

August 26, 2019

By U.S. Mail and NOAA Web Portal

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Permits and Conservation Division
Office of Protected Resources,
National Marine Fisheries Service
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Re: Comments On and Objections To Proposed Incidental Harassment Authorization for Orsted Wind Power North America LLC (Site Characterization of Lease Areas OCS-A-0486, OCS-A-0487, and OCS-A-0500)

Dear Ms. Harrison:

This firm represents “ACK Residents Against Turbines,” a community group consisting of Nantucket residents and property owners who oppose the large-scale, multi-lease installation of wind energy projects off the Massachusetts coastline.¹ We have reviewed the proposed Incidental Harassment Authorization (“Harassment Permit”) that the National Oceanic and Atmospheric Administration and the National Marine Fisheries Service (collectively, “NOAA Fisheries”) intend to issue to Orsted Wind Power North America LLC (“Orsted”) for site characterization surveys of Lease Areas OCS-A-0486, OCS-A-0487, and OCS-A-0500 (the “Project”). We have also examined Orsted’s formal “Request for Taking of Marine Mammals,” dated June 10, 2019, which purports to provide the technical basis for the proposed Harassment Permit (the “Permit Request Analysis”). As explained below, the Permit Request Analysis is flawed and legally insufficient. For this reason, NOAA Fisheries should deny the requested Harassment Permit and instruct Orsted to address the deficiencies described herein.

The Permit Request Analysis exhibits six fundamental flaws:

First, it provides no description of the *existing* noise and vessel traffic conditions within the impact area of the proposed survey activity. Thus, there is no baseline from which to conduct a proper

¹ The members of ACK Residents Against Turbines will be able to view the proposed wind farm from public and private vantage points on Nantucket island. In addition, the members routinely travel on, through, and over the coastal waters that would be affected by the proposed Project, including waters that support marine mammals and turtles. Members also fish these same waters. In addition, ACK Residents Against Turbines and its individual members have an interest in ensuring that the cultural and historic heritage of this part of New England is preserved and protected.

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impact analysis. For example, the Permit Request Analysis does not describe the ambient sound levels within the project impact area; nor does it disclose how many vessels typically travel near or through the project impact area. Without this information, neither NOAA Fisheries nor the public can discern the true noise and vessel strike impacts of the Project. For this reason alone, NOAA Fisheries cannot lawfully issue the requested permit.

Second, the Permit Request Analysis does not evaluate the Project's contribution to the *cumulative* "take" of marine mammals. That is, the Permit Request Analysis not only fails to account for existing noise and vessel conditions, it fails to account for the other wind energy leases near or adjacent to the Orsted project area and their respective impacts on marine mammals. Vineyard Wind, for example, is currently seeking a permit from NOAA Fisheries to take marine mammals as part of *its* leasehold, which is located next to Orsted's. Yet the Permit Request Analysis does not mention this fact. Nor does it evaluate the cumulative/combined effect of the multiple take permits being requested by wind energy companies with leaseholds off the coast of Massachusetts/Rhode Island.

Third, while the Permit Request Analysis identifies a number of measures to mitigate vessel strikes on marine mammals, it does not actually assess the Project's potential to cause such strikes. The analysis should quantify the number of project-related vessel miles and then correlate this figure to the number of marine mammals that may be present in the impact area. Without this information, it is impossible to determine whether the proposed mitigation measures can be effectively implemented and, if implemented, whether they would successfully reduce take-related impacts on the marine mammal species in question.

Fourth, the Permit Request Analysis fails to assess noise impacts on whale communication and navigation, both of which rely on echolocation and sound transmission. The sound emitted by the survey equipment – when added to or mixed with ambient sounds levels and noise from vessels – could and likely will disrupt the ability of marine mammals (chiefly whales) to communicate under water and find their way around an increasingly complicated marine environment. This kind of assessment cannot be based on sound-pressure alone, as sound-pressure is primarily a metric for determining physical damage to the animal or the level at which animals will avoid a particular noise source. It does not measure the effect sound/noise sources may have on marine mammal communication and navigation.

Fifth, the Permit Request Analysis fails to examine the *displacement* effects of the proposed Project. That is, the Permit Request Analysis does not evaluate the extent to which marine mammals, in response to the noise emitted by the survey equipment and/or the threats posed by project-related vessels, will move out of the Project area. Nor does the analysis evaluate the negative impacts that such displaced marine mammals would sustain, including increased vulnerability to other vessels not subject to the mitigation measures imposed on Orsted.

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Sixth, the Permit Request Analysis omits a required element of a proper harassment permit assessment – namely, it fails to correlate the anticipated take of each individual marine mammal species to its overall stock or population. (See MMPA § 101(a)(5) and 50 CFR § 216, Subpart I.) Thus, for example, the Permit Request Analysis does not discuss whether the proposed take of 10 endangered North Atlantic Right Whales (NARWs) will have a deleterious effect on the NARW stock/population, which, as has been reported, is showing sharp declines and is now estimated at only 458 individuals. (See Table 3-1 of Permit Request Analysis.) Likewise, the Permit Request Analysis does not discuss the proposed take of 52 endangered fin whales in relation to the overall population of this species. This omission is especially alarming given that the Permit Request Analysis provides no cumulative impact/take assessment whatsoever.

In addition to these fundamental and fatal defects in the Permit Request Analysis, the following deficiencies should also be addressed:

- According to page 3 of the analysis, the primary operating frequency of the high-resolution geophysical (HRG) survey equipment “is oftentimes defined by the HRG equipment manufacturer and HRG contractor.” This suggests that the operating frequency assumed in the analysis [midrange] may not be the one used in the field during the actual survey work. If this is true, then much of the analysis – including its take conclusions – is meaningless.
- On page 6, the analysis discusses the number of vessel-days required to complete the Project. It does not, however, discuss either vessel numbers or vessel miles; nor does it examine vessel density during certain hours of the day. For purposes of determining the likelihood of vessel strikes on marine mammals, vessel-days are a meaningless metric, especially since the analysis bases its estimates on the “total time for one (1) vessel to complete survey activities.” (Table 1-2, footnote a.) Further, the analysis admits that the actual number of vessels used at any given time may vary widely, and will only be determined “at the time of contractor selection.” (PRA, p. 6.) This is unacceptable, as it defers a key impact analysis until after the requested Harassment Permit is issued. Simply put, without an accurate estimate of the number of vessels within the project impact zone at any given time, there is no way to properly assess the Project’s potential to result in vessel strikes with marine mammals.

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- On page 8, the analysis states that the surveys “are anticipated to commence no earlier than May 1, 2019.” This, however, is not the important issue. What the analysis needs to disclose is whether the surveys will take place during those times of year when each marine mammal species is expected to be present in the project impact area. That information is not provided.
- Beginning on page 17, the analysis describes the NARW and its current status. Missing from this discussion, however, are the recent data showing that more and more NARW are moving into or near the Project area.² This means that the number of NARW potentially affected by the Project is likely higher than assumed in the analysis.
- As indicated in the analysis, NARW can dive deeply and stay submerged for up to 15 minutes, especially while feeding. This means that NARWs spend a significant amount of time underwater where they cannot be visually detected, even by trained Protected Species Observers (PSOs) using high-powered binoculars and night-vision goggles. Thus, a major component of the proposed vessel-strike prevention plan will be rendered ineffectual. By the time a submerged NARW surfaces and can be visually detected, it may already be well within the 500 meter “exclusion” zone or, worse, imminently close to being struck by a vessel. This glaring hole in the mitigation protocol is not discussed anywhere in the Permit Request Analysis. Moreover, it suggests that the analysis has grossly underestimated the anticipated “take” of NARW due to vessel strikes. In fact, the analysis never really identifies the number of NARW it expects to “take” via vessel strikes, which itself is a fundamental flaw in the document. To the extent the analysis assumes that the use of PSOs and the other mitigation measures will reduce the risk of vessel strikes on NARW to zero, that assumption is not supported by any data cited in the document. We also note that the Draft Harassment Permit would allow up to 10 Level B “takes” of NARW, which suggests that NOAA/Fisheries is not confident the proposed mitigation measures will work.
- The Permit Request Analysis does not explain or analyze the extent to which the planned “concurrent” use of HRG survey equipment changes the noise analysis or increases the potential take risk to marine mammals. Instead, the analysis treats each piece of HRG survey equipment, and its noise impacts, in isolation, even though it is clear that these

² *The Inquirer and Mirror*, “Vessel slow-down request extended after more right whales sighted off Nantucket,” posted April 12, 2019. *Cape Code Times*, “Warmed waters linked to diminished food for right whales,” posted June 2, 2019 [discusses increased number of NARWs detected in Cape Cod Bay as a result of changes in food supplies in traditional feeding grounds].

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pieces of equipment will be used simultaneously. Again, this reflects an overall failure to understand and/or assess the Project's cumulative effects.

Thank you for the opportunity to comment on the proposed Incidental Harassment Authorization and bring our concerns to your attention. Should you have questions about any issue raised in this letter, please feel free to contact me.

Very truly yours,



David P. Hubbard
of
Gatzke Dillon & Ballance LLP

DPH/rlf

cc: Vallorie Oliver
Mary Chalke
Lauren Sinatra, Town of Nantucket
Edward Barrett, President, Massachusetts Fisherman's Partnership

By Electronic Mail

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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.¹ 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

¹ 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 μPa)² from at least November 1st to May 14th;
- 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."³ The statute seeks to ensure

² 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.

³ 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.”⁴ Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.⁵ 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.⁶

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.⁷ 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.”⁸

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.”⁹ 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.”¹⁰ NMFS must also establish monitoring and reporting requirements.¹¹ 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.¹²

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.¹³ Moreover, females are more negatively affected than males by the lethal

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

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

⁶ 16 U.S.C. § 1361(1), (3).

⁷ 16 U.S.C. §§ 1362(13), 1371(a).

⁸ *Id.* § 1362(18)(A).

⁹ *Id.* § 1371(a)(5)(D)(i).

¹⁰ *Id.* § 1371(a)(5)(D)(ii)(I).

¹¹ *Id.* § 1371(a)(5)(D)(iii).

¹² *Id.* § 1371(a)(5)(D)(iii).

¹³ 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.¹⁴

In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”),¹⁵ 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).¹⁶ Alarming, 63 minke whales have stranded between Maine and South Carolina from January 2017 to July 2019.¹⁷ 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.¹⁸ 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.¹⁹ 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.²⁰

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

¹⁴ 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).

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

¹⁶ 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>.

¹⁷ *Id.*

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

¹⁹ 16 U.S.C. §§ 1362(19), §§ 1362(27).

²⁰ *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.²¹ Best available scientific information, including aerial surveys,²² acoustic detections,²³ stranding data,²⁴ a series of Dynamic Management Areas (“DMAs”) declared by NMFS pursuant to ship strike rule,²⁵ and prey data,²⁶ indicate that North Atlantic right whales now heavily rely on the waters within, and in the vicinity of, the Lease Areas.²⁷ In January 2019, an aggregation representing a quarter of the population—100 whales—was seen in this area²⁸ engaged in both foraging and social activities, demonstrating that it is clearly more than just a migratory corridor (as suggested in the Proposed IHA²⁹). 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.³⁰ 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 2017,³¹ 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.³² 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

²¹ 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).

²² 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).

²³ 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).

²⁴ 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.

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

²⁶ 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>.

²⁷ 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.

²⁸ *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.

²⁹ *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...”

³⁰ Leiter, S.M., *et al.*, *supra* note 22.

³¹ Quintana, E., *supra* note 22.

³² Davis, G.E., *et al.*, *supra* note 23.

calves.³³ 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.³⁴

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.³⁵ Foraging areas with suitable prey density are very limited relative to the overall distribution of North Atlantic right whales,³⁶ 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.³⁷ 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.³⁸ 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.³⁹ 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 30.⁴⁰ 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

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

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

³⁵ 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.

³⁶ *Id.*

³⁷ 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.

³⁸ 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.

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

⁴⁰ 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;⁴¹ however, elevated densities are still expected for May.⁴²

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.⁴³ 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.⁴⁴ 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.⁴⁵ However, the CetMap model, as its designers admit,⁴⁶ 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.

⁴¹ 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).

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

⁴³ 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>.

⁴⁴ 16 U.S.C. §§ 1362(19), §§ 1362(27).

⁴⁵ 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.

⁴⁶ 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,⁴⁷ 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.⁴⁸ 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."⁴⁹ 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 sources⁵⁰ 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 sound⁵¹ even though studies have not found avoidance behavior to be generalizable among species and contexts,⁵² and even though avoidance may itself constitute take under the MMPA; and (v) the monitoring

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

⁴⁸ 84 Fed. Reg. at 36,076 at Table 10.

⁴⁹ 84 Fed. Reg. at 36,076.

⁵⁰ *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).

⁵¹ *See, e.g.*, 84 Fed. Reg. at 36,055.

⁵² 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 region⁵³ 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.⁵⁴ 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.⁵⁵

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).⁵⁶ 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."⁵⁷ When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."⁵⁸

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.⁵⁹

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

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).

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

⁵⁴ 84 Fed. Reg. at 36,081-82.

⁵⁵ 16 U.S.C. § 1371(a)(5)(D)(i).

⁵⁶ *Id.* § 1371(a)(5)(D)(iii).

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

⁵⁸ *Id.* at 4146.

⁵⁹ H.R. Rep. No. 103-439, at 29 (1994).

basis as it purports to do here.⁶⁰ 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.⁶¹ 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.”⁶² 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.⁶³ 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,⁶⁴ 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.”⁶⁵ In

⁶⁰ 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.”).

⁶¹ 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”).

⁶² 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).

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

⁶⁴ 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).

⁶⁵ 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.”⁶⁶ 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.⁶⁷ 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 mammals⁶⁸ 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.⁶⁹ 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 1st to May 14th

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.⁷⁰ 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

⁶⁶ 84 Fed. Reg. 36,065.

⁶⁷ 84 Fed. Reg. at 36,055.

⁶⁸ *Id.*

⁶⁹ Van der Hoop, *et al.*, *supra* note 37.

⁷⁰ 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.⁷¹ 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 1st to May 14th in the Lease Areas;**⁷² 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,**⁷³ **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).⁷⁴

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

⁷¹ *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).

⁷² 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.

⁷³ 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.

⁷⁴ 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.⁷⁵ 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.⁷⁶ These technologies have also not been well tested for detection of North Atlantic right whales and may be relatively ineffective for detecting minke whales,⁷⁷ 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.

⁷⁵ 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).

⁷⁶ *Id.*

⁷⁷ 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 visibility⁷⁸ 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).⁷⁹ 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,⁸⁰ 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).⁸¹ 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..."⁸² Moreover, the agency is demonstrating inconsistency in its exclusion zone requirements for different Lease Areas without explanation or justification.⁸³

NMFS must require use of sufficient monitoring practices to ensure a 500 m exclusion zone for *all* marine mammals⁸⁴ around all vessels conducting activities with noise levels that could result in

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

⁷⁹ 84 Fed. Reg. at 36,076.

⁸⁰ *Id.*

⁸¹ *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).

⁸² 84 Fed. Reg. 36,068.

⁸³ *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.

⁸⁴ 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 1st through May 14th, 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.**⁸⁵ 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.⁸⁶ 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 0.⁸⁷ 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.⁸⁸ In line with Barlow (2015),⁸⁹ 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.⁹⁰

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),⁹¹ 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),⁹² 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,

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

⁸⁶ *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).

⁸⁷ 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).

⁸⁸ 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).

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

⁹⁰ *Id.*

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

⁹² 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,⁹³ even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.⁹⁴ 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 2005.⁹⁵ 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.⁹⁶ These behavioral responses are likely to be heightened

⁹³ 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).

⁹⁴ 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).

⁹⁵ 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).

⁹⁶ 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.⁹⁷

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.⁹⁸ 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.⁹⁹ 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.¹⁰⁰ 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.¹⁰¹ 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

⁹⁷ 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).

⁹⁸ 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).

⁹⁹ 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).

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

¹⁰¹ 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.¹⁰² 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.¹⁰³ 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.¹⁰⁴ However, as serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length,¹⁰⁵ 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,¹⁰⁶ **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.¹⁰⁷ 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

¹⁰² 84 Fed. Reg. at 36,058.

¹⁰³ 84 Fed. Reg. at 36,077.

¹⁰⁴ 84 Fed. Reg. at 36,069.

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

¹⁰⁶ Dr. C. Good *pers. comm.*, *supra* note 38.

¹⁰⁷ E.g., Castellote, M., Clark, C.W., and Lammers, M.O., “Acoustic and behavioural changes by fin whales (*Balaenoptera physalus*) in response to shipping and airgun noise,” *Biological Conservation*, vol. 147, pp. 115-122 (2012).

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MARINE MAMMAL COMMISSION

23 August 2019

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

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by Ørsted Wind Power North America LLC (Ørsted) under section 101(a)(5)(D) of the Marine Mammal Protection Act (the MMPA). Ørsted is seeking authorization to take small numbers of marine mammals by harassment incidental to high-resolution geophysical (HRG) surveys off the northeast United States. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 26 July 2019 notice (84 Fed. Reg. 36054) requesting comments on its proposal to issue the authorization, subject to certain conditions.

Background

Ørsted is proposing to conduct HRG surveys to characterize the lease areas¹ and export cable route corridor(s) associated with an offshore wind project off the coast of Massachusetts and Rhode Island. Ørsted also would conduct HRG surveys along potential export cable route corridors between the lease areas and possible landfall locations between New York and Massachusetts. The surveys would occur year-round during day and night and would involve use of up to nine vessels² at a given time. Sound-generating equipment proposed for use includes sub-bottom profilers (SBPs)³, ultra high resolution seismic equipment, multi-beam depth sounders, and side-scan sonar.

NMFS preliminarily has determined that the proposed activities could cause Level B harassment of small numbers of 15 marine mammal species. It also anticipates that any impact on the affected species and stocks would be negligible. NMFS does not anticipate any take of marine mammals by death or serious injury and believes that the potential for disturbance will be at the least practicable level because of the proposed mitigation measures. The proposed mitigation, monitoring, and reporting measures include—

¹ Bureau of Ocean Energy Management (BOEM) Lease Areas OCS-A 0486 and OCS-A 0487 are held by Deepwater Wind New England LLC and Lease Area OCS-A 0500 is held by Bay State Wind LLC.

² Including an autonomous surface vehicle (ASV).

³ Including parametric, chirp, sparker, and boomer types.

- using protected species observers to monitor the exclusion zones⁴ and Level B harassment zones for 30 minutes before, during, and for 30 minutes after the HRG surveys;
- using standard pre-clearance, ramp-up, delay, and shut-down procedures;
- using shut-down procedures if a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized number of takes are met, approaches or is observed within the Level B harassment zone;
- using a dual thermal/high definition camera mounted on the mother vessel when using the ASV;
- using night-vision equipment (with infrared technology) to detect marine mammals during nighttime operations;
- using standard vessel strike avoidance procedures and monitoring⁵ the NMFS North Atlantic right whale reporting systems during all survey activities;
- reporting injured and dead marine mammals to the Office of Protected Resources and the Greater Atlantic Region Stranding Coordinator⁶ using NMFS's phased approach and suspending activities, if appropriate; and
- submitting a final report to NMFS.

Appropriateness of Level B harassment zones

NMFS has proposed to implement a 180-m Level B harassment zone for all sound sources⁷, based on Crocker and Fratantonio (2016). However, measurements of the same (or similar) sources conducted in the same project area during previous surveys indicate that the Level B harassment zones are in fact quite small, ranging from 0 to 27 m (Appendix E of Ørsted's application)⁸. NMFS chose to use Level B harassment zones based on Crocker and Fratantonio (2016) in lieu of the in-situ measurements, because it believes that some measurements may not be accurate. It is unclear, though, whether NMFS has reviewed all of the in-situ measurements provided by Ørsted to make that determination in this instance.

⁴ 500 m for North Atlantic right whales and 100 m for other large cetaceans (i.e., humpback whales, sperm whales, minke whales, pilot whales, and Risso's dolphins), as stipulated by the leases.

⁵ The Commission noted that NMFS included this standard measure in the preamble but omitted it from the draft authorization. NMFS confirmed the measure would be included in the final authorization.

⁶ The draft authorization incorrectly specified the New England Stranding Network Coordinator rather than the Greater Atlantic Region Stranding Coordinator as stipulated in the preamble. NMFS confirmed the measure would be revised in the final authorization.

⁷ The 180-m zone is the largest Level B harassment zone of all the various sound sources Ørsted proposed to use (see Table 8 in the *Federal Register* notice).

⁸ The Level B harassment zones provided by NMFS in Table 8 of the *Federal Register* notice were derived from back-calculated source levels based on the various in-situ propagation loss coefficients. Those source levels then were forward propagated based on 15logR, resulting in larger Level B harassment zones than those estimated by the various contractors that conducted the in-situ measurements. For example, the Level B harassment zone calculated for the parametric SBP was 63 m, whereas, the in-situ measurements yielded a Level B harassment zone of less than 10 m. A smaller zone is to be expected from a source that operates non-linearly at very high primary frequencies effectively reducing the sound levels by 30 to 40 dB due to interference at those high frequencies, while emitting sound at lower secondary frequencies (at 2–22 kHz) and downward in a 1° beam.

Regardless, there is a fundamental discrepancy between the agencies regarding how the source levels from Crocker and Fratantonio (2016) should be used. For Ørsted's proposed activities, NMFS used the reported sound pressure level root-mean-square (SPL_{rms}) source levels from Crocker and Fratantonio (2016) and $20\log R$ to determine the extents of the Level B harassment zones. BOEM has indicated that, for HRG sources that have very short pulse durations (less than 1 msec to 10s of msec), the pulse duration and number of pulses per second should be accounted for, resulting in a reduction of the SPL_{rms} ⁹ source level¹⁰. Using BOEM's method, the SPL_{rms} source level of 205 dB re 1 μPa for the Applied Acoustics S-Boom boomer operating at 700 J from Crocker and Fratantonio (2016) would be reduced to 178 dB re 1 μPa ¹¹. Assuming $20\log R$ consistent with NMFS's approach in the preamble, the resulting Level B harassment zone would be 8 m, which matches the in-situ measurements conducted by Marine Acoustics Inc. (2018, Appendix E of Ørsted's application). In both cases, the Level B harassment zones are an order of magnitude less than the 178 m estimated by NMFS. Similar results are evident for the Applied Acoustics S-Boom boomer operating at 1,000 J and the EdgeTech 512 chirp when in-situ measurements are compared to Level B harassment zones estimated from adjusted source levels that originated in Crocker and Fratantonio (2016). It is unclear whether BOEM, which funded and is familiar with the data collection and analysis by Crocker and Fratantonio (2016), may be aware of nuances associated with what the SPL_{rms} source levels represent, but it is clear that the agencies do not agree on how the SPL_{rms} -based source levels from Crocker and Fratantonio (2016) should be used.

Two other factors, beamwidth and frequency-related absorption, were not considered by NMFS¹² for Ørsted's proposed authorization. Many of the HRG sources have narrow beams and operate at high frequencies. For example, if only the 1° beamwidth of the parametric SBP is considered¹³, absent any corrections for absorption, the resulting Level B harassment zone based on the manufacturer's specified source level of 247 dB re 1 μPa_{rms} would be less than 2 m. Using NMFS's presumed 187-dB re 1 μPa source level that was back-calculated from in-situ measurements, the Level B harassment zone would be even smaller. For all these reasons, the Commission recommends that NMFS review the in-situ measured Level B harassment zones submitted by Ørsted and, if those data were collected and analyzed properly, use them rather than the source levels back-calculated from those measurements to inform the extents of the Level B harassment zones. The Commission further recommends that, if SPL_{rms} -based source levels are used to inform the extents of the Level B harassment zones, NMFS (1) consult with BOEM regarding how the SPL_{rms} -based source levels from Crocker and Fratantonio (2016) should be used and whether pulse duration and the number of pulses should be used to adjust the respective source levels, (2) use both the beamwidth and operating frequency of the various sources to better inform the extents of the Level B harassment zones, and (3) assume a consistent $20\log R$ propagation loss

⁹ With a reference frequency of 1 Hz.

¹⁰ $10\log(T)$ is added to the reported source level, where T is the pulse duration in seconds. Since many of the pulse durations for HRG sources are less than 1 sec, the correction will be a negative number (e.g., for a 0.1-sec pulse, the correction is -10 dB). To account for the number of pulses that are emitted per second, $10\log(N)$ is added to the reported source level as well, where N is the number of pulses per second (e.g., for 10 pulses, 10 dB is added).

¹¹ Based on a pulse duration of 0.6 msec from Crocker and Fratantonio (2016) and a repetition rate of 0.333 from Table 6 in the *Federal Register* notice.

¹² NMFS has recently developed interim guidance regarding sound propagation modeling for HRG sources.

¹³ Based on $R=r \sin \frac{\theta}{2}$; where R is the horizontal distance, r is the slant distance, and θ is the beamwidth in radians.

for all Level B harassment zone¹⁴ calculations. NMFS should provide its internal spreadsheet¹⁵ that includes beamwidth and source frequency¹⁶ to action proponents when it provides them with its interim guidance regarding sound propagation modeling for HRG sources.

The Commission understands that some in-situ measurements and resulting data may be inaccurate and therefore are a cause of concern by the agencies. Those concerns include contractors having difficulty obtaining adequate on-axis measurements of the signals¹⁷ and georeferencing the source relative to the hydrophone, the hydrophone clipping the sound¹⁸, and signal processing issues. However, these issues should be minimized with proper methodological requirements and signal processing standards. It is unclear if BOEM has provided that information to the various lessees, many of which are required to conduct in-situ measurements as part of their lease stipulations. To ensure that the data are collected and analyzed appropriately, the Commission recommends that NMFS work with BOEM to develop methodological and signal processing standards for use by action proponents that conduct HRG surveys and that either choose to conduct in-situ measurements to inform an authorization application or are required to conduct measurements to fulfill a lease condition.

HRG surveys in general

Ørsted is already required by BOEM to implement shut-down procedures at 500 and 100 m for North Atlantic right whales and other large cetaceans, respectively, based on conditions stipulated in Addendum C of the leases. For the remaining marine mammal species, Ørsted could choose to shut down if an animal approached at 30 m to reduce the potential for taking, based on the largest in-situ measured Level B harassment zone. Alternatively, a standard 50-m exclusion zone should be sufficient for those species, depending on how NMFS ultimately estimates the Level B harassment zones. As NMFS seeks to streamline and improve the efficiency of its authorization processes, it should consider whether, in such situations involving HRG surveys¹⁹, incidental harassment authorizations are even necessary given the very small size of the Level B harassment zones, proposals by applicants to shut down activities if a marine mammal approaches those zones, and the added protection afforded by the lease-stipulated exclusion zones.

Proposed one-year authorization renewals

NMFS has indicated that it may issue a second one-year²⁰ incidental harassment authorization renewal for this and other future authorizations if various criteria are met and after an expedited public comment period of 15 days. The Commission is concerned that the proposed renewal process is inconsistent with the statutory requirements—section 101(a)(5)(D)(iii) clearly

¹⁴ Level A harassment zones for HRG surveys are calculated using 20logR as well.

¹⁵ Similar to its user spreadsheet for calculating Level A harassment zones.

¹⁶ Which could be modified to include pulse duration and number of pulses, if necessary.

¹⁷ Some of the in-situ measurements likely were conducted outside the main lobe of the source.

¹⁸ Which could be based on the location and sensitivity of the hydrophone used.

¹⁹ And until it revises its 160-dB re 1 μ Pa threshold for intermittent, non-impulsive sources.

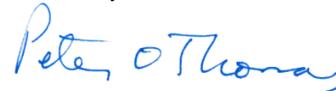
²⁰ NMFS informed the Commission that the renewal would be issued as a one-time opportunity, after which time a new authorization application would be required. NMFS has yet to specify this in any *Federal Register* notice detailing the new proposed renewal process but should do so.

states that proposed authorizations are subject to a 30-day comment period—and Congressional expectations regarding the length of the comment period when it passed that provision²¹.

Another significant issue with the proposed 15-day comment period is the burden that it places on reviewers, who will need to review the original authorization and supporting documentation²², the draft monitoring report(s), the renewal application or request²³, and the proposed authorization and then formulate comments very quickly. Depending on how frequently NMFS invokes the renewal option, how much the proposed renewal or the information on which it is based deviates from the original authorization, and how complicated the activities are and the taking authorization is, those who try to comment on all proposed authorizations and renewals, such as the Commission, would be hard pressed to do so within the proposed 15-day comment period. Therefore, the Commission recommends that NMFS refrain from using the proposed renewal process. The renewal process should be used sparingly and selectively, by limiting its use only to those proposed incidental harassment authorizations that are expected to have the lowest levels of impacts to marine mammals and that require the least complex analyses. Notices for other types of activities should not include the possibility that a renewal might be issued using the proposed foreshortened 15-day comment period. If NMFS intends to use the renewal process frequently *or* for authorizations that require a more complex review or for which much new information has been generated (e.g., multiple or extensive monitoring reports), the Commission recommends that NMFS provide the Commission and other reviewers the full 30-day comment opportunity set forth in section 101(a)(5)(D)(iii) of the MMPA.

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

Sincerely,



Peter O. Thomas, Ph.D.,
Executive Director

cc: Stan Labak, BOEM

References

Crocker, S.E., and F.D. Fratantonio. 2016. Characteristics of sounds emitted during high-resolution marine geophysical surveys. Naval Undersea Warfare Center Division, Newport, Rhode Island. 265 pages.

²¹ See, for example, the legislative history of section 101(a)(5)(D), which states "...in 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." (H.R. Rep. No. 439, 103d Cong., 2d Sess. 29 (1994)). The referenced "notice and comment requirements" specify a 30-day comment period.

²² Including the original application, hydroacoustic and marine mammal monitoring plans, take estimation spreadsheets, etc.

²³ Including any proposed changes or any new information.

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Marine Acoustics, Inc. 2018. Final report for Oceaneering International, Inc. Sound source verification: Supporting Deepwater Wind's Skipjack Wind Farm Project off Maryland and Delaware. MAI 1046, TN 18-026, Arlington, Virginia. 21 pages.