



MARINE MAMMAL COMMISSION

26 June 2020

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 Mayflower Wind Energy, LLC (Mayflower) under section 101(a)(5)(D) of the Marine Mammal Protection Act (the MMPA). Mayflower is seeking authorization to take small numbers of marine mammals by harassment incidental to high-resolution geophysical (HRG) surveys off Massachusetts. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 27 May 2020 notice (85 Fed. Reg. 31856) requesting comments on its proposals to issue the authorizations, subject to certain conditions.

Background

Mayflower is proposing to conduct HRG surveys to characterize a lease area¹ off Massachusetts and a submarine export cable route to a landfall location in Falmouth, Massachusetts, in support of an offshore wind development project. The surveys would occur during day and night in the lease area and the deep-water section of the cable route and during daylight hours in the shallow-water section of the cable route. The surveys would involve the use of up to three vessels, with no more than one vessel operating at a time in the same section², resulting in an estimated maximum of 215 vessel days. Sound-generating equipment proposed for use includes sub-bottom profilers (SBPs)³, ultra-short baseline and global acoustic positioning systems, multibeam echosounders, and side-scan sonars.

NMFS preliminarily has determined that the proposed activities could cause Level B harassment of small numbers of 14 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 number OCS-A 0521.

² This requirement was not included in the draft authorization.

³ Including parametric, chirp, and sparker types.

- using at least one protected species observer to monitor the exclusion zones⁴, a 500-m monitoring zone, and a 200-m buffer zone⁵ at all times during daylight hours (30 minutes before sunrise through 30 minutes after sunset) and 30 minutes prior to and during nighttime ramp-ups of HRG survey equipment;
- using standard pre-clearance, ramp-up, delay, and shutdown procedures⁶;
- using shutdown 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 is met, approaches or is observed within the Level B harassment zone;
- using passive acoustic monitoring (PAM)⁷ and night-vision equipment⁸ to detect marine mammals during night-time operations;
- using standard vessel strike avoidance procedures and monitoring⁸ 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 New England/Mid-Atlantic Stranding Coordinator; and
- submitting a draft and final report to NMFS.

Appropriateness of Level A and B harassment zones

Background—The Commission has commented on the inappropriateness of Level A and B harassment zones associated with multiple HRG surveys in the past (e.g., see its [12 March 2020](#)⁹, [18 October 2019](#)¹⁰, [23 August 2019](#)¹¹, [6 July 2018](#)¹², [13 June 2018](#)¹³ letters). However, NMFS continues to allow applicants to use incorrect Level A harassment thresholds¹⁴, resulting in overestimated Level A harassment zones. NMFS also has prohibited applicants from using in-situ measurements of Level B harassment zones and required them to use Level B harassment zones calculated from source levels obtained either from Crocker and Fratantonio (2016) or manufacturer specifications, which has resulted in overestimated Level B harassment zones. NMFS recently developed and made available to applicants a revised user spreadsheet for estimating Level B harassment zones that accounts for the operating frequency and beamwidth of proposed sound sources and water depth. The Commission appreciates that NMFS has made the revised spreadsheet available. However, the spreadsheet was not used for this application and other inaccuracies persist resulting in

⁴ 500 m for North Atlantic right whales and 100 m for all other marine mammals, with the exception of small delphinids as identified herein.

⁵ Which encompasses the 141-m Level B harassment zone.

⁶ Shutdowns would not be required for small delphinids (*Delphinus* spp., *Tursiops* spp., and *Lagenorhynchus* spp.) that voluntarily approach the survey vessel or equipment.

⁷ This requirement was included in the preamble of the *Federal Register* notice but was not specified in the draft authorization.

⁸ This requirement was included in the draft authorization but was not specified in the preamble of the *Federal Register* notice.

⁹ For Vineyard Wind, LLC (Vineyard) and Atlantic Shores Offshore Wind, LLC's proposed HRG surveys.

¹⁰ For Skipjack Offshore Energy, LLC's (Skipjack) proposed HRG surveys.

¹¹ For Ørsted Wind Power LLC's (Ørsted) proposed HRG surveys.

¹² For Dominion Energy Virginia's (Dominion) proposed HRG surveys.

¹³ For Ørsted/Bay State Wind's (Bay State Wind) proposed HRG surveys.

¹⁴ The impulsive rather than non-impulsive thresholds were used to estimate the Level A harassment zones for the Edgetech SBP, which is a non-impulsive source.

overestimated Level A and B harassment zones once again. These and other issues are summarized herein.

Parameters, assumptions, and methods for estimating Level A and B harassment zones— JASCO Applied Sciences (USA) Inc. (JASCO) estimated the Level A and B harassment zones for Mayflower (see Appendices A and B, respectively). JASCO incorporated the operating frequency (or frequencies)¹⁵ and associated absorption coefficients and the beamwidth of each source in its estimation of Level A and B harassment zones¹⁶. The Commission concurs with incorporating those parameters but disagrees with many of the assumptions made or methods by which the Level A and B harassment zones have been estimated. The Commission conducted a thorough review of JASCO's methods in its recent [12 March 2020](#) letter that should be reviewed and considered in conjunction with this letter. In summary—

- JASCO considered beamwidth only for those sources that emitted sound at beamwidths less than or equal to 90°¹⁷ rather than incorporating the actual beamwidth of the source. JASCO did not justify its assumption that a beamwidth greater than 90° would be considered omnidirectional and Ainslie (2010), which served as the basis for the beamwidth equation, appears not to include such an assumption.
- JASCO estimated out-of-beam source levels using various equations and assumptions (see Appendices A and B in the application) for narrow-beam sources (beamwidths $\leq 35^\circ$) rather than correctly deducing that the narrow-beam source, the Innomar SES-2000 Medium-100 (Innomar) parametric SBP, does not emit out-of-beam source levels. The Innomar parametric SBP is intended to generate narrow, nearly side-lobe-free beams of lower frequency sound¹⁸ through the interaction of high-frequency sound.
- JASCO interpolated the correction factor used to estimate out-of-beam source levels for intermediate-beam sources (beamwidths from 36–90°) based on the results from narrow-beam and broad-beam sources rather than using the beam patterns and resulting gain provided in Crocker and Fratantonio (2016)¹⁹ for the EdgeTech 3100 with SB-216 towfish (EdgeTech) chirp SBP. The correction factor would be approximately -8 dB based on Figure 1 in Appendix A of the application rather than -10 dB as depicted in Figure 61 in Crocker and Fratantonio (2016)—moreover, Table 20 in Crocker and Fratantonio (2016) notes that the gain at 90° is -31 dB, which is close to where a side lobe would be for a source with a beamwidth of 65°²⁰.
- JASCO did not provide any of the correction factors it used for out-of-beam source levels, making it impossible to ascertain what out-of-beam source levels were actually used by JASCO and whether they were accurate. As noted, it is not appropriate to use an out-of-beam source level for the Innomar parametric SBP, as was used to determine the 116-m Level B harassment zone (see Table 3 in Appendix B of the application). JASCO also estimated the out-of-beam Level A harassment zone to be 60 m for high-frequency (HF)

¹⁵ Or the lowest operating frequency, if a range of frequencies is emitted by the source.

¹⁶ And assumed 20logR propagation loss.

¹⁷ For sources with beamwidths greater than 90°, the source was considered omnidirectional and termed broad-beam.

¹⁸ i.e., difference-frequency signals. The source levels at those lower frequencies range from 35 to more than 50 dB less than the source levels at the primary frequency (Browning et al. 2009, Qu et al. 2018).

¹⁹ JASCO used the EdgeTech Chirp 512i included in Crocker and Fratantonio (2016) as a proxy for the EdgeTech 216.

²⁰ Corresponding to the -3 dB half-width or the main lobe.

cetaceans for the Innomar parametric SBP. That zone is in stark contrast to the in-beam Level A harassment zones previously used by NMFS for the Innomar parametric SBP. NMFS estimated that the Level A harassment zone was less than 5 m for HF cetaceans in the final authorizations for Bay State Wind, Dominion, and Avangrid Renewables, LLC (Table 3 in 83 Fed. Reg. 36550, Table 4 in 83 Fed. Reg. 39069, and Table 4 in 84 Fed. Reg. 31041, respectively)²¹, less than 2 m in the final authorization for Ørsted and Skipjack (Table 5 in 84 Fed. Reg. 52478 and Table 4 in 84 Fed. Reg. 66167, respectively), and did not exist for Dominion's recent authorization (85 Fed. Reg. 14903).

- JASCO appears to have mischaracterized how it determined whether to use in-beam or out-of-beam source levels. Contrary to its assertion that it calculated separate *sound levels* using the in-beam source level at the angle corresponding to the -3 dB half-width and the out-of-beam source level in the horizontal direction (180°) and chose the higher of the two *sound levels* to assess the harassment zones, JASCO in fact calculated *separate impact ranges* using the in-beam source level at the angle corresponding to the -3-dB half-width and the out-of-beam source level in the horizontal direction and then selected the greater of the two *ranges*. The beamwidth equation incorporates slant range²² and beamwidth, not actual *source levels*.
- JASCO's beamwidth equation did not account for water depth. The beamwidth equation is based on a simple application of the Pythagorean theorem, and the full extent of the slant range cannot be achieved when it is clipped by the seafloor, which in this case occurs at 62 m in depth. Had JASCO incorporated water depth, the Level B harassment zone would have been less than 2 m for the Innomar parametric SBP, which is much less than its unsubstantiated out-of-beam Level B harassment zone of 116 m and its in-beam zone of 14 m (Table 3 in Appendix B of the application).
- JASCO's method for estimating the Level A harassment zones is not transparent and cannot be replicated. It is unclear how the sound exposure levels (SELs) for each survey line were combined, or why they were combined, how the curves of weighted SELs were produced, and what assumption(s) determined the closest point of approach for each functional hearing group.
- JASCO erroneously assumed that sources that operate at a repetition rate greater than 10 Hz are non-impulsive and sources with a repetition rate equal to or less than 10 Hz are impulsive for Level A harassment. It based that assumption on the statement in Southall et al. (2007) that a source was considered impulsive if the *sound level* measured over a short window (35 msec) is at least 3 dB greater than the *sound level* measured over a longer window (1 sec). JASCO did not evaluate *the actual sound levels* under those two windows of time, it only considered the *repetition rate*²³ in absentia of the sound levels produced. Repetition rate is not used to characterize a sound as impulsive or non-impulsive and no such criteria were included in NMFS (2018)²⁴.

²¹ It is unclear how JASCO's Level A harassment zone for HF cetaceans that used a reduced out-of-beam source level is an order of magnitude greater than a Level A harassment zone that was based on a source level more than 38 dB higher. JASCO indicated in a previous modeling report that the out-of-beam source level for the Innomar parametric SBP was 204.7 dB re 1 $\mu\text{Pa}_{\text{rms}}$ at 1 m (Table A.2.2 in Appendix A of Vineyard's application), while the source level used for Bay State Wind was 243 dB re 1 $\mu\text{Pa}_{\text{rms}}$ at 1 m.

²² Which is based on the source level and operating frequency, or absorption coefficient.

²³ JASCO also considered any single pulse of short duration (less than 35 msec) to be impulsive.

²⁴ NMFS (2018) specifically defined impulsive sources as those that produce sounds that are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (American

Although NMFS may contend that some of JASCO's assumptions yield more conservative results, in many instances those assumptions are just wrong and result in incorrect Level A and B harassment zones. Most concerning is the fact that NMFS continues to allow action proponents to choose arbitrarily which of the Level A harassment thresholds (impulsive or non-impulsive) to use. The blatant disregard by NMFS for its own guidance undermines the intent of the acoustic thresholds, does not represent best available science, and is precedent-setting. Given the precedent that it sets, one could question why sources such as low-, mid-, and high-frequency active sonar used by the Navy should not also be considered impulsive even though they have historically been deemed non-impulsive. Therefore, the Commission again recommends that NMFS (1) prohibit Mayflower, and other action proponents from using the impulsive Level A harassment thresholds for estimating the extents of the Level A harassment zones for non-impulsive sources (i.e., parametric and chirp SBPs, echosounders, pingers, etc.) and (2) require action proponents to use the correct Level A harassment thresholds in all future applications. If NMFS does not implement these recommendations, the Commission further recommends that NMFS justify why it is allowing action proponents to characterize sources in a manner inconsistent with its own guidance in NMFS (2018).

NMFS also must establish consistency and transparency in how it estimates Level A and B harassment zones for HRG surveys. For the Innomar parametric SBP, JASCO estimated an out-of-beam Level A harassment zone of 60 m for HF cetaceans, while the in-beam Level A harassment zones for other authorizations have been an order of magnitude less or non-existent. Similarly, for Level B harassment, JASCO estimated an out-of-beam Level B harassment zone of 116 m for the Innomar parametric SBP, whereas NMFS's revised user spreadsheet yields an in-beam Level B harassment zone of less than 2 m. NMFS noted that the various assumptions and resulting Level A and B harassment zones were conservative throughout its *Federal Register* notice. However, in this instance, the Level A and B harassment zones for the Innomar parametric SBP are not conservative, they are illogical and not based on best available science. As such, the Commission recommends that NMFS use its revised user spreadsheet, in-beam source levels, the actual beamwidth proposed to be used, and the maximum water depth in the survey area to estimate the Level B harassment zones for Mayflower's final incidental harassment authorization and all future proposed authorizations involving HRG sources. Given that the Level A harassment zones for all HRG sources have generally been less than 15 m for HF cetaceans²⁵ and much less for other functional hearing groups and NMFS consistently asserts that Level A harassment is 'so low as to be discountable' even when those zones are estimated to be 60 m²⁶ (85 Fed. Reg. 31874), the Commission questions why NMFS continues to estimate Level A harassment zones for these sources. To maximize efficiencies and ensure best available science is being used, the Commission recommends that NMFS consult with its acoustic experts²⁷ to determine how to estimate Level A harassment zones accurately, what Level A harassment zones are actually expected, and whether it is necessary to estimate Level A harassment zones for HRG surveys in general.

National Standards Institute (ANSI) 1986, National Institute for Occupational Safety and Health (NIOSH) 1998, ANSI 2005). Chirp and parametric SBPs, echosounders, and underwater positioning pingers emit (1) regularly-timed pulses that are not transient, (2) narrow-band not broad-band sound, and (3) sound that lacks a high peak pressure as well as a rapid rise time and decay.

²⁵ In final authorizations issued over the last few years, the Level A harassment zones have not exceeded 30 m for any HRG source or any functional hearing group, except for those estimated by JASCO.

²⁶ While also considering that shutdown zones of 100 m far exceed any Level A harassment zone and that HF cetaceans avoid vessels in general.

²⁷ Those personnel with expertise and formal training in underwater acoustics and bioacoustics.

In-situ measurements and standardized methods—The Commission again notes that in-situ measurements of the same sources conducted off the east coast of the United States during previous HRG surveys indicate that the Level B harassment zones are in fact quite small, 27 m or less (e.g., Gardline 2016), for sparkers including the Geomarine Geo-Spark 800 J (Geo-Spark). In response to the Commission’s [23 August 2019 letter](#) recommending that NMFS use in-situ measurements, NMFS indicated that discrepancies between in-situ measurements and data from Crocker and Fratantonio (2016) likely were due to the beam pattern of many HRG sources and the fact that measurements likely were taken outside the main lobe of the source (84 Fed. Reg. 52465). The Commission agrees that issue may exist for some sources, but it does not exist for sparkers that are omnidirectional.

A previously perceived issue with in-situ measurements from a sparker may have resulted from the hydrophone clipping the data in the nearfield, which was discussed by Gardline (2016). Gardline used a high sound pressure-level hydrophone to capture the nearfield measurements²⁸. Figure D.1 in Gardline (2016)²⁹ shows that the measured sound levels at approximately 140 m were approximately 140 dB re 1 μ Pa or less and were not affected by hydrophone clipping. The Level B harassment zones were estimated to be 27 m or less for the Geo-Spark by Gardline (2016), which is much less than the 141-m Level B harassment zone estimated by JASCO. The Commission is not convinced that any of the HRG sources that Mayflower plans to use would result in actual Level B harassment zones greater than 50 m, let alone the 100-m shutdown zone.

The Commission maintains that many of the in-situ measurement issues³⁰ could be minimized with proper methodological requirements and signal-processing standards, particularly for omnidirectional sources, and that those measurements should inform any incidental harassment authorization that NMFS intends to issue. To ensure that in-situ data are collected and analyzed appropriately, the Commission again recommends that NMFS and BOEM expedite efforts to develop and finalize methodological and signal-processing standards for HRG sources. Those standards should be used 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 set forth by BOEM.

HRG surveys in general

Many of the HRG sources³¹ are considered *de minimis* sources³² by NMFS in other incidental harassment authorizations and rulemakings. Thus, it is unclear why sources such as parametric and chirp SBPs, which NMFS previously determined would not have the potential to result in marine mammal harassment (85 Fed. Reg. 14903 and 30930), continue to be considered in HRG-related

²⁸ Which were used to inform the waveform and to validate the near-field digital signal processing scaling implemented by Gardline (2016; see section 2.3.2).

²⁹ Figure 3.3 in Gardline (2016) and Figure 1 in Gardline (2017) show similar results as well.

³⁰ Including contractors georeferencing the source relative to the hydrophone, the hydrophone clipping the sound, and signal-processing issues.

³¹ NMFS mischaracterized a previous recommendation made by the Commission that *all* HRG sources should be considered *de minimis* (84 Fed. Reg. 66159). Some are considered *de minimis*, while others are not. However, the impacts of those sources would be mitigated based on the implementation of shutdown requirements and lease-stipulated exclusion zones.

³² Defined as sources that have low source levels, narrow beams, downward-directed transmission, short pulse lengths, frequencies outside known marine mammal hearing ranges, or some combination of those factors (84 Fed. Reg. 37244).

authorizations. The Commission recommends that NMFS evaluate the impacts of sound sources consistently across all applications and provide notice in its guidance to applicants and to the public regarding those sources that it has determined to be *de minimis*.

Mayflower is required by BOEM to implement shutdown procedures at 500 m for North Atlantic right whales, 200 m for other cetaceans listed under the Endangered Species Act, and 100 m for other marine mammals consistent with any authorization issued by NMFS (see Addendum C of Mayflower's lease). In addition, Mayflower is required under its lease to use PAM and night-vision equipment to monitor the exclusion zones during night-time operations and low-visibility conditions. For the proposed authorizations, NMFS would require Mayflower to implement a 500-m exclusion zone for North Atlantic right whales and a 100-m exclusion zone for all other marine mammals. Those zones are greater than in-situ measured and/or re-estimated Level B harassment zones based on the recommendations included herein. As NMFS seeks to streamline and improve the efficiency of its authorization processes, the Commission again recommends that NMFS consider whether, in such situations involving HRG surveys³³, incidental harassment authorizations are necessary given the small size of the Level B harassment zones, the proposed shutdown requirements, and the added protection afforded by the lease-stipulated night-time and low-visibility monitoring requirements. Specifically, NMFS should evaluate whether taking needs to be authorized for those sources that *are not* considered *de minimis*³¹, including sparkers, *and* for which implementation of the various mitigation measures should be sufficient to avoid Level B harassment takes.

Mitigation, monitoring, and reporting measures

The proposed authorizations appear to change NMFS's longstanding requirement that action proponents *immediately* report to NMFS any unauthorized injury or mortality, including a vessel strike, *and* cease operations until they have consulted with NMFS. In this case, NMFS has not specified that Mayflower must cease operations until they have consulted with NMFS. In response to previous comments by the Commission regarding this apparent change, NMFS indicated that it does not agree that a blanket requirement for project activities to cease would be practicable for a vessel that is operating on the water, and it is unclear what mitigation benefit would result from such a requirement in the event of a vessel strike (or presumably other injury; 85 Fed. Reg. 26944). In response, the Commission suggests that an evaluation of the circumstances associated with the injury would prove helpful in developing additional mitigation measures. For example, if the injury or vessel strike were to occur while the vessel was transiting at higher speeds, NMFS might require that the operator implement lower speeds during transit. If the injury or vessel strike were to involve a bow-riding dolphin, NMFS might no longer allow operators to continue operations in the presence of bow-riding delphinids. The rationale for ceasing operations until the circumstances of the unauthorized taking can be reviewed is to determine whether additional mitigation measures can be taken, as necessary, to minimize the likelihood of additional prohibited takes. The Commission therefore recommends that NMFS require Mayflower to report as soon as possible *and* cease project activities immediately in the event of an unauthorized injury or mortality of a marine mammal, including from a vessel strike, until NMFS's Office of Protected Resources and the New England/Mid-Atlantic Regional Stranding Coordinator determine whether additional measures are necessary to minimize the potential for additional unauthorized takes.

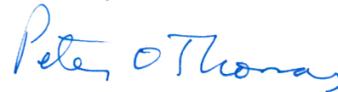
³³ And until it revises its 160-dB re 1 μ Pa threshold for intermittent, non-impulsive sources.

Proposed one-year authorization renewals

Although other recent *Federal Register* notices (85 Fed. Reg. 35292 and 85 Fed. Reg. 35919), draft authorizations (see conditions 8³⁴), and NMFS's own webpage(s) detailing the renewal process (see the revised webpages³⁵) have indicated that a renewal is a *one-time* opportunity, NMFS did not specify that in the *Federal Register* notice (85 Fed. Reg. 31882) and the draft authorization for Mayflower (see condition 8³⁶). The Commission assumes this is because the notice and draft authorization for Mayflower published before the other recent notices and authorizations. Nevertheless, the Commission must again recommend that NMFS specify that a renewal is a *one-time* opportunity in *all* of its *Federal Register* notices requesting comments on the possibility of a renewal and in *all* of the associated proposed and final incidental harassment authorizations. Regardless of whether NMFS can address this issue in a consistent manner, the Commission continues to have ongoing concerns regarding NMFS's renewal process. Those concerns can be reviewed in its [10 February 2020](#) letter. As such, the Commission again recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated *Federal Register* notice process, which is similarly expeditious and fulfills NMFS's intent to maximize efficiencies.

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

- Ainslie. 2010. Principles of sonar performance modeling. Springer-Verlag, Berlin, Germany. 727 pages.
- ANSI. 1986. Methods of measurement for impulse noise (ANSI S12.7-1986). Acoustical Society of America, New York, New York.
- ANSI. 2005. Measurement of sound pressure levels in air (ANSI S1.13-2005). Acoustical Society of America, New York, New York.
- Browning, D.G., M.B. Moffett, and W.L. Konrad. 2009. Parametric acoustic array development at the US Navy's New London, Connecticut laboratory. Proceedings of Meetings on Acoustics (6): 045002. <https://doi.org/10.1121/1.3179751>.

³⁴ <https://www.fisheries.noaa.gov/webdam/download/107318912> and <https://www.fisheries.noaa.gov/webdam/download/107396797>.

³⁵ See <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act> and <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-harassment-authorization-renewals>.

³⁶ <https://www.fisheries.noaa.gov/webdam/download/107034512>.

- 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.
- Gardline 2016. Survey report for Bay State Wind: Field verification and vessel signature report. Gardline, Norfolk, England. 62 pages.
- Gardline 2017. Technical memo in support of Bay State Wind field verification report. Gardline, Norfolk, England. 3 pages.
- NIOSH. 1998. Criteria for a recommended standard: Occupational noise exposure. Department of Health and Human Services, Cincinnati, Ohio.
- NMFS. 2018. 2018 Revision to: Technical guidance for assessing the effects of anthropogenic sound on marine mammal hearing: Underwater acoustic thresholds for onset of permanent and temporary threshold shifts. Office of Protected Resources, Silver Spring, Maryland. 178 pages.
- Qu, K., B. Zou, J. Chen, Y. Guo, and R. Wang. 2018. Experimental study of a broadband parametric acoustic array for sub-bottom profiling in shallow water. Shock and Vibration: 3619257. <https://doi.org/10.1155/2018/3619257>.
- Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E. Nachtigall, W.J. Richardson, J.A. Thomas, and P.L. Tyack. 2007. Marine mammal noise exposure criteria: Initial scientific recommendation. Aquatic Mammals 33:411–521.

By Electronic Mail

June 26, 2020

Ms. Jolie Harrison
Chief, Permits and Conservation Division
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National Marine Fisheries Service
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RE: Proposed Incidental Harassment Authorization for Marine Site Characterization Surveys Off the Coast of Massachusetts (Lease Area OCS-A 0521), and Along a Submarine Cable Route to Landfall at Falmouth, Massachusetts, as requested by Mayflower Wind Energy, LLC.

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, National Wildlife Federation, Conservation Law Foundation, WDC North America, Defenders of Wildlife, Humane Society of the United States, Humane Society Legislative Fund, International Fund for Animal Welfare - IFAW, Mass Audubon, Marine Mammal Alliance Nantucket, NY4WHALES, Surfrider Foundation, Friends of the Earth, Ocean Conservation Research, Sanctuary Education Advisory Specialists – SEAS, and our millions of members, we respectfully submit our recommendations for the National Marine Fisheries Service’s (“NMFS”) proposal to issue an incidental harassment authorization (“Proposed IHA”) and authorize Mayflower Wind Energy, LLC (“Mayflower”) to conduct site characterization surveys off the coast of Massachusetts in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0521) (“Lease Area”) and along a potential submarine cable route to landfall at Falmouth, Massachusetts (collectively, the “Project Area”). *See* 85 Fed. Reg. 31,856 (May 27, 2020).

We recognize the significant contribution that the offshore wind projects associated with these surveys could make in providing clean energy for New England. However, it is our view that offshore wind energy can and must be advanced in an environmentally responsible manner to ensure that it meets ambitious climate and clean energy goals in the region, while also safeguarding vulnerable ocean habitat and wildlife. In addition to rich wind resources, the waters in the Project Area support a diversity of marine life, including at least 14 species of marine mammals, including six large and six small cetaceans, and two pinnipeds.¹ Of the six large whale species, four (sperm, fin, sei, and North Atlantic right whales) are listed as endangered under the Endangered Species Act (“ESA”) and as depleted and strategic stocks under the Marine Mammal Protection Act (“MMPA”). Long-finned pilot whales are also designated as a strategic stock.

¹ 85 Fed. Reg. at 31,859, Table 3.

The following comments are intended to support Mayflower in achieving its goal to advance offshore wind in a sustainable manner, while also expressing our concerns regarding NMFS' negligible impact analysis and the avoidance, minimization, mitigation, and monitoring requirements necessary to ensure adequate mitigation measures in the Project Area.

Because it is our view that NMFS' analysis likely underestimates the impact of these activities on the reproductive success and survivorship of the North Atlantic right whale, we strongly recommend that the Final IHA require the following measures:

- A seasonal restriction, in the case of unforeseen delays, on site assessment and characterization activities in the Project Area with the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1 μ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz)² between January 1 and April 30, 2021;
- A prohibition on the commencement of geophysical surveys at night or during times of poor visibility to maximize the probability that the North Atlantic right whale is detected and confirmed clear of the exclusion zone;
- A requirement to monitor an exclusion zone for the North Atlantic right whale of 1,000 meters ("m") around each vessel conducting activities with noise levels that could result in injury or harassment to this species. Such monitoring should consist of a combination of visual monitoring by Protected Species Observers ("PSOs") and passive acoustic monitoring at all times that survey work is underway;
- A requirement that four PSOs adhere to a two-on/two-off shift schedule to ensure no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time;
- A requirement to use a combination of visual monitoring by PSOs and passive acoustic monitoring at all times that survey work is underway at noise levels that could injure or harm the North Atlantic right whale;
- A requirement that developers select sub-bottom profiling systems, and operate those systems at power settings that achieve the lowest practicable source level for the objective; and
- A requirement that all project vessels operating within the Project Area, regardless of size, observe a mandatory 10 knot speed restriction during the entire survey period. If survey activities are delayed into the fall and winter, all project vessels either transiting to/from or operating within the Project Area must observe a 10 knot speed restriction between November 1, 2020 and April 30, 2021.

As we have in the past, we object to NMFS' proposed process to consider extending any one-year IHA with a truncated 15-day comment period as contrary to the MMPA.

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.

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 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 deemed necessary because of the vulnerable status of many species and because it is difficult to measure the impacts of human activities on marine mammals in the wild.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 large whales in the Northwestern Atlantic*

³ 16 U.S.C. § 1361(1).

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 *Id.* §§ 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).

As the agency is aware, the conservation status of the North Atlantic right whale is dire and getting worse. Although the species has been listed as endangered under the ESA for decades, recent scientific analysis confirms that the population has been declining since 2010 due to entanglements in commercial fishing gear and ship strikes.¹³ At least 30 animals are known to have been killed since 2017 and the population is now estimated at approximately 400 individuals.¹⁴ Moreover, females are more negatively affected than males by the lethal and sublethal effects of human activity, surviving to only 30-40 years of age with an extended inter-calf interval of approximately 10 years.¹⁵ In the wake of an alarming number of detected deaths of North Atlantic right whales in 2017, NMFS declared an Unusual Mortality Event (“UME”),¹⁶ which devotes additional federal resources to determining and—if possible—mitigating the source of excessive mortality. This designation is still in effect.

Further, ongoing UMEs exist for other whales in the Project Area. There have been UMEs for the Atlantic population of minke whales since January 2017 and humpback whales since January 2016.¹⁷ Alarming, 86 minke whales have stranded between Maine and South Carolina from January 2017 to June 2020.¹⁸ Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over four years, 124 humpback whale mortalities have been recorded (data through June 3, 2020), with strandings occurring in every state along the East Coast.¹⁹ The declaration of these UMEs by the agency in the past few years for three large whale species for which anthropogenic impacts are a significant cause of mortality,²⁰ 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

¹³ Sharp, S.M., McLellan, W.A., Rotstein, D.S., Costidis, A.M., Barco, S.G., Durham, K., Pitchford, T.D., Jackson, K.A., Daoust, P.Y., Wimmer, T. and Couture, E.L., “Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis* mortalities between 2003 and 2018.” *Diseases of Aquatic Organisms*, vol. 135, pp.1-31 (2019).

¹⁴ NOAA Fisheries, “North Atlantic right whale,” available at: <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>.

¹⁵ 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).

¹⁶ NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event.” Available at: <http://www.nmfs.noaa.gov/pr/health/mmume/2017northatlanticrightwhaleume.html>.

¹⁷ 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>.

¹⁸ *Id.*

¹⁹ NOAA-NMFS, “2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 17.

²⁰ *Id.*; NOAA-NMFS, “North Atlantic right whale Unusual Mortality Event,” *supra* note 16; NOAA-NMFS, “2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast,” *supra* note 17.

density, as required by law.²¹ Considering the elevated threat to federally protected large whale species and populations in the Atlantic, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed surveys are mitigated to effectuate the least practicable impact on affected species and stocks.²²

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

Since 2010, North Atlantic right whale distribution and habitat use has shifted in response to climate change-driven shifts in prey availability.²³ Best available scientific information, including aerial surveys,²⁴ acoustic detections,²⁵ stranding data,²⁶ a series of Dynamic Management Areas (“DMAs”) declared by NMFS pursuant to ship strike rule,²⁷ and prey data,²⁸ indicate that North Atlantic right whales now heavily rely on the waters within, and in the vicinity of, the Project Area (*see* Figure 1).²⁹ In January 2019, an aggregation representing a quarter of the population—100 whales—was seen in this area³⁰ engaged in both foraging and social activities, demonstrating that it is clearly more than just a migratory corridor (as suggested in the Proposed IHA³¹). Large, seasonally consistent aggregations of North Atlantic right whales occur within or close to the Lease Area from at least December through May, leading the

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

²² *Id.* § 1371(a)(5)(D)(ii)(I).

²³ 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).

²⁴ 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).

²⁵ Kraus, S.D., *et al.*, *id.*; Davis, G.E., Baumgartner, M.F., Bonnell, J.M., Bell, J., Berchick, C., Bort Thorton, J., Brault, S., Buchanan, G., Charif, R.A., Cholewiak, D., *et al.*, “Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014,” *Scientific Reports*, vol. 7, p. 13460 (2017).

²⁶ 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.

²⁷ NOAA Fisheries Interactive DMA Analyses: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

²⁸ 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>.

²⁹ 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.

³⁰ *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.

³¹ *See*, 85 Fed. Reg. 31,870: “There are no feeding areas, rookeries, or mating grounds known to be biologically important to marine mammals within the proposed Project Area with the exception of feeding BIAs for right, humpback, fin, and sei whales and a migratory BIA for right whales.” The feeding BIA referred to for right whales is located Northeast of the Project Area, east of Cape Cod, and does not reflect best available scientific information on important foraging habitat for North Atlantic right whales.

area to be considered by scientists as a North Atlantic right whale “hotspot.”³² North Atlantic right whales were observed feeding in the vicinity of the Lease Area during the first half of May for the first time in 2017,³³ 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.³⁴ Pregnant females are known to travel through the area in November and December and females of reproductive age are also present in the area in February and March, with April appearing particularly important for mothers and calves.³⁵ Several scientific data sources demonstrate that right whales use these waters year-round.³⁶

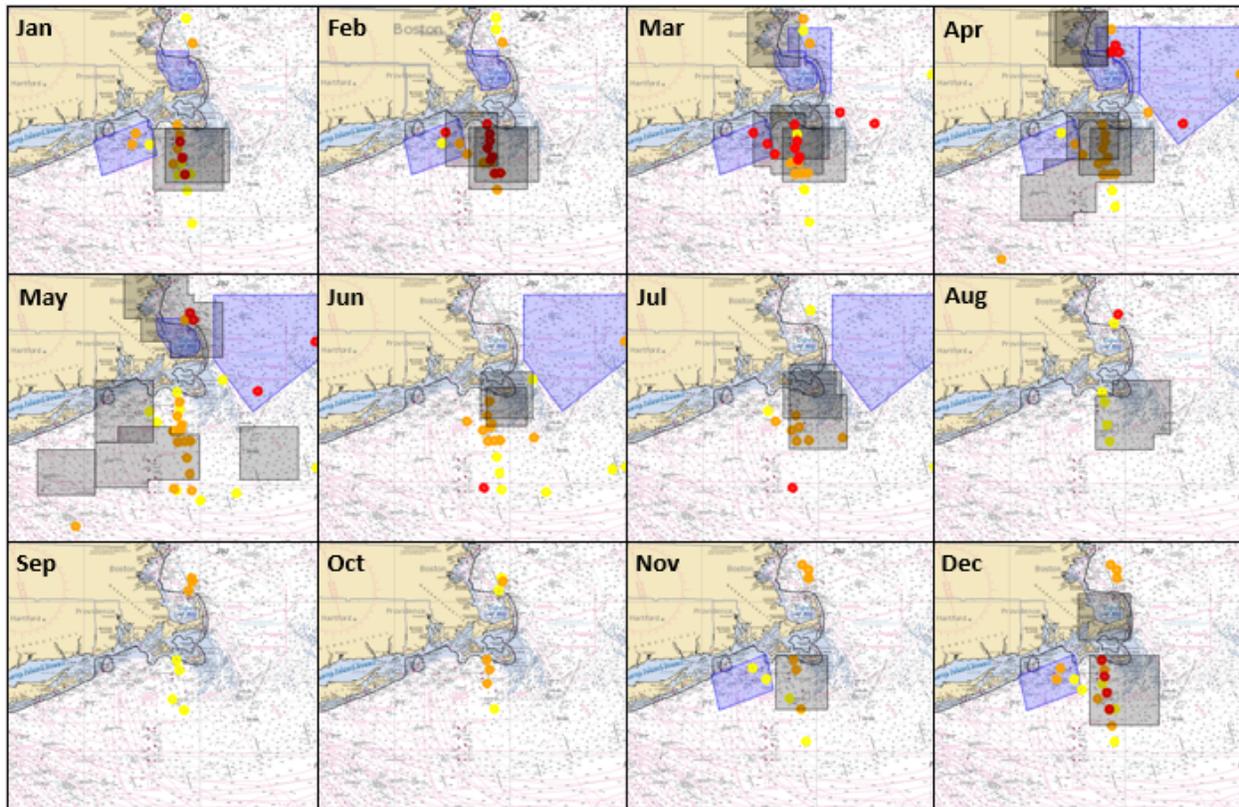


Figure 1: Monthly maps of Dynamic Management Areas (“DMAs”) (gray boxes), Seasonal Management Areas (“SMAs”) (blue boxes), and the location of acoustic receivers color coded according to percentage days per month with an acoustic detection (red: “High” $\geq 50\%$; Orange: “Medium” 10-50%; Yellow: “Low” $< 10\%$). Maps represent the two most recent years for which data were available: 2017-2019 for Jan-Aug; 2016-2018 for Sep-Dec. Source: Northeast Fisheries Science Center (NEFSC) “Interactive

³² Leiter, S.M., *et al.*, *supra* note 24.

³³ Quintana, E., *supra* note 24.

³⁴ Davis, G.E., *et al.*, *supra* note 25.

³⁵ Dr. C. Good *pers. comm.* to Dr. F. Kershaw and M. Jasny, Oct. 24, 2017.

³⁶ Kraus, S.D., *et al.*, *supra* note 24; Davis, G.E., *et al.*, *supra* note 25; NOAA Fisheries Interactive DMA Analyses, *supra* note 27.

Monthly DMA Analysis.” Available at: <https://www.nefsc.noaa.gov/rcb/interactive-monthly-dma-analyses/>.

North Atlantic right whales select foraging areas based on a relatively high threshold of copepod density of approximately 3850-4000 organisms per cubic meter.³⁷ Notably, foraging areas with suitable prey density are limited relative to the overall distribution of North Atlantic right whales,³⁸ meaning that unrestricted and undisturbed access to suitable areas, when they exist, is extremely important for the species to maintain its energy budget. Scientific information on North Atlantic right whale functional ecology also shows that the species employs a “high-drag” foraging strategy that enables them to selectively target high-density prey patches, but is energetically expensive.³⁹ Thus, if access to prey is limited in any way, the ability of the whale to offset its energy expenditure during foraging is jeopardized. In fact, the authors of the study conclude: “Our findings highlight that right whales acquire their energy in a relatively short period of intense foraging; even moderate changes in their feeding behavior or their prey energy density are likely to negatively impact their yearly energy budgets and therefore reduce fitness substantially.” North Atlantic right whales are already experiencing significant food-stress: juveniles, adults, and lactating females have significantly poorer body condition relative to Southern right whales, and the poor condition of lactating females may cause a reduction in calf growth rates.⁴⁰ Thus, the protection of North Atlantic right whales during foraging, and the protection of their foraging habitat, must be one of NMFS’ utmost priorities.

The best available scientific information therefore demonstrates that at least January 1 through April 30 in the Project Area represents the time of highest risk to North Atlantic right whales. These dates are based on times of highest relative density of animals during their migration and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present.⁴¹ That said, given that North Atlantic right whales are detected year-round within the Project Area and that notably higher densities of migrating whales consistently occur in November and December, there is a clear need for strong and effective mitigation measures to be in place year-round.

³⁷ 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.

³⁸ *Id.*

³⁹ 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.

⁴⁰ Christiansen, F., Dawson, S.M., Durban, J.W., Fearnbach, H., Miller, C.A., Bejder, L., Uhart, M., Sironi, M., Corkeron, P., Rayment, W., Leunissen, E., Haria, E., Ward, R., Warick, H.A., Kerr, I., Lynn, M.S., Pettis, H.M., & Moore, M.J. (2020). Population comparison of right whale body condition reveals poor state of the North Atlantic right whale. *Marine Ecology Progress Series*, vol. 640, pp. 1-16.

⁴¹ Over a dozen wildlife conservation organizations recently endorsed a suite of Best Management Practices (“BMPs”) for the protection of the North Atlantic right whale during wind energy construction and operations of fixed foundation offshore wind projects off the U.S. East Coast. The BMPs include criteria to define times of highest risk to North Atlantic right whales. While the BMPs focus on construction and operations, the criteria to define times of highest risk are directly transferable to inform mitigation measures for site assessment and characterization activities. Available at: <https://www.nrdc.org/resources/best-management-practices-north-atlantic-right-whales-during-offshore-wind-energy>.

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

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

NMFS must base its IHA analysis on the best available scientific information to comply with statutory requirements of the MMPA.⁴² Here, in determining the proportion of marine mammal species and populations taken by the proposed activities—a calculation that lies at the heart of the agency’s “small numbers” analysis—NMFS relies on estimates of marine mammal densities derived from the habitat-based density model produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts et al. 2016, 2017, 2018).⁴³ While the Proposed IHA notes that this model has been updated to incorporate additional data sources and two or more years of data,⁴⁴ it still excludes data obtained through additional sightings databases, passive acoustic monitoring, and satellite telemetry. It is our view that the density maps produced by this model do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast and therefore should not be the only information source relied upon when estimating take.

Of particular concern is NMFS’ assertion that the Project Area is situated only within the North Atlantic right whale migratory corridor,⁴⁵ rather than acknowledging that North Atlantic right whales are now regularly observed aggregating socially and foraging in the area in the winter and spring, as well as, to a lesser extent, the summer months. This omission is inexplicable in light of NMFS’ current work to develop new regulations to reduce entanglement of North Atlantic right whales,⁴⁶ for which the importance of this area as a new aggregation and foraging site forms a central point of consideration. The Duke University models do not adequately capture this increase in habitat use by right whales and, therefore, levels of take based solely on those models will most certainly be underestimates.

Integration of opportunistic sightings data and other sources of data that collect fine-scale information on factors driving marine mammal distribution with those gathered through systematic broad-scale surveys better reflecting current marine mammal presence, abundance, and density off Massachusetts will provide a more accurate assessment of Level B take. **It should be NMFS’ top priority to consider any initial data from State monitoring efforts,⁴⁷ passive acoustic monitoring data, opportunistic marine mammal sightings data, and other data sources, including those being used by the agency in the development of new regulations to reduce entanglement of North Atlantic right whales. Further, NMFS should take steps now to develop a dataset (see also recommendations in Section III.A.) that**

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

⁴³ 85 Fed. Reg. at 31,874.

⁴⁴ *Id.*

⁴⁵ *See, e.g.*, 85 Fed. Reg. at 31,870.

⁴⁶ *See, e.g.*, “Atlantic Large Whale Take Reduction Team Meeting—Key Outcomes Memorandum,” Providence, Rhode Island, April 23-26, 2019. Published October 4, 2019. Available at: <https://www.fisheries.noaa.gov/webdam/download/97751765>.

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

more accurately reflects marine mammal presence so that it is in hand for future IHA authorizations and other work.

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

NMFS, again, requests comment on the potential one-year renewal of this Proposed IHA on a case-by-case basis for identical or nearly identical activities, with only an additional 15 days for public comment, should various criteria be met.⁴⁸

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.⁴⁹ 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).⁵⁰ 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."⁵¹ When NMFS adheres to this process, "the public is assured of the right to be informed of actions taken or proposed."⁵² 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.⁵³

The agency lacks discretionary authority to interpret the statute otherwise, whether by regulation, by policy, or on a permit-by-permit basis as it purports to do here.⁵⁴ Moreover, NMFS has not supplied a sufficient explanation for why it might assert that the statutory language of sec. 101(a)(5)(D)(iii) is ambiguous, such that the agency might appropriately exercise its congressionally-delegated gap-filling authority to set forth a permissible interpretation of the statute that comports with the statute's objectives.⁵⁵

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*

⁴⁸ 84 Fed. Reg. at 36,081-82.

⁴⁹ 16 U.S.C. § 1371(a)(5)(D)(i).

⁵⁰ *Id.* § 1371(a)(5)(D)(iii).

⁵¹ H.R. Rep. No. 92-707, at 4151 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151.

⁵² *Id.* at 4146.

⁵³ H.R. Rep. No. 103-439, at 29 (1994).

⁵⁴ *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.").

⁵⁵ *See Northpoint Tech. Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005) (a "'reasonable' explanation of how an agency's interpretation serves the statute's objectives is the stuff of which a 'permissible' construction is made").

more than five consecutive years each.”⁵⁶ Where Congress established clear and distinct statutory processes for authorizing incidental take via harassment for one-year periods versus periods extending more than one year and up to five years, NMFS must justify how its proposed unlawful hybrid administrative extension process, with a curtailed comment period, is consistent with both statutorily-established processes.

NMFS’ statement about Incidental Harassment Authorization Renewals on its website⁵⁷ fails to provide a clear and legally adequate justification for its purported new reauthorization process especially in light of the burden the foreshortened comment period places on interested members of the public to review and formulate comments, all within 15 calendar days. As NMFS apparently intends the new reauthorization process to become the rule rather than the exception, it is incumbent on the agency to set forth, via proposed regulation or policy document, its rationale for this new process and to allow public comment.

III. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing “take” by incidental harassment under the general authorization provision of the MMPA, NMFS must prescribe “methods” and “means of effecting the least practicable adverse impact” on marine mammals and set additional “requirements pertaining to the monitoring and reporting of such taking.”⁵⁸ In light of the aforementioned inconsistencies between the agency’s analysis and the requirements of the MMPA, as well as the significant risks posed to the North Atlantic right whale and other endangered and/or strategic marine mammal stocks by the site assessment and characterization activities outlined in the Proposed IHA, NMFS has an obligation to impose robust avoidance, minimization, mitigation, and monitoring requirements to protect these species to the maximum extent practicable.

The best scientific and commercial data available shows that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging behavior may lead to population-level effects and is of critical concern.⁵⁹ **Therefore, the agency must carefully analyze the cumulative impacts from the proposed survey activities and other survey activities contemplated in other lease areas on the North Atlantic right whale and other protected species.**

The implementation of a robust impact avoidance, minimization, mitigation, and monitoring protocol to prevent adverse impacts of the proposed survey activities is therefore essential and required by law. Our recommendations are below.

A. *Seasonal restriction on geophysical surveys in the Project Area from January 1 to April 30*

NMFS is proposing to authorize geophysical surveys off Massachusetts at a time when North Atlantic right whales may be present. The survey period is expected to occur no earlier than June 1, 2020 and continue through September 2020. Surveys will be conducted 24 hours a day in the Lease Area and the

⁵⁶ 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).

⁵⁷ *See* <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

⁵⁸ 16 U.S.C. § 1371(a)(5)(D)(vi).

⁵⁹ *See, e.g.,* Van der Hoop, J., *et al.*, *supra* note 39; Christiansen, F., *et al.*, *supra* note 40.

deep-water section of the export cable route for 90 days, and for 12 hours a day in the shallow and nearshore sections of the export cable route for 95 days and 30 days, respectively. Up to three vessels may operate concurrently, one in each section of the Project Area.⁶⁰

It is therefore unlikely that the surveys will extend into the time period that we consider of greatest risk for North Atlantic right whales (January 1 through April 30). However, an end date for the surveys is not specified. As the Proposed IHA will be issued for one year, with the potential for extension, poor weather conditions or other unforeseen circumstances may delay surveys into the fall and winter. **In that case, NMFS should prohibit site assessment and characterization activities that have the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1 μ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz) between January 1 and April 30, 2021 (and any subsequent year into which the IHA may be extended or renewed).** These dates currently reflect both the best available scientific information on the relative density of North Atlantic right whales in Southern New England (recognizing that individuals of this species could be present in each month of the year; *see* Section I.C), as well as the potential presence of mother-calf pairs and a significant increase in the number of foraging aggregations during these months (noting that the species is increasingly reliant on this area year round as foraging habitat). These dates should be reviewed annually and revised as necessary to reflect the best available scientific information.

Further, while existing and potential stressors to the North Atlantic right whale must be minimized to promote the survival and recovery of the species, the agency must also address potential impacts to other endangered and protected whale species, particularly in light of the UMEs declared for right whales, humpback whales and minke whales,⁶¹ as well as the several strategic and/or depleted stocks that inhabit the region. It is therefore imperative that consequences of the proposed North Atlantic right whale seasonal restriction on other endangered and protected species be fully accounted for by the agency.

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

In our view, geophysical surveys should only commence, with ramp-up, during daylight hours of adequate visibility⁶² to maximize the probability that North Atlantic right whales are detected and confirmed clear of the exclusion zone. If the exclusion zone is clear, we do not oppose the survey continuing into nighttime hours. However, if the survey is shut down for any reason, developers should be required to wait until daylight hours and good visibility for ramp-up to resume. PSO use is key to proper detection; for this reason, restarting operations in the night or at times of poor visibility is an unacceptable risk to the species' health. **Furthermore, as PSOs are unable to visually monitor the exclusion area during darkness and periods of low visibility, NMFS must require, for surveys that continue into**

⁶⁰ 85 Fed. Reg. at 31,857.

⁶¹ NOAA-NMFS, "North Atlantic right whale Unusual Mortality Event," *supra* note 16; NOAA-NMFS, "2016-2018 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra* note 17; NOAA-NMFS, "2017-2018 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra* note 17.

⁶² Adequate visibility should be determined by the lead PSO based on standardized environmental parameters (*e.g.*, visibility, glare, sea state, wind speed).

the nighttime, a combination of PSOs using infrared technology⁶³ and passive acoustic monitoring (see Section III.D).

Infrared technology, relying on thermal differences between the target species and the environment, has shown promise for detection of a number of marine mammal species from vessels in darkness.⁶⁴ The application of infrared technology as a mitigation tool is still in development, however, and false positive infrared detections, matching systems capabilities to sea conditions and species of interest, and the experience of employed observers are all pertinent issues that require further attention.⁶⁵ Infrared performance is relatively high during periods of darkness, but relatively low during rain, fog, and drizzle, and in sea states greater than Beaufort 4,⁶⁶ indicating that overall detection rates are likely to be maximized when complementary methods are used. PSOs and passive acoustic monitoring are likely the most effective combination during high seas and precipitation; however, a combination of infrared and passive acoustic monitoring would be most effective when used in darkness. Even during periods of good visibility, a combination of PSOs, infrared, and passive acoustic monitoring would increase detections.⁶⁷ **Accordingly, the agency should require the use of infrared equipment to support visual monitoring by PSOs and/or passive acoustic monitoring, at a minimum, during periods of darkness.**

NMFS must consider the limitations of the infrared system proposed and ensure that the detection of marine mammals is possible at distances out to and beyond the exclusion zones, in the geographic region in question, and for all relevant endangered and protected species. These technologies have not been well tested for detection of North Atlantic right whales, and may be relatively ineffective for detecting minke whales,⁶⁸ both species of concern in light of the current UMEs declared for the Atlantic coast. Further, NMFS should encourage developers to partner with scientists and collect data that increases our understanding of the effectiveness of infrared technologies within the Project Area,⁶⁹ with a view towards greater reliance on these technologies to commence surveys during nighttime hours in the future.

Finally, as no monitoring method is perfect, **NMFS should require developers to select sub-bottom profiling systems, and operate those systems at power settings that achieve the lowest practicable source level for the objective.**

⁶³ 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.

⁶⁴ 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);

⁶⁵ Smith, H.R., *et al. id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ 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).

⁶⁹ For potential study design, *see, e.g.,*

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

The Proposed IHA specifies that marine mammal exclusion zones will be established around high-resolution geophysical (“HRG”) equipment and monitored by PSOs during HRG surveys as follows: 1) a 500 m exclusion zone for North Atlantic right whales; and 2) a 100 m exclusion zone for all other marine mammals (except North Atlantic right whales).⁷⁰ However, the definition of exclusion zone radii based on the acoustic thresholds laid out in the NMFS technical guidance document significantly underestimates the area in which marine mammals, including large whales, may experience noise at levels capable of causing behavioral harassment (*i.e.*, received level <160 dB).⁷¹ Neither of these zones are protective enough.

NMFS must require use of monitoring practices that ensure a 500 m exclusion zone around all vessels conducting activities with noise levels that could result in injury or harassment to any protected species based on the best available science, with the exception of dolphins that, in the determination of PSOs, are voluntarily approaching the vessel. Further, any potential harassment of the North Atlantic right whale is a significant concern and a 500 m exclusion zone is simply not sufficient. **PSOs should, to the extent feasible, monitor beyond the minimum 500 m exclusion zone to an extended 1,000 m exclusion zone for North Atlantic right whales.**⁷² Exclusion zones should also be expanded beyond minimum distances as sound source validation data support such extension.

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

The Proposed IHA notes that NMFS requires, at a minimum, a single PSO on duty during daylight hours and 30 minutes prior to and during nighttime ramp-ups of HRG equipment.⁷³ NMFS describes how “[v]isual PSOs would coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts...”⁷⁴ It is not possible for a single PSO to continually visually monitor 360°, however; thus, the minimum requirement of a single PSO is under-protective. **It is our view that a minimum of four PSOs adhering to a two-on/two-off shift schedule is necessary for adequate visual monitoring; this schedule ensures no individual PSO is responsible for monitoring more than 180° of the exclusion zone at any one time.**

Visual observations are not enough. In addition to sighting condition limitations discussed below, studies suggest that North Atlantic right whales exhibit behaviors that reduce the likelihood that they would be detected by PSOs and therefore often go undetected by observers. For example, acoustic surveys have detected North Atlantic right whale vocal presence throughout the year and over the entire spatial extent

⁷⁰ 84 Fed. Reg. at 36,076.

⁷¹ 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).

⁷² As recommended by Drs. S.D. Kraus, C. Good, and H. Bailey *pers. comm.* to F. Kershaw and M. Jasny (October 24, 2017).

⁷³ 85 Fed. Reg. at 31,876.

⁷⁴ 85 Fed. Reg. at 31,877.

of a study area in Massachusetts Bay,⁷⁵ even though visual surveys have rarely reported sightings of North Atlantic right whales in the winter off the coast of Massachusetts.⁷⁶ 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.⁷⁷ 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.⁷⁸ These behavioral responses are likely to be heightened when whales are in the proximity of the acoustic disturbance from geophysical surveys, meaning that animals may be less detectable by observers during the survey period relative to other times of the year.⁷⁹

There are sighting condition limitations. For even the most conspicuous large whale species, estimates of relative detection probability for a Beaufort Sea State of 6 is less than half that for a Beaufort Sea State of 0.⁸⁰ 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.⁸¹ In line with Barlow (2015),⁸² 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.⁸³ 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,⁸⁴ a monthly average Beaufort Sea State of 3 or 4 can be expected in close vicinity to the Lease Area, year-round. Given these data, observers alone are certain to underestimate the number of large whales in the mitigation area based on sea state. From the findings of Baumgartner *et al.* (2003),⁸⁵ a reduction in detection probability of North Atlantic right whales by up to 84.5 percent based on an average Beaufort Sea State of 4 would be expected, relative to ideal sighting conditions (*i.e.*, Beaufort sea state = 0). Notably, the detectability of North Atlantic right whales even under ideal sighting conditions is likely to

⁷⁵ 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).

⁷⁶ 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).

⁷⁷ 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).

⁷⁸ 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).

⁷⁹ 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).

⁸⁰ 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).

⁸¹ 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).

⁸² Barlow, J., *supra* note 83.

⁸³ *Id.*

⁸⁴ NOAA-NWS, "National Data Buoy Center." Available at: <http://www.ndbc.noaa.gov/>.

⁸⁵ Baumgartner, M.F., *et al.*, *supra* note 84.

be significantly less than 100 percent given availability and perception biases other than those involving sea state.

In light of these limitations, and without verified means of monitoring by infrared technology during darkness, NMFS' lack of a requirement to use passive acoustic monitoring during surveys is particularly concerning. Mayflower has committed to employ passive acoustic monitoring to "support monitoring during night time operations to provide for acquisition of species detections at night"⁸⁶ and NMFS rightly acknowledges that passive acoustic monitoring may "provide additional benefit as a mitigation and monitoring measure to further limit potential exposure to underwater sound at levels that could result in injury or behavioral harassment."⁸⁷ **Thus, passive acoustic monitoring should be required for all times activities are underway in the Project Area with the potential to injure or harass the North Atlantic right whale (*i.e.*, source level >180 dB re 1 μ Pa (SPL) at 1 meter frequencies between 7 and 35 kHz)—not only during nighttime hours—to maximize the probability of detection for North Atlantic right whales, including in periods of fog, precipitation, and high sea states, when PSOs and infrared technologies are less effective (*see* Section III.B).**

The passive acoustic protocol should be designed so the hydrophone is not masked by vessel or survey noise. We also support the inclusion of both broadband and low frequency hydrophones, which will serve to ensure that North Atlantic right whale vocalizations, as well as those of other low- and mid-frequency vocalizing species, can be detected. However, it should be noted that passive acoustic monitoring without visual observers would also be insufficient as cow-calf pairs often do not vocalize to avoid predators.

Finally, we support the IHA's requirement for a 30-minute pre-clearance period and to immediately shut down survey activity upon the visual observation of a marine mammal.⁸⁸

E. Vessel strike measures

The Proposed IHA acknowledges that vessel strikes can kill animals, that speed is a factor, and that North Atlantic right whales are particularly vulnerable because they are "generally unresponsive to vessel sound" and "more susceptible to vessel collisions,"⁸⁹ yet it only discusses the impacts of the survey vessels traveling at speeds less than 3.5 knots.⁹⁰ This ignores the impacts of all other project vessels operating in the Project Area on right whales. While we appreciate that the Proposed IHA expressly requires all vessels to observe a 10-knot speed restriction if NMFS has designated Seasonal Management Areas ("SMAs") or DMAs, the proposed measure would allow project vessels to travel at speeds greater than 10 knots at all other times, unless a right whale is actually observed within 100 meters.⁹¹ This is insufficient.

⁸⁶ 85 Fed. Reg. at 31,878.

⁸⁷ *Id.*

⁸⁸ 85 Fed. Reg. at 31,877.

⁸⁹ 85 Fed. Reg. at 31,870 (citing Nowacek *et al.*, 2004).

⁹⁰ 85 Fed. Reg. at 31,858.

⁹¹ 85 Fed. Reg. at 31,878.

Vessel collisions remain one of the leading causes of large whale injury and mortality and are a primary driver of the existing UMEs. Serious injury or mortality can occur from a vessel traveling above 10 knots irrespective of its length.⁹² 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.⁹³ 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.⁹⁴ 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.⁹⁵ It is possible that HRG surveys could produce the same effects, and should therefore be treated conservatively. The agency has a responsibility to implement mitigation measures to prevent any further vessel collisions for other species of large whale currently experiencing an UME (*i.e.*, humpback whales and minke whales), as well as other species such as fin whales, which, in light of the broad distributional shifts observed for multiple species, may be at potential future risk of experiencing an UME.

As noted in the Proposed IHA, studies indicate that noise can induce flight responses, behavioral disturbances, habitat avoidance, and stress responses that reduce feeding rates and reproductive success.⁹⁶ Because of the noise, HRG surveys could also cause horizontal displacement⁹⁷ and push a North Atlantic right whale out of a protected area (SMA or DMA) into an area where vessels are traveling at greater speed, presenting an even greater danger of vessel collision. Thus, habitat displacement produces an indirect ship strike risk that also must be accounted for in NMFS' analysis.

Vessel strikes therefore pose an unacceptable risk. Therefore, all project vessels operating within the Project Area, regardless of size, must be required to observe a 10 knot speed restriction during the entire survey period. If survey activities are delayed into the fall and winter, all project vessels either transiting to/from or operating within the Project Area must observe a 10 knot speed restriction between November 1, 2020 and April 30, 2021 to reflect the increasing density of North Atlantic right whales within, and within the vicinity of, the Project Area, including vessel transit routes.

IV. CONCLUSION

⁹² NOAA-NMFS, "Reducing ship strikes to North Atlantic right whales." Available at: [https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales#:~:text=All%20vessels%2065%20feet%20\(19.8,endangered%20North%20Atlantic%20right%20whales.](https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales#:~:text=All%20vessels%2065%20feet%20(19.8,endangered%20North%20Atlantic%20right%20whales.) To reflect the risk posed by vessels of any length, the Commonwealth of Massachusetts established a mandatory vessel speed restriction for all vessels (including under 20 meters) in the Cape Cod Bay SMA.

⁹³ 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).

⁹⁴ NOAA-NMFS, "Recovery plan for the North Atlantic right whale" (August 2004).

⁹⁵ Nowacek, D.P., *et al.*, *supra* note 81.

⁹⁶ 85 Fed. Reg. at 31,866-31,870.

⁹⁷ *E.g.*, Castellote, M., Clark, C.W., and Lammers, M.O., "Acoustic and behavioural changes by fin whales (*Balaenoptera physalus*) in response to shipping and airgun noise," *Biological Conservation*, vol. 147, pp. 115-122 (2012).

Ms. Jolie Harrison
June 26, 2020
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Thank you for considering our comments. For the reasons stated above, our organizations urge NMFS to revise its analysis and require additional measures in the Final IHA to comply with its statutory obligations. We again request the opportunity to meet with you and your staff to discuss these matters.

Sincerely,

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