Additionally, there is evidence that North Atlantic 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>93</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>94</sup>

Thus, 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 24 hours a day.** The passive acoustic protocol should be designed so the hydrophone is not masked by vessel or survey noise. We also support the inclusion of both broadband and low frequency hydrophones, which will serve to ensure that North Atlantic right whale vocalizations, as well as those of other low- and mid-frequency vocalizing species, can be detected. **Survey activity should be shut down upon the visual or acoustic detection of a North Atlantic right whale.** Acoustic detections of other species should be used to assist PSOs in their visual monitoring efforts.

The shift schedule of the NMFS-approved PSOs aboard the survey vessel should also **adjusted to a two-on two-off rotation to avoid a single PSO being responsible for monitoring more than 180° of the EZ at any given time.**

#### *E. Vessel strike measures*

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<sup>90</sup> Morano, J.L., *et al.*, “Acoustically detected year-round presence of right whales in an urbanized migration corridor.” *Conservation Biology*, vol. 26, p. 698-707 (2012).

<sup>91</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, p. 129-138 (1986); Pittman, S., *et al.*, “Cetacean distribution and diversity.” In: Battista T., Clark R., Pittman S.(eds) *An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment*, p.264-324 (2006).

<sup>92</sup> Clark, C.W., Brown, M.W., and Corkeron, P., “Visual and acoustic surveys for North Atlantic right whales, *Eubalaena glacialis*, in Cape Cod Bay, Massachusetts, 2001-2005: Management Implications.” *Marine Mammal Science*, vol. 26, p. 837-854 (2010).

<sup>93</sup> Nowacek, D.P., Johnson, M.P., and Tyack, P.L., “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli.” *Proceedings: Biological Sciences*, vol. 271, p. 227-231 (2004).

<sup>94</sup> Robertson, F.C., *et al.*, “Seismic operations have variable effects on dive-cycle behavior of bowhead whales.” *Endangered Species Research*, vol. 21, p. 143-160 (2013).

Vessel collisions remain one of the leading causes of large whale injury and mortality, and are a primary driver of the existing UMEs. The number of recorded vessel collisions on large whales each year is likely to grossly underestimate the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted for.<sup>95</sup> North Atlantic 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>96</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>97</sup> It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. In addition, Relatively higher densities of humpback whales are observed within the shipping lanes at the entrance of Chesapeake Bay compared to the global ocean, indicating that vessel strike is a pertinent concern for this species.<sup>98</sup> Indeed, increased baleen whale sightings have occurred within the Bay over recent years<sup>99</sup> and ship strike mortalities have also risen.<sup>100</sup> Accordingly, 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 UME.

As described in the Proposed IHA, the survey vessel(s) will maintain a speed of 4 knots during surveys. A mandatory speed limit of 10 knots is also required of all vessels, regardless of size, within mandatory SMAs (in operation from November 1 through April 30) and voluntary Dynamic Management Areas ("DMAs;" year-round) as designated by NMFS.<sup>101</sup> Given that the speed of the survey vessels will fall well below 10 knots and the additional precautions taken within SMAs and DMAs, we agree with the agency that the risk of a lethal vessel collision during the surveys is relatively low. However, as serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length,<sup>102</sup> and since mothers and calves are likely to travel close to shore,<sup>103</sup> **all project vessels operating within the survey area (i.e., whether surveying or not) should maintain a speed of 10 knots or less during the entire survey period.** If, due to unforeseen circumstances, site characterization and assessment activities are delayed into the fall and winter, **a 10-knot speed restriction on all project-associated vessels transiting**

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<sup>95</sup> Reeves, R.R., *et al.*, "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., *et al.*, "Dangerous dining: surface foraging of North Atlantic right whales increases risk of vessel collisions." *Biology Letters*, vol. 8, p. 57-60 (2011).

<sup>96</sup> NMFS, "Recovery plan for the North Atlantic right whale" (August 2004).

<sup>97</sup> Nowacek, D.P., *et al.*, "North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli," *supra* note 93.

<sup>98</sup> Mallette, S.D., *et al.*, "Seasonality and site-fidelity of humpback whales off the mid-Atlantic region of the U.S." *supra* note 31.

<sup>99</sup> Aschettino, J.M., *et al.*, "MidAtlantic Humpback Whale Monitoring, Virginia Beach, Virginia: 2017/18 Annual Progress Report." Draft Report. Prepared for U.S. Fleet Forces Command. Submitted to Naval Facilities Engineering Command Atlantic, Norfolk, Virginia, under Contract N62470-15-8006, Task Order 17F4013, issued to HDR, Inc., Virginia Beach, Virginia (June 2018).

<sup>100</sup> VAQF unpublished data; cited in Mallette, S.D., *et al.*, "Occurrence of Baleen Whales along the Continental Shelf Region of the VACAPES OPAREA off southern Virginia: Final Report," *supra* note 20.

<sup>101</sup> 84 Fed. Reg. at 17,402.

<sup>102</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales," *supra* note 22.

<sup>103</sup> Dr. C. Good *pers. comm.*, *supra* note 21.

**to/from the survey area from November 1 through April 30 should also be required.** (This measure should be considered in addition to the seasonal restriction on geophysical surveys recommended in Section III.A.).

Additionally, studies of other baleen whales indicate that noise can induce horizontal displacement.<sup>104</sup> HRG surveys may therefore push a North Atlantic right whale or other large whale species towards an area where vessels are traveling at greater speed, presenting a greater danger of vessel collision, such as the shipping lanes entering Chesapeake Bay. **Indirect ship strike risk resulting from habitat displacement should be considered in NMFS' analysis.**

#### IV. CONCLUSION

Thank you for considering our comments. For the above reasons, it is our view that NMFS must revise its analysis to be consistent with the agency's statutory obligations. We welcome the opportunity to meet with you, and your staff, at any time to discuss these matters.

Sincerely,

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<sup>104</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, p. 115-122 (2012).

Ms. Jolie Harrison  
May 24, 2019  
Page 20

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Ms. Jolie Harrison

May 24, 2019

Page 21

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***By Electronic Mail***

August 26, 2019

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys Off of Rhode Island and Massachusetts, and Along Export Cable Route Corridors Landing from New York to Massachusetts, as requested by Orsted Wind Power, LLC.**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, Conservation Law Foundation, National Wildlife Federation, Defenders of Wildlife, WDC North America, NY4WHALES, Wildlife Conservation Society, Surfrider Foundation, Mass Audubon, Ocean Conservation Research, International Marine Mammal Project of the Earth Island Institute, and IFAW – International Fund for Animal Welfare, and our millions of members, we respectfully submit our recommendations for the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“Proposed IHA”) to authorize Orsted Wind Power, LLC. (“Orsted”), to conduct marine site characterization surveys off the coast of Rhode Island and Massachusetts in three areas of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0486, OCS-A 0487, and OCS-A 0500) (“Lease Areas”) and along potential export cable route corridors (“ECRs”) to landfall locations between Raritan Bay, New York, and Falmouth, Massachusetts. *See* 84 Fed. Reg. 36,054 (Jul. 26, 2019).

This is an exciting moment for offshore wind in New England and we recognize and celebrate the contribution that the offshore wind projects associated with these surveys could make in providing clean energy for New York, Rhode Island, and Massachusetts. It is our view that offshore wind energy can and must advance in an environmentally responsible manner to ensure that it meets ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters off New York, Rhode Island and Massachusetts seasonally support at least 15 species of marine mammals, including six large and seven small cetaceans, and two pinnipeds.<sup>1</sup> Of the six large whale species, four (sperm, fin, sei, and North Atlantic right whales) are listed as endangered under the U.S. Endangered Species Act (“ESA”) and as depleted and strategic stocks under the Marine Mammal Protection Act (“MMPA”). Long-finned pilot whales are also designated as a

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<sup>1</sup> 84 Fed. Reg. 36,059 at Table 3.

strategic stock. The following comments are intended to support Orsted in achieving its goal to advance offshore wind in a manner sustainable for wildlife, and particularly marine mammals.

Our organizations have a number of concerns pertinent to NMFS' negligible impact analysis and the avoidance, minimization, mitigation, and monitoring requirements that will be necessary to ensure adequate mitigation measures for endangered North Atlantic right whales, a species currently in decline as a result of human impacts, as well as other endangered and protected species. We strongly recommend the Proposed IHA be updated to include the following protections:

- Impose a seasonal restriction on site assessment and characterization activities in the Lease Areas that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa)<sup>2</sup> from at least November 1<sup>st</sup> to May 14<sup>th</sup>;
- Commence geophysical surveys, 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;
- Require that Protected Species Observers ("PSOs"), to the extent feasible, monitor an extended minimum 1,000 meter ("m") exclusion zone for North Atlantic right whales;
- Require PSOs adhere to a shift schedule of two-on/two-off to ensure no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time;
- Use a combination of visual monitoring by PSOs and passive acoustic monitoring at all times that survey work is underway; and
- All project vessels operating within the survey area maintain a speed of 10 knots or less during the entire survey period. Transiting vessels observe a 10 knot speed restriction throughout the entirety proposed survey period.
- Additionally, we object to NMFS' proposed process to consider extending any one-year IHA with a truncated 15-day comment period. As discussed below, that proposed process is contrary to the MMPA.

## I. BACKGROUND

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

Congress enacted the 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."<sup>3</sup> The statute seeks to ensure

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<sup>2</sup> The best available science on other low- to mid-frequency sources (*e.g.*, Nowacek et al. 2004, Kastelein et al. 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

<sup>3</sup> 16 U.S.C. § 1361(1).

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.”<sup>4</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>5</sup> 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.<sup>6</sup>

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.<sup>7</sup> 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.”<sup>8</sup>

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than 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.”<sup>9</sup> The agency must prescribe permissible methods of taking 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.”<sup>10</sup> NMFS must also establish monitoring and reporting requirements.<sup>11</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>12</sup>

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

As the agency is aware, the conservation status of the North Atlantic right whale is dire. Although the species has been listed under the ESA for decades, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial fishing gear and ship strikes. Almost 30 animals are known to have been killed since 2017 and the population is now estimated at approximately 400 individuals.<sup>13</sup> Moreover, females are more negatively affected than males by the lethal

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<sup>4</sup> *Id.* § 1361(2); see also *Conservation Council for Hawaii v. Nat’l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>5</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

<sup>6</sup> 16 U.S.C. § 1361(1), (3).

<sup>7</sup> 16 U.S.C. §§ 1362(13), 1371(a).

<sup>8</sup> *Id.* § 1362(18)(A).

<sup>9</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>10</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>11</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>12</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>13</sup> NOAA Fisheries, “North Atlantic right whale,” available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>.

and sublethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.<sup>14</sup>

In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”),<sup>15</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect. Moreover, ongoing UMEs exist for the Atlantic populations of minke whales (since January 2017) and humpback whales (since January 2016).<sup>16</sup> Alarming, 63 minke whales have stranded between Maine and South Carolina from January 2017 to July 2019.<sup>17</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over three years, 100 humpback whale mortalities have been recorded (data through July 26, 2019), with strandings occurring in every state along the East Coast.<sup>18</sup> The declaration of these three large whale UMEs by the agency in the past few years, for which anthropogenic impacts are a significant cause of mortality, demonstrates an increasing risk to whales from human activities along the U.S. East Coast.

Given the highly endangered status of the North Atlantic right whale, NMFS is obligated by both the ESA and the MMPA to protect this species from additional harmful impacts of human activities. The agency is also obligated by the MMPA to consider the full range of potential impacts on all marine mammal species, including minke and humpback whales, that are known to utilize the survey area and surrounding areas before issuing an IHA with appropriate avoidance, minimization, mitigation, and monitoring measures. NMFS must use the best available scientific information on marine mammal presence and density, as required by law.<sup>19</sup> Considering the elevated threat to federally protected large whale species and populations in the Atlantic, including waters of New York, Rhode Island, and Massachusetts, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed surveys are mitigated to effectuate the least practicable impact on affected species and stocks.<sup>20</sup>

*C. North Atlantic right whale seasonality and distribution off the coasts of Rhode Island and Massachusetts, and New York*

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<sup>14</sup> Corkeron, P., Hamilton, P., Bannister, J., Best, P., Charlton, C., Groch, K.R., Findlay, K., Rowntree, V., Vermeulen, E., and Pace, R.M., “The recovery of North Atlantic right whales, *Eubalaena glacialis*, has been constrained by human-caused mortality.” *Royal Society Open Science*, vol 5, art. 180892 (2018).

<sup>15</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>16</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2019-humpback-whale-unusual-mortality-event-along-atlantic-coast>; 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>17</sup> *Id.*

<sup>18</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 16.

<sup>19</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>20</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

Since 2010, North Atlantic right whale distribution and habitat use has shifted in response to climate change-driven shifts in prey availability.<sup>21</sup> Best available scientific information, including aerial surveys,<sup>22</sup> acoustic detections,<sup>23</sup> stranding data,<sup>24</sup> a series of Dynamic Management Areas (“DMAs”) declared by NMFS pursuant to ship strike rule,<sup>25</sup> and prey data,<sup>26</sup> indicate that North Atlantic right whales now heavily rely on the waters within, and in the vicinity of, the Lease Areas.<sup>27</sup> In January 2019, an aggregation representing a quarter of the population—100 whales—was seen in this area<sup>28</sup> engaged in both foraging and social activities, demonstrating that it is clearly more than just a migratory corridor (as suggested in the Proposed IHA<sup>29</sup>). Previous studies had detected seasonally consistent aggregations of North Atlantic right whales feeding and possibly mating within or close to the Lease Areas from at least March through April, leading the area to be considered by scientists as a North Atlantic right whale “hotspot” from March to May.<sup>30</sup> North Atlantic right whales were observed feeding in the vicinity of the Lease Areas during the first half of May for the first time in 2017,<sup>31</sup> indicative of a broader temporal shift in distribution resulting in the occurrence of North Atlantic right whales at greater densities off Rhode Island and Massachusetts later in the year, through May and into the summer months.<sup>32</sup> Pregnant females are known to travel through the area in November and December and females of reproductive age are also present in the area in February and March, with April appearing particularly important for mothers and

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<sup>21</sup> Record, N., Runge, J., Pendleton, D., Balch, W., Davies, K., Pershing, A., Johnson, C., Stamieszkin, K., Ji, R., Feng, Z. and Kraus, S., “Rapid Climate-Driven Circulation Changes Threaten Conservation of Endangered North Atlantic Right Whales,” *Oceanography*, vol. 32, pp. 162-169 (2019).

<sup>22</sup> Kraus, S.D., Leiter, S., Stone, K., Wikgren, B., Mayo, C., Hughes, P., Kenney, R.D., Clark, C.W., Rice, A.N., Estabrook, B., and Tielens, J., “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” OCS Study, BOEM 2016-054, pp. 118 (2016); 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.A., and Kraus, S.D., “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA,” *Endangered Species Research*, vol. 34, pp. 45-59 (2017); Quintana, E., “Monthly report No. 3: May 2017,” Report prepared for the Massachusetts Clean Energy Center by the New England Aquarium, pp. 26 (May 15, 2017).

<sup>23</sup> Kraus, S.D., *et al.*, *id*; 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>24</sup> Asaro, M.J., “Update on US Right Whale Mortalities in 2017,” NOAA Fisheries, November 30, 2017. Available at: [https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro\\_usstrandings\\_nov2017.pdf](https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro_usstrandings_nov2017.pdf).

<sup>25</sup> NOAA Fisheries Interactive DMA Analyses: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

<sup>26</sup> Pendleton, D.E., Pershing, A., Brown, M.W., Mayo, C.A., Kanney, R.D., Record, N.R., and Cole, T.V.N., “Regional-scale mean copepod concentration indicates relative abundance of North Atlantic right whales,” *Marine Ecology Progress Series*, vol. 378, pp. 211-225 (2009); NOAA Northeast Fisheries Science Center, “Ecology of the Northeast US Continental Shelf – Zooplankton.” Available at: <https://www.nefsc.noaa.gov/ecosys/ecosystem-ecology/zooplankton.html>.

<sup>27</sup> Although there are challenges in the use of opportunistic sightings data (no area systematically surveyed, effort not corrected for, and potential for counting an individual whale more than once), they are a proxy for habitat used by North Atlantic right whales, as validated by NMFS’ management actions based on these data, including the implementation of DMAs.

<sup>28</sup> *See* [https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28\\_voluntary\\_vessel\\_speed\\_restriction\\_zone\\_in\\_effect\\_south\\_of\\_nantucket\\_to\\_protect\\_right\\_whales.html](https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28_voluntary_vessel_speed_restriction_zone_in_effect_south_of_nantucket_to_protect_right_whales.html).

<sup>29</sup> *See, e.g.*, 84 Fed. Reg. at 36,060: “In addition *modest* late winter use of a region south of Martha’s Vineyard and Nantucket Islands was recently described (Stone *et al.* 2017).” [emphasis added]; 84 Fed. Reg. at 36,080: “The proposed survey area includes a biologically important migratory area for North Atlantic right whale...”; 84 Fed. Reg. at 36,081: “While the Survey Area is within areas noted as biologically important for North Atlantic right whale migration...”

<sup>30</sup> Leiter, S.M., *et al.*, *supra* note 22.

<sup>31</sup> Quintana, E., *supra* note 22.

<sup>32</sup> Davis, G.E., *et al.*, *supra* note 23.

calves.<sup>33</sup> Data also indicate some whales are using these waters year-round; NMFS established at least 12 DMAs south of Martha's Vineyard and Nantucket between January and August of 2019, including four that were simultaneously active through the end of May.<sup>34</sup>

Research shows that North Atlantic right whales select foraging areas based on a relatively high threshold of copepod density of approximately 3850-4000 organisms per cubic meter.<sup>35</sup> Foraging areas with suitable prey density are very limited relative to the overall distribution of North Atlantic right whales,<sup>36</sup> meaning that unrestricted and undisturbed access to suitable areas, when they exist, is extremely important for the species to maintain its energy budget. The best available scientific information on North Atlantic right whale functional ecology also shows that the species employs a "high-drag" foraging strategy that enables them to selectively target high-density prey patches, but is energetically expensive.<sup>37</sup> If access to prey is limited in any way, the ability of the whale to offset its energy expenditure during foraging may be in serious question. In fact, the authors of the study conclude: "Our findings highlight that right whales acquire their energy in a relatively short period of intense foraging; even moderate changes in their feeding behavior or their prey energy density are likely to negatively impact their yearly energy budgets and therefore reduce fitness substantially." North Atlantic right whales are already experiencing significant food-stress; thus, the protection of North Atlantic right whales during foraging, and the protection of their foraging habitat, must be one of NMFS' utmost priorities.

North Atlantic right whales also occur in the waters off New York year-round at varying densities.<sup>38</sup> Long-term (2004-2014) and short-term (2008-2009) passive acoustic monitoring data demonstrate North Atlantic right whales maintain a high level of presence off New York through the winter and into March and April, before shifting further offshore and northwards in May.<sup>39</sup> A higher expected density of North Atlantic right whales off New York is reflected by the dates of the NMFS' SMAs for New York Harbor and adjacent waters to east of Long Island extending to Block Island, which are in place from November 1 through April 30.<sup>40</sup> 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

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<sup>33</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>34</sup> Kraus, S.D., *et al.*, *supra* note 22; Davis, G.E., *et al.*, *supra* note 23; NOAA Fisheries Interactive DMA Analyses, *supra* note 25.

<sup>35</sup> Personal communication from Dr. Charles "Stormy" Mayo, Senior Scientist, Director of Right Whale Habitat Studies, and Senior Advisor of the Disentanglement Program, Center for Coastal Studies, Provincetown, MA, to William Rossiter, Vice President, NY4WHALES, May 13, 2013.

<sup>36</sup> *Id.*

<sup>37</sup> Van der Hoop, J., Nousek-McGregor, A.E., Nowacek, D.P., Parks, S.E., Tyack, P., and Madsen, P., "Foraging rates of ram-filtering North Atlantic right whales," *Functional Ecology*, published online May 11, 2019.

<sup>38</sup> Davis, G.E., *et al.*, *supra* note 23; 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); Dr. C. Good *pers. comm.* to Dr. F. Kershaw, March 12, 2018.

<sup>39</sup> Davis, G.E., *et al.*, *supra* note 23.; Muirhead, C.A., *et al.*, *id.*

<sup>40</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales." Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

whales were found to occur in April even though sampling effort was greatest in the summer and early fall;<sup>41</sup> however, elevated densities are still expected for May.<sup>42</sup>

The best available scientific information therefore demonstrates that at least November 1 through May 14 in the Lease Areas and November 1 through April 30 in the waters off New York represents the time period of highest risk to North Atlantic right whales, based on times of highest relative density of animals during their migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present.<sup>43</sup> That said, given that North Atlantic right whales are detected year-round within the Lease Areas and ECR survey area, there is a clear need for strong and effective mitigation measures to be in place year-round.

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT

- A. *To fulfill the statutory requirement of considering the best scientific information available, NMFS must analyze additional data sources when calculating densities of marine mammals, including the North Atlantic right whale*

NMFS must base its IHA analysis on the best available scientific information to comply with statutory requirements of the MMPA.<sup>44</sup> 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 Coast, which was funded under the agency’s CetMap program, and recently updated with new modeling results.<sup>45</sup> However, the CetMap model, as its designers admit,<sup>46</sup> is limited. Most notably, in founding its density estimates entirely on shipboard and aerial line-transect surveys, the model necessarily excludes data obtained through additional sightings data, passive acoustic monitoring, and satellite telemetry. It is our view that the density maps produced by Roberts *et al.* (2016) do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast and therefore should not be the only information source relied upon when estimating take.

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<sup>41</sup> Data sources: Halpin, P. N., Read, A. J., Fujioka, E., Best, B. D., Donnelly, B., Hazen, L. J., ... Hyrenbach, K.D., “OBIS-SEAMAP: The world data center for marine mammal, sea bird, and sea turtle distributions,” *Oceanography*, vol. 22, pp. 104-115 (2009); Conserve Wildlife Foundation of New Jersey (on behalf of the New Jersey Division of Fish and Game Endangered and Nongame Species Program).

<sup>42</sup> Davis, G.E., *et al.*, *supra* note 23; Muirhead, C.A., *et al.*, *supra* note 38.

<sup>43</sup> Over a dozen wildlife conservation organizations recently endorsed a suite of Best Management Practices (“BMPs”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. The BMPs include criteria to define times of highest risk to North Atlantic right whales. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Available at: <https://www.nrdc.org/resources/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy>.

<sup>44</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>45</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); 84 Fed. Reg. at 36,075.

<sup>46</sup> Roberts, J.J., *et al.*, *id.*

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 better reflecting current marine mammal presence, abundance, and density off Rhode Island, Massachusetts, and New York, and provide a more accurate assessment of Level B take. **It should be NMFS' top priority to consider any initial data from State monitoring efforts,<sup>47</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources, and to take steps now to develop a dataset (see also recommendations in Section III.A.) that more accurately reflects marine mammal presence so that it is in hand for future IHA authorizations and other work.**

*B. NMFS must not adjust take numbers for endangered North Atlantic whales based on arbitrary and capricious assumptions regarding the effectiveness of unproven mitigation measures*

Unreasonably, the agency elects to adjust take numbers of endangered North Atlantic right whales from almost 100 Level B takes (summing across three Lease Areas and the ECR survey area) to only 10 Level B takes.<sup>48</sup> In its rationale, the agency states: "Given the fact that take has been conservatively calculated based on the largest source, which will not be operating at all times, and is thereby likely over-estimated to some degree, the fact that Orsted will implement a shut-down zone at 2.5 times the predicted Level B threshold distance for that largest source (and more than that for smaller sources), and the fact that night vision goggles with thermal clips will be used for nighttime operations, NMFS predicts that 10 right whales may be taken by Level B harassment."<sup>49</sup> We share NMFS' concerns: limiting Level B of North Atlantic right whales is absolutely necessary given the species' dire conservation status; however, we dispute the level of confidence the agency has placed in the effectiveness of the proposed mitigation measures. Our reasons are fivefold: (i) the agency's reliance on a 160 dB threshold for behavioral harassment is not supported by best available scientific information in other low- to mid-frequency sources<sup>50</sup> that indicates Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold; (ii) the best available scientific information on habitat use of the Lease Areas, including as an increasingly important foraging site, has not been considered by the agency (see, Section I.C); (iii) the geographic and temporal extent, and the 24-hour nature, of the survey activities proposed to be authorized; (iv) the agency relies on the assumption that marine mammals will take measures to avoid the sound<sup>51</sup> even though studies have not found avoidance behavior to be generalizable among species and contexts,<sup>52</sup> and even though avoidance may itself constitute take under the MMPA; and (v) the monitoring

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<sup>47</sup> See, e.g., <http://www.masscec.com/offshore-wind-marine-wildlife-surveys>.

<sup>48</sup> 84 Fed. Reg. at 36,076 at Table 10.

<sup>49</sup> 84 Fed. Reg. at 36,076.

<sup>50</sup> See, e.g., Nowacek, D.P., Johnson, M.P., and Tyack, P.L., "Right whales ignore ships but respond to alarm stimuli," *Proceedings of the Royal Society of London, Pt. B: Biological Sciences* 271: 227-231 (2004); Kastelein, R.A., Steen, N., Gransier, R., and de Jong, C.A.F., "Threshold received sound pressure levels of single 1-2 kHz and 6-7 kHz up-sweeps and down-sweeps causing startle responses in a harbor porpoise (*Phocoena phocoena*)," *Journal of the Acoustical Society of America*, vol. 131, pp. 2325-2333 (2012); Kastelein, R.A., van den Belt, I., Gransier, R., and Johansson, T., "Behavioral response of a harbor porpoise (*Phocoena phocoena*) to 25.5- to 24.5-kHz sonar down-sweeps with and without side bands," *Aquatic Mammals*, vol. 41, pp. 400-411 (2015).

<sup>51</sup> See, e.g., 84 Fed. Reg. at 36,055.

<sup>52</sup> Miller, P.J.O., Johnson, M.P., Madsen, P.T., Biassoni, N., Quero, M. and Tyack, P.L., "Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico," *Deep-Sea Research I*, vol. 56, pp. 1168-



protocols the agency prescribes for the exclusion zone are under-protective. In fact, the mitigation measures in the Proposed IHA are overall less protective than previous IHA authorizations for the region<sup>53</sup> even as the conservation status of the North Atlantic right whale has worsened (see, Section III for further discussion). **Collectively, the agency's assumptions regarding mitigation effectiveness are unfounded and cannot be used to justify any reduction in the number of takes authorized.**

*C. Any IHA extension does not comport with the plain language of the statute*

NMFS requests comment on the potential one-year renewal of this Proposed IHA on a case-by-case basis for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.<sup>54</sup> For several reasons, our organizations oppose this process as contrary to law.

First, NMFS' proposal to provide one-year renewals does not comport with the plain language of the statute. Section 101(a)(D)(i) unambiguously states that incidental harassment authorizations are valid for periods of not more than one year.<sup>55</sup>

Second, the statute is clear on its face that a 30 day comment period is required in all instances. An agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>56</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency's implementation of the IHA process stating: "As approved by the Committee, the [MMPA] involves a number of basic concepts," one being that "the public is invited and encouraged to participate fully in the agency decision-making process."<sup>57</sup> When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."<sup>58</sup>

Third, the legislative history removes any doubt that this 30 day comment period applies even in cases where the application extends the IHA for another year without change. The legislative history of the 1994 Amendments states: "[I]n some instances, a request will be made for an authorization identical to one issued the previous year. In such circumstances, the Committee expects the Secretary to act expeditiously in complying with the notice and comment requirements," specifically established by the statute.<sup>59</sup>

Here, NMFS supplies no valid legal rationale for why it is authorized to issue an identical IHA for a second year while cutting in half the comment period the statute requires. The agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy, or on a permit-by-permit

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1181 (2009); Pirota, E., Milor, R., Quick, N., Moretti, D., Di Marzio, N., Tyack, P., Boyd, I., and Hastie, G., "Vessel noise affects beaked whale behavior: Results of a dedicated acoustic response study," *PLoS ONE*, vol. 7, art. e42535 (2012).

<sup>53</sup> See, e.g., 83 Fed. Reg. 28,808 (Jun. 21, 2018) and 83 Fed. Reg. 36,539 (Jul. 30, 2018).

<sup>54</sup> 84 Fed. Reg. at 36,081-82.

<sup>55</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>56</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>57</sup> H.R. Rep. No. 92-707, at 4151 (1972), reprinted in 1972 U.S.C.C.A.N. 4144, 4151.

<sup>58</sup> *Id.* at 4146.

<sup>59</sup> H.R. Rep. No. 103-439, at 29 (1994).

basis as it purports to do here.<sup>60</sup> Moreover, NMFS has not supplied any explanation for why it might assert that the statutory language of sec. 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute's objectives.<sup>61</sup> Should the agency wish to establish its new IHA renewal process as a reasonable interpretation of an ambiguous statutory provision, it should do so through notice-and-comment rulemaking or comparable process with the appropriate indicia of formality.

In so doing, NMFS must also explain why applicants whose activities may result in the incidental harassment of marine mammals over more than one year should not be required to apply for authorization to do so through the incidental take regulation procedure established by sec. 101(a)(5)(A)(i), which provides for authorizing incidental take during periods of "*not more than five consecutive years each*."<sup>62</sup> Where Congress established clear and distinct statutory processes for authorizing incidental take via harassment for one-year periods versus periods extending more than one year and up to five years, NMFS must justify how its proposed unlawful hybrid administrative extension process, with a curtailed comment period, is consistent with both statutorily-established processes.

Finally, NMFS' recently posted new language about Incidental Harassment Authorization Renewals on its website.<sup>63</sup> The expedited process described online is not subject to the notice and comment procedures and does not warrant judicial deference. Providing a clear and legally adequate justification for its purported new reauthorization process is especially important in light of the burden the foreshortened comment period places on interested members of the public to review not only the original authorization and supporting documents but also the draft monitoring reports, the renewal request, and the proposed renewed authorization and then to formulate comments, all within 15 calendar days. Especially given that NMFS apparently intends the new reauthorization process to become the rule rather than the exception,<sup>64</sup> it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing "take" by incidental harassment under the general authorization provision of the MMPA, NMFS 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."<sup>65</sup> In

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<sup>60</sup> See *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 842–43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.").

<sup>61</sup> See *Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a "'reasonable' explanation of how an agency's interpretation serves the statute's objectives is the stuff of which a 'permissible' construction is made").

<sup>62</sup> 16 U.S.C. § 1371(a)(5)(A)(i) (emphasis added). See also *id.* at § 1371(a)(5)(A)(i)(I) (negligible impact finding must evaluate total of such taking "during each five-year (*or less*) period concerned") (emphasis added).

<sup>63</sup> See <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>64</sup> Beginning on March 7, 2019, NMFS has issued notice of this new reauthorization process for a multitude of permits. See, e.g., 84 Fed. Reg. 8312 (Mar. 7, 2019); 84 Fed. Reg. 8316 (Mar. 7, 2019); 84 Fed. Reg. 11,508 (Mar. 27, 2019); 84 Fed. Reg. 13,246 (Apr. 4, 2019); 84 Fed. Reg. 14,200 (Apr. 9, 2019); 84 Fed. Reg. 15,598 (Apr. 16, 2019); 84 Fed. Reg. 17,384 (Apr. 25, 2019); 84 Fed. Reg. 17,784 (Apr. 26, 2019); 84 Fed. Reg. 17,788 (Apr. 26, 2019); 84 Fed. Reg. 18,346 (Apr. 30, 2019); 84 Fed. Reg. 18,495 (May 1, 2019); 84 Fed. Reg. 18,801 (May 2, 2019); 84 Fed. Reg. 18,809 (May 2, 2019); 84 Fed. Reg. 20,336 (May 9, 2019).

<sup>65</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

light of the aforementioned inconsistencies between the agency's analysis and the requirements of the MMPA, as well as the significant risks posed to the North Atlantic right whale and other endangered and/or strategic marine mammal stocks by the site assessment and characterization activities outlined in the Proposed IHA, NMFS has an obligation to impose robust avoidance, minimization, mitigation, and monitoring requirements to protect these species to the maximum extent practicable.

The agency acknowledges that “[a]ny disturbance to marine mammals is likely to be in the form of temporary avoidance or alteration of opportunistic foraging behavior near the survey location.”<sup>66</sup> The operation of up to nine survey vessels at any one time therefore presents a significant potential for cumulative disturbance during the foraging period, making the agency's reliance on “behavioral avoidance” as a rationale for reducing the potential impacts of noise exposure less convincing.<sup>67</sup> The Proposed IHA makes no attempt to directly account for cumulative impact from multiple sound sources operating concurrently and continuously across the survey area. Rather, “vessel days” are treated equally by the agency in terms of potential impacts to marine mammals<sup>68</sup> even though there are times of year that North Atlantic right whales would have higher relative vulnerability to noise exposure from the survey activities being undertaken (*e.g.*, during foraging periods), or may have a reduced ability to avoid noise exposure due to multiple survey vessels operating in the same vicinity at the same time. There is no evidence to suggest that conducting all 666 vessel days in a single year will be less impactful to North Atlantic right whales than conducting the surveys over two years and avoiding times of higher relative vulnerability and utilizing fewer survey vessels at one time. Best available scientific information shows that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging behavior may lead to population-level effects and is of critical concern.<sup>69</sup> As such, **the agency must carefully analyze the cumulative impacts from the proposed survey activities on the North Atlantic right whale and other protected species.**

In addition, the implementation of a robust impact avoidance, minimization, mitigation, and monitoring protocol to prevent adverse impacts of the proposed survey activities is therefore essential and required by law. **Below, we recommend specific avoidance, minimization, mitigation, and monitoring measures intended to address these concerns:**

*A. Seasonal restriction on geophysical surveys in the Lease Areas from November 1<sup>st</sup> to May 14<sup>th</sup>*

As described above (*see*, Section I.A), NMFS is proposing to authorize geophysical surveys off Rhode Island, Massachusetts, and New York at times when North Atlantic right whales are expected to be present at high densities and foraging (among other activities). The survey period is intended to commence in August 2019 be conducted 24-hours a day for up to a year, utilizing between five and nine survey vessels at any one time.<sup>70</sup> Time and area restrictions designed to protect socially active groups and important habitat are one of the most effective available means to reduce the potential impacts of noise

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<sup>66</sup> 84 Fed. Reg. 36,065.

<sup>67</sup> 84 Fed. Reg. at 36,055.

<sup>68</sup> *Id.*

<sup>69</sup> Van der Hoop, *et al.*, *supra* note 37.

<sup>70</sup> 84 Fed. Reg. at 36,055.

and disturbance on marine mammals, including noise from geophysical surveys of a level capable of potentially causing Level A and Level B harassment.<sup>71</sup> Consistent with the scale and cumulative acoustic impact of the intense period of proposed survey activity, **NMFS must impose a restriction on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1 uPa) minimally from November 1<sup>st</sup> to May 14<sup>th</sup> in the Lease Areas;**<sup>72</sup> these dates should be reviewed annually and revised as necessary to reflect the best available scientific information. These dates currently reflect both the best available science on the relative density of North Atlantic right whales off Rhode Island and Massachusetts (recognizing that individuals of this species could be present in each month of the year; *see* Section I.C), and the fact that the species' is increasingly reliant on this area as foraging habitat. We also note that, as North Atlantic right whales may be present in the survey area during the summer months, NMFS must ensure that adequate mitigation measures (*see* Sections III.B. through III.E. for our recommendations) are in place to protect this and other priority species throughout the year.

While existing and potential stressors to the North Atlantic right whale must be minimized as far as possible to promote the survival and recovery of the species, **the agency must also address potential impacts to other endangered and protected whale species, particularly in light of the UMEs declared for right whales, humpback whales and minke whales,**<sup>73</sup> as well as the several strategic and/or depleted stocks that inhabit the region (*see* Sections I.B. through I.D.). 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 in the year, which may increase levels of take for other species and populations; consideration of potential risks to other species is particularly pertinent in light of the mass stranding off Madagascar that was caused by the use of comparable HRG survey equipment).<sup>74</sup>

NMFS has an obligation to use the best available scientific information, which includes standardized survey data as passive acoustic and opportunistic detections. As such, NMFS must incorporate all currently available information to elucidate and balance the relative risks to these species, for which there is relatively limited data. Therefore, **NMFS should: 1) fund analyses of recently collected sighting and acoustic data for all data-holders; and 2) continue to fund and expand surveys and studies to** improve our understanding of distribution and habitat use of marine mammals off Rhode Island, Massachusetts, and New York, including the Lease Areas, as well as the broader Northeast region. Only

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<sup>71</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>72</sup> As previously noted, the best available science on other low- to mid-frequency sources (*e.g.*, Nowacek et al. 2004, Kastelein et al. 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

<sup>73</sup> NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 15; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 16; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 16.

<sup>74</sup> 84 Fed. Reg. at 36,069.

then can the most effective seasonal restrictions and mitigation measures be considered in a year-round context. In the absence of such information, the agency should, as noted above, apply precautionary measures for the time-period proposed (*i.e.*, November 1 to May 14), as based on the best available scientific information.

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

The effectiveness of night vision and infrared 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. Infrared 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>75</sup> However, the application of infrared 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.

The agency should review and approve night vision and infrared equipment prior to reliance on this untested technology to reduce survey risk. In doing so, 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 exclusion zones, in the geographic region in question, and for all relevant endangered and protected species. The reduced temperature differential between whale blow and the surrounding water expected for to occur in the survey area, particularly during the spring and summer, in contrast to the far cooler high-latitude waters, is likely to negatively impact the detection effectiveness of infrared.<sup>76</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>77</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 infrared technology paired with the lack of a requirement to use passive acoustic monitoring during surveys, is particularly concerning. NMFS' reliance on an unproven technology as the primary means of detecting North Atlantic right whales and other marine mammals at night is wholly under-protective and places one of the world's most endangered species at unnecessary risk. NMFS should encourage developers to partner with scientists and collect data that increases our understanding of the effectiveness of night vision and infrared technologies off Rhode Island, Massachusetts, New York, and the broader Northeast region, with a view towards greater reliance on these technologies to commence surveys during nighttime hours in the future.

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<sup>75</sup> Lathlean, J. and Seuront, L., "Infra-red thermography in marine ecology: methods, previous applications and future challenges," *Marine Ecology Progress Series*, vol. 514, p. 263-277 (2014).

<sup>76</sup> *Id.*

<sup>77</sup> Cuyler, L.C., Wiulsrød, R., and Øritsland, N.A., "Thermal IR Radiation from Free Living Whales," *Marine Mammal Science*, vol. 8, p. 120-134 (1992).

**Given the paucity of mitigation measures proposed, geophysical surveys must only commence, with ramp-up, during daylight hours of adequate visibility<sup>78</sup> to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone.** If clear, the survey can then continue into nighttime hours. However, if a North Atlantic right whale is detected in the exclusion zone during nighttime hours and the survey is shut down, developers should be required to wait until daylight hours for ramp-up to resume.

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

The Proposed IHA specifies that marine mammal exclusion zones will be established around HRG equipment and monitored by PSOs during HRG surveys as follows: 500 m exclusion zone for North Atlantic right whales; and 100 m exclusion zone for large whales (except North Atlantic right whales).<sup>79</sup> As the agency states that a standard Level B harassment zone of 180 m radial distance from the survey equipment is being considered for all marine mammal species except for North Atlantic right whales,<sup>80</sup> the proposed 100 m exclusion zone distance for other large whales is not, therefore, protective of these species from Level B harassment according to the agency's reasoning. The definition of exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (*i.e.*, received level <160 dB).<sup>81</sup> Again, any potential harassment of the North Atlantic right whale is a significant concern. Moreover, the agency appears to offer no protection for the strategic and depleted stock of long-finned pilot whale or harbor porpoise in its exclusion zone requirements, even though the harbor porpoise has been proven extremely sensitive to noise. This seems to be based on the unsupported assumption that "[m]arine mammals are likely to avoid the HRG survey activity, especially harbor porpoises..."<sup>82</sup> Moreover, the agency is demonstrating inconsistency in its exclusion zone requirements for different Lease Areas without explanation or justification.<sup>83</sup>

**NMFS must require use of sufficient monitoring practices to ensure a 500 m exclusion zone for *all* marine mammals<sup>84</sup> around all vessels conducting activities with noise levels that could result in**

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<sup>78</sup> Adequate visibility should be determined by the lead PSO based on standardized environmental parameters (*e.g.*, visibility, glare, sea state, wind speed).

<sup>79</sup> 84 Fed. Reg. at 36,076.

<sup>80</sup> *Id.*

<sup>81</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>82</sup> 84 Fed. Reg. 36,068.

<sup>83</sup> See, *e.g.*, 83 Fed. Reg. 19,711-19,736, which specifies: 25 m exclusion zone for harbor porpoises; 200 m exclusion zone for ESA-listed cetaceans, including sperm whales and mysticetes (except North Atlantic right whale); and 500 m exclusion zone for North Atlantic right whales. No exclusion zones are warranted for non-ESA-listed marine mammals. PSOs will visually monitor and record the presence of all marine mammals within 500 meters.

<sup>84</sup> Letter from J. Grybowski, F. Beinecke, J. Kassel, J. Lyon, M. Alt, J. Savitz, 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 Rhode Island and Massachusetts Wind Energy Area" (May 7, 2014). The dates of the seasonal restrictions have since been revised to November 1<sup>st</sup> through May 14<sup>th</sup>, as reflected in our current letter, based on the best available science.

**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 should, to the extent feasible, monitor beyond the minimum 500 m exclusion zone to an extended 1,000 m exclusion zone for North Atlantic right whales.**<sup>85</sup> NMFS should maintain protective exclusion zones, at the minimum distances we recommend above, throughout the site assessment and characterization activities to maximize protections for North Atlantic right whales and other protected species. The exclusion zone distance should be extended beyond these minimum distances in the case that sound source validation data support such an extension.

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

The ability to detect 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>86</sup> 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>87</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>88</sup> In line with Barlow (2015),<sup>89</sup> 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>90</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. Based on the data collected by the National Buoy Data Center (*see* Table 1),<sup>91</sup> a monthly average Beaufort sea state of 3 or 4 can be expected in close vicinity to the Lease Area, year-round, with the highest sea states from September to April. This is a salient consideration in the evaluation of whether a species can be adequately protected by species observers alone, given the moderate Beaufort sea states in the vicinity of the Lease Areas during the months when the proposed surveys would take place.

Given these data, observers alone are certain to underestimate the number of large whales in the mitigation area based on sea state. From the findings of Baumgartner *et al.* (2003),<sup>92</sup> we would expect a reduction in 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,

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<sup>85</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

<sup>86</sup> *See, e.g.*, Verfuss, U.K., Gillespie, D., Gordon, J., Marques, T.A., Millr, 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, p.1-18 (2018).

<sup>87</sup> Barlow, J., "Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions," *Marine Mammal Science*, vol. 31, p. 923-943 (2015).

<sup>88</sup> Baumgartner, M.F., Cole, T.V.N., Clapham, P.J., and Mate, B.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, p. 137-154 (2003).

<sup>89</sup> Barlow, J., "Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions," *supra* note 83.

<sup>90</sup> *Id.*

<sup>91</sup> NOAA-NWS, "National Data Buoy Center." Available at: <http://www.ndbc.noaa.gov/>.

<sup>92</sup> Baumgartner, M.F., *et al.*, *supra* note 88.

the detectability of North Atlantic 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.

*Table 1. Monthly average wave height for 2018 and corresponding Beaufort Sea State recorded at NOAA National Data Buoy Station 44097 – Block Island, RI (154). Data source: NOAA National Data Buoy Center (Accessed: Aug 22, 2019).*

Month	Wave Height (m)	Beaufort Sea State
January	1.9	4
February	1.5	4
March	2.1	5
April	1.6	4
May	1.1	3
June	0.9	3
July	1.1	3
August	0.9	3
September	1.3	4
October	1.6	4
November	1.9	4
December	1.5	4

In addition to sighting condition limitations, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood that they would be detected by PSOs and therefore often go undetected by observers. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay,<sup>93</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>94</sup> In fact, aerial surveys were found to detect North Atlantic right whales on only two-thirds of the days they were acoustically detected in Cape Cod Bay, Massachusetts, from 2001 to 2005.<sup>95</sup> Additionally, there is evidence that North Atlantic 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>96</sup> These behavioral responses are likely to be heightened

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<sup>93</sup> Morano, J.L., Rice, A.N., Tielens, J.T., Estabrook, B.J., Marray, A., Roberts, A.L., and Clarkm C.W., “Acoustically detected year-round presence of right whales in an urbanized migration corridor.” *Conservation Biology*, vol. 26, p. 698-707 (2012).

<sup>94</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, p. 129-138 (1986); Pittman, S.J, Kot, C., Kenney, R.D., Costa, B., and Wiley, D., “Cetacean distribution and diversity.” In: Battista T., Clark R., Pittman S.(eds) *An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment*, p.264-324 (2006).

<sup>95</sup> Clark, C.W., Brown, M.W., and Corkeron, P., “Visual and acoustic surveys for North Atlantic right whales, *Eubalaena glacialis*, in Cape Cod Bay, Massachusetts, 2001-2005: Management Implications.” *Marine Mammal Science*, vol. 26, p. 837-854 (2010).

<sup>96</sup> Nowacek, D.P., Johnson, M.P., and Tyack, P.L., “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli.” *Proceedings: Biological Sciences*, vol. 271, p. 227-231 (2004).



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>97</sup>

Thus, reliance on a single PSO as the sole monitoring method during daylight hours is under-protective and should not be endorsed by the agency. Additionally, **a combination of visual monitoring by PSOs and passive acoustic monitoring should be implemented 24 hours a day.** Research has demonstrated that passive acoustic monitoring can provide a two- to ten-fold increase in the number of days that right whales are detected relative to visual methodologies.<sup>98</sup> The passive acoustic protocol should be designed so the hydrophone is not masked by vessel or survey noise. We also support the inclusion of both broadband and low frequency hydrophones, which will serve to ensure that North Atlantic right whale vocalizations, as well as those of other low- and mid-frequency vocalizing species, can be detected. **Survey activity must be shut down upon the visual or acoustic detection of a North Atlantic right whale.** Acoustic detections of other species should be used to assist PSOs in their visual monitoring efforts.

The shift schedule of the NMFS-approved PSOs aboard the survey vessel **must also be adjusted to a minimum of four PSOs following a two-on two-off rotation, each responsible for scanning no more than 180° of the exclusion zone at any given time. Observation must begin at least 30 minutes prior to the commencement of geophysical survey activity and shall be conducted throughout the time of geophysical survey activity.**

#### *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 existing UMEs. The number of recorded vessel collisions on large whales each year is likely to grossly underestimate the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted for.<sup>99</sup> North Atlantic 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>100</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>101</sup> It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. In addition, the agency has a responsibility to implement mitigation measures to prevent any further vessel collisions for other species of large whale currently experiencing an UME (*i.e.*, humpback whales and minke whales), as well as other species such as fin

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<sup>97</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, p. 143-160 (2013).

<sup>98</sup> Soldevilla, M.S., Rice, A.N., Clark, C.W., and Garrison, L. P., "Passive acoustic monitoring on the North Atlantic right whale calving grounds," *Endangered Species Research*, vol. 25, pp. 115-140 (2014).

<sup>99</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, p. 57-60 (2011).

<sup>100</sup> NMFS, "Recovery plan for the North Atlantic right whale" (August 2004).

<sup>101</sup> Nowacek, D.P., *et al.*, *supra* note 96.

whales, which, in light of the broad distributional shifts observed for multiple species, may be at potential future risk of experiencing an UME.

As described in the Proposed IHA, the survey vessel(s) will maintain a speed of four knots during surveys.<sup>102</sup> A mandatory speed limit of 10 knots is also required of all vessels, regardless of size, within mandatory Mid-Atlantic SMAs (in operation from November 1 through April 30) and voluntary Dynamic Management Areas (“DMAs;” year-round) as designated by NMFS.<sup>103</sup> We agree with the agency that the risk of a lethal vessel collision when survey vessels are travelling at four knots during the surveys is relatively low.<sup>104</sup> However, as serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length,<sup>105</sup> as well as the fact that North Atlantic right whales are now being sighted south of the Martha’s Vineyard and Nantucket well into the summer as indicated by the agency’s DMA designations, and as mothers and calves are likely to travel close to shore,<sup>106</sup> **a 10 knot speed restriction on all project associated vessels transiting to/ from survey area should be required for the proposed survey period.** To reflect the risk posed by vessels of any length, NMFS set the standard of a mandatory vessel speed restriction for all vessels (including under 20 meters) in the Cape Cod Bay SMA. (This measure should be considered in addition to the seasonal restriction on geophysical surveys recommended in Section III.A).

Additionally, studies of other baleen whales indicate that noise can induce horizontal displacement.<sup>107</sup> HRG surveys may therefore push a North Atlantic 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.**

#### IV. CONCLUSION

Thank you for considering our comments. For the above reasons, NMFS must revise its analysis to be consistent with the agency’s statutory obligations. We request the opportunity to meet with you, and your staff, to discuss these matters.

Sincerely,

Francine Kershaw, Ph.D.  
Project Scientist, Marine Mammal Protection and Oceans, Nature Program  
Natural Resources Defense Council

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<sup>102</sup> 84 Fed. Reg. at 36,058.

<sup>103</sup> 84 Fed. Reg. at 36,077.

<sup>104</sup> 84 Fed. Reg. at 36,069.

<sup>105</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales,” *supra* note 40.

<sup>106</sup> Dr. C. Good *pers. comm.*, *supra* note 38.

<sup>107</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).

Ms. Jolie Harrison  
August 26, 2019  
Page 19

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Ms. Jolie Harrison  
August 26, 2019  
Page 20

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International Marine Mammal Project of the Earth Island Institute

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***By Electronic Mail***

October 28, 2019

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys Off of Delaware and Maryland.**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, Conservation Law Foundation, National Wildlife Federation, Defenders of Wildlife, WDC North America, NY4WHALES, Surfrider Foundation, Mass Audubon, International Marine Mammal Project of the Earth Island Institute, and Wildlife Conservation Society, and our millions of members, we submit our recommendations on the National Marine Fisheries Service's ("NMFS") proposal to issue an incidental harassment authorization ("Proposed IHA") to authorize Skipjack Offshore Energy, LLC. ("Skipjack"), to conduct marine site characterization surveys off the coast of Delaware and Maryland in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0519) ("Lease Area") and along potential submarine cable routes to a landfall location in Delaware or Maryland (collectively termed "Project Area"). *See* 84 Fed. Reg. 51,118 (Sep. 27, 2019).

This is an exciting moment for offshore wind in the Mid-Atlantic and we recognize and celebrate the contribution that the Skipjack Wind Project could make in providing clean energy for Maryland. It is our view that offshore wind energy can and must advance in an environmentally responsible manner. Offshore wind projects can help meet ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters off Delaware and Maryland seasonally support at least 17 species of marine mammals, including six large and nine small cetaceans, and two pinnipeds.<sup>1</sup> Of the six large whale species, four (sperm, fin, sei, and North Atlantic right whale) are listed as endangered under the U.S. Endangered Species Act ("ESA") and as depleted and strategic stocks under the Marine Mammal Protection Act ("MMPA"). North Atlantic right whales were recently added to NOAA Fisheries' list of "Species in the Spotlight" in recognition of

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<sup>1</sup> 84 Fed. Reg. 51,123 at Table 2.

the fact the species is among the most at risk of extinction in the near future.<sup>2</sup> In addition, the Western North Atlantic Northern Migratory Coastal stock of bottlenose dolphin is “depleted” under the MMPA and is therefore considered to be a “strategic stock” by NMFS.<sup>3</sup> While not currently listed as depleted, NOAA has declared an Unusual Mortality Event (“UME”) for protected humpback whales for which the highest relative number of mortalities have been recorded in the Mid-Atlantic region.<sup>4</sup> The following comments are intended to support Skipjack in achieving its goal to advance offshore wind in a manner sustainable for wildlife, and particularly marine mammals.

Our organizations have a number of significant concerns related to NMFS’ negligible impact analysis and the avoidance, minimization, mitigation, and monitoring requirements that will be necessary to ensure adequate mitigation measures for endangered North Atlantic right whales, a species currently in decline as a result of human impacts, as well as other endangered and protected species. We strongly recommend that NMFS update the Proposed IHA to, at minimum, include the following protections, which focus specifically, including spatially and temporally, on the North Atlantic right whale:

- Require a seasonal restriction on site assessment and characterization activities in the Project Area that have the potential to injure or harass North Atlantic right whales (*i.e.*, source level >180 dB re 1  $\mu$ Pa)<sup>5</sup> from at least November 1<sup>st</sup> to April 30<sup>th</sup>;
- Require that geophysical surveys be commenced, with ramp up, only during daylight hours to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone;
- Require that Protected Species Observers (“PSOs”), to the extent feasible, monitor an extended minimum 1,000 meter (“m”) exclusion zone for North Atlantic right whales;
- Require PSOs adhere to a shift schedule of two-on/two-off to ensure no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time;
- Require a combination of visual monitoring by PSOs, that includes night vision and/or infrared technology at night, and real-time passive acoustic monitoring at all times when survey work is underway;

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<sup>2</sup> NOAA Fisheries, “Species in the Spotlight,” Available at: <https://www.fisheries.noaa.gov/topic/endangered-species-conservation#species-in-the-spotlight>.

<sup>3</sup> NOAA Fisheries, “Common bottlenose dolphin.” Available at: <https://www.fisheries.noaa.gov/species/common-bottlenose-dolphin>; 84 Fed. Reg. 51,123 at Table 2 omits information that the Northern Migratory Coastal Stock of bottlenose dolphin is considered to be “depleted” under the MMPA and a “strategic stock” by NMFS.

<sup>4</sup> NOAA Fisheries, “2016-2019 Humpback whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2019-humpback-whale-unusual-mortality-event-along-atlantic-coast>

<sup>5</sup> The best available science on other low- to mid-frequency sources (*e.g.*, Nowacek *et al.* 2004, Kastelein *et al.* 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

- Require all project vessels operating within the survey area maintain a speed of 10 knots or less during the entire survey period. Transiting vessels should also be required to observe a 10 knot speed restriction throughout the entirety of the proposed survey period; and
- Require all project vessel operators to report sightings of living North Atlantic right whales and all sightings of dead, injured, or entangled whales, regardless of species.

In addition to the protections recommended above, we object to NMFS' proposed process to consider extending any one-year IHA with a truncated 15-day comment period. As discussed below and in our prior letters, that process is contrary to the MMPA.

## I. BACKGROUND

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

Congress enacted the 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."<sup>6</sup> 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."<sup>7</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>8</sup> 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.<sup>9</sup>

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.<sup>10</sup> 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."<sup>11</sup>

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than a one-year period, the incidental, but not intentional, "taking by harassment of small numbers

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<sup>6</sup> 16 U.S.C. § 1361(1).

<sup>7</sup> *Id.* § 1361(2); see also *Conservation Council for Hawaii v. Nat'l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>8</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

<sup>9</sup> 16 U.S.C. § 1361(1), (3).

<sup>10</sup> 16 U.S.C. §§ 1362(13), 1371(a).

<sup>11</sup> *Id.* § 1362(18)(A).

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.”<sup>12</sup> The agency must prescribe permissible methods of taking 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.”<sup>13</sup> NMFS must also establish monitoring and reporting requirements.<sup>14</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>15</sup>

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

As the agency is aware, the conservation status of the North Atlantic right whale is dire. Although the species has been listed under the ESA for decades, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial fishing gear and ship strikes. Thirty (30) animals are known to have been killed since 2017 and the population is now estimated at approximately 400 individuals.<sup>16</sup> Moreover, females are more negatively affected than males by the lethal and sublethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.<sup>17</sup> It is estimated that only 95 females of breeding age remain.<sup>18</sup>

In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared a UME,<sup>19</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect. Moreover, ongoing UMEs exist for the Atlantic populations of minke whales (since January 2017) and humpback whales (since January 2016).<sup>20</sup> Alarming, 73 minke whales have stranded between Maine and South Carolina from January 2017 to October 2019.<sup>21</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over three years, 105 humpback whale mortalities have been recorded (data through October 4, 2019), with strandings occurring in every state

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<sup>12</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>13</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>14</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>15</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>16</sup> NOAA Fisheries, “North Atlantic right whale,” available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>.

<sup>17</sup> Corkeron, P., Hamilton, P., Bannister, J., Best, P., Charlton, C., Groch, K.R., Findlay, K., Rowntree, V., Vermeulen, E., and Pace, R.M., “The recovery of North Atlantic right whales, *Eubalaena glacialis*, has been constrained by human-caused mortality.” *Royal Society Open Science*, vol 5, art. 180892 (2018).

<sup>18</sup> NOAA Fisheries, “Immediate action needed to save the North Atlantic right whales,” leadership message (July 3, 2019). Available at: <https://www.fisheries.noaa.gov/leadership-message/immediate-action-needed-save-north-atlantic-right-whales>.

<sup>19</sup> NOAA Fisheries, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>20</sup> NOAA Fisheries, “2016-2019 Humpback whale Unusual Mortality Event along the Atlantic Coast.” *supra* note 4; NOAA Fisheries, “2017-2019 Minke whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2019-minke-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>21</sup> *Id.*



along the East Coast.<sup>22</sup> The declaration of these three large whale UMEs by the agency in the past few years, for which anthropogenic impacts are a significant cause of mortality, demonstrates an increasing risk to whales from human activities along the U.S. East Coast.

Given the highly endangered status of the North Atlantic right whale, NMFS is obligated by both the ESA and the MMPA to protect this species from additional harmful impacts of human activities. The agency is also obligated by the MMPA to consider the full range of potential impacts on all marine mammal species, including minke and humpback whales, and the depleted Western North Atlantic Northern Migratory Coastal stock of bottlenose dolphin, that are known to utilize the survey area and surrounding areas before issuing an IHA with appropriate avoidance, minimization, mitigation, and monitoring measures. NMFS must use the best available scientific information on marine mammal presence and density, as required by law.<sup>23</sup> Considering the elevated threat to federally protected large whale species and populations in the Atlantic, including waters off Delaware and Maryland, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed surveys are mitigated to effectuate the least practicable impact on affected species and stocks.<sup>24</sup>

*C. North Atlantic right whale seasonality and distribution off the coasts of Delaware and Maryland*

Since 2010, North Atlantic right whale distribution and habitat use has shifted in response to climate change-driven shifts in prey availability.<sup>25</sup> Long-term passive acoustic monitoring data and visual sightings data for the U.S. East Coast indicate that North Atlantic right whales can now be found in the waters within and near the Project Area year-round.<sup>26</sup> Three years (November 2014 to June 2017) of passive acoustic monitoring data recorded in and around the Maryland Wind Energy Area (“WEA”)—an area only nine nautical miles from the Lease Area—detected North Atlantic right whales, as well as fin and humpback whales, most frequently between November and April.<sup>27</sup> In the most recent period for which data has been analyzed, Atlantic right whale vocal presence increased from November 2016 – January 2017. Vocal presence was at its highest levels in January 2017 (60.7%) and sharply decreased in February 2017 (2.4%). Right whale vocal presence was detected at low levels from March 2017 – May

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<sup>22</sup> NOAA Fisheries, “2016-2019 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 4.

<sup>23</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>24</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>25</sup> Record, N., Runge, J., Pendleton, D., Balch, W., Davies, K., Pershing, A., Johnson, C., Stamieszkin, K., Ji, R., Feng, Z. and Kraus, S., “Rapid Climate-Driven Circulation Changes Threaten Conservation of Endangered North Atlantic Right Whales,” *Oceanography*, vol. 32, pp. 162-169 (2019).

<sup>26</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).; NOAA Northeast Fisheries Science Center, “NOAA Right Whale Sighting Advisory System.” Available at: <https://www.nefsc.noaa.gov/psb/surveys/MapperiframeWithText.html>.

<sup>27</sup> Bailey, H., Wingfield, J., Fandel, A., Fouda, L., Garrod, A., Lyubchich, S., Hodge, K.B., and Rice, A.N. *Determining offshore use by marine mammals and ambient noise levels using passive acoustic monitoring. Progress Report.* Project period 1st July 2017 – 31st August 2017. Sponsor Grant Number: 14-14-1916 BOEM. (Aug. 31, 2017); Bailey, H. *Determining offshore use by marine mammals and ambient noise levels using passive acoustic monitoring. Progress Report.* (Jul. 31, 2018).

2017, and then increased to 27.8% in June 2017.<sup>28</sup> Monthly aerial surveys conducted between July 2013 and July 2015 identified right whales to the east of the Maryland WEA (5 sightings of 13 whales) in January and February.<sup>29</sup> Eleven whales were detected in a single day in January 2015, indicating that pulses of right whales may travel through the region.<sup>30</sup> Based on data collected proximate to the Project Area, North Atlantic right whales appear to have highest relative presence between at least the months of November through April. These months of elevated occurrence are supported by the dates of the Seasonal Management Area (“SMA”) for Delaware Bay,<sup>31</sup> the period for which a “Biologically Important Area” has been defined by the Agency,<sup>32</sup> peak vocal presence recorded during the long-term passive acoustic monitoring study,<sup>33</sup> and 30 years of visual sightings data,<sup>34</sup> which additionally indicates that pregnant females and mother-calf pairs are migrating through the area in the fall and spring, respectively.<sup>35</sup> Survey results from adjacent states (New Jersey, Virginia, North Carolina, and Georgia), albeit relatively limited, are concordant with the distribution and seasonality of right whales off Delaware and Maryland from November 1 to April 30.<sup>36</sup>

Beyond the recognized Biologically Important Area identified by NOAA,<sup>37</sup> the area is not formally identified as a habitat “hotspot;” however, a sizable proportion of the migrating right whale population will pass through or near the site and, as such, the Project Area is located in an important part of the overall right whale migratory corridor. Shoreward of the Lease Area, 30 years of sightings data demonstrate that 50 percent of mother-calf pairs were sighted within 6.88 miles of the coast, and 50 percent of other demographic groups were sighted within 8.5 miles of the coast.<sup>38</sup> As such, it can be assumed that during migration, approximately 50 percent of right whales will travel shoreward of the Lease Area, through the cable survey area, and many others will pass through the Lease Area. Moreover, location analysis of North Atlantic right whale calls showed most calls occurred across the entirety of the

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<sup>28</sup> Bailey, H. *Determining offshore use by marine mammals and ambient noise levels using passive acoustic monitoring*. Progress Report, *id.*

<sup>29</sup> Barco, S., Burt, L., DePerte, A., and DiGiovanni, Jr., R. *Marine Mammal and Sea Turtle Sightings in the Vicinity of the Maryland Wind Energy Area July 2013-June 2015*. VAQF Scientific Report # 2015-06, prepared for the Maryland Department of Natural Resources. (2015).

<sup>30</sup> *Id.*

<sup>31</sup> NOAA Fisheries, “Reducing ship strikes to North Atlantic right whales.” Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

<sup>32</sup> LaBrecque, E., Curtice, C., Harrison, J., van Parijs, S.M., and Halpin, P.N., “Biologically important areas for cetaceans within U.S. waters—East coast region.” *Aquatic Mammals* 41: 17-29 (2015).

<sup>33</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 26.

<sup>34</sup> NOAA Northeast Fisheries Science Center, “NOAA Right Whale Sighting Advisory System,” *supra* note 26.

<sup>35</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>36</sup> Whitt, A.D., Dudzinski, K., and Laliberté, J.R., “North Atlantic right whale distribution and seasonal occurrence in nearshore waters off New Jersey, USA, and implications for management,” *Endangered Species Research*, 20: 59-69 (2013); Hodge, K.B., Muirhead, C.A., Morano, J.L., Clark, C.W., and Rice, A.N., “North Atlantic right whale occurrence near wind energy areas along the mid-Atlantic US coast: implications for management,” *Endangered Species Research*, 28: 225-234 (2015); Salisbury, D.P., Clark, C.W., and Rice, A.N., “Right whale occurrence in the coastal waters of Virginia, U.S.A.: Endangered species presence in a rapidly developing energy market,” *Marine Mammal Science*, 32: 508-519 (2016).

<sup>37</sup> LaBrecque, E., *et al.*, “Biologically important areas for cetaceans within U.S. waters—East coast region,” *supra* note 32.

<sup>38</sup> Dr. C. Good *pers. comm.*, *supra* note 35.

Maryland WEA and that their distribution extended further offshore. It can be assumed that North Atlantic right whales exhibit a similar distributional pattern across the Delaware WEA and, thus, the Project Area.

The best available scientific information therefore demonstrates that at least November 1 through April 30 in the Project Area represents the time period of highest risk to North Atlantic right whales, based on times of highest relative density of animals during their migration and times when mother-calf pairs may be in the area.<sup>39</sup> That said, given that North Atlantic right whales are now detected during every month of the year in the Mid-Atlantic,<sup>40</sup> there is a clear need for strong and effective mitigation measures to be in place year-round.

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT

- A. *To fulfill the statutory requirement of considering the best scientific information available, NMFS must analyze additional data sources when calculating densities of marine mammals, including the North Atlantic right whale*

NMFS must base its IHA analysis on the best available scientific information to comply with statutory requirements of the MMPA.<sup>41</sup> 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 Coast, which was funded under the agency’s CetMap program, and recently updated with new data collected during surveys conducted through 2016.<sup>42</sup> However, the CetMap model, as its designers admit,<sup>43</sup> is limited. Most notably, in founding its density estimates entirely on shipboard and aerial line-transect surveys, the model necessarily excludes data obtained through additional sightings data from state-level surveys and opportunistic sources, passive acoustic monitoring, and satellite telemetry. Much of the survey data used to develop the model was collected prior to 2010 and therefore do not reflect the recent shift in North Atlantic right whale distribution, including the significant shifts observed during the past three years (2017-2019). It is our view that the density maps produced by Roberts *et al.* (2016) do not fully reflect the abundance, distribution, and density of marine mammals for

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<sup>39</sup> Over a dozen wildlife conservation organizations recently endorsed a suite of Best Management Practices (“BMPs”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. The BMPs include criteria to define times of highest risk to North Atlantic right whales. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Available at: <https://www.nrdc.org/resources/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy>.

<sup>40</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 26.

<sup>41</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>42</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); 84 Fed. Reg. at 36,075.

<sup>43</sup> Roberts, J.J., *et al.*, *id.*

the U.S. East Coast and therefore should not be the only information source relied upon when estimating take.

The Roberts *et al.* (2016) model lacks resolution for the Western North Atlantic Northern Migratory Coastal stock of bottlenose dolphins. Misappropriation of take levels for the depleted migratory coastal bottlenose dolphin could have serious implications for the future conservation status of the stock. Specifically, this approach results in an estimated 22.1 percent of the migratory coastal population being subjected to harassment commensurate to Level B take (84 Fed. Reg. 51,139, at Table 7); in the context of this depleted and strategic stock, the Agency's intention to equate such a high level of proposed authorized take with the small numbers and negligible impact provisions of the MMPA is unsupportable. We also note that the agency omits information on the "depleted" and "strategic" status of the Northern Migratory Coastal stock in Table 2 of the IHA.

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 better reflect current marine mammal presence, abundance, and density off Delaware and Maryland and provide a more accurate assessment of Level B take. **It should be NMFS' top priority to consider any initial data from State monitoring efforts,<sup>44</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources, and to take steps now to develop a dataset (see also recommendations in Section III.A.) that more accurately reflects marine mammal presence so that it is in hand for future IHA authorizations and other work.**

*B. Using independent "survey days" as the unit of impact analysis is inappropriate*

The agency has proposed to authorize up to 200 "survey days" that may take place at any point from October 2019 through September 2020, with as many as three survey vessels operating concurrently at any given time.<sup>45</sup> "Survey days" are treated as independent units of analysis by NMFS in terms of the estimated impact to marine mammals.<sup>46</sup> This approach overlooks the fact that there are times of year that North Atlantic right whales, and potentially other protected species, would have higher relative vulnerability to noise exposure from the survey activities being undertaken (*e.g.*, during foraging periods), or may have a reduced ability to avoid noise exposure due to multiple survey vessels operating in the same vicinity at the same time. By not incorporating more detailed information on the spatial and temporal resolution of survey activity into the impact analysis, NMFS may under-estimate (or over-estimate) levels of take. The likelihood of this being the case is further increased by NMFS' use of the mean annual density value for each marine mammal species,<sup>47</sup> rather than accounting for seasonal differences. A broader implication of this approach is that the Proposed IHA makes no attempt to directly account for the cumulative impact from multiple sound sources operating concurrently and continuously across the survey area. **NMFS should include more information on the geographic location and**

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<sup>44</sup> See, *e.g.*, <http://energy.maryland.gov/Pages/Info/renewable/offshorewind-resources.aspx>;  
[https://dnr.maryland.gov/ccs/Pages/coastal\\_resources/oceanplanning.aspx](https://dnr.maryland.gov/ccs/Pages/coastal_resources/oceanplanning.aspx).

<sup>45</sup> 84 Fed. Reg. at 51,119-20.

<sup>46</sup> *Id.*

<sup>47</sup> 84 Fed. Reg. at 51,138.

**timing of the deployment of the survey vessels in the Proposed IHA and, where appropriate, factor that information in to the take analysis.**

*C. Any IHA extension does not comport with the plain language of the statute*

NMFS again requests comment on the potential one-year renewal of this Proposed IHA on a case-by-case basis for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.<sup>48</sup> For several reasons, our organizations have opposed this process in prior comments as contrary to law. Without repeating all of our prior comments on this issue we reiterate that NMFS' proposal to provide one-year renewals does not comport with the plain language of the statute. Section 101(a)(D)(i) unambiguously states that incidental harassment authorizations are valid for periods of not more than one year.<sup>49</sup> The statute is also clear on its face that a 30 day comment period is required in all instances. An agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>50</sup> If Congress did not see fit to include a specific provision on an appropriate IHA renewal process, then the legislative history would not support an argument that there is ambiguity in Congress' intent in enacting the statute as written. NMFS does not have the regulatory discretion to impute a different timeframe for renewals. The MMPA provides one IHA process and therefore one specified comment period duration to rule them all.

Should the agency wish to establish its new IHA renewal process as a reasonable interpretation of an ambiguous statutory provision, it should do so through notice-and-comment rulemaking or comparable process with the appropriate indicia of formality. NMFS' recently posted new language about Incidental Harassment Authorization Renewals on its website.<sup>51</sup> The expedited process described online is not subject to the notice and comment procedures and does not warrant judicial deference. Providing a clear and legally adequate justification for its purported new reauthorization process is especially important in light of the burden the foreshortened comment period places on interested members of the public to review not only the original authorization and supporting documents but also the draft monitoring reports, the renewal request, and the proposed renewed authorization and then to formulate comments, all within 15 calendar days. Especially given that NMFS apparently intends the new reauthorization process to become the rule rather than the exception,<sup>52</sup> it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

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<sup>48</sup> 84 Fed. Reg. 52,464, 52,466 (Oct. 2, 2019).

<sup>49</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>50</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>51</sup> See <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>52</sup> Beginning on March 7, 2019, NMFS has issued notice of this new reauthorization process for a multitude of permits. *See, e.g.*, 84 Fed. Reg. 8312 (Mar. 7, 2019); 84 Fed. Reg. 8316 (Mar. 7, 2019); 84 Fed. Reg. 11,508 (Mar. 27, 2019); 84 Fed. Reg. 13,246 (Apr. 4, 2019); 84 Fed. Reg. 14,200 (Apr. 9, 2019); 84 Fed. Reg. 15,598 (Apr. 16, 2019); 84 Fed. Reg. 17,384 (Apr. 25, 2019); 84 Fed. Reg. 17,784 (Apr. 26, 2019); 84 Fed. Reg. 17,788 (Apr. 26, 2019); 84 Fed. Reg. 18,346 (Apr. 30, 2019); 84 Fed. Reg. 18,495 (May 1, 2019); 84 Fed. Reg. 18,801 (May 2, 2019); 84 Fed. Reg. 18,809 (May 2, 2019); 84 Fed. Reg. 20,336 (May 9, 2019).

In authorizing “take” by incidental harassment under the general authorization provision of the MMPA, NMFS 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.”<sup>53</sup> In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA, as well as the significant risks posed to the North Atlantic right whale, other endangered and/or strategic marine mammal stocks, and protected humpback whales by the site assessment and characterization activities outlined in the Proposed IHA, NMFS has an obligation to impose robust avoidance, minimization, mitigation, and monitoring requirements to protect these species to the maximum extent practicable.

The agency expects that “[a]ll potential takes would be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area, reactions that are considered to be of low severity with no lasting biological consequences.”<sup>54</sup> The year-round operation of up to three survey vessels at any one time across a relatively limited geographic area presents a significant potential for cumulative disturbance during the North Atlantic right whale’s primary migratory period (November 1 through April 30), and during the summer when the depleted Northern Coastal Migratory Stock of bottlenose dolphin forage within the Project Area.<sup>55</sup> Protected humpback whales are also increasingly sighted year-round in Mid-Atlantic waters.<sup>56</sup> Best available scientific information shows that the North Atlantic right whale population in particular cannot withstand any additional stressors. As such, **the agency must carefully analyze the cumulative impacts from the proposed survey activities on the North Atlantic right whale and other protected species.**

In addition, the implementation of a robust impact avoidance, minimization, mitigation, and monitoring protocol to prevent adverse impacts of the proposed survey activities is therefore essential and required by law. **Below, we recommend specific avoidance, minimization, mitigation, and monitoring measures intended to address these concerns:**

*A. Seasonal restriction on geophysical surveys in the Lease Areas from November to April 30*

As described above (*see*, Section I.A), NMFS is proposing to authorize geophysical surveys off Delaware and Maryland at times when North Atlantic right whales are expected to be present at high densities during the annual migration. The survey period is intended to commence in October 2019 be conducted 24-hours a day for up to 200 days across the permitted 12-month period, utilizing up to three survey vessels at any one time.<sup>57</sup> Time and area restrictions designed to protect important life history behaviors 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

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<sup>53</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

<sup>54</sup> 84 Fed. Reg. 51,143.

<sup>55</sup> 84 Fed. Reg. at 51,120.

<sup>56</sup> NOAA Fisheries, “2016-2019 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 4; NOAA Fisheries, “Global review of humpback whales (*Megaptera novaeangliae*),” NOAA-TM-NMFS-SWFSC-474 (March 2011).

<sup>57</sup> 84 Fed. Reg. at 51,120.

Level A and Level B harassment.<sup>58</sup> Consistent with the scale and cumulative acoustic impact of the intense period of proposed survey activity, **NMFS must impose a restriction on site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (i.e., source level >180 dB re 1 uPa) minimally from November 1 to April 30 in the Project Area;**<sup>59</sup> these dates should be reviewed annually and revised as necessary to reflect the best available scientific information. These dates currently reflect both the best available science on the relative density of North Atlantic right whales off Delaware and Maryland (recognizing that individuals of this species could be present in each month of the year; *see* Section I.C). We also note that, as North Atlantic right whales may be present in the survey area during the summer months, NMFS must ensure that adequate mitigation measures (*see* Sections III.B. through III.E. for our recommendations) are in place to protect this and other priority species, including the depleted Coastal Migratory Stock of bottlenose dolphin, throughout the year.

While existing and potential stressors to the North Atlantic right whale must be minimized as far as possible to promote the survival and recovery of the species, **the agency must also address potential impacts to other endangered and protected whale species, particularly in light of the UMEs declared for right whales, humpback whales and minke whales,**<sup>60</sup> as well as the depleted Northern Migratory Coastal stock of bottlenose dolphin that seasonally inhabits the region (*see* Sections I.B. through I.D.). 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 in the year, which may increase levels of take for other species and populations; consideration of potential risks to other species is particularly pertinent in light of the mass stranding off Madagascar that was caused by the use of comparable high resolution geophysical (“HRG”) survey equipment).<sup>61</sup>

NMFS has an obligation to use the best available scientific information, which includes standardized survey data as passive acoustic and opportunistic detections. As such, NMFS must incorporate all currently available information to elucidate and balance the relative risks to these species, for which there is relatively limited data. Therefore, **NMFS should: 1) fund analyses of recently collected sighting and acoustic data for all data-holders; and 2) continue to fund and expand surveys and studies to improve our understanding of distribution and habitat use of marine mammals off Delaware and**

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<sup>58</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>59</sup> As previously noted, the best available science on other low- to mid-frequency sources (*e.g.*, Nowacek et al. 2004, Kastelein et al. 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

<sup>60</sup> NOAA Fisheries, “North Atlantic right whale Unusual Mortality Event,” *supra* note 19; NOAA Fisheries, “2016-2019 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 4; NOAA Fisheries, “2017-2019 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 20.

<sup>61</sup> 84 Fed. Reg. at 51,132.

Maryland, including the Project Area, as well as the broader Mid-Atlantic region. Only then can the most effective seasonal restrictions and mitigation measures be considered in a year-round context. In the absence of such information, the agency should, as noted above, apply precautionary measures for the time-period proposed (*i.e.*, November 1 to April 30), as based on the best available scientific information.

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

We are deeply concerned that NMFS has proposed reliance upon a single PSO as the primary means of detecting North Atlantic right whales and other marine mammals both during the day and at night, with no requirement for night vision or infrared technology, nor real-time passive acoustic monitoring. This approach is wholly under-protective and places one of the world's most endangered species at unnecessary risk.

The effectiveness of night vision and infrared 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. Infrared 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>62</sup> However, the application of infrared 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. These concerns notwithstanding, and in lieu of new research on the effectiveness of these technologies, we recommend NMFS require the use of night vision or infrared technology at night *in combination with* real-time passive acoustic monitoring during the entire survey period, to maximize the likelihood of detection (see Section III.D).

**Given the paucity of mitigation measures currently proposed, and the questions remaining over the effectiveness of night vision and infrared technology, geophysical surveys must only commence, with ramp-up, during daylight hours of adequate visibility<sup>63</sup> to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone.** If clear, the survey can then continue into nighttime hours. However, if a North Atlantic right whale is detected in the exclusion zone during nighttime hours and the survey is shut down, developers should be required to wait until daylight hours for ramp-up to resume.

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

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<sup>62</sup> Lathlean, J. and Seuront, L., "Infra-red thermography in marine ecology: methods, previous applications and future challenges," *Marine Ecology Progress Series*, vol. 514, p. 263-277 (2014).

<sup>63</sup> Adequate visibility should be determined by the lead PSO based on standardized environmental parameters (*e.g.*, visibility, glare, sea state, wind speed).



The Proposed IHA specifies that marine mammal exclusion zones will be established around HRG equipment and monitored by PSOs during HRG surveys as follows: 500 m exclusion zone for North Atlantic right whales; a 200 m exclusion zone for other ESA-listed marine mammals (fin, sei, and sperm whales); and a 100 m exclusion zone for all other marine mammals.<sup>64</sup> The definition of exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (*i.e.*, received level <160 dB).<sup>65</sup> Again, any potential harassment of the North Atlantic right whale is a significant concern. Moreover, the agency is demonstrating inconsistency in its exclusion zone requirements for different Lease Areas without explanation or justification.<sup>66</sup>

**NMFS must require sufficient monitoring practices to ensure a 500 m exclusion zone for *all* marine mammals<sup>67</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 should, to the extent feasible, monitor beyond the minimum 500 m exclusion zone to an extended 1,000 m exclusion zone for North Atlantic right whales.**<sup>68</sup> NMFS should maintain protective exclusion zones, at the minimum distances we recommend above, throughout the site assessment and characterization activities to maximize protections for North Atlantic right whales and other protected species. The exclusion zone distance should be extended beyond these minimum distances in the case that sound source validation data support such an extension.

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

The ability to detect 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>69</sup> For even the most conspicuous large whale species, estimates of relative detection probability for a

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<sup>64</sup> 84 Fed. Reg. at 51,140.

<sup>65</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>66</sup> See, e.g., 83 Fed. Reg. 19,711-19,736, which specifies: 25 m exclusion zone for harbor porpoises; 200 m exclusion zone for ESA-listed cetaceans, including sperm whales and mysticetes (except North Atlantic right whale); and 500 m exclusion zone for North Atlantic right whales. No exclusion zones are warranted for non-ESA-listed marine mammals. PSOs will visually monitor and record the presence of all marine mammals within 500 meters.

<sup>67</sup> Letter from J. Grybowski, F. Beinecke, J. Kassel, J. Lyon, M. Alt, J. Savitz, 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 Rhode Island and Massachusetts Wind Energy Area” (May 7, 2014). The dates of the seasonal restrictions have since been revised to November 1<sup>st</sup> through May 14<sup>th</sup>, as reflected in our current letter, based on the best available science.

<sup>68</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>69</sup> See, e.g., Verfuss, U.K., Gillespie, D., Gordon, J., Marques, T.A., Millr, 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, p.1-18 (2018).

Beaufort sea state of 6 is less than half that for a Beaufort sea state of 0.<sup>70</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>71</sup> In line with Barlow (2015),<sup>72</sup> 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>73</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. Based on the data collected by the National Buoy Data Center (*see* Table 1),<sup>74</sup> a monthly average Beaufort sea state of 3 or 4 can be expected in close vicinity to the Lease Area, year-round, with the highest sea states from September to May. This is a salient consideration in the evaluation of whether a species can be adequately protected by species observers alone, given the moderate Beaufort sea states in the vicinity of the Lease Areas during the months when the proposed surveys would take place.

Given these data, observers alone are certain to underestimate the number of large whales in the mitigation area based on sea state. From the findings of Baumgartner *et al.* (2003),<sup>75</sup> we would expect a reduction in 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 North Atlantic 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 sighting condition limitations, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood that they would be detected by PSOs and therefore often go undetected by observers. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay,<sup>76</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>77</sup> In fact, aerial surveys were found to detect North Atlantic right whales on

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<sup>70</sup> Barlow, J., "Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions," *Marine Mammal Science*, vol. 31, p. 923-943 (2015).

<sup>71</sup> Baumgartner, M.F., Cole, T.V.N., Clapham, P.J., and Mate, B.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, p. 137-154 (2003).

<sup>72</sup> Barlow, J., "Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions," *supra* note 70.

<sup>73</sup> *Id.*

<sup>74</sup> NOAA-NWS, "National Data Buoy Center." Available at: <http://www.ndbc.noaa.gov/>.

<sup>75</sup> Baumgartner, M.F., *et al.*, *supra* note 71.

<sup>76</sup> Morano, J.L., Rice, A.N., Tielens, J.T., Estabrook, B.J., Marray, A., Roberts, A.L., and Clarkm C.W., "Acoustically detected year-round presence of right whales in an urbanized migration corridor." *Conservation Biology*, vol. 26, p. 698-707 (2012).

<sup>77</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, p. 129-138 (1986); Pittman, S.J., Kot, C., Kenney, R.D., Costa, B., and Wiley, D., "Cetacean distribution and diversity." In: Battista T., Clark R., Pittman S.(eds) *An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment*, p.264-324 (2006).

only two-thirds of the days they were acoustically detected in Cape Cod Bay, Massachusetts, from 2001 to 2005.<sup>78</sup> Additionally, there is evidence that North Atlantic 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>79</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>80</sup>

*Table 1. Long-term monthly average wind speed (1984-2008), wave height (1986-2008) and corresponding Beaufort Sea State recorded at NOAA National Data Buoy Station 44009 (LLNR 168) – DELAWARE BAY 26 NM Southeast of Cape May, NJ. Data source: NOAA National Data Buoy Center (Accessed: October 23, 2019).*

Month	Wind Speed (knots)	Wave Height (m)	Beaufort Sea State
January	15.1	1.4	4
February	14.1	1.4	4
March	13.5	1.4	4
April	12.2	1.3	4
May	11.0	1.1	4
June	10.0	0.9	3
July	9.5	0.9	3
August	9.7	1.0	3
September	11.3	1.2	4
October	12.9	1.3	4
November	14.2	1.3	4
December	14.9	1.4	4

Thus, reliance on a single PSO as the sole monitoring method during both daylight hours and during the night is under-protective and should not be endorsed by the agency. **A combination of visual monitoring by PSOs and passive acoustic monitoring should be implemented 24 hours a day.** Research has demonstrated that passive acoustic monitoring can provide a two- to ten-fold increase in the number of days that right whales are detected relative to visual methodologies.<sup>81</sup> The passive acoustic protocol

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<sup>78</sup> Clark, C.W., Brown, M.W., and Corkeron, P., “Visual and acoustic surveys for North Atlantic right whales, *Eubalaena glacialis*, in Cape Cod Bay, Massachusetts, 2001-2005: Management Implications.” *Marine Mammal Science*, vol. 26, p. 837-854 (2010).

<sup>79</sup> Nowacek, D.P., Johnson, M.P., and Tyack, P.L., “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli.” *Proceedings: Biological Sciences*, vol. 271, p. 227-231 (2004).

<sup>80</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, p. 143-160 (2013).

<sup>81</sup> Soldevilla, M.S., Rice, A.N., Clark, C.W., and Garrison, L. P., “Passive acoustic monitoring on the North Atlantic right whale calving grounds,” *Endangered Species Research*, vol. 25, pp. 115–140 (2014). It is important to note that passive acoustic monitoring, while capable of significantly increasing detection rates, is not an approach capable of detecting all whales in an area due to the fact that not all individuals continually vocalize, or vocalizations may be very low in volume at certain life history stages, as in the case of “contact calls” between North Atlantic right whale mothers and calves (*see* Parks, S. E.,

should be designed so the hydrophone is not masked by vessel or survey noise. We also support the inclusion of both broadband and low frequency hydrophones, which will serve to ensure that North Atlantic right whale vocalizations, as well as those of other low- and mid-frequency vocalizing species, can be detected. **Survey activity must be shut down upon the visual or acoustic detection of a North Atlantic right whale.** Acoustic detections of other species should be used to assist PSOs in their visual monitoring efforts.

The shift schedule of the NMFS-approved PSOs aboard the survey vessel **must also be adjusted to a minimum of four PSOs following a two-on two-off rotation, each responsible for scanning no more than 180° of the exclusion zone at any given time. Observation must begin at least 30 minutes prior to the commencement of geophysical survey activity and shall be conducted throughout the time of geophysical survey activity.**

#### *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 existing UMEs. The number of recorded vessel collisions on large whales each year is likely to grossly underestimate the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted for.<sup>82</sup> North Atlantic 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>83</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>84</sup> It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. In addition, the agency has a responsibility to implement mitigation measures to prevent any further vessel collisions for other species of large whale currently experiencing an UME (*i.e.*, humpback whales and minke whales), as well as other species such as fin whales, which, in light of the broad distributional shifts observed for multiple species, may be at potential future risk of experiencing an UME.

As described in the Proposed IHA, the survey vessel(s) will maintain a speed of four knots during surveys.<sup>85</sup> A mandatory speed limit of 10 knots is also required of all vessels, regardless of size, within mandatory Mid-Atlantic SMAs (in operation from November 1 through April 30) and voluntary Dynamic

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Cusano, D. A., Van Parijs, S. M., & Nowacek, D. P., "Acoustic crypsis in communication by North Atlantic right whale mother-calf pairs on the calving grounds." *Biology letters*, 15(10), 20190485 (2019); Parks, S. E., Cusano, D. A., Van Parijs, S. M., & Nowacek, D. P., "North Atlantic right whale (*Eubalaena glacialis*) acoustic behavior on the calving grounds." *The Journal of the Acoustical Society of America*, 146(1), EL15-EL21 (2019)). As such, passive acoustic monitoring must be used in combination with visual detection methods for mitigation purposes.

<sup>82</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, p. 57-60 (2011).

<sup>83</sup> NOAA Fisheries, "Recovery plan for the North Atlantic right whale" (August 2004).

<sup>84</sup> Nowacek, D.P., *et al.*, *supra* note 79.

<sup>85</sup> 84 Fed. Reg. at 51,138.

Management Areas (“DMAs;” year-round) as designated by NMFS.<sup>86</sup> As North Atlantic right whales may be in the Project Area year round (*see* Section I.C.), and as serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length,<sup>87</sup> and also as mothers and calves are likely to travel close to shore,<sup>88</sup> **a 10 knot speed restriction on all project associated vessels transiting within, and to/ from, the survey area should be required for the proposed survey period.** To reflect the risk posed by vessels of any length, NMFS set the standard of a mandatory vessel speed restriction for all vessels (including under 20 meters) in the Cape Cod Bay SMA. (This measure should be considered in addition to the seasonal restriction on geophysical surveys recommended in Section III.A).

Additionally, studies of other baleen whales indicate that noise can induce horizontal displacement.<sup>89</sup> HRG surveys may therefore push a North Atlantic 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. This is particularly concerning in light of the fact that the Project Area lies adjacent to an area of high ship traffic resulting from the approach to Delaware Bay. **Indirect ship strike risk resulting from habitat displacement must be accounted for in NMFS’ analysis.**

Finally, we recommend that **NMFS require all project vessel operators to report sightings of living North Atlantic right whales and all sightings of dead, injured, or entangled whales, regardless of species.** Such reporting requirements would be informative across a range of marine mammal protection and regulatory efforts currently being undertaken by the agency.

#### IV. CONCLUSION

Thank you for considering our comments. For the above reasons, NMFS must revise its analysis to be consistent with the agency’s statutory obligations. We request the opportunity to meet with you, and your staff, to discuss these matters.

Sincerely,

Francine Kershaw, Ph.D.  
Project Scientist, Marine Mammal Protection and Oceans, Nature Program  
Natural Resources Defense Council

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<sup>86</sup> 84 Fed. Reg. at 51,141; “If NMFS should establish a DMA in the survey area while surveys are underway, Skipjack would contact NMFS within 24 hours of the establishment of the DMA to determine whether alteration of survey activities was warranted to avoid right whales to the extent possible.”

<sup>87</sup> NOAA Fisheries, “Reducing ship strikes to North Atlantic right whales,” *supra* note 31.

<sup>88</sup> Dr. C. Good *pers. comm.*, *supra* note 35.

<sup>89</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).

Ms. Jolie Harrison  
October 28, 2019  
Page 18

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***By Electronic Mail***

March 13, 2020

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**RE: Proposed Incidental Harassment Authorization for Marine Site  
Characterization Surveys Offshore of Massachusetts, and Along Offshore  
Export Cable Corridors to Landfall Locations in Massachusetts, Rhode  
Island, Connecticut, and New York as requested by Vineyard Wind, LLC.**

Dear Ms. Harrison,

On behalf of the Conservation Law Foundation, Natural Resources Defense Council, National Wildlife Federation and our millions of members, we respectfully submit our comments on the National Marine Fisheries Service's ("NMFS") proposal to issue an incidental harassment authorization ("Proposed IHA") to Vineyard Wind, LLC ("Vineyard Wind") for marine site characterization surveys off the coast of Massachusetts in two Commercial Leases of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0501 and OCS-A 0522) ("Lease Areas") and along potential submarine offshore export cable route corridors ("OECCs") to landfall locations in Massachusetts, Rhode Island, Connecticut, and New York (collectively, the "Project Area"). *See* 85 Fed. Reg. 7952 (Feb. 12, 2020).

We recognize the significant contribution that the offshore wind projects associated with these surveys could make in providing clean energy for New England and New York. However, it is our view that offshore wind energy can and must be advanced in an environmentally responsible manner to ensure that it meets ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters in the Project Area support a diversity of marine life including at least 14 species of marine mammals, including five large and seven small cetaceans, and two pinnipeds.<sup>1</sup> Of the five large whale species, three (fin, sei, and North Atlantic right whale) are listed as endangered under the U.S. Endangered Species Act ("ESA") and as depleted and strategic stocks under the Marine Mammal Protection Act ("MMPA").

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<sup>1</sup> 85 Fed. Reg. at 7955, Table 2.

The following comments are intended to support Vineyard Wind in achieving its goal to advance offshore wind in a sustainable manner, while also expressing our concerns regarding NMFS' negligible impact analysis and the avoidance, minimization, mitigation, and monitoring requirements necessary to ensure adequate mitigation measures in the Project Area.

Because it is our view that NMFS' analysis likely underestimates the impact of these activities on the reproductive success and survivorship of North Atlantic right whales, we strongly recommend that the Final IHA require the following measures:

- A seasonal restriction on site assessment and characterization activities in the Project Area with the potential to injure or harass North Atlantic right whales (*i.e.*, source level  $>180$  dB re  $1 \mu\text{Pa}$  (SPL) at 1 meter at frequencies between 7 and 35 kHz)<sup>2</sup> between November 1, 2020 and May 14, 2021;
- A prohibition on the commencement of geophysical surveys at night or during times of poor visibility; 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;
- A requirement to monitor an exclusion zone for North Atlantic right whales of *at least* 500 meters ("m"), and ideally 1,000 m, around each vessel conducting activities with noise levels that could result in injury or harassment to this species. Such monitoring should consist of a combination of visual monitoring by Protected Species Observers ("PSOs") and passive acoustic monitoring at all times that survey work is underway;
- A requirement that four PSOs adhere to a two-on/two-off shift schedule to ensure no individual PSO is responsible for monitoring more than  $180^\circ$  of the exclusion zone at any one time;
- A requirement to use a combination of visual monitoring by PSOs and passive acoustic monitoring at all times that survey work is underway at noise levels that could injure or harm North Atlantic right whales; and
- A requirement that all project vessels (regardless of size) either transiting to/from or operating within the Lease Areas observe a 10 knot speed restriction during times, at minimum, when mother-calf pairs, pregnant females, surface active groups, or aggregations of three or more whales are confirmed or, based on multi-year sightings data, expected to be in the area. A compulsory 10 knot vessel speed restriction should also be required of all project vessels (not just survey vessels) within a Dynamic Management Area ("DMA") established by NMFS. To the extent that any project vessel of any size may exceed a speed of 10 knots, it should only be permitted if multiple monitoring measures are in place, including aerial surveys or a combination of vessel-based visual observers and passive acoustic monitoring.

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<sup>2</sup> The best available science on other low- to mid-frequency sources (*e.g.*, Nowacek et al. 2004, Kastelein et al. 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.



As we have in the past, we object to NMFS' proposed process to consider extending any one-year IHA with a truncated 15-day comment period as contrary to the MMPA.

We note that in a few instances Vineyard Wind has adopted more conservative measures than NMFS otherwise requires – specifically, in regards to the use of passive acoustic monitoring during night time operations and a commitment to employ a minimum of two (2) NMFS-approved PSOs on all survey vessels during HRG equipment operation. We strongly recommend that NMFS incorporate these measures as well as our other recommendations into the Final IHA to ensure greater protections for North Atlantic right whales.

## I. BACKGROUND

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

Congress enacted the 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.”<sup>3</sup> 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.”<sup>4</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>5</sup> 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.<sup>6</sup>

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.<sup>7</sup> 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.”<sup>8</sup>

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than 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

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<sup>3</sup> 16 U.S.C. § 1361(1).

<sup>4</sup> *Id.* § 1361(2); *see also Conservation Council for Hawaii v. Nat’l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>5</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

<sup>6</sup> 16 U.S.C. § 1361(1), (3).

<sup>7</sup> 16 U.S.C. §§ 1362(13), 1371(a).

<sup>8</sup> *Id.* § 1362(18)(A).

that such take would have only “a negligible impact on such species or stock.”<sup>9</sup> The agency must prescribe permissible methods of taking 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.”<sup>10</sup> NMFS must also establish monitoring and reporting requirements.<sup>11</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>12</sup>

*B. The status of Atlantic large whales*

As the agency is aware, the conservation status of the North Atlantic right whale is dire and getting worse. Although the species has been listed as endangered under the ESA for decades, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial fishing gear and ship strikes. Almost 30 animals are known to have been killed since 2017 and the population is now estimated at approximately 400 individuals.<sup>13</sup> Moreover, females are more negatively affected than males by the lethal and sublethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.<sup>14</sup> In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”),<sup>15</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect.

Moreover, ongoing UMEs exist for other whales in the Project Area. There have been UMEs for the Atlantic population of minke whales since January 2017 and humpback whales since January 2016.<sup>16</sup> Alarming, 63 minke whales have stranded between Maine and South Carolina from January 2017 to July 2019.<sup>17</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over three years, 100 humpback whale mortalities have been recorded (data through July 26, 2019), with strandings

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<sup>9</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>10</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>11</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>12</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>13</sup> NOAA Fisheries, “North Atlantic right whale,” available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>.

<sup>14</sup> Corkeron, P., Hamilton, P., Bannister, J., Best, P., Charlton, C., Groch, K.R., Findlay, K., Rowntree, V., Vermeulen, E., and Pace, R.M., “The recovery of North Atlantic right whales, *Eubalaena glacialis*, has been constrained by human-caused mortality.” *Royal Society Open Science*, vol 5, art. 180892 (2018).

<sup>15</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>16</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2019-humpback-whale-unusual-mortality-event-along-atlantic-coast>; 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>17</sup> *Id.*

occurring in every state along the East Coast.<sup>18</sup> The declaration of these three large whale UMEs by the agency in the past few years, for which anthropogenic impacts are a significant cause of mortality, demonstrates an increasing risk to whales from human activities along the U.S. East Coast.

Given the highly endangered status of the North Atlantic right whale, NMFS is obligated by both the ESA and the MMPA to protect this species from the additional harmful impacts of human activities. The agency is also obligated by the MMPA to consider the full range of potential impacts on all marine mammal species, including minke and humpback whales, that are known to utilize the survey area and surrounding areas before issuing an IHA with appropriate avoidance, minimization, mitigation, and monitoring measures. NMFS must use the best available scientific information on marine mammal presence and density, as required by law.<sup>19</sup> Considering the elevated threat to federally protected large whale species and populations in the Atlantic, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed surveys are mitigated to effectuate the least practicable impact on affected species and stocks.<sup>20</sup>

*C. North Atlantic right whale seasonality and distribution off the coasts of Rhode Island, Massachusetts, Connecticut, and New York*

Since 2010, North Atlantic right whale distribution and habitat use has shifted in response to climate change-driven shifts in prey availability.<sup>21</sup> Best available scientific information, including aerial surveys,<sup>22</sup> acoustic detections,<sup>23</sup> stranding data,<sup>24</sup> a series of DMAs declared by NMFS pursuant to ship strike rule,<sup>25</sup> and prey data,<sup>26</sup> indicate that North Atlantic right whales

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<sup>18</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 16.

<sup>19</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>20</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>21</sup> Record, N., Runge, J., Pendleton, D., Balch, W., Davies, K., Pershing, A., Johnson, C., Stamieszkin, K., Ji, R., Feng, Z. and Kraus, S., “Rapid Climate-Driven Circulation Changes Threaten Conservation of Endangered North Atlantic Right Whales,” *Oceanography*, vol. 32, pp. 162-169 (2019).

<sup>22</sup> Kraus, S.D., Leiter, S., Stone, K., Wikgren, B., Mayo, C., Hughes, P., Kenney, R.D., Clark, C.W., Rice, A.N., Estabrook, B., and Tielens, J., “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” OCS Study, BOEM 2016-054, pp. 118 (2016); 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.A., and Kraus, S.D., “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA,” *Endangered Species Research*, vol. 34, pp. 45-59 (2017); Quintana, E., “Monthly report No. 3: May 2017,” Report prepared for the Massachusetts Clean Energy Center by the New England Aquarium, pp. 26 (May 15, 2017).

<sup>23</sup> Kraus, S.D., *et al.*, *id.*; 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>24</sup> Asaro, M.J., “Update on US Right Whale Mortalities in 2017,” NOAA Fisheries, November 30, 2017. Available at: [https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro\\_usstrandings\\_nov2017.pdf](https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro_usstrandings_nov2017.pdf).

<sup>25</sup> NOAA Fisheries Interactive DMA Analyses: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

<sup>26</sup> Pendleton, D.E., Pershing, A., Brown, M.W., Mayo, C.A., Kanney, R.D., Record, N.R., and Cole, T.V.N., “Regional-scale mean copepod concentration indicates relative abundance of North Atlantic right whales,” *Marine Ecology Progress Series*, vol.

now heavily rely on the waters within, and in the vicinity of, the Project Area.<sup>27</sup> In January 2019, an aggregation representing a quarter of the population—100 whales—was seen in this area<sup>28</sup> engaged in both foraging and social activities, demonstrating that it is clearly more than just a migratory corridor.<sup>29</sup> As the Proposed IHA acknowledges, large seasonally consistent aggregations of North Atlantic right whales occur within or close to the Lease Areas from at least December through May, leading the area to be considered by scientists as a North Atlantic right whale “hotspot.”<sup>30</sup> North Atlantic right whales were observed feeding in the vicinity of the Lease Areas during the first half of May for the first time in 2017,<sup>31</sup> potentially indicative of a broader temporal shift in distribution resulting in right whales at greater densities off Rhode Island and Massachusetts later in the year, through May and into the summer months.<sup>32</sup> Pregnant females are known to travel through the area in November and December and females of reproductive age are also present in the area in February and March, with April appearing particularly important for mothers and calves.<sup>33</sup> Several scientific data sources demonstrate that right whales use these waters year-round.<sup>34</sup>

North Atlantic right whales select foraging areas based on a relatively high threshold of copepod density of approximately 3850-4000 organisms per cubic meter.<sup>35</sup> Notably, foraging areas with suitable prey density are limited relative to the overall distribution of North Atlantic right whales,<sup>36</sup> meaning that unrestricted and undisturbed access to suitable areas, when they exist, is extremely important for this species to maintain its energy budget. Scientific information on North Atlantic right whale functional ecology also shows that the species employs a “high-drag” foraging strategy that enables them to selectively target high-density prey patches, but is energetically expensive.<sup>37</sup> Thus, if access to prey is limited in any way, the ability of the whale to offset its energy expenditure during foraging is jeopardized. In fact, the authors of the study

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378, pp. 211-225 (2009); NOAA Northeast Fisheries Science Center, “Ecology of the Northeast US Continental Shelf – Zooplankton.” Available at: <https://www.nefsc.noaa.gov/ecosys/ecosystem-ecology/zooplankton.html>.

<sup>27</sup> Although there are challenges in the use of opportunistic sightings data (no area systematically surveyed, effort not corrected for, and potential for counting an individual whale more than once), they are a proxy for habitat used by North Atlantic right whales, as validated by NMFS’ management actions based on these data, including the implementation of DMAs.

<sup>28</sup> See

[https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28\\_voluntary\\_vessel\\_speed\\_restriction\\_zone\\_in\\_effect\\_south\\_of\\_nantucket\\_to\\_protect\\_right\\_whales.html](https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28_voluntary_vessel_speed_restriction_zone_in_effect_south_of_nantucket_to_protect_right_whales.html).

<sup>29</sup> 85 Fed. Reg. at 7956.

<sup>30</sup> 85 Fed. Reg. at 7956; see also Leiter, S.M., *et al.* 2017; Kraus *et al.* 2016.

<sup>31</sup> Quintana, E.

<sup>32</sup> Davis, G.E., *et al.*

<sup>33</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>34</sup> Kraus, S.D., *et al.*; Davis, G.E., *et al.*; NOAA Fisheries Interactive DMA Analyses.

<sup>35</sup> Personal communication from Dr. Charles “Stormy” Mayo, Senior Scientist, Director of Right Whale Habitat Studies, and Senior Advisor of the Disentanglement Program, Center for Coastal Studies, Provincetown, MA, to William Rossiter, Vice President, NY4WHALES, May 13, 2013.

<sup>36</sup> *Id.*

<sup>37</sup> Van der Hoop, J., Nousek-McGregor, A.E., Nowacek, D.P., Parks, S.E., Tyack, P., and Madsen, P., “Foraging rates of ram-filtering North Atlantic right whales,” *Functional Ecology*, published online May 11, 2019.

conclude: “Our findings highlight that right whales acquire their energy in a relatively short period of intense foraging; even moderate changes in their feeding behavior or their prey energy density are likely to negatively impact their yearly energy budgets and therefore reduce fitness substantially.” North Atlantic right whales are already experiencing significant food-stress; thus, the protection of North Atlantic right whales during foraging, and the protection of their foraging habitat, must be one of NMFS’ utmost priorities.

North Atlantic right whales also occur in the waters off New York year-round at varying densities.<sup>38</sup> Long-term (2004-2014) and short-term (2008-2009) passive acoustic monitoring data demonstrate North Atlantic right whales maintain a high level of presence off New York through the winter and into March and April, before shifting further offshore and northwards in May.<sup>39</sup> A higher expected density of North Atlantic right whales off New York is reflected by the dates of the NMFS’ Seasonal Management Areas (“SMAs”) for New York Harbor and adjacent waters to east of Long Island extending to Block Island, which are in place from November 1 through April 30.<sup>40</sup> In the New York Bight, an extensive database of whale occurrence 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>41</sup> however, elevated densities are still expected for May.<sup>42</sup>

The best available scientific information therefore demonstrates that November 1 through May 14 in the Lease Areas and northern corridors, and November 1 through April 30 in the waters off New York (the other potential corridor), represents the time of highest risk to North Atlantic right whales. These dates are based on times of highest relative density of animals during their migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present.<sup>43</sup> That said, given that North Atlantic right whales are detected year-round within the Project area, there is a clear need for strong and effective mitigation measures to be in place year-round.

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<sup>38</sup> Davis, G.E., *et al.*, *supra* note 23; 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); Dr. C. Good *pers. comm.* to Dr. F. Kershaw, March 12, 2018.

<sup>39</sup> Davis, G.E., *et al.*; Muirhead, C.A., *et al.*, *id.*

<sup>40</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales.” Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

<sup>41</sup> Data sources: Halpin, P. N., Read, A. J., Fujioka, E., Best, B. D., Donnelly, B., Hazen, L. J., ... Hyrenbach, K.D., “OBIS-SEAMAP: The world data center for marine mammal, sea bird, and sea turtle distributions,” *Oceanography*, vol. 22, pp. 104-115 (2009); Conserve Wildlife Foundation of New Jersey (on behalf of the New Jersey Division of Fish and Game Endangered and Nongame Species Program).

<sup>42</sup> Davis, G.E., *et al.*; Muirhead, C.A., *et al.*

<sup>43</sup> Over a dozen wildlife conservation organizations recently endorsed a suite of Best Management Practices (“BMPs”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. The BMPs include criteria to define times of highest risk to North Atlantic right whales. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Available at: <https://www.nrdc.org/resources/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy>.

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT

- A. To fulfill its statutory requirements to consider the best scientific information available, NMFS must analyze all data sources when calculating densities of marine mammals, including the North Atlantic right whale*

NMFS must base its IHA analysis on the best available scientific information to comply with statutory requirements of the MMPA.<sup>44</sup> Here, 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 produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts et al. 2016, 2017, 2018).<sup>45</sup> While the Proposed IHA notes that this model has been updated to incorporate additional data sources and two more years of data,<sup>46</sup> it still excludes data obtained through additional sightings databases, passive acoustic monitoring, and satellite telemetry. It is our view that the density maps produced by this model do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast and therefore should not be the only information source relied upon when estimating take.

Integration of opportunistic sightings data and other sources of data that collect fine-scale information on factors driving marine mammal distribution with those gathered through systematic broad-scale surveys would better reflect current marine mammal presence, abundance, and density off Massachusetts, Rhode Island, Connecticut, and New York, and provide a more accurate assessment of Level B take. **It should be NMFS’ top priority to consider any initial data from State monitoring efforts,<sup>47</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources. Further, NMFS should take steps now to develop a dataset (see also recommendations in Section III.A.) that more accurately reflects marine mammal presence so that it is in hand for future IHA authorizations and other work.**

- B. NMFS should establish conservative take numbers for endangered North Atlantic whales*

Given the new propagation model Vineyard Wind proposes to estimate Level A and B takes, we urge NMFS to be conservative in its estimates. We appreciate the agency’s thoughtful consideration of Vineyard Wind’s new model,<sup>48</sup> and share NMFS’s concerns relevant to demarcating continuous from impulsive noise. As noted by NMFS in the Proposed IHA:

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<sup>44</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>45</sup> 85 Fed. Reg. at 7969; see also 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>46</sup> 85 Fed. Reg. at 7969.

<sup>47</sup> See, e.g., <http://www.masscec.com/offshore-wind-marine-wildlife-surveys>.

<sup>48</sup> 85 Fed. Reg. at 7967.

As part of this model, sources that operate with a repetition rate greater than 10 Hz were assessed with the non-impulsive source criteria while sources with a repetition rate equal to or less than 10 Hz were assessed with the impulsive source criteria. Under this system all HRG sources would be classified as impulsive. NMFS does not agree with the classification of all HRG sources as impulsive. The use of the 10 Hz repetition rate would be precedent-setting and NMFS believes that this issue requires further evaluation. However, NMFS opted to include the modeled Level A distances in the proposed IHA, since classification of all HRG sources as impulsive results in more conservative Level A harassment isopleths.<sup>49</sup>

While it appears that the agency's application of the new model to Level A take estimates – of which none are anticipated or proposed for authorization – may be a more conservative approach to Level A take estimates, we appreciate that NMFS has decided not to use Vineyard Wind's model for Level B takes.

Regarding the Level B takes proposed in the IHA, we share NMFS' concerns: limiting Level B of North Atlantic right whales is absolutely necessary given the species' dire conservation status; however, in the model above we dispute the level of confidence it placed on the effectiveness of the proposed mitigation measures. Our reasons include: (i) the agency's reliance on a 160 dB threshold for behavioral harassment that is not supported by the best available scientific information in other low- to mid-frequency sources<sup>50</sup> (demonstrating Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold); (ii) the geographic and temporal extent, as well as the 24-hour nature of the survey activities proposed to be authorized; and (iii) the unjustified reliance on the assumption that marine mammals will avoid sound<sup>51</sup> despite studies that have found avoidance behavior is not generalizable among species and contexts.<sup>52</sup> Further, avoidance itself may constitute a take under the MMPA. **Collectively, the agency's assumptions regarding mitigation effectiveness are unfounded and cannot be used to justify any reduction in the number of takes authorized.**

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<sup>49</sup> 85 Fed. Reg. at 7968.

<sup>50</sup> See, e.g., Nowacek, D.P., Johnson, M.P., and Tyack, P.L., "Right whales ignore ships but respond to alarm stimuli," *Proceedings of the Royal Society of London, Pt. B: Biological Sciences* 271: 227-231 (2004); Kastelein, R.A., Steen, N., Gransier, R., and de Jong, C.A.F., "Threshold received sound pressure levels of single 1-2 kHz and 6-7 kHz up-sweeps and down-sweeps causing startle responses in a harbor porpoise (*Phocoena phocoena*)," *Journal of the Acoustical Society of America*, vol. 131, pp. 2325-2333 (2012); Kastelein, R.A., van den Belt, I., Gransier, R., and Johansson, T., "Behavioral response of a harbor porpoise (*Phocoena phocoena*) to 25.5- to 24.5-kHz sonar down-sweeps with and without side bands," *Aquatic Mammals*, vol. 41, pp. 400-411 (2015).

<sup>51</sup> See, e.g., 85 Fed. Reg. at 7964.

<sup>52</sup> Miller, P.J.O., Johnson, M.P., Madsen, P.T., Biassoni, N., Quero, M. and Tyack, P.L., "Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico," *Deep-Sea Research I*, vol. 56, pp. 1168-1181 (2009); Pirodda, E., Milor, R., Quick, N., Moretti, D., Di Marzio, N., Tyack, P., Boyd, I., and Hastie, G., "Vessel noise affects beaked whale behavior: Results of a dedicated acoustic response study," *PLoS ONE*, vol. 7, art. e42535 (2012).

*C. Any IHA extension does not comport with the plain language of the statute*

NMFS, again, requests comment on the potential one-year renewal of this Proposed IHA on a case-by-case basis for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.<sup>53</sup>

For several reasons, our organizations have opposed this process as contrary to law. First, NMFS' proposal to provide one-year renewals does not comport with the plain language of the statute. Section 101(a)(D)(i) unambiguously states that incidental harassment authorizations are valid for periods of not more than one year.<sup>54</sup> Second, the statute is clear on its face that a 30 day comment period is required in all instances. An agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>55</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency's implementation of the IHA process stating: "As approved by the Committee, the [MMPA] involves a number of basic concepts," one being that "the public is invited and encouraged to participate fully in the agency decision-making process."<sup>56</sup> When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."<sup>57</sup> Third, the legislative history removes any doubt that this 30 day comment period applies even in cases where the application extends the IHA for another year without change.<sup>58</sup>

In our view, the agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy, or on a permit-by-permit basis as it purports to do here.<sup>59</sup> Moreover, NMFS has not supplied a sufficient explanation for why it might assert that the statutory language of sec. 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute's objectives.<sup>60</sup>

Should the agency wish to establish its new IHA renewal process as a reasonable interpretation of an ambiguous statutory provision, it should do so through notice-and-comment rulemaking or comparable process with the appropriate indicia of formality. In so doing, NMFS must also explain why applicants whose activities may result in the incidental harassment of marine mammals over more than one year should not be required to apply for authorization to do so

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<sup>53</sup> 85 Fed. Reg. at 7952.

<sup>54</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>55</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>56</sup> H.R. Rep. No. 92-707, at 4151 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151.

<sup>57</sup> *Id.* at 4146.

<sup>58</sup> H.R. Rep. No. 103-439, at 29 (1994).

<sup>59</sup> *See Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 842–43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.").

<sup>60</sup> *See Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a "'reasonable' explanation of how an agency's interpretation serves the statute's objectives is the stuff of which a 'permissible' construction is made").



through the incidental take regulation procedure established by sec. 101(a)(5)(A)(i), which provides for authorizing incidental take during periods of “*not more than five consecutive years each.*”<sup>61</sup> Where Congress established clear and distinct statutory processes for authorizing incidental take via harassment for one-year periods versus periods extending more than one year and up to five years, NMFS must justify how its proposed unlawful hybrid administrative extension process, with a curtailed comment period, is consistent with both statutorily-established processes.

Finally, NMFS’ recently posted language about Incidental Harassment Authorization Renewals on its website<sup>62</sup> does not provide a clear and legally adequate justification for its purported new reauthorization process especially in light of the burden the foreshortened comment period places on interested members of the public to review and formulate comments, all within 15 calendar days. As NMFS apparently intends the new reauthorization process to become the rule rather than the exception,<sup>63</sup> it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing “take” by incidental harassment under the general authorization provision of the MMPA, NMFS 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.”<sup>64</sup> In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA, as well as the risks posed to the North Atlantic right whale and other endangered and/or strategic marine mammal stocks by the site assessment and characterization activities outlined in the Proposed IHA, NMFS has an obligation to impose robust avoidance, minimization, mitigation, and monitoring requirements to protect these species to the maximum extent practicable.

The best scientific and commercial data available shows that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging behavior may lead to population-level effects and is of critical concern.<sup>65</sup> As such, **the agency must carefully analyze the cumulative impacts from the proposed survey activities and other survey activities contemplated in the other lease areas on the North Atlantic right whale and other protected species.**

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<sup>61</sup> 16 U.S.C. § 1371(a)(5)(A)(i) (emphasis added). *See also id.* at § 1371(a)(5)(A)(i)(I) (negligible impact finding must evaluate total of such taking “during each five-year (*or less*) period concerned”) (emphasis added).

<sup>62</sup> *See* <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>63</sup> Beginning on March 7, 2019, NMFS has issued notice of this new reauthorization process for a multitude of permits. *See, e.g.*, 84 Fed. Reg. 8312 (Mar. 7, 2019); 84 Fed. Reg. 8316 (Mar. 7, 2019); 84 Fed. Reg. 11,508 (Mar. 27, 2019); 84 Fed. Reg. 13,246 (Apr. 4, 2019); 84 Fed. Reg. 14,200 (Apr. 9, 2019); 84 Fed. Reg. 15,598 (Apr. 16, 2019); 84 Fed. Reg. 17,384 (Apr. 25, 2019); 84 Fed. Reg. 17,784 (Apr. 26, 2019); 84 Fed. Reg. 17,788 (Apr. 26, 2019); 84 Fed. Reg. 18,346 (Apr. 30, 2019); 84 Fed. Reg. 18,495 (May 1, 2019); 84 Fed. Reg. 18,801 (May 2, 2019); 84 Fed. Reg. 18,809 (May 2, 2019); 84 Fed. Reg. 20,336 (May 9, 2019).

<sup>64</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

<sup>65</sup> Van der Hoop, *et al.*

The implementation of a robust impact avoidance, minimization, mitigation, and monitoring protocol to prevent adverse impacts of the proposed survey activities is therefore essential and required by law. Our recommendations are below.

*A. Seasonal restriction on geophysical surveys in the Lease Areas between November 1, 2020 and May 14, 2021*

As described above (*see*, Section I.A.), NMFS is proposing to authorize geophysical surveys off Rhode Island, Massachusetts, Connecticut and New York at times when North Atlantic right whales are expected to be present at high densities and foraging (among other activities). The survey period is intended to commence April 1, 2020 and continue through March 31, 2021.<sup>66</sup> Surveys will be conducted 24-hours a day by up to eight survey vessels, for an estimated total of 736 vessel days.<sup>67</sup>

NMFS has an obligation to use the best available scientific information, which includes standardized survey data as passive acoustic and opportunistic detections. As such, NMFS must incorporate all currently available information to elucidate and balance the relative risks to these species, for which there is relatively limited data. Therefore, NMFS should: 1) fund analyses of recently collected sighting and acoustic data for all data-holders; and 2) continue to fund and expand surveys and studies to improve our understanding of distribution and habitat use of marine mammals across this region, including the Lease Areas. Only then can the most effective seasonal restrictions and mitigation measures be considered in a year-round context. In the absence of such information, the agency should, as noted above, apply precautionary measures for the time-period proposed (*i.e.*, November 1 to May 14), which is based on the best available scientific information.

Time and area restrictions are the most effective 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>68</sup> While we appreciate that the Proposed IHA limits HRG survey activities in the Cape Cod Bay SMA and Off Race Point SMA to the months of August and September to account for known seasonal aggregations<sup>69</sup> in designated North Atlantic right whale critical habitat, this restriction is not protective enough.

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<sup>66</sup> 85 Fed. Reg. at 7953.

<sup>67</sup> *Id.*

<sup>68</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>69</sup> 85 Fed. Reg. at 7971.

**Consistent with right whales' use of the Lease Areas, as well the scale and cumulative acoustic impact of the intensive survey activity proposed (by Vineyard Wind and other developers), NMFS should prohibit all survey activities with the potential to injure or harass North Atlantic right whales (*i.e.*, source level >180 dB re 1 uPa at 1 meter frequencies between 7 and 35 kHz)<sup>70</sup> between November 1<sup>st</sup> and May 14.<sup>th</sup>** These dates currently reflect both the best available science on the relative density of North Atlantic right whales in Southern New England (recognizing that individuals of this species could be present in each month of the year; *see* Section I.C), and the fact that the species is increasingly reliant on this area year round as foraging habitat. These dates should be reviewed annually and revised as necessary to reflect the best available scientific information.

Further, while existing and potential stressors to the North Atlantic right whale must be minimized to promote the survival and recovery of the species, the agency must also address potential impacts to other endangered and protected whale species, particularly in light of the UMEs declared for right whales, humpback whales and minke whales,<sup>71</sup> as well as the several strategic and/or depleted stocks that inhabit the region (*see* Sections I.B. through I.D.). 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. While we acknowledge and appreciate that the Proposed IHA limits the number of survey vessels operating concurrently to no more than three vessels in select areas between March and June when North Atlantic right whale densities are expected to be elevated,<sup>72</sup> the Seasonally Restricted Areas proposed do not encompass the full time period when, according to best available science, North Atlantic right whales are likely to be present in the area. As discussed above (*see* Section I.C), November 1<sup>st</sup> through at least May 14<sup>th</sup> represents the period of highest risk to North Atlantic right whales in or near the Lease Areas, critical months remain without seasonal protections. While NMFS insists that “any displacement of whales from the BIA [Biologically Important Area] or interruption of foraging bouts would be expected to be temporary in nature. Therefore, we do not expect whales with feeding BIAs to be negatively impacted by the proposed survey”; the operation of up to eight survey vessels at any one time presents a significant potential for cumulative disturbance during the foraging period.<sup>73</sup>

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

Vineyard Wind proposes HRG survey activities south of Cape Cod conducted continuously 24 hours per day for up to 365 calendar days, with as many as 8 survey vessels operating

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<sup>70</sup> As previously noted, the best available science on other low- to mid-frequency sources (*e.g.*, Nowacek et al. 2004, Kastelein et al. 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

<sup>71</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 15; NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 16; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 16.

<sup>72</sup> 85 Fed. Reg. at 7972.

<sup>73</sup> 85 Fed. Reg. at 7975.

concurrently using several different equipment types that have the potential to harass marine species.<sup>74</sup>

**In our view, geophysical surveys should only commence, with ramp-up, during daylight hours of adequate visibility<sup>75</sup> to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone.** If the exclusion zone is clear, we do not oppose the survey continuing into nighttime hours. However, if the survey is shut down for any reason, developers should be required to wait until daylight hours and good visibility for ramp-up to resume. **Furthermore, as PSOs are unable to visually monitor the exclusion area during nighttime hours, NMFS must require, for efforts that continue into the nighttime, a combination of night-vision, thermal imaging, and passive acoustic monitoring.**

We note that the effectiveness of night vision and infrared 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. Infrared 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>76</sup> However, the application of infrared 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.

The agency should review and approve night vision and infrared equipment prior to reliance on this untested technology to reduce survey risk. In doing so, 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 exclusion zones, in the geographic region in question, and for all relevant endangered and protected species. The reduced temperature differential between whale blow and the surrounding water expected for to occur in the survey area, particularly during the spring and summer, in contrast to the far cooler high-latitude waters, is likely to negatively impact the detection effectiveness of infrared.<sup>77</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>78</sup> both species of concern in light of the current UMEs declared for the Atlantic coast. Further, NMFS should encourage developers to partner with scientists and collect data that increases our understanding of the effectiveness of night vision and infrared technologies off the

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<sup>74</sup> 85 Fed. Reg. at 7954.

<sup>75</sup> Adequate visibility should be determined by the lead PSO based on standardized environmental parameters (e.g., visibility, glare, sea state, wind speed).

<sup>76</sup> Lathlean, J. and Seuront, L., "Infra-red thermography in marine ecology: methods, previous applications and future challenges," *Marine Ecology Progress Series*, vol. 514, p. 263-277 (2014).

<sup>77</sup> *Id.* Cuyler, L.C., Wiulsrød, R., and Øritsland, N.A., "Thermal IR Radiation from Free Living Whales," *Marine Mammal Science*, vol. 8, p. 120-134 (1992).

<sup>78</sup> Cuyler, L.C., et al., *supra* note 76.

Project Area, with a view towards greater reliance on these technologies to commence surveys during nighttime hours in the future.

Without verified means of monitoring through night-vision and/or thermal imaging, NMFS' lack of a requirement to use passive acoustic monitoring during surveys is particularly concerning. **Vineyard Wind has committed to employ passive acoustic monitoring during nighttime operations during select times of the year when North Atlantic right whale presence is expected to be high.<sup>79</sup> This technology should be adopted for all times of HRG effort -- not only nighttime hours -- to maximize the probability of detection for North Atlantic right whales.<sup>80</sup>** Further, it is essential that passive acoustic monitoring not be used as the sole detection measure, as many right whales traveling with calves do not vocalize. PSO use is therefore key to proper detection; for this reason, restarting operations in the night or at times of poor visibility is an unacceptable risk to the species' health.

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

The Proposed IHA establishes a marine mammal exclusion zone around HRG equipment and monitored by PSOs during HRG surveys as follows: 500 m exclusion zone for North Atlantic right whales; and 100 m exclusion zone for other marine mammals, including large whales (except North Atlantic right whales).<sup>81</sup> However, the definition of exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (*i.e.*, received level <160 dB).<sup>82</sup> Neither of these exclusion zones are protective enough.

Specifically, any potential harassment of the North Atlantic right whale is a significant concern and a 500 m exclusion zone is simply not sufficient. **NMFS must require use of monitoring practices that ensure a 500 m exclusion zone 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 should, to the extent feasible, monitor beyond the minimum 500 m exclusion zone to an extended 1,000 m exclusion zone for North Atlantic right whales.**<sup>83</sup> Exclusion zones should also be expanded beyond minimum distances if sound source validation data support such extensions.

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<sup>79</sup> Seasonal operating locations and times can be found at 85 Fed. Reg. at 7972, 7973.

<sup>80</sup> 85 Fed. Reg. at 7973.

<sup>81</sup> 85 Fed. Reg. at 7971, 7972.

<sup>82</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>83</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*

The Proposed IHA notes that NMFS only requires a single PSO on duty during daylight hours and 30 minutes prior to and during nighttime ramp-ups for HRG surveys<sup>84</sup> but, that, Vineyard Wind has “voluntarily proposed that a minimum of two (2) NMFS-approved PSOs must be on duty and conducting visual observations on all survey vessels at all times when HRG equipment is in use.”<sup>85</sup> The additional observer is necessary, however, the proposal remains insufficient because the ability to detect marine mammals is highly dependent on the species and behavior, and experts recommend a combination of monitoring methods be employed to maximize detectability,<sup>86</sup> including passive acoustic monitoring.

Visual observations are not enough. In addition to sighting condition limitations discussed below, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood that they would be detected by PSOs and therefore often go undetected by observers. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay,<sup>87</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>88</sup> Aerial surveys were found to detect North Atlantic right whales on only two-thirds of the days they were acoustically detected in Cape Cod Bay, Massachusetts, from 2001 to 2005.<sup>89</sup> Additionally, there is evidence that North Atlantic 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>90</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>91</sup>

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<sup>84</sup> 85 Fed. Reg. at 7971.

<sup>85</sup> *Id.*

<sup>86</sup> See, e.g., Verfuss, U.K., Gillespie, D., Gordon, J., Marques, T.A., Millr, 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, p.1-18 (2018).

<sup>87</sup> Morano, J.L., Rice, A.N., Tielens, J.T., Estabrook, B.J., Marray, A., Roberts, A.L., and Clarkm C.W., “Acoustically detected year-round presence of right whales in an urbanized migration corridor.” *Conservation Biology*, vol. 26, p. 698-707 (2012).

<sup>88</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, p. 129-138 (1986); Pittman, S.J., Kot, C., Kenney, R.D., Costa, B., and Wiley, D., “Cetacean distribution and diversity.” In: Battista T., Clark R., Pittman S.(eds) *An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment*, p.264-324 (2006).

<sup>89</sup> Clark, C.W., Brown, M.W., and Corkeron, P., “Visual and acoustic surveys for North Atlantic right whales, *Eubalaena glacialis*, in Cape Cod Bay, Massachusetts, 2001-2005: Management Implications.” *Marine Mammal Science*, vol. 26, p. 837-854 (2010).

<sup>90</sup> Nowacek, D.P., Johnson, M.P., and Tyack, P.L., “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli.” *Proceedings: Biological Sciences*, vol. 271, p. 227-231 (2004).

<sup>91</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, p. 143-160 (2013).

There are sighting condition limitations. 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>92</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>93</sup> In line with Barlow (2015),<sup>94</sup> 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>95</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. Based on the data collected by the National Buoy Data Center (*see* Table 1),<sup>96</sup> a monthly average Beaufort Sea state of 3 or 4 can be expected in close vicinity to the Lease Area, year-round, with the highest sea states from September to April. This is a salient consideration in the evaluation of whether a species can be adequately protected by species observers alone, given the moderate Beaufort Sea states in the vicinity of the Lease Areas during the months when the proposed surveys would take place.

Given these data, observers alone are certain to underestimate the number of large whales in the mitigation area based on sea state. From the findings of Baumgartner *et al.* (2003),<sup>97</sup> we would expect a reduction in 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 North Atlantic 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.

*Table 1. Monthly average wave height for 2018 and corresponding Beaufort Sea State recorded at NOAA National Data Buoy Station 44097 – Block Island, RI (154). Data source: NOAA National Data Buoy Center (Accessed: Aug 22, 2019).*

Month	Wave Height (m)	Beaufort Sea State
January	1.9	4
February	1.5	4
March	2.1	5
April	1.6	4

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<sup>92</sup> Barlow, J., “Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions,” *Marine Mammal Science*, vol. 31, p. 923-943 (2015).

<sup>93</sup> Baumgartner, M.F., Cole, T.V.N., Clapham, P.J., and Mate, B.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, p. 137-154 (2003).

<sup>94</sup> Barlow, J., “Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions,” *supra* note 86.

<sup>95</sup> *Id.*

<sup>96</sup> NOAA-NWS, “National Data Buoy Center.” Available at: <http://www.ndbc.noaa.gov/>.

<sup>97</sup> Baumgartner, M.F., *et al.*

May	1.1	3	
June	0.9	3	
July	1.1	3	
August	0.9	3	
September	1.3	4	
October		1.6	4
November	1.9	4	
December	1.5	4	

Thus, reliance on a single PSO as the sole monitoring method during daylight hours would be under-protective. We urge NMFS to **require a shift schedule of the NMFS-approved PSOs aboard the survey vessel** with a minimum of four PSOs that follow a two-on two-off rotation, each responsible for scanning no more than 180° of the exclusion zone at any given time.

**In addition to the visual monitoring by multiple PSOs discussed above, proposed mitigation should include passive acoustic monitoring implemented 24 hours a day.** Research has demonstrated that passive acoustic monitoring can provide a two- to ten-fold increase in the number of days that right whales are detected relative to visual methodologies.<sup>98</sup> The passive acoustic protocol should be designed so the hydrophone is not masked by vessel or survey noise. We also support the inclusion of both broadband and low frequency hydrophones, which will serve to ensure that North Atlantic right whale vocalizations, as well as those of other low- and mid-frequency vocalizing species, can be detected. However, it should be noted that passive acoustic monitoring without visual observers would also be insufficient as cow-calf pairs often do not vocalize to avoid predators.

**Finally, we support the IHA's requirement for a 30-minute pre-clearance period and to immediately shut down survey activity upon the visual observation of a North Atlantic right whale.**

#### *E. Vessel strike measures*

The Proposed IHA acknowledges that vessel strikes can kill animals, that speed is a factor, and that North Atlantic right whales are particularly vulnerable because they are “generally unresponsive to vessel sound” and “more susceptible to vessel collisions,” yet it only discusses the impacts of the survey vessels traveling at speeds less than 4 knots.<sup>99</sup> This ignores the impacts of all other project vessels operating in the Project Area on right whales. While we appreciate that the Proposed IHA expressly requires all vessels to observe a 10-knot speed restriction if NMFS has designated an SMAs or DMAs, the proposed measure would allow project vessels to

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<sup>98</sup> Soldevilla, M.S., Rice, A.N., Clark, C.W., and Garrison, L. P., “Passive acoustic monitoring on the North Atlantic right whale calving grounds,” *Endangered Species Research*, vol. 25, pp. 115–140 (2014).

<sup>99</sup> 85 Fed. Reg. at 7965-7966.



travel at speeds greater than 10 knots at all other times, unless a right whale is actually observed within 100 meters.<sup>100</sup> This is insufficient.

**Vessel collisions remain one of the leading causes of large whale injury and mortality and are a primary driver of the existing UMEs.** Serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length.<sup>101</sup> The number of recorded vessel collisions on large whales each year is likely to grossly underestimate the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted for.<sup>102</sup> North Atlantic 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>103</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>104</sup> It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. The agency has a responsibility to implement mitigation measures to prevent any further vessel collisions for other species of large whale currently experiencing an UME (*i.e.*, humpback whales and minke whales), as well as other species such as fin whales, which, in light of the broad distributional shifts observed for multiple species, may be at potential future risk of experiencing an UME.

As noted in the Proposed IHA, studies indicate that noise can induce flight responses, behavioral disturbances, habitat avoidance, and stress responses which reduce feeding rates and reproductive success.<sup>105</sup> Because of the noise, HRG surveys could also cause horizontal displacement<sup>106</sup> and push a North Atlantic right whale out of a protected area (SMA or DMA) into an area where vessels are traveling at greater speed, presenting an even greater danger of vessel collision. Thus, habitat displacement produces an indirect ship strike risk that also must be accounted for in NMFS' analysis.

Given the dire status of right whales and the importance of the Project Area as foraging habitat, at a minimum, all project vessels (regardless of size) either transiting to/from or operating within the Project Area should observe a 10 knot speed restriction during times when mother-calf pairs, pregnant females, surface active groups, or aggregations of three or more whales are confirmed, or expected based on multi-year sightings data, to be in the area. **Vessels should only be**

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<sup>100</sup> 85 Fed. Reg. 7972.

<sup>101</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales," *supra* note 40. To reflect the risk posed by vessels of any length, the Commonwealth of Massachusetts established a mandatory vessel speed restriction for all vessels (including under 20 meters) in the Cape Cod Bay SMA.

<sup>102</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, p. 57-60 (2011).

<sup>103</sup> NMFS, "Recovery plan for the North Atlantic right whale" (August 2004).

<sup>104</sup> Nowacek, D.P., et al., *supra* note 956.

<sup>105</sup> 85 Fed. Reg. 7964.

<sup>106</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).

**permitted to exceed 10 knots if multiple additional monitoring measures are in place, including aerial surveys or a combination of vessel-based visual observers and passive acoustic monitoring.**

#### IV. CONCLUSION

Thank you for considering our comments. For the reasons stated above, our organizations urge NMFS to revise its analysis for the Final IHA and to comply with its statutory obligations. We again request the opportunity to meet with you, and your staff, to discuss these matters.

Sincerely,

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**Re: Comments on Draft Incidental Harassment Authorization for Offshore Wind Construction in the OCS-A-0497 Lease Area and the Coastal Waters off Virginia**

Ms. Harrison,

The Southern Environmental Law Center (“SEL”) submits these comments on behalf of Natural Resources Defense Council, National Wildlife Federation, Conservation Law Foundation, Defenders of Wildlife, Whale and Dolphin Conservation, Surfrider Foundation, Sierra Club Virginia Chapter, Assateague Coastal Trust, NY4WHALES, Inland Ocean Coalition, and Ocean Conservation Research, in response to the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“IHA”) to Dominion Energy Virginia (“Dominion”), for offshore wind construction activities off the coast of Virginia, in the area of Research Lease of Submerged Lands for Renewable Energy Activities on the Outer Continental Shelf (OCS-A-0497) (“the Lease Area”) and along a submarine “cable corridor” to a landfall location in Virginia (collectively termed “Project Area”), in support of the Coastal Virginia Offshore Wind Project (“CVOW project” or “the Project”).<sup>1</sup>

The CVOW project calls for installation of two 6-megawatt wind turbines within the 2,135-acre Lease Area, which lies 27 miles off the coast of Virginia Beach. Dominion has contracted with Ørsted for turbine construction, which is expected to occur over two days between May and October 2020. Dominion also proposes to perform cable-lay and high resolution geophysical (“HRG”) survey activities along the 27-mile cable corridor between the Lease Area and the coast of Virginia. These activities could occur for up to three months over the same time period. In addition to providing electricity to the state of Virginia, the Project will inform plans for a large-scale commercial offshore wind farm in the adjacent Virginia Wind Energy Area that is also leased by Dominion. This 2,640-megawatt commercial-scale project will provide enough electricity to power up to 650,000 Virginia homes once completed in 2026.<sup>2</sup>

<sup>1</sup> 85 Fed. Reg. 14901 (Mar. 16, 2020).

<sup>2</sup> *Coastal Virginia Offshore Wind*, DOMINION ENERGY (last visited Apr. 12, 2020), <https://www.dominionenergy.com/company/making-energy/renewable-generation/wind/coastal-virginia-offshore-wind>.

This is an exciting moment for offshore wind in Virginia, and we recognize and celebrate the contribution that Dominion's wind projects could make in providing clean energy for the state and region. We applaud the steps Virginia is taking to address climate change and to support offshore wind and clean energy development. It is our view that, as offshore wind energy projects like this one move forward, they must do so in an environmentally responsible manner, safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters off the coast of Virginia represent an area of important marine mammal habitat.

The CVOW project will be groundbreaking, as the first fully permitted offshore wind project in federal waters on the outer continental shelf. This is an important step towards achieving the clean energy goals established by the state and region. As offshore wind development is a nascent industry in the United States, there is still much to learn about how it can be developed with appropriate mitigation measures to protect local wildlife. Given that pile driving associated with the installation of turbine foundations can produce large amounts of underwater noise, disrupting marine mammal communication and potentially driving marine mammals from areas critical to their feeding and migration, the agency must be especially careful to ensure that it is done with the utmost consideration for the health of marine mammals and their habitats. The protections established by the agency for this project are likely to set the standard for further offshore wind construction off the coast of Virginia, and along the Atlantic coast, in the years to come. The following comments are intended to support the advancement of offshore wind in a manner sustainable for marine wildlife, and particularly marine mammals.

Our organizations have a number of concerns pertinent to NMFS' "negligible impact" and "least practicable impact" analyses, and accordingly urge the agency to adopt the mitigation and monitoring requirements that will be necessary to ensure adequate protections for North Atlantic right whales and other priority species. As detailed in the comments below, we highlight the following inconsistencies between the Proposed IHA and the Marine Mammal Protection Act ("MMPA"):

- In determining take numbers, NMFS relies on incomplete estimates of marine mammal abundance, distribution, and density for the U.S. East Coast;
- NMFS underestimates take numbers of marine mammals based on unfounded assumptions regarding acoustic thresholds and effectiveness of mitigation and monitoring measures;
- NMFS incorrectly assumes that take will not occur from Dominion's proposed HRG survey, cable-lay, and vessel activities;
- NMFS proposes to consider extending any one-year IHA with a truncated 15-day comment period, which is plainly contrary to the MMPA; and
- NMFS proposes to require the use of critical noise attenuation measures at only one of Dominion's two turbines, an approach that does not meet the MMPA's "least practicable impact" standard.

We accordingly recommend the Proposed IHA be modified to include the following mitigation and monitoring measures:

- NMFS should require that all activities, including cable-lay and HRG survey activities, be completed between May and October 2020 due to increased presence of

the extremely vulnerable North Atlantic right whale from November 1 through April 30, and no extension of this time period should be allowed for any reason;

- HRG surveys with RMS sound pressure levels > 180 dB re 1 uPa at 1 meter for equipment that operates between 7 and 35 kHz should commence during daylight hours only, to maximize the probability that marine mammals are detected and confirmed clear of the exclusion zone;
- A combination of visual monitoring by observers and passive acoustic monitoring should be used at all times that pile-driving activity and survey work that meets the above criteria is underway, and this survey work should be shut down or delayed if a North Atlantic right whale is spotted within 1,000 meters from any of these sources;
- All project vessels operating within the Project Area, including survey and support vessels, should maintain a speed of 10 knots or less during the entire period covered by the IHA; and
- Noise attenuation should be required on both turbines in order to meet the MMPA's "least practicable impact" standard for mitigation.

## **I. BACKGROUND**

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

Congress enacted the 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."<sup>3</sup> 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."<sup>4</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>5</sup> 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.<sup>6</sup>

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.<sup>7</sup> 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."<sup>8</sup>

NMFS may grant exceptions to the take prohibition. Relevant here, the agency may authorize, for not more than 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

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<sup>3</sup> 16 U.S.C. § 1361(1).

<sup>4</sup> *Id.* § 1361(2); see also *Conservation Council for Haw. v. Nat'l Marine Fisheries Serv. (NMFS)*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>5</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

<sup>6</sup> 16 U.S.C. § 1361(1), (3).

<sup>7</sup> *Id.* §§ 1362(13), 1371(a).

<sup>8</sup> *Id.* § 1362(18)(A).

determines that such take would have only “a negligible impact on such species or stock.”<sup>9</sup> The agency must prescribe permissible methods of taking 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[.]”<sup>10</sup> NMFS must also establish monitoring and reporting requirements.<sup>11</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>12</sup>

## **B. Virginia’s Marine Mammals**

According to Dominion’s IHA Application, at least 33 marine mammal species are known to occur in the marine and coastal waters off Virginia, including seven large and 22 small cetaceans, and four pinnipeds.<sup>13</sup> Of these marine mammal species, five large cetaceans (fin, sei, blue, sperm, and North Atlantic right whales) are listed as endangered under the Endangered Species Act (“ESA”) and as depleted and strategic stocks under the MMPA. One small cetacean species, the false killer whale, is designated as a strategic stock under the MMPA, and the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin is designated as both a depleted and strategic stock under the MMPA. The various conservation statuses and seasonal presence of these species require particular consideration by NMFS when issuing an IHA to Dominion.

Despite what is presented in the following sections, data on seasonality and distribution of Virginia’s marine mammals, as well as those occupying the broader Mid-Atlantic region, are largely lacking when compared with other regions. As such, NMFS should take steps now to develop a dataset that more accurately reflects marine mammal presence so that it is in hand for future IHAs and other regulatory steps to advance offshore wind in the Mid-Atlantic. Specifically, we recommend that NMFS: 1) fund analyses of recently collected sighting and acoustic data for all data-holders; 2) continue to fund and expand surveys and studies to improve our understanding of distribution and habitat use of marine mammals off Virginia, including within and adjacent to the Project Area, as well as throughout the broader Mid-Atlantic region, in the very near future; and 3) take a “precautionary approach” with regard to siting and mitigation when permitting offshore wind activities in areas for which species distribution data are limited. Only then can the most accurate take numbers and most effective mitigation measures be established.

### **i. North Atlantic Right Whales**

As the agency is aware, the conservation status of the North Atlantic right whale is dire. Although the species has been listed as endangered since the 1970s, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial

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<sup>9</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>10</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>11</sup> *Id.* § 1371(a)(5)(D)(ii)(III).

<sup>12</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>13</sup> DOMINION ENERGY, *Coastal Virginia Offshore Wind (CVOW) Project: Request for the Incidental Harassment of Marine Mammals Incidental to Construction Activities on the Outer Continental Shelf (OCS) within Research Lease OCS-A 0497 and the Associated Export Cable Corridor*, submitted to NMFS (Aug. 30, 2019), available at <https://www.fisheries.noaa.gov/action/incidental-take-authorization-dominion-energy-virginia-offshore-wind-construction-activities> [hereinafter “Dominion IHA Application”], at Table 4-1.

fishing gear and ship strikes.<sup>14</sup> At least thirty whales are known to have been killed since 2017, and the population is now estimated at approximately 400 individuals.<sup>15</sup> Of these, only 95 are females of breeding age.<sup>16</sup> Females are more vulnerable than males to the lethal and sub-lethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.<sup>17</sup> In the wake of an alarming number of human-caused deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”) under the MMPA for all U.S. waters in which right whales occur,<sup>18</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect. The agency has also recently highlighted North Atlantic right whales as among the species most at risk of extinction in the near future.<sup>19</sup>

Since 2010, North Atlantic right whale distribution and habitat use has shifted in response to climate change-driven shifts in prey availability and favorable oceanographic conditions.<sup>20</sup> Monitoring indicates that such shifts are being observed throughout much of their range,<sup>21</sup> and observes right whales spending more time in the Mid-Atlantic year-round.<sup>22</sup> In addition, NARWs are now more widely distributed across all Atlantic coast regions throughout winter months.<sup>23</sup> With regard to the waters off Virginia in particular, a recent study detected North Atlantic right whales on approximately 10 percent of days throughout the year.<sup>24</sup> Further, National Oceanic and Atmospheric Administration data suggest that there is a seasonal hot spot of *Centropagidae* copepod density, which North Atlantic right whales feed on, off the coast of Virginia in the summer.<sup>25</sup> Scientists predict that further range shifts of this nature will occur as water temperatures continue to rise from climate change.<sup>26</sup>

While North Atlantic right whales are increasingly present within the Project Area year-round, they are most consistently present at their highest densities from November through April,

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<sup>14</sup> Richard M. Pace, III et al., *State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales*, ECOLOGY & EVOLUTION (Sept. 18, 2017).

<sup>15</sup> Heather Pettis et al., *North Atlantic Right Whale Consortium 2019 Annual Report Card*, N. ATL. RIGHT WHALE CONSORTIUM (Jan. 2020), <https://www.narwc.org/uploads/1/1/6/6/116623219/2019reportfinal.pdf>.

<sup>16</sup> Chris Oliver, *Immediate Action Needed to Save the North Atlantic Right Whales*, NMFS (Jul. 3, 2019), <https://www.fisheries.noaa.gov/leadership-message/immediate-action-needed-save-north-atlantic-right-whales>.

<sup>17</sup> Pace et al., *supra* note 14; Peter Corkeron et al., *The recovery of North Atlantic right whales, Eubalaena glacialis, has been constrained by human-caused mortality*, ROYAL SOC’Y OPEN SCI. (Nov. 7, 2018).

<sup>18</sup> *2017–2020 North Atlantic Right Whale Unusual Mortality Event*, NMFS (last visited Mar. 25, 2020), <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2020-north-atlantic-right-whale-unusual-mortality-event>.

<sup>19</sup> *Endangered Species Conservation: Species in the Spotlight*, NMFS (last visited Mar. 25, 2020), <https://www.fisheries.noaa.gov/topic/endangered-species-conservation#species-in-the-spotlight>.

<sup>20</sup> Nicholas R. Record et al., *Rapid climate-driven circulation changes threaten conservation of endangered North Atlantic right whales*, OCEANOGRAPHY (May 3, 2019).

<sup>21</sup> Erin L. Meyer-Gutbrod et al., *Marine species range shifts necessitate advanced policy planning: The case of the North Atlantic right whale*, OCEANOGRAPHY (Jun. 11, 2018).

<sup>22</sup> Genevieve E. Davis et al., *Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (Eubalaena glacialis) from 2004 to 2014*, NATURE SCI. REPORTS (Oct. 18, 2017).

<sup>23</sup> *Id.*

<sup>24</sup> Daniel P. Salisbury et al., *Right whale occurrence in the coastal waters of Virginia, U.S.A.: Endangered species presence in a rapidly developing energy market*, MARINE MAMMAL SCI. (Oct. 15, 2015).

<sup>25</sup> *Ecology of the Northeast US Continental Shelf: Zooplankton*, NAT’L OCEANIC AND ATMOSPHERIC ADMIN. (NOAA) (last visited Apr. 12, 2020), <https://www.nefsc.noaa.gov/ecosys/ecosystem-ecology/zooplankton.html>.

<sup>26</sup> Davis et al., *supra* note 22.

based on acoustic data<sup>27</sup> and aerial surveys.<sup>28</sup> This period captures both the southward migration from the species' northern feeding grounds to their southern calving grounds off the Carolinas, Georgia, and Florida in the fall and early winter, when pregnant females are likely to be traveling through the Lease Area, and the northward migration in the late winter and early spring, when mothers and calves are likely to be traveling through and adjacent to the Project Area. These months of elevated occurrence are supported by the period for which NMFS scientists have identified a Biologically Important Area ("BIA") for North Atlantic right whales.<sup>29</sup> This Migratory Corridor BIA covers important migratory habitat stretching from Cape Cod Bay in Massachusetts to off central Florida and extending from the coast past the continental shelf break.<sup>30</sup>

The best available scientific information therefore demonstrates that November 1 through April 30 represents the time period of highest risk to North Atlantic right whales off Virginia, based on times of highest relative density of animals and times when mother-calf pairs and pregnant females are expected to be present. That said, given that NMFS has determined the species cannot sustain the loss of a single individual, and that North Atlantic right whales are now detected during every month of the year in the Mid-Atlantic, there is a clear need for strong and effective mitigation measures to be in place for the CVOW project year-round.

The identification of this heightened seasonal occurrence and risk is also consistent with the Seasonal Management Area ("SMA"), which overlaps with part of the cable corridor and applies vessel speed limits to waters extending 37 kilometers offshore from the entrance of Chesapeake Bay from November 1 through April 30 for purposes of ship strike mitigation.<sup>31</sup> As discussed in more detail below (*see* Section II.C), North Atlantic right whales are particularly vulnerable to mortality from ship strikes. Moreover, some types of anthropogenic noise have been shown to induce near-surface positioning in North Atlantic right whales, increasing the risk of ship strike at relatively moderate levels of exposure. Anthropogenic noise also increases stress hormones in right whales, which can impact their ability to reproduce and impair their immune systems.<sup>32</sup> It is possible that HRG surveys could produce the same effects, and should therefore be given proper consideration by the agency.

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<sup>27</sup> *See id.*; *see also* Salisbury et al., *supra* note 24. There is some indication that right whale densities start to increase as early as October; however, the authors conclude that the November 1<sup>st</sup> through April 30<sup>th</sup> period is when the majority of right whales are present. Salisbury et al., *id.*

<sup>28</sup> Sarah D. Mallette et al., *Occurrence of Baleen Whales along the Continental Shelf Region of the VACAPES OPAREA off Southern Virginia: Final Report*, NAVAL FACILITIES ENG'G COMMAND (NAVFAC) (Jul. 2018), [https://www.navy-marinespeciesmonitoring.us/files/8415/3383/3682/Mallette\\_et\\_al.\\_2018\\_-\\_Occurrence\\_of\\_Baleen\\_Whales\\_along\\_the\\_Continental\\_Shelf\\_Region\\_of\\_the\\_VACAPES\\_OPAREA\\_off\\_southern\\_Virginia\\_-\\_Final\\_Report.pdf](https://www.navy-marinespeciesmonitoring.us/files/8415/3383/3682/Mallette_et_al._2018_-_Occurrence_of_Baleen_Whales_along_the_Continental_Shelf_Region_of_the_VACAPES_OPAREA_off_southern_Virginia_-_Final_Report.pdf) (finding that North Atlantic right whales were spotted during the winter and spring).

<sup>29</sup> Erin LaBrecque et al., *Biologically Important Areas for cetaceans within U.S. waters—East coast region*, AQUATIC MAMMALS (Mar. 2015).

<sup>30</sup> *Id.*

<sup>31</sup> *Reducing Ship Strikes to North Atlantic Right Whales*, NMFS (last visited Mar. 25, 2020), <https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales>.

<sup>32</sup> Rosalind M. Rolland et al., *Evidence that ship noise increases stress in right whales*. PROC. ROYAL SOC'Y B (Feb. 8, 2012).



ii. Other Large Whales

Nearshore Mid-Atlantic waters serve as an important migratory area for humpback and endangered fin whales, while more offshore waters are important migratory grounds for minke and endangered sei whales.<sup>33</sup> Humpback whales are increasingly sighted year-round in the waters off Virginia, and perhaps throughout the broader Mid-Atlantic region.<sup>34</sup> These waters, including those within the Lease Area and cable corridor, provide important seasonal foraging habitat for humpback whales.<sup>35</sup> Between-year sightings suggest that as many as 20 percent of identified juvenile humpback whales occur in a relatively small study area in consecutive years.<sup>36</sup>

While not currently listed as depleted,<sup>37</sup> ongoing UMEs exist for the Atlantic populations of minke whales (since January 2017) and humpback whales (since January 2016). Eighty-two (82) minke whales have stranded between Maine and South Carolina from January 2017 to March 2020.<sup>38</sup> Some necropsies have shown evidence of human interaction (*i.e.*, vessel strike and entanglement), though more research is needed to determine the official causes of the UME.<sup>39</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over three years, 120 mortalities have been recorded (data through March 25, 2020), with strandings occurring in every state along the East Coast.<sup>40</sup> Virginia is the state with the single highest number of reported humpback strandings in the UME, likely due in part to elevated occurrences of shipping traffic in the area.<sup>41</sup> Indeed, NMFS' most recent Marine Mammal Stock Assessment Report shows that the majority of reported serious injury and mortality in the region were a result of vessel strikes, underscoring

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<sup>33</sup> *Documenting Whale Migration off Virginia's Coast: Virginia CZM Cooperative Agreement with the Virginia Aquarium*, NOAA (2014), <https://www.midatlanticocean.org/wp-content/uploads/2013/11/documenting-whale-migration-off-virginias-coast.pdf>.

<sup>34</sup> Alyson Fleming & Jennifer Jackson, *Global Review of Humpback Whales* (Megaptera novaeangliae), NMFS (Mar. 2011), available at <https://repository.library.noaa.gov/view/noaa/4489>.

<sup>35</sup> Sarah D. Mallette et al., Seasonality and site-fidelity of humpback whales off the Mid-Atlantic region of the U.S. (2017) (poster presentation, Va. Aquarium & Marine Sci. Ctr. (VAMSC)), [https://www.navy-marine-species-monitoring.us/files/5115/1941/4653/Mallette\\_SMM\\_2017\\_poster.pdf](https://www.navy-marine-species-monitoring.us/files/5115/1941/4653/Mallette_SMM_2017_poster.pdf).

<sup>36</sup> *Id.*

<sup>37</sup> While humpback whales are not considered depleted or strategic under the MMPA, there is reason to believe that they should be. According to the agency's own draft of the most recent Marine Mammal Stock Assessment Report, "[t]here is mounting evidence that humpback whales have been over PBR [Potential Biological Removal] for some time, and likely will be formally determined to be so in a future report. This is further supported by the NMFS declaration of Unusual Mortality Event No. 63.7..." *Draft Marine Mammal Stock Assessment Reports: U.S. Atlantic and Gulf of Mexico* Draft Marine Mammal Stock Assessment, NMFS (last visited Apr. 13, 2020), available at <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports> [hereinafter "2019 Draft Marine Mammal Stock Assessment"], at 163.

<sup>38</sup> 2017–2020 Minke Whale Unusual Mortality Event along the Atlantic Coast, NMFS (last visited Mar. 25, 2020), <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2020-minke-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>39</sup> *Id.*

<sup>40</sup> 2016–2020 Humpback Whale Unusual Mortality Event Along the Atlantic Coast, NMFS (last visited Mar. 25, 2020), <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2020-humpback-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>41</sup> Jessica M. Aschettino et al., *Satellite telemetry reveals spatial overlap between vessel high-traffic areas and humpback whales* (Megaptera novaeangliae) near the mouth of the Chesapeake Bay, *FRONTIERS IN MARINE SCI.* (Mar. 12, 2020).

the risk of vessel traffic to humpback whales off the coast of Virginia.<sup>42</sup> The declaration of these two large whale UMEs by NMFS in the past few years, of which anthropogenic impacts may be a significant cause, demonstrates an increasing risk to large whales from human activities in this region, including those proposed by Dominion.

In addition to the threats posed to large whales by vessel traffic, HRG survey and construction activities associated with offshore wind construction may also impact large whales by elevating background sound levels. As Dominion's IHA Application notes, "the operating frequencies for all but [one HRG equipment type] are in the best hearing range for all marine mammal species that may potentially occur in the project area."<sup>43</sup> Elevated background noise can cause hearing damage, threshold shifts, masking, elevated stress, and behavioral disturbance in large whales, as documented in the Proposed IHA.<sup>44</sup> Important here, other migratory species have been known to avoid normal migratory paths when exposed to anthropogenic noise, leading to increased energy expenditure and potentially longer migratory times.<sup>45</sup> While the effects of pile driving for offshore wind construction on large cetaceans are not well understood, as these activities have been studied in Europe where large whales are not present, a precautionary approach should be taken given the well documented effects of other manmade sound sources on cetaceans.

### iii. Small Cetaceans

In addition to endangered large whales, two strategic stocks of small cetaceans—false killer whales and the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin—are found within the Project Area. While the Western North Atlantic stock of false killer whale was designated as strategic in 2014 because of mortality from fishery bycatch, no fishery-related mortality or serious injury has been observed in the last five years, and its strategic status is currently being proposed for removal.<sup>46</sup> The Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin is considered to be both strategic and depleted under the MMPA due to the number of annual human-caused mortalities and previous UMEs.<sup>47</sup>

NMFS has identified a number of additional small cetacean species that have the highest likelihood of occurring in the Project Area and are expected to potentially be taken by the proposed activities. These include Atlantic white-sided dolphins, common dolphins, Atlantic spotted dolphins, bottlenose dolphins, and harbor porpoises.<sup>48</sup> Scientific research indicates seasonal and/or year-round presence of these species during the Project period. During the warm summer months of June through August, bottlenose and Atlantic spotted dolphins are presumed to occupy coastal waters off Assateague, Virginia, including Chesapeake Bay.<sup>49</sup> From January

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<sup>42</sup> 2019 Draft Marine Mammal Stock Assessment, *supra* note 37, at 165-182.

<sup>43</sup> Dominion IHA Application, *supra* note 13, at 6.

<sup>44</sup> 85 Fed. Reg. at 14908-13.

<sup>45</sup> See Christos Kolliatsas et al., OFFSHORE RENEWABLE ENERGY: ACCELERATING THE DEPLOYMENT OF OFFSHORE WIND, TIDAL AND WAVE TECHNOLOGIES 128-29 (2012).

<sup>46</sup> 2019 Draft Marine Mammal Stock Assessment, *supra* note 37, at 275.

<sup>47</sup> Sean A. Hayes et al., *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2017*, NMFS (Sept. 2018), available at <https://repository.library.noaa.gov/view/noaa/22730>, at 110-24.

<sup>48</sup> 85 Fed. Reg. at Table 1.

<sup>49</sup> Hayes et al., *supra* note 47, at 111; Gordon T. Waring et al., *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2013*, NMFS (Jul. 2014), <https://repository.library.noaa.gov/view/noaa/4757>, at 166.

through May, low numbers of white-sided and common dolphins are found off Virginia and the Carolinas.<sup>50</sup> Passive acoustic monitoring regularly detects harbor porpoises from January through May off Maryland.<sup>51</sup>

Unlike for large whales, there is a significant amount of literature on the effects of pile driving for offshore wind development on small cetaceans. Pile-driving sound is directly radiated from the pile into the surrounding water, as well as through the seafloor. Sounds propagated through the seafloor may return to the water column, perhaps at considerable distances from the pile being driven. Pile driving during construction of wind turbines can generate sound that is detectable by small cetaceans up to 40 kilometers from the source.<sup>52</sup> Research has shown that pile-driving sounds may cause temporary threshold shifts of some small cetaceans.<sup>53</sup> Observed behavioral responses of harbor porpoises to pile driving include changes in swimming direction and/or speed, dive profiles, group movements, vocalizations, and respiration rates.<sup>54</sup> Studies during construction of wind farms in Europe have demonstrated significant avoidance of pile-driving activities by harbor porpoises as evidenced by a decrease in vocalizations and aerial sightings.<sup>55</sup> Research has also shown pile driving to cause substantial damage to the internal organs of fish, which may affect species that small cetaceans prey on.<sup>56</sup>

#### iv. Pinnipeds

Two pinniped species of conservation concern are also found off Virginia during the Project period: harbor and gray seals. While not listed under the ESA or MMPA, a UME has been declared for these and two other seal species across the Northeast, extending as far south as Virginia. Due to infectious disease, 3,152 strandings have occurred since July 2018, including

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<sup>50</sup> Hayes et al., *id.*, at 77, 86.

<sup>51</sup> Jessica E. Wingfield et al., *Year-round spatiotemporal distribution of harbor porpoises within and around the Maryland Wind Energy Area*, PLOS ONE (May 3, 2017).

<sup>52</sup> J.A. David, *Likely sensitivity of bottlenose dolphins to pile-driving noise*, WATER & ENV'T J. (Feb. 14, 2006).

<sup>53</sup> Ronald A. Kastelein et al., *Hearing frequency thresholds of harbor porpoises (Phocoena phocoena) temporarily affected by played back offshore pile driving sounds*, J. ACOUSTICAL SOC'Y AM. (Feb. 2015).

<sup>54</sup> Jonas Teilmann & Jacob Carstensen, *Negative long term effects on harbour porpoises from a large scale offshore wind farm in the Baltic—Evidence of slow recovery*, ENVTL. RES. LETTERS (Dec. 6, 2012); Debbie J.F. Russell et al., *Avoidance of wind farms by harbour seals is limited to pile driving activities*, J. APPLIED ECOLOGY (May 23, 2016); Jan Haelters et al., *Towards a numerical model to simulate the observed displacement of harbor porpoises Phocoena phocoena due to pile driving in Belgian waters*, HYDROBIOLOGIA (Aug. 2015); Jacob Carstensen et al., *Impacts of offshore wind farm construction on harbour porpoises: Acoustic monitoring of echolocation activity using porpoise detectors (T-PODs)*, MARINE ECOLOGY PROGRESS SERIES (Sept. 8, 2006); Jakob Tougaard et al., *Pile driving zone of responsiveness extends beyond 20 km for harbor porpoises (Phocoena phocoena (L.)) (L.)*, J. ACOUSTICAL SOC'Y AM. (Jul. 2009).

<sup>55</sup> Michael Dähne et al., *Effects of pile-driving on harbor porpoises (Phocoena phocoena) at the first offshore wind farm in Germany*, ENVTL. RES. LETTERS (Apr. 4, 2013); Miriam J. Brandt et al., *Effects of offshore pile driving on harbour porpoise abundance in the German Bight*, OFFSHORE FORUM WINDENERGIE (Jun. 2016), [https://www.bwo-offshorewind.de/wp-content/uploads/2019/05/study\\_effects-of-offshore-pile-driving-on-harbour-porpoise-abundance-in-the-german-bight\\_0.pdf](https://www.bwo-offshorewind.de/wp-content/uploads/2019/05/study_effects-of-offshore-pile-driving-on-harbour-porpoise-abundance-in-the-german-bight_0.pdf).

<sup>56</sup> See, e.g., Brandon M. Casper et al., *Recovery of barotrauma injuries in Chinook salmon, Oncorhynchus tshawytscha from exposure to pile driving sound*, PLOS ONE (Jun. 22, 2012); Michele B. Halvorsen et al., *Threshold for onset of injury in Chinook salmon from exposure to impulsive pile driving sounds*, PLOS ONE (Jun 20, 2012); Brandon M. Casper et al., *Recovery of barotrauma injuries resulting from exposure to pile driving sound in two sizes of hybrid striped bass*, PLOS ONE (Sept. 11, 2013).

10 in Virginia (data through March 13, 2020).<sup>57</sup> Harbor seals occur seasonally in coastal waters from southern New England to North Carolina from September through late May.<sup>58</sup> Seasonal distribution of gray seals in the Mid-Atlantic is less understood. Current population trends show abundance is likely increasing along the U.S. East Coast, although only strandings have been recorded off Virginia.<sup>59</sup>

Harbor seals are a particular behaviorally and acoustically sensitive species. Pile driving can permanently impair hearing in pinnipeds at close range<sup>60</sup> and lead to changes in behavior at greater distances, including temporary or long-term displacement. Harbor seal telemetry studies off the coast of England have found seal abundance to be significantly reduced during pile driving for wind turbine construction, in some cases up to 40 kilometers from the source.<sup>61</sup> Pile driving may also cause broader changes in pinniped diversity. Surveys of harbor and grey seal haul-out areas near a European wind farm showed a decrease in the numbers of harbor seals and an increase in the numbers of gray seals hauled out during the five years of construction of the wind farm.<sup>62</sup> Harbor seal numbers did not increase to pre-construction levels after construction activities ceased.

## **II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MMPA**

### **A. NMFS Must Analyze All Data Sources When Calculating Marine Mammal Densities**

For the Final IHA to be consistent with the MMPA, NMFS must base its analysis on the best available scientific information.<sup>63</sup> 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 produced by the Duke University Marine Geospatial Ecology Laboratory (“Roberts *et al.* model”).<sup>64</sup> While the Proposed IHA notes that the Roberts *et al.* model has been updated to incorporate additional data sources and two more years of data,<sup>65</sup> it still excludes data obtained through additional sightings databases, passive acoustic monitoring, and satellite telemetry. Notably, much of the survey data used to develop the model was collected prior to 2010 and therefore do not reflect the recent shift in North

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<sup>57</sup> 2018–2020 Pinniped Unusual Mortality Event Along the Northeast Coast, NMFS (last visited Apr. 14, 2020), <https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/2018-2020-pinniped-unusual-mortality-event-along>.

<sup>58</sup> Barbie L. Byrd *et al.*, *US Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2018*, NMFS (Jun. 2019), available at <https://repository.library.noaa.gov/view/noaa/20611>, at 121.

<sup>59</sup> *Id.* at 134, 131.

<sup>60</sup> Gordon D. Hastie *et al.*, *Sound exposure in harbour seals during the installation of an offshore wind farm: Predictions of auditory damage*, J. APPLIED ECOLOGY (May 20, 2015).

<sup>61</sup> Russell *et al.*, *supra* note 54; Han J. Lindeboom *et al.*, *Short-term ecological effects of an offshore wind farm in the Dutch coastal zone: A compilation*, ENVTL. RES. LETTERS (Aug. 5, 2011).

<sup>62</sup> Eleanor R. Skeate *et al.*, *Likely effects of construction of Scroby Sands offshore wind farm on a mixed population of harbour Phoca vitulina and grey Halichoerus grypus seals*, MARINE POLLUTION BULL. (Apr. 2012).

<sup>63</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>64</sup> Jason J. Roberts *et al.*, *Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico*, NATURE SCI. REPORTS (Mar. 3, 2016).

<sup>65</sup> 85 Fed. Reg. at 14916.

Atlantic right whale distribution, including the significant shifts observed during the past three years (2017-2019).

Moreover, according to the Proposed IHA, Roberts *et al.*:

produced a single density model for all bottlenose dolphins and did not differentiate by bottlenose dolphin stocks, and produced a single density model for all seals and did not differentiate between seal species. Hence, the density value is the same for both stocks of bottlenose dolphin stocks that may be present and for both seal species.<sup>66</sup>

That is, while the chart separates the species by stock, the same accounting was used for both, and observations did not distinguish between the stocks. To make up for the general data, NMFS authorized the total take for each stock of both bottlenose dolphins and all seal species. The MMPA requires the agency look at the impact to both species and marine mammal stocks to support a negligible impact finding. A record that provides “general discussions with little, if any, relevance to the population-level effects on specific species and stock, and to conclusory statements that no such effects are expected,” is inadequate.<sup>67</sup>

Finally, the agency estimates that zero takes of endangered large whales will occur. In its rationale, NMFS contends, “the temporal and/or spatial occurrence of [these species] is such that take of these species is not expected to occur either because they have very low densities in the project area and/or are extralimital to the proposed project area.”<sup>68</sup> Entirely dismissing the possibility of take based on a purported lack of presence that is supported only by an insufficient dataset is arbitrary.

Misappropriation of take levels based on incomplete data could have serious implications for the future conservation status of these stocks. Because the density maps produced by the Roberts *et al.* model do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast, they cannot be the only information source relied upon when estimating take. Integration of opportunistic sightings data and other sources of data that collect fine-scale information on factors driving marine mammal distribution with those gathered through systematic broad-scale surveys would better reflect current marine mammal presence, abundance, and density off Virginia, providing a more accurate assessment of Level B take.<sup>69</sup> Accordingly, NMFS must consider any data from State monitoring efforts,<sup>70</sup> passive acoustic monitoring data,<sup>71</sup> opportunistic marine mammal sightings,<sup>72</sup> and other data sources.

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<sup>66</sup> 85 Fed. Reg. at 14917.

<sup>67</sup> *Conservation Council for Haw. v. NMFS*, 97 F. Supp. 3d 1210, 1223 (D. Haw. 2015).

<sup>68</sup> 85 Fed. Reg. at 14904.

<sup>69</sup> See, e.g., Auriane Virgili et al., *Combining multiple visual surveys to model the habitat of deep-diving cetaceans at the basin scale*, GLOB. ECOLOGY & BIOGEOGRAPHY (Nov. 28, 2018).

<sup>70</sup> E.g., NOAA, *supra* note 33; Mallette et al., *supra* note 28; Sarah D. Mallette et al., *Offshore Energy Planning for Marine Protected Species off of Virginia’s Coast: A Synthesis of Aerial Surveys in the Proximity of the Virginia Wind Energy Area (VA WEA) from 2012-2015*, VAMSC (2016), <https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/FY14Task95-04-14.pdf>.

<sup>71</sup> E.g., Davis et al., *supra* note 22; Salisbury et al., *supra* note 24.



## **B. NMFS Must Reassess its Acoustic Thresholds and Mitigation Measures for the Likelihood of Both Level A and B Take**

The agency continues to fail to support its level of confidence that it is possible to mitigate potential for Level B harassment. First, the agency's reliance on a 160 dB threshold for behavioral harassment is not supported by best available scientific information, which indicates that Level B takes occur with near certainty at exposure levels well below the 160 dB threshold.<sup>73</sup> Second, the agency relies on the assumption that marine mammals will take measures to avoid the sound<sup>74</sup> even though studies have not found avoidance behavior to be generalizable among species and contexts,<sup>75</sup> and even though avoidance may itself constitute take under the MMPA.

Finally, as discussed in Section III.B below, the mitigation and monitoring protocols prescribed by the agency are insufficient in protecting marine mammals and do not comply with the MMPA. In one extreme case, Dominion assumes no Level A or B harassment from HRG survey activities based in part on mitigation and monitoring measures that do not even exist. When discussing HRG survey activities in its IHA Application, Dominion determines that, "standard mitigation procedures as stipulated in the Research Activities Plan (RAP) conditions would be sufficient to avoid harassment of marine mammals."<sup>76</sup> In the Proposed IHA, however, NMFS does not require that any mitigation measures be implemented during HRG survey activities. It is insufficient for the agency to base its zero take assumption in part on mitigation measures that are under-protective—and in some cases nonexistent.

With regard to Level A take from pile driving, NMFS states that while there is potential for it to occur, "[t]he proposed mitigation and monitoring measures are expected to minimize the severity of such taking to the extent practicable."<sup>77</sup> As discussed in Section III.B below, the mitigation measures in the Proposed IHA are unlikely to be effective at minimizing the severity of any expected take.

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<sup>72</sup> E.g., *Dramatic Rescue of Endangered Whale Filmed by Fishermen*, THE TELEGRAPH (Jul. 17, 2013), <https://www.telegraph.co.uk/news/earth/wildlife/10184397/Dramatic-rescue-of-endangered-whale-filmed-by-fishermen.html>.

<sup>73</sup> See, e.g., Douglas P. Nowacek et al., *North Atlantic right whales (Eubalaena glacialis) ignore ships but respond to alerting stimuli*, PROC. ROYAL SOC'Y B (Dec. 3, 2003); Ronald A. Kastelein et al., *Threshold received sound pressure levels of single 1-2 kHz and 6-7 kHz up-sweeps and down-sweeps causing startle responses in a harbor porpoise (Phocoena phocoena)*, J. ACOUSTICAL SOC'Y AM. (Mar. 2012); Ronald A. Kastelein et al., *Behavioral response of a harbor porpoise (Phocoena phocoena) to 25.5- to 24.5-kHz sonar down-sweeps with and without side bands*, AQUATIC MAMMALS (Nov. 19, 2015).

<sup>74</sup> See, e.g., 85 Fed. Reg. at 14913. ("[M]arine mammals in the project area are expected to avoid any area that would be ensonified at sound levels high enough for the potential to result in more severe acute behavioral responses, as the environment within the Atlantic Ocean offshore Virginia would allow marine mammals the ability to freely move to other areas without restriction.")

<sup>75</sup> Patrick J.O. Miller et al., *Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico*, DEEP SEA RES. I, (Jul. 2009); Enrico Pirotta et al., *Vessel noise affects beaked whale behavior: Results of a dedicated acoustic response study*, PLOS ONE (Aug. 2012).

<sup>76</sup> Dominion IHA Application, *supra* note 13, at 6.

<sup>77</sup> 85 Fed. Reg. at 14914.

### C. NMFS Must Acknowledge the Potential for Take from HRG Surveys, Cable-Laying, and Vessel Collisions

NMFS is required by the MMPA to consider the full range of potential impacts on all marine mammal species and stocks that are known to utilize the Project Area before issuing an IHA with appropriate protective measures. In addition to in-water construction, Dominion proposes to conduct HRG survey and cable-lay activities along a 27-mile cable corridor to a landfall location in Virginia. These activities, plus the vessel traffic associated with them, are all likely to take marine mammals.

The Proposed IHA determines that “the likelihood of take occurring from all HRG equipment types proposed for use by Dominion would be so low as to be discountable.”<sup>78</sup> The basis for this conclusion is that these sound sources are expected to attenuate to levels below the threshold for marine mammal harassment (*i.e.*, 160 dB) at very short distances from the source.<sup>79</sup> As discussed in Section II.B above, however, the agency’s reliance on a 160 dB threshold for behavioral harassment is not supported by best available scientific information. In the most comprehensive meta-analysis of behavioral response studies conducted to date, mid-frequency cetaceans had the highest probability of low-, moderate-, and high-severity responses to mid-frequency sonar sources (whose frequencies substantially overlap with the chirp system used by Dominion) at received levels around 150 dB, with significant increases in probability beginning 130 dB and some responses occurring below 110 dB.<sup>80</sup> It is well established that harbor porpoises are particularly vulnerable to both behavioral disturbance and threshold shifts. Thus in previous Navy authorizations, for which the MMPA requires a higher probability standard than in the present case,<sup>81</sup> NMFS has assumed that all harbor porpoises exposed to mid-frequency sources would experience Level B take; and in previous authorizations for HRG surveys, the agency has, “out of an abundance of caution,” authorized Level A take for this species and other high-frequency cetaceans.<sup>82</sup> It is arbitrary for the agency to impose less precautionary measures for this area that is home to a number of mid- and high-frequency hearing specialists which may be vulnerable to take. Also, the proposed cable corridor includes shallow, coastal waters, which may increase the likelihood of animals becoming trapped between the sound source and the shore.

Dominion also plans to conduct cable-lay activities in order to bury power cables under the seabed, which would be used to transmit the energy generated from the wind turbines to stations on land. Both Dominion’s IHA Application and the Proposed IHA state that these activities are not expected to result in take of marine mammals and are therefore not analyzed for potential impacts.<sup>83</sup> In coming to this conclusion, however, neither NMFS nor Dominion provides any details about how these activities are expected to interact with marine mammals. For example, the sounds produced by the cable-lay equipment, which operate within the range of marine mammal hearing,<sup>84</sup> may interfere with marine mammal communication and potentially

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<sup>78</sup> *Id.* at 14903.

<sup>79</sup> *Id.*

<sup>80</sup> Catalina Gomez et al., *A systematic review on the behavioural responses of wild marine mammals to noise: The disparity between science and policy*, CAN. J. ZOOLOGY (Sept. 15, 2016).

<sup>81</sup> See 16 U.S.C. § 1362(18).

<sup>82</sup> See, e.g., 83 Fed. Reg. 22443 (May 15, 2018).

<sup>83</sup> Dominion IHA Application, *supra* note 13, at 7; 85 Fed. Reg. at 14903.

<sup>84</sup> *Id.*

drive marine mammals from areas critical to their feeding and migration. Further, laying submarine transmission cables has the potential to temporarily or permanently disturb benthic habitat and marine mammal prey species.<sup>85</sup> Finally, any increase in vessel traffic in support of these activities will pose additional risks of ship strikes to marine mammals. While these stressors are likely to be less than those associated with pile driving for which the IHA does authorize take, they are not zero and accordingly must be examined thoroughly by the agency before making a determination about potential take.

We are pleased that the Proposed IHA includes mitigation measures to avoid vessel strikes; however, it is our view that vessel impacts should also be incorporated into NMFS' take analysis. Vessel collisions are a leading cause of large whale injury and mortality and have been implicated as one of the major causes of death underlying the Atlantic large whale UMEs.<sup>86</sup> The number of recorded vessel collisions with large whales is likely to grossly underestimate the actual number of animals struck, as those struck but not recovered or thoroughly examined cannot be accounted for.<sup>87</sup> North Atlantic right whales are particularly prone to ship strikes, given their slow speeds, overlapping range with shipping lanes, and the extended time they spend at or near the surface.<sup>88</sup> Some types of anthropogenic noise have been shown to *induce* near-surface positioning in North Atlantic right whales, increasing risk of ship strikes.<sup>89</sup> Some dolphin species have also been observed following or "bow-riding" vessels, potentially exposing themselves to a heightened risk of ship strikes.<sup>90</sup> In addition, relatively higher densities of humpback whales are found within high-traffic shipping lanes near the mouth of the Chesapeake Bay, indicating that vessel strike is a pertinent concern for this species.<sup>91</sup> Indeed, increased baleen whale sightings have occurred within the Bay, and have overlapped with the Project Area, over recent years<sup>92</sup> and ship strike mortalities have also risen.<sup>93</sup> Given the demonstrated vulnerability of large whales to vessel collisions off the east coast, it is remiss of the agency to overlook vessel collisions as a source of potential take. The localized elevation in vessel activity occurring during offshore wind construction naturally increases the vessel collision risk for large whales in the area.

In addition, as noted in the Proposed IHA, studies indicate that noise can induce flight responses, behavioral disturbances, habitat avoidance, and stress responses which reduce feeding

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<sup>85</sup> See *Renewable Energy Development and Marine Mammals*, MARINE MAMMAL COMM'N (last visited Apr. 13, 2020), <https://www.mmc.gov/priority-topics/offshore-energy-development-and-marine-mammals/renewable-energy-development-and-marine-mammals/>. See also *Vineyard Wind Offshore Wind Energy Project Draft Environmental Impact Statement*, BOEM (Dec. 2028), available at <https://www.boem.gov/vineyard-wind>, at 3-100 (citing cable-lay activities for offshore wind construction as a concern for marine mammal prey species).

<sup>86</sup> See NMFS, *supra* notes 18, 38, 40.

<sup>87</sup> See, e.g., Susan E. Parks et al., *Dangerous dining: Surface foraging of North Atlantic right whales increases risk of vessel collisions*, BIOLOGY LETTERS (Aug. 3, 2011).

<sup>88</sup> See *id.*

<sup>89</sup> Nowacek et al., *supra* note 73.

<sup>90</sup> Bernd Würsig, *Bow-riding*, in *ENCYCLOPEDIA OF MARINE MAMMALS*, pp. 133-34 (William F. Perrin et al. eds., 2<sup>nd</sup> ed. 2009).

<sup>91</sup> See Mallette et al., *supra* note 35; see also Aschettino et al., *supra* note 41.

<sup>92</sup> Jessica M. Aschettino et al., *Mid-Atlantic Humpback Whale Monitoring, Virginia Beach, Virginia: 2017/18 Annual Progress Report*, NAVFAC (Jun. 2018), [https://www.navy-marine-species-monitoring.us/files/2415/3081/8453/Aschettino\\_et\\_al.\\_2018\\_-\\_Humpback\\_Whale\\_Tagging\\_2017\\_-\\_Final.pdf](https://www.navy-marine-species-monitoring.us/files/2415/3081/8453/Aschettino_et_al._2018_-_Humpback_Whale_Tagging_2017_-_Final.pdf).

<sup>93</sup> Mallette et al., *supra* note 28.



rates and reproductive success.<sup>94</sup> Because of this, construction noise can induce horizontal displacement, or movement into other areas.<sup>95</sup> The Proposed IHA implies that all potential areas that marine mammals may be displaced to due to disturbance during construction are equally safe.<sup>96</sup> On the contrary, horizontal displacement can push a North Atlantic right whale or other large whale species out of a protected area and into an area where vessels are traveling at greater speed, such as the shipping lanes entering the Chesapeake Bay, presenting a greater danger of vessel collision. Given this, indirect ship strike risk resulting from habitat displacement should be considered in NMFS' take analysis.

#### **D. The Proposed IHA Extension Process Does Not Comport with the Plain Language of the Statute**

In addition to the Proposed IHA, NMFS requests comments on the potential one-year renewal of this Proposed IHA, on a case-by-case basis, for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.<sup>97</sup>

For several reasons, the undersigned organizations have opposed this process as contrary to law. First, NMFS' proposal to provide one-year renewals does not comport with the plain language of the MMPA. Section 101(a)(D)(i) unambiguously states that IHAs are valid for periods of not more than one year.<sup>98</sup> Second, the statute is plainly clear on the timing of when the agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>99</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency's implementation of the IHA process, stating: "As approved by the Committee, the [MMPA] involves a number of basic concepts," one being that "the public is invited and encouraged to participate fully in the agency decision-making process."<sup>100</sup> When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."<sup>101</sup> Third, the legislative history removes any doubt that this 30-day comment period applies even in cases where the IHA is extended for another year without change.<sup>102</sup>

Notably, NMFS supplies no legal rationale for why it is authorized to issue an identical IHA for a second year while cutting in half the comment period the statute requires. The agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy,

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<sup>94</sup> 85 Fed. Reg. at 14908-13.

<sup>95</sup> E.g., Manuel Castellote et al., *Acoustic and behavioural changes by fin whales (Balaenoptera physalus) in response to shipping and airgun noise*, BIOLOGICAL CONSERVATION (Mar. 2012).

<sup>96</sup> 85 Fed. Reg. at 14923 (determining that "the impacts resulting from this activity are not expected to adversely affect the species or stock" due to "[t]he availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the project area during the proposed project to avoid exposure to sounds from the activity").

<sup>97</sup> *Id.* at 14923-24.

<sup>98</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>99</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>100</sup> H.R. Rep. No. 92-707, at 4151 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151.

<sup>101</sup> *Id.* at 4146.

<sup>102</sup> H.R. Rep. No. 103-439, at 29 (1994). "[I]n some instances, a request will be made for an authorization identical to one issued the previous year. In such circumstances, the Committee expects the Secretary to act expeditiously in complying with the notice and comment requirements."

or on a permit-by-permit basis as it purports to do here.<sup>103</sup> Nor has NMFS supplied a sufficient explanation for why it might assert that the statutory language of Section 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute's objectives.<sup>104</sup>

Finally, NMFS' recently posted language about IHA Renewals on its website<sup>105</sup> does not provide a clear and legally adequate justification for its purported new reauthorization process, which is especially necessary in light of the burden the foreshortened comment period places on interested members of the public to review and formulate comments, all within 15 calendar days. Given that this proposed change has appeared consistently in notices of draft IHAs for over a year now, NMFS apparently intends the new reauthorization process to become the rule rather than the exception. It is therefore incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

### **E. NMFS' Proposed Noise Attenuation Does Not Comply with the Statute**

With regard to noise attenuation, the Proposed IHA takes the unprecedented approach of proposing mitigation on *one* turbine, but not the other. "Dominion has proposed driving one pile with the double bubble curtain activated and the other pile without the double bubble curtain activated with the goal of gathering in situ data on the effectiveness of the double bubble curtain via hydroacoustic monitoring during the driving of both piles."<sup>106</sup> According to NMFS, the Bureau of Ocean Energy Management ("BOEM") would support this effort and "aims to collect real-time measurements of the construction and operation activities from the first offshore wind facilities in the United States to allow for more accurate assessments of actual environmental effects and to inform development of appropriate mitigation measures."<sup>107</sup>

Regardless of whether this approach would provide beneficial information for the further development of commercial wind projects off the coast of the United States, it does not comply with the requirements of the MMPA. Bubble curtains are an effective and employed technology used to reduce the effects of noise and other sensory disturbances.<sup>108</sup> They have been used globally, including in the Block Island Wind facility off Rhode Island. The goal of the MMPA is to preserve marine mammals and their habitat, effectuated by building a conservative bias into the legislation.<sup>109</sup> While an agency has discretion among mitigation measures, the agency cannot use that discretion to abrogate the statutory "least practicable impact" standard.

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<sup>103</sup> See *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council (NRDC)*, 467 U.S. 837, 842–43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.").

<sup>104</sup> See *Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a "'reasonable' explanation of how an agency's interpretation serves the statute's objectives is the stuff of which a 'permissible' construction is made").

<sup>105</sup> *Incidental Take Authorizations Under the Marine Mammal Protection Act*, NMFS (last visited Mar. 31, 2020), <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>106</sup> 85 Fed. Reg. at 14919.

<sup>107</sup> *Id.*

<sup>108</sup> Apostolos Tsouvalas & Andrei V. Metrikine, *Noise reduction by the application of an air-bubble curtain in offshore pile driving*, J. SOUND & VIBRATION (Jun. 9, 2016).

<sup>109</sup> H.R. Rep. No. 920797, at 24.

As discussed above, the IHA process is intended to provide an explicit exception to the blanket prohibition against taking marine mammals contained within the MMPA.<sup>110</sup> In the case of installing the CVOW project, such taking may only be “the incidental, but not intentional, taking by harassment of small numbers of marine mammals of a species or population stock by such citizens while engaging in that activity within that region.”<sup>111</sup> Moreover, as part of the IHA permitting process, the MMPA also requires that mitigation reduce impacts of permitted activities to “the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.”<sup>112</sup> “In requiring the agency to adopt measures to ensure the ‘least practicable adverse impact’ on marine mammals, Congress *imposed a stringent standard*. Although the agency has some discretion to choose among possible mitigation measures, it cannot exercise that discretion to vitiate this stringent standard.”<sup>113</sup>

In *NRDC v. Pritzker*, the Ninth Circuit found that NMFS acted illegally by failing to give independent force to the MMPA’s requirement to mitigate the impacts of incidental taking to the level of “least practicable adverse impact.”<sup>114</sup> The court examined the definition of “practicable,” finding that “[p]racticable’ normally means that something is capable of being done, or practical and effective.”<sup>115</sup>

Here, as in that case, NMFS has not done the analysis of what practicable would be. Indeed, while the Proposed IHA provides mitigation for one turbine but not the other, it does not claim that applying mitigation to both would be impracticable, nor does it look at the possibility of applying alternative mitigation measures to the second turbine, rather than none at all. Nor for that matter does the IHA consider the use of additional noise attenuation treatments, such as pile-isolation methods like casings and dampers, for the mitigated turbine. Instead, NMFS says without explanation:

Based on our evaluation of these measures, we have preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for subsistence uses.<sup>116</sup>

To make matters worse, Dominion’s underlying materials further confuse rather than clarify things. While NMFS’ Federal Register notice appears to reflect what is proposed by Dominion, there is no such discussion of using mitigation for one turbine but not the other in Dominion’s IHA Application.<sup>117</sup> Dominion’s IHA Application discusses noise attenuation

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<sup>110</sup> See generally, 16 U.S.C. §§ 1371(a) and 1371(a)(5)(D).

<sup>111</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>112</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>113</sup> *NRDC v. Evans*, 279 F. Supp. 2d 1129, 1159 (N.D. Cal. 2003) (emphasis added).

<sup>114</sup> *NRDC v. Pritzker*, 828 F.3d 1125, 1135 (9th Cir. 2016)

<sup>115</sup> *Id.* at 1134 (citation omitted).

<sup>116</sup> 85 Fed. Reg. at 14919.

<sup>117</sup> See Dominion IHA Application, *supra* note 13, at 36. (“Dominion Energy will use a double bubble curtain as a mitigation strategy to reduce sound during pile-driving activities. Bubble curtains are commonly used to reduce acoustic energy emissions from high-amplitude sources and are generated by releasing air through multiple small

achieved by no mitigation, a single bubble curtain, a big bubble curtain, and a double bubble curtain,<sup>118</sup> and states that its take estimates are conservatively based on use of big bubble curtains rather than more protective double bubble curtains,<sup>119</sup> but nowhere raises the possibility that such treatment would only be used for one pile. Critically, that also means that Dominion nowhere analyzes the MMPA’s “least practicable adverse impact” standard or in any way claims that alternative modes of mitigation would be economically prohibitive. NMFS’ lone statement in the Federal Register is the extent of the analysis of this important statutory requirement.

NMFS cannot simply make this bare statement without further explanation. Compliance with the requirements and goals of the MMPA is especially important as the CVOW project is one of the “first offshore wind facilities in the United States.”<sup>120</sup> As discussed above, offshore wind construction is most often associated with pile driving, which is known to have significant potential adverse impacts on marine mammals. This project will set a precedent for the future development of offshore wind off the coast of Virginia and the rest of the United States.

### **III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING**

In authorizing take by incidental harassment under the general authorization provision of the MMPA, NMFS 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.”<sup>121</sup> In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA, as well as the significant risks posed to the North Atlantic right whale and other marine mammal stocks by the activities outlined in the Proposed IHA, NMFS has an obligation to impose robust avoidance, mitigation, and monitoring requirements to protect these species to the maximum extent practicable. The best scientific and commercial data available show that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging, reproductive, or migratory behavior may lead to population-level effects and is of critical concern. As such, the implementation of a robust impact avoidance, minimization, and mitigation system is essential to prevent adverse impacts of the proposed activities.

#### **A. Best Management Practices for North Atlantic Right Whales during Offshore Wind Construction**

Over a dozen wildlife conservation organizations have endorsed a suite of Best Management Practices (“BMP”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast.<sup>122</sup> These BMPs were advised by a historic agreement between Vineyard Wind and three of the undersigned organizations— Natural Resources Defense Council, National Wildlife Federation, and Conservation Law Foundation—to protect critically endangered North Atlantic

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holes drilled in a hose or manifold deployed on the seabed near the source. The resulting curtain of air bubbles in the water provides significant attenuation for sound waves propagating through the curtain.”)

<sup>118</sup> Dominion IHA Application, *supra* note 13, § 7.1.2.

<sup>119</sup> *Id.* at 28.

<sup>120</sup> 85 Fed. Reg. at 14919.

<sup>121</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

<sup>122</sup> Conservation L. Found. et al., *Best Management Practices for North Atlantic Right Whales During Offshore Wind Energy Construction and Operations Along the U.S. East Coast* (Mar. 1, 2019), provided as Attachment 1.

right whales during construction of a wind farm off the coast of Massachusetts (“Vineyard Wind Agreement”). Under the agreement, Vineyard Wind agreed to institute a number of protective measures to keep North Atlantic right whales safe while installing and operating turbines at the project site. The agreement provides an important template for other offshore wind projects.<sup>123</sup>

As discussed below, our organizations agree with several of the mitigation and monitoring measures contained in the Proposed IHA. However, we believe that additional measures are necessary to more effectively avoid, minimize, and mitigate impacts to marine mammals, as set forth in the BMPs. These changes are critical to ensuring the protection of the North Atlantic right whale during offshore wind facility construction.

## **B. Comments on the Mitigation and Monitoring Requirements Contained in the Proposed IHA**

In the comments below, we address specific concerns our organizations have with the mitigation and monitoring measures outlined in the Proposed IHA. As an initial matter, we do not believe that implementing such measures during *only* pile-driving activities is sufficient. As discussed above in Section II.C, HRG survey and cable-lay activities also have the potential to adversely affect marine mammal species in the Project Area, and these impacts should be addressed through adequate mitigation and monitoring requirements. Confusingly, in its IHA Application, Dominion bases its conclusion that harassment of marine mammals from HRG surveys is not anticipated on the implementation of monitoring and mitigation measures.<sup>124</sup> Yet NMFS does not require any such measures in the Proposed IHA. Consequently, the current measures outlined in the Proposed IHA do not meet the standard of achieving the “least practicable adverse impact” on marine mammal populations. Given that North Atlantic right whales are present in the Project Area year-round, and that the population cannot withstand the loss of a single individual, there is a clear need for strong mitigation measures on all activities covered by the IHA.

### **i. Seasonal Restrictions**

Time and area restrictions designed to protect certain species groups and habitats are one of the most effective available means to reduce the potential impacts of noise and disturbance on marine mammals.<sup>125</sup> Thus we support the Proposed IHA’s prohibition on pile-driving activities from November 1 through April 30.<sup>126</sup> The Proposed IHA should be modified, however, to include similar seasonal restrictions for the proposed HRG survey and cable-lay activities. As discussed above, these activities also have the potential to take marine mammals and could be

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<sup>123</sup> NRDC et al., *Vineyard Wind – NGO Agreement* (Jan. 22, 2019), provided as Attachment 2.

<sup>124</sup> Dominion IHA Application, *supra* note 13, at 6.

<sup>125</sup> See, e.g., Tundi Agardy et al., A global scientific workshop on spatio-temporal management of noise (Workshop, Puerto Calero, Lanzarote) (Jun. 4-6, 2007), <http://www.pelagosinstitute.gr/en/pelagos/pdfs/Spatio-temporal%20management%20of%20noise.pdf>; Sarah J. Dolman et al., *Technical report on effective mitigation for active sonar and beaked whales*, EUR. CETACEAN SOC’Y (Apr. 20, 2009), [https://www.ascobans.org/sites/default/files/document/AC16\\_50\\_TechnicalReportSonarBeakedWhales\\_1.pdf](https://www.ascobans.org/sites/default/files/document/AC16_50_TechnicalReportSonarBeakedWhales_1.pdf); Convention on Biological Diversity, *Scientific synthesis on the impacts of underwater noise on marine and coastal biodiversity and habitats*, UNITED NATIONS (Mar. 12, 2012), [https://www.ascobans.org/sites/default/files/document/AC19\\_4-16\\_CBD\\_SBSTTA16\\_SynthesisUnderwaterNoise\\_1.pdf](https://www.ascobans.org/sites/default/files/document/AC19_4-16_CBD_SBSTTA16_SynthesisUnderwaterNoise_1.pdf).

<sup>126</sup> 85 Fed. Reg. at 14918.

especially harmful to the highly endangered North Atlantic right whale. As proposed, these activities are intended to last for a period of up to three months from May to October, avoiding the time period that poses the highest risk for North Atlantic right whales (*i.e.*, November 1 to April 30). However, as the Proposed IHA will be issued for one year, these activities may take place after October, should poor weather conditions or other unforeseen circumstances cause delays. For the same reason that NMFS has proposed an explicit prohibition on pile driving from November 1 to April 30, the agency should similarly prohibit all activities associated with the IHA, including cable-lay and HRG survey activities, during this time period.<sup>127</sup>

ii. Temporal Restrictions

We also support temporal restrictions on pile driving, consistent with the BMPs, that state that such activities must not commence at night, but can continue after dark only if the action began during the day and must proceed for human safety or installation feasibility reasons.<sup>128</sup> These measures comport with the protections outlined in the BMPs on pile driving, as supported by the best available science and the Vineyard Wind Agreement.

However, Dominion proposes to conduct survey activities continuously, 24 hours per day,<sup>129</sup> which, when conducted at RMS sound pressure levels > 180 dB re 1 uPa at 1 meter for equipment that operates between 7 Hz and 35 kHz, has the potential to harass marine mammals. To best minimize impacts to marine mammals, HRG surveys that meet these criteria should only commence, with ramp-up, during daylight hours of adequate visibility to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone. If the exclusion zone is cleared by visual and acoustic observers for at least 30 minutes prior to commencement of the survey and begun during daylight hours, we do not oppose the survey continuing into nighttime hours. However, if the survey is shut down for any reason, developers should be required to wait until daylight hours and good visibility for ramp-up to resume. Furthermore, as observers are unable to visually monitor the exclusion area during nighttime hours, NMFS must require, for efforts that continue into the nighttime, passive acoustic monitoring and shutdown on acoustic detection (*see* Section III.B.iii below).

iii. Exclusion Zone Monitoring and Shutdown Protocol

Consistent with the BMPs, we support the 1,750-meter clearance zone around pile-driving activities for all marine mammals and the extended exclusion zone as far as the observers can see for North Atlantic right whales.<sup>130</sup> We also support the requirement to delay or shut down pile-driving activities when a marine mammal is spotted within the relevant exclusion zone, including the requirement to only commence (with soft start) once the zone is clear of marine mammals for 30 minutes.<sup>131</sup> We urge NMFS, however, to strengthen these safeguards

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<sup>127</sup> Seasonal restrictions for pile driving and geophysical surveying formed a core component of a landmark agreement aimed at protecting the North Atlantic right whale from construction and site assessment and characterization activities in the Mid-Atlantic Wind Energy Areas that was reached between offshore wind developers and the environmental NGO community in 2012. *See* Letter from Jeff Grybowski, Deepwater Wind, et al. to Maureen Bornholdt, BOEM (Dec. 12, 2012), [https://www.nrdc.org/sites/default/files/oce\\_12121101a.pdf](https://www.nrdc.org/sites/default/files/oce_12121101a.pdf).

<sup>128</sup> 85 Fed. Reg. at 14919-20.

<sup>129</sup> *Id.* at 14902-03.

<sup>130</sup> *Id.* at Table 8.

<sup>131</sup> *Id.* at 14919.

further by requiring a full 60 minutes—not 30 minutes—of observation before beginning or resuming pile driving.

We also urge a clearance zone for North Atlantic right whales of 500 meters, and, to the extent feasible, 1,000 meters in all directions from the survey vessel for all HRG surveys with RMS sound pressure levels > 180 dB re 1 uPa at 1 meter for equipment that operates between 7 Hz and 35 kHz. As with pile driving, HRG surveys that meet these criteria shall be delayed or shut down when a North Atlantic right whale is observed or detected within the clearance zone; surveying may resume, with ramp-up, upon confirmation that all North Atlantic right whales have departed the clearance zone after 30 minutes. The clearance zone for these survey activities should be monitored by at least one observer or two observers if feasible. Given that North Atlantic right whales and other large whales of conservation concern are known to use the areas within and around Project Area year-round, these measures are critical.

Visual observations, however, are not enough. As a practical matter, it is highly unlikely that observers will be able to detect a marine mammal beyond a one-kilometer clearance zone, even in ideal visibility conditions. To maximize the probability of detection of marine mammals, comprehensive exclusion zone monitoring is essential. 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>132</sup>

Of particular concern, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood of detection by observers and thus often go undetected. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay,<sup>133</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>134</sup> In fact, aerial surveys were found to detect North Atlantic right whales on only two-thirds of the days they were acoustically detected in Cape Cod Bay, Massachusetts, from 2001 to 2005.<sup>135</sup> Additionally, there is evidence that North Atlantic right whales stop vocalizing in the presence of anthropogenic noise,<sup>136</sup> or spend significantly more time at subsurface depths (1-10 meters) compared to normal surfacing depths (within 1 meter of the surface),<sup>137</sup> when exposed to certain types of acoustic disturbance. These behavioral responses are likely to be heightened when whales are in the proximity of the acoustic disturbance from

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<sup>132</sup> See, e.g., Ursula K. Verfuss et al., *Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys*, MARINE POLLUTION BULL. (Jan. 2018).

<sup>133</sup> Janelle L. Morano et al., *Acoustically detected year-round presence of right whales in an urbanized migration corridor*, CONSERVATION BIOLOGY (May 23, 2012).

<sup>134</sup> Howard E. Winn et al., *The distributional biology of the right whale (Eubalaena glacialis) in the western North Atlantic*, INT'L WHALING COMM'N (Jan. 1, 1986); Simon Pittman et al., *Cetacean distribution and diversity*, in AN ECOLOGICAL CHARACTERIZATION OF THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY REGION, pp. 264-324 (Tim Battista et al. eds., 2006).

<sup>135</sup> Christopher W. Clark et al., *Visual and acoustic surveys for North Atlantic right whales, Eubalaena glacialis, in Cape Cod Bay, Massachusetts, 2001-2005: Management implications*, MARINE MAMMAL SCI. (May 9, 2010).

<sup>136</sup> See, e.g., Susan E. Parks et al., *Short- and long-term changes in right whale calling behavior: The potential effects of noise on acoustic communication*, J. ACOUSTICAL SOC'Y AM. (Jan. 31, 2008).

<sup>137</sup> Nowacek et al., *supra* note 73.

pile driving and geophysical surveying, meaning that animals may be less detectable by observers during the Project period relative to other times.<sup>138</sup>

Thus, reliance on observers as the sole monitoring method is under-protective and should not be endorsed by the agency. Rather, a combination of (at a minimum) visual monitoring by observers and passive acoustic monitoring should be implemented during both times of HRG survey effort and pile driving.<sup>139</sup> Real-time passive acoustic monitoring shall be undertaken in a manner that avoids masking of the North Atlantic right whale vocalizations by vessel noise, including by use of a system that is independent from the survey vessel if necessary. Research has demonstrated that passive acoustic monitoring can provide a two- to ten-fold increase in the number of days that North Atlantic right whales are detected relative to visual methodologies.<sup>140</sup> Aerial surveys would also provide a useful supplement to increase detection probability. Detection of a marine mammal by any of these methods should trigger a shutdown or delay in the same way a visual detection would.

iv. Vessel Speed Limits

As discussed in Section II.C above, vessel collisions remain one of the leading causes of large whale injury and mortality, particularly for North Atlantic right whales, and are a primary driver of the existing large whale UMEs. Accordingly, the agency should 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 may be at potential future risk of experiencing an UME.

Our organizations support a mandatory speed restriction of 10 knots for all project vessels within any designated SMA or Dynamic Management Area for North Atlantic right whales.<sup>141</sup> The SMA located at the mouth of the Chesapeake Bay partially overlaps the cable corridor, and encompasses the time period during which the highest risk of North Atlantic right whale presence exists (*see* Section I.C). We also support the additional monitoring measures in place, including the presence of vessel-based visual observers and protocol for slowing down, stopping, and/or distancing vessels from detected marine mammals.<sup>142</sup>

Our organizations also urge the agency to impose a 10-knot speed limit on all vessels, including survey and support vessels, traveling *within* the Project Area for the entirety of the construction and survey periods. Research shows that a collision between a whale and a vessel

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<sup>138</sup> Frances C. Robertson et al., *Seismic operations have variable effects on dive-cycle behavior of bowhead whales*, ENDANGERED SPECIES RES. (Aug. 13, 2013).

<sup>139</sup> We also support the inclusion of both broadband and low frequency hydrophones, which will ensure that vocalizations of North Atlantic right whales and other low- and mid-frequency vocalizing species can be detected.

<sup>140</sup> Melissa S. Soldevilla et al., *Passive acoustic monitoring on the North Atlantic right whale calving grounds*, ENDANGERED SPECIES RES. (Sept. 10, 2014). It is important to note that passive acoustic monitoring, while capable of significantly increasing detection rates, is not independently capable of detecting all whales in an area, for three reasons: 1) not all individuals continually vocalize, 2) individuals may stop vocalizing in the presence of noise (*see* Parks et al. *supra* note 136); or 3) vocalizations may change during certain life history stages. *See* Susan E. Parks et al., *Acoustic crypsis in communication by North Atlantic right whale mother-calf pairs on the calving grounds*, BIOLOGY LETTERS (Oct. 9, 2019); Susan E. Parks et al., *North Atlantic right whale (Eubalaena glacialis) acoustic behavior on the calving grounds*, J. ACOUSTICAL SOC'Y AM. (Jul. 10, 2019). As such, passive acoustic monitoring must be used in combination with other detection methods for mitigation purposes.

<sup>141</sup> 85 Fed. Reg. at 14920.

<sup>142</sup> *Id.*



of any length traveling above of speed of 10 knots has a more than 60 percent probability to result in a lethal strike.<sup>143</sup> Given that North Atlantic right whales may be in the Project Area year-round (*see* Section I.C), this added protection is vital. Additionally, as discussed in the previous section, a combination of vessel-based visual observers and passive acoustic monitoring should be employed on all vessels, to supplement the efforts of the observers in detecting marine mammals.

v. Noise Attenuation Measures

As discussed in Section II.E above, the proposed mitigation measures for noise attenuation are insufficient and do not comply with the MMPA’s requirement to achieve the “least practicable adverse impact” to affected marine mammal populations. As also discussed above, noise from pile driving can introduce large amounts of noise into the marine environment, interrupting marine mammal communication and behavior, and potentially driving marine mammals from important habitat areas (*see* Section I.B.iii). For both of these reasons, NMFS must require further mitigation to meet this requirement.

Dominion’s IHA Application provides information regarding the noise attenuation achieved by no mitigation, a single bubble curtain, a big bubble curtain, and a double bubble curtain.<sup>144</sup> These different technologies and the various levels of noise attenuation that they achieve clearly provide options that should be considered in mitigating this significant stressor of wind turbine installation on marine mammals. Not only is there the option of requiring a double bubble curtains on both turbines, which would limit the type of comparative information that Dominion and BOEM are hoping to collect, but there is also the option of using the double bubble curtain on one, and either the single bubble curtain or the big bubble curtain on the other. Dominion and NMFS should examine the analysis Dominion has already done and determine which option would be meet the “least practicable adverse impact” standard.

NMFS and Dominion should also examine noise attenuation at the pile itself. While a bubble curtain addresses one pathway of acoustic propagation from the monopole, noise attenuation that addresses direct entry into the water column, such as through pile casings or dampers, should also be examined in the “least practicable adverse impact” analysis.<sup>145</sup>

#### IV. CONCLUSION

Our organizations are excited about the contribution that the CVOW project—as well as Dominion’s future commercial-scale offshore wind project—will make in providing clean energy for the state and region. For the above reasons, however, NMFS must revise its analysis to be consistent with the agency’s statutory obligations. Considering the elevated level of threat to all federally protected marine mammal species and populations in the Atlantic, including waters of Virginia, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the Project are mitigated to effectuate the least practicable impact on affected species and stocks. It is our view that offshore wind projects can and must move forward in a manner that is protective of vulnerable marine

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<sup>143</sup> Paul B. Conn & Gregory K. Silber, *Vessel speed restrictions reduce risk of collision-related mortality for North Atlantic right whales*, ECOSPHERE (Apr. 2013).

<sup>144</sup> Dominion IHA Application, *supra* note 13, § 7.1.2.

<sup>145</sup> *See generally id.* at 36 (discussing different modes of sound transmission).

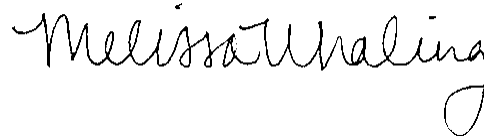
wildlife. To that end, it is crucial that the agency afford special attention to the importance of the waters off Virginia to marine mammals when permitting offshore wind development activities in this region.

Thank you for your consideration of these comments.

Sincerely,



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Southern Environmental Law Center



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[Attachments]

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July 17, 2020

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**Re: Comments on Draft Incidental Harassment Authorization for Site Characterization Surveys in the OCS-A-0483 Lease Area and the Coastal Waters off Virginia**

Ms. Harrison,

The Southern Environmental Law Center (“SELC”) submits these comments on behalf of Natural Resources Defense Council, National Wildlife Federation, Conservation Law Foundation, Defenders of Wildlife, Whale and Dolphin Conservation, Surfrider Foundation, the Nature Conservancy, Sierra Club Virginia Chapter, Assateague Coastal Trust, Mass Audubon, NY4WHALES, the International Marine Mammal Project of Earth Island Institute, and Inland Ocean Coalition, in response to the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“IHA”) to Dominion Energy Virginia (“Dominion”), for marine site characterization surveys off the coast of Virginia in the area of Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A-0483) (“the Lease Area”), and in the coastal waters off Virginia where a “cable corridor” will be established (collectively termed “Project Area”), in support of the Coastal Virginia Offshore Wind (“CVOW”) Commercial Project.<sup>1</sup>

Dominion proposes to conduct high-resolution geophysical (“HRG”) and geotechnical surveys for purposes of site characterization and project design of the CVOW Commercial Project. These activities are set to commence “as soon as possible” and will last for a period of 161 days.<sup>2</sup> Dominion plans to run two survey vessels concurrently within the 122,799-acre Lease Area, which lies 27 nautical miles off the coast of Virginia Beach, and along the “cable corridor” between the Lease Area and coastal Virginia.

This is an exciting moment for offshore wind in Virginia, and we recognize and celebrate the contribution that the offshore wind projects associated with these surveys could make in providing clean energy for the state and region. Once completed in 2026, Dominion’s 2,640-megawatt CVOW Commercial Project would provide enough electricity to power up to 650,000

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<sup>1</sup> Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off of Coastal Virginia, 85 Fed. Reg. 36,537 (June 17, 2020).

<sup>2</sup> *Id.* at 36,538.

homes in Virginia.<sup>3</sup> It is our view that wind energy will continue to be a vital part of our nation's energy mix, and we applaud the steps Virginia is taking to address climate change and to support offshore wind and clean energy development. In addition to rich wind resources, the waters off the coast of Virginia represent an area of important marine mammal habitat. This habitat and the health of marine mammals will continue to be threatened by changes in the ocean environment brought on by climate change, further underscoring the need to transition away from reliance on fossil fuels.

It is our view that, as offshore wind energy development moves forward, it must do so in an environmentally responsible manner, safeguarding vulnerable ocean habitat and wildlife. As offshore wind is a nascent industry in the United States, there is still much to learn about how it can be developed with appropriate mitigation measures to protect local wildlife. For example, given that underwater noise pollution disrupts marine mammal communication and can potentially drive marine mammals from areas critical to their feeding and migration, the agency must be especially careful to ensure that the proposed offshore wind development activities are done with the utmost consideration for the health of marine mammals and their habitats. This is particularly true given the dire population status of the North Atlantic right whale, which was just reclassified to Critically Endangered by the International Union for Conservation of Nature ("IUCN") Red List. The protections established by the agency for this project are likely to set the standard for further offshore wind development along the Atlantic coast in the years to come. The following comments are intended to support the advancement of offshore wind in a manner sustainable for marine wildlife, and particularly marine mammals.

Our organizations have a number of concerns pertinent to NMFS' "negligible impact" and "least practicable impact" determinations, and accordingly urge the agency to adopt the mitigation and monitoring requirements necessary to ensure adequate protections for North Atlantic right whales and other priority species. As detailed in the comments below, we highlight the following inconsistencies between the Proposed IHA and the Marine Mammal Protection Act ("MMPA"):

- In determining take numbers, NMFS relies on incomplete estimates of marine mammal abundance, distribution, and density for the U.S. East Coast;
- NMFS underestimates take numbers based on unfounded assumptions regarding acoustic thresholds and effectiveness of mitigation and monitoring measures;
- NMFS neglects to acknowledge the potential for Level A take from survey noise and vessel strike; and
- NMFS proposes to consider extending any one-year IHA with a truncated 15-day comment period, which is plainly contrary to the MMPA.

We accordingly recommend that the mitigation and monitoring measures in the Proposed IHA be modified as follows:

- NMFS should impose a seasonal restriction on site characterization activities that have the potential to injure or harass the North Atlantic right whale (i.e., source level

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<sup>3</sup> *Coastal Virginia Offshore Wind*, DOMINION ENERGY (last visited July 16, 2020), <https://www.dominionenergy.com/company/making-energy/renewable-generation/wind/coastal-virginia-offshore-wind>.

- >180 dB re 1  $\mu$ Pa (SPL) at 1-meter frequencies between 7 and 35 kHz<sup>4</sup>) from November 1 through April 30, to avoid the time period that poses the highest risk for North Atlantic right whales;
- HRG surveys should commence, with ramp-up, during daylight hours only, to maximize the probability that marine mammals are detected and confirmed clear of the exclusion zone;
  - NMFS should establish a standard 500-meter exclusion zone for *all* marine mammal species around surveys with noise levels that could result in injury or harassment of marine mammals, and, to the extent feasible, an extended 1,000-meter exclusion zone for North Atlantic right whales;
  - a combination of visual monitoring—by four protected species observers adhering to a two-on/two-off schedule—and passive acoustic monitoring should be used at all times that survey work is underway, and, for efforts that continue into the nighttime, night vision or infrared technology should also be used;
  - shutdown requirements should not be waived for bottlenose dolphins belonging to any stock, to protect the strategic and depleted stock of Western North Atlantic Southern Migratory Coastal bottlenose dolphin; and
  - all vessels operating *within* the Project Area should maintain a speed of 10 knots or less outside the period of November 1 and April 30, during which this speed limit should be extended to all vessels traveling *to and from* the Project Area. NMFS should also consider requiring that Dynamic Management Areas (“DMA”) become active anytime a single North Atlantic right whale is sighted or acoustically detected.

## I. BACKGROUND

### A. The Marine Mammal Protection Act

Congress enacted the 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.”<sup>5</sup> 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.”<sup>6</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>7</sup> 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.<sup>8</sup>

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

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<sup>4</sup> As discussed in Section II.B, the best available science on other low- to mid-frequency sources indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

<sup>5</sup> 16 U.S.C. § 1361(1).

<sup>6</sup> *Id.* § 1361(2); *see also Conservation Council for Haw. v. Nat’l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>7</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), *as reprinted in* 1972 U.S.C.C.A.N. 4144, 4148.

<sup>8</sup> 16 U.S.C. § 1361(1), (3).

the high seas or in waters or on land under the jurisdiction of the United States.<sup>9</sup> 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.”<sup>10</sup>

NMFS may grant exceptions to the take prohibition under the specific circumstances enumerated in the statute. Relevant here, the agency may authorize, for not more than 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.”<sup>11</sup> The agency must prescribe permissible methods of take 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[.]”<sup>12</sup> NMFS must also establish monitoring and reporting requirements.<sup>13</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>14</sup>

## **B. Virginia’s Marine Mammals**

According to Dominion’s IHA Application for site characterization activities, at least 37 marine mammal species are known to occur in the marine and coastal waters off Virginia, including seven large and 26 small cetaceans, and four pinnipeds.<sup>15</sup> Of these marine mammal species, five large cetaceans (fin, sei, blue, sperm, and North Atlantic right whales) are listed as endangered under the Endangered Species Act (“ESA”) and as depleted and strategic stocks under the MMPA. One small cetacean species, the false killer whale, is designated as a strategic stock under the MMPA, and the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin is designated as both a depleted and strategic stock under the MMPA. The various conservation statuses and seasonal presence of these species require particular consideration by NMFS when issuing an IHA to Dominion.

Despite what is presented in the following sections, data on seasonality and distribution of Virginia’s marine mammals, as well as those occupying the broader Mid-Atlantic region, are largely lacking when compared with other regions. As such, NMFS should take steps now to develop a dataset that more accurately reflects marine mammal presence so that it is in hand for future IHAs and other regulatory steps to advance offshore wind in the Mid-Atlantic. Specifically, we recommend that NMFS: 1) fund analyses of recently collected sighting and acoustic data for all data-holders; 2) continue to fund and expand surveys and studies to improve

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<sup>9</sup> *Id.* §§ 1362(13), 1371(a).

<sup>10</sup> *Id.* § 1362(18)(A).

<sup>11</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>12</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>13</sup> *Id.* § 1371(a)(5)(D)(ii)(III).

<sup>14</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>15</sup> DOMINION ENERGY, *Dominion Coastal Virginia Offshore Wind Commercial Project: Request for the Incidental Harassment of Marine Mammals Incidental to Survey Activities on the Outer Continental Shelf (OCS) within Lease OCS-A 0483 and the Associated Export Cable Corridor*, submitted to NMFS (May 11, 2020), <https://www.fisheries.noaa.gov/action/incidental-take-authorization-dominion-energy-virginia-marine-site-characterization-surveys> [hereinafter “Dominion IHA Application”], at Table 3-1. Inexplicably, NMFS determines that only 16 of the 37 species are likely to be affected by the proposed activity. 85 Fed. Reg. at 36,541, Table 2. NMFS should explain why the remaining 21 species are missing from its IHA analysis.

our understanding of distribution and habitat use of marine mammals off Virginia, including within and adjacent to the Project Area, as well as throughout the broader Mid-Atlantic region, in the very near future; and 3) take a “precautionary approach” with regard to siting and mitigation when permitting offshore wind activities in areas for which species distribution data are limited. Only then can the most accurate take numbers and most effective mitigation measures be established.

i. North Atlantic Right Whales

As the agency is aware, the conservation status of the North Atlantic right whale is dire. Although the species has been listed as endangered since the 1970s, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial fishing gear and vessel strikes.<sup>16</sup> In the wake of an alarming number of human-caused deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”) under the MMPA for all U.S. waters in which right whales occur,<sup>17</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect. At least thirty-one whales are known to have been killed since 2017, and an additional ten animals have been documented with serious injuries from which they will not recover.<sup>18</sup> Two of the ten calves born in the latest calving season are already either confirmed or presumed dead due to vessel strikes, and their mothers have not been seen since.<sup>19</sup>

The loss of these forty-one animals represents roughly ten percent of the total population, which is now estimated at approximately 400 individuals.<sup>20</sup> Of these, no more than 95 are females of breeding age.<sup>21</sup> Females are more vulnerable than males to the lethal and sub-lethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.<sup>22</sup> Furthermore, poor body condition of individuals within the population, compared with that of southern right whales, is of major concern for the future viability of the population.<sup>23</sup> The agency has recently named the North Atlantic right whale a “Species in the Spotlight,” indicating that they are among the nine marine species most at risk of

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<sup>16</sup> Richard M. Pace, III et al., *State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales*, *ECOLOGY & EVOLUTION* (Sept. 18, 2017); Sarah M. Sharp et al., *Gross and histopathologic diagnoses from North Atlantic right whale Eubalaena glacialis mortalities between 2003 and 2018*, *DISEASES OF AQUATIC ORGANISMS* (June 20, 2019).

<sup>17</sup> 2017–2020 North Atlantic Right Whale Unusual Mortality Event, NMFS (last visited July 10, 2020), <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2020-north-atlantic-right-whale-unusual-mortality-event>.

<sup>18</sup> *Id.*

<sup>19</sup> North Atlantic Right Whale Calf Injured by Vessel Strike, NMFS (Jan. 30, 2020), <https://www.fisheries.noaa.gov/feature-story/north-atlantic-right-whale-calf-injured-vessel-strike>; Dead North Atlantic Right Whale Sighted off New Jersey, NMFS (June 29, 2020), <https://www.fisheries.noaa.gov/feature-story/dead-north-atlantic-right-whale-sighted-new-jersey>.

<sup>20</sup> Heather Pettis et al., *North Atlantic Right Whale Consortium 2019 Annual Report Card*, N. ATL. RIGHT WHALE CONSORTIUM (Jan. 2020), <https://www.narwc.org/uploads/1/1/6/6/116623219/2019reportfinal.pdf>.

<sup>21</sup> Chris Oliver, *Immediate Action Needed to Save the North Atlantic Right Whales*, NMFS (July 3, 2019), <https://www.fisheries.noaa.gov/leadership-message/immediate-action-needed-save-north-atlantic-right-whales>.

<sup>22</sup> Pace et al., *supra* note 16; Peter Corkeron et al., *The recovery of North Atlantic right whales, Eubalaena glacialis, has been constrained by human-caused mortality*, *ROYAL SOC’Y OPEN SCI.* (Nov. 7, 2018).

<sup>23</sup> Fredrik Christiansen et al., *Population comparison of right whale body condition reveals poor state of the North Atlantic right whale*, *MARINE ECOLOGY PROGRESS SERIES* (Apr. 23, 2020).



extinction in the United States.<sup>24</sup> And just this month, the IUCN Red List reclassified the status of the species from Endangered to Critically Endangered, one step away from Extinction.<sup>25</sup>

Since 2010, North Atlantic right whale distribution and habitat use have shifted in response to climate change-driven shifts in prey availability and favorable oceanographic conditions.<sup>26</sup> Monitoring indicates that such shifts are being observed throughout much of their range,<sup>27</sup> and observes right whales spending more time in the Mid-Atlantic year-round.<sup>28</sup> In addition, as the Proposed IHA notes, North Atlantic right whales are now more widely distributed across all Atlantic coast regions throughout winter months.<sup>29</sup> A recent study detected North Atlantic right whales in the waters off Virginia on approximately 10 percent of days throughout the year.<sup>30</sup> Further, NOAA data suggest that there is a seasonal hot spot of *Centropagidae* copepod density, on which North Atlantic right whales feed, off the coast of Virginia in the summer.<sup>31</sup> Scientists predict that further range shifts of this nature will occur as water temperatures continue to rise from climate change.<sup>32</sup>

While North Atlantic right whales are increasingly present within the Project Area year-round, they are most consistently present at their highest densities from November through April, based on acoustic data<sup>33</sup> and aerial surveys.<sup>34</sup> This period captures both the southward migration from the species' northern feeding grounds to their southern calving grounds off the Carolinas, Georgia, and Florida in the fall and early winter, when pregnant females are likely to be traveling through the Lease Area, and the northward migration in the late winter and early spring, when mothers and calves are likely to be traveling through and adjacent to the Project Area. These months of elevated occurrence are supported by the period for which NMFS scientists have identified a Biologically Important Area ("BIA") for North Atlantic right whales.<sup>35</sup> This

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<sup>24</sup> *Endangered Species Conservation: Species in the Spotlight*, NMFS (last visited July 10, 2020), <https://www.fisheries.noaa.gov/topic/endangered-species-conservation#species-in-the-spotlight>.

<sup>25</sup> *Almost a third of lemurs and North Atlantic Right Whale now Critically Endangered - IUCN Red List*, INT'L UNION FOR CONSERVATION OF NATURE (July 9, 2020), <https://www.iucn.org/news/species/202007/almost-a-third-lemurs-and-north-atlantic-right-whale-now-critically-endangered-iucn-red-list>.

<sup>26</sup> Nicholas R. Record et al., *Rapid climate-driven circulation changes threaten conservation of endangered North Atlantic right whales*, OCEANOGRAPHY (May 3, 2019).

<sup>27</sup> Erin L. Meyer-Gutbrod et al., *Marine species range shifts necessitate advanced policy planning: The case of the North Atlantic right whale*, OCEANOGRAPHY (June 11, 2018).

<sup>28</sup> Genevieve E. Davis et al., *Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (Eubalaena glacialis) from 2004 to 2014*, NATURE SCI. REPORTS (Oct. 18, 2017).

<sup>29</sup> 85 Fed. Reg. at 36,542 (citing Davis et al., *id.*).

<sup>30</sup> Daniel P. Salisbury et al., *Right whale occurrence in the coastal waters of Virginia, U.S.A.: Endangered species presence in a rapidly developing energy market*, MARINE MAMMAL SCI. (Oct. 15, 2015).

<sup>31</sup> *Ecology of the Northeast US Continental Shelf: Zooplankton*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN. (last visited July 10, 2020), <https://www.nefsc.noaa.gov/ecosys/ecosystem-ecology/zooplankton.html>.

<sup>32</sup> Davis et al., *supra* note 28.

<sup>33</sup> *See id.*; *see also* Salisbury et al., *supra* note 30. There is some indication that right whale densities start to increase as early as October; however, the authors conclude that the November 1<sup>st</sup> through April 30<sup>th</sup> period is when the majority of right whales are present.

<sup>34</sup> Sarah D. Mallette et al., *Occurrence of Baleen Whales along the Continental Shelf Region of the VACAPES OPAREA off Southern Virginia: Final Report*, NAVAL FACILITIES ENG'G COMMAND (NAVFAC) (July 2018), [https://www.navy-marine-species-monitoring.us/files/8415/3383/3682/Mallette\\_et\\_al.\\_2018\\_-\\_Occurrence\\_of\\_Baleen\\_Whales\\_along\\_the\\_Continental\\_Shelf\\_Region\\_of\\_the\\_VACAPES\\_OPAREA\\_off\\_southern\\_Virginia\\_-\\_Final\\_Report.pdf](https://www.navy-marine-species-monitoring.us/files/8415/3383/3682/Mallette_et_al._2018_-_Occurrence_of_Baleen_Whales_along_the_Continental_Shelf_Region_of_the_VACAPES_OPAREA_off_southern_Virginia_-_Final_Report.pdf) (finding that North Atlantic right whales were spotted during the winter and spring).

<sup>35</sup> Erin LaBrecque et al., *Biologically Important Areas for cetaceans within U.S. waters—East coast region*, AQUATIC MAMMALS (Mar. 2015).

Migratory Corridor BIA covers important migratory habitat stretching from Cape Cod Bay in Massachusetts to off central Florida, extending from the coast past the continental shelf break.<sup>36</sup>

The best available science therefore demonstrates that November 1 through April 30 represents the time period of highest risk to North Atlantic right whales off Virginia, based on times of highest relative density of animals and times when mother-calf pairs and pregnant females are expected to be present. That said, given that North Atlantic right whales are now detected during every month of the year in the Mid-Atlantic, and that NMFS has determined the species cannot sustain the loss of a single individual, there is a clear need for strong and effective mitigation measures to be in place year-round for the CVOW Commercial Project.

The identification of this heightened seasonal occurrence and risk is also consistent with the Seasonal Management Area (“SMA”), which overlaps with part of the cable corridor and applies vessel speed limits to waters extending 37 kilometers offshore from the entrance of Chesapeake Bay from November 1 through April 30 for purposes of vessel strike mitigation.<sup>37</sup> As discussed in more detail below (*see* Section II.C), North Atlantic right whales are particularly vulnerable to serious injury and mortality from vessel strikes. Moreover, some types of anthropogenic noise have been shown to induce near-surface positioning in North Atlantic right whales, increasing the risk of vessel strike at relatively moderate levels of exposure. Anthropogenic noise also increases stress hormones in right whales, which can impact their ability to reproduce and impair their immune systems.<sup>38</sup> It is possible that HRG surveys could produce the same effects, and should therefore be given proper consideration by the agency.

## ii. Other Large Whales

Nearshore Mid-Atlantic waters serve as an important migratory area for humpback and endangered fin whales, while more offshore waters are important migratory grounds for minke and endangered sei whales.<sup>39</sup> Humpback whales are increasingly sighted year-round in the waters off Virginia, and perhaps throughout the broader Mid-Atlantic region.<sup>40</sup> These waters, including those within the Lease Area and cable corridor, provide important seasonal foraging habitat for humpback whales.<sup>41</sup> Between-year sightings suggest that as many as 20 percent of identified juvenile humpback whales occur in a relatively small study area in consecutive years.<sup>42</sup>

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<sup>36</sup> *Id.*

<sup>37</sup> *Reducing Ship Strikes to North Atlantic Right Whales*, NMFS (last visited July 10, 2020), <https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales>.

<sup>38</sup> Rosalind M. Rolland et al., *Evidence that ship noise increases stress in right whales*, PROC. ROYAL SOC’Y B (Feb. 8, 2012).

<sup>39</sup> *Documenting Whale Migration off Virginia’s Coast: Virginia CZM Cooperative Agreement with the Virginia Aquarium*, NOAA (2014), <https://www.midatlanticocean.org/wp-content/uploads/2013/11/documenting-whale-migration-off-virginias-coast.pdf>.

<sup>40</sup> Alyson Fleming & Jennifer Jackson, *Global Review of Humpback Whales* (Megaptera novaeangliae), NMFS (Mar. 2011), <https://repository.library.noaa.gov/view/noaa/4489>.

<sup>41</sup> Sarah D. Mallette et al., *Seasonality and site-fidelity of humpback whales off the Mid-Atlantic region of the U.S.* (2017) (poster presentation, Va. Aquarium & Marine Sci. Ctr. (VAMSC)), [https://www.navymarinespeciesmonitoring.us/files/5115/1941/4653/Mallette\\_SMM\\_2017\\_poster.pdf](https://www.navymarinespeciesmonitoring.us/files/5115/1941/4653/Mallette_SMM_2017_poster.pdf).

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

While not currently listed as depleted,<sup>43</sup> ongoing UMEs exist for the Atlantic populations of minke whales (since January 2017) and humpback whales (since January 2016). Ninety-two (92) minke whales have stranded between Maine and South Carolina from January 2017 to July 2020.<sup>44</sup> Some necropsies of have shown evidence of human interaction (i.e., vessel strike and entanglement), though more research is needed to determine the official causes of the UME.<sup>45</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016, and in a little over three years, 126 mortalities have been recorded (data through July 8, 2020), with strandings occurring in every state along the East Coast.<sup>46</sup> Virginia is the state with the second highest number of reported humpback strandings in the UME, likely due in part to elevated occurrences of vessel traffic in the area.<sup>47</sup> Indeed, NMFS' most recent Marine Mammal Stock Assessment Report shows that the majority of reported serious injury and mortality in the region were a result of vessel strikes, underscoring the risk of vessel traffic to humpback whales off the coast of Virginia.<sup>48</sup> The declaration of the three large whale UMEs by NMFS in the past few years, of which anthropogenic impacts may be a significant cause, demonstrates an increasing risk to large whales from human activities in this region, including those proposed by Dominion.

### iii. Small Cetaceans

In addition to endangered large whales, two strategic stocks of small cetaceans—false killer whales and the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin—are found within the Project Area. While the Western North Atlantic stock of false killer whale was designated as strategic in 2014 because of mortality from fishery bycatch, no fishery-related mortality or serious injury has been observed in the last five years, and its strategic status is currently being proposed for removal.<sup>49</sup> The Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin is considered to be both strategic and depleted under the MMPA due to the number of annual human-caused mortalities and previous UMEs.<sup>50</sup>

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<sup>43</sup> While humpback whales are not considered depleted or strategic under the MMPA, there is reason to believe that they should be. According to the agency's own draft of the most recent Marine Mammal Stock Assessment Report, "[t]here is mounting evidence that humpback whales have been over PBR [Potential Biological Removal] for some time, and likely will be formally determined to be so in a future report. This is further supported by the NMFS declaration of Unusual Mortality Event No. 63.7..." *Draft Marine Mammal Stock Assessment Reports: U.S. Atlantic and Gulf of Mexico Draft Marine Mammal Stock Assessment*, NMFS (last visited July 10, 2020), <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports> [hereinafter "2019 Draft Marine Mammal Stock Assessment"], at 163.

<sup>44</sup> *2017–2020 Minke Whale Unusual Mortality Event along the Atlantic Coast*, NMFS (last visited July 16, 2020), <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2020-minke-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>45</sup> *Id.*

<sup>46</sup> *2016–2020 Humpback Whale Unusual Mortality Event Along the Atlantic Coast*, NMFS (last visited June 30, 2020), <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2020-humpback-whale-unusual-mortality-event-along-atlantic-coast>.

<sup>47</sup> Jessica M. Aschettino et al., *Satellite telemetry reveals spatial overlap between vessel high-traffic areas and humpback whales (Megaptera novaeangliae) near the mouth of the Chesapeake Bay*, FRONTIERS IN MARINE SCI. (Mar. 12, 2020).

<sup>48</sup> 2019 Draft Marine Mammal Stock Assessment, *supra* note 43, at 165-182.

<sup>49</sup> 2019 Draft Marine Mammal Stock Assessment, *supra* note 43, at 275.

<sup>50</sup> Sean A. Hayes et al., *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2017*, NMFS (Sept. 2018), <https://repository.library.noaa.gov/view/noaa/22730>, at 110-24.

The stock is commonly found in shallow waters off the Chesapeake Bay in the late summer months, but the precise boundaries of their migration vary from year to year.<sup>51</sup>

NMFS has identified a number of additional small cetacean species that have the highest likelihood of occurring in the Project Area and are expected to potentially be taken by the proposed activities. These include Atlantic spotted dolphins, Atlantic white-sided dolphins, common dolphins, short- and long-finned pilot whales, Western North Atlantic Offshore bottlenose dolphins, Risso's dolphins, and harbor porpoises.<sup>52</sup> Scientific research indicates seasonal and/or year-round presence of these species during the project period. During the warm summer months of June through August, Atlantic spotted dolphins are presumed to occupy coastal waters off Assateague, Virginia, including Chesapeake Bay.<sup>53</sup> From January through May, low numbers of white-sided and common dolphins are found off Virginia and the Carolinas.<sup>54</sup> Both species of pilot whale, the Western North Atlantic Offshore bottlenose dolphin stock, and the Risso's dolphin are more generally found further offshore along the continental shelf edge year-round,<sup>55</sup> yet some evidence suggests that long-finned pilot whales may move inshore during late summer and autumn months.<sup>56</sup> Passive acoustic monitoring regularly detects harbor porpoises from January through May off Maryland.<sup>57</sup>

#### iv. Pinnipeds

Two pinniped species of conservation concern are also found off Virginia during the project period: harbor and gray seals. While they are not listed under the ESA, nor considered strategic under the MMPA, a UME has been declared for these and two other seal species across the Northeast, extending as far south as Virginia. Due to infectious disease, 3,152 strandings have occurred since July 2018, including 10 in Virginia (data through March 13, 2020).<sup>58</sup> Harbor seals occur seasonally in coastal waters from southern New England to North Carolina from September through late May.<sup>59</sup> Seasonal distribution of gray seals in the Mid-Atlantic is less understood. Current population trends show abundance is likely increasing along the U.S. East Coast, although only strandings have been recorded off Virginia.<sup>60</sup>

HRG survey activities associated with marine site characterization have the potential to impact all of the above-mentioned species. Dominion's IHA Application notes: "Based on the

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<sup>51</sup> *Id.*

<sup>52</sup> 85 Fed. Reg. at 36,541, Table 2.

<sup>53</sup> Gordon T. Waring et al., *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2013*, NMFS (July 2014), <https://repository.library.noaa.gov/view/noaa/4757>, at 166.

<sup>54</sup> Hayes et al., *supra* note 50, at 77, 86.

<sup>55</sup> Sean A. Hayes et al., *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2018*, NMFS (June 2019), <https://repository.library.noaa.gov/view/noaa/20611>, at 74, 82; Sean A. Hayes et al., *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2016*, NMFS (June 2017), <https://repository.library.noaa.gov/view/noaa/14864>, at 120; Hayes et al. (2018), *supra* note 50, at 70.

<sup>56</sup> Randall R. Reeves et al. (eds.), *NAT'L AUDUBON SOC'Y GUIDE TO MARINE MAMMALS OF THE WORLD* 442 (2002).

<sup>57</sup> Jessica E. Wingfield et al., *Year-round spatiotemporal distribution of harbor porpoises within and around the Maryland Wind Energy Area*, PLOS ONE (May 3, 2017).

<sup>58</sup> *2018–2020 Pinniped Unusual Mortality Event Along the Northeast Coast*, NMFS (last visited July 8, 2020), <https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/2018-2020-pinniped-unusual-mortality-event-along>.

<sup>59</sup> Hayes et al. (2019), *supra* note 55, at 121.

<sup>60</sup> *Id.* at 134, 131.

frequency ranges of the potential equipment to be used in support of the HRG survey activities[,] all but [two equipment types] operate within the established marine mammal hearing ranges and have the potential to result in Level A and B harassment of marine mammals.”<sup>61</sup> Elevated background noise can cause hearing damage, threshold shifts, masking, elevated stress, and behavioral disturbance in marine mammals, as described in the Proposed IHA.<sup>62</sup> The most likely and extensive effects of HRG surveys on large whales are behavioral responses, potentially resulting in the displacement of individuals out of important feeding or breeding areas or the disruption of communication important to life history functions.<sup>63</sup> Important here, migratory species have been known to avoid normal migratory paths when exposed to anthropogenic noise, leading to increased energy expenditure and potentially longer migratory times.<sup>64</sup>

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MMPA

### A. NMFS Must Analyze All Data Sources When Calculating Marine Mammal Densities

In order to comply with the MMPA, NMFS must base its IHA analysis on the best available scientific information.<sup>65</sup> 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 produced by the Duke University Marine Geospatial Ecology Laboratory (“Roberts et al. model”).<sup>66</sup> While the Proposed IHA notes that the Roberts et al. model has been updated to incorporate additional data sources and two more years of data,<sup>67</sup> it still excludes data obtained through additional sightings databases, passive acoustic monitoring, and satellite telemetry. Notably, much of the survey data used to develop the model was collected prior to 2010 and therefore do not reflect the recent shift in North Atlantic right whale distribution, including the significant shifts observed during the past three years (2017-2019).

Moreover, the Roberts et al. model does not differentiate between species of pilot whale or seal, or between stocks of bottlenose dolphin.<sup>68</sup> That is, while the Proposed IHA separates marine mammals by species or by stock, the same accounting is used for each, and observations do not distinguish between species or stock. To make up for the general data, NMFS authorizes the total take for each stock of both bottlenose dolphins and all pilot whale and seal species. However, the MMPA requires that the agency look at the impact to both species and marine mammal stocks to support a negligible impact finding. A record that provides “general discussions with little, if any, relevance to the population-level effects on specific species and

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<sup>61</sup> Dominion IHA Application, *supra* note 15, at 7.

<sup>62</sup> 85 Fed. Reg. at 36,547.

<sup>63</sup> See, e.g., Brandon L. Southall et al., *Marine mammal noise exposure criteria: initial scientific recommendations*, AQUATIC MAMMALS (2007).

<sup>64</sup> See Christos Kolliatsas et al., OFFSHORE RENEWABLE ENERGY: ACCELERATING THE DEPLOYMENT OF OFFSHORE WIND, TIDAL AND WAVE TECHNOLOGIES 128-29 (2012).

<sup>65</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>66</sup> Jason J. Roberts et al., *Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico*, NATURE SCI. REPORTS (Mar. 3, 2016).

<sup>67</sup> 85 Fed. Reg. at 36,556.

<sup>68</sup> “[Roberts et al.] produced density models to genus level for *Globicephala* spp. [pilot whales] and produced a density model for bottlenose dolphins that does not differentiate between offshore and coastal stocks.” *Id.* at 36542. “[Roberts et al.] produced density models for all seals and did not differentiate by seal species.” *Id.* at 36557.



stock, and to conclusory statements that no such effects are expected,” is inadequate.<sup>69</sup> We also note that the agency omits information on the “depleted” status of the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin in the Proposed IHA, even though this designation was included in Dominion’s IHA Application.<sup>70</sup>

Miscalculation of take levels based on incomplete data could have serious implications for the future conservation status of these stocks. Because the density maps produced by the Roberts et al. model do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast, they cannot be the only information source relied upon when estimating take. Integration of opportunistic sightings data and other sources of data that collect fine-scale information on factors driving marine mammal distribution with those gathered through systematic broad-scale surveys would better reflect current marine mammal presence, abundance, and density off Virginia, providing a more accurate assessment of Level B take.<sup>71</sup> Accordingly, NMFS must consider any data from State monitoring efforts,<sup>72</sup> passive acoustic monitoring data,<sup>73</sup> opportunistic marine mammal sightings,<sup>74</sup> and other data sources.

### **B. NMFS Should Not Adjust Take Numbers for Large Whales Based on Under-Protective Mitigation Measures**

According to the Proposed IHA, NMFS is choosing to adjust take numbers of endangered North Atlantic right whales and all other large whales to zero, as the proposed mitigation measures are “expected to preclude potential interactions” with, and “effectively prevent Level B harassment” of, these species.<sup>75</sup> Furthermore, the agency asserts that the 500-m exclusion zone for North Atlantic right whales exceeds the calculated Level B behavioral harassment zone.<sup>76</sup> While we appreciate NMFS’ refusal to authorize a single Level B take for the North Atlantic right whale, as is necessary given the species’ dire conservation status, we do not share the agency’s level of confidence that it is possible to mitigate all potential for Level B harassment through the implementation of an exclusion zone when North Atlantic right whales may nevertheless be present in the Lease Area. We are equally concerned in the case of large whales—humpback, fin, sei, sperm, and minke whales—all of which are either endangered or of conservation concern (*see* Section I.B.ii above).

Our reasons are threefold. First, the agency’s reliance on a 160 dB threshold for behavioral harassment is not supported by best available scientific information, which indicates that Level B takes occur with near certainty at exposure levels well below the 160 dB

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<sup>69</sup> *Conservation Council for Haw. v. NMFS*, 97 F. Supp. 3d 1210, 1223 (D. Haw. 2015).

<sup>70</sup> 85 Fed. Reg. at 36,541, Table 2.

<sup>71</sup> *See, e.g.,* Auriane Virgili et al., *Combining multiple visual surveys to model the habitat of deep-diving cetaceans at the basin scale*, GLOB. ECOLOGY & BIOGEOGRAPHY (Nov. 28, 2018).

<sup>72</sup> *E.g.,* NOAA, *supra* note 39; Mallette et al., *supra* note 34; Sarah D. Mallette et al., *Offshore Energy Planning for Marine Protected Species off of Virginia’s Coast: A Synthesis of Aerial Surveys in the Proximity of the Virginia Wind Energy Area (VA WEA) from 2012-2015*, VAMSC (2016), <https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/FY14Task95-04-14.pdf>.

<sup>73</sup> *E.g.,* Davis et al., *supra* note 28; Salisbury et al., *supra* note 30.

<sup>74</sup> *E.g.,* *Dramatic Rescue of Endangered Whale Filmed by Fishermen*, THE TELEGRAPH (July 17, 2013), <https://www.telegraph.co.uk/news/earth/wildlife/10184397/Dramatic-rescue-of-endangered-whale-filmed-by-fishermen.html>.

<sup>75</sup> 85 Fed. Reg. at 36,557.

<sup>76</sup> *Id.*

threshold.<sup>77</sup> In the most comprehensive meta-analysis of behavioral response studies conducted to date, mid-frequency cetaceans had the highest probability of low-, moderate-, and high-severity responses to mid-frequency sonar sources (whose frequencies substantially overlap with the systems used by Dominion) at received levels around 150 dB, with significant increases in probability beginning at 130 dB and some responses occurring below 110 dB.<sup>78</sup> Second, the agency relies on the assumption that marine mammals will take measures to avoid the sound<sup>79</sup> even though studies have not found avoidance behavior to be generalizable among species and contexts,<sup>80</sup> and even though avoidance may itself constitute take under the MMPA. Third, as discussed in Section III below, the mitigation and monitoring protocols prescribed by the agency are inadequate at protecting marine mammals and do not comply with the MMPA. In fact, the mitigation measures in the Proposed IHA are overall less protective than previous IHA authorizations for the region (*see* Section III.C), even as the conservation status of the North Atlantic right whale has worsened. Collectively, the agency's assumptions regarding acoustic thresholds and mitigation effectiveness are unfounded and cannot be used to justify any reduction in the number of takes expected.

### **C. NMFS Must Acknowledge that HRG Surveys and Vessel Strikes Can Result in Level A Take**

The use of certain HRG survey equipment has the potential to result in Level A take, and this risk is relatively greater for species in the high-frequency hearing band, such as the harbor porpoise. The agency acknowledges this fact in its calculation of the Level A harassment zone,<sup>81</sup> yet discounts the possibility that Level A take will occur.<sup>82</sup> In fact, in previous authorizations for HRG surveys, the agency has, “out of an abundance of caution,” authorized Level A take for this species and other high-frequency cetaceans.<sup>83</sup> It is arbitrary for the agency to impose less precautionary measures for this area that is home to a number of mid- and high-frequency hearing specialists which may be vulnerable to Level A take. Moreover, the proposed cable corridor includes shallow, coastal waters, which may increase the likelihood of animals becoming trapped between the sound source and the shore. The agency should therefore acknowledge the *potential* for Level A take from HRG surveys on small cetaceans, and

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<sup>77</sup> See, e.g., Douglas P. Nowacek et al., *North Atlantic right whales (Eubalaena glacialis) ignore ships but respond to alerting stimuli*, PROC. ROYAL SOC'Y B (Dec. 3, 2003); Ronald A. Kastelein et al., *Threshold received sound pressure levels of single 1-2 kHz and 6-7 kHz up-sweeps and down-sweeps causing startle responses in a harbor porpoise (Phocoena phocoena)*, J. ACOUSTICAL SOC'Y AM. (Mar. 2012); Ronald A. Kastelein et al., *Behavioral response of a harbor porpoise (Phocoena phocoena) to 25.5- to 24.5-kHz sonar down-sweeps with and without side bands*, AQUATIC MAMMALS (Nov. 19, 2015).

<sup>78</sup> Catalina Gomez et al., *A systematic review on the behavioural responses of wild marine mammals to noise: The disparity between science and policy*, CAN. J. ZOOLOGY (Sept. 15, 2016).

<sup>79</sup> See 85 Fed. Reg. at, e.g., 36,548 (“most marine mammals would more likely avoid a loud sound source rather than swim in such close proximity as to result in TTS [Temporary Threshold Shift]”).

<sup>80</sup> Patrick J.O. Miller et al., *Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico*, DEEP SEA RES. I, (July 2009); Enrico Pirotta et al., *Vessel noise affects beaked whale behavior: Results of a dedicated acoustic response study*, PLOS ONE (Aug. 2012).

<sup>81</sup> 85 Fed. Reg. at 36,554, Table 6.

<sup>82</sup> *Id.* (“...in consideration of the proposed mitigation measures..., the likelihood of the proposed survey resulting in take in the form of Level A harassment is considered so low as to be discountable...”)

<sup>83</sup> See, e.g., Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Site Characterization Surveys Off the Coast of Massachusetts, 83 Fed. Reg. 22,443 (May 15, 2018).

reconsider its analysis of Level A take from HRG surveys on harbor porpoises and other acoustically sensitive species.

We are pleased that the Proposed IHA includes mitigation measures to avoid vessel strikes; however, it is our view that vessel impacts should also be incorporated into NMFS' take analysis. Vessel collisions are a leading cause of large whale injury and mortality and have been implicated as one of the major causes of death underlying the Atlantic large whale UMEs.<sup>84</sup> The number of recorded vessel collisions with large whales is likely to grossly underestimate the actual number of animals struck, as those struck but not recovered or thoroughly examined cannot be accounted for.<sup>85</sup> North Atlantic right whales are particularly prone to vessel strikes, given their slow speeds, overlapping range with shipping lanes, and extended time spent at or near the surface.<sup>86</sup> Some types of anthropogenic noise have been shown to *induce* near-surface positioning in North Atlantic right whales, increasing risk of vessel strikes.<sup>87</sup> It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. The serious injury of two North Atlantic right whale calves by vessel strike this year alone, one of which resulted in documented mortality, demonstrates that vessel strikes pose an unacceptable risk to the species and can potentially occur even when very few whales are in the area.

In addition, relatively higher densities of humpback whales are found within high-traffic shipping lanes near the mouth of the Chesapeake Bay, indicating that vessel strike is a pertinent concern for this species.<sup>88</sup> Indeed, increased baleen whale sightings have occurred within the Bay, and have overlapped with the Project Area, over recent years<sup>89</sup> and vessel strike mortalities have also risen.<sup>90</sup> Given the demonstrated vulnerability of large whales to vessel collisions off the East Coast, and especially the mid-Atlantic, it is remiss of the agency to overlook vessel collisions as a source of potential take. The localized elevation in vessel activity occurring during marine site characterization surveys naturally increases the vessel collision risk for large whales in the area.

Our organizations understand that, based on past IHAs for marine site assessment and characterization activities, the vessels associated with the proposed activity will likely move at speeds well below 10 knots, meaning the risk of a lethal vessel collision during the surveys may be relatively low. However, the agency completely omits any information about estimated vessel speeds for the project. In the absence of such information, the agency cannot rule out the possibility that mortality or serious injury from vessel strikes could occur as a result of the proposed activity.

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<sup>84</sup> See NMFS, *supra* notes 17, 44, 46.

<sup>85</sup> See, e.g., Susan E. Parks et al., *Dangerous dining: Surface foraging of North Atlantic right whales increases risk of vessel collisions*, BIOLOGY LETTERS (Aug. 3, 2011).

<sup>86</sup> See *id.*

<sup>87</sup> Nowacek et al., *supra* note 77.

<sup>88</sup> See Mallette et al., *supra* note 41; see also Aschettino et al., *supra* note 47.

<sup>89</sup> Jessica M. Aschettino et al., *Mid-Atlantic Humpback Whale Monitoring, Virginia Beach, Virginia: 2017/18 Annual Progress Report*, NAVFAC (June 2018), [https://www.navy-marine-species-monitoring.us/files/2415/3081/8453/Aschettino\\_et\\_al.\\_2018\\_-\\_Humpback\\_Whale\\_Tagging\\_2017\\_-\\_Final.pdf](https://www.navy-marine-species-monitoring.us/files/2415/3081/8453/Aschettino_et_al._2018_-_Humpback_Whale_Tagging_2017_-_Final.pdf).

<sup>90</sup> Mallette et al., *supra* note 34.



In addition, as noted in the Proposed IHA, studies indicate that noise can induce flight responses, behavioral disturbances, habitat avoidance, and stress responses which reduce feeding rates and reproductive success.<sup>91</sup> Because of this, survey noise can induce horizontal displacement, or movement into other areas.<sup>92</sup> This could push a North Atlantic right whale or other large whale out of a protected area and into an area with a greater risk of vessel collision, such as the shipping lanes entering the Chesapeake Bay. Given this, indirect vessel strike risk resulting from habitat displacement should be considered in NMFS' take analysis.

#### **D. The Proposed IHA Extension Process Does Not Comport with the Plain Language of the Statute**

In addition to the Proposed IHA, NMFS requests comments on the potential one-year renewal of this Proposed IHA, on a case-by-case basis, for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.<sup>93</sup> For several reasons, the undersigned organizations have opposed this process as contrary to law.

First, NMFS' proposal to provide one-year renewals does not comport with the plain language of the MMPA. Section 101(a)(D)(i) unambiguously states that IHAs are valid for periods of not more than one year.<sup>94</sup> Second, the statute is plainly clear on the timing of when the agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>95</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency's implementation of the IHA process, stating: "As approved by the Committee, the [MMPA] involves a number of basic concepts," one being that "the public is invited and encouraged to participate fully in the agency decision-making process."<sup>96</sup> When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."<sup>97</sup> Third, the legislative history removes any doubt that this 30-day comment period applies even in cases where the IHA is extended for another year without change.<sup>98</sup>

Notably, NMFS supplies no legal rationale for why it is authorized to issue an identical IHA for a second year while cutting in half the comment period the statute requires. The agency lacks discretionary authority to interpret the statute other than as commanded by its plain language, whether by regulation, by policy, or on a permit-by-permit basis as it purports to do here.<sup>99</sup> Nor has NMFS supplied a sufficient explanation for why it might assert that the statutory language of Section 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately

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<sup>91</sup> 85 Fed. Reg. at 36,549-50.

<sup>92</sup> E.g., Manuel Castellote et al., *Acoustic and behavioural changes by fin whales (Balaenoptera physalus) in response to shipping and airgun noise*, BIOLOGICAL CONSERVATION (Mar. 2012).

<sup>93</sup> 85 Fed. Reg. at 36,562.

<sup>94</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>95</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>96</sup> H.R. Rep. No. 92-707, at 4151 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151.

<sup>97</sup> *Id.* at 4146.

<sup>98</sup> H.R. Rep. No. 103-439, at 29 (1994). "[I]n some instances, a request will be made for an authorization identical to one issued the previous year. In such circumstances, the Committee expects the Secretary to act expeditiously in complying with the notice and comment requirements."

<sup>99</sup> See *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council (NRDC)*, 467 U.S. 837, 842-43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.").

exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute’s objectives.<sup>100</sup>

Finally, NMFS’ language about IHA Renewals on its website<sup>101</sup> does not provide a clear and legally adequate justification for its purported new reauthorization process, which allows interested members of the public only 15 calendar days to review and formulate comments. Given that this proposed change has appeared consistently in notices of draft IHAs for over a year now, NMFS apparently intends the new reauthorization process to become the rule rather than the exception. This change is not supported by law, and is further undermined by the fact that the agency has not gone through any public notice and comment or provided any rationale for its new process.

### **III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING**

In authorizing “take” by incidental harassment under the general authorization provision of the MMPA, NMFS 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.”<sup>102</sup> In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA, NMFS has an obligation to impose robust avoidance, mitigation, and monitoring requirements to protect Virginia’s marine mammal species to the maximum extent practicable.

As noted above, the best scientific and commercial data available show that the North Atlantic right whale population cannot withstand the loss of a single individual, or any additional stressors. Any potential interruption of reproductive or migratory behavior may lead to population-level effects and is of critical concern. Given that North Atlantic right whales are present in the Project Area year-round, there is a clear need for strong mitigation measures on the activities covered by the IHA.

Our organizations agree with several of the mitigation and monitoring measures contained in the Proposed IHA. However, we believe that additional measures are necessary to more effectively avoid, minimize, and mitigate impacts to marine mammals. The current measures outlined in the Proposed IHA do not meet the standard of achieving the “least practicable adverse impact” on marine mammal populations. In the comments below, we address specific recommendations we have for improving these measures. These changes are critical to ensuring the protection of the North Atlantic right whale during Dominion’s proposed marine site characterization surveys.

#### **A. Seasonal Restrictions**

Dominion’s proposed survey activities are intended to commence “as soon as possible” and occur 24 hours per day for approximately 161 days, utilizing two survey vessels at any one

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<sup>100</sup> See *Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a “‘reasonable’ explanation of how an agency’s interpretation serves the statute’s objectives is the stuff of which a ‘permissible’ construction is made”).

<sup>101</sup> *Incidental Take Authorizations Under the Marine Mammal Protection Act*, NMFS (last visited July 10, 2020), <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>102</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

time.<sup>103</sup> This means that the proposed activities will continue well into the time period that poses the highest risk for North Atlantic right whales (i.e., November 1 to April 30). Given the extended duration and cumulative acoustic impact of the survey activities, we urge NMFS to prohibit site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (i.e., source level >180 dB re 1 µPa (SPL) at 1-meter frequencies between 7 and 35 kHz) from November 1 to April 30.<sup>104</sup> These dates currently reflect both the best available scientific information on the relative density of North Atlantic right whales in the Mid-Atlantic, as well as the potential presence of pregnant females and mother-calf pairs (*see* Section I.B.i).

Time and area restrictions designed to protect certain species groups and habitats are one of the most effective available means to reduce the potential impacts of noise and disturbance on marine mammals.<sup>105</sup> Seasonal restrictions for pile driving and geophysical surveying formed a core component of a landmark agreement aimed at protecting the North Atlantic right whale from construction and site assessment and characterization activities in the Mid-Atlantic Wind Energy Areas that was reached between offshore wind developers and the environmental NGO community in 2012.<sup>106</sup> That said, it is becoming increasingly clear that there may not be a time of “low risk” for this species. The population size is now so small that any individual-level impact is of great concern. Moreover, changes in oceanographic conditions driven by climate change are rapidly impacting the habitat use and seasonal distribution of the species. Therefore, we recommend that robust and effective real-time monitoring and mitigation systems are in place to protect this species throughout the year (see the following sections for specific recommendations).

While existing and potential stressors to the North Atlantic right whale must be minimized as much as possible to promote the survival and recovery of the species, it is also incumbent upon the agency to address potential impacts to other imperiled whale species, particularly in light of the UMEs declared for humpback and minke whales (*see* Section I.B.ii). It is therefore imperative that consequences of the proposed North Atlantic right whale seasonal restriction on other protected species be fully addressed by the agency through the strong and

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<sup>103</sup> 85 Fed. Reg. at 36,538.

<sup>104</sup> Over a dozen wildlife conservation organizations have endorsed a suite of Best Management Practices (“BMP”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Conservation L. Found. et al., *Best Management Practices for North Atlantic Right Whales During Offshore Wind Energy Construction and Operations Along the U.S. East Coast* (Mar. 1, 2019), provided as Attachment 1.

<sup>105</sup> See, e.g., Tundi Agardy et al., A global scientific workshop on spatio-temporal management of noise (Workshop, Puerto Calero, Lanzarote) (June 4-6, 2007), <http://www.pelagosinstitute.gr/en/pelagos/pdfs/Spatio-temporal%20management%20of%20noise.pdf>; Sarah J. Dolman et al., *Technical report on effective mitigation for active sonar and beaked whales*, EUR. CETACEAN SOC’Y (Apr. 20, 2009), [https://www.ascobans.org/sites/default/files/document/AC16\\_50\\_TechnicalReportSonarBeakedWhales\\_1.pdf](https://www.ascobans.org/sites/default/files/document/AC16_50_TechnicalReportSonarBeakedWhales_1.pdf); Convention on Biological Diversity, *Scientific synthesis on the impacts of underwater noise on marine and coastal biodiversity and habitats*, UNITED NATIONS (Mar. 12, 2012), [https://www.ascobans.org/sites/default/files/document/AC19\\_4-16\\_CBD\\_SBSTTA16\\_SynthesisUnderwaterNoise\\_1.pdf](https://www.ascobans.org/sites/default/files/document/AC19_4-16_CBD_SBSTTA16_SynthesisUnderwaterNoise_1.pdf).

<sup>106</sup> See Letter from Jeff Grybowski, Deepwater Wind, et al. to Maureen Bornholdt, BOEM (Dec. 12, 2012), [https://www.nrdc.org/sites/default/files/oce\\_12121101a.pdf](https://www.nrdc.org/sites/default/files/oce_12121101a.pdf).

protective mitigation measures noted below (e.g., a seasonal restriction may displace survey activities later in the year, which may increase levels of take for other species and populations, including juvenile humpback whales that show site fidelity to the survey area).

## **B. Temporal Restrictions**

Dominion proposes to conduct HRG survey activities continuously, 24 hours per day,<sup>107</sup> which has the potential to harass North Atlantic right whales and other marine mammals. To best minimize impacts to marine mammals, HRG surveys should only commence, with ramp-up, during daylight hours of adequate visibility to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone.<sup>108</sup> If the survey is begun during daylight hours, we do not oppose these activities continuing into the night; however, if the survey is shut down for any reason, developers should be required to wait until daylight hours and good visibility for surveying to resume.

Dominion has voluntarily proposed to employ additional agency-approved visual observers when HRG surveys are underway at night.<sup>109</sup> We do not share the agency's confidence that visual observers alone will be able to monitor the exclusion zone effectively during nighttime hours. We are deeply concerned that NMFS has proposed reliance upon visual observation as the primary means of detecting North Atlantic right whales and other marine mammals at night, while requiring neither night vision, infrared technology, nor real-time passive acoustic monitoring. This approach is wholly under-protective and places one of the world's most endangered marine species at unnecessary risk. Accordingly, NMFS must require, for efforts that continue into the nighttime, the use of night vision or infrared technology in combination with real-time passive acoustic monitoring and shutdown on acoustic detection.

We note that the effectiveness of night vision and infrared technology in detecting marine mammals in low-visibility conditions has not yet been tested and published for this region, and varying results are still being reported elsewhere.<sup>110</sup> This is particularly true for detecting North Atlantic right whales and minke whales,<sup>111</sup> both species of concern off Virginia. Recent research published this year indicates increasing promise for infrared technology as a mitigation tool, specifically at night during relatively calm conditions.<sup>112</sup> Accordingly, the agency should

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<sup>107</sup> 85 Fed. Reg. at 36,538.

<sup>108</sup> Except for seasonal restrictions, which are calculated based on presence of the highly endangered North Atlantic right whale, mitigation and monitoring measures should be in place when any technologies are operating within the frequency ranges that overlap with those of low-, mid-, and high-frequency cetaceans.

<sup>109</sup> 85 Fed. Reg. at 36,557.

<sup>110</sup> In general, night vision technology has not been widely used or tested for marine mammal monitoring, and is considered to be heavily affected by environmental conditions. The use of infrared technology, relying on thermal differences between the target species and the environment, as a mitigation tool is still in development. The reduced temperature differential between whale blow and the surrounding water expected to occur in the Mid-Atlantic, particularly during the spring and summer, in contrast to the far cooler high-latitude waters, is likely to negatively impact the detection effectiveness of infrared in this region. See Justin Lathlean & Laurent Seuront, *Infrared thermography in marine ecology: Methods, previous applications and future challenges*, MARINE ECOLOGY PROGRESS SERIES (Nov. 6, 2014).

<sup>111</sup> Christine Cuyler et al., *Thermal infrared radiation from free living whales*, MARINE MAMMAL SCI. (Apr. 1992).

<sup>112</sup> Heather R. Smith et al., *A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada*, MARINE POLLUTION BULL. (Mar. 13, 2020); Daniel P. Zitterbart et al., *Scaling the laws of thermal imaging-based whale detection*, J. ATMOSPHERIC & OCEANIC TECH. (May 8, 2020).

consider the limitations of these systems and ensure that the detection of marine mammals is possible at distances out to and beyond the exclusion zones in this region prior to reliance on this evolving technology. Our organizations also recommend that NMFS encourage Dominion to collaborate with scientists in collecting data that would increase the understanding of the effectiveness of night vision and infrared technologies off Virginia and the broader Mid-Atlantic region, with a view towards utilizing these technologies to commence surveys at night in the future. In sum, overall detection rates are likely to be maximized when complementary monitoring methods are used.

### **C. Exclusion Zone Size**

The Proposed IHA specifies that the following marine mammal exclusion zones will be established around HRG equipment: 500 meters for North Atlantic right whales, and 100 meters for “large whale species” (i.e., humpback, fin, sei, sperm, and minke whales).<sup>113</sup> As an initial matter, our organizations are concerned that this leaves two small cetaceans of conservation concern—the false killer whale and the Western North Atlantic Southern Migratory Coastal bottlenose dolphin—without any exclusion zone protections. In addition, these measures are inconsistent with those required for similar activities in other Lease Areas, without explanation or justification. For example, during HRG surveys in the nearby Kitty Hawk Lease Area leased by Avangrid Renewables, the agency required a 200-meter exclusion zone for all large whales, including pilot whales and Risso’s dolphins.<sup>114</sup> NMFS does not explain why, for the same activities being conducted less than 25 miles away, a smaller exclusion zone protecting fewer species is warranted. Further, the agency appears to offer no protection for harbor porpoises in its exclusion zone requirements here, even though the species has been proven extremely sensitive to noise, and similar IHAs issued in the past have implemented an exclusion zone for this species.<sup>115</sup> We are worried that these inconsistencies leave a number of species of conservation concern without adequate protection.

Our organizations believe that the definition of exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals may experience noise at levels capable of causing behavioral harassment. Any potential harassment of the North Atlantic right whale is of particular concern. We therefore urge a clearance zone of 500 meters in all directions for *all* marine mammals around vessels conducting activities with noise levels that could result in injury or harassment to these species,<sup>116</sup> and, to the extent feasible, 1,000 meters for North Atlantic right whales.

### **D. Exclusion Zone Monitoring**

NMFS proposes to require that the exclusion zones be monitored by visual observation alone, through the use of only one visual observer during daytime operations and two visual

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<sup>113</sup> 85 Fed. Reg. at 36,557.

<sup>114</sup> Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Site Characterization Surveys off the Coast of North Carolina, 84 Fed. Reg. 17,384 (Apr. 25, 2019).

<sup>115</sup> See, e.g., Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off of Rhode Island and Massachusetts, 83 Fed. Reg. 19,711 (May 4, 2018) (implementing a 25-m exclusion zone for harbor porpoises).

<sup>116</sup> Letter from J. Grybowski et al. to M. Bornholdt, *supra* note 104.

observers at night.<sup>117</sup> First and foremost, it is our view that a minimum of four protected species observers on duty, adhering to a two-on/two-off shift schedule, is needed to avoid a single observer being responsible for visually monitoring more than 180° of the exclusion zone at any given time.

Furthermore, visual observations are not enough. To maximize the probability of detection of marine mammals, experts say that comprehensive exclusion zone monitoring is essential.<sup>118</sup> One reason for this is because detectability of marine mammals is highly dependent on the species and behavior. Of particular concern, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood of detection by visual observers and thus often go undetected. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay,<sup>119</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>120</sup> In fact, aerial surveys were found to detect North Atlantic right whales on only two-thirds of the days they were acoustically detected in Cape Cod Bay, Massachusetts, from 2001 to 2005.<sup>121</sup> Additionally, there is evidence that North Atlantic right whales stop vocalizing in the presence of anthropogenic noise,<sup>122</sup> or spend significantly more time at subsurface depths (i.e., 1-10 meters) compared to normal surfacing depths (i.e., within 1 meter of the surface),<sup>123</sup> when exposed to certain types of acoustic disturbance. These behavioral responses are likely to be heightened when whales are in the proximity of the acoustic disturbance from geophysical surveying, meaning that animals may be less detectable by visual observers during the project period relative to other times.<sup>124</sup>

In addition, there are sighting condition limitations that must be taken into consideration. For even the most conspicuous large whale species, studies demonstrate that increasing Beaufort Sea State reduces the probability of detecting large whales. Estimates of relative detection probability under a Beaufort Sea State of 6 is less than half that for a Beaufort Sea State of 0.<sup>125</sup> Of particular concern, 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

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<sup>117</sup> 85 Fed. Reg. at 36,557.

<sup>118</sup> See, e.g., Ursula K. Verfuss et al., *Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys*, MARINE POLLUTION BULL. (Jan. 2018).

<sup>119</sup> Janelle L. Morano et al., *Acoustically detected year-round presence of right whales in an urbanized migration corridor*, CONSERVATION BIOLOGY (May 23, 2012).

<sup>120</sup> Howard E. Winn et al., *The distributional biology of the right whale (Eubalaena glacialis) in the western North Atlantic*, INT'L WHALING COMM'N (Jan. 1, 1986); Simon Pittman et al., *Cetacean distribution and diversity*, in AN ECOLOGICAL CHARACTERIZATION OF THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY REGION, pp. 264-324 (Tim Battista et al. eds., 2006).

<sup>121</sup> Christopher W. Clark et al., *Visual and acoustic surveys for North Atlantic right whales, Eubalaena glacialis, in Cape Cod Bay, Massachusetts, 2001-2005: Management implications*, MARINE MAMMAL SCI. (May 9, 2010).

<sup>122</sup> See, e.g., Susan E. Parks et al., *Short- and long-term changes in right whale calling behavior: The potential effects of noise on acoustic communication*, J. ACOUSTICAL SOC'Y AM. (Jan. 31, 2008).

<sup>123</sup> Nowacek et al., *supra* note 77.

<sup>124</sup> Frances C. Robertson et al., *Seismic operations have variable effects on dive-cycle behavior of bowhead whales*, ENDANGERED SPECIES RES. (Aug. 13, 2013).

<sup>125</sup> 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. Jay Barlow, *Inferring trackline detection probabilities, g(0), for cetaceans from apparent densities in different survey conditions*, MARINE MAMMAL SCI. (Jan. 4, 2015).

the Southwest Scotian Shelf.<sup>126</sup> Based on the data collected by the National Buoy Data Center, a monthly average Beaufort Sea State of 3 or 4 can be expected in close vicinity to the Lease Area year-round (*see* Table 1).<sup>127</sup> This is a salient consideration in the evaluation of whether a large whale can be accurately detected by visual observers alone. Based on the findings of Baumgartner et al. (2003), we would expect a reduction in detection probability of North Atlantic right whales by up to 84.5 percent under a Beaufort Sea State of 4, relative to ideal sighting conditions (i.e., Beaufort Sea State of 0).<sup>128</sup> Even under ideal sighting conditions, the detectability of large whales is likely to be significantly less than 100 percent given availability and perception biases other than those involving sea state.

*Table 1. Monthly average wave height and corresponding Beaufort Sea State recorded at NOAA National Data Buoy Station 44099 – Cape Henry, VA (147) in 2019.*  
(Data source: NOAA National Data Buoy Center, accessed July 9, 2020)

Month	Wave Height (m)	Beaufort Sea State
Jan	0.9	4
Feb	1.0	4
Mar	1.1	4
Apr	1.1	4
May	0.9	3
Jun	0.8	3
Jul	0.7	3
Aug	0.8	3
Sep	1.2	4
Oct	1.3	4
Nov	1.3	4
Dec	1.1	4

Thus, reliance on a single visual observer as the sole monitoring method is under-protective and should not be endorsed by the agency. Rather, a combination of (at a minimum) visual monitoring and passive acoustic monitoring should be implemented 24 hours a day.<sup>129</sup> Real-time passive acoustic monitoring should be undertaken in a manner that avoids masking of the North Atlantic right whale vocalizations by vessel noise, including by use of a system that is independent from the survey vessel if necessary. Research has demonstrated that passive acoustic monitoring can provide a two- to ten-fold increase in the number of days that North Atlantic right whales are detected relative to visual methodologies.<sup>130</sup> Aerial surveys would also

<sup>126</sup> Mark F. Baumgartner et al., *North Atlantic right whale habitat in the lower Bay of Fundy and on the SW Scotian Shelf during 1999-2001*, MARINE ECOLOGY PROGRESS SERIES (Dec. 15, 2003).

<sup>127</sup> See Online Database, *National Data Buoy Center*, NOAA (last visited July 8, 2020), <http://www.ndbc.noaa.gov/>.

<sup>128</sup> Baumgartner et al., *supra* note 126.

<sup>129</sup> We also support the inclusion of both broadband and low frequency hydrophones, which will ensure that vocalizations of North Atlantic right whales and other low- and mid-frequency vocalizing species can be detected.

<sup>130</sup> Melissa S. Soldevilla et al., *Passive acoustic monitoring on the North Atlantic right whale calving grounds*, ENDANGERED SPECIES RES. (Sept. 10, 2014). It is important to note that passive acoustic monitoring, while capable of significantly increasing detection rates, is not independently capable of detecting all whales in an area, for three reasons: 1) not all individuals continually vocalize, 2) individuals may stop vocalizing in the presence of noise (*see*

provide a useful supplement to increase detection probability. Detection of a North Atlantic right whale or any other marine mammal by any of these methods should trigger a shutdown or delay in the same way a visual detection would.

### **E. Shutdown Protocol**

We support the Proposed IHA's requirement for a 30-minute pre-clearance period (with ramp-up), and to immediately shut down survey activity upon the observation of a marine mammal.<sup>131</sup> Given that North Atlantic right whales and other large whales of conservation concern are known to use the areas within and around Project Area year-round, these measures are critical. We do not, however, agree with the proposal to waive this shutdown requirement for certain species of small delphinid.<sup>132</sup> We are particularly concerned that this exemption will leave the Western North Atlantic Southern Migratory Coastal stock of bottlenose dolphin, which is designated as both a depleted and a strategic stock, without adequate shutdown protections. NMFS should therefore remove *both* stocks of bottlenose dolphin from this exemption (as a protected species observer will not be able to distinguish between the two stocks of bottlenose dolphin present in this area).

### **F. Vessel Speed Limits**

As discussed in Section II.C above, vessel collisions remain one of the leading causes of large whale injury and mortality, particularly for North Atlantic right whales, and are a primary driver of the existing humpback and minke whale UMEs. 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 may be at potential future risk of experiencing an UME.

Our organizations support a mandatory speed restriction of 10 knots for all project vessels within any designated SMA or DMA for North Atlantic right whales.<sup>133</sup> The SMA located at the mouth of the Chesapeake Bay partially overlaps the cable corridor, and encompasses the time period during which the highest risk of North Atlantic right whale presence exists (*see* Section I.B.i). However, the recent death of a North Atlantic right whale calf off New Jersey<sup>134</sup> indicates how even single or pairs of animals are at risk of vessel strike year-round. Although the mother-calf pair had been sighted and acoustically detected, no voluntary vessel speed reduction areas were triggered under current DMA regulations. In light of this tragic event, a sighting of three or more North Atlantic right whales may be too high of a bar to trigger a DMA. NMFS should consider requiring DMAs in every instance that a single North Atlantic right whale is sighted or acoustically detected, not just aggregations of three or more whales.

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Parks et al. *supra* note 122); or 3) vocalizations may change during certain life history stages. *See* Susan E. Parks et al., *Acoustic crypsis in communication by North Atlantic right whale mother-calf pairs on the calving grounds*, BIOLOGY LETTERS (Oct. 9, 2019); Susan E. Parks et al., *North Atlantic right whale (Eubalaena glacialis) acoustic behavior on the calving grounds*, J. ACOUSTICAL SOC'Y AM. (July 10, 2019). As such, passive acoustic monitoring must be used in combination with other detection methods for mitigation purposes.

<sup>131</sup> 85 Fed. Reg. at 36,558.

<sup>132</sup> *Id.*

<sup>133</sup> *Id.*

<sup>134</sup> *See* NMFS, *supra* note 19.



We support the additional monitoring measures in place, including the presence of vessel-based observers and protocol for slowing down, stopping, and/or distancing vessels from detected marine mammals.<sup>135</sup> However, the proposed measures would allow project vessels to travel at speeds greater than 10 knots at all other times, unless “mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel.”<sup>136</sup> This is insufficient. Research shows that a collision between a whale and a vessel of any length traveling above of speed of 10 knots has a more than 60 percent probability to result in a lethal strike.<sup>137</sup> This risk is likely higher for calves and juveniles. Our organizations therefore urge the agency to impose a 10-knot speed limit on all vessels, including survey and support vessels, operating *within* the Project Area during the entire survey period. The same speed restriction should be extended to all project-associated vessels transiting *to and from* the Project Area from November 1 through April 30, to avoid collisions with North Atlantic right whales.<sup>138</sup> Given that North Atlantic right whales may be in the Project Area year-round (*see* Section I.B.i), and that pregnant mothers and calves are likely to travel close to shore, these added protections are vital. Additionally, passive acoustic monitoring should be employed in all vessel transit lanes, to supplement the efforts of observers in visually detecting marine mammals.

#### IV. CONCLUSION

Our organizations are excited about the contribution that the CVOW Commercial Project will make in providing clean energy for the state and region. Marine mammal health and habitat will continue to be threatened by changes in the ocean environment brought on by climate change, further underscoring the need to transition to clean energy. For the above reasons, however, NMFS must revise its analysis to be consistent with the agency’s statutory obligations. Considering the elevated level of threat to all federally protected marine mammal species and populations in the mid-Atlantic, including the critically endangered North Atlantic right whale, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed activity are mitigated to effectuate the least practicable impact on affected species and stocks. It is our view that offshore wind projects can and must move forward in a manner that is protective of vulnerable marine wildlife. To that end, it is crucial that the agency afford special attention to the importance of the waters off Virginia to marine mammals when permitting offshore wind development activities in this region.

Thank you for your consideration of these comments.

Sincerely,

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<sup>135</sup> 85 Fed. Reg. at 36,558.

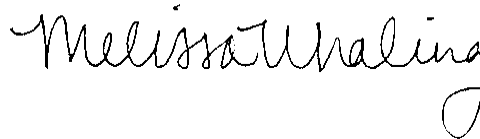
<sup>136</sup> *Id.*

<sup>137</sup> Paul B. Conn & Gregory K. Silber, *Vessel speed restrictions reduce risk of collision-related mortality for North Atlantic right whales*, ECOSPHERE (Apr. 2013).

<sup>138</sup> This measure should be considered in addition to the seasonal restriction on geophysical surveys recommended in Section III.A of this letter.



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[Attachment]

***By Electronic Mail***

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys Off the Coast of Massachusetts (Lease Area OCS-A 0521), and Along a Submarine Cable Route to Landfall at Falmouth, Massachusetts, as requested by Mayflower Wind Energy, LLC.**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, National Wildlife Federation, Conservation Law Foundation, WDC North America, Defenders of Wildlife, Humane Society of the United States, Humane Society Legislative Fund, International Fund for Animal Welfare - IFAW, Mass Audubon, Marine Mammal Alliance Nantucket, NY4WHALES, Surfrider Foundation, Friends of the Earth, Ocean Conservation Research, Sanctuary Education Advisory Specialists – SEAS, and our millions of members, we respectfully submit our recommendations for the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“Proposed IHA”) and authorize Mayflower Wind Energy, LLC (“Mayflower”) to conduct site characterization surveys off the coast of Massachusetts in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0521) (“Lease Area”) and along a potential submarine cable route to landfall at Falmouth, Massachusetts (collectively, the “Project Area”). *See* 85 Fed. Reg. 31,856 (May 27, 2020).

We recognize the significant contribution that the offshore wind projects associated with these surveys could make in providing clean energy for New England. However, it is our view that offshore wind energy can and must be advanced in an environmentally responsible manner to ensure that it meets ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters in the Project Area support a diversity of marine life, including at least 14 species of marine mammals, including six large and six small cetaceans, and two pinnipeds.<sup>1</sup> Of the six large whale species, four (sperm, fin, sei, and North Atlantic right whales) are listed as endangered under the Endangered Species Act (“ESA”) and as depleted and strategic stocks under the Marine Mammal Protection Act (“MMPA”). Long-finned pilot whales are also designated as a strategic stock.

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<sup>1</sup> 85 Fed. Reg. at 31,859, Table 3.

The following comments are intended to support Mayflower in achieving its goal to advance offshore wind in a sustainable manner, while also expressing our concerns regarding NMFS' negligible impact analysis and the avoidance, minimization, mitigation, and monitoring requirements necessary to ensure adequate mitigation measures in the Project Area.

Because it is our view that NMFS' analysis likely underestimates the impact of these activities on the reproductive success and survivorship of the North Atlantic right whale, we strongly recommend that the Final IHA require the following measures:

- A seasonal restriction, in the case of unforeseen delays, on site assessment and characterization activities in the Project Area with the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz)<sup>2</sup> between January 1 and April 30, 2021;
- A prohibition on the commencement of geophysical surveys at night or during times of poor visibility to maximize the probability that the North Atlantic right whale is detected and confirmed clear of the exclusion zone;
- A requirement to monitor an exclusion zone for the North Atlantic right whale of 1,000 meters ("m") around each vessel conducting activities with noise levels that could result in injury or harassment to this species. Such monitoring should consist of a combination of visual monitoring by Protected Species Observers ("PSOs") and passive acoustic monitoring at all times that survey work is underway;
- A requirement that four PSOs adhere to a two-on/two-off shift schedule to ensure no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time;
- A requirement to use a combination of visual monitoring by PSOs and passive acoustic monitoring at all times that survey work is underway at noise levels that could injure or harm the North Atlantic right whale;
- A requirement that developers select sub-bottom profiling systems, and operate those systems at power settings that achieve the lowest practicable source level for the objective; and
- A requirement that all project vessels operating within the Project Area, regardless of size, observe a mandatory 10 knot speed restriction during the entire survey period. If survey activities are delayed into the fall and winter, all project vessels either transiting to/from or operating within the Project Area must observe a 10 knot speed restriction between November 1, 2020 and April 30, 2021.

As we have in the past, we object to NMFS' proposed process to consider extending any one-year IHA with a truncated 15-day comment period as contrary to the MMPA.

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<sup>2</sup> The best available science on other low- to mid-frequency sources (*e.g.*, Nowacek et al. 2004, Kastelein et al. 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

## I. BACKGROUND

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

Congress enacted the 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.”<sup>3</sup> 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.”<sup>4</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>5</sup> This careful approach to management was deemed 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.<sup>6</sup>

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.<sup>7</sup> 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.”<sup>8</sup>

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than 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.”<sup>9</sup> The agency must prescribe permissible methods of taking 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.”<sup>10</sup> NMFS must also establish monitoring and reporting requirements.<sup>11</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>12</sup>

### B. *The status of large whales in the Northwestern Atlantic*

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<sup>3</sup> 16 U.S.C. § 1361(1).

<sup>4</sup> *Id.* § 1361(2); see also *Conservation Council for Hawaii v. Nat’l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>5</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

<sup>6</sup> 16 U.S.C. § 1361(1), (3).

<sup>7</sup> *Id.* §§ 1362(13), 1371(a).

<sup>8</sup> *Id.* § 1362(18)(A).

<sup>9</sup> *Id.* § 1371(a)(5)(D)(i).

<sup>10</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>11</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>12</sup> *Id.* § 1371(a)(5)(D)(iii).

As the agency is aware, the conservation status of the North Atlantic right whale is dire and getting worse. Although the species has been listed as endangered under the ESA for decades, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial fishing gear and ship strikes.<sup>13</sup> At least 30 animals are known to have been killed since 2017 and the population is now estimated at approximately 400 individuals.<sup>14</sup> Moreover, females are more negatively affected than males by the lethal and sublethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.<sup>15</sup> In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”),<sup>16</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect.

Further, ongoing UMEs exist for other whales in the Project Area. There have been UMEs for the Atlantic population of minke whales since January 2017 and humpback whales since January 2016.<sup>17</sup> Alarming, 86 minke whales have stranded between Maine and South Carolina from January 2017 to June 2020.<sup>18</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over four years, 124 humpback whale mortalities have been recorded (data through June 3, 2020), with strandings occurring in every state along the East Coast.<sup>19</sup> The declaration of these UMEs by the agency in the past few years for three large whale species for which anthropogenic impacts are a significant cause of mortality,<sup>20</sup> demonstrates an increasing risk to whales from human activities along the U.S. East Coast.

Given the highly endangered status of the North Atlantic right whale, NMFS is obligated by both the ESA and the MMPA to protect this species from additional harmful impacts of human activities. The agency is also obligated by the MMPA to consider the full range of potential impacts on all marine mammal species, including minke and humpback whales, that are known to utilize the survey area and surrounding areas before issuing an IHA with appropriate avoidance, minimization, mitigation, and monitoring measures. NMFS must use the best available scientific information on marine mammal presence and

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<sup>13</sup> Sharp, S.M., McLellan, W.A., Rotstein, D.S., Costidis, A.M., Barco, S.G., Durham, K., Pitchford, T.D., Jackson, K.A., Daoust, P.Y., Wimmer, T. and Couture, E.L., “Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis* mortalities between 2003 and 2018.” *Diseases of Aquatic Organisms*, vol. 135, pp.1-31 (2019).

<sup>14</sup> NOAA Fisheries, “North Atlantic right whale,” available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>.

<sup>15</sup> Corkeron, P., Hamilton, P., Bannister, J., Best, P., Charlton, C., Groch, K.R., Findlay, K., Rowntree, V., Vermeulen, E., and Pace, R.M., “The recovery of North Atlantic right whales, *Eubalaena glacialis*, has been constrained by human-caused mortality.” *Royal Society Open Science*, vol 5, art. 180892 (2018).

<sup>16</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>17</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast.” Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2019-humpback-whale-unusual-mortality-event-along-atlantic-coast>; 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>18</sup> *Id.*

<sup>19</sup> NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 17.

<sup>20</sup> *Id.*; NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 16; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 17.

density, as required by law.<sup>21</sup> Considering the elevated threat to federally protected large whale species and populations in the Atlantic, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed surveys are mitigated to effectuate the least practicable impact on affected species and stocks.<sup>22</sup>

*C. North Atlantic right whale seasonality and distribution off the coast of Massachusetts*

Since 2010, North Atlantic right whale distribution and habitat use has shifted in response to climate change-driven shifts in prey availability.<sup>23</sup> Best available scientific information, including aerial surveys,<sup>24</sup> acoustic detections,<sup>25</sup> stranding data,<sup>26</sup> a series of Dynamic Management Areas (“DMAs”) declared by NMFS pursuant to ship strike rule,<sup>27</sup> and prey data,<sup>28</sup> indicate that North Atlantic right whales now heavily rely on the waters within, and in the vicinity of, the Project Area (*see* Figure 1).<sup>29</sup> In January 2019, an aggregation representing a quarter of the population—100 whales—was seen in this area<sup>30</sup> engaged in both foraging and social activities, demonstrating that it is clearly more than just a migratory corridor (as suggested in the Proposed IHA<sup>31</sup>). Large, seasonally consistent aggregations of North Atlantic right whales occur within or close to the Lease Area from at least December through May, leading the

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<sup>21</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>22</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>23</sup> Record, N., Runge, J., Pendleton, D., Balch, W., Davies, K., Pershing, A., Johnson, C., Stamieszkin, K., Ji, R., Feng, Z. and Kraus, S., “Rapid Climate-Driven Circulation Changes Threaten Conservation of Endangered North Atlantic Right Whales,” *Oceanography*, vol. 32, pp. 162-169 (2019).

<sup>24</sup> Kraus, S.D., Leiter, S., Stone, K., Wikgren, B., Mayo, C., Hughes, P., Kenney, R.D., Clark, C.W., Rice, A.N., Estabrok, B., and Tielens, J., “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” OCS Study, BOEM 2016-054, pp. 118 (2016); 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.A., and Kraus, S.D., “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA,” *Endangered Species Research*, vol. 34, pp. 45-59 (2017); Quintana, E., “Monthly report No. 3: May 2017,” Report prepared for the Massachusetts Clean Energy Center by the New England Aquarium, pp. 26 (May 15, 2017).

<sup>25</sup> Kraus, S.D., *et al.*, *id.*; Davis, G.E., Baumgartner, M.F., Bonnell, J.M., Bell, J., Berchick, C., Bort Thorton, 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>26</sup> Asaro, M.J., “Update on US Right Whale Mortalities in 2017,” NOAA Fisheries, November 30, 2017. Available at: [https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro\\_usstrandings\\_nov2017.pdf](https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro_usstrandings_nov2017.pdf).

<sup>27</sup> NOAA Fisheries Interactive DMA Analyses: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

<sup>28</sup> Pendleton, D.E., Pershing, A., Brown, M.W., Mayo, C.A., Kanney, R.D., Record, N.R., and Cole, T.V.N., “Regional-scale mean copepod concentration indicates relative abundance of North Atlantic right whales,” *Marine Ecology Progress Series*, vol. 378, pp. 211-225 (2009); NOAA Northeast Fisheries Science Center, “Ecology of the Northeast US Continental Shelf – Zooplankton.” Available at: <https://www.nefsc.noaa.gov/ecosys/ecosystem-ecology/zooplankton.html>.

<sup>29</sup> Although there are challenges in the use of opportunistic sightings data (no area systematically surveyed, effort not corrected for, and potential for counting an individual whale more than once), they are a proxy for habitat used by North Atlantic right whales, as validated by NMFS’ management actions based on these data, including the implementation of DMAs.

<sup>30</sup> *See* [https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28\\_voluntary\\_vessel\\_speed\\_restriction\\_zone\\_in\\_effect\\_south\\_of\\_nantucket\\_to\\_protect\\_right\\_whales.html](https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28_voluntary_vessel_speed_restriction_zone_in_effect_south_of_nantucket_to_protect_right_whales.html).

<sup>31</sup> *See*, 85 Fed. Reg. 31,870: “There are no feeding areas, rookeries, or mating grounds known to be biologically important to marine mammals within the proposed Project Area with the exception of feeding BIAs for right, humpback, fin, and sei whales and a migratory BIA for right whales.” The feeding BIA referred to for right whales is located Northeast of the Project Area, east of Cape Cod, and does not reflect best available scientific information on important foraging habitat for North Atlantic right whales.



area to be considered by scientists as a North Atlantic right whale “hotspot.”<sup>32</sup> North Atlantic right whales were observed feeding in the vicinity of the Lease Area during the first half of May for the first time in 2017,<sup>33</sup> indicative of a broader temporal shift in distribution resulting in the occurrence of North Atlantic right whales at greater densities off Rhode Island and Massachusetts later in the year, through May and into the summer months.<sup>34</sup> Pregnant females are known to travel through the area in November and December and females of reproductive age are also present in the area in February and March, with April appearing particularly important for mothers and calves.<sup>35</sup> Several scientific data sources demonstrate that right whales use these waters year-round.<sup>36</sup>

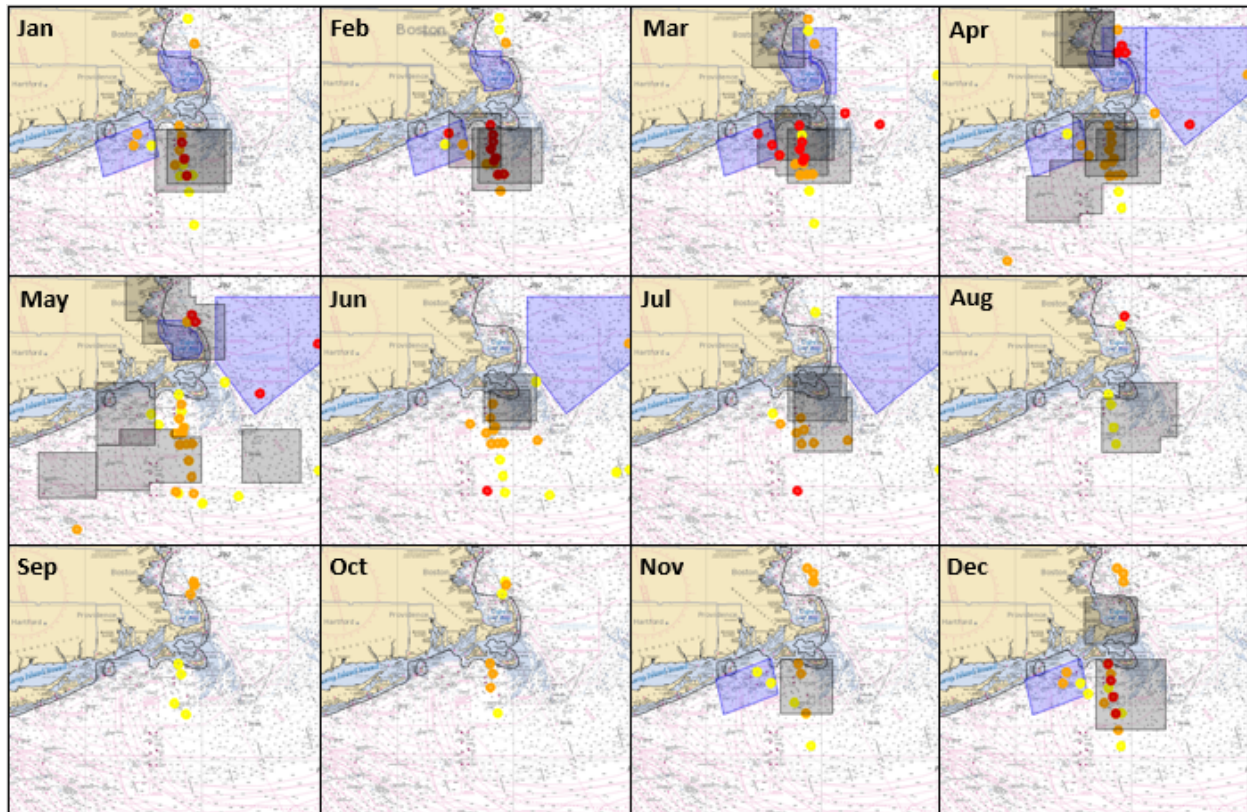


Figure 1: Monthly maps of Dynamic Management Areas (“DMAs”) (gray boxes), Seasonal Management Areas (“SMAs”) (blue boxes), and the location of acoustic receivers color coded according to percentage days per month with an acoustic detection (red: “High”  $\geq 50\%$ ; Orange: “Medium” 10-50%; Yellow: “Low”  $<10\%$ ). Maps represent the two most recent years for which data were available: 2017-2019 for Jan-Aug; 2016-2018 for Sep-Dec. Source: Northeast Fisheries Science Center (NEFSC) “Interactive

<sup>32</sup> Leiter, S.M., *et al.*, *supra* note 24.

<sup>33</sup> Quintana, E., *supra* note 24.

<sup>34</sup> Davis, G.E., *et al.*, *supra* note 25.

<sup>35</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>36</sup> Kraus, S.D., *et al.*, *supra* note 24; Davis, G.E., *et al.*, *supra* note 25; NOAA Fisheries Interactive DMA Analyses, *supra* note 27.

Monthly DMA Analysis.” Available at: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

North Atlantic right whales select foraging areas based on a relatively high threshold of copepod density of approximately 3850-4000 organisms per cubic meter.<sup>37</sup> Notably, foraging areas with suitable prey density are limited relative to the overall distribution of North Atlantic right whales,<sup>38</sup> meaning that unrestricted and undisturbed access to suitable areas, when they exist, is extremely important for the species to maintain its energy budget. Scientific information on North Atlantic right whale functional ecology also shows that the species employs a “high-drag” foraging strategy that enables them to selectively target high-density prey patches, but is energetically expensive.<sup>39</sup> Thus, if access to prey is limited in any way, the ability of the whale to offset its energy expenditure during foraging is jeopardized. In fact, the authors of the study conclude: “Our findings highlight that right whales acquire their energy in a relatively short period of intense foraging; even moderate changes in their feeding behavior or their prey energy density are likely to negatively impact their yearly energy budgets and therefore reduce fitness substantially.” North Atlantic right whales are already experiencing significant food-stress: juveniles, adults, and lactating females have significantly poorer body condition relative to Southern right whales, and the poor condition of lactating females may cause a reduction in calf growth rates.<sup>40</sup> Thus, the protection of North Atlantic right whales during foraging, and the protection of their foraging habitat, must be one of NMFS’ utmost priorities.

The best available scientific information therefore demonstrates that at least January 1 through April 30 in the Project Area represents the time of highest risk to North Atlantic right whales. These dates are based on times of highest relative density of animals during their migration and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present.<sup>41</sup> That said, given that North Atlantic right whales are detected year-round within the Project Area and that notably higher densities of migrating whales consistently occur in November and December, there is a clear need for strong and effective mitigation measures to be in place year-round.

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<sup>37</sup> Personal communication from Dr. Charles “Stormy” Mayo, Senior Scientist, Director of Right Whale Habitat Studies, and Senior Advisor of the Disentanglement Program, Center for Coastal Studies, Provincetown, MA, to William Rossiter, Vice President, NY4WHALES, May 13, 2013.

<sup>38</sup> *Id.*

<sup>39</sup> Van der Hoop, J., Nousek-McGregor, A.E., Nowacek, D.P., Parks, S.E., Tyack, P., and Madsen, P., “Foraging rates of ram-filtering North Atlantic right whales,” *Functional Ecology*, published online May 11, 2019.

<sup>40</sup> Christiansen, F., Dawson, S.M., Durban, J.W., Fearnbach, H., Miller, C.A., Bejder, L., Uhart, M., Sironi, M., Corkeron, P., Rayment, W., Leunissen, E., Haria, E., Ward, R., Warick, H.A., Kerr, I., Lynn, M.S., Pettis, H.M., & Moore, M.J. (2020). Population comparison of right whale body condition reveals poor state of the North Atlantic right whale. *Marine Ecology Progress Series*, vol. 640, pp. 1-16.

<sup>41</sup> Over a dozen wildlife conservation organizations recently endorsed a suite of Best Management Practices (“BMPs”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. The BMPs include criteria to define times of highest risk to North Atlantic right whales. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Available at: <https://www.nrdc.org/resources/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy>.

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT

- A. *To fulfill the statutory requirement of considering the best scientific information available, NMFS must analyze additional data sources when calculating densities of marine mammals, including the North Atlantic right whale*

NMFS must base its IHA analysis on the best available scientific information to comply with statutory requirements of the MMPA.<sup>42</sup> Here, 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 produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts et al. 2016, 2017, 2018).<sup>43</sup> While the Proposed IHA notes that this model has been updated to incorporate additional data sources and two or more years of data,<sup>44</sup> it still excludes data obtained through additional sightings databases, passive acoustic monitoring, and satellite telemetry. It is our view that the density maps produced by this model do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast and therefore should not be the only information source relied upon when estimating take.

Of particular concern is NMFS’ assertion that the Project Area is situated only within the North Atlantic right whale migratory corridor,<sup>45</sup> rather than acknowledging that North Atlantic right whales are now regularly observed aggregating socially and foraging in the area in the winter and spring, as well as, to a lesser extent, the summer months. This omission is inexplicable in light of NMFS’ current work to develop new regulations to reduce entanglement of North Atlantic right whales,<sup>46</sup> for which the importance of this area as a new aggregation and foraging site forms a central point of consideration. The Duke University models do not adequately capture this increase in habitat use by right whales and, therefore, levels of take based solely on those models will most certainly be underestimates.

Integration of opportunistic sightings data and other sources of data that collect fine-scale information on factors driving marine mammal distribution with those gathered through systematic broad-scale surveys better reflecting current marine mammal presence, abundance, and density off Massachusetts will provide a more accurate assessment of Level B take. **It should be NMFS’ top priority to consider any initial data from State monitoring efforts,<sup>47</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources, including those being used by the agency in the development of new regulations to reduce entanglement of North Atlantic right whales. Further, NMFS should take steps now to develop a dataset (see also recommendations in Section III.A.) that**

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<sup>42</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>43</sup> 85 Fed. Reg. at 31,874.

<sup>44</sup> *Id.*

<sup>45</sup> *See, e.g.*, 85 Fed. Reg. at 31,870.

<sup>46</sup> *See, e.g.*, “Atlantic Large Whale Take Reduction Team Meeting—Key Outcomes Memorandum,” Providence, Rhode Island, April 23-26, 2019. Published October 4, 2019. Available at: <https://www.fisheries.noaa.gov/webdam/download/97751765>.

<sup>47</sup> *See, e.g.*, <http://www.masscec.com/offshore-wind-marine-wildlife-surveys>.

**more accurately reflects marine mammal presence so that it is in hand for future IHA authorizations and other work.**

*B. Any IHA extension does not comport with the plain language of the statute*

NMFS, again, requests comment on the potential one-year renewal of this Proposed IHA on a case-by-case basis for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.<sup>48</sup>

For several reasons, our organizations oppose this process as contrary to law. First, NMFS' proposal to provide one-year renewals does not comport with the plain language of the statute. Section 101(a)(D)(i) unambiguously states that incidental harassment authorizations are valid for periods of not more than one year.<sup>49</sup> Second, the statute is clear on its face that a 30-day comment period is required in all instances. An agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>50</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency's implementation of the IHA process stating: "As approved by the Committee, the [MMPA] involves a number of basic concepts," one being that "the public is invited and encouraged to participate fully in the agency decision-making process."<sup>51</sup> When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."<sup>52</sup> Third, the legislative history removes any doubt that this 30 day comment period applies even in cases where the application extends the IHA for another year without change.<sup>53</sup>

The agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy, or on a permit-by-permit basis as it purports to do here.<sup>54</sup> Moreover, NMFS has not supplied a sufficient explanation for why it might assert that the statutory language of sec. 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute's objectives.<sup>55</sup>

Should the agency wish to establish its new IHA renewal process as a reasonable interpretation of an ambiguous statutory provision, it should do so through notice-and-comment rulemaking or comparable process with the appropriate indicia of formality. In so doing, NMFS must also explain why applicants whose activities may result in the incidental harassment of marine mammals over more than one year should not be required to apply for authorization to do so through the incidental take regulation procedure established by sec. 101(a)(5)(A)(i), which provides for authorizing incidental take during periods of "*not*

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<sup>48</sup> 84 Fed. Reg. at 36,081-82.

<sup>49</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>50</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>51</sup> H.R. Rep. No. 92-707, at 4151 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151.

<sup>52</sup> *Id.* at 4146.

<sup>53</sup> H.R. Rep. No. 103-439, at 29 (1994).

<sup>54</sup> *See Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 842-43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.").

<sup>55</sup> *See Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a "'reasonable' explanation of how an agency's interpretation serves the statute's objectives is the stuff of which a 'permissible' construction is made").

*more than* five consecutive years each.”<sup>56</sup> Where Congress established clear and distinct statutory processes for authorizing incidental take via harassment for one-year periods versus periods extending more than one year and up to five years, NMFS must justify how its proposed unlawful hybrid administrative extension process, with a curtailed comment period, is consistent with both statutorily-established processes.

NMFS’ statement about Incidental Harassment Authorization Renewals on its website<sup>57</sup> fails to provide a clear and legally adequate justification for its purported new reauthorization process especially in light of the burden the foreshortened comment period places on interested members of the public to review and formulate comments, all within 15 calendar days. As NMFS apparently intends the new reauthorization process to become the rule rather than the exception, it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing “take” by incidental harassment under the general authorization provision of the MMPA, NMFS 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.”<sup>58</sup> In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA, as well as the significant risks posed to the North Atlantic right whale and other endangered and/or strategic marine mammal stocks by the site assessment and characterization activities outlined in the Proposed IHA, NMFS has an obligation to impose robust avoidance, minimization, mitigation, and monitoring requirements to protect these species to the maximum extent practicable.

The best scientific and commercial data available shows that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging behavior may lead to population-level effects and is of critical concern.<sup>59</sup> **Therefore, the agency must carefully analyze the cumulative impacts from the proposed survey activities and other survey activities contemplated in other lease areas on the North Atlantic right whale and other protected species.**

The implementation of a robust impact avoidance, minimization, mitigation, and monitoring protocol to prevent adverse impacts of the proposed survey activities is therefore essential and required by law. Our recommendations are below.

#### *A. Seasonal restriction on geophysical surveys in the Project Area from January 1 to April 30*

NMFS is proposing to authorize geophysical surveys off Massachusetts at a time when North Atlantic right whales may be present. The survey period is expected to occur no earlier than June 1, 2020 and continue through September 2020. Surveys will be conducted 24 hours a day in the Lease Area and the

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<sup>56</sup> 16 U.S.C. § 1371(a)(5)(A)(i) (emphasis added). *See also id.* at § 1371(a)(5)(A)(i)(I) (negligible impact finding must evaluate total of such taking “during each five-year (*or less*) period concerned”) (emphasis added).

<sup>57</sup> *See* <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>58</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

<sup>59</sup> *See, e.g.,* Van der Hoop, J., *et al.*, *supra* note 39; Christiansen, F., *et al.*, *supra* note 40.

deep-water section of the export cable route for 90 days, and for 12 hours a day in the shallow and nearshore sections of the export cable route for 95 days and 30 days, respectively. Up to three vessels may operate concurrently, one in each section of the Project Area.<sup>60</sup>

It is therefore unlikely that the surveys will extend into the time period that we consider of greatest risk for North Atlantic right whales (January 1 through April 30). However, an end date for the surveys is not specified. As the Proposed IHA will be issued for one year, with the potential for extension, poor weather conditions or other unforeseen circumstances may delay surveys into the fall and winter. **In that case, NMFS should prohibit site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz) between January 1 and April 30, 2021 (and any subsequent year into which the IHA may be extended or renewed).** These dates currently reflect both the best available scientific information on the relative density of North Atlantic right whales in Southern New England (recognizing that individuals of this species could be present in each month of the year; *see* Section I.C), as well as the potential presence of mother-calf pairs and a significant increase in the number of foraging aggregations during these months (noting that the species is increasingly reliant on this area year round as foraging habitat). These dates should be reviewed annually and revised as necessary to reflect the best available scientific information.

Further, while existing and potential stressors to the North Atlantic right whale must be minimized to promote the survival and recovery of the species, the agency must also address potential impacts to other endangered and protected whale species, particularly in light of the UMEs declared for right whales, humpback whales and minke whales,<sup>61</sup> as well as the several strategic and/or depleted stocks that inhabit the region. 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.

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

**In our view, geophysical surveys should only commence, with ramp-up, during daylight hours of adequate visibility<sup>62</sup> to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone.** If the exclusion zone is clear, we do not oppose the survey continuing into nighttime hours. However, if the survey is shut down for any reason, developers should be required to wait until daylight hours and good visibility for ramp-up to resume. PSO use is key to proper detection; for this reason, restarting operations in the night or at times of poor visibility is an unacceptable risk to the species' health. **Furthermore, as PSOs are unable to visually monitor the exclusion area during darkness and periods of low visibility, NMFS must require, for surveys that continue into**

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<sup>60</sup> 85 Fed. Reg. at 31,857.

<sup>61</sup> NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 16; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 17; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 17.

<sup>62</sup> Adequate visibility should be determined by the lead PSO based on standardized environmental parameters (*e.g.*, visibility, glare, sea state, wind speed).

**the nighttime, a combination of PSOs using infrared technology<sup>63</sup> and passive acoustic monitoring (see Section III.D).**

Infrared technology, relying on thermal differences between the target species and the environment, has shown promise for detection of a number of marine mammal species from vessels in darkness.<sup>64</sup> The application of infrared technology as a mitigation tool is still in development, however, and false positive infrared detections, matching systems capabilities to sea conditions and species of interest, and the experience of employed observers are all pertinent issues that require further attention.<sup>65</sup> Infrared performance is relatively high during periods of darkness, but relatively low during rain, fog, and drizzle, and in sea states greater than Beaufort 4,<sup>66</sup> indicating that overall detection rates are likely to be maximized when complementary methods are used. PSOs and passive acoustic monitoring are likely the most effective combination during high seas and precipitation; however, a combination of infrared and passive acoustic monitoring would be most effective when used in darkness. Even during periods of good visibility, a combination of PSOs, infrared, and passive acoustic monitoring would increase detections.<sup>67</sup> **Accordingly, the agency should require the use of infrared equipment to support visual monitoring by PSOs and/or passive acoustic monitoring, at a minimum, during periods of darkness.**

NMFS must consider the limitations of the infrared system proposed and ensure that the detection of marine mammals is possible at distances out to and beyond the exclusion zones, in the geographic region in question, and for all relevant endangered and protected species. These technologies have not been well tested for detection of North Atlantic right whales, and may be relatively ineffective for detecting minke whales,<sup>68</sup> both species of concern in light of the current UMEs declared for the Atlantic coast. Further, NMFS should encourage developers to partner with scientists and collect data that increases our understanding of the effectiveness of infrared technologies within the Project Area,<sup>69</sup> with a view towards greater reliance on these technologies to commence surveys during nighttime hours in the future.

Finally, as no monitoring method is perfect, **NMFS should require developers to select sub-bottom profiling systems, and operate those systems at power settings that achieve the lowest practicable source level for the objective.**

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<sup>63</sup> 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.

<sup>64</sup> Lathlean, J. and Seuront, L., "Infra-red thermography in marine ecology: methods, previous applications and future challenges," *Marine Ecology Progress Series*, vol. 514, p. 263-277 (2014); Smith, H.R., Zitterbart, D.P., Norris, T.F., Flau, M., Ferguson, E.L., Jones, C.G., Boebel, O. and Moulton, V.D., 2020. A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada. *Marine Pollution Bulletin*, 154, p.111026; Zitterbart, D.P., Smith, H.R., Flau, M., Richter, S., Burkhardt, E., Beland, J., Bennett, L., Cammareri, A., Davis, A., Holst, M. and Lanfredi, C., 2020. Scaling the Laws of Thermal Imaging-Based Whale Detection. *Journal of Atmospheric and Oceanic Technology*, 37(5), pp.807-824.

<sup>65</sup> Smith, H.R., *et al. id.*

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> Cuyler, L.C., Wiulsrød, R., and Øritsland, N.A., "Thermal IR Radiation from Free Living Whales," *Marine Mammal Science*, vol. 8, p. 120-134 (1992).

<sup>69</sup> For potential study design, *see, e.g.*, Bröker, K.C., Hansen, R.G., Leonard, K.E., Koski, W.R., and Heide-Jørgensen, M.P., 2019. A comparison of image and observer based aerial surveys of narwhal. *Marine Mammal Science*, 35(4), pp.1253-1279.

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

The Proposed IHA specifies that marine mammal exclusion zones will be established around high-resolution geophysical (“HRG”) equipment and monitored by PSOs during HRG surveys as follows: 1) a 500 m exclusion zone for North Atlantic right whales; and 2) a 100 m exclusion zone for all other marine mammals (except North Atlantic right whales).<sup>70</sup> However, the definition of exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (*i.e.*, received level <160 dB).<sup>71</sup> Neither of these zones are protective enough.

**NMFS must require use of monitoring practices that ensure a 500 m exclusion zone around all vessels conducting activities with noise levels that could result in injury or harassment to *any* protected species** based on the best available science, with the exception of dolphins that, in the determination of PSOs, are voluntarily approaching the vessel. Further, any potential harassment of the North Atlantic right whale is a significant concern and a 500 m exclusion zone is simply not sufficient. **PSOs should, to the extent feasible, monitor beyond the minimum 500 m exclusion zone to an extended 1,000 m exclusion zone for North Atlantic right whales.**<sup>72</sup> Exclusion zones should also be expanded beyond minimum distances as sound source validation data support such extension.

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

The Proposed IHA notes that NMFS requires, at a minimum, a single PSO on duty during daylight hours and 30 minutes prior to and during nighttime ramp-ups of HRG equipment.<sup>73</sup> NMFS describes how “[v]isual PSOs would coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts...”<sup>74</sup> It is not possible for a single PSO to continually visually monitor 360°, however; thus, the minimum requirement of a single PSO is under-protective. **It is our view that a minimum of four PSOs adhering to a two-on/two-off shift schedule is necessary for adequate visual monitoring; this schedule ensures no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time.**

Visual observations are not enough. In addition to sighting condition limitations discussed below, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood that they would be detected by PSOs and therefore often go undetected by observers. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent

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<sup>70</sup> 84 Fed. Reg. at 36,076.

<sup>71</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>72</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

<sup>73</sup> 85 Fed. Reg. at 31,876.

<sup>74</sup> 85 Fed. Reg. at 31,877.



of a study area in Massachusetts Bay,<sup>75</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>76</sup> Research has demonstrated that passive acoustic monitoring can provide a two- to ten-fold increase in the number of days that right whales are detected relative to visual methodologies.<sup>77</sup> Additionally, there is evidence that North Atlantic 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>78</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>79</sup>

There are sighting condition limitations. 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>80</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>81</sup> In line with Barlow (2015),<sup>82</sup> 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>83</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. Based on the data collected by the National Buoy Data Center,<sup>84</sup> a monthly average Beaufort Sea State of 3 or 4 can be expected in close vicinity to the Lease Area, year-round. Given these data, observers alone are certain to underestimate the number of large whales in the mitigation area based on sea state. From the findings of Baumgartner *et al.* (2003),<sup>85</sup> a reduction in detection probability of North Atlantic right whales by up to 84.5 percent based on an average Beaufort Sea State of 4 would be expected, relative to ideal sighting conditions (*i.e.*, Beaufort sea state = 0). Notably, the detectability of North Atlantic right whales even under ideal sighting conditions is likely to

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<sup>75</sup> Morano, J.L., Rice, A.N., Tielens, J.T., Estabrook, B.J., Marray, A., Roberts, A.L., and Clarkm C.W., "Acoustically detected year-round presence of right whales in an urbanized migration corridor." *Conservation Biology*, vol. 26, p. 698-707 (2012).

<sup>76</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, p. 129-138 (1986); Pittman, S.J, Kot, C., Kenney, R.D., Costa, B., and Wiley, D., "Cetacean distribution and diversity." In: Battista T., Clark R., Pittman S.(eds) *An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment*, p.264-324 (2006).

<sup>77</sup> Clark, C.W., Brown, M.W., and Corkeron, P., "Visual and acoustic surveys for North Atlantic right whales, *Eubalaena glacialis*, in Cape Cod Bay, Massachusetts, 2001-2005: Management Implications." *Marine Mammal Science*, vol. 26, p. 837-854 (2010).

<sup>78</sup> Nowacek, D.P., Johnson, M.P., and Tyack, P.L., "North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli." *Proceedings: Biological Sciences*, vol. 271, p. 227-231 (2004).

<sup>79</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, p. 143-160 (2013).

<sup>80</sup> Barlow, J., "Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions," *Marine Mammal Science*, vol. 31, p. 923-943 (2015).

<sup>81</sup> Baumgartner, M.F., Cole, T.V.N., Clapham, P.J., and Mate, B.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, p. 137-154 (2003).

<sup>82</sup> Barlow, J., *supra* note 83.

<sup>83</sup> *Id.*

<sup>84</sup> NOAA-NWS, "National Data Buoy Center." Available at: <http://www.ndbc.noaa.gov/>.

<sup>85</sup> Baumgartner, M.F., *et al.*, *supra* note 84.

be significantly less than 100 percent given availability and perception biases other than those involving sea state.

In light of these limitations, and without verified means of monitoring by infrared technology during darkness, NMFS' lack of a requirement to use passive acoustic monitoring during surveys is particularly concerning. Mayflower has committed to employ passive acoustic monitoring to "support monitoring during night time operations to provide for acquisition of species detections at night"<sup>86</sup> and NMFS rightly acknowledges that passive acoustic monitoring may "provide additional benefit as a mitigation and monitoring measure to further limit potential exposure to underwater sound at levels that could result in injury or behavioral harassment."<sup>87</sup> **Thus, passive acoustic monitoring should be required for all times activities are underway in the Project Area with the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz)—not only during nighttime hours—to maximize the probability of detection for North Atlantic right whales, including in periods of fog, precipitation, and high sea states, when PSOs and infrared technologies are less effective (*see* Section III.B).**

The passive acoustic protocol should be designed so the hydrophone is not masked by vessel or survey noise. We also support the inclusion of both broadband and low frequency hydrophones, which will serve to ensure that North Atlantic right whale vocalizations, as well as those of other low- and mid-frequency vocalizing species, can be detected. However, it should be noted that passive acoustic monitoring without visual observers would also be insufficient as cow-calf pairs often do not vocalize to avoid predators.

**Finally, we support the IHA's requirement for a 30-minute pre-clearance period and to immediately shut down survey activity upon the visual observation of a marine mammal.<sup>88</sup>**

#### *E. Vessel strike measures*

The Proposed IHA acknowledges that vessel strikes can kill animals, that speed is a factor, and that North Atlantic right whales are particularly vulnerable because they are "generally unresponsive to vessel sound" and "more susceptible to vessel collisions,"<sup>89</sup> yet it only discusses the impacts of the survey vessels traveling at speeds less than 3.5 knots.<sup>90</sup> This ignores the impacts of all other project vessels operating in the Project Area on right whales. While we appreciate that the Proposed IHA expressly requires all vessels to observe a 10-knot speed restriction if NMFS has designated Seasonal Management Areas ("SMAs") or DMAs, the proposed measure would allow project vessels to travel at speeds greater than 10 knots at all other times, unless a right whale is actually observed within 100 meters.<sup>91</sup> This is insufficient.

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<sup>86</sup> 85 Fed. Reg. at 31,878.

<sup>87</sup> *Id.*

<sup>88</sup> 85 Fed. Reg. at 31,877.

<sup>89</sup> 85 Fed. Reg. at 31,870 (citing Nowacek *et al.*, 2004).

<sup>90</sup> 85 Fed. Reg. at 31,858.

<sup>91</sup> 85 Fed. Reg. at 31,878.

**Vessel collisions remain one of the leading causes of large whale injury and mortality and are a primary driver of the existing UMEs.** Serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length.<sup>92</sup> The number of recorded vessel collisions on large whales each year is likely to grossly underestimate the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted for.<sup>93</sup> North Atlantic 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>94</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of ship-strike at relatively moderate levels of exposure.<sup>95</sup> It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. The agency has a responsibility to implement mitigation measures to prevent any further vessel collisions for other species of large whale currently experiencing an UME (*i.e.*, humpback whales and minke whales), as well as other species such as fin whales, which, in light of the broad distributional shifts observed for multiple species, may be at potential future risk of experiencing an UME.

As noted in the Proposed IHA, studies indicate that noise can induce flight responses, behavioral disturbances, habitat avoidance, and stress responses that reduce feeding rates and reproductive success.<sup>96</sup> Because of the noise, HRG surveys could also cause horizontal displacement<sup>97</sup> and push a North Atlantic right whale out of a protected area (SMA or DMA) into an area where vessels are traveling at greater speed, presenting an even greater danger of vessel collision. Thus, habitat displacement produces an indirect ship strike risk that also must be accounted for in NMFS' analysis.

Vessel strikes therefore pose an unacceptable risk. **Therefore, all project vessels operating within the Project Area, regardless of size, must be required to observe a 10 knot speed restriction during the entire survey period. If survey activities are delayed into the fall and winter, all project vessels either transiting to/from or operating within the Project Area must observe a 10 knot speed restriction between November 1, 2020 and April 30, 2021 to reflect the increasing density of North Atlantic right whales within, and within the vicinity of, the Project Area, including vessel transit routes.**

#### IV. CONCLUSION

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<sup>92</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales." Available at: [https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales#:~:text=All%20vessels%2065%20feet%20\(19.8,endangered%20North%20Atlantic%20right%20whales](https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales#:~:text=All%20vessels%2065%20feet%20(19.8,endangered%20North%20Atlantic%20right%20whales). To reflect the risk posed by vessels of any length, the Commonwealth of Massachusetts established a mandatory vessel speed restriction for all vessels (including under 20 meters) in the Cape Cod Bay SMA.

<sup>93</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, p. 57-60 (2011).

<sup>94</sup> NOAA-NMFS, "Recovery plan for the North Atlantic right whale" (August 2004).

<sup>95</sup> Nowacek, D.P., *et al.*, *supra* note 81.

<sup>96</sup> 85 Fed. Reg. at 31,866-31,870.

<sup>97</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).

Ms. Jolie Harrison  
June 26, 2020  
Page 17

Thank you for considering our comments. For the reasons stated above, our organizations urge NMFS to revise its analysis and require additional measures in the Final IHA to comply with its statutory obligations. We again request the opportunity to meet with you and your staff to discuss these matters.

Sincerely,

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Natural Resources Defense Council

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Ms. Jolie Harrison  
June 26, 2020  
Page 18

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***By Electronic Mail***

July 24, 2020

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**RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys off of Massachusetts, Rhode Island, Connecticut, New York, and New Jersey (Lease Areas OCS-A 0520 and OCS-A 0512, and Along Potential Submarine Cable Routes), as Requested by Equinor Wind, LLC.**

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, National Wildlife Federation, Conservation Law Foundation, Mass Audubon, Wildlife Conservation Society, NY4WHALES, Defenders of Wildlife, Surfrider Foundation, Connecticut Audubon Society, WDC Whale and Dolphin Conservation, International Marine Mammal Project of Earth Island Institute, Inland Ocean Coalition, Gotham Whale, International Fund for Animal Welfare, Marine Mammal Alliance Nantucket, Oceanic Preservation Society, and Sanctuary Education Advisory Specialists - SEAS, and our millions of members, we respectfully submit our recommendations for the National Marine Fisheries Service's ("NMFS") proposal to issue an incidental harassment authorization ("Proposed IHA") under the Marine Mammal Protection ("MMPA") to Equinor Wind, LLC ("Equinor") to authorize incidental take of marine mammals via harassment in conducting site characterization surveys in two areas of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0520 and OCS-A 0512) ("Lease Areas") and along potential submarine cable routes to a landfall location in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey (collectively, the "Project Area"). *See* 85 Fed. Reg. 37,848 (Jun 24, 2020).

We recognize the significant contribution that the offshore wind projects associated with these surveys could make in providing clean energy for New England and the Mid-Atlantic. However, it is our view that offshore wind energy can and must be advanced in an environmentally responsible manner to ensure that it meets ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the extensive waters of the Project Area support a diversity of marine life, including at least 16 species of marine mammals: six large and seven small cetaceans and three pinnipeds.<sup>1</sup> Of the six large whale species, four (sperm, fin, sei, and North

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<sup>1</sup> 85 Fed. Reg. at 37,852, Table 3.

Atlantic right whales) are listed as endangered under the Endangered Species Act (“ESA”) and as depleted and strategic stocks under the MMPA.

The following comments are intended to support Equinor in achieving its goal to advance offshore wind in a sustainable manner, while also expressing our concerns regarding NMFS’ negligible impact analysis and the avoidance, minimization, mitigation, and monitoring requirements necessary to ensure adequate mitigation measures in the Project Area.

Because it is our view that NMFS’ analysis likely underestimates the impact of these activities on the reproductive success and survivorship of the North Atlantic right whale, as well as potential impacts to other endangered and protected large whale species, we strongly recommend that the Final IHA require the following measures:

- A seasonal restriction on site assessment and characterization activities in the Project Area with the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz)<sup>2</sup> between November 1, 2020 and April 30, 2021. This recommendation is *in addition to* the existing seasonal restrictions detailed in the Proposed IHA (*i.e.*, Off Race Point Seasonal Management Area (“SMA”) and Cape Cod Bay SMA from January through May and in the Great South Channel SMA from April through July<sup>3</sup>). These dates should be reviewed annually and revised as necessary to reflect the best available scientific information;
- A requirement that developers select sub-bottom profiling systems, and operate those systems at power settings that achieve the lowest practicable source level for the objective;
- A prohibition on the commencement of geophysical surveys at night or during times of poor visibility to maximize the probability that the North Atlantic right whale and other endangered and protected large whale species are detected and confirmed clear of the exclusion zone;
- A requirement to monitor an exclusion zone for the North Atlantic right whale of 1,000 meters (“m”) and 500 m for other endangered and protected large whale species around each vessel conducting activities with noise levels that could result in injury or harassment to this species. Such monitoring should consist of a combination of visual monitoring by Protected Species Observers (“PSOs”) and passive acoustic monitoring at all times that survey work is underway;
- A requirement that four PSOs adhere to a two-on/two-off shift schedule to ensure no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time;
- A requirement to use a combination of visual monitoring by PSOs, including the use of infrared technology during periods of darkness, and passive acoustic monitoring at all times that survey work is underway at noise levels that could injure or harm the North Atlantic right whale and other endangered and protected large whale species; and

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<sup>2</sup> The best available science on other low- to mid-frequency sources (*e.g.*, Nowacek et al. 2004, Kastelein et al. 2012, 2015) indicates that Level B takes will occur with near certainty at exposure levels well below the 160 dB threshold that NMFS applies to behavioral impacts.

<sup>3</sup> 85 Fed. Reg. at 37,869.

- A requirement that all project vessels operating within or transiting to/from the Project Area, regardless of size, observe a mandatory 10 knot speed restriction during the entire survey period.

As we have in the past, we object to NMFS' proposed process to consider extending any one-year IHA with a truncated 15-day comment period as contrary to the MMPA.

## I. BACKGROUND

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

Congress enacted the 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."<sup>4</sup> 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."<sup>5</sup> Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.<sup>6</sup> This careful approach to management was deemed 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.<sup>7</sup>

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.<sup>8</sup> 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."<sup>9</sup>

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than 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."<sup>10</sup> The agency must prescribe permissible methods of

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<sup>4</sup> 16 U.S.C. § 1361(1).

<sup>5</sup> *Id.* § 1361(2); see also *Conservation Council for Hawaii v. Nat'l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

<sup>6</sup> H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

<sup>7</sup> 16 U.S.C. § 1361(1), (3).

<sup>8</sup> *Id.* §§ 1362(13), 1371(a).

<sup>9</sup> *Id.* § 1362(18)(A).

<sup>10</sup> *Id.* § 1371(a)(5)(D)(i).



taking 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.”<sup>11</sup> NMFS must also establish monitoring and reporting requirements.<sup>12</sup> No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.<sup>13</sup>

*B. The status of large whales in the Northwestern Atlantic*

As the agency is aware, the North Atlantic right whale is increasingly on a path to extinction. Although the species has been listed as endangered under the ESA for decades, recent scientific analysis confirms a population decline since 2010 due to entanglements in commercial fishing gear and vessel strikes.<sup>14</sup> In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”),<sup>15</sup> which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect. At least 31 animals are known to have been killed since 2017 and an additional ten whales have been documented with serious injuries they will not survive. These 41 animals represent roughly ten percent of the population that now numbers approximately 400 individuals.<sup>16</sup> These documented serious injuries and deaths only represent a small fraction of whales that are injured or killed.<sup>17</sup> Moreover, females are more negatively affected than males by the lethal and sublethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.<sup>18</sup> Calf survival is also severely diminished. Two of the ten calves born in the 2019/2020 calving season are already either confirmed or likely dead due to vessel strikes and their mothers have not been resighted.<sup>19</sup> In 2019, North Atlantic right whales were listed as a NOAA “Species in the Spotlight” indicating that they are one of nine marine species to be at greatest risk of extinction in the United States.<sup>20</sup> This month, the International Union for Conservation of Nature (“IUCN”) reclassified the North Atlantic right whale from “endangered” to “critically endangered” on the IUCN Red List of Threatened Species, one step away from “extinction.”<sup>21</sup>

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<sup>11</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>12</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>13</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>14</sup> Sharp, S.M., McLellan, W.A., Rotstein, D.S., Costidis, A.M., Barco, S.G., Durham, K., Pitchford, T.D., Jackson, K.A., Daoust, P.Y., Wimmer, T. and Couture, E.L., “Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis* mortalities between 2003 and 2018.” *Diseases of Aquatic Organisms*, vol. 135, pp.1-31 (2019).

<sup>15</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

<sup>16</sup> NOAA Fisheries, “North Atlantic right whale,” available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>.

<sup>17</sup> Sharp, S.M., et al., “Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis* mortalities between 2003 and 2018,” *supra* note 14.

<sup>18</sup> Corkeron, P., Hamilton, P., Bannister, J., Best, P., Charlton, C., Groch, K.R., Findlay, K., Rowntree, V., Vermeulen, E., and Pace, R.M., “The recovery of North Atlantic right whales, *Eubalaena glacialis*, has been constrained by human-caused mortality.” *Royal Society Open Science*, vol 5, art. 180892 (2018).

<sup>19</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 15.

<sup>20</sup> NOAA-NMFS, “North Atlantic right whale – In the Spotlight.” Available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale#spotlight>.

<sup>21</sup> IUCN, “Almost a third of lemurs and North Atlantic right whale now Critically Endangered.” Available at: <https://www.iucn.org/news/species/202007/almost-a-third-lemurs-and-north-atlantic-right-whale-now-critically-endangered-iucn-red-list>.

Further, ongoing UMEs exist for other whales in the Project Area. There have been UMEs for the Atlantic population of minke whales since January 2017 and humpback whales since January 2016.<sup>22</sup> Alarmingly, 92 minke whales have stranded between Maine and South Carolina from January 2017 to July 2020.<sup>23</sup> Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over four years, 126 humpback whale mortalities have been recorded (data through July 10, 2020), with strandings occurring in every state along the East Coast and more than half from the states comprising the Project Area.<sup>24</sup> The declaration of these UMEs by the agency in the past few years for three large whale species for which anthropogenic impacts are a significant cause of mortality<sup>25</sup> demonstrates an increasing risk to whales from human activities along the U.S. East Coast.

Given the critically endangered status of the North Atlantic right whale, NMFS is obligated by both the ESA and the MMPA to protect this species from additional harmful impacts of human activities. The agency is also obligated by the MMPA to consider the full range of potential impacts on all marine mammal species, including minke and humpback whales, that are known to utilize the survey area and surrounding areas before issuing an IHA with appropriate avoidance, minimization, mitigation, and monitoring measures. NMFS must use the best available scientific information on marine mammal presence and density, as required by law.<sup>26</sup> Considering the elevated threat to federally protected large whale species and populations in the Atlantic, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed surveys are mitigated to effectuate the least practicable impact on affected species and stocks.<sup>27</sup>

*C. North Atlantic right whale seasonality and distribution off the coasts of Massachusetts, Rhode Island, Connecticut, New York, and New Jersey*

The proposed Project Area is extensive and includes foraging areas of critical importance to the North Atlantic right whale, including portions of the Gulf of Maine/Georges Bank critical habitat established under the ESA due to the area's significance for North Atlantic right whale foraging,<sup>28</sup> SMAs established Off Race Point (January 1-May 15), Cape Cod Bay (March 1-April 15), and Great South Channel (April 1-July 31),<sup>29</sup> and newly emerging foraging areas south of Martha's Vineyard and Nantucket (see discussion below). The Block Island Sound SMA and the New York/New Jersey SMA (both in effect

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<sup>22</sup> NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast." Available at: <https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2019-humpback-whale-unusual-mortality-event-along-atlantic-coast>; 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>23</sup> *Id.*

<sup>24</sup> NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 22.

<sup>25</sup> *Id.*; NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 15; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 22.

<sup>26</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>27</sup> *Id.* § 1371(a)(5)(D)(ii)(I).

<sup>28</sup> 85 Fed. Reg. at 37,854, citing 81 Fed. Reg. 4837, Jan. 27, 2016.

<sup>29</sup> 85 Fed. Reg. at 37854.

from November 1-April 30) also fall within the proposed Project Area.<sup>30</sup> The onus is on NMFS to demonstrate that every measure is being taken to protect each individual North Atlantic right whale from site assessment and characterization activities within these important areas, as well as broadly across the entire proposed Project Area.

Since 2010, North Atlantic right whale distribution and habitat use have shifted in response to climate change-driven shifts in prey availability.<sup>31</sup> Best available scientific information, including aerial surveys,<sup>32</sup> acoustic detections,<sup>33</sup> stranding data,<sup>34</sup> a series of Dynamic Management Areas (“DMAs”) declared by NMFS pursuant to the ship strike rule,<sup>35</sup> and prey data<sup>36</sup> indicate that North Atlantic right whales now heavily rely on the waters within, and in the vicinity of, the Project Area, and particularly areas south of Nantucket and Martha’s Vineyard (see Figure 1).<sup>37</sup> In January 2019, an aggregation representing a quarter of the population—100 whales—was seen in this area<sup>38</sup> engaged in both foraging and social activities, demonstrating that it is clearly more than just a migratory corridor (as suggested in the Proposed IHA<sup>39</sup>). Large, seasonally consistent aggregations of North Atlantic right whales occur within or close to Lease Area OCS-A 0520 and the southern portion of export cable route area-1 (“ECRA-1”) and ECRA-2 from at least December through May, resulting in scientists considering the area to be a North Atlantic right whale “hotspot.”<sup>40</sup> North Atlantic right whales were observed feeding in the vicinity of the Lease Area during the first half of May for the first time in 2017<sup>41</sup> and were sighted in June and July in 2017 and

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<sup>30</sup> *Id.*

<sup>31</sup> Record, N., Runge, J., Pendleton, D., Balch, W., Davies, K., Pershing, A., Johnson, C., Stamieszkin, K., Ji, R., Feng, Z. and Kraus, S., “Rapid Climate-Driven Circulation Changes Threaten Conservation of Endangered North Atlantic Right Whales,” *Oceanography*, vol. 32, pp. 162-169 (2019).

<sup>32</sup> Kraus, S.D., Leiter, S., Stone, K., Wikgren, B., Mayo, C., Hughes, P., Kenney, R.D., Clark, C.W., Rice, A.N., Estabrook, B., and Tielens, J., “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” OCS Study, BOEM 2016-054, pp. 118 (2016); 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.A., and Kraus, S.D., “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA,” *Endangered Species Research*, vol. 34, pp. 45-59 (2017); Quintana, E., “Monthly report No. 3: May 2017,” Report prepared for the Massachusetts Clean Energy Center by the New England Aquarium, pp. 26 (May 15, 2017).

<sup>33</sup> Kraus, S.D., *et al.*, *id.*; Davis, G.E., Baumgartner, M.F., Bonnell, J.M., Bell, J., Berchick, C., Bort Thorton, 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>34</sup> Asaro, M.J., “Update on US Right Whale Mortalities in 2017,” NOAA Fisheries, November 30, 2017. Available at: [https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro\\_usstrandings\\_nov2017.pdf](https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/2017%20Nov/asaro_usstrandings_nov2017.pdf).

<sup>35</sup> NOAA Fisheries Interactive DMA Analyses: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

<sup>36</sup> Pendleton, D.E., Pershing, A., Brown, M.W., Mayo, C.A., Kanney, R.D., Record, N.R., and Cole, T.V.N., “Regional-scale mean copepod concentration indicates relative abundance of North Atlantic right whales,” *Marine Ecology Progress Series*, vol. 378, pp. 211-225 (2009); NOAA Northeast Fisheries Science Center, “Ecology of the Northeast US Continental Shelf – Zooplankton.” Available at: <https://www.nefsc.noaa.gov/ecosys/ecosystem-ecology/zooplankton.html>.

<sup>37</sup> Although there are challenges in the use of opportunistic sightings data (no area systematically surveyed, effort not corrected for, and potential for counting an individual whale more than once), they are a proxy for habitat used by North Atlantic right whales, as validated by NMFS’ management actions based on these data, including the implementation of DMAs.

<sup>38</sup> *See* [https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28\\_voluntary\\_vessel\\_speed\\_restriction\\_zone\\_in\\_effect\\_south\\_of\\_nantucket\\_to\\_protect\\_right\\_whales.html](https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2019/01/28_voluntary_vessel_speed_restriction_zone_in_effect_south_of_nantucket_to_protect_right_whales.html).

<sup>39</sup> *See*, 85 Fed. Reg. 37,854. Critical habitat designated under the ESA is the only foraging habitat described for North Atlantic right whales in the Proposed IHA.

<sup>40</sup> Leiter, S.M., *et al.*, “North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA,” *supra* note 32.

<sup>41</sup> Quintana, E., “Monthly report No. 3: May 2017,” *supra* note 24.

2018,<sup>42</sup> indicative of a broader temporal shift in distribution resulting in the occurrence of North Atlantic right whales at greater densities off Rhode Island and Massachusetts into the summer months.<sup>43</sup> Pregnant females are known to travel through the area in November and December and females of reproductive age are also present in the area in February and March, with April appearing particularly important for mothers and calves.<sup>44</sup> Several scientific data sources demonstrate that right whales use these waters year-round.<sup>45</sup>

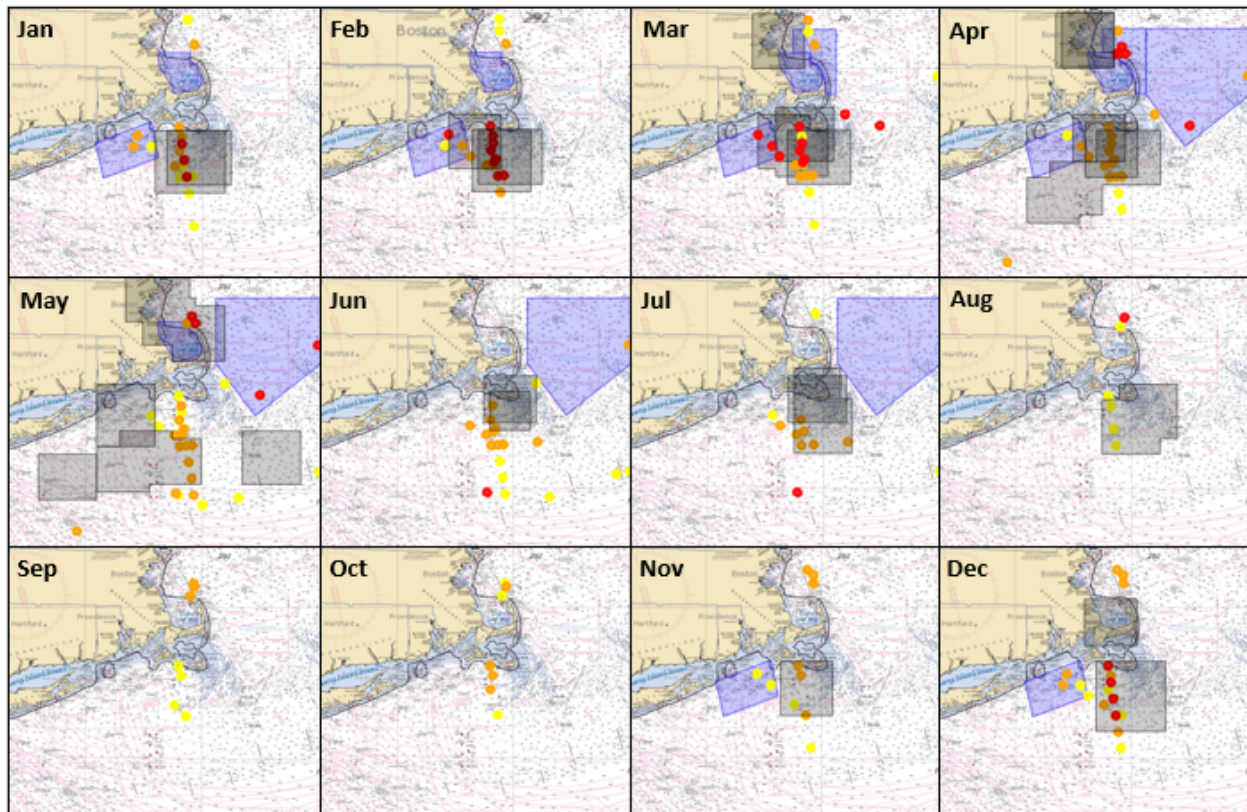


Figure 1: Monthly maps of Dynamic Management Areas (“DMAs”) (gray boxes), Seasonal Management Areas (“SMAs”) (blue boxes), and the location of acoustic receivers color coded according to percentage days per month with an acoustic detection (red: “High”  $\geq 50\%$ ; Orange: “Medium” 10-50%; Yellow: “Low”  $<10\%$ ). Maps represent the two most recent years for which data were available: 2017-2019 for Jan-Aug; 2016-2018 for Sep-Dec. Source: Northeast Fisheries Science Center (NEFSC) “Interactive Monthly DMA Analysis.” Available at: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

<sup>42</sup> New England Aquarium, unpublished data.

<sup>43</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 33.

<sup>44</sup> Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

<sup>45</sup> Kraus, S.D., *et al.*, “Northeast large pelagic survey collaborative aerial and acoustic surveys for large whales and sea turtles. Final Report,” *supra* note 32; 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 33; NOAA Fisheries Interactive DMA Analyses, *supra* note 35.

Protection of North Atlantic right whales during foraging, and the protection of their foraging habitat, must be one of NMFS' highest priorities. North Atlantic right whales select foraging areas based on a relatively high threshold of copepod density of approximately 3850-4000 organisms per cubic meter.<sup>46</sup> Notably, foraging areas with suitable prey density are limited relative to the overall distribution of North Atlantic right whales,<sup>47</sup> meaning that unrestricted and undisturbed access to suitable areas, when they exist, is extremely important for the species to maintain its energy budget. Scientific information on North Atlantic right whale functional ecology also shows that the species employs a "high-drag" foraging strategy that enables them to selectively target high-density prey patches but is energetically expensive.<sup>48</sup> Thus, if access to prey is limited in any way, the ability of the whale to offset its energy expenditure during foraging is jeopardized. In fact, researchers have concluded: "[R]ight whales acquire their energy in a relatively short period of intense foraging; even moderate changes in their feeding behavior or their prey energy density are likely to negatively impact their yearly energy budgets and therefore reduce fitness substantially." North Atlantic right whales are already experiencing significant food-stress: juveniles, adults, and lactating females have significantly poorer body condition relative to southern right whales and the poor condition of lactating females may cause a reduction in calf growth rates.<sup>49</sup> Undisturbed access to foraging habitat must be ensured to adequately protect the species.

North Atlantic right whales also occur in the waters off Connecticut, New York, and New Jersey year-round at varying densities.<sup>50</sup> A higher expected density of North Atlantic right whales off New York is reflected by the dates of the NMFS' SMAs for New York Harbor and adjacent waters to east of Long Island extending to Block Island, which are in place from November 1 through April 30.<sup>51</sup> 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>52</sup> however, elevated densities are still expected for May.<sup>53</sup> More recent aerial sightings data (pooled 2017, 2018, 2019/2020) show North

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<sup>46</sup> Personal communication from Dr. Charles "Stormy" Mayo, Senior Scientist, Director of Right Whale Habitat Studies, and Senior Advisor of the Disentanglement Program, Center for Coastal Studies, Provincetown, MA, to William Rossiter, Vice President, NY4WHALES, May 13, 2013.

<sup>47</sup> *Id.*

<sup>48</sup> Van der Hoop, J., Nousek-McGregor, A.E., Nowacek, D.P., Parks, S.E., Tyack, P., and Madsen, P., "Foraging rates of ram-filtering North Atlantic right whales," *Functional Ecology* (Published online May 11, 2019).

<sup>49</sup> Christiansen, F., Dawson, S.M., Durban, J.W., Fearnbach, H., Miller, C.A., Bejder, L., Uhart, M., Sironi, M., Corkeron, P., Rayment, W., Leunissen, E., Haria, E., Ward, R., Warick, H.A., Kerr, I., Lynn, M.S., Pettis, H.M., & Moore, M.J., "Population comparison of right whale body condition reveals poor state of the North Atlantic right whale." *Marine Ecology Progress Series*, vol. 640, pp. 1-16 (2020).

<sup>50</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 33; 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); C. Good *pers. comm.* to F. Kershaw, March 12, 2018.

<sup>51</sup> NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales." Available at: <http://www.nmfs.noaa.gov/pr/shipstrike/>.

<sup>52</sup> Chou, E., Rekdahl, M., Antunes, R., Spagnoli, C., Kopelman, A., Sieswerda, P., DiGiovanni, Jr., R., Good, C., and Rosenbaum, H.C., "Distribution and occurrence of large whales in New York Bight prior to 2017: Establishing baselines and informing management." Oral Presentation. World Marine Mammal Conference, Barcelona, Spain, December 11, 2019.

<sup>53</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 33; Muirhead, C.A., *et al.*, "Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight," *supra* note 50.

Atlantic right whales are present at least during November through May,<sup>54</sup> further indicating the relative importance of this time period. Long-term (2004-2014) and short-term (2008-2009) passive acoustic monitoring data demonstrate North Atlantic right whales maintain a high level of presence off New York through the winter and into March and April, before shifting further offshore and northwards in May.<sup>55</sup> More recently, fifteen archival recording devices deployed along two transect lines spanning the New York Bight from October 2017 to October 2018 detected North Atlantic right whales during every month of the survey period except September 2018.<sup>56</sup> Daily presence per month ranged from ten percent in July and September 2018, to 100 percent in December 2017, and peak presence occurred between November and January.<sup>57</sup> Near real-time passive acoustic monitoring by a fixed hydrophone deployed in the New York Bight since 2016 has detected North Atlantic right whales in a number of months throughout the year;<sup>58</sup> two new buoys deployed in the northwest and southeast of the New York Bight in January 2020 confirmed positive acoustic detections of North Atlantic right whales in the winter months through March in the southeast region.<sup>59</sup> Long-term passive acoustic monitoring data (2004-2014) also show that humpback whales, sei whales, and fin whales are present in the southern New England and New York region year-round. These long-term data are supported by more recent real-time passive acoustic monitoring and aerial surveys showing fin whales and humpback whales are sighted and acoustically detected year-round in the New York Bight.<sup>60</sup> Significant multi-species foraging aggregations of whales have been sighted in the New York Bight during the summer months until early August.<sup>61</sup>

In addition to the existing seasonal restrictions detailed in the Proposed IHA (*i.e.*, Off Race Point SMA and Cape Cod Bay SMA from January through May and in the Great South Channel SMA from April through July<sup>62</sup>), the best available scientific information demonstrates that at least November 1 through April 30 in the Project Area represents a time of highest risk to North Atlantic right whales. These dates are based on times of highest relative density of animals during their migration and times when mother-

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<sup>54</sup> New York State Department of Environmental Conservation, “New York Bight Whale Monitoring, Aerial Surveys, March 2017-February 2020, Final Comprehensive Report Years 1-3,” Prepared by Tetra Tech for the Division of Marine Resources, New York State Department of Environmental Conservation, May 2020.

<sup>55</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 33.; Muirhead, C.A., *et al.*, “Seasonal acoustic occurrence of blue, fin, and North Atlantic right whales in the New York Bight,” *supra* note 50.

<sup>56</sup> Estabrook, B. J., Hodge, K.B., Salisbury, D.P., Ponirakis, D., Harris, D.V., Zeh, J.M., Parks, S.E., and Rice, A.N., “Year-1 Annual Survey Report for New York Bight Whale Monitoring Passive Acoustic Surveys October 2017- October 2018.” Contract C009925. New York State Department of Environmental Conservation. East Setauket, NY (2019).

<sup>57</sup> *Id.*

<sup>58</sup> WCS/WHOI, “Autonomous real-time marine mammal detections, New York Bight buoy.” Available at: [http://dcs.whoi.edu/nyb0218/nyb0218\\_buoy.shtml](http://dcs.whoi.edu/nyb0218/nyb0218_buoy.shtml).

<sup>59</sup> WCS/WHOI, “Autonomous real-time marine mammal detections, New York Bight buoy NW.” Available at [http://dcs.whoi.edu/nybnw0120/nybnw0120\\_buoy.shtml](http://dcs.whoi.edu/nybnw0120/nybnw0120_buoy.shtml); WCS/WHOI, “Autonomous real-time marine mammal detections, New York Bight buoy SE.” Available at [http://dcs.whoi.edu/nybse0120/nybse0120\\_buoy.shtml](http://dcs.whoi.edu/nybse0120/nybse0120_buoy.shtml).

<sup>60</sup> New York State Department of Environmental Conservation, “New York Bight Whale Monitoring, Aerial Surveys, March 2017-February 2020, Final Comprehensive Report Years 1-3,” *supra* note 54; WCS/WHOI “Autonomous real-time marine mammal detections,” *supra* notes 56 and 57; Zeh, J., Rekdahl, M., Rice, A., Clark, C., Rosenbaum, H. Detections of humpback whale (*Megaptera novaeangliae*) vocalizations on an acoustic sensor in the New York Bight. Marine Mammal Science. Provisionally accepted.

<sup>61</sup> New York State Department of Environmental Conservation, “New York Bight Whale Monitoring, Aerial Surveys, March 2017-February 2020, Final Comprehensive Report Years 1-3,” *id.*; King, C., Rekdahl, M., Chou, E., Trabue, S., Rosenbaum, H. Baleen whale distribution, behavior, and multi-species aggregations in the New York Bight. Submitted.

<sup>62</sup> 85 Fed. Reg. at 37,869.

calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present.<sup>63</sup> That said, North Atlantic right whales are detected year-round within the Project Area and there is a clear need to protect every individual animal from any additional harassment given their extreme level of endangerment. Therefore, additional strong and effective mitigation measures must be in place year-round whenever site characterization surveys are undertaken (*see* Section III). Further, as the majority of proposed survey days will be concentrated in the New York Bight (125.25 survey days out of 218 for ECRA-4),<sup>64</sup> it is critical that NMFS require measures to avoid, minimize, mitigate, and monitor any potential impacts of the survey activity on *all* large whale species.

## II. INCONSISTENCIES BETWEEN THE PROPOSED IHA AND THE MARINE MAMMAL PROTECTION ACT

### A. *NMFS Should Not Adjust Take Numbers for Large Whales Based on Under-Protective Mitigation Measures*

According to the Proposed IHA, NMFS elects to adjust take numbers of endangered North Atlantic right whales and all other large whales by 50 percent, as NMFS:

“expect[s] the proposed mitigation measures, including a 500-m exclusion zone for right whales (which exceeds the Level B harassment zone by over 350-m), will be effective in reducing the potential for takes by Level B harassment, but there is still a risk that right whales may not be detected within the Level B harassment zone during periods of diminished visibility, particularly at night.”<sup>65</sup>

While we appreciate NMFS’ decision to authorize fewer Level B takes for the North Atlantic right whale, as is necessary given the species’ dire conservation status, **we do not share the agency’s confidence that it is possible to mitigate the potential for Level B harassment through the implementation of the mitigation measures required by the Proposed IHA.**

Our reasons are threefold. First, the agency’s reliance on a 160 dB threshold for behavioral harassment is not supported by best available scientific information, which indicates that Level B takes occur with near certainty at exposure levels well below the 160 dB threshold.<sup>66</sup> Second, the agency relies on the

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<sup>63</sup> Over a dozen wildlife conservation organizations recently endorsed a suite of Best Management Practices (“BMPs”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. The BMPs include criteria to define times of highest risk to North Atlantic right whales. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Available at: <https://www.nrdc.org/resources/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy>.

<sup>64</sup> 85 Fed. Reg. at 37,850.

<sup>65</sup> 85 Fed. Reg. at 37,866.

<sup>66</sup> *See, e.g.,* Gomez, C., Lawson, J.W., Wright, A.J., Buren, A.D., Tollit, D. and Lesage, V. A systematic review on the behavioural responses of wild marine mammals to noise: the disparity between science and policy. *Canadian journal of zoology*, 94(12), pp.801-819 (2016).

assumption that marine mammals will take measures to avoid the sound<sup>67</sup> even though studies have not found avoidance behavior to be generalizable among species and contexts,<sup>68</sup> and even though avoidance may itself constitute take under the MMPA. Third, as discussed in Section III.B below, the mitigation and monitoring protocols prescribed by the agency are inadequate at protecting marine mammals and do not comply with the MMPA. In fact, the mitigation measures in the Proposed IHA are overall less protective than previous IHA authorizations for the region, even as the conservation status of the North Atlantic right whale has worsened. Collectively, the agency's assumptions regarding acoustic thresholds and mitigation effectiveness are unfounded and cannot be used to justify any reduction in the number of takes authorized.

*B. To fulfill the statutory requirement of considering the best scientific information available, NMFS must analyze additional data sources when calculating densities of marine mammals, including the North Atlantic right whale*

In order to comply with the MMPA, NMFS must base its IHA analysis on the best available scientific information to comply with statutory requirements of the MMPA.<sup>69</sup> Here, 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 produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts et al. 2016, 2017, 2018).<sup>70</sup> While the Proposed IHA notes that this model has been updated to incorporate additional data sources, including in Cape Cod Bay, and two or more years of data,<sup>71</sup> it still excludes data obtained through additional sightings databases, passive acoustic monitoring, and satellite telemetry. It is our view that the density maps produced by this model do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast. These models should not be used as the sole information source relied upon when estimating take.

Of particular concern is NMFS' assertion that the portion of ECRA-1 south of Cape Cod Bay and ECRA-2 are situated only within the North Atlantic right whale migratory corridor,<sup>72</sup> rather than acknowledging that North Atlantic right whales are now regularly observed aggregating socially and foraging in these areas in the winter and spring, as well as, to a lesser extent, the summer months. This omission is inexplicable in light of NMFS' current work to develop new regulations to reduce entanglement of North Atlantic right whales,<sup>73</sup> for which the importance of this area as a new aggregation and foraging site forms

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<sup>67</sup> See, e.g., 85 Fed. Reg. at 37,872. "We expect that all potential takes would be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area, reactions that are considered to be of low severity and with no lasting biological consequences (e.g., Southall et al., 2007)."

<sup>68</sup> Miller, P. J. O., Johnson, M. P., Madsen, P. T., Biassoni, N., Quero, M., and Tyack, P. L., "Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico," *Deep Sea Research Part I: Oceanographic Research Papers*, 56, pp. 1168-1181 (2009); Pirota, E., Milor, R., Quick, N., Moretti, D., Di Marzio, N., Tyack, P., Boyd, I., and Hastie, G., "Vessel noise affects beaked whale behavior: results of a dedicated acoustic response study." *PloS ONE*, 7(8), e42535 (2012).

<sup>69</sup> 16 U.S.C. §§ 1362(19), §§ 1362(27).

<sup>70</sup> 85 Fed. Reg. at 37,865.

<sup>71</sup> *Id.*

<sup>72</sup> See, e.g., 85 Fed. Reg. at 37,872.

<sup>73</sup> See, e.g., "Atlantic Large Whale Take Reduction Team Meeting—Key Outcomes Memorandum," Providence, Rhode Island, April 23-26, 2019. Published October 4, 2019. Available at: <https://www.fisheries.noaa.gov/webdam/download/97751765>.



a central point of consideration. The Duke University models do not adequately capture this increase in habitat use by right whales and, therefore, levels of take based solely on those models will most certainly be underestimates. Similarly, NMFS defined the North Atlantic right whale migratory corridor as a biologically important area (“BIA”) in 2015 before evidence emerged of the new foraging areas south of Martha’s Vineyard and Nantucket. As an information product, the BIAs are not comprehensive and intended to be periodically reviewed in order to reflect the best available scientific information.<sup>74</sup> Until this review is undertaken for the U.S. East Coast, NMFS should not rely on the North Atlantic right whale migratory corridor BIA as the sole indicator of habitat importance for the species.

Integration of local data sources, including opportunistic sightings data, that collect fine-scale information on factors driving marine mammal distribution with those gathered through systematic broad-scale surveys better reflecting current marine mammal presence, abundance, and density will provide a more accurate assessment of Level B take. **It should be a top priority to consider any initial data from State monitoring efforts,<sup>75</sup> passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources, including those being used by the agency in the development of new regulations to reduce entanglement of North Atlantic right whales. NMFS should take steps now to develop a dataset (see also recommendations in Section III.A.) that more accurately reflects marine mammal presence for future IHA authorizations and other work.**

*C. Any IHA extension does not comport with the plain language of the statute*

NMFS, again, requests comment on the potential one-year renewal of this Proposed IHA on a case-by-case basis for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.<sup>76</sup>

For several reasons, our organizations have repeatedly opposed this process as contrary to law. First, NMFS’ proposal to provide one-year renewals does not comport with the plain language of the statute. Section 101(a)(D)(i) unambiguously states that incidental harassment authorizations are valid for periods of not more than one year.<sup>77</sup> Second, the statute is clear on its face that a 30-day comment period is required in all instances. An agency must publish a proposed authorization (45 days after receipt of an application) and the duration of the public comment period (30 days after publication).<sup>78</sup> The legislative history of the 1972 Act demonstrates that Congress viewed a robust notice and comment process as central to the agency’s implementation of the IHA process stating: “As approved by the Committee, the [MMPA] involves a number of basic concepts,” one being that “the public is invited and encouraged to participate fully in the agency decision-making process.”<sup>79</sup> When NMFS adheres to this process, “the public is assured of the right to be informed of actions taken or proposed.”<sup>80</sup> Third, the legislative history

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<sup>74</sup> “However, these BIAs are meant to be living documents that should be routinely reviewed and revised to expand the number of species covered and to update the existing BIAs as new information becomes available.” Van Parijs, S. M., “Letter of introduction to the Biologically Important Areas issue.” *Aquatic Mammals*, 41, p.1 (2015).

<sup>75</sup> See, e.g., <https://www.dec.ny.gov/lands/113647.html>, <http://www.masscec.com/offshore-wind-marine-wildlife-surveys>.

<sup>76</sup> 85 Fed. Reg. at 37,874.

<sup>77</sup> 16 U.S.C. § 1371(a)(5)(D)(i).

<sup>78</sup> *Id.* § 1371(a)(5)(D)(iii).

<sup>79</sup> H.R. Rep. No. 92-707, at 4151 (1972), reprinted in 1972 U.S.C.C.A.N. 4144, 4151.

<sup>80</sup> *Id.* at 4146.

removes any doubt that this 30 day comment period applies even in cases where the application extends the IHA for another year without change.<sup>81</sup>

The agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy, or on a permit-by-permit basis as it purports to do here.<sup>82</sup> Moreover, NMFS has not supplied a sufficient explanation for why it might assert that the statutory language of sec. 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute's objectives.<sup>83</sup>

Should the agency wish to establish its new IHA renewal process as a reasonable interpretation of an ambiguous statutory provision, it should do so through notice-and-comment rulemaking or comparable process with the appropriate indicia of formality. In so doing, NMFS must also explain why applicants whose activities may result in the incidental harassment of marine mammals over more than one year should not be required to apply for authorization to do so through the incidental take regulation procedure established by sec. 101(a)(5)(A)(i), which provides for authorizing incidental take during periods of "*not more than five consecutive years each.*"<sup>84</sup> Where Congress established clear and distinct statutory processes for authorizing incidental take via harassment for one-year periods versus periods extending more than one year and up to five years, NMFS must justify how its proposed unlawful hybrid administrative extension process, with a curtailed comment period, is consistent with both statutorily-established processes.

NMFS' statement about Incidental Harassment Authorization Renewals on its website<sup>85</sup> fails to provide a clear and legally adequate justification for its purported new reauthorization process especially in light of the burden the foreshortened comment period places on interested members of the public to review and formulate comments, all within 15 calendar days. As NMFS apparently intends the new reauthorization process to become the rule rather than the exception, it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

### III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing "take" by incidental harassment under the general authorization provision of the MMPA, NMFS 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."<sup>86</sup> In light of the aforementioned inconsistencies between the agency's analysis and the requirements of the MMPA, as well as the significant risks posed to the North Atlantic right whale and other endangered and/or strategic marine mammal stocks by the site assessment and characterization activities outlined in

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<sup>81</sup> H.R. Rep. No. 103-439, at 29 (1994).

<sup>82</sup> See *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837, 842-43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.").

<sup>83</sup> See *Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a "'reasonable' explanation of how an agency's interpretation serves the statute's objectives is the stuff of which a 'permissible' construction is made").

<sup>84</sup> 16 U.S.C. § 1371(a)(5)(A)(i) (emphasis added). See also *id.* at § 1371(a)(5)(A)(i)(I) (negligible impact finding must evaluate total of such taking "during each five-year (*or less*) period concerned") (emphasis added).

<sup>85</sup> See <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

<sup>86</sup> 16 U.S.C. § 1371(a)(5)(D)(vi).

the Proposed IHA, NMFS has an obligation to impose robust avoidance, minimization, mitigation, and monitoring requirements to protect these species to the maximum extent practicable.

The best scientific and commercial data available shows that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging behavior may lead to population-level effects and is of critical concern.<sup>87</sup> **Therefore, the agency must carefully analyze the cumulative impacts from the proposed survey activities and other survey activities contemplated in other lease areas on the North Atlantic right whale and other protected species.**

Equinor has proposed to deploy some types of HRG equipment on a Surveyor Remotely Operated Vehicle (“SROV”). The SROV is fully controlled from the surface vessel and is equipped with multibeam echosounders, triangulating lasers, and video-photo mosaic cameras as well as side scan sonar, a shallow penetration sub-bottom profiler, and a gradiometer. The SROV would maintain a depth of no higher than 6 m above the seabed at all times while actively surveying.<sup>88</sup> Based on this, NMFS has made the decision to only analyze take from vessel-mounted HRG equipment, namely medium penetration sub-bottom profilers (i.e., sparker/boomer) and the ultra-short baseline (“USBL”) positioning system: “NMFS has determined the potential for take of marine mammals as a result of exposure to HRG equipment operated from the SROV is so low as to be discountable, and HRG equipment operated from the SROV is not analyzed further in this document.”<sup>89</sup> We acknowledge the potential of SROV technology to significantly mitigate or even eliminate impacts on marine mammals. The extent to which this is true depends in part on the reflexivity and directionality of the sound. While it is likely that the sound from the SROV is predominantly directed downward, more information is needed regarding source levels and the reflection of the sound into the water column. NMFS should make this information available to allow a full evaluation of the effectiveness of the SROV in entirely avoiding harassment of marine mammals.

In addition, we note that Equinor committed to a number of mitigation measures in the IHA application (e.g., passive acoustic monitoring, infrared equipment) that are not required by the Proposed IHA.<sup>90</sup> NMFS should incorporate these measures, as well as additional measures described below, into the Final IHA. The implementation of a robust impact avoidance, minimization, mitigation, and monitoring protocol to prevent adverse impacts of the proposed survey activities is essential and required by law.

*A. Seasonal restriction on geophysical surveys in the Project Area from November 1 to April 30 and enhanced real-time monitoring and mitigation at all times*

NMFS is proposing to authorize geophysical surveys during times when North Atlantic right whales may be present across the entire Project Area, and potentially foraging in Lease Area OCS-A 0520 and

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<sup>87</sup> See, e.g., Van der Hoop, J., *et al.*, “Foraging rates of ram-filtering North Atlantic right whales,” *supra* note 48; Christiansen, F., *et al.*, “Population comparison of right whale body condition reveals poor state of the North Atlantic right whale,” *supra* note 49.

<sup>88</sup> 85 Fed. Reg. at 37,850.

<sup>89</sup> 85 Fed. Reg. at 37,851.

<sup>90</sup> Equinor Wind LLC, “Application for Marine Mammal Protection Act Incidental Harassment Authorization, Site Characterization Studies off the Coast of New England and New York Bight,” submitted by Equinor Wind US LLC to National Marine Fisheries Service Office of Protected Resources, March 27, 2020. Available at: <https://www.fisheries.noaa.gov/webdam/download/107889449>

portions of ECRA-1 and ECRA-2 (Vessel-based HRG survey activities would be prohibited in the Off Race Point SMA and Cape Cod Bay SMA from January through May and in the Great South Channel SMA from April through July<sup>91</sup>). High-resolution geophysical (“HRG”) surveys will be conducted 24 hours a day for up to 218 total days over the course of one year (Lease Area OCS-A 0520 and ECRA-2: 70.25 days; ECRA-1: 11.25 days; ECRA-3: 11.25 days; Lease Area OCS-A 0512 and ECRA-4: 125.25 days). Two vessels may operate concurrently.<sup>92</sup>

The start date of HRG survey activity is unclear, however, based on their expected duration it is likely it will extend into the time period that we consider of greatest risk for North Atlantic right whales. The Proposed IHA also contains no information on where the two survey vessels may be operating within the Project Area at what times, which would be helpful in assessing levels of risk. Therefore, *in addition to* the existing seasonal restrictions detailed in the Proposed IHA for the Off Race Point SMA and Cape Cod Bay SMA from January through May and in the Great South Channel SMA from April through July,<sup>93</sup> **NMFS should prohibit site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz) between November 1, 2020 and April 30, 2021 (and any subsequent year into which the IHA may be extended or renewed).** These dates currently reflect both the best available scientific information on the relative density of North Atlantic right whales in the Mid-Atlantic and southern New England (recognizing that individuals of this species could be present in each month of the year; *see* Section I.C), as well as the potential presence of mother-calf pairs and a significant increase in the number of foraging aggregations during these months (noting that the species is increasingly reliant on this area year round as foraging habitat). These dates should be reviewed annually and revised as necessary to reflect the best available scientific information.

Further, while existing and potential stressors to the North Atlantic right whale must be minimized to promote the survival and recovery of the species, the agency must also address potential impacts to other endangered and protected whale species, particularly in light of the UMEs declared for right whales, humpback whales and minke whales,<sup>94</sup> as well as the several strategic and/or depleted stocks that inhabit the region. 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.

While best available scientific information justifies the use of seasonal restrictions to temporally separate survey activity from North Atlantic right whales in some areas, it is becoming increasingly clear that there may not be a time of “low risk” for this species. The population size is now so small that any individual-level impact is of great concern. In addition, climate-driven changes in oceanographic conditions, and resulting shifts in prey distribution, are rapidly changing the spatial and temporal patterns of habitat use for North Atlantic right whales and other species.<sup>95</sup> **Therefore, we recommend NMFS invest in the**

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<sup>91</sup> 85 Fed. Reg. at 37,869

<sup>92</sup> 85 Fed. Reg. at 37,849.

<sup>93</sup> 85 Fed. Reg. at 37,869.

<sup>94</sup> NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 15; NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 17; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 22.

<sup>95</sup> Record, N.R., et al., “Rapid climate-driven circulation changes threaten conservation of endangered North Atlantic right whales,” *supra* note 31.

**development of, and subsequently require, a robust and effective real-time monitoring and mitigation system for North Atlantic right whales and other endangered and protected species (e.g., fin whales, sei whales, humpback whales).** The ability to reliably detect North Atlantic right whales and other species on a real-time basis and adjust survey (and future construction) activities accordingly (e.g., if a North Atlantic right whale is detected with X distance of the survey/construction area on Day 1, no survey/construction activity will be undertaken on Day 2) would enable NMFS to adaptively manage and mitigate risks to protected species, while affording flexibility to offshore wind developers. This approach could be used in conjunction with seasonal restrictions in North Atlantic right whale foraging areas (e.g., off southern New England), or potentially year-round in the Mid-Atlantic region where a changing climate is leading to novel spatial and temporal habitat-use patterns. A real-time monitoring and mitigation approach would also minimize risks to other endangered and protected species that may be present at high densities at times when North Atlantic right whales are expected to be present in lower numbers (e.g. humpback whale and fin whale foraging aggregations that occur in the summer months in the New York Bight).

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

As it is most protective to avoid and reduce impacts in the first instance, and because no monitoring method is perfect, **NMFS should require developers to select sub-bottom profiling systems, and operate those systems at power settings, that achieve the lowest practicable source level for the objective.**

**In our view, geophysical surveys should only commence, with ramp-up, during daylight hours of adequate visibility<sup>96</sup> to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone.** If the exclusion zone is clear, we do not oppose the survey continuing into nighttime hours. However, if the survey is shut down for any reason, developers should be required to wait until daylight hours and good visibility for ramp-up to resume. PSO use is key to proper detection; for this reason, restarting operations in the night or at times of poor visibility is an unacceptable risk to the species' health. **Furthermore, as PSOs are unable to visually monitor the exclusion area during darkness and periods of low visibility, NMFS must require, for surveys that continue into the nighttime, a combination of PSOs using infrared technology<sup>97</sup> and passive acoustic monitoring (see Section III.D).**

Infrared technology, relying on thermal differences between the target species and the environment, has shown promise for detection of a number of marine mammal species from vessels in darkness.<sup>98</sup> The application of infrared technology as a mitigation tool is still in development, however, and false positive

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<sup>96</sup> Adequate visibility should be determined by the lead PSO based on standardized environmental parameters (e.g., visibility, glare, sea state, wind speed).

<sup>97</sup> 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.

<sup>98</sup> Lathlean, J. and Seuront, L., "Infra-red thermography in marine ecology: methods, previous applications and future challenges," *Marine Ecology Progress Series*, vol. 514, p. 263-277 (2014); Smith, H.R., Zitterbart, D.P., Norris, T.F., Flau, M., Ferguson, E.L., Jones, C.G., Boebel, O. and Moulton, V.D., A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada. *Marine Pollution Bulletin*, 154, p.111026 (2020); Zitterbart, D.P., Smith, H.R., Flau, M., Richter, S., Burkhardt, E., Beland, J., Bennett, L., Cammareri, A., Davis, A., Holst, M. and Lanfredi, C., Scaling the Laws of Thermal Imaging-Based Whale Detection. *Journal of Atmospheric and Oceanic Technology*, 37(5), pp.807-824 (2020).

infrared detections, matching systems capabilities to sea conditions and species of interest, and the experience of employed observers are all pertinent issues that require further attention.<sup>99</sup> Infrared performance is relatively high during periods of darkness, but relatively low during rain, fog, and drizzle, and in sea states greater than Beaufort 4,<sup>100</sup> indicating that overall detection rates are likely to be maximized when complementary methods are used. PSOs and passive acoustic monitoring are likely the most effective combination during high seas and precipitation; however, a combination of infrared and passive acoustic monitoring would be most effective when used in darkness. Even during periods of good visibility, a combination of PSOs, infrared, and passive acoustic monitoring would increase detections.<sup>101</sup> **Accordingly, the agency should require the use of infrared equipment to support visual monitoring by PSOs and passive acoustic monitoring during periods of darkness.**

NMFS must consider the limitations of the infrared system proposed and ensure that the detection of marine mammals is possible at distances out to and beyond the exclusion zones, in the geographic region in question, and for all relevant endangered and protected species. These technologies have not been well tested for detection of North Atlantic right whales, and may be relatively ineffective for detecting minke whales,<sup>102</sup> both species of concern in light of the current UMEs declared for the Atlantic coast. Further, NMFS should encourage developers to partner with scientists and collect data that increases our understanding of the effectiveness of infrared technologies within the Project Area,<sup>103</sup> 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 will be established around HRG equipment and monitored by PSOs during HRG surveys as follows: 1) a 500 m exclusion zone for North Atlantic right whales; and 2) a 100 m exclusion zone for all other marine mammals (except North Atlantic right whales).<sup>104</sup> However, the definition of exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (*i.e.*, received level <160 dB).<sup>105</sup> Neither of these zones is protective enough.

**NMFS must require use of monitoring practices that ensure a 500 m exclusion zone around all vessels conducting activities with noise levels that could result in injury or harassment to *any* protected species** based on the best available science, with the exception of dolphins that, in the determination of PSOs, are voluntarily approaching the vessel. Further, any potential harassment of the

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<sup>99</sup> Smith, H.R., *et al. id.*

<sup>100</sup> *Id.*

<sup>101</sup> *Id.*

<sup>102</sup> Cuyler, L.C., Wiulsrød, R., and Øritsland, N.A., “Thermal IR Radiation from Free Living Whales,” *Marine Mammal Science*, vol. 8, p. 120-134 (1992).

<sup>103</sup> For potential study design, *see, e.g.*, Bröker, K.C., Hansen, R.G., Leonard, K.E., Koski, W.R., and Heide-Jørgensen, M.P., “A comparison of image and observer based aerial surveys of narwhal,” *Marine Mammal Science*, 35(4), pp.1253-1279 (2019).

<sup>104</sup> 85 Fed. Reg. at 37,868.

<sup>105</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).

North Atlantic right whale is a significant concern and a 500 m exclusion zone is simply not sufficient. **PSOs should, to the extent feasible, monitor beyond the minimum 500 m exclusion zone to an extended 1,000 m exclusion zone for North Atlantic right whales.**<sup>106</sup> Exclusion zones should also be expanded beyond minimum distances as sound source validation data support such extension.

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

The Proposed IHA notes that NMFS requires, at a minimum, a single PSO on duty during daylight hours and 30 minutes prior to and during nighttime ramp-ups of HRG equipment.<sup>107</sup> NMFS describes how “[v]isual PSOs would coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts...”<sup>108</sup> It is not possible for a single PSO to continually visually monitor 360°; thus, the minimum requirement of a single PSO is under-protective. **It is our view that a minimum of four PSOs adhering to a two-on/two-off shift schedule is necessary for adequate visual monitoring; this schedule ensures no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time.**

Visual observations are not enough. In addition to sighting condition limitations discussed below, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood that they would be detected by PSOs and therefore often go undetected by observers. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent of a study area in Massachusetts Bay,<sup>109</sup> even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.<sup>110</sup> Research has demonstrated that passive acoustic monitoring can provide a two- to ten-fold increase in the number of days that right whales are detected relative to visual methodologies.<sup>111</sup> Additionally, there is evidence that North Atlantic 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>112</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>113</sup>

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<sup>106</sup> As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

<sup>107</sup> 85 Fed. Reg. at 37,878.

<sup>108</sup> *Id.*

<sup>109</sup> Morano, J.L., Rice, A.N., Tielens, J.T., Estabrook, B.J., Marray, A., Roberts, A.L., and Clarkm C.W., “Acoustically detected year-round presence of right whales in an urbanized migration corridor.” *Conservation Biology*, vol. 26, p. 698-707 (2012).

<sup>110</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, p. 129-138 (1986); Pittman, S.J, Kot, C., Kenney, R.D., Costa, B., and Wiley, D., “Cetacean distribution and diversity.” In: Battista T., Clark R., Pittman S.(eds) An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment, p.264-324 (2006).

<sup>111</sup> Clark, C.W., Brown, M.W., and Corkeron, P., “Visual and acoustic surveys for North Atlantic right whales, *Eubalaena glacialis*, in Cape Cod Bay, Massachusetts, 2001-2005: Management Implications.” *Marine Mammal Science*, vol. 26, p. 837-854 (2010).

<sup>112</sup> Nowacek, D.P., Johnson, M.P., and Tyack, P.L., “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli.” *Proceedings: Biological Sciences*, vol. 271, p. 227-231 (2004).

<sup>113</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, p. 143-160 (2013).

There are sighting condition limitations. 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>114</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>115</sup> In line with Barlow (2015),<sup>116</sup> 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>117</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. Based on the data collected by the National Buoy Data Center,<sup>118</sup> a monthly average Beaufort Sea State of 3 or 4 can be expected in the Project Area, year-round. Given these data, observers alone are certain to underestimate the number of large whales in the mitigation area based on sea state. From the findings of Baumgartner *et al.* (2003),<sup>119</sup> a reduction in detection probability of North Atlantic right whales by up to 84.5 percent based on an average Beaufort Sea State of 4 would be expected, relative to ideal sighting conditions (*i.e.*, Beaufort sea state = 0). Notably, the detectability of North Atlantic 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 light of these limitations, and without verified means of monitoring by infrared technology during darkness, NMFS' lack of a requirement to use passive acoustic monitoring during surveys is particularly concerning. **Thus, passive acoustic monitoring should be required for all times activities are underway in the Project Area with the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1  $\mu$ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz)—not only during nighttime hours—to maximize the probability of detection for North Atlantic right whales, including in periods of fog, precipitation, and high sea states, when PSOs and infrared technologies are less effective (*see* Section III.B).**

The passive acoustic protocol should be designed so the hydrophone is not masked by vessel or survey noise. We also support the inclusion of both broadband and low frequency hydrophones, which will serve to ensure that North Atlantic right whale vocalizations, as well as those of other low- and mid-frequency vocalizing species, can be detected. The deployment of a network of appropriately spaced near real-time acoustic detection systems prior to and during the survey would also be highly beneficial in detecting and potentially localizing vocalizing species in a manner capable of informing mitigation measures in real-time. However, it should be noted that passive acoustic monitoring without visual observers would also be insufficient as cow-calf pairs often do not vocalize to avoid predators.

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<sup>114</sup> Barlow, J., "Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions," *Marine Mammal Science*, vol. 31, p. 923-943 (2015).

<sup>115</sup> Baumgartner, M.F., Cole, T.V.N., Clapham, P.J., and Mate, B.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, p. 137-154 (2003).

<sup>116</sup> Barlow, J., "Inferring trackline detection probabilities,  $g(0)$ , for cetaceans from apparent densities in different survey conditions," *supra* note 113.

<sup>117</sup> *Id.*

<sup>118</sup> NOAA-NWS, "National Data Buoy Center." Available at: <http://www.ndbc.noaa.gov/>.

<sup>119</sup> Baumgartner, M.F., *et al.*, "North Atlantic right whale habitat in the lower Bay of Fundy and on the SW Scotian Shelf during 1999-2001." *supra* note 114.



**Finally, we support the IHA's requirement for a 30-minute pre-clearance period and to immediately shut down survey activity upon the visual observation of a marine mammal.<sup>120</sup>**

*E. Vessel strike measures*

The Proposed IHA acknowledges that vessel strikes can kill animals, that speed is a factor, and that North Atlantic right whales are particularly vulnerable because they are “generally unresponsive to vessel sound” and “more susceptible to vessel collisions,”<sup>121</sup> yet it only discusses the impacts of the survey vessels traveling at speeds less than 4 knots.<sup>122</sup> This ignores the impacts of all other project vessels operating in the Project Area on right whales. While we appreciate that the Proposed IHA expressly requires all vessels to observe a 10-knot speed restriction if NMFS has designated either a Seasonal Management Area (“SMA”) or a DMA, the proposed measure would allow project vessels to travel at speeds greater than 10 knots at all other times, unless a right whale is actually observed within 100 meters.<sup>123</sup> This is insufficient. The recent death of a North Atlantic right whale calf off New Jersey indicates how even single or pairs of animals are at risk of vessel strike year-round. The mother-calf pair had been sighted and acoustically detected yet no vessel speed rules were triggered under current regulations. In light of this tragic event, a sighting of three or more North Atlantic right whales may be too high of a bar to trigger a DMA. NMFS should consider requiring mandatory speed restrictions within DMAs in every instance that a single North Atlantic right whale is sighted or acoustically detected, not just aggregations of three or more whales. Special attention must be paid to mother-calf pairs.

**Vessel collisions remain one of the leading causes of large whale injury and mortality and are a primary driver of the existing UMEs.** Serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length.<sup>124</sup> The number of recorded vessel collisions on large whales each year is likely to grossly underestimate the actual number of animals struck, as animals struck but not recovered, or not thoroughly examined, cannot be accounted for.<sup>125</sup> North Atlantic right whales are particularly prone to vessel 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>126</sup> Some types of anthropogenic noise have been shown to induce sub-surface positioning in North Atlantic right whales, increasing the risk of vessel strike at relatively moderate levels of exposure.<sup>127</sup> It is possible that HRG surveys could produce

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<sup>120</sup> 85 Fed. Reg. at 37,868.

<sup>121</sup> 85 Fed. Reg. at 37,862 (citing Nowacek *et al.*, 2004).

<sup>122</sup> 85 Fed. Reg. at 37,866.

<sup>123</sup> 85 Fed. Reg. at 37,869.

<sup>124</sup> NOAA-NMFS, “Reducing ship strikes to North Atlantic right whales.” Available at: [https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales#:~:text=All%20vessels%2065%20feet%20\(19.8,endangered%20North%20Atlantic%20right%20whales](https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales#:~:text=All%20vessels%2065%20feet%20(19.8,endangered%20North%20Atlantic%20right%20whales.). To reflect the risk posed by vessels of any length, the Commonwealth of Massachusetts established a mandatory vessel speed restriction for all vessels (including under 20 meters) in the Cape Cod Bay SMA.

<sup>125</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, p. 57-60 (2011).

<sup>126</sup> NOAA-NMFS, “Recovery plan for the North Atlantic right whale” (August 2004).

<sup>127</sup> Nowacek, D.P., *et al.*, “North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli.” *supra* note 111.

the same effects, and should therefore be treated conservatively. The agency has a responsibility to implement mitigation measures to prevent any further vessel collisions for other species of large whale currently experiencing an UME (*i.e.*, humpback whales and minke whales), as well as other species such as fin whales, which, in light of the broad distributional shifts observed for multiple species, may be at potential future risk of experiencing an UME.

As noted in the Proposed IHA, studies indicate that noise can induce flight responses, behavioral disturbances, habitat avoidance, and stress responses that reduce feeding rates and reproductive success.<sup>128</sup> Because of the noise, HRG surveys could also cause horizontal displacement<sup>129</sup> and push a North Atlantic right whale out of a protected area (SMA or DMA) into an area where vessels are traveling at greater speed, presenting an even greater danger of vessel collision. Thus, habitat displacement produces an indirect vessel strike risk that also must be accounted for in NMFS' analysis.

Vessel strikes therefore pose an unacceptable risk. As noted above (*see* Section III.A), the Proposed IHA also contains no information on where and when the two survey vessels may be operating within the Project Area, which would be helpful in assessing levels of relative risk. **Therefore, all project vessels operating within or transiting to/from the Project Area, regardless of size, must be required to observe a 10 knot speed restriction during the entire survey period.**

#### IV. CONCLUSION

Thank you for considering our comments. For the reasons stated above, our organizations urge NMFS to revise its analysis and require additional measures in the Final IHA to comply with its statutory obligations. We again request the opportunity to meet with you and your staff to discuss these matters.

Sincerely,

Francine Kershaw, Ph.D.  
Staff Scientist, Marine Mammal Protection and Oceans, Nature Program  
Natural Resources Defense Council

Catherine Bowes  
Program Director, Offshore Wind Energy  
National Wildlife Federation

Priscilla M. Brooks, Ph.D.  
Vice President and Director of Ocean Conservation  
Conservation Law Foundation

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<sup>128</sup> 85 Fed. Reg. at 37,860-37,862.

<sup>129</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).

Ms. Jolie Harrison  
July 24, 2020  
Page 22

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Ms. Jolie Harrison  
July 24, 2020  
Page 23

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RE: Request for Comments on Takes of Marine Mammals Incidental to Specified Activities;  
Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off of Delaware

Dear Chief Harrison:

On February 24, 2021, the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) published a notice in the Federal Register of the proposed Incidental Harassment Authorization (IHA) requested by Skipjack Offshore Energy, LLC (Skipjack) for authorization to take marine mammals incidental to marine site characterization surveys offshore of Delaware in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS–A 0519) and along potential submarine cable routes to a yet-unidentified landfall location in Delaware. Additionally, NOAA NMFS seeks comments on the possible one-year renewal that could be issued under certain circumstances and if all requirements are met as specified in the February 24, 2021 publication in the Federal Register.

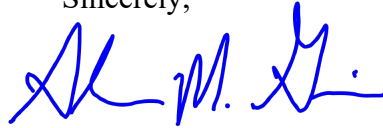
These marine site characterization surveys are a preliminary part of the initial design process for future renewable energy development. The Delaware Department of Natural Resources and Environmental Control (DNREC) has not yet received an application related to the proposed construction and operation of an offshore wind energy facility for regulatory review, so DNREC appreciates the opportunity to comment on this preliminary activity occurring prior to official regulatory engagement.

Supporting responsible renewable energy development in the Atlantic Region, conservation of marine and estuarine habitats, and the success of the coastal economy are of the utmost importance to Delaware. DNREC has reviewed the proposed IHA and analyzed the potential effects of incidental take to 16 species of marine mammals in the form of behavioral harassment from underwater sound associated with the site characterization studies. Mitigation measures to address potential impacts are addressed below.

DNREC commends the establishment of marine mammal exclusion zones (EZ) around the high resolution geophysical (HRG) survey equipment with monitoring conducted by protected species observers (PSOs) among other mitigation measures. DNREC is supportive of the use of passive acoustic monitoring in combination with monitoring by PSOs, especially during nighttime operations to allow for earlier detection of marine mammals entering the EZs, thus minimizing any negative impacts to protected species. DNREC also supports the use of night-vision goggles with thermal clip-ons and infrared technology during nighttime operations to enhance the visibility of protected species.

Thank you for the opportunity to review and comment on the proposed incidental harassment. If you have any questions, please contact Laura Mensch, Regulatory Programs Manager for the Delaware Coastal Programs at (302) 739-9283.

Sincerely,

A handwritten signature in blue ink, appearing to read "Shawn M. Garvin", is positioned above the printed name and title.

Shawn M. Garvin  
Secretary