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

Re: Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off New York, New Jersey, Delaware, and Maryland (Docket No. RTID 0648-XD557)

Dear Chief Harrison:

Clean Ocean Action ("COA") is a regional, broad-based coalition of conservation, environmental, fishing, boating, diving, student, surfing, women's, business, civic, and community groups with a mission to improve the water quality of the marine waters off the New Jersey/New York coast. COA submits the following comments to the National Oceanic and Atmospheric Administration's ("NOAA") National Marine Fisheries Service ("NMFS") in opposition to the request for an Incidental Harassment Authorization ("IHA") by Atlantic Shores Offshore Wind Bight, LLC ("Atlantic Shores") to conduct high-resolution geophysical ("HRG") marine site characterization surveys in Lease Areas OCS–A 0499, OCS–A 0541, OCS–A 0549, and the associated offshore export cable corridor routes. The proposed IHA would authorize Level B harassment of **1,533** marine mammals, including six (6) marine mammals from three (3) listed endangered species.[1]

COA has submitted comments on previous IHA proposals by Atlantic Shores and has objected to the issuance of IHAs on policy grounds, arguing that baseline science should be improved to fully understand the impact, including cumulative effects, of preconstruction activities on marine mammals.[2] COA stands by these concerns and incorporates them by reference; we continue to disagree, as a matter of policy, with the idea that negligible impact and small numbers findings could be fairly made without considering the activities in a larger context. COA also continues to call for a pilot study and independent scientific investigation to better understand the recent spike

[1] NMFS, DRAFT INCIDENTAL HARASSMENT AUTHORIZATION, https://www.fisheries.noaa.gov/s3/2024-01/ASOWCombinedHRG-2024IHA-DIHA-OPR1.pdf
[2] Clean Ocean Action, Public Comment re. RTID 0648-XC667 (May 1, 2023); Clean Ocean Action, Public Comment re. RTID 0648-XC903 (July 28, 2023)

in whale deaths off New York and New Jersey. However, COA recognizes that NMFS has provided its answers in previous IHA issuances. Therefore, these comments will focus on analytical issues in this proposed IHA as well as changes between Atlantic Shores' currently active IHAs and the proposed one, which would combine the uncompleted activities covered in the active IHAs with new surveying activities.

I. Vessel Strike

NMFS estimates that no take will occur due to vessel strike, because vessel strikes more commonly result in death or serious injury than Level B harassment.[3] According to a dataset from 1975 to 2003—ending over twenty (20) years ago—most ships involved in vessel strikes were large commercial vessels.[4] On the other hand, NOAA's website indicates that various types of vessels have been documented to hit whales.[5] Additionally, five (5) of the twelve (12) documented right whale vessel strikes since 2008 involved vessels less than sixty-five (65) feet in length.[6] Although larger ships are more likely to strike and seriously injure or kill protected marine mammals, it is by no means impossible for smaller ships such as geophysical survey vessels to do so.

Speed is also an important factor in the likelihood of vessel strikes. NMFS states that when offshore wind surveying vessels are towing gear, the low speed results in vessel strikes becoming extremely improbable, but "[a]t average transit speed for geophysical survey vessels, the probability of serious injury or mortality resulting from a strike is less than 50 percent".[7] NMFS claims the probability is further decreased by an unspecified amount due to the small size of geophysical survey vessels.[8] This is insufficient to claim that the probability of vessel strikes from offshore wind geophysical survey vessels is low enough to be discountable when the vessels are not towing gear.

To aid in right whale recovery, NOAA recently released a monitoring dashboard for compliance with vessel speed restrictions.[9] However, it is unclear whether or in which listed vessel type geophysical surveying vessels are included, so it is difficult for the public to monitor the offshore wind industry's compliance.[10] The proposed IHA also does not specify the number of trips the vessels would take to complete the surveying activities, which is a factor in the probability of vessel strike as well.[11]

II. North Atlantic Right Whales ("NARW")

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[3] *See* Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off New York, New Jersey, Delaware, and Maryland, 89 FR 753, 762 (Jan. 5, 2024).
[4] *Id.*
[5] NOAA FISHERIES, *Understanding Vessel Strikes*, https://www.fisheries.noaa.gov/insight/understanding-vessel-strikes (last visited Feb. 5, 2024).
[6] Amendments to the North Atlantic Right Whale Vessel Strike Reduction Rule, 87 FR 46,921, 46,924 (Aug. 1, 2022)
[7] 89 FR 753, 762.
[8] *Id.*
[9] *NOAA Fisheries North Atlantic Right Whale Active Seasonal Speed Zone Vessel Traffic Dashboard*, https://experience.arcgis.com/experience/315a0a2c4e084cf6ae8babd8c81b07b3/ (2023-2024).
[10] *See id.*
[11] 89 FR 753.

COA maintains our objection to allowing takes of NARW due to the species' fragile status. Although no serious injury or mortality is proposed to be authorized in this instance, even Level B harassment could, by definition, affect migration, breathing, nursing, breeding, feeding, or sheltering.[12] Noise disturbances to NARW could increase the species' stress levels, according to information on NOAA's website.[13] NMFS proposes to require a 500-meter shutdown zone, but the agency is still being realistic in assuming that the mitigation measure will not be able to completely prevent animals from entering the Level B harassment zone, which is only 56 meters from the sparker equipment.[14]

When COA raised similar concerns and expressed that NMFS should eliminate impacts on the NARW, NMFS asked for suggestions on how to do so.[15] COA believes that preserving the existence of the NARW warrants pausing offshore development off the Atlantic coast, but NMFS is only required to ensure that small numbers of individuals are taken that will have a negligible impact on the stock.[16] However, NOAA could strengthen its existing vessel speed restrictions, including offshore wind survey and construction vessels, as it proposed to do on August 1, 2022.[17] The public comment period on NOAA's proposed rule closed on October 31, 2022.[18] To date, NOAA has not finalized the strengthened restrictions, though the agency anticipated taking final action on the rule in 2023.[19]

NMFS is aware that the survey area crosses through a biologically important NARW migratory corridor but assumes that migration will not be affected, in part because the surveying activity is temporary, meaning it will only last up to one year.[20] However, similar surveying activities by Atlantic Shores in this area have been approved since 2020, either by one-time renewals or in the form of new IHAs.[21] Given this history, it is unrealistic and unreasonable to expect that survey activities will actually cease after only one more year. Even if they did, NARW are thought to migrate annually,[22] so this justification is illogical. NMFS also states that the ensonified area

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[12] 16 U.S.C. § 1362(18).
[13] NOAA FISHERIES, *North Atlantic Right Whale*, https://www.fisheries.noaa.gov/species/north-atlantic-right-whale (last visited Feb. 2, 2024).
[14] 89 FR 753, 764-65, 788 (Jan. 5, 2024).
[15] Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Offshore of New Jersey and New York, 88 FR 38,821, 38,824 (June 14, 2023).
[16] 16 U.S.C. § 1371(a)(5)(A)(i).
[17] 87 FR 46,921.
[18] Amendments to the North Atlantic Right Whale Vessel Strike Reduction Rule; Extension of Public Comment Period, 87 FR 56925 (Sept. 16, 2022).
[19] Media Release, NOAA, *NOAA Fisheries Launches New Dashboard for Vessel Speed Compliance* (Oct. 19, 2023), https://www.fisheries.noaa.gov/media-release/noaa-fisheries-launches-new-dashboard-vessel-speed-compliance.
[20] 89 FR 753, at 771.
[21] Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Off of New York and New Jersey, 85 FR 21198 (Apr. 16, 2020); Taking Marine Mammals Incidental to Marine Site Characterization Off of New York and New Jersey, 86 FR 21289 (Apr. 22, 2021); Taking Marine Mammals Incidental to Marine Site Characterization Off New Jersey and New York for Atlantic Shores Offshore Wind, LLC, 87 FR 24103 (Apr. 20, 2022); 87 FR 50293, August 10, 2022; 88 FR 38821, June 9, 2023; 88 FR 54575, August 10, 2023
[22] 89 FR 753, at 758.

(3,228 km^2) is much smaller than the migratory corridor (269,488 km^2),[23] as if avoiding a 3,228 km^2 area is an easy feat if an animal should happen upon it.

III. Sperm Whales

Sperm whales are listed as endangered under the Endangered Species Act.[24] Although little is known about their specific migratory patterns, they have been observed in the Mid- and North Atlantic.[25] Therefore, sperm whales were considered in issuing the two active IHAs spanning Lease Areas OCS–A 0499, OCS–A 0541, and OCS–A 0549.[26]

Without explanation, NMFS does not analyze or even mention sperm whales in the proposed IHA.[27] Using Roberts et al, 2023 (density models created and updated by Duke University), which NMFS has determined is the best science available, Atlantic Shores determined that no sperm whale takes would occur because the maximum seasonal density within the survey area was 0.010 individuals per 100 square kilometers.[28] While the estimated density is low, it is not zero. In any case, because sperm whale takes were anticipated and authorized in the currently active IHAs, NMFS should have explained why it decided this was no longer the case, instead of arbitrarily omitting sperm whales from any level of analysis.

IV. Conclusion

For the foregoing reasons, COA strongly urges NMFS to reevaluate its responses to Atlantic Shores' IHA proposal and reject the proposal until the above issues are addressed. Please feel free to contact us should you have any questions or would like to further discuss these concerns.

Respectfully submitted,

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[23] *Id.* at 771.
[24] NOAA FISHERIES, *Sperm Whale: Conservation & Management*, https://www.fisheries.noaa.gov/species/sperm-whale/conservation-management (last visited Feb. 2, 2024).
[25] ATLANTIC SHORES OFFSHORE WIND, LLC, REQUEST FOR AN INCIDENTAL HARASSMENT AUTHORIZATION TO ALLOW THE NON-LETHAL TAKE OF MARINE MAMMALS INCIDENTAL TO SITE CHARACTERIZATION SURVEYS OF THE ATLANTIC SHORES LEASE AREA (OCS-A 0499, OCS-A 0541, OCS-A 0549) at 9 (revised Nov. 2023).
[26] Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys off New Jersey and New York for Atlantic Shores Offshore Wind, LLC, 87 FR 4200, 4207 (Jan. 27, 2022); Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Site Characterization Surveys Off New Jersey and New York in the Area of the Atlantic Shores Lease Area (OCS-A 0541), 87 FR 38067, 38,075-76 (June 27, 2022).
[27] 89 FR 753.
[28] ATLANTIC SHORES SOUTH, LLC, *supra* note 24, at 35.

Submitted via email to *ITP.Taylor@noaa.gov*

February 5, 2024

Jolie Harrison, Chief, Permits and Conservation Division,
Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Re: Request for an Incidental Harassment Authorization to Allow the Non-Lethal Take of Marine Mammals Incidental to Site Characterization Surveys of the Atlantic Shores Lease Area (OCS-A0499, OCS-A 0541, OCS-A 0549)

Dear Chief Harrison,

On behalf of Green Oceans, we are submitting comments on Atlantic Shores request for incidental takes of marine mammals secondary to site characterization surveys offshore of New Jersey and New York.

Green Oceans is a grassroots nonprofit organization dedicated to protecting the health of the oceans, their ecosystems, and all the life they sustain, from the smallest microorganism to the largest whale. Green Oceans has never accepted funds from any other group or organization, nor have we accepted funds or assistance from any individuals outside of their local membership. We aim to combat the climate crisis without sacrificing biodiversity or the health of our oceans. BOEM does not anticipate that these projects will help global warming and may, in fact, contribute to the problem by producing greenhouse gas emissions during construction and operations, and will house "equipment containing SF6 could produce GHG emissions that contribute to climate change.[1] To the best of our knowledge, no empirical, peer reviewed study has ever demonstrated that offshore wind farms will reduce CO2 emissions, help climate change, or diminish our dependency on fossil fuels. Without proven benefits, NOAA cannot justify the harm these projects will inflict on the marine ecosystem in general and marine mammals in particular.

Thus, approving this ITR violates the MMPA and the intent of the Executive Order 14008. The order specifies the government's intention to tackle the climate crisis both at home and abroad...in a manner that "protects public health; conserves our lands, waters, and *biodiversity* [emphasis added]."[2]

We must ensure that fulfilling state mandates does not supplant our efforts to address climate change with efficacious solutions. Maintaining biodiversity and the health of the ocean is our best defense against climate change. The full extent of site characterization surveys, including the ones proposed for Atlantic Shores, threaten both. Marine mammals—and in particular, large

[1] Atlantic Shores DEIS, p. 3.4.1-14.

[2] The White House 2021

whales—play a critical role in marine ecosystems by transferring nutrients that enhance phytoplankton productivity both horizontally and vertically in the water column, and by contributing to carbon sequestration. Impacts to the abundance or distribution of marine mammals can disrupt vital systems that regulate the ocean and the climate. As specified in the MMPA, NMFS must both protect and promote the health of these species.

This submission draws heavily on a prior submission written by Lizzie Lewis of Eubanks Legal on behalf of Green Oceans for the Revolution Wind project. As the science has progressed, we have included several additions to our prior submission and have adjusted our arguments to reflect the specifics of the Atlantic Shores site characterization project.

As detailed below, NMFS has failed to comply with the MMPA's mandate to ensure that marine mammals are "protected and encouraged to develop to the greatest extent feasible," with the "primary objective" being "to maintain the health and stability of the marine ecosystem."[3]

Given the serious adverse impacts that the Project will have on marine mammals, including the highly imperiled North Atlantic right whale, the best course of action would be for NMFS to withdraw the proposed ITR and refuse to issue any incidental take authorizations for offshore wind energy projects until a programmatic review of offshore wind energy is conducted, the North Atlantic right whale strategy has been finalized, and the newly initiated Government Accountability Office's investigation has been completed. Given the application's violations of the MMPA, any authorizations will represent an unlawful expansion of the agency's powers.

Sincerely,

Elizabeth Quattrocki Knight, M.D., Ph.D.

<u>Key fatal flaws with the ITR:</u>

1) The submission does not properly consider the request in the larger context of the other projects, their construction, and the other site characterization studies. The cumulative "takes" become unreasonably large and violate both the language and meaning of both the MMPA and the ESA.

2) The ITR does not properly consider the cumulative and interaction effects of this project with other projects in the area.

    a) The request does not consider the arbitrary and capricious nature of the lease subdivisions.

    b) The ITR does not properly consider that lease areas do not have natural boundaries, so that all incidental take requests should be considered in conjunction with all contemporaneous activity and all anticipated activity.

[3] 16 U.S.C. § 1361

c) The ITR does not properly consider indirect sources of harm (ie. vessel strikes) that will increase in the larger context of the other projects.

d) The ITR does not properly consider the nonlinear effects of interactions between multiple stressors on marine mammals in general and protected species in particular.

3) The thresholds for acoustic injury are no longer validated by the best available science.

4) NMFS has not taken into account the concept of rectified diffusion and how seismic surveys, through this mechanism, may injure marine mammals (Crum 1996, attached below).

5) The ITR does not properly incorporate the importance of interspecies cooperation and communication and how increasing underwater noise will disrupt this communication and affect marine survival as a result.

6) The number of takes, particularly with respect to the North Atlantic Right Whale (NARW), rely on mitigation and monitoring methods that remain unproven.

7) Enforcement and recording are inadequate.

8) Repercussions for exceeding the number of takes remain insufficient as either a deterrent or as compensation for the destruction incurred.

9) The request does not properly value biodiversity in its assessment of harm.

10) The request does not adequately consider the unusual mortality events for the North Atlantic right whale, Humpback, and Minke whales and the unreliable baseline assessments that result from such events.

11) The request does not properly consider the unique habitat of the lease areas.

12) The request does not properly protect baleen whales from the lethality of the sparker mechanisms.

STATUTORY BACKGROUND

Exposure of marine mammals to anthropogenic underwater sounds and sonar may constitute "take" if the received sound waves have the potential to cause injury, stress, or behavioral disturbance.

The Marine Mammal Protection Act (MMPA) prohibits the take of any marine mammal without authorization. "The effect of this set of requirements is to insist that the management of the animal populations be carried out with the interests of the animals as the *prime consideration*."[4]

The MMPA permits NMFS to issue authorizations to allow the "incidental, but not intentional," taking of marine mammals if NMFS determines that "the total of such taking . . . will have a negligible impact on such species or stock..."[5]

II. FACTUAL BACKGROUND

The area under investigation is a habitat for fifteen species of marine mammals, including seven species of large cetaceans (North Atlantic right whale, humpback, fin, sei, minke, sperm and pilot whales). Of the seven large whale species, five—the blue whale, North Atlantic right whale, fin whale, sperm whale, and sei whale—are listed as endangered under the ESA and thus, are considered depleted and strategic stocks under the MMPA. Six small cetacean species are likely to be present in the Project area, including the harbor porpoise, which is known to be one of the most noise-sensitive marine mammal species. Two species of pinniped—the harbor seal, and the grey seal—are also likely to be in the Project area.

As NMFS is aware, the conservation status of the North Atlantic right whale is particularly dire, and thus requires special consideration. With an estimated 334 individuals remaining, the North Atlantic right whale is one of the world's most endangered whales.[6] Its population has declined by 25% since 2010, and calving rates have significantly decreased, compromising the viability and resiliency of the population.[7] If the current rate of population decline continues, the species will be functionally extinct by 2040.[8]

The ITR proposes to authorize Level B takes for 8 endangered whales: including, 2 critically endangered North Atlantic right whales, 4 endangered fin whales, and 2 endangered sei whales. Additionally, the ITR proposes to take 17 minke whales and 3 humpback whales, both of which have undergone unusual mortality events. In total, the ITR proposes to take 37 large cetaceans, 1082 smaller odontocetes, and 414 pinnipeds, for a total of 1533 marine mammals, for site characterizations over the course of just one year.

III. THE ITR IN THE LARGER CONTEXT

Currently active ITRs allow for the takes (level A and B combined) of **4745 whales**; **93,025 dolphins** (including the harbor porpoise); and **23,774 seals**. In addition, NOAA is currently reviewing applications (including the current proposal) for an additional **14,654 whales**; **311,480**

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[4] 16 U.S.C. § 1372(a). H.R. REP. NO. 92-707, at 18, 1972 U.C.C.C.A.N. at 4145 (emphasis added).

[5] 16 U.S.C. § 1371(a)(5)(A).

[6] NOAA and BOEM Draft strategy for the NARW

[7] NMFS, 2017–2020 North Atlantic Right Whale Unusual Mortality Event, https://tinyurl.com/333f6968 (updated Jan. 12, 2023) [hereinafter NMFS, Unusual Mortality Event]

[8] Joanna Walters, North Atlantic right whales may face extinction after no new births recorded, THE GUARDIAN, Feb. 26, 2018, https://tinyurl.com/mr368e9b (quoting Mark Baumgartner, marine ecologist at the Woods Hole Oceanographic Institution)

dolphins; 15,899 porpoises, and **72,060 seals**. If NOAA reviews each application in isolation, based on the lease areas as isolated boundaries, it will grant permits for total takes of **19,399 whales**; **395,403 dolphins**; **25,001 porpoises**; and, **100,742 seals**. Although not all of these will be completely contemporaneous (some will expire and the LOA's encompass 5 years), the numbers reflect potentially active leases over the next five years. Moreover, new projects will submit their ITR proposals during this time period, elevating the numbers further. The number of authorizations does not adhere to the "small numbers" requirement and reflects a violation of the marine mammal protection act and the endangered species act.

IV. JUSTIFICATION OF ITRS

The justification for offshore wind developments' environmental impacts rests on their ability to mitigate climate change. Offshore wind development is only in the public's best interest if these projects can decrease CO2, mitigate climate change and or help wean the nation from its dependency on fossil fuels. Without such benefits, no amount of takes is justified. However, we are not aware of any peer-reviewed empirical study that provides such evidence. The BOEM Vineyard Wind environmental impact statement states, "Overall, it is anticipated that there would be *no collective impact on global warming as a result of offshore wind projects*, including the Proposed Action."[9] The Revolution Wind draft environmental impact statement also acknowledges that the full build-out of all projects, in total, will have "*no measurable influence on climate change*."[10] None of the websites for the projects claim they will either help combat climate change or decrease carbon emissions. The purpose and need statements of the environmental impact statements merely assert the projects will allow states to meet their renewable energy mandates.

V. THE NORTH ATLANTIC RIGHT WHALE STRATEGY HAS NOT BEEN FINALIZED

The Biden administration recognizes the critical condition of the North Atlantic Right Whales and issued a request for NOAA and BOEM to develop a strategy that will protect this species from extinction while continuing to allow for offshore wind development. This strategy has not yet been finalized.[11] The current ITR includes a level B request for 5 NARWs.

DISCUSSION

I. THE SCOPE OF THE EFFECTS ANALYSIS MUST INCLUDE ALL OF THE IMPACTS THAT WILL RESULT FROM THE PROJECT, INCLUDING INTERACTIONS WITH OTHER PROJECTS

A. THE LEASE AREAS ARE ARBITRARY DESIGNATIONS AND THEREFORE CANNOT BE CONSIDERED IN ISOLATION.

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9 BOEM 2018, Vineyard Wind, FEIS, Volume 1, A-66

10 BOEM 2022, Revolution Wind DEIS, 3.8-11

11 https://www.boem.gov/environment/protecting-north-atlantic-right-whales-during-offshore-wind-energy-development

The subdivisions of the larger wind development areas have no natural boundaries and therefore represent arbitrary designations with respect to species habitat. This particularly pertains to migratory species such as large cetaceans. Thus, the lease areas cannot be considered in geographic isolation. All offshore wind development that occurs contemporaneously along the outer continental shelf must be considered in the larger context of the other projects. All ITR requests must therefore be added to existing issued IHA and LOAs and must be considered along with other ITR requests under review.

Because NMFS cannot limit the "stock" numbers to a given lease area, they cannot limit the take requests to a single lease area either. All of the inferences about the impact to a species rely on percentages. The number of takes is compared to a species' overall stock estimates. If the stock estimates are not divided up and reduced to reflect the size of a given lease area, then the take numbers should not be either. Thus, the number of takes allowed becomes capricious, arbitrary, dangerous, and unlawful. This is a clear violation of the intent and purpose of the law.

B. NMFS'S REFUSAL TO CONSIDER THE LARGER CONTEXT IS ARBITRARY AND CAPRICIOUS AND VIOLATES THE INTENT AND PURPOSE OF THE ITR APPLICATION PROCESS.

Because the ITR application process represents NOAA's right to restrict activity that might drive a species to extinction and maintain our planet's biodiversity, it must take on the responsibility to use this right and should not hide behind arbitrary lease boundaries. It must do its job to protect biodiversity. The executive order 14008 clearly states that our efforts to combat climate change should not compromise biodiversity.

II. NMFS'S SMALL NUMBERS FINDING IS UNJUSTIFIED

A. THE PROPOSED ITR FAILS TO DEMONSTRATE THAT TAKE WILL BE LIMITED TO SMALL NUMBERS

NMFS's strict adherence to the unnatural and arbitrary divisions of the lease areas results in dangerous and unlawful numbers of takes. These numbers clearly violate the "small numbers" designations of the statute. The importance of considering additive impacts in its small numbers analysis is particularly evident when viewed within the context of the rapid expansion of wind development in the offshore waters of the Northeastern United States. In addition to the active IHAs, 14 applications for incidental take authorizations in connection with offshore wind projects are currently under review by NMFS, including the application submitted by Atlantic Shores Offshore Wind Bight, LLC. When take is compiled across the 14 projects, it becomes clear that over the next 5-7 years, NMFS could authorize take amounting to greater than 100% of some species. For example, together, the 14 applications request authorization to take 296% of the declining North Atlantic right whale population, 185% of humpback whales, and 169% of common dolphins. In fact, 7 marine mammal species will have takes that exceed 50% of their population. This result is not acceptable under any rational definition of "small numbers." Clearly, a sum that exceeds the total number of alive individuals in a population cannot be considered "small."

NMFS's blanket interpretation of "small numbers" leads to absurd results. NMFS justifies the large take of species by insisting that the "maximum number of takes possible within any one year and proposed for authorization relative to the best available population abundance is low." However, the take of thousands of marine mammals can hardly be said to be "small." Without any additional explanation, NMFS's determination is arbitrary and capricious.[12]

Second, the agency's approach also fails to account for the additive and adverse synergistic effects of animals being exposed to similar wind development activities that are authorized to occur in the same or adjacent areas, affecting the same species and populations. Currently, there are 15 active IHA authorizations for wind development activities in the waters offshore of the East Coast.[13] Collectively, those authorizations allow for the take of 234 North Atlantic right whales, or 70% of the population (using 338 as the stock number). This amount constitutes more than "small numbers" even under NMFS's arbitrary 33% threshold.

Finally, as discussed below, it is likely that NMFS has significantly underestimated the Level B takes in the proposed IHA due to its reliance on the outdated threshold criteria. Accordingly, it is highly likely that even greater numbers of marine mammals, including the North Atlantic right whale, will be subjected to Level B harassment. Agency decisions are arbitrary and capricious where the agency "offer[s] an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."[14] Accordingly, where, as here, the agency's conclusion relies on incorrect or inaccurate data, its decision is arbitrary and capricious and must be rejected.[15,16,17]; (overturning as arbitrary and capricious agency's action where it failed to consider newer "data [that] told a different story than . . . earlier data" that the agency had actually relied upon, and where the agency had failed to provide an adequate explanation for its reliance on outdated data).

B. NMFS'S SMALL NUMBERS DETERMINATION FAILS TO CONSIDER THE CONSERVATION STATUS OF THE NORTH ATLANTIC RIGHT WHALE

Over the year covered by the ITR, NMFS estimates that only 12 additional North Atlantic right whales will potentially be exposed to sounds at or above the behavioral take thresholds (160 dB for pulsed sounds and 120 dB for continuous sounds). Yet, combined with other projects along the coast, the total takes rises to 246, a number larger than the known number of individuals alive today. This does not take into account applications currently under review.

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[12] State Farm, 463 U.S. at 43

[13] https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable

[14] State Farm, 463 U.S. at 43

[15] e.g., Native Vill. of Point Hope v. Jewell, 740 F.3d 489, 502–03 (9th Cir. 2014)

[16] Overturning agency's determination as arbitrary and capricious after finding agency assumptions were made based on contradictory estimates and without rational basis in record Ky. Riverkeeper, Inc. v. Rowlette, 714 F.3d 402, 410 (6th Cir. 2013)

[17] overturning as arbitrary and capricious agency's permit reauthorization where agency relied on inappropriate estimates to gauge impact of reauthorization Sierra Club v. EPA, 671 F.3d 955, 965–66 (9th Cir. 2012)

Both federal courts and NMFS itself have recognized that percentages of approximately 10-12% of marine mammal populations constitute more than a "small number." For example, in Natural Resources Defense Council, Inc. v. Evans, the Northern District of California stated that "[a] definition of 'small number' that permits the potential taking of as much as 12% of the population of a species is plainly against Congress' intent."[18] NMFS has likewise acknowledged that the harassment of between 12-14% of Western Arctic bowhead whales, which are closely related to North Atlantic right whales, "represent[s] a sizeable portion" of the population.[19] Accordingly, NMFS must do more to justify why even 12% of a population is a "small" number of whales; the proposed ITR's bare assertion to that effect is insufficient to justify NMFS's finding ("[A]n agency changing its course must supply a reasoned analysis indicating that prior policies and standards are being deliberately changed, not casually ignored. Failing to supply such analysis renders the agency's action arbitrary and capricious").[20] For Atlantic Shores Offshore Wind Bight, LLC, the NMFS proposes to authorize takes for numbers that constitute over 12% of the stock in over 8 species. Clearly, this violates the intent of the MMPA.

NMFS's assertion is rendered even more arbitrary by its failure to account for the North Atlantic right whale's population and distribution trends. As discussed, the North Atlantic right whale population is undergoing a precipitous decline; without drastic action—which to date, has failed to manifest—the species will be functionally extinct by mid-century. Thus, over the life of the ITR, those 346 affected whales will constitute an increasing percentage of the population. In fact, the proposed ITR already underestimates the proportion of the population that will be affected; based on the most recent population data, 90% of the population could be affected. NMFS must do more to justify its determination that an action that proposes to take over 9 out of every 10 of the few remaining North Atlantic right whales complies with the MMPA's small numbers mandate.

V. THE PROPOSED ITR'S USE OF THE OUTDATED 160 DB THRESHOLD CRITERIA FOR BEHAVIORAL TAKE IS ARBITRARY

As stated by the agency, "NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise" above one of two criteria thresholds, depending on the source sound category. Where the source sound is continuous NMFS considers take to have occurred where the received root-mean-square sound pressure levels (RMS SPL) is above 120 dB.[21] Where the source sound is impulsive or intermittent, NMFS considers take to have occurred where the received RMS SPL is above 160 dB re: 1 mPa ("160 dB threshold").

In quantifying the impacts of activities on marine mammal behavior, NMFS relies on its historic take threshold criterion for impulsive or intermittent sources: a single, bright-line, sound pressure-based threshold for harm of 160 dB, below which it assumes that no animal would

[18] 279 F. Supp. 2d 1129, 1153 (N.D. Cal. 2003)
[19] 73 Fed. Reg. 66,106, 66,111 (Nov. 6, 2008)
[20] Lone Mountain Processing, Inc. v. Sec'y of Labor, 709 F.3d 1161, 1164 (D.C. Cir. 2013), (internal quotation marks and citation omitted)
[21] Id (referenced to 1 micropascal (re 1 mPa)) ("120 dB threshold")

experience a "potential . . . disruption of behavioral patterns."[22] & [23]However, this approach is arbitrary in several respects.

First, the 160 dB threshold for behavioral, sublethal take does not reflect the best available science. Indeed, leading biologists and bioacousticians, including those whose work the agency frequently cites, have criticized the threshold as "overly simplified, scientifically outdated, and artificially rigid," and explained that the use of such a threshold to "predict potential impacts of discrete events . . . is of great concern."[24]

The 160 dB threshold is purportedly based on a 1999 report from the High Energy Seismic Survey, and is based upon data gathered during seismic surveys in the 1980s.[25] However, improved technology, data collection methods, and other advancements in biology and acoustics have since demonstrated that behavioral disruptions from pulsed sources—and thus, "take"—can occur well below the 160 dB threshold.[26] As has been repeatedly explained to the agency, "[t]he working assumption that impulsive noise never disrupts marine mammal behavior at levels below 160 dB (RMS), and disrupts behavior with 100% probability at higher levels has been repeatedly demonstrated to be incorrect." NMFS's continued adherence to this threshold both ignores the best available science and results in an underestimation of individuals that could potentially be subjected to take as a result of proposed activities. As a result, any determination that relies on this threshold is arbitrary and capricious (overturning as arbitrary and capricious agency's action where it failed to consider newer "data [that] told a different story than . . . earlier data" that the agency had actually relied upon, and where the agency had failed to provide an adequate explanation for its reliance on outdated data).[27]

Second, the selection of the 160 dB threshold is not sufficiently conservative and violates the plain language of the statute defining take as any action with the "potential" for causing behavioral disturbance.[28] Consequently, actual disturbance is not required. To define the zone of harassment (and thus, "take"), NMFS estimates the distance to the 160 dB isopleth (i.e., the distance within which received levels from a sound source are expected to meet or exceed the take threshold).[29] The agency then predicts the number of marine mammals that are expected to occur within the zone over the course of Project activities. Individuals who do not cross the harassment isopleths are not considered to be "taken" by the activities and thus, do not factor into NMFS's small numbers or negligible impact analyses.

Recent research establishes that for some species, behavioral disruption can occur at received levels that are substantially lower than the 160 dB threshold (or, for that matter, the 120 dB threshold for continuous sound). The behavioral disruptions documented by such research

[22] 87 Fed. Reg. at 79,110,
[23] 16 U.S.C. § 1362(18)(A)(ii).
[24] Christopher W. Clark et al., Comments on Arctic Ocean Draft EIS at 2 (Feb. 28, 2012), available at https://tinyurl.com/5fsfmwst.
[25] id.; 77 Fed. Reg. 27222 (May 11, 2012) (citing the origin of the 160 dB threshold as a pair of studies on migrating grey and bowhead whales from the mid-1980s).
[26] Christopher W. Clark et al., Comments on Arctic Ocean Draft EIS, supra.
[27] Sierra Club, 671 F.3d at 965–66 (9th Cir. 2012)
[28] 16 U.S.C. § 1362(18).
[29] 87 Fed. Reg. at 79,115.

clearly fall under the MMPA's definition of "take." However, where behavioral responses occur at received levels below the 160 dB threshold—and thus, beyond the 160 dB isopleth—they are not factored into the agency's consideration of the Project's impacts. NMFS's adherence to the outdated 160 dB threshold thus fails to capture a significant amount of the take that actually occurs as a result of proposed activities, and further, fails to account for the "potential" of such activities to result in take.[30] As a result, NMFS's use of the threshold contravenes the plain language of the statute and cannot withstand scrutiny.[31]

Third, the method represents a major step backward from recent programmatic authorizations. For Navy sonar activity, NMFS has incorporated into its analysis linear risk functions that endeavor to take account of risk and individual variability and to reflect the potential for take at relatively low levels.[32] In the wake of these past authorizations for acoustic impacts on marine mammals, the agency's reversion to a single, non-conservative, bright-line threshold for all species is not tenable.

IV. NMFS'S NEGLIGIBLE IMPACTS FINDNG IS UNJUSTIFIED

NMFS has defined "negligible impact" to mean "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."[33] NMFS must base its negligible impact determination on the "best available scientific evidence."[34]

Here, the proposed ITR fails to support NMFS's negligible impact finding for several reasons, including the failure to use the best available science when considering the impacts of stress, the failure to use the best available science when considering the Project's impacts on North Atlantic right whales, and the failure to accurately define the environmental baseline.

A. NMFS FAILS TO ACCURATELY ACCOUNT FOR THE IMPACTS OF ANTHROPOGENIC NOISE ON MARINE MAMMAL STRESS

The proposed ITR discusses the potential for temporary hearing damage to marine mammals as a result of the Project; however, such injuries are not the sole source of potential harm. As recent research demonstrates, exposure to intermittent or continuous anthropogenic noise has the potential to induce a state of chronic stress in marine mammals.[35] Chronic stress can have adverse health consequences on marine mammals, including higher mortality and morbidity, reduced reproductive success, immuno-suppression, heart disease, depressed reproductive rates,

[30] cf. Ocean Mammal Inst. v. Gates, 546 F. Supp. 2d 960, 973–75 (D. Haw. 2008)
[31] Smith v. City of Jackson, Miss., 544 U.S. 228, 266 (2005) ("[I]t is elementary that 'no deference is due to agency interpretations at odds with the plain language of the statute itself,'" quoting Pub. Emps. Ret. Sys. of Ohio v. Betts, 492 U.S. 158, 171 (1989))
[32] See, e.g., 74 Fed. Reg. 4844, 4844-4885 (Jan. 27, 2009).
[33] 50 C.F.R. § 216.103.
[34] §§ 216.102(a), .104(c).
[35] J.W. Wright et al., Concerns Related to Chronic Stress in Marine Mammals, IWC SCI. COMM. DOC. IWC/SC/61/E16 (2009).

physical malformations, and birth defects.[36] By extension, chronic stress induced by exposure to anthropogenic sound can have a detrimental impact on marine mammal populations by affecting fertility, mortality and growth rates.[37] These individual and population-level effects should be taken into consideration in terms of conservation planning and management.

The proposed ITR concedes that chronic stress has significant adverse population-level effects, and further acknowledges that the Project will "contribute to elevated ambient sound levels" and therefore "intensify[] masking."[38] However, the proposed ITR insists that the Project is not "expect[ed] . . . to produce conditions of long-term and continuous exposure to noise leading to long-term physiological stress responses in marine mammals." This assertion fails for several reasons.

NMFS's assumption that the Project will not induce stress in marine mammals because the noise will be intermittent and the duration of exposure will be short lacks any rational basis. The best available science suggests that the lower-level sounds, even when "intermittent," can still mask communications and "cause distraction, limiting detection of biologically relevant communication or predator sounds."[39] These effects are known to induce chronic stress in marine mammals.[40] Moreover, as discussed, low-level noise is known to affect marine mammals occurring outside the Level B take zones established using the outdated threshold criteria. As a result, the proposed ITR underestimates the actual extent of take, and thus fails to consider a factor that is not only highly relevant to, but determinative of, the negligible impact finding.[41]

Relatedly, as discussed below, the proposed ITR fails to consider the aggregate stress impacts that will result from all ongoing activities impacting these same populations. It is well-established that even small impacts, when added to a degraded baseline, may be enough to push the species across the threshold.[42] Some species within the Project area are currently experiencing chronic stress, even before the introduction of additional stressors. For example, the North Atlantic right whale population exhibits numerous signs of severe chronic stress that are at least partly attributable to exposure to anthropogenic noise, including poor body conditions of many adult whales and low calving rates.[43] Offshore wind development in the region will add additional stressors and thus, only exacerbate the species' current condition. Indeed, in the recently released Draft Strategy, NMFS acknowledges that "[w]hales that are in compromised condition (e.g., injured, entangled, malnourished) and exposed to stressors from [offshore wind]

[36] A.J. Wright et al., Do marine mammals experience stress related to anthropogenic noise?, 20 Int'l J. Comparative Psychology 274 (2007) (literature review and synthesis).
[37] 87 Fed. Reg. at 79,102 ("Chronic disturbance can cause population declines through reduction of fitness (e.g., decline in body condition) and subsequent reduction in reproductive success, survival, or both.").
[38] 87 Fed. Reg. at 79101.
[39] T. Aran Mooney et al., Acoustic Impacts of Offshore Wind Energy on Fishery Resources: An Evolving Source and Varied Effects Across a Wind Farm's Lifetime, 33 OCEANOGRAPHY 82 (2020).
[40] Rosalind M. Rolland et al., Evidence that ship noise increases stress in right whales, PROCEEDINGS OF THE ROYAL SOCIETY B: BIOLOGICAL SCIENCES (2012).
[41] State Farm, 463 U.S. at 43.
[42] Cf. Nat'l Res. Council, MARINE MAMMAL POPULATIONS AND OCEAN NOISE at 19-20 ("The population effect involves the cumulative impact on all individuals affected. . . . Population consequences of behavioral change result from the accumulation of responses of individuals.").
[43] 87 Fed. Reg. at 79,153; Rosalind M. Rolland et al., supra.

are more likely to experience severe consequences than healthy animals."[44] The sublethal impacts of offshore wind development can have cascading impacts that ultimately increase individuals' susceptibility to stressors and reduce reproductive success, causing "significant" impacts on individuals and populations.[45] Certain sublethal effects, including displacement from calving grounds, increased ocean noise, reduced lactation, and reduced birth rates, can likewise "have a similar impact on the species as lethal effects, as they reduce the potential for the population to grow."[46] These impacts "may be compounded by exposure to multiple projects." In light of the stressors that are already present in the region, such as the impacts of climate change, vessel strikes, entanglement, coastal pollution, and other anthropogenic disturbances such as seismic surveys and vessel noise, as well as the species' declining status, "the resilience of th[e] population to" the introduction of new sublethal "stressors . . . is low."[47]

Hence, the threat to both individual North Atlantic right whales and the species as a whole posed by offshore wind development is laid plain. However, despite acknowledging that the North Atlantic right whale population shows "high stress levels . . . and poor health, which has further implications on reproductive success and calf survival," and consequently, "the status of the North Atlantic right whale population is of heightened concern."[48] NMFS's negligible impacts analysis fails to meaningfully address the impacts that the Project will have on acute or chronic stress in North Atlantic right whales. The agency's negligible impact determination therefore fails to articulate a rational connection between the facts found—i.e., that stress from anthropogenic noise not only can have, but is currently having, deleterious impacts on marine mammal individuals and populations—and the conclusion that the introduction of additional sources of low-frequency anthropogenic sound will have a negligible impact on affected species.[49]

B. THE PROPOSED ITR FAILS TO EXAMINE THE EFFECTS OF HABITAT DISPLACEMENT ON THE NORTH ATLANTIC RIGHT WHALE

In light of the species' dire status, the Project's impacts on the North Atlantic right whale merit special consideration. As explained above, North Atlantic right whales have been documented within the Project area year-round, and the species' use of the areas in and around the Project area is increasing.[50] The habitat that will be impacted by the Project is considered important to the species' life history functions, including feeding and migration, id.; indeed, the Project overlaps a Seasonal Management Area, which was established with the express intent of reducing the risk of vessel strikes.[51] The displacement from or abandonment of this habitat could have devastating effects on the species. However, far from engaging in a meaningful analysis of such impacts, NMFS dismisses the effects of habitat displacement or abandonment from the

[44] Draft Strategy at 11.
[45] Cf. 83 Fed. Reg. 19,711, 19,722-23 (May 4, 2018) (discussing marine mammal behavioral responses to underwater sound, including vessel noise).
[46] Draft Strategy at 11.
[47] Draft Strategy at 6.
[48] 87 Fed. Reg. at 79,153
[49] State Farm, 463 U.S. at 43
[50] 87 Fed. Reg. at 79,088-89.
[51] 73 Fed. Reg. 60,173 (Oct. 10, 2008).

Project by asserting that other feeding and migration habitat remains available.[52] The agency's cursory treatment of such impacts does not pass muster.

The best available science establishes that the North Atlantic right whale is extremely sensitive to low-frequency continuous noise and the impacts of masking.[53] Moreover, as explained, populations that are resident or seasonally resident to a particular area, like the North Atlantic right whale, are intensely vulnerable to population-level effects as a result of the cumulative nature of the noise exposure and the additional harm that may be caused by habitat displacement.[54] Even temporary displacement increases energetic costs as the whales search for new (and possibly less productive) foraging areas and in turn, "could lead to increased susceptibility to other stressors (e.g., a shift in distribution can change the overlap with vessel traffic and fishing activities)."[55]

Here, NMFS acknowledges that the Project may result in the displacement of North Atlantic right whales from the Project area and its surrounding vicinity.[56] However, instead of engaging in a meaningful quantitative or qualitative analysis of the effects of such displacement, NMFS simply asserts that affected individuals will use other habitat. This cursory statement does not equate to an evaluation of the effects to individuals and the population that may result from the abandonment of this habitat.[57] For example, NMFS reports that the Project area overlaps a Seasonal Management Area, which was established with the express purpose of reducing the risk of vessel strikes.[58] Yet, NMFS does not consider whether abandonment of habitat that was designated with the express purpose of preventing vessel strikes would push the species further into a vessel traffic corridor, thereby elevating the risk to the species. Nor does NMFS consider the additive effects of the Project and other planned activities—including the expansion of wind energy development—expected to occur throughout the region and impacting the same North Atlantic right whales. For example, NMFS never analyzes whether the other habitat areas within the vicinity of the Project will be affected by wind development or other anthropogenic activities that would serve to displace North Atlantic right whales from those areas as well, forcing individuals to travel even further to find suitable habitat at greater energetic costs. Thus, taken together, the Project and other planned activities may result in widespread displacement—or even abandonment—of important habitat in the region, which would indisputably have devastating impacts on the viability and resilience of North Atlantic right whales.

A full evaluation of the risks to the North Atlantic right whale presented by habitat displacement is especially important because "the population size is small enough that the death of even some individuals can have a measurable effect on its population status, trend, and population dynamics."[59] The loss of just one individual in a year reduces the "likelihood of recovery and of

[52] 87 Fed. Reg. at 79,153.
[53] Christopher W. Clark et al., Acoustic masking, supra.
[54] K.A. Forney et al., supra.
[55] Draft Strategy at 10.
[56] 87 Fed. Reg. at 79,154.
[57] Amerijet Int'l Inc., 753 F.3d at 1350 ("[C]onclusory statements will not do; an agency's statement must be one of reasoning.").
[58] 73 Fed. Reg. 60,173 (Oct. 10, 2008).
[59] Draft Strategy at 6.

the species' achieving optimum sustainable population."[60] Thus, absent an evaluation of the full suite of impacts to the North Atlantic right whale that will result from all of the Projects—there is no rational basis for NMFS's determination that these projects will result in the take of only small numbers of North Atlantic right whales, and that such take will have a negligible impact on the species.[61]

C. NMFS FAILS TO CONSIDER INDIRECT HARM FROM THE ACTIVITY, SUCH AS VESSEL STRIKES.

Animals fleeing from multiple sources of disturbing sounds will have an increased risk of perishing from vessel strikes.

D. NMFS FAILS TO USE THE BEST AVAILABLE SCIENCE WHEN REACHING ITS NEGLIGIBLE IMPACT FINDING

NMFS must use the "best scientific information available" when determining whether to allow the incidental taking of marine mammals.[62] The proposed ITR fails to comply with that mandate in several respects.

1. NMFS's Use Of The Outdated Take Thresholds Severely Underestimates The Impact Of Take

Like the small numbers determination, NMFS's negligible impacts finding relies on the 160 dB threshold for behavioral take in that the proposed ITR assumes that any received levels below that threshold will not result in behavioral disturbances. However, as explained, this assumption ignores the best available science indicating that the noise level thresholds for behavioral take is seriously outdated and, as a result, underestimates the amount of potential take.

The best available science demonstrates that anthropogenic noise can cause behavioral disturbances at far lower received levels and far greater distances than previously thought. This is especially true for baleen whales, as their vocalizations and acoustic sensitivities overlap with the low-frequency energy that anthropogenic sources tend to introduce into the acoustic environment. For example, bowhead whales have been shown to increase their call rates at the initial detection of impulsive sound sources at received levels as low as 94 dB, which is well below the 120 dB threshold for continuous exposure, let alone its 160 dB threshold for impulsive noise.[63] Such sources have also been known to cause baleen whales to abandon habitat over the same scale.[64] Particularly relevant here, North Atlantic right whales have been shown to respond to relatively low received levels from acoustic alarms (133-148 dB) by breaking off their foraging dives and positioning themselves directly below the water surface.[65] Such behavior leaves the whales at a substantially greater risk of vessel strike, which is a primary source of

[60] Draft Strategy at 6-7.
[61] State Farm, 463 U.S. at 43.
[62] 50 C.F.R. § 216.102.
[63] Susanna B. Blackwell et al., Effects of airgun sounds on bowhead whale calling rates: Evidence for two behavioral thresholds, 10 PLoS ONE e0125720 (2015).
[64] Kelly MacLeod et al., supra.
[65] Douglas P. Nowacek et al., North Atlantic right whales (Eubalaena glacialis) ignore ships but respond to alerting stimuli, 271 PROCEEDINGS OF THE ROYAL SOC'Y B 227 (2004)

mortality for the imperiled species. NMFS, North Atlantic Right Whale (Eubalaena glacialis).[66] Similar observations have been made in other baleen whale species globally and across behavioral states, affecting foraging, breeding, and migration.[67, 68, & 69] Anthropogenic noise has likewise been shown to affect a broad range of other marine mammal species, including toothed whales. The received levels implicated in all of the cited studies were lower than the 160 dB threshold used to evaluate behavioral impacts in the proposed ITR.

In sum, the scientific literature is replete with examples of behavioral disturbances corresponding to received levels of anthropogenic sound that are well below the 160 dB threshold for behavioral take. Crucially, all of these disturbances indicate responses that elevate metabolic stress, cause displacement from areas of biological importance, compromise interspecific communication, and interfere with foraging and other behaviors vital to overall health.[70, 71, 72, & 73]

Hence, it is painfully apparent that the 160 dB threshold for impulsive sources is not supported by the best available science. Behavioral disturbances and impacts can—and often do—occur from exposure to received levels far below the criterion. Reliance on the outdated threshold is nontrivial; it results in a gross underestimate of the proposed activity's zone of impact, as well as the level of harm, or "take," inflicted on marine mammals. Furthermore, as explained, because the 160 dB threshold fails to account for all of the actual disturbance that may result from the proposed activity, any analysis based upon it necessarily must also fail to capture the extent of potential disturbance. Consequently, the criterion is insufficiently conservative, contravenes the plain language of the definition of "take," and fails to fulfill the statute's protective purpose. NMFS's continued adherence to such an outdated, unsupported threshold is quintessentially arbitrary and capricious.[74]

NMFS's failure to account for the best available science is particularly egregious in light of the agency's plans to rapidly expand wind development along the coast of New England. Despite serving as important foraging and migrating habitat to several baleen whale species, including the critically endangered North Atlantic right whale, these areas are already significantly disturbed by anthropogenic noise.[75] Studies indicate that baleen whales have lost a significant

[66] Western Atlantic Stock, STOCK ASSESSMENT REPORT, at 25-26 (2022) ("Vessel strikes are a major cause of mortality and injury to right whales.")
[67] e.g., Susanna B. Blackwell et al., Effects of airgun sounds on bowhead whale calling rates in the Alaskan Beaufort Sea, 29 MARINE MAMMAL SCI. E243 (2013)
[68] Manuel Castellote et al., Acoustic and behavioural changes by fin whales (Balaenoptera physalus) in response to shipping and airgun noise, 147 BIOLOGICAL CONSERVATION 115 (2012)
[69] Salvatore Cerchio et al., Seismic surveys negatively affect humpback whale singing activity off Northern Angola, 9 PLOS ONE e86464 (2014)
[70] e.g., Rosalind M. Rolland et al., supra
[71] e.g., Manuel Castellote et al., supra
[72] e.g., Christopher W. Clark, Acoustic masking in marine ecosystems, supra
[73] e.g., id.
[74] Cf. Ocean Mammal Inst. v. Gates, 546 F. Supp. 2d 960, 973–75 (D. Haw. 2008)
[75] 87 Fed. Reg. at 79,093.

portion of their communication space due to increasing ambient noise.[76, 77, & 78] As a result, marine mammals in this geographic area are likely experiencing prolonged states of chronic stress. The use of outdated thresholds artificially shrinks the zone of impacts of actions under review, which likewise reduces the areas where impacts from actions may overlap. As a result, NMFS not only underestimates the actual effects of the proposed action, but also underestimates the additive impacts of the action under review to the ambient soundscapes and the resulting effects to marine mammal populations.

As explained below, an accurate analysis of the proposed action in context is essential to a non-arbitrary negligible impact determination. Here, repeated and at times, continuous, acoustic insults from site characterization surveys, over months and extending to years, would come on top of already urbanized levels of ambient noise and thus pose a threat to marine mammals at the population scale. NMFS's failure to accurately capture the full extent of these effects using the best available science cannot be sustained.

NMFS's use of the 160 dB threshold to evaluate take from the vast majority of Project activities is independently arbitrary for its failure to properly characterize the source noise, which results in the application of the higher threshold and concomitant underestimation of take. Even under NMFS's outdated criteria, continuous sounds may result in behavioral disturbances at much lower received levels, i.e., 120 dB. Accordingly, masking and other behavioral impacts may, perversely, have a greater impact at a distance from a source.[79]

This inference is supported by numerous studies demonstrating that seismic surveys have raised ambient noise levels at significant distances from the array.[80, 81, 82, & 83] Indeed, NMFS's own expert Open Water Panel for the Arctic has characterized such impulsive sounds as mixed impulsive/continuous noise source, and recommended that the agency evaluate the impacts on that basis.[84] NMFS cannot ignore this science.[85]

In sum, NMFS's use of the outdated take thresholds is arbitrary and capricious, and undermines the entire negligible impacts analysis. To correct these fatal errors, NMFS must revise its

[76] e.g., Christopher W. Clark, C.W., et al.,
[77] Acoustic masking in marine ecosystems, supra
[78] Lelia T. Hatch et al., Can you hear me here? Managing acoustic habitat in US waters, 30 ENDANGERED SPECIES RES. 171 (2016)
[79] 87 Fed. Reg. at 79,101
[80] Sharon L. Nieukirk et al., Sounds from airguns and fin whales recorded in the mid-Atlantic Ocean, 1999-2009, 131 J. ACOUSTIC SOC'Y OF AM. 1102 (2012)
[81] Sharon L. Nieukirk et al., Low-frequency whale and seismic airgun sounds recorded in the mid-Atlantic Ocean, 115 J. ACOUSTIC SOC'Y OF AM. 1832 (2004)
[82] Ethan H. Roth, et al., Underwater ambient noise on the Chukchi Sea continental slope from 2006–2009, 131 J. ACOUSTIC SOC'Y OF AM. 104 (2011)
[83] J. Gedamke, J, Ocean basin scale loss of whale communication space: potential impacts of a distant seismic survey, in ABSTRACTS OF THE 19TH BIENNIAL CONFERENCE ON THE BIOLOGY OF MARINE MAMMALS (2011)
[84] J. Burns et al., OPEN WATER REVIEW PANEL FINAL REPORT at 10 (2010); H. Brower et al., OPEN WATER REVIEW PANEL FINAL REPORT at 9 (2011)
[85] Dist. Hosp. Partners, L.P. v. Burwell, 786 F.3d 46, 57 (D.C. Cir. 2015)

generalized behavioral take thresholds to accurately reflect the best available science indicating that sensitivity to anthropogenic sound varies between marine mammal species. NMFS must then reexamine its take estimates in light of the revised criteria. NMFS must also consider that behavioral disturbance can amount to Level A take if it interferes with the essential life functions of severely depleted marine mammal species, such as the North Atlantic right whale, through secondary effects including displacement from migration paths or behavioral or physiological responses to chronic stress.

2. The Proposed ITR Fails To Meaningfully Consider The Impacts Of Masking

The proposed ITR's treatment of masking in its "negligible impact" analysis fails to meaningfully examine the effects of the loss of communication space on marine mammals and further, seems to misapprehend the spatial and temporal scope of the effects implicated here. The proposed ITR also concedes both the myriad adverse effects of masking on marine mammals, particularly on low-frequency hearing specialists, and that "[a]ll anthropogenic sound sources… contribute to elevated ambient sound levels, thus intensifying masking."[86] The proposed ITR proceeds to acknowledge that masking may occur from the Project. Nor does the proposed ITR attempt to meaningfully describe, quantitatively or qualitatively, the Project's contribution to background ambient noise. The proposed ITR concludes that "the nature of Atlantic Shores Offshore Wind Bight, LLC's activities, paired with habitat use patterns by marine mammals, does not support the likelihood that the level of masking that could occur would have the potential to affect reproductive success or survival."[87] Absent any analysis of the actual range within which marine mammals may experience masking or loss of communication space, there is no rational basis for NMFS's conclusion that the addition of significant sources of anthropogenic noise into habitat that is "important" to many marine mammal species, including the critically endangered North Atlantic right whale, will have negligible effects.[88]

That NMFS failed to meaningfully consider the effects of masking when calculating potential take is further evidenced by the fact that NMFS considered, inter alia, the "acoustic thresholds above which NMFS believes . . . marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment," and the area that will be exposed to sound pressures above these levels. In other words when determining the zone of harassment, NMFS considered only whether the area would be exposed to levels exceeding the Level B take thresholds (i.e., 120 dB for continuous noise and 160 dB for impulsive noise across all species) or Level A thresholds. This suggests that NMFS believes that masking effects are co-extensive with the take threshold criteria's "exposure" areas that the agency modeled for behavioral take. However, the best available science indicates that masking is more closely connected to audibility thresholds than to NMFS' outdated threshold of behavioral harassment and, in baleen whales at least,

[86] 87 Fed. Reg. at 79, 100-02
[87] Id.
[88] Michigan v. EPA, 576 U.S. 743, 750 (2015), (noting that agencies "are required to engage in reasoned decisionmaking," which includes the requirement that the "process by which it reaches that result . . . be logical and rational" (internal quotation marks and citation omitted))

operates at a potentially enormous scale.[89 & 90] It would be plainly erroneous for NMFS to evaluate masking effects as though they were conditioned on a 160 dB harassment zone.

Impulsive sounds have also been shown to mask the calls of vocalizing baleen whales over vast distances, substantially compromising their ability to communicate, feed, and engage in other vital life history behaviors.[91] The critically endangered North Atlantic right whale is particularly vulnerable to masking from anthropogenic sources, given the acoustic and behavioral characteristics of its calls.[92] Yet, NMFS provides no explanation of why acoustic masking would not have greater consequences for baleen whales, particularly the North Atlantic right whale.

Moreover, anthropogenic noise is already contributing to elevated ambient background noise in the Project area.[93] Under these conditions, the addition of even seemingly minor noise sources into the environment may shrink the available communication space to levels below what the species can sustain. NMFS's failure to examine the additive effects of the Project on the available communication space of marine mammals thus ignores an important aspect of the problem.[94] This failure is rendered even more egregious by the fact that, as NMFS well knows, agency scientists collaborated in the development of models to quantify the impacts of actions on existing marine mammal communication space.[95]

3. The Proposed ITR Fails To Accurately Define The Environmental Baseline

The human-influenced marine environment exposes marine mammals to multiple stressors, including contaminants, vessel traffic, climate change impacts, and anthropogenic sound. As NMFS acknowledges in its Ocean Noise Strategy Roadmap, "there is a general recognition that the cumulative effects of multiple stressors may have a greater impact on individuals or species than a single stressor."[96] Relevant here, it is well-understood that anthropogenic sound from multiple sources can, when aggregated, have deleterious effects on marine mammals, even where the impacts from one of the sources alone may be minor. Indeed, the cumulative effects of anthropogenic noise have been "causally linked to population decline."[97 & 98]

There are currently 15 active IHAs for wind development activities in the proximate waters. Put simply, the impacts of the Project will only further stress affected marine mammal populations. Indeed, when the estimated takes from the Project are added to the baseline established by the 15

[89] e.g., Christopher W. Clark et al., Acoustic masking in marine ecosystems, supra
[90] Leila T. Hatch et al., Quantifying loss of acoustic communication space for right whales in and around a U.S. National Marine Sanctuary, 26 CONSERVATION BIOLOGY 983 (2012)
[91] Christopher W. Clark et al., Acoustic masking in marine ecosystems, supra
[92] id.
[93] 87 Fed. Reg. 79,093
[94] State Farm, 463 U.S. at 43
[95] Leila T. Hatch et al., Quantifying loss of acoustic communication space; BOEM, Gulf of Mexico OCS Proposed Geological and Geophysical Activities Draft Programmatic Environmental Impact Statement at App'x K (NMFS-directed study of cumulative and chronic efforts of geophysical surveys in the Gulf of Mexico)
[96] NMFS, The NOAA Ocean Noise Strategy and Managed Species 12 (2016)
[97] Joe Roman et al., The Marine Mammal Protection Act at 40: Status, Recovery, and Future of U.S. Marine Mammals, 1286 ANNALS N.Y. ACADEMY SCI. 29, 43 (2013)
[98] Anthony D. Hawkins & Arthur N. Popper, A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates, 74 ICES J. MARINE SCI. 635 (2016)

active authorizations. Yet, incredibly, at no point does NMFS purport to determine whether the Project, when added to those authorized activities, will have a negligible impact on marine mammals. Nor, for that matter, does NMFS meaningfully examine the Project's effects in the context of any preexisting stressors in the area, such as the aggregate impacts of other sources of ocean noise (e.g., vessel traffic) or habitat disturbance. Instead, NMFS conducts the bulk of its negligible impacts analysis in a vacuum, masking the actual impacts of the Project and skewing the analysis towards the agency's desired outcome. This approach fails to meet the agency's legal obligations and is contrary to common sense and principles of sound science.

Although NMFS has resisted considering cumulative effects, the plain language of the MMPA requires that NMFS affirmatively determine that the take resulting from the proposed activity "will have a negligible impact" on marine mammals.[99] Legally and logically, whether an action pushes a species across the threshold of "negligible" depends on both the magnitude of the species' pre-existing status and the action's additional impacts (reaching the same conclusion in the analogous context of jeopardy determinations under the ESA).[100] Significantly, NMFS agrees with this interpretation; in the preamble accompanying the incidental take regulations, the agency recognized that "[w]hile the impacts of a particular activity may be fairly minor, they may in fact be more than negligible when measured against a baseline that includes a significant existing take of marine mammals from the other activities."[101] Thus, NMFS "agree[d] . . . that the impacts of incidental take from successive or contemporaneous activities must be added to the baseline of existing impacts to determine negligible impact."[102]

The proposed ITR purports to incorporate "the impacts of other past and ongoing anthropogenic activities" into its impact analyses as part of an "environmental baseline."[103] However, NMFS provides a wholly deficient accounting of relevant ongoing stressors. For instance, NMFS fails to acknowledge the existence of active incidental take authorizations impacting the Project area and surrounding vicinity. As a result, NMFS considers the impacts of the Project in isolation from other ongoing actions that are affecting the same marine mammal populations within the same geographic region. This approach does not pass muster under foundational administrative law principles. By considering the proposed ITR in a vacuum, NMFS deprives both the agency and the public of the context necessary to fully evaluate the effects of the Project on marine mammals before the agency commits to a course of action that could be precisely the kind of "proverbial straw in the camel's back" that the MMPA was expressly designed to ensure against.[104]

The proposed ITR provides no support for its conclusion that, when considered in the context of other stressors, the proposed seismic surveys will have no more than a negligible impact on marine mammal species. Particularly for populations that are already experiencing significant stress, NMFS must incorporate into its analysis the full suite of expected impacts Project in the

[99] 16 U.S.C. § 1371(a)(5)(A)
[100] Cf. Nat'l Wildlife Fed'n v. NMFS, 524 F.3d 917, 936 (9th Cir. 2008)
[101] 54 Fed. Reg. 40,338, 40, 342 (Sept. 29, 1989)
[102] Id.
[103] 87 Fed. Reg. at 79,148, (citing the preamble to the agency's 1989 implementing regulations, 54 Fed. Reg. 40338 (Sept. 29, 1989))
[104] H.R. REP. NO. 92-707, at 15, 1972 U.C.C.C.A.N. at 4148; cf. Grand Canyon Tr. v. FAA, 290 F.3d 339, 345 (D.C. Cir. 2002) (holding that the agency "cannot treat the identified environmental concern in a vacuum")

proper context—i.e., one that accounts for the current status of the affected species. Only then will NMFS be able to supply a reasoned basis for its determination of whether the Project's impacts will in fact be negligible.

4. The ITR fails to consider the harmful effects that disrupting group activity and conspecific cooperation will have on both individuals and their stocks.

Noise levels can disrupt conspecific cooperative activities and mother-calf communication. The impact on cooperative group and pair activity will add to stress, and will compromise their ability to avoid predators and threats, and will lessen their reproductive and feeding success.[105]

IV. THE PRECAUTIONARY PRINCIPLE PRECLUDES AUTHORIZING THE INTRODUCTION OF STRESSORS TO POPULATIONS UNDERGOING A UME

The proposed ITR proposes to authorize the take of three populations that are currently experiencing Unusual Mortality Events ("UME"): the North Atlantic right whale; the minke whale; and the humpback whale.

The North Atlantic right whale has been experiencing a UME since 2017.[106] At least fifty-five right whale deaths or mortal injuries have been detected, forty-one of which were attributed to vessel strikes or entanglements.[107] However, due to cryptic mortality—defined as mortality that you do not see or document—those fifty-five whales represent only about 36% of observed whale carcasses. Therefore, the actual number of right whale deaths since 2017 could be as high as 152 individuals.
UMEs are also ongoing for the Atlantic populations of minke whales (since January 2017) and humpback whales (since January 2016).[108 & 109] Alarmingly, 59 minke whales have stranded between Maine and South Carolina from January 2017 to March 2019. Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in a little over three years, 88 humpback whale mortalities have been recorded (data through February 18, 2019), with strandings occurring in every state along the East Coast.

Although the precise causes are still under investigation, NMFS has cited human-caused mortality from vessel strikes as a contributing cause in all 3 UMEs. That all 3 species are experiencing significant die-offs in the same region further evidences that the marine ecosystem is under chronic stress, and further counsels against the rapid expansion of offshore wind infrastructure and the concomitant increase in stressors to marine mammals from offshore wind development.

To authorize activities that introduce significant additional stressors to populations that are currently undergoing UMEs—particularly where the population is both depleted and declining,

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[105] Sorensen et al., "Anthropogenic noise impairs cooperation in bottlenose dolphins," *Current Biology*, 2023
[106] NMFS, Unusual Mortality Event, supra
[107] Id.
[108] NMFS, 2017–2023 Minke Whale Unusual Mortality Event along the Atlantic Coast, https://tinyurl.com/2uxmpv69
[109] NMFS, 2016–2023 Humpback Whale Unusual Mortality Event Along the Atlantic Coast, https://tinyurl.com/t6vjm4x3

as is the case for the North Atlantic right whale—violates the spirit and intent of the MMPA. The MMPA reflected Congress's concern that marine mammals "are, or may be, in danger of extinction or depletion as a result of man's activities."[110] In the House Conference Report accompanying the MMPA, Congress observed that "when to these hazards," including environmental contamination and degradation, overfishing, and harassment by boats, "there is added the additional stress of deliberate taking, it becomes clear that many marine mammals may indeed be in urgent need of protection."[111] Although "[m]an's taking alone, without these factors, might be tolerated by animal species or populations, [] in conjunction with them, it could well prove to be the proverbial straw added to the camel's back."[112] Here, the ongoing UMEs are having deleterious effects on the species' viability and resilience. Yet, NMFS intends to push forward with authorizing substantial offshore wind development activities, including the Project, notwithstanding the active UMEs and in spite of the risks to these populations, one of which is highly imperiled. This course of action is misguided from a management perspective and legally flawed.

Congress has already weighed the interests of marine mammals against the interests of those who would exploit marine mammals and their environments for various reasons, and decided squarely in favor of prioritizing the animals. To that end, Congress built into the MMPA a conservative bias that was intended to prevent the taking of any "steps . . . regarding these animals that might prove to be adverse or even irreversible in their effects until more is known" regarding the causes of mortality and other threats.[113] When considered against this backdrop, permitting the incidental take of North Atlantic right whales in the midst of a UME clearly flouts the MMPA's "primary objective of [marine mammal] management," which is "to maintain the health and stability of the marine ecosystem."[114] A UME is a clear indication that the ecosystem is, by definition, not in balance and in fact, is under extreme stress. It is simply not in accordance with this objective to issue a take authorization while that population is undergoing a UME. Nor is issuing such an authorization in accordance with the MMPA's demand that marine mammal management decisions be made with caution and only after all of the relevant information has been gathered and analyzed to ensure that the removal of individuals will not have unintended or detrimental consequences. Considering the fact that the UME is ongoing and the causes of the UME—i.e., human interaction, specifically from entanglements or vessel strikes—show no signs of abating and in fact are only worsening, the introduction of additional significant stressors to a depleted, declining population is precisely the kind of "proverbial straw in the camel's back" that the MMPA was expressly designed to ensure against.[115] Accordingly, NMFS is precluded from authorizing wind energy development in and around North Atlantic right whale, humpback whale, and minke whale habitat—at the very least—for the duration of the UMEs and until a recovery baseline can be assessed.

V. NMFS MUST CONDUCT A PROGRAMMATIC ANALYSIS OF THE IMPACTS OF OFFSHORE WIND DEVELOPMENT

[110] 16 U.S.C. § 1361(1)
[111] H.R. REP. NO. 92-707, at 15, 1972 U.C.C.C.A.N. at 4147-48.
[112] H.R. REP. NO. 92-707, at 15, 1972 U.C.C.C.A.N. at 4148.
[113] H.R. REP. NO. 92-707 at 15, 1972 U.C.C.C.A.N. at 4148.
[114] 16 U.S.C. § 1361(6).
[115] H.R. REP. NO. 92-707, at 15, 1972 U.C.C.C.A.N. at 4148.

The proposed ITR requests "comment on . . . programmatic multi-action rule/LOA approaches," including on the "potential marine mammal take impacts resulting from this and other related wind energy actions and possible benefits resulting from regulatory certainty and efficiency."[116] It is clear that to best account for the impacts of the simultaneous development of multiple lease areas on marine mammals, including on the critically endangered North Atlantic right whale, programmatic review under the MMPA, ESA, and NEPA is required.

To date, BOEM and NMFS have conducted environmental reviews, impacts analyses, and formal consultation on a project-by-project basis, which has lead to a segmented understanding of the impacts on marine mammals, inconsistent mitigation, and an underestimation of the extent of take (whether under the MMPA or ESA). A programmatic review of all ongoing and reasonably foreseeable future actions is essential to obtaining a holistic understanding of the impacts of offshore wind development.

With respect to the MMPA, programmatic review of offshore wind development comports with the statute's command to determine whether incidental take resulting from "specified activity"—i.e., a group of actions with similar impacts—and taking place in "specified geographic area[s]" satisfies the small numbers and negligible impacts mandates. As explained above, NMFS's failure to examine the additive impacts of offshore wind projects results in an underestimation of the effects of individual projects on marine mammals. Indeed, if NMFS authorizes all 15 offshore wind developments currently under review, over the next 10 years, 299% of North Atlantic right whales could be taken, as well as 185% of humpback whales and 170% of the common dolphin. This is untenable and fails to give effect to the language and intent of the MMPA. Programmatic review is necessary to avoid this absurd result.

In particular, the highly degraded baseline condition of the North Atlantic right whale merits careful consideration of whether the species can sustain the introduction of any new stressors. In analogous situations with populations undergoing precipitous declines, the Marine Mammal Commission has recommended establishing an annual limit on allowable take incidental to development and research activities.[117] To establish a defensible, science-based limitation on take under the MMPA and ESA, NMFS must undertake a programmatic review of all of the ongoing and planned activities that will impact the species, in light of its current status. Such a review would be particularly timely given the climate-driven shifts in North Atlantic right whale habitat use that have been observed over the past decade. Additionally, this approach would also ensure that the efficacy of mitigation measures are considered at the same geographic and temporal scales as the impacts of such development.

With respect to the ESA, programmatic consultation under section 7(a)(2) would ensure that NMFS satisfies its mandatory duty to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered

[116] 87 Fed. Reg. at 79,160.

[117] See, e.g., Letter from Rebecca J. Lent, Ph.D., Exec. Dir., Marine Mammal Comm., to Jon Kurland, Asst. Reg'l Admin. For Prot. Res., NMFS 6 (July 14, 2015) (recommending that "NMFS place annual limits on the number and types of takes [of Cook Inlet belugas] that are authorized for development and research projects, based on the most recent population estimate").

species."[118] During consultation, NMFS must first ascertain the baseline status of endangered species and then, after adding the effects of the proposed action to that baseline, determine whether the introduction of even seemingly minor stressors will cause the species cross the threshold into jeopardy.[119] Here, a programmatic consultation would require NMFS to consider the effects of all ongoing and planned activities impacting endangered marine mammals, and then determine whether those effects, when added to the baseline, would impede the species' recovery or survival. Particularly considering the North Atlantic right whale's severely degraded baseline condition, the value of a programmatic consultation process—i.e., one that ensures that even seemingly minor impacts from individual projects do not, in combination, drive the species to extinction—is laid plain.

Finally, with respect to NEPA, agencies are required to consider multiple actions together in a single programmatic EIS when those "actions are 'connected,' 'cumulative,' or 'similar,' such that their environmental effects are best considered in a single impact statement."[120] Here, the expansion of offshore wind development plainly falls within the ambit of "similar" and "cumulative" actions within the meaning of NEPA, meaning that they must be considered together in a single programmatic EIS.

The expansion of offshore wind development is comprised of "similar" actions because each individual project, "when viewed with other reasonably foreseeable or proposed agency actions" both "have similarities that provide a basis for evaluating their environmental consequences together."[121] These similarities are clear. The projects will introduce the same types of stressors into the offshore environment and will impact the same marine mammal populations. Accordingly, such actions are "similar" under NEPA. Offshore wind development projects likewise satisfy the definition of "cumulative" actions because they will "have cumulatively significant impacts."[122] A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions."[123] Here, the installation of over 3,000 turbines in the offshore environment will have cumulative environmental impacts that should be taken into account in a single EIS. For example, because each project will introduce new sources of anthropogenic sound, each project will have additive effects on marine mammals, including by inducing new stressors, reducing communication space, and altering behavior and habitat. Accordingly, because the expansion of offshore wind development constitutes "similar" and "cumulative" action, its "environmental effects are best considered in a single impact statement," and a programmatic EIS is the legally and practically appropriate way to accomplish this.[124]

VI: NMFS HAS IGNORED WELL-KNOWN SCIENCE BY DENYING SEISMIC SURVEYS CAUSE NO PERMANENT INJURIES.

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[118] 16 U.S.C. § 1536(a)(2).
[119] NWF, 524 F.3d at 930 (defining "jeopardize," i.e., "the action the ESA prohibits," to mean "to 'expose to loss or injury' or to 'imperil'").
[120] Am. Bird Conservancy, Inc. v. FCC, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).
[121] 40 C.F.R. § 1508.25(a)(3).
[122] 40 C.F.R. § 1508.25(a)(2).
[123] Id. § 1508.7
[124] Am. Bird Conservancy, 516 F.3d at 1032

Prior to the US development of offshore wind, whale experts agreed that seismic surveys in the mid to low-frequency range can injure whales.[125] Histologically the injuries resemble decompression illness (the bends). NMFS has not adequately considered the ability of mid-frequency sound to cause "rectified diffusion." Rectified diffusion refers to a process where sound waves can directly cause gas bubbles in the bloodstream to coalesce and enlarge.[126] As gas bubbles enlarge, they can damage tissue. An absence of evidence does not mean evidence of absence. The burden of proof is on NMFS, not on the public. NMFS must prove, with peer-reviewed evidence, that the seismic surveys have not caused injury. The NMFS must provide evidence that no association exists, otherwise, we must assume that the offshore wind activity has contributed to these deaths.

CONCLUSION

For the foregoing reasons, the proposed ITR and related documents are legally deficient. If NMFS nonetheless proceeds to finalize the ITR, it will be doing so in clear violation of federal environmental law. In lieu of taking that step, Green Oceans urges NMFS to withdraw the proposed ITR and immediately engage in a programmatic review of offshore wind development under the MMPA, the ESA, and NEPA. No authorizations should be permitted prior to the finalization of the NARW strategy, the release of the GOA report, and adequate and scientifically verified baselines have been obtained for the species undergoing unusual mortality events.

I appreciate the opportunity to contribute my comments to this proposal.

Elizabeth Quattrocki Knight, M.D., Ph.D. July 28, 2023
President, Green Oceans

[125] Fernandez, 2005
[126] Crum and Mao, "Acoustically enhanced bubble growth at low frequencies and its implications for the human diver and marine mammal safety," *J. of the Acoustical Soc. of America*, 1996.

Defend Brigantine Beach INC and Downbeach

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February 5, 2024

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

RE: Incidental Take Authorization: Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off New Jersey and New York for Atlantic Shores Offshore Wind, LLC;

Dear Chief Harrison:

Defend Brigantine Beach Inc. and Downbeach is a broad-based coalition of conservationists, environmentalists, fishermen and women, boaters, divers, surfers, students, businessmen and women, New Jersey residents, and tourists united to defend our beaches and ocean from Federal and State planned industrial impacts on our ocean and community including the proposed by Atlantic Shores offshore wind projects. Defend Brigantine Beach, INC and Downbeach submits the following comments to the National Oceanic and Atmospheric Administration's ("NOAA") National Marine Fisheries Service ("NMFS") in opposition to the request for an Incidental Harassment Authorization ("IHA") by Atlantic Shores (henceforth, the "Applicant") to conduct high-resolution geophysical ("HRG") marine site characterization surveys on the Outer Continental Shelf in a federal offshore Lease Areas OSC – A 0499, OCS-A 0541, and OCS- A0549, and associated offshore export cable corridor routes in waters off of New York, New Jersey, Delaware, and Maryland.

The IHA request, if approved, would authorize the "takes" of 14 species of marine mammals by "Level B harassment" over the course of one year, with the possibility of a one-year renewal for the IHA. In addition, this IHA application would combine the requested takes with two other active IHAs associated with ongoing HRG survey activities in Lease Areas OCS-A 0499 and OCS-A 0549 (permit previously ending on 6/8/24) and another in BOEM Lease area OCS-A 0541 (permit previously ending on 8/9/24) under one single IHA which will begin on 4/1/24 and end on 4/1/25. The IHA permit would allow 120 active survey days nearshore and 180 survey days offshore and would cover 3,600 kms and 25,200 kms, respectively. Total survey area will be approximately 20,251 square kms extending to the shoreline to approximately 74kms offshore.

According to the Public Notice, "Underwater sound resulting from Atlantic Shores' proposed activities has the potential to result in incidental take of marine mammals in the form of Level B harassment." Defend Brigantine Beach INC and Downbeach have concerns about the impacts, especially cumulative, of the numerous and concurrent incidental take authorizations being requested, reviewed, and issued for offshore wind preconstruction and construction activities off the New York and New Jersey coast, as well as the entire East Coast of the United States.

The number of Level B Harassment Takes on the Atlantic Coast during the 2024-25 time period totals 249,503 and the number of Level A Injury Takes during the 2024-25 time period totals 761. The total number of Level B takes of endangered species totals 920 and Level A Injury endangered species Takes total 9. This includes IHA Permits for 26 offshore wind projects from Massachusetts to South Carolina. The total number of Level B Harassment Takes for Atlantic Shores project permits alone will total 10,998 during the time period including 35 takes for endangered species. (See Appendix A). The authorization of this cumulative level of takes is irresponsible and reckless.

NOAA NMFS Office of Protected Species is "responsible for the protection, conservation, and recovery of more than 160 endangered and threatened marine and anadromous species under the Endangered Species Act. The goal of the ESA is to conserve these species and the ecosystems they depend on." (National Oceanic & Atmospheric Administration, "About Us: Office of Protected Resources," as seen on 12/9/2022, https://www.fisheries.noaa.gov/about/office-protected-resources). The government is obligated to provide assessments of the potential and real marine ecosystem impacts, and then stipulate policies and regulations to avoid and reduce negative impacts and ensure appropriate and meaningful mitigation of the unavoidable impacts. This also requires, at minimum, a fair, comprehensive, and independently peer-reviewed pilot project for this unproven, large-scale industry in US waters. Indeed, this also requires sound science supported by robust baseline ecological assessments and independent and peer-reviewed studies which are currently planned, only just begun, or underway and incomplete.

Instead, the government is fast-tracking projects, including the Applicant's project. However, fast tracking projects is not protective of marine species. The government's fast-tracking of OSW projects is inconsistent with good governance of public resources, the precautionary principle, and most importantly, laws including the Endangered Species Act ("ESA"). From the outset:

> *Section 7(a)(2) of the ESA requires BOEM, in consultation with NOAA Fisheries, to ensure that any action the agencies authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered species or result in the destruction or adverse modification of designated critical habitat; this coordination is accomplished through ESA section 7 consultations. BOEM and NOAA Fisheries are required by the ESA to use the best scientific and commercial data available when carrying out these consultations.* (NOAA Fisheries, "Section 7: Types of Endangered Species Act Consultations in the Greater Atlantic Region," as seen 4/30/2023, https://www.fisheries.noaa.gov/insight/section-7-types-endangered-species-act-consultationsgreater-atlantic-region.)

In addition to our concerns over the sheer number of take permits and substantial number of takes off of the Atlantic coast during the 2024-25 time period, we believe that the Atlantic Shores request for authorization for incidental takes should be denied for the following reasons:

- The survey areas seem much larger than what is needed to characterize the current lease areas and potential export cable routes. What is the justification for this? Is the applicant looking for sites for new wind turbine projects? But that is the job of the federal agency, to identify the "wind energy areas" and they should not be prejudiced by a company survey, so why should NOAA approve such large areas?

- The applicant says it is using a new sparker device, the Geo Marine system instead of the prior Dura-spark 240 unit. The applicant says it has a source level of 195 decibels (dB). If true, that would be much better than the Dura-spark unit, but this smaller surrogate device is used to get that number. The noise measurements for the Geo Marine device itself are missing. Why isn't the manufacturer providing them so a real noise source number can be provided? In the application it is implied that the unit will be operated at 400 joules of energy input, but there is no statement that it will be exclusively operated at that level. At what depths will higher energy input be needed resulting in a higher noise source level?

- The assumption of noise dissipation rate of 20 dB for every 10-fold increase in distance is only valid until the noise wave hits the bottom, beyond that the noise dissipates less.

- What is the model and how were measurements taken to conclude that there is now a very low-density number for right whale presence in the area based on the Duke University's study? This study contradicts the density data in the Atlantic Shores construction application of just a year ago and seems to contradict the past 10 years of observational data. What is the reason for this contradiction? Where is the physical and scientific justification for the right whale not coming in the area anymore? What is the probability of the migration path location of the right whale given its historic migration range of about 60 miles from shore?

  How does the Duke University study compare to the New York State Department of Environmental Conservation "Species Status Assessment (New York State Department of Environmental Conservation, "Species Status Assessment," as seen 12/9/2022, https://www.dec.ny.gov/docs/wildlife_pdf/sgcnnatrightwhale.pdf) which states that right whales are present in the mid-Atlantic more often than previously believed? It is documented that North Atlantic right whales are in the region at all times of the year. Data from WhaleMap and the Mid-Atlantic Ocean Data Portal indicated an abundance of NARWs off the NJ coast throughout the year. (https://whalemap.org; https://portal.midatlanticocean.org.) Further a Right Whale Slow Zone southeast of Atlantic City was effective in December 2021.(National Oceanic & Atmospheric Administration, Fisheries, "Extension of Right Whale Slow Zone Southeast of Atlantic City, NJ." As seen, 11/15, 2022: https://content.govdelivery.com/accounts/USNOAAFISHERIES/bulletins/2fef565)

  According to the Conserve Wildlife Foundation of New Jersey:

  > *Within the western North Atlantic Ocean, right whales feed during spring, summer, and fall in temperate and subpolar latitudes near eastern Canada and the northeastern U.S. During the winter, many individuals from this population can be found off the northeast coast of Florida and Georgia, their breeding and calving grounds. Some right whales, however, may remain at their northern feeding grounds during the winter.* Conserve Wildlife Foundation of New Jersey, "New Jersey Endangered and Threatened Species Field Guide: (North Atlantic Right Whale," as seen 12/9/2022, http://www.conservewildlifenj.org/species/fieldguide/view/Eubalaena%20glacialis/)

- The applicant's confidence regarding mitigation measures, particularly visible observers, is misplaced and contradicts NOAA's guidance. NOAA itself states:

> *"Right whales can be very difficult to spot from a boat due to their dark color and lack of a dorsal fin. Poor weather and sea state or low light conditions can make spotting these whales nearly impossible"* (National Oceanic & Atmospheric Administration, National Marine Fisheries Service, "Reducing Vessel Strikes to North Atlantic Right Whales," https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducingvessel-strikes-north-atlantic-right-whales as seen on 5/15/2023.) ; (U.S.C. § 1371(a)(5)(A)(i)).

NOAA Fisheries assumes that mitigation measures for impacts from offshore wind development are successful. Before mitigation is considered, avoidance and minimization are required. However, without baseline studies and a pilot project to determine impacts, how can mitigation measures be established? This massive cumulative impact of multiple projects by a nascent US industry has not been assessed, and as described above has no precedent or permitting system. The following questions must be answered:

- What is this mitigation strategy based on?
- What if mitigation measures fail?
- Since there is no transparent, consistent publicly available real-time assessment and reporting activities, how will NMFS even know whether mitigation fails?
- How is NMFS judging if mitigation measures are enough to prevent harassment to marine mammals during the survey work?
- What are the ecological guardrails?
- How and when would it be determined that additional harassment is occurring, and work must stop?

- In January 2024 ,the *BOEM and NOAA Fisheries North Atlantic Right Whale and Offshore Wind Strategy* was released and is nothing more than "guidance". BOEM and NOAA Fisheries North Atlantic Right Whale and Offshore Wind Strategy In this report the Offshore Wind Industry is listed as a "partner" and a "financial resource" for the strategy. Nowhere in the Financial Resources Section 5 of the report does it include any mandates or negative consequences to Offshore Wind Developers if they do not follow the strategy. The guidelines don't obligate anyone to anything and use language such as "can support", "voluntary efforts", "could be implemented", and "highly encourage". Offshore Wind companies are for-profit corporations, and their number one priority is to satisfy stockholders by maximizing profits. They are not our friends nor are they in business to be altruistic to marine mammals and the ocean environment. Are NOAA and BOEM so naïve as to believe that Offshore Wind Companies will take any of their Strategy seriously? If any of these strategies impact their bottom line, they will either ignore it, pretend to comply (since no one will be monitoring their compliance) or cut corners in other safety measures to make up the added cost of compliance.

  Per the report,

  > "OSW Developer Support—Developers **can support** this effort through complying with requirements of project approvals and authorizations or through **voluntary efforts** to fund or carry out actions related to this Strategy. As part of this Strategy, BOEM and NOAA Fisheries will continue to identify the impacts of OSW development on NARWs and ways for developers to mitigate and monitor these impacts. To aid in this effort, Appendix B includes development of measures that **could be implemented** as lease terms, plan conditions, or other mechanisms.

BOEM and NOAA Fisheries **highly encourage** developers to coordinate and share plans, results, and data to help improve the efforts and monitor progress on addressing the information needs under this Strategy."

- Allowable harms described as non-lethal (Level B) such as Temporary Threshold Shift (TTS) or temporary deafness, can lead to significant behavior modifications in protected marine mammals. This harm can lead to flight and secondary mortality events such as ship strikes or standings. This needs to be studied further.

- Scallop, oyster, and clam beds have been altered and decimated coinciding with the recent survey activities. This has severely impaired local commercial fisherman. Continued ongoing activity will put thousands of jobs and livelihoods at risk.

- Horseshoe crab protected areas have an will be further infringed upon, putting this medically and migratory important species at risk. The horseshoe crab is vital to the migration of endangered avian species, which rely on spawning grounds in the lower Delaware Bay

- To date, no full necropsies have been released for whales stranded in NY/NJ waters dating back to December 2022. As such, "cause of death" has yet to be determined. Why has this been ignored by the government agencies?

- Congressionally authorized GAO study has yet to be released and will in all likelihood result in modification of the approval process.

- Offshore wind industry remains in financial turmoil. Why is NMFS approving wide scale harms to marine life for questionably viable projects?

- There are no permitting rules for marine site characterization surveying for geological and geophysical surveys by, or for, the Bureau of Ocean Energy Management ("BOEM"). The recent BOEM Modernization Rule proposal states:

> *Although BOEM requires a lessee to submit the results of certain surveys to BOEM in order to obtain approval of its COP, those regulations do not require BOEM's approval of a permit for such surveys. Instead, BOEM has provided guidance on conducting such surveys and also includes terms and conditions in renewable energy leases that require lessees to submit survey plans to BOEM for review in advance of their survey activities. BOEM's review of the plans, while not an approval process, does provide BOEM an opportunity to communicate with lessees to ensure the lessees' survey results will meet BOEM's information needs and to ensure certain environmental conditions are met in conducting the surveys.* Federal Register, "Renewable Energy Modernization Rule," Bureau of Ocean Energy Management, Publication Date: 1/30/2023, https://www.federalregister.gov/documents/2023/01/30/2023-00668/renewable-energymodernization-rule.

Given this, it raises more questions about how it was possible that BOEM asserts without question that there is absolutely "no evidence" that offshore wind activities have any connection to the unprecedented number of dead whales that continued to wash-up on beaches in the NY/NJ region starting in December 2022. It is now clear there are no regulations; there is only guidance and suggestions, so interested parties have no recourse if

they are not voluntarily followed. Without such regulations, how can BOEM possibly make such a claim? Is the only requirement for survey vessels currently under the Marine Mammal Protection Act ("MMPA") requiring IHA authorizations, which are limited in scope? In the Proposed Modernization Rule, BOEM admits not having the regulatory authority to govern surveys: "BOEM's existing renewable energy regulations do not expressly govern survey activities." Federal Register, "Renewable Energy Modernization Rule," Bureau of Ocean Energy Management, Publication Date: 1/30/2023, https://www.federalregister.gov/documents/2023/01/30/2023-00668/renewable-energymodernization-rule.

- There is a lack of basic research of the impacts of OSW energy development on large whale species in U.S. waters, particularly in the mid-Atlantic region. It is reckless to move forward without the scientific baseline assessments for what harm may or could occur to whales before issuing any permits and authorizations, including IHAs, ITRs, and associated LOAs including the failure to include crucial scientific assessments and consultations as follows:

  In a May 2022 letter obtained under the Freedom of Information Act by Bloomberg Law, Dr. Sean Hayes, PhD, Chief of Protected Species, NOAA NEFSC, clearly documents and confirms the NARW's fragile hold on existence. First, the Chief of Protected Species notes that there are less than 350 remaining NARW animals. (Letter from Sean A. Hayes, PhD, Chief of Protected Species, NOAA NEFSC, to Brian R. Hooker, Lead Biologist Bureau of Ocean Energy Management, Office of Renewable Energy Programs, dated May 13, 2022.) Again, we note, the Draft North Atlantic Right Whale and Offshore Wind Strategy states that not one animal can be lost.

  In regard to the development phases of offshore wind, Dr. Hayes states in his letter:

  > *"The development of offshore wind poses risks to these species, which is magnified in southern New England waters due to species abundance and distribution. These risks occur at varying stages, including construction and development, and include increased noise, vessel traffic, habitat modifications, water withdrawals associated with certain sub-stations and resultant impingement/entrainment of zooplankton, changes in fishing effort and related potential increased entanglement risk, and oceanographic changes that may disrupt the distribution, abundance, and availability of typical right whale food (e.g., Dorrell et al 2022)."*

  It is clear that any further disturbance of the NARW species will have an impact on this critically endangered species. Some scientists estimate that the species will go extinct within 20 years with current threats. (Pennisi, Elizabeth. "The North Atlantic right whole faces extinction." Science, November 7, 2017, https://www.science.org/content/article/north-atlantic-right-whale-faces-extinction.)

- NMFS approval of the IHA permits contradicts its own guidance about the marine ecosystem. Specifically, about offshore wind development impacts on the marine ecosystem, NMFS says: (National Oceanic & Atmospheric Administration, National Marine Fisheries Service, "Offshore Wind Energy: Protecting Marine Life," https://www.fisheries.noaa.gov/topic/offshore-wind-energy/protecting-marine-life, as seen 5/14/2023),

  > *Scientists around the world are still investigating the potential impacts of offshore wind energy development on marine life. Site assessment, construction, and operations could interact with marine life on the seabed, in the water, and at the surface. For example, offshore wind energy projects could:*
  >
  > - *Increase ocean noise, which could affect the behaviors of fish, whales, and other species*
  > - *Introduce electro-magnetic fields that impact navigation, predator detection, communication, and the ability for fish and shellfish to find mates*
  > - *Change existing habitats by altering local or regional hydrodynamics*

- *Create a "reef effect" where marine life cluster around the hard surfaces of wind developments*
- *Impact organism life cycle stages, including larval dispersal and spawning*
- *Change species composition, abundance, distribution, and survival rates*
- *Increase vessel traffic, which could lead to more vessel strikes*
- *Release contaminants that can be consumed or absorbed by marine life*

Offshore wind, in the current proposed scale, scope, and magnitude significantly added to the threats to marine mammals, including noise, vessel strikes, and impacts to prey. Access to food sources for large whales is essential. The importance of the waters off New Jersey as feeding grounds for all marine mammals is increasing.

NOAA Fisheries is "responsible for the stewardship of the nation's ocean resources and their habitat" (NOAA Fisheries, "About Us," as seen on 7/20/2023); this includes the protection of whales, dolphins, porpoises, seals, and sea lions (NOAA Fisheries, "Laws & Policies: Marine Mammal Protection Act," as seen on 7/20/2023). In addition, under the Marine Mammal Protection Act ("MMPA"), citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region may request authorization for incidental, but not intentional, takes of "SMALL NUMBERS" of marine mammals pursuant to that activity for a period of no more than five years. (U.S.C. § 1362(18) The NMFS, which has been delegated the authority to administer the relevant legal framework, may allow takes under the MMPA only if the agency determines that the total number of authorized incidental takes during the five-year period will have a "negligible impact" on the relevant species or stock. (U.S.C. § 1371(a)(5)(A)(i)(I)). "Negligible impact" is, in turn, defined as an impact that is not reasonably likely or expected to "adversely affect the species or stock through effects on annual rates of recruitment or survival.

The cumulative impact of the number of takes off the New Jersey and New York coast is unprecedented. Never has an ecosystem been under such massive industrial development pressure and impact over a span of less than decade. Given this unimaginable and unprecedented scope and scale of industrial OSW development in the Northeast region, and off NY/NJ coasts in particular, NMFS must provide clarity and due process now and establish accountability.

The current process lacks transparency and accountability for the impacts to the living marine ecosystem from the rapid development of the ocean. Until these questions are answered, how can NMFS continue the IHA application process for Offshore Wind project along the Atlantic Coast?

- At what point will there be too many accumulated Level A and Level B harassments from OSW energy development or other activities?
- What are the guardrails to determine how many takes will be too many?
- How will BOEM ensure that any number of takes do not prove to be more harmful than predicted?
- How will NMFS distinguish between impacts, such as those from the wind industry as compared to those from other shipping traffic, especially as wind facilities are built-out and marine life and ships are concentrated into more narrow corridors?

- Who will be responsible for determining all aspects of the issued IHA are complied with, and how will accountability be managed?
- How will the number of takes be lowered over time to address the additional, cumulative stress to marine life?
- How will population dynamics be measured as species populations decline from stress or injury from offshore wind development? Or food scarcity as migratory fish populations move or as fish structure changes? Or will the agencies simply place blame on "climate change" as a catch-all to lower populations of marine mammals?
- How many marine mammals can be harassed and injured before the populations, and associated ecosystems, collapse, all for the current unfounded benefits of the new offshore wind energy industry?
- How many takes, for individual projects or requests or cumulatively, are too many? Does the current process by which takes are evaluated include cumulative impacts to populations from all incidental take requests and authorizations, and if not, why?

- Offshore wind survey activities in NY/NJ waters have coincided with an unprecedented surge in marine mammal deaths here during the past year.

- There have been 31 whales and 67 dolphins sacrificed during offshore wind survey activity from December 2022 to December 2023.

- Plenty of evidence exists showing the correlation between the survey activities and whale deaths and needs to be addressed by the industry and NMFS. An independent assessment is needed to determine if the unprecedented geotechnical and geophysical activities may be linked to the spike of whale and dolphin strandings in the region of the offshore wind project. The details of this evidence is presented below.

Further evidence that the offshore wind energy vessel surveys are a plausible cause of the recent New Jersey whale & dolphin deaths is as follows:

There has been a spike in recent whale and dolphin deaths off the New Jersey shore. The responsible agencies repeatedly state that the survey vessels are not the cause of that. They say that there is no evidence linking the two, but at the same time present no evidence of their own to support their conclusion of there being no evidence, they just say it.

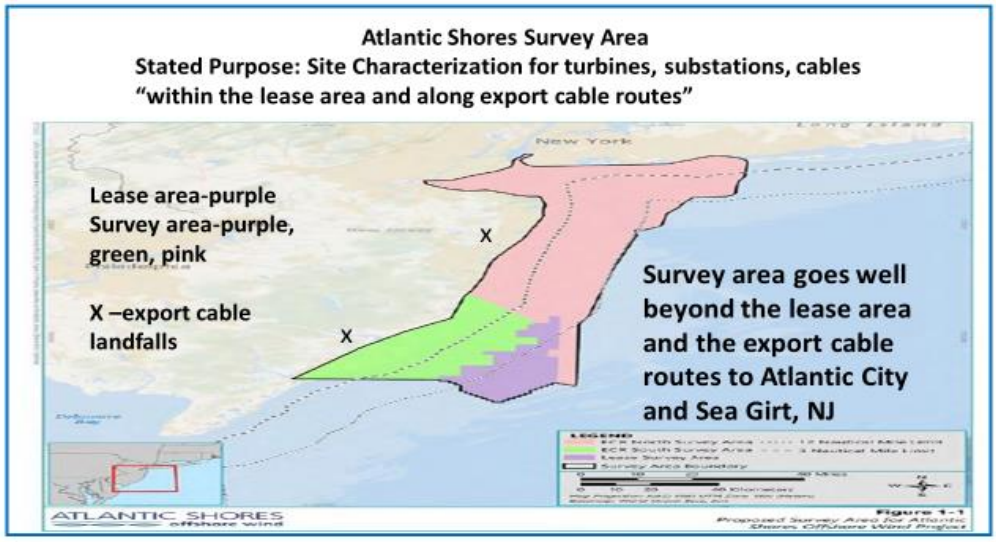
Dr. Bob Stern has many years of work experience in Washington D.C. managing environmental reviews for the Energy Department and has been studying the impact of offshore wind energy projects for years. Defend Brigantine Beach Inc and Downbeach and SaveLBI, Inc agrees with Dr. Stern's and we conclude that there are extraordinary aspects of the wind project locations that should be considered in approving the latest IHA permit for Atlantic Shores as presented in his study, *The Evidence That the Offshore Wond Energy Vessel Surveys are the Cause of the Recent New Jersey Whale & Dolphin Deaths*. See link for full report: (EvidenceUpdated_2024-01-22 (savelbi.org))

The National Environmental Policy Act requires full disclosure and certain impacts are in violation of this requirement. One of those is the impact of the wind project vessel surveys that use high intensity

noise devices to characterize the seabed for installation of the wind turbine foundations and export cables.

Dr. Stern has found that it does exist that there is a correlation between the vessel surveys and the recent whale and dolphin deaths. A presentation of his findings are below.

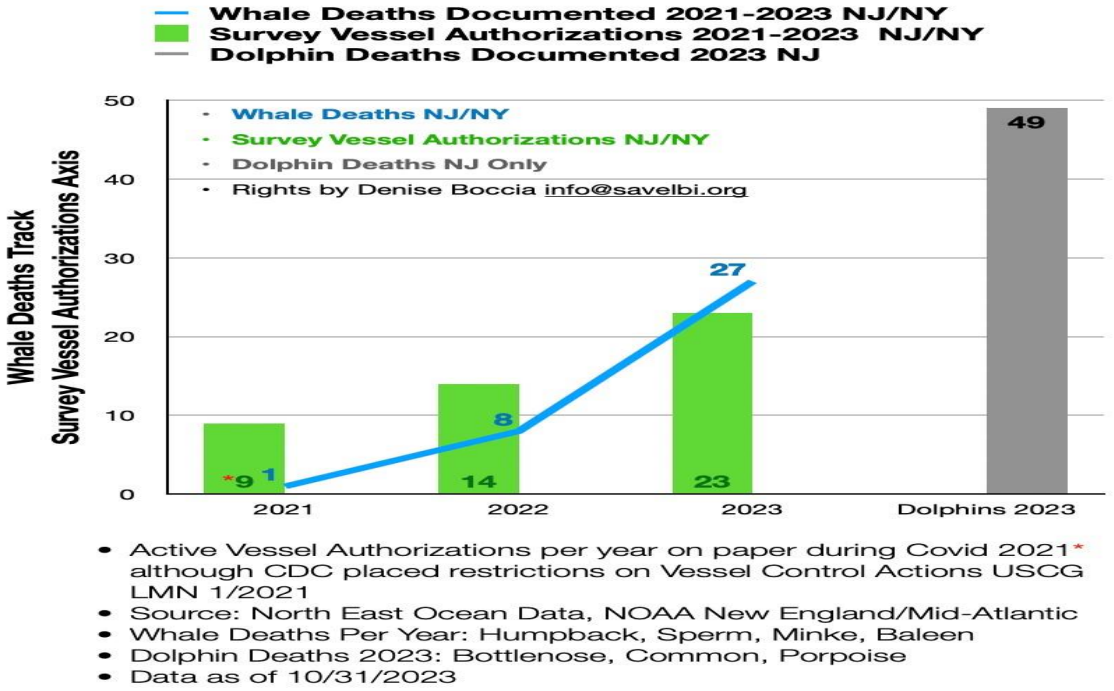
Unnecessarily Large Expanse of Survey Area: The map below shows the survey area for the Atlantic Shores South project. The purpose of this survey is stated at the top of the map, to characterize the lease area, in purple, and its export cable routes whose landfalls are shown by the Xs.



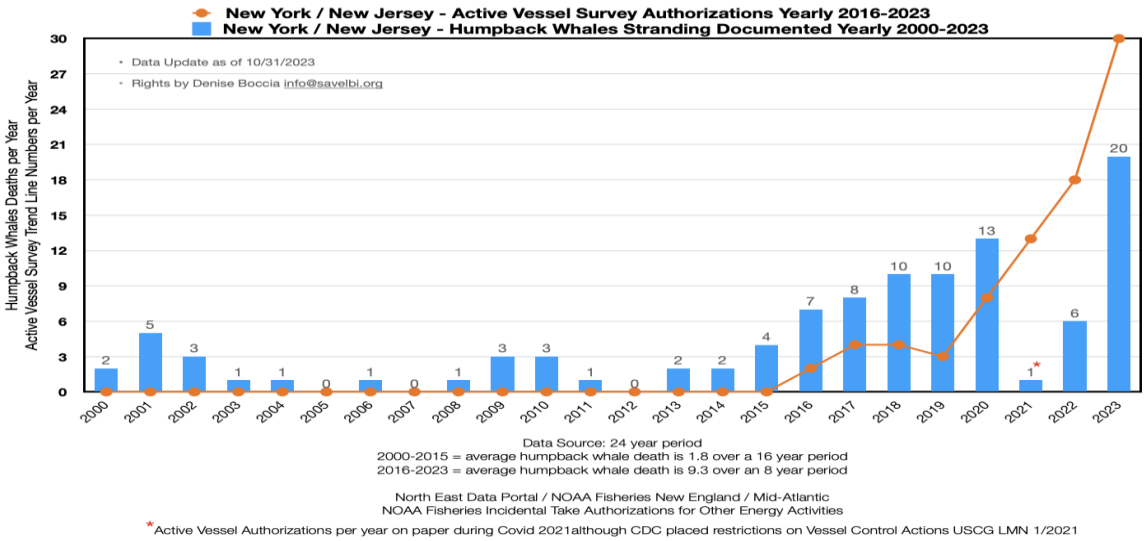
But the whole area, the purple, green and pink, goes far beyond that, all the way up the New Jersey coast and out to Long Island. Similar area extensions exist for the other lease areas in the New York Bight. The survey areas also overlap each other.
The result is a huge area surveyed, in many places repeatedly by different companies. This results in a very large total number of noise disturbances to the animals, and likely repeated disturbances to the same animal. It is not clear why such large survey areas are being approved unless the wind turbine developers and/or BOEM are actually looking for something else, like new turbine locations.

Marine Mammal Deaths and Survey Activity: Based on Coast Guard Mariner reports, the number of survey vessels off New Jersey increased from two in November, 2022 to six in December 2022 when the whale deaths started.

Through March of 2023, there were 27 such deaths in the NJ/NY area. The blue line in the chart below shows the whale deaths reported for the past few years. The green bars show the number of vessel survey authorizations. As you can see, as vessel surveys increase so do the whale deaths. The grey bar shows 49 dolphin deaths in 2023, a very high and unusual number.



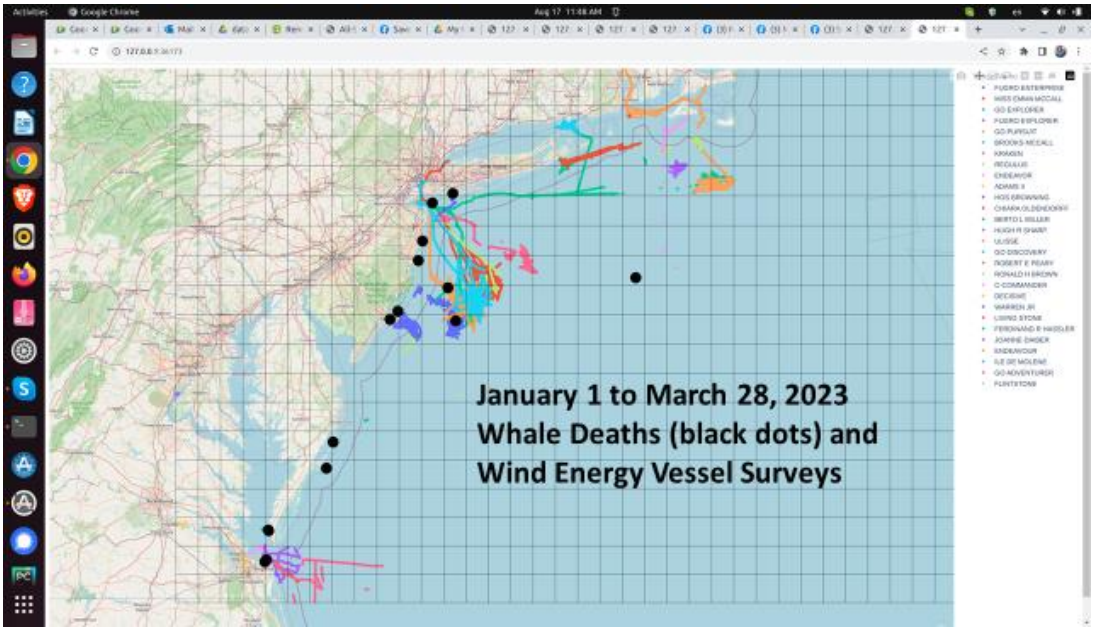
This chart below shows humpback whale stranding and vessel survey authorizations in the NY and NJ area back from 2016 when the surveys began. There is a correlation between the two, the more surveys the more deaths, with a more pronounced effect occurring in the 2021 to 2023 time frame.



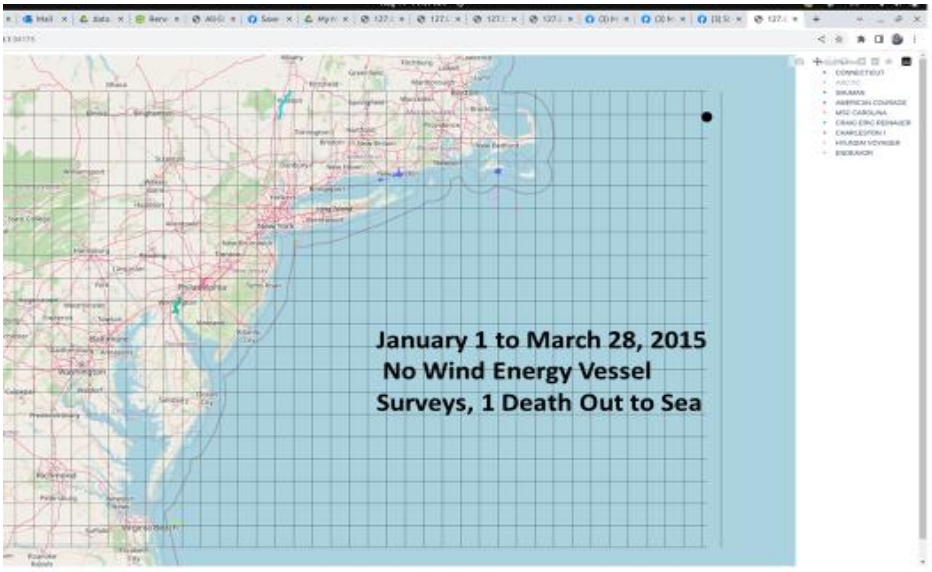
So, time wise the deaths and vessels do correlate.

It is also striking that the places of whale deaths coincide with vessel presence. Here is one chart for the period of January 1 to March 28, 2023 that shows the locations of whale deaths, the black dots,

with the tracks of nearby survey vessels, shown by the colored areas. The vessels are often present where the whales washed up or died.



But going back to that same time period in 2015, before the survey vessels were out there, there was only one death far out to sea, as shown in this map.



Geographically there does appear to be a correlation between whale deaths and vessel survey presence.

Underestimation of Survey Noise and Impact to Marine Mammals: Based on time and place, the surveys and whale deaths seem connected. The connection is related to the high intensity noise devices used by the vessels that affect whales and other marine mammals.

The Agency authorizations for those surveys relied on arbitrary, scientifically unsupported assumptions resulting in a significant underestimation of noise extent. For example, for the Atlantic Shores project's surveys, it relied on an improper low noise source level of 203 dB for the maximum noise controlling Dura-Spark unit, obtained from a much smaller less powerful surrogate device, as opposed to using a higher source level of 211 dB from measured data for the Dura-Spark unit itself.

The measured noise source levels for the Dura-Spark unit, which is the controlling one in terms of noise source level and directionality, are shown in Table 10 below from the Crocker and Frantantonio Report of 2016 that the NMFS often cites. The RMS-root mean square-number is the relevant one to use here for noise propagation. The survey approvals refer to the Dura-Spark unit in the 240- tip mode at energy inputs of around 750 joules. Based on Table 10 that would result in an RMS source level of 211 dB as opposed to 203 dB. Instead of using this data and interpolating between various energy levels, the national marine Fisheries Service (NMFS) uses a 203 dB level obtained from a less powerful, smaller device, the Sig-Electric 820 unit at 750 joules at a 5-meter depth, for all their sparker unit settings and noise inputs. That is technically not justified.

The survey approvals underestimate the distance that the higher noise level extends from the vessel, and therefore the number and frequency of marine mammal disturbances.

Vessel Noise Device –Source Level

Table 10. Applied Acoustics Dura-Spark Acoustic Characteristics

Source Settings		Source Level (dB re 1µPa@1m)				Pulse Width (ms)	Bandwidth 3 dB (kHz)
Energy (Joules)	Tips	Pk-Pk	Pk	RMS	SEL		
100	80	213	207	200	173	2.2	2.6
200 (high)	80	216	212	203	177	2.2	2.8
400 (low)	80	222	218	207	182	2.8	1.9
500 (high)	240	223	219	209	181	1.4	4.4
1,000 (high)	240	228	223	213	186	2.1	3.2
1,250 (high)	240	229	225	214	187	2.3	2.8
500 (high)	400	216	211	203	174	1.1	4.6
2,000 (high)	400	229	224	214	188	2.4	2.8
2,400 (high)	400	229	225	214	188	2.2	2.9
2,400 (high)*	400	226	221	212	185	2.3	2.7
* Source moved closer to side wall							

As shown in the Table below, a number of the other survey vessels have noise source levels even higher than the 211 dB discussed above. This results in even larger distances from those vessels with elevated noise levels that will harm or disturb.

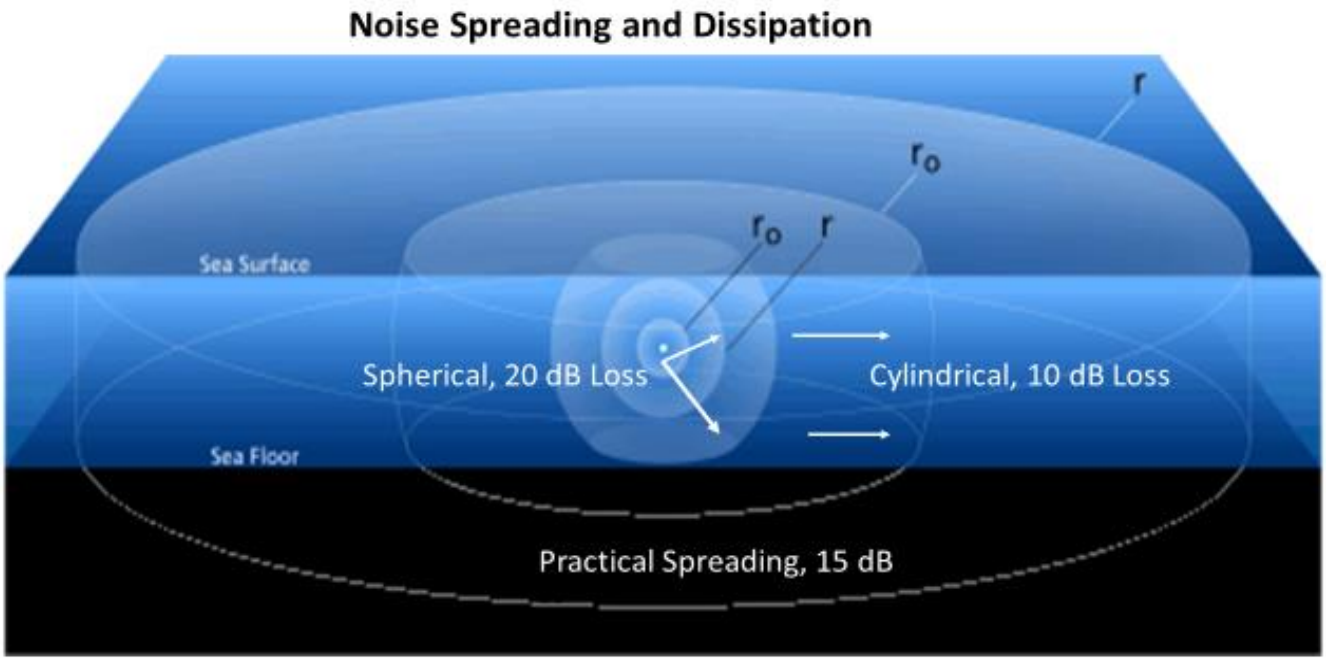
How High are the Vessels Noise Source Levels?

Project/Vessels	Devices, Settings	Source Level(dB)	Range to 160 dB (miles)	Range to 140 dB (miles)
NMFS/All/All	All	203 dB	0.1 @ 20 dB 0.5 @ 15 dB	10
Atlantic Shores Fugro Enterprise, Bella Marie HOS Browning(drilling)	Dura Spark 240, 750 joules Hammering-impl Vibrating-contin	211 (1) 197 (5) 159 (5)	2 0.2	34 4 0.25(to 120 dB)
Community Wind Go Discovery, Go Pursuit Westerly	Dura Spark 400+400, 300 to 1000 joules	210-216(2)	1 -3	29-72
Bluepoint Wind -Gerry Bordelon Go Adventurer, Regulus (new) Time & Tide, Atlantic Surveyor	Dura Spark 400 tip, 500-2000 joules	214 (3)	2.5	53

Project/Vessels	Devices, Settings	Source Level(dB)	Range to 160 dB (miles)	Range to 140 dB (miles)
Attentive Energy Emma McCall, M. Bordelon Regulus(prior drilling)	Dura Spark 400 tip, 500-2000 joules	214 (3) 197/159 (5)	2.5 0.2/NA	53 4/.3(120 dB)
Invenergy/Leading Light Go Explorer Go Seeker- previous	Dura Spark 240 tip, 500 joules or 400+400, 500 joules	209-212 (4)	1-2	25-39
Ocean Wind 1 & 2	Dura Spark 400+400, up to 1000 joules	210-216 (2)	1-3	29-72

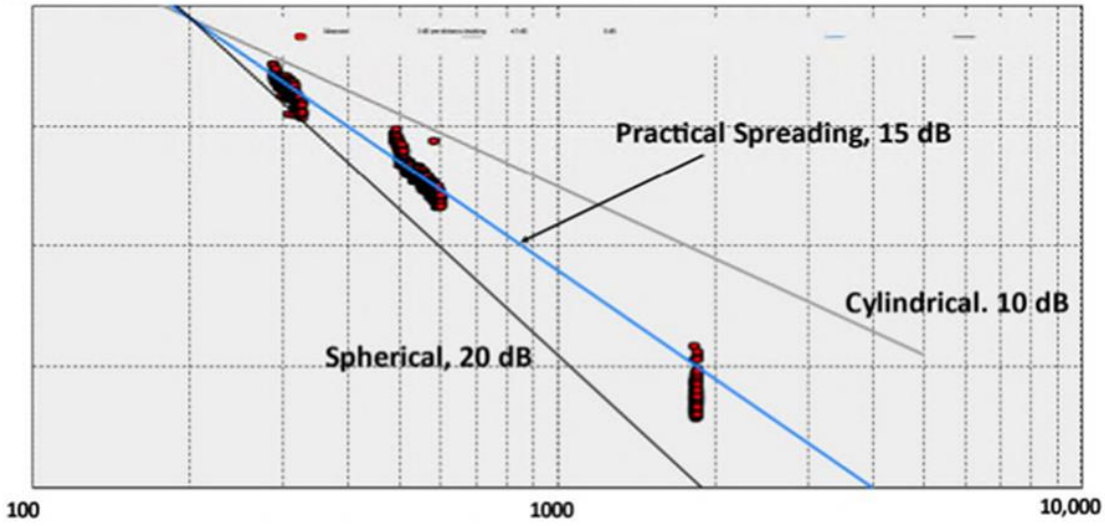
(1) Table 10, Crocker & Frantaninio, 240 tips , interpolation for 750 joules
(2) Table 10, 400 tip, 1000 joules =207 +3 dB for 2 units, operated with 240 tips, 1000 joules = 213 + 3 = 216 dB
(3) Table 10, 400 tip, 2000 joules = 214 dB
(4) Table 10, 240 tip, 500 joules = 209 dB, 400+400 operated with 240 tips, 500 joules = 209 + 3 = 212 dB
(5) From Long-Fei Wong, Underwater Noise Characteristics of Exploratory Drilling, Impact on Marine Mammals.

Secondly, the survey approvals assume that the noise level drops off quickly as it travels away from the vessel. A 20 decibel loss with distance is used everywhere, but that only exists from the vessel until the sound wave hits the bottom, as shown in the picture below. Then the sound travels out between the seabed and surface and doesn't dissipate nearly as much.



Dr. Stern used a rate of 15 decibels for that transition which has been used by the agencies for other survey authorizations. The most compelling evidence for the 15 dB loss is shown below where is provides the closest match to actual noise measurements – the green and red dots.

Measured noise levels versus distance in Figure 6 of the report titled "Underwater noise emissions from offshore wind turbines", 2005, Klaus Betke, also show **a match with a 15 dB loss rate**, as shown below.



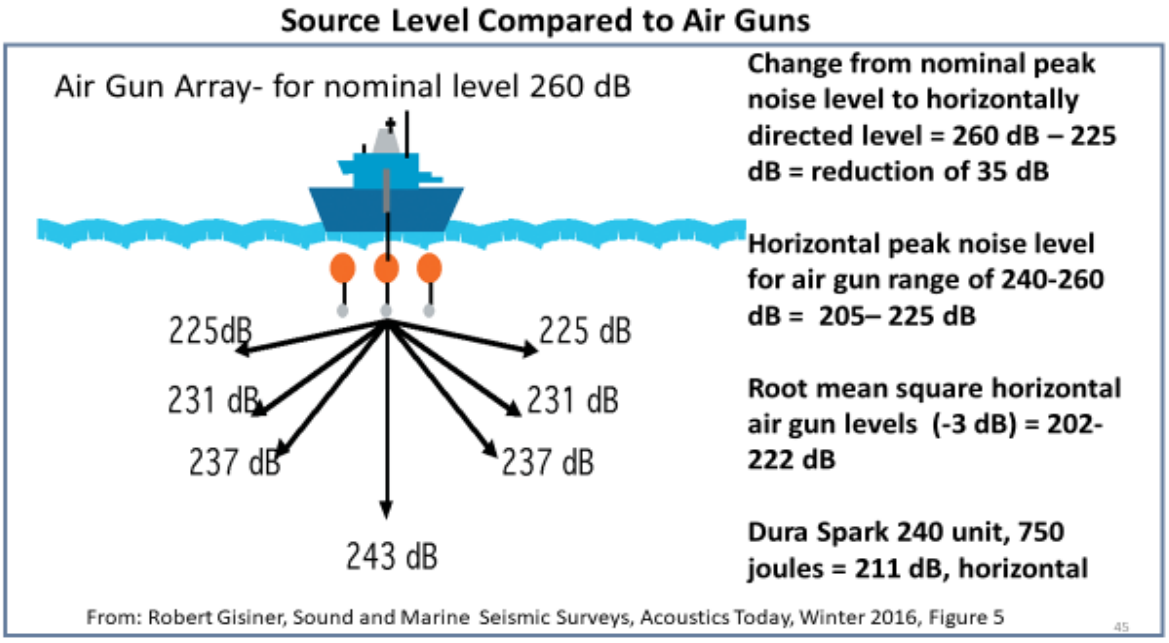
For the vessel surveys, the NMFS applies the spherical spreading factor of 20 dB well beyond the water depths encountered here. This is inconsistent with the physical laws governing noise propagation in a shallow water environment and is also contradicted by existing NMFS and BOEM Guidance documents.

The difference of 5 decibels has a very significant impact on the whales. Because noise is measured in decibels, an increase **of just three means that the intensity of the noise has doubled**. The difference in the distance from the vessel with elevated noise using the Agency's numbers versus Dr. Stern's is striking, **from one-tenth of a mile to 1 and a half miles**, meaning many more animals disturbed.

As a result, the serious harm and fatality to marine mammals that can occur from such disturbances is not adequately addressed. That harm can come from many directions, including the loss of navigation capability, the ability to detect food prey and predator, and the loss of communication e.g., between mothers and calves.

Thirdly, the potential harm to an animal from repeated disturbances is not addressed. Such repeated disturbances to the same animal can occur from close passes of the same vessel, and from multiple companies and vessels surveying the same, large overlapping areas. Perhaps, like us, multiple disturbances in the same day are not readily dealt with.

Finally, many past marine mammal stranding events around the world have been associated with vessel surveys using air guns. Some were concerned with those surveys, but not the surveys for the offshore wind projects off the Atlantic Coast, saying that the air gun noise is louder, and that's true. But most of that energy is directed downward. When you look at the noise going outward between the seabed and surface where the animals are, as shown here, the effects of both devices are similar. Therefore, past episodes are also evidence of the potential cause of marine mammal deaths.



Other marine mammal stranding incidents documented by Dr. Stern are attached to this document in Appendix B

As shown in the device comparisons, the events in Appendix B involving air-guns and mid-frequency sonars have sound levels emanating outward horizontally comparable to or somewhat higher than the Dura Spark 240 unit here. However, the noise source level and all-direction propagation of the noise from the sparker unit is sufficient to require a considerable distance to dissipate down to the 160 or 140-dB criteria, and thus likely to disturb a large number of animals.

In addition, the noise intensity and affected ranges from the sparker units increases exponentially with input power. Although certain power levels are mentioned in the animal Take Authorizations here, there is apparently no record being kept of the electrode settings and power inputs to the devices. Dr. Stern asked for such information from the National Marine Fisheries Service in a Freedom of Information Act request but has received no data.

Therefore, Dr. Stern concludes, and we agree that the units are being operated at higher power inputs and generating higher noise source levels emanating horizontally even closer to those of the air-guns and mid-frequency sonars.

There are differences but also similarities among the air-gun, mid-frequency sonars and sparker units. Therefore, the evidence from the air-gun and sonar events cannot be ignored in assessing the potential for the current surveys as a cause of the recent whale and dolphin stranding.

No Other Plausible Causes for the Deaths Have Been Put Forward: Some say that the recent whale and dolphin deaths are due to vessel strike and entanglements or changed feeding patterns due to climate change. We do not agree with these explanations for the following reasons.

- Commercial vessel activity off the NJ area actually decreased from November 2022 during the time of the whale deaths.
- The NJ Marine Mammal Stranding Center has connected only 20 percent of the whale deaths to “blunt force trauma” and “possible vessel strike”, and even those could have been precipitated by disorientation from the vessel survey noise.
- The agencies often cite a 40 percent number due to vessel strike, but that is actually 40 percent of the whales examined, and only about half are examined.
- Additionally, they jump from “blunt force trauma” which could also come from beach stranding and ”possible vessel strike” to vessel strike.
- In addition, as far as we know, no study shows a change in zooplankton locations here, and even if there were, it would not explain why whales would die from feeding in a new location.

Conclusion and Recommendation There is actually a lot evidence of vessel survey cause of whale deaths, summarized here.

Summary of "The Evidence"

- There have been unprecedented spikes in whale deaths.
- They began locally when the vessel surveys increased.
- The time and place of the whale deaths coincides with survey vessel presence.
- The elevated noise range from the vessel is underestimated.
- The indirect harm and fatality from disturbance level noise is not addressed, nor is the effect of repeated disturbances on an animal from passes from the same vessel, or from overlapping surveys.
- There have been many whale stranding events worldwide with noise devices having similar horizontal noise patterns.
- No other plausible cause has been put forward.

We conclude that the vessel surveys are the likely cause of the whale deaths.

We recommend that in addition to denying the IHA Permit, the NMFS and NOAA should cease all vessel surveys until a proper, thorough, and independent investigation is done, and at a minimum, the following actions are taken:

- The survey areas should be cut back to only what's necessary to characterize the lease area and the export cable routes. Any future turbine locations should be determined by the agency through the proper program and environmental reviews, and not prejudiced by these surveys.

- The energy inputs to the noise devices should be made public, reviewed and as appropriate adjusted downward.

- A coordinated data sharing survey program using fewer vessel surveys should be set up.

Respectfully submitted,

Defend Brigantine Beach, Inc and Downbeach

Katie Finnegan, President
Dr. Suzanne Moore, Treasurer
Tom Jones, Secretary
Sharri Lilienfeld, Downbeach Committee Co-Chair
Margaret Reale, Donwbeach Committee Co-Chair

Dr. Bob Stern, President of SaveLBI, Inc requests that all comments in this document go on the record for him and the SaveLBI Inc organization.

Appendix A.

Level A Takes	TOTAL ANNUAL	US Wind	Park City Wind	Sunrise Wind	SouthCoast Wind (formerly Mayflower Wind)	Atlantic Shores	Empire Offshore Wind
Type		Operation & Const	Operation & Const	Operation & Const	Construction	Construction	Contruction
Lease number		0490	0534,0501 (SW PORTION)	0487	0521	0499	512
Area		MD	MA	NY	MA	NJ	
Renewal/Initial							
Inprocess/Active		Inprocess	Inprocess	Inprocess	Inprocess	Inprocess	Inprocess
Date		1/1/25-12/31/29	3/27/25-3/26/30	11/20/23-11/19/28	2025-2030	2025-2029	1/22/24-1/21/29
NORTH ATLANTIC RIGHT WHALE*	-					-	
BLUE WHALE *	-					-	
FIN WHALE	46	2	1	4	25	-	1
SEI WHALE *	8	1	1	2		-	
MINKE WHALE	68	1	4	27		-	4
HUMBACK WHALE	36	2	1	3		-	
SPERM WHALE*	1		1			-	
ATLANTIC WHITE-SIDED DOLPHIN	29		1			-	
ATLANTIC SPOTTED DOLPHIN	1		1			-	0
PANTROPICAL SPOTTED DOLPHIN	-					-	
BOTTLENOISE DOLPHIN (WN ATLANTIC OFFSHORE)	20		1			-	
BOTTLENOISE DOLPHIN (NORTHERN MIGRATORY COASTAL)	22					-	
COMMON BOTTLENOSE DOLPHIN (S MIGRAT)	-					-	
WHITE BEAKED DOLPHIN						-	
LONG-FINNED PILOT WHALE	10		1			-	
KILLER WHALE						-	
FALSE KILLER WHALE						-	
SHORT FINNED PILOT WHALE	1		1			-	
CUVIER'S BEAKED WHALE	-					-	
MESOPLODONT WHALE	-					-	
RISSO'S DOLPHIN	8		1			-	1
STRIPED DOLPHIN	-					-	
ROUGH TOOTHED DOLPHIN	-					-	
SHORT BEAKED COMMON DOLPHIN	-					-	
COMMON DOLPHIN	36		1			-	
PILOT WHALE	-					-	
HARBOR PORPOSE	308		56	20	109	-	
GRAY SEAL	62		8	3	14	-	
HARBOR SEAL	95		17	5	30	-	
HARP SEAL	10		8			-	
*Endangered	761	6	104	64	178	-	6

Level A Takes	Dominion Energy	Revolution Wind	Ocean Wind 1	Vineyard Wind 1 llc
Type	Construction	Construction	Contruction	Construction
Lease number	0483	0486	0498	0501
Area	VA	RI	NJ	MA
Renewal/Initial				
Inprocess/Active	Active	Active	Active	Active
Date	2/5/24-2/4/29	11/20/23-11/19-28	10/13/23-10/12/28	5/1/23-4/30/24
NORTH ATLANTIC RIGHT WHALE*				
BLUE WHALE *				
FIN WHALE	4		4	5
SEI WHALE *	1		1	2
MINKE WHALE	8		22	2
HUMBACK WHALE	4	8	8	10
SPERM WHALE*				
ATLANTIC WHITE-SIDED DOLPHIN				28
ATLANTIC SPOTTED DOLPHIN				
PANTROPICAL SPOTTED DOLPHIN				
BOTTLENOISE DOLPHIN (WN ATLANTIC OFFSHORE)			11	8
BOTTLENOISE DOLPHIN (NORTHERN MIGRATORY COASTAL)			22	
COMMON BOTTLENOSE DOLPHIN (S MIGRAT)				
WHITE BEAKED DOLPHIN				
LONG-FINNED PILOT WHALE				9
KILLER WHALE				
FALSE KILLER WHALE				
SHORT FINNED PILOT WHALE				
CUVIER'S BEAKED WHALE				
MESOPLODONT WHALE				
RISSO'S DOLPHIN				6
STRIPED DOLPHIN				
ROUGH TOOTHED DOLPHIN				
SHORT BEAKED COMMON DOLPHIN				
COMMON DOLPHIN				35
PILOT WHALE				
HARBOR PORPOSE	1	49	69	4
GRAY SEAL	1	3	31	2
HARBOR SEAL	1	5	35	2
HARP SEAL				2
*Endangered	20	65	203	115

Level B Takes	TOTAL ANNUAL	Atlantic Shores Takes Total	Bluepoint Wind	Atlantic Shores	US Wind	Park City Wind	Sunrise Wind	TerraSond	SouthCoast Wind (formerly Mayflower Wind)
			Surveys	Surveys	Operation & Const	Operation & Const	Operation & Const	Surveys	Construction
Lease number			0537	0499,0541,0549	0490	4,0501 (SW PORTI	0487	0545,0546	0521
Area			NY/NJ BIGHT	NY, NJ, DEL, MD	MD	MA	NY	NC/SC	MA
Renewal/Initial			Renewal						
Inprocess/Active			Inprocess	Inprocess	Inprocess	Inprocess	Inprocess	Inprocess	Inprocess
Date			3/1/24-2/28/25	4/1/24-3/31/25	1/1/25-12/31/29	3/27/25-3/26/30	11/20/23-11/19/28	2/1/23-2/1/24	2025-2030
NORTH ATLANTIC RIGHT WHALE*	449	15	11	2	2	19	35	3	119
BLUE WHALE *	13	-					4		
FIN WHALE	1,407	23	63	4	4	11	78	2	400
SEI WHALE *	249	13	15	2	1	6	31		55
MINKE WHALE	3,248	93	149	17	3	41	419		878
HUMBACK WHALE	1,327	27	27	3	3	8	89	2	272
SPERM WHALE*	222	7	5			3	14	1	94
ATLANTIC WHITE-SIDED DOLPHIN	10,084	126	316	21		31	639	628	3,070
ATLANTIC SPOTTED DOLPHIN	5,076	375	162	25	24	31	114		2
PANTROPICAL SPOTTED DOLPHIN	25	-			5				
BOTTLENOISE DOLPHIN (WN ATLANTIC OFFSHOR	24,898	1,784	204	291	847	20	425	631	2,056
BOTTLENOISE DOLPHIN (NORTHERN MIGRATOR	13,694	3,632	730	455				38	35,807
COMMON BOTTLENOSE DOLPHIN (S MIGRAT)	37,429	-							
WHITE BEAKED DOLPHIN		-							
LONG-FINNED PILOT WHALE	1,170	89	50	9	27	18			
KILLER WHALE		-							
FALSE KILLER WHALE		-							
SHORT FINNED PILOT WHALE	501	12				10			
CUVIER'S BEAKED WHALE	58	-						3	
MESOPLODONT WHALE	14	-						3	
RISSO'S DOLPHIN	2,545	128	38	8	9	8	47		1,336
STRIPED DOLPHIN		-							
ROUGH TOOTHED DOLPHIN	29	-						19	
SHORT BEAKED COMMON DOLPHIN	23,371	-			29				
COMMON DOLPHIN	66,477	985	3,456	185		222	7,393	49	
PILOT WHALE	1,123	-					58	26	541
HARBOR PORPOISE	14,818	555	958	97		296	1,008	3	2,537
GRAY SEAL	16,723	1,472	861	207		346	1,099	2	2,818
HARBOR SEAL	23,927	1,662	861	207		776	2,468	2	5,150
HARP SEAL	567	-				346			
*Endangered	249,503	10,998	7,906	1,533	954	2,192	13,921	1,412	55,135

Level B Takes	Atlantic Shores Construction	Empire Offshore Wind Contruction	Dominion Energy Construction	Park City Wind Surveys	Revolution Wind Construction	Orsted Wind Power NA Surveys	Ocean Wind 1 Contruction	
Lease number	0499	512	0483	0534	0486	0486,0487,0500	0498	
Area	NJ		VA	MA-NY	RI	NY-MA	NJ	
Renewal/Initial				Reissuance		Renewal		
Inprocess/Active	Inprocess	Inprocess	Active	Active	Active	Active	Active	
Date	2025-2029	1/22/24-1/21/29	2/5/24-2/4/29	3/1/24-2/28/25	11/20/23-11/19-28	10/6/23-10/5/24	10/13/23-10/12/28	
NORTH ATLANTIC RIGHT WHALE*	5	13	6	30	50	17	7	
BLUE WHALE *	4			1	3		4	
FIN WHALE	4	136	108	60	101	14	13	
SEI WHALE *	5	4	3	5	21	3	3	
MINKE WHALE	6	83	51	37	363	13	74	
HUMBACK WHALE	3	63	125	46	263	34	66	
SPERM WHALE*	3	3	3	5	8	2	9	
ATLANTIC WHITE-SIDED DOLPHIN	25	747	15	1,014	312	210	100	
ATLANTIC SPOTTED DOLPHIN	200	90	2,042	29	87	29	135	
PANTROPICAL SPOTTED DOLPHIN			20					
BOTTLENOISE DOLPHIN (WN ATLANTIC OFFSHOR	225		3,888	399	375	139	1,360	
BOTTLENOISE DOLPHIN (NORTHERN MIGRATORY	1,949	4,935					1,394	
COMMON BOTTLENOSE DOLPHIN (S MIGRAT)							1,584	
WHITE BEAKED DOLPHIN								
LONG-FINNED PILOT WHALE	40			86		52	30	
KILLER WHALE								
FALSE KILLER WHALE								
SHORT FINNED PILOT WHALE	12						30	
CUVIER'S BEAKED WHALE								
MESOPLODONT WHALE								
RISSO'S DOLPHIN	60	200	25	30	43	30	90	
STRIPED DOLPHIN						20		
ROUGH TOOTHED DOLPHIN								
SHORT BEAKED COMMON DOLPHIN		9,870				6,000		
COMMON DOLPHIN	112		1,660	10,176	10,521			
PILOT WHALE		417	54		27			
HARBOR PORPOISE	35	243	22	759	1,283	287	350	
GRAY SEAL	155	484	56	400	1,073	118	305	
HARBOR SEAL	345	678	56	897	2,669	118	844	
HARP SEAL		4						
*Endangered	3,184	17,970	8,134	13,974	17,199	7,086	6,398	

Level B Takes	Atlantic Shores Offshore Wind Bight Surveys		Vineyard NE Surveys		Ocean Wind II Surveys		Invenergy Wind Offshore (NY Bight) Surveys		Community Offshore Wind (NY Bight) Surveys		Attentive Energy (NY Bight) Surveys		Atlantic Shores Offshore Wind Surveys	
Lease number Area Renewal/Initial Inprocess/Active Date	0541 NJ,NY	Active 8/10/23-8/9/24	0522,0544 MA-NJ	Active 7/27/23-7/26/24	0532 NJ	Active 7/21/23-7/20/24	0542 NJ, NY	Active 7/31/23-7/30/24	0539 NJ, NY	Active 7/1/23-6/30/24	0538 NJ, NY	Active 6/20/23-6/19/24	0499,0549 NJ, NY	Active 6/9/23-6/8/24
NORTH ATLANTIC RIGHT WHALE*	5		12		2		6		24		12		3	
BLUE WHALE *			1											
FIN WHALE	9		20		4		18		76		38		6	
SEI WHALE *	4		5		1		7		24		12		2	
MINKE WHALE	46		46		8		92		304		179		24	
HUMBACK WHALE	16		12		4		13		46		24		5	
SPERM WHALE*	2		2		3		2		10		3		2	
ATLANTIC WHITE-SIDED DOLPHIN	63		129		50		101		427		207		17	
ATLANTIC SPOTTED DOLPHIN	100		29		15		42		320		89		50	
PANTROPICAL SPOTTED DOLPHIN														
BOTTLENOISE DOLPHIN (WN ATLANTIC OFFSHOR	179		169		2,221		611		1,316		1,746		1,089	
BOTTLENOISE DOLPHIN (NORTHERN MIGRATORY			45				795		115		389		1,228	
COMMON BOTTLENOSE DOLPHIN (S MIGRAT)			30											
WHITE BEAKED DOLPHIN														
LONG-FINNED PILOT WHALE	20		17		20		15		78		21		20	
KILLER WHALE			4											
FALSE KILLER WHALE			5											
SHORT FINNED PILOT WHALE														
CUVIER'S BEAKED WHALE														
MESOPLODONT WHALE														
RISSO'S DOLPHIN	30		9		30		10		59		23		30	
STRIPED DOLPHIN														
ROUGH TOOTHED DOLPHIN														
SHORT BEAKED COMMON DOLPHIN			7,472											
COMMON DOLPHIN	588				400		888		5,572		2,056		100	
PILOT WHALE														
HARBOR PORPOSE	281		347		72		950		1,912		1,095		142	
GRAY SEAL	374		418		13		950		1,955		1,596		736	
HARBOR SEAL	374		939		13		950		1,955		1,596		736	
HARP SEAL														
*Endangered	2,091		9,711		2,856		5,450		14,193		9,086		4,190	

Level B Takes	TerraSond Limited (NYBight)	SouthCoast Wind Energy	Orsted Wind Power NA	Bluepoint Wind (NY Bight)	Vineyard Wind 1 llc
	Surveys	Surveys	Surveys	Surveys	Construction
	0539,0541,0542, Central Atlantic Call				
Lease number Area	Area	0521	0482,0519	0537	0501
Renewal/Initial	NJ, NY	MA, RI	DE	NJ, NY	MA
Inprocess/Active			Reissued		
Date	Active		Active	Active	Active
	4/1/24-3/31/25	5/12/23-5/11/24	5/10/23-5/9/24	3/1/24-2/28/25	5/1/23-4/30/24
NORTH ATLANTIC RIGHT WHALE*	15	6	11	14	20
BLUE WHALE *					
FIN WHALE	105	7	7	86	33
SEI WHALE *	13	2	1	20	4
MINKE WHALE	98	13	2	204	98
HUMBACK WHALE	52	55	4	36	56
SPERM WHALE*	32	2	3	6	5
ATLANTIC WHITE-SIDED DOLPHIN	345	28	50	432	1,107
ATLANTIC SPOTTED DOLPHIN	1,196	29	15	221	
PANTROPICAL SPOTTED DOLPHIN					
BOTTLENOISE DOLPHIN (WN ATLANTIC OFFSHOR	3,005	152	2,752	702	96
BOTTLENOISE DOLPHIN (NORTHERN MIGRATORY				1,659	
COMMON BOTTLENOSE DOLPHIN (S MIGRAT)					
WHITE BEAKED DOLPHIN					
LONG-FINNED PILOT WHALE	480	8	20	68	91
KILLER WHALE					
FALSE KILLER WHALE					
SHORT FINNED PILOT WHALE	449				
CUVIER'S BEAKED WHALE	55				
MESOPLODONT WHALE	11				
RISSO'S DOLPHIN	339	7	20	52	12
STRIPED DOLPHIN					
ROUGH TOOTHED DOLPHIN	10				
SHORT BEAKED COMMON DOLPHIN					
COMMON DOLPHIN	11,225	2,094	400	4,734	4,646
PILOT WHALE					
HARBOR PORPOSE	514	83	82	1,312	150
GRAY SEAL	993	167	4	1,179	414
HARBOR SEAL	822	74	4	1,179	214
HARP SEAL					217
*Endangered	19,759	2,727	3,375	11,904	7,163

Appendix B

II. Stranding Incidents Associated with Nearby Seismic Surveys

There have been a number of stranding incidents worldwide associated with the air gun and sonar systems, some of which are presented below.

Given that the US agencies and stranding networks and other international networks as well rarely engage in comprehensive and detailed investigation of stranding events occurring in the vicinity of seismic surveys or naval exercises, it can be argued that the connection between the seismic surveys and stranding is seriously underestimated.

The first five events of multiple-animal stranding (mass standings) described just below were associated with the use of high intensity sonar during naval operations and with the use of air guns during seismic reflection profiling. They predominantly involved beaked whales particularly Cuvier's beaked whales [(2) Table 7.5] An increasing number of such stranding from 1950 to 2000 can be correlated with the increasing use of mid frequency anti-submarine warfare (ASW) sonar [(2)], figure 7.1. As mentioned above the mid frequency sonar has similarities to the sparker units being employed off the New Jersey coast.

Event six a mass-stranding on Kauai, Hawaii on July 3 and 4, 2004 where an estimated 150-200 melon-headed whales packed into shallow Hanalei Bay for a period of about 28 hours. While not conclusively proven, NOAA acknowledged a correlation with sonar in the mass stranding of melon-headed whales that occurred there. At the time of the stranding, the Navy was conducting exercises involving loud sonar in the area. "Sound propagation models suggest that sonar transmissions were likely detectable over a large area around Kauai for many hours on the day prior to the stranding, as well as within Hanalei Bay when the animals were there," said Brandon Southall, NOAA Fisheries Service's Acoustics Program Director. They were finally gently herded out by members of the community including the Hanalei Canoe Club, local and federal employees, and volunteers and staff with the Hawaiian Islands Stranding Response Group.

Event seven involving a large group of melon headed whales (Peponocephala electra) was reported to be deep within the Loza Bay mangrove system in northwest Madagascar, May 31, 2008.

While aspects of this event will remain unknown, the ISRP noted that a high-power 12 kHz multi-beam echo sounder system (MBES) operated intermittently by a survey vessel moving in a directed manner down the shelf-break the day before the event, to an area ~65 km offshore from the first known stranding location. The ISRP deemed this MBES use to be the most plausible and likely behavioral trigger for the animals initially entering the lagoon system. This conclusion is based on:

(1)Very close temporal and spatial association and directed movement of the MBES survey with the stranding event. The MBES vessel moved in a directed manner transmitting sounds that would have been clearly audible over many hundreds of square kilometers of melon-headed whale deep-water habitat areas (and extending into some shallower waters along the shelf break) from 0544 until 1230 local time on 29 May and then intermittently in a concentrated offshore area (located ~65 km from the mouth of the lagoon) between 1456 and 1931 on 29 May; these preceded the first known stranding during the day of 30 May and sighting of live animals within the lagoon at 2300 on 30 May.

(2)The unusual nature of this type of stranding event coupled with previous documented apparent behavioral sensitivity in this pelagic species (albeit to other sound types - discussed in more detail below) [(4)]

(3)The fact that all other possible factors considered were determined by the ISRP to be unlikely causes for the initial behavioral response of animals entering the lagoon system.

Quoting from the Exxon EIA (2008):

"ExxonMobil Exploration and Production (Northern Madagascar) Limited (EMEP (NM) L), plans to carry out a high resolution 2D seismic survey over prospective drilling locations of the Sifaka Prospect, take sea floor and water samples in the prospect area for an Environmental Baseline Study, conduct a multi-beam bathymetry study and survey the upper slope to identify shallow water features in the Ampasindava Block, offshore Madagascar. The work will be conducted in May to June, 2008 for a period of approximately 30 days."

Event eight includes a lawsuit filed by Public Employees for Environmental Responsibility (PEER) regarding the largest recorded mass beaching of rare Stejneger's beaked whales (also known as Bering Sea beaked whales or saber-toothed whales) that took place in August 2018 on the beaches of the Aleutian island of Adan. While the final cause of these deaths has not been determined, this type of mass stranding has been known to follow active acoustic (sound generating) activity by naval or other ships that can scare these deep-diving whales quickly to the surface, causing fatal decompression impacts.

Just prior to the 2018 beaked whale mass stranding, recording devices from the Alaska Volcano Observatory in the region recorded distinct anthropogenic acoustic sources, repeating at regular intervals, for hours at a time. The source of these sonic pulses remains unknown, and Professor Richard Steiner sought to identify potential sources. Through FOIA inquiries with NOAA, the U.S. Navy, and the U.S. Geological Survey (all of which were answered in a timely fashion), Prof. Steiner was able to determine that no domestic vessels were permitted to operate any active source sonic equipment in that area during that time. We understand from the Research Application Tracking System (RATS) that State requires the following: "If the research involves the study or incidental take of marine mammals or species listed under the Endangered Species Act, include the appropriate authorization from the NOAA Office of Protected Resources (i.e., Research Permit or an Incidental Take Permit/Authorization)." NOAA confirms that no Incidental Harassment Authorizations (IHAs) were issued for such activity in the Aleutians that year.

From those FOIA requests, and the Alaska Marine Exchange's Automatic Identification System (AIS) tracking data, Prof. Steiner learned that three Japanese research ships had operated in the area during the period in question. One of these was the Yushin Maru #2, a notorious Japanese whaling ship (owned and operated by the Japan Institute for Cetacean Research), that had been permitted to deploy as many as 240 acoustic sonobuoys in the water for its cetacean research in the Bering Sea/Aleutian Islands that summer.

Significantly, later that year, after a long, tense diplomatic dispute with the U.S. and other anti-whaling nations, Japan withdrew from the International Whaling Commission (IWC) in order to resume commercial whaling. Prof. Steiner was trying to determine precisely what these, or other, foreign research ships were doing in those waters at that time, and whether they may have conducted acoustic activities, permitted or not, that caused the mass stranding – and the State MSR consent letters appear to be the only source of this information.

A new scientific paper suggesting that seismic activity may have been involved in a mass stranding death of whales along the Aleutian Islands. The 2018 event on Adak is the largest known mass stranding of Stejneger's beaked whales.

When whales strand along the shores of Alaska's remote and far-flung Aleutian Islands, they may never be discovered by humans. The chain of small, sparsely populated islands arc from the tip of the Alaska Peninsula west 1,100 miles to Attu Island.

The U.S. State Department approves foreign vessels to conduct scientific research in U.S. waters without public notice or ensuring they obtain the same permits domestic researchers must or monitoring their activities. Pointing to the largest

recorded beaching of rare Bering Sea beaked whales while Japanese whaling "researchers" operated nearby, Public Employees for Environmental Responsibility (PEER) is calling for system-wide reform.

In March 2021, Professor Steiner submitted FOIA requests to NOAA, the Navy, and the U.S. Geological Survey. All were answered in a timely fashion and indicated that there were no domestic vessels, military or research, permitted to conduct active acoustic activity in the area in 2018.

However, Professor Steiner then learned that there had been three Japanese research ships in the Bering Sea in the summer of 2018, including the Yushin Maru #2, a notorious whaling outlaw, that had been approved to conduct cetacean "research" using acoustic sonobuoys in the Bering Sea/Aleutian Islands for the International Whaling Commission. Such research activities are required to obtain Incidental Take/Harassment Authorizations, but NOAA confirms that no authorizations were issued for such work in Alaska that year. To date, the source of the recorded (illegal) underwater sounds waters that may have caused the mass stranding remains undetermined.

1. Kyparissiakos Gulf, Greece 1996 (2)

One mass stranding of Cuvier beaked whales in the Ionian Sea coincided with tests of
ASW sonar by NATO. The stranding coincided with a four-day period when the vessel R/V Alliance was towing an acoustic source in the vicinity. The source generated both low and mid-frequency sound at source levels of 226 dB projected horizontally. The Greek government temporarily stopped seismic surveys as a result.

Along 56 km of coastline, 14 Cuvier beaked whales were stranded during 12–13 May 1996. Twelve of 14 animals stranded alive, with no apparent disease or pathogenic cause. These stranding corresponded with a four- day period (12–16 May) when the vessel *NRV Alliance* was towing an acoustic source in the vicinity. The acoustic source generated both low-frequency and mid-frequency sound at source levels of 226 dB re 1µPa @ 1m. The transmitted low-frequency signal included a 2 sec upsweep at 450-650 Hz, and a 2 sec cw tone at 700 Hz. The midfrequency signal included a 2 sec upsweep at 2.8-3.2 kHz and a 2 sec tone at 3.3 kHz. Both sources projected horizontally directed beams of sound with vertical beam widths of about 23 degrees. Three source tows of about 2 hours duration were conducted each day; and the stranding occurred most closely in time with the first two source runs of May 12th and the last two source runs of May 13.

The association of stranding locations and acoustic source tracks in space and time is compelling evidence that these animals were affected by the ASW sonar. There is a general correlation between the offshore source track locations and the inshore stranding locations. The May 13th source tow track is shifted northward from the May 12th track, and likewise some of the May 13th stranding locations are farther north. Correlation of stranding times and source track locations for May 12 th suggests that at least three of the six animals with known stranding times were affected by the 0600-0800 source tow (run 9) as their stranding times precede the 1100-1300 source tow (run 10). Assuming that they were near the source when they were exposed to a high sound level, their swimming distances were approximately 30 nm to reach the shore, covered at speeds of approximately 10 knots. The two stranding in the afternoon of May 12th with known times likewise required swimming distances of 20-30 nm

2. The Bahamas March 15 -16th, 2000 (2)

Sixteen cetaceans were found stranded along the providence channel in the Bahamas
Islands during a two-day period in March, 2000 and the episode was correlated with ta US Navy training exercise using mid frequency ASW sonar. Gross necropsy results on five of the dead whales suggested that they were in good body

condition, none showed evidence of debilitating disease. The five Navy ships operating ASW sonars in the area showed a close correlation in space and time with the stranding locations as shown in Figure 7.3 [(2)] The noise source levels were 235 dB with operating frequencies between 2.6 and 3.3 kHz.

The stranded animals were predominantly beaked whales. At least two minke whales *were* also found stranded. One dolphin stranded at a somewhat distant location and may have died of unrelated causes. Eight of the beaked whales died, and the remaining animals were re-floated and their fate is unknown. None of these animals has been recognized as re-stranded or re-sighted. Tissue samples were collected from five of the dead beaked whales. Gross necropsy results suggested that all five were in good body condition; none showed evidence of debilitating disease. Some kind of auditory damage was found in four of the beaked whales examined.

Hemorrhages were found in the acoustic fats of the head, the inner ears, and some spaces around the brain, with no evidence of external blunt force trauma. The pattern of injury in the freshest specimens suggested that the ears were structurally intact and the animals were alive at the time of injury.

Four U.S. Navy ships were operating hull-mounted ASW sonars in the area, two SQS-53C and two SQS-56. The SQS-53C sonars were operated at 2.6 and 3.3 kHz with a source level of 235 dB re 1µPa @ 1 m or higher, and 0.5 - 2 sec ping lengths alternating between tones and frequency-modulated sweeps. The SQS- 56 sonars were operated at 6.8, 7.5, and 8.2 KHz at 223 dB re 1µPa @ 1 m. Integrated sound exposure levels greater than 160 dB for 10-30 sec were found throughout much of the Providence Channel during March 15th 2000.

The association of stranding locations and acoustic source tracks in space and time is compelling evidence that these animals were affected by the high-intensity sound sources. The acoustic source tracks and stranding locations divided into the morning (0700-1100) and afternoon (1200-1430). During the morning two source ships were in the Providence Channel off the southwest end of Abaco Island and moving toward the west, and the other two source ships were entering the channel from the east.

A cluster of stranding occurred at the south end of Abaco Island during this time, at minimum ranges of 10-30 nm from the ships' closest points of approach. During the afternoon, the source ships moved northwestward, approaching Grand Bahama Island. A cluster of noon and afternoon stranding occurred on the south coast of Grand Bahama Island, again with minimum source-to-shore ranges of 2030 nm. Assuming that these animals received peak sound exposures at locations near the source tracks, then immediately following exposure they would have swum toward the stranding sites at high speed (~ 10 knots). Alternatively, lower exposure levels more distant from the source tracks and closer to the stranding sites would imply slower swim speeds.

3. Madeira, May 2000 [(2)]

A stranding of three Curvier beaked whales occurred in May 2000 on the Madeira Archipelago, in the northeastern Atlantic (Luis Freitas, Madeira Whale Museum, pers. comm.). The deep-water channel between islands has been the site of repeated observations of live animals. The animals that stranded in May 2000 consisted of two sub adults (one male, one female) and a female of unknown age. The two sub adults were examined and found to have hematomas, eye hemorrhages, pleural hemorrhages, and lesions of the lung. The third animal was found in an advanced state of decomposition and did not receive a detailed examination. The presence of a NATO exercise was signaled by naval vessels and aircraft in the deep-water channel, coincident with the stranding events. Details of the acoustic sources in use during this exercise are lacking at this time.

4.Canary Islands, September 24, 2002 [(2)]

A mass stranding of 14 to 19 beaked whales occurred in the Canary Islands on September 24-25, 2002 that were associated with naval maneuvers by Spain and other NATO countries. Necropsies and dissections revealed no visible signs of traumatic lesions physically caused by a ship strikes, fishing activities or blunt trauma generally. Considerable hemorrhaging was observed along acoustic paths in the head and in the brain and spinal cord. The source levels of the sonars were approximately 223 dB at middle frequencies from 3,000 to 10,000 Hz.

On 24 September a total of 14 animals were found stranded; five were dead, three were alive and subsequently died, and six were pushed back to sea. Five more animals were found dead and in a state of decomposition between 25 and 28 September. It is possible that these included animals that had been pushed out to sea and subsequently stranded. Preliminary necropsy results for six of the beaked whales suggest that they were healthy. The stranding occurred at dawn or in the early morning, and the animals that were found alive all appeared disoriented. Those that were found dead had been feeding recently.

Necropsies and dissections revealed no visible signs of trauma. Hemorrhages were observed along acoustic paths and in the brain and spinal cord. All animals were bleeding profusely in the eyes. Multifocal petechial (pinpoint) hemorrhages were observed, similar to decompression sickness. Fat embolism was observed, which could have been responsible for hemorrhages in the macrovascular system. Degeneration (in vivo) of vestibucochlear portions of the ear were noted, specifically, degeneration and resorption of some hair cell bundles and associated nerve fibers. This may suggest a chronic condition, and that some damage to the cochlea had occurred prior to this stranding event.

The stranding occurred along the southeastern coast of the islands of Fuerteventura and Lanzarote. At the time of the September 24 -25 stranding, 10 NATO countries — Germany, Belgium, Canada, France, Greece, Norway, Portugal, Britain, Turkey, and the United States — were conducting a multinational naval exercise; however, the acoustic sources employed during the exercise are not known at this time. There have been seven mass stranding of curvier beaked whales *in* the Canary Islands since 1985, and naval exercises have been recorded as associated with five of them (Table 5).

5. *Gulf of California September 24, 2002* [(2)]

Two beaked whales were stranded on Isle San Jose in the Gulf of California, Mexico on September 24, 2002 coincident with seismic surveying by the R/V Maurice Ewing operated by Columbia University. The vessel had an effective broadband source level of 256 dB, or approximately 236 dB in the horizontal directions, with maximum energy at low frequencies of 40 to 90 Hz.

On September 24th at about 2 to 4 PM local time (2100–2300 GMT), fishermen discovered two live stranded whales and unsuccessfully attempted to push them back out to sea. A group of marine biologists found the whales dead on September 25th. By September 27th, when one carcass was necropsied, the advanced state of decomposition did not allow the cause of death to be determined.

On September 24th the *R/V Ewing* had been firing an array of 20 air guns with a total volume of 8500 cubic inches. These air guns have an equivalent broadband source level of 256 dB re 1µPa @ 1m, with peak energy frequencies at 40-100 Hz.

Source levels at mid-frequencies (1-5 kHz) may be diminished by 20 to 40 dB (Goold and Fish 1998). The air guns were fired with an approximately 20 sec repetition rate (50 m distance between shots). Figure 3 indicates the ship track for 24–25 September; the *R/V Ewing* was on a transect line directed toward the stranding site and reached the closest point-of-approach (within 22 km) at 1400 local time (2100 GMT) range.

6. *Kauai, Haw Hawaii, 2004* [4] [5]

While not conclusively proven, NOAA acknowledged a correlation with sonar in a mass stranding of melon-headed whales that occurred in Hanalei Bay, Kauai, Hawaii in 2004.

The military has already been forced by a federal judge to limit deployment of a different sonar project -- a $350 million cutting-edge, low-frequency sonar system it wants to deploy worldwide. The judge concluded last year that the government had not properly considered environmental effects before allowing the Navy to use the new sonar. That led to an agreement between the Navy and environmental groups to restrict the sonar to a limited section of the Pacific Ocean off East Asia, but the Navy has appealed several aspects of the decision.

At the time of the stranding, the Navy was conducting exercises involving loud sonar in the area. "Sound propagation models suggest that sonar transmissions were likely detectable over a large area around Kauai for many hours on the day prior to the stranding, as well as within Hanalei Bay when the animals were there," said Brandon Southall, NOAA Fisheries Service's Acoustics Program Director. "Active sonar transmissions on the 2nd and 3rd of July are a plausible, if not likely, contributing factor to the animals entering and remaining in
the bay." more than 100 melon-headed whales became stranded on the coast of Madagascar. A study published in the journal "Aquatic Mammals" suggested that the stranding may have been linked to a seismic survey that was being conducted in the area at the time.

The melon-headed whale was first identified in Hawaii off the coast of Hilo on Hawaii Island's eastern side in 1841. As the name indicates, the front of the head is rounded which gives it a melon-shape. These marine mammals, which are actually members of the dolphin family, grow to nine feet and weigh over 200 pounds, use echolocation, are gray in color except for darker hues around their face.

Melon-headed whales are not usually seen by many because the majority of their time is spent in the deep ocean far from shore. Social animals by nature, they travel in groups of over 1,000 and play, rest, hunt and socialize together. They've been known to follow boats to catch waves off the wake. Their dorsal fin has a pointed tip which helps with identification. As one of the many special creatures in the Pacific Ocean that cradles our beautiful islands, they are beloved by many.

There's been no conclusive evidence why this atypical behavior happens although some hypothesize sonar may be the cause. Low frequency sonar (LFA) is the loudest sound known to be put in the ocean. It's an unnatural sound in the sea. At over 240 dB it's been introduced, by the Navy, despite being documented as surpassing verified pain levels in some marine mammal. Echolocation, a primary navigation tool of many marine mammals, when distorted may cause loss of direction, shatter eardrums and create unusual behavior.

The standing of the melon-headed whales should be investigated through further research, community outreach, education, and dialogue, solutions in order to protect the lives of the ocean, which sustains our lives in many ways.

7. Madagascar, 2008 [6]

An independent scientific review panel has concluded that the mass stranding of approximately 100 melon-headed whales in the Loza Lagoon system in northwest Madagascar in 2008 was primarily triggered by acoustic stimuli, more specifically, a multibeam echo sounder system operated by a survey vessel contracted by ExxonMobil Exploration and Production (Northern Madagascar) Limited.

WCS and IFAW support these conclusions that add to a mounting body of evidence of the potential impacts of anthropogenic noise on marine mammals," said Dr. Howard
Rosenbaum, Director of the Ocean Giants Program for WCS. "Implications go well beyond the hydrocarbon industry, as these sonar systems are widely used aboard military and research vessels for generating more precise bathymetry (underwater mapping). We now hope that these results will be used by industry, regulatory authorities, and others to minimize risks and to better protect marine life, especially marine mammal species that are particularly sensitive to increasing ocean noise from human activities.

Madagascar ISRP Final Report considered all known causes of previous marine mammal stranding and assessed the relative strength of evidence regarding whether each factor could have played a role in either contributing directly or secondarily to the stranding. This segregation within the assessment was important given that this event apparently involved an initial response that caused the animals to clearly depart their natural habitat en masse in such an unusual manner, and a number of secondary, interacting factors that ultimately contributed to later stranding and mortality once the animals were compromised in an outof-habitat situation.

The seismic survey was “utilizing an air gun source” and planned to be conducted “in the southwest part of the Ampasindava block… approximately 35 km northwest of Nosy Lava” and it was “anticipated [that] the vessel will not come closer than 15 km to the Madagascar coast, remaining in water depths exceeding 200 meters.” In addition to the seismic survey, two forms of bathymetry mapping using sonar sources were planned. A side-scan sonar survey using “a fish towed behind the vessel close to the seabed” which was to be conducted “along the upper edge of the slope measuring the water depths as shallow as 30 meters” and “for the most part remain more than 10 kilometers from the Madagascar mainland.” In addition, a “multi beam echo-sounder bathymetry survey” was conducted, with the “echo-sounder…mounted to the hull of the vessel and…operated simultaneously [with the seismic survey operation] to supplement the seismic and side scan sonar bathymetry data.”

The EIA provides some detail for operations and sound sources used. Air guns sound level output was expected to be between 190-200 dB re: 1µPa and predominant energy in the frequency range of 10-300 Hz; side scan sonar (EG&G model 260TH Recorder and Model 272-T tow fish) operated at 100kHz and/or 500kHz, with no source level provided; and the multi-beam echo-sounder (SIMRAD EM1002, mounted to hull) specified with a sound pressure level of 235 dB re: 1µPa and peak frequency of 12 kHz. In is noted in Figure 5.1 of the EIA, that the side scanning sonar bathymetry survey would be conducted along the shelf edge and shelf break immediately offshore of Nosy Lava and the Loza Lagoon system.

The EIA notes the likely presence of P. electra in the Ampasindava block, described in
Table 5.4 as occurring in all three of the sub-divided regions (Mid-channel, Offshore and Coastal) in “substantial numbers”. The EIA also acknowledges that “key potential impacts with respect to underwater noise” include:

- Pathological effects (lethal or sub-lethal injuries): potential injury or fatality of marine fauna from exposure to significant noise levels.

Behavioral disturbance leading to behavioral changes or displacement.

8. Alaska, 2018 (7) (8) (9) (10) (11)

A new scientific paper suggesting that seismic activity may have been involved in a mass stranding death of whales along the Aleutian Islands. The 2018 event on Adak is the largest known mass stranding of Stejneger's beaked whales.

When whales strand along the shores of Alaska's remote and far-flung Aleutian Islands, they may never be discovered by humans. The chain of small, sparsely populated islands arc from the tip of the Alaska Peninsula west 1,100 miles to Attu Island.

NOAA Fisheries marine mammal experts contacted the U.S. Navy shortly after the 2018 mass stranding. It confirmed that they had not conducted training or testing activities using sonar or explosives anywhere in Alaskan waters since May 2017.

However, the U.S. Geological Survey's Alaska Volcano Observatory's monitors had detected human-caused seismic survey activity at regular intervals for hours at a time along the Aleutian Islands between July 5 and 20, 2018. Based on triangulation of data from multiple seismometers, the observatory determined the source of the noise likely centered about 40 miles northwest of Adak. Scientists still do not know the source of the seismic activity. Fourteen days passed between the last detection of the seismic activity and the discovery of the first whale that was part of the 2018 Adak mass stranding event. However, a link between the Stejneger's beaked whale mass stranding and the seismic activity cannot be ruled out.

Additional events are presented below, but the list is by no means exhaustive.

9. Brazil, 2019 (12)

In September 2019, over 80 false killer whales were found stranded in the Arraial do Cabo region of Brazil. While the cause of the stranding is not entirely clear, some experts have suggested that seismic surveys in the area may have contributed to the event.

10. Scotland, 2011 (13)

In 2011, 16 pilot whales stranded themselves in the Firth of Forth in Scotland. An investigation by the Scottish government found that the whales had likely been exposed to underwater noise from a seismic survey being carried out by an oil and gas exploration company in the area.

11. Gulf of Mexico, 2012 (15)

In 2012, a group of researchers published a study in the journal "Conservation Biology" suggesting that the use of air guns in seismic surveys in the Gulf of Mexico may be contributing to a higher rate of stranding of several species of whales and dolphins in the area.

12. New Zealand, 2017 (18)

In February 2017, more than 400 pilot whales become stranded on the coast of New Zealand. While the cause of the stranding is not entirely clear, some experts have suggested that it could be linked to a nearby seismic survey that was being conducted around the time of the event.

13. Chile, 2014 [19]

In April 2014, more than 300 sei whales were found stranded along the coast of Chile. While the exact cause of the stranding is not clear, some experts have suggested that a seismic survey that was being conducted in the area may have played a role

Summary of Beaked Whale Stranding Events

Repeated mass stranding of beaked whales following high-intensity sound exposure demonstrate a pattern of events. Cuvier's beaked whales are, by far, the most common species involved in these stranding events; they make up 81 percent of the total number of stranded animals. Other beaked whales comprise 14 percent of the total, and other species are sparsely represented. It is not clear whether (a) *the Cuvier beaked whale* is more prone to injury from high- intensity sound than other species, (b) its behavioral response to sound makes it more likely to strand, or (c) it is substantially more abundant than the other affected species in the areas and times of the exposures leading to the mass stranding. One, two, or three of these possibilities could apply. In any event, it has proven to be the "miner's canary" for high-intensity sound impacts. The simultaneous deployment of naval ASW sonars in the 1960s and the coincident increase in *its* mass stranding suggest that lethal impacts of anthropogenic sound on cetaceans have been occurring for at least several decades.

The settings for these incidents are strikingly consistent: an island or archipelago with deep water nearby, appropriate for beaked whale foraging habitat. The conditions for mass stranding may be optimized when the sound source transits a deep channel between two islands, such as in the Bahamas incident. When exposed to high sound levels, beaked whales rapidly swim to the nearest beach. The animals appear on the beach not as one tight cluster of individuals but rather distributed over miles of coastline. Hypothermia ensues, and the animals die if they are not returned to the sea by human intervention. The fates of those animals that are returned to the sea are unknown. Necropsies of stranded animals suggest internal bleeding in the eyes, ears, and brain, as well as fat embolisms.

The implicated sound levels involve long-duration (~ 1 sec) and high-intensity (235 dB re 1µPa @ 1 m) sonar pings or equivalent air gun blasts. Mid-frequency (1-6 kHz) sound is clearly implicated in the sonar- induced stranding incidents. It is unclear whether low-frequency sound also causes injury to beaked whales. Although air guns create predominantly low-frequency energy, they also have ample mid - frequency energy, which may be related to the associated injuries.

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RTID 0648-XD557-Protect Our Coast New Jersey Formal Comment

1 message

Robin Shaffer <rcshaffer1@gmail.com> Mon, Feb 5, 2024 at 4:33 AM
To: ITP.clevenstine@noaa.gov

TO: Jolie Harrison, Chief; Permits and Conservation Division; Office of Protected Resources; National Marine Fisheries Service (NMFS)

FROM: Robin Shaffer, President; Protect Our Coast New Jersey; www.protectourcoastnj.com

RE: NMFS proposal for Atlantic Shores Offshore Wind LLC IHA; Docket Number RTID 0648-XD557

Respectfully, POCNJ requests the NMFS reject the application for the above referenced IHA requested by Atlantic Shores on the following bases:

1. **Foreign Ownership:** Atlantic Shores Offshore Wind LLC is a wholly owned subsidiary of EDF-RE Offshore Development, LLC (a wholly owned subsidiary of EDF Renewables, Inc. [EDF Renewables]) and Shell New Energies US LLC (Shell). As such, it does not meet the "US citizen" requirement and therefore does not have standing to request this IHA.

2. **Excessive Survey Area:** Atlantic Shores' three lease areas comprise 408 square miles, plus an additional 452 square miles for the proposed construction of the export cable corridor. Yet the proposed IHA would allow for 7,819 square miles of survey area, representing an enormous swath of ocean territory. There is nothing in the application that justifies this request and if approved, would give the developer a "blank check" to threaten wildlife in an area of the ocean from Long Island, New York to Assateague Island, Maryland. The size of the survey area would be larger than four US states—including New Jersey.

3. **Impact on Marine Mammals:** Many of the marine mammals identified in the IHA have wide acoustic ranges, inclusive of distance, frequency and sound levels. Cetaceans such as whales, dolphins and porpoises are uniquely adapted to deep sea navigation based on sound and auditory processing. Underwater man-made sounds from air gun arrays (230-250 dB), sonar (235-250 dB), supertankers (190 dB), fishing trawlers (158 dB), and OSW surveys drive the overall ocean noise to dangerous levels. The loud explosive sounds from air gun arrays and sonar have been known to cause fatalities in marine mammals and invertebrates. In studies from 2008, using hydrophone arrays in the mid-Atlantic Mountain range, it was found that the 20-hz call of the fin whale was being masked (silenced) by air gun blasts used in seismic mapping for oil and gas exploration being conducted 2,400 miles away. There are many documented cases of military sonar injuring and killing marine mammals by damaging their ears. Other fatalities have occurred, such as in the case of beaked whales who were found beached after naval exercises with signs of air embolism. Their injuries were apparently caused by rapidly swimming up and down the water column after being exposed to naval sonar. The high level of man-made sounds, along with the fact that sound can propagate much farther in water, means that man-made noise sources can have a much greater impact on the ocean environment and the animals that make it their home.

4. **Omission of Sperm Whales:** The failure to include the endangered Sperm Whale in the proposed action is a significant oversight—given the sperm whale's huge acoustic range. Sperm Whale clicks at 230 decibels are louder than the sound made by a jet airplane at takeoff. These sounds allow Sperm Whales to verbalize and hear via echolocation over thousands of miles. The survey work in the proposed action would compromise this species' ability to communicate, potentially leading to devastating outcomes. POCNJ believes that the failure to include such an obvious species in the IHA is a sign of other potentially significant errors and omissions and justifies rejection.

5. **Endangered Species and Migratory Paths:** The survey area includes the migratory path of the critically endangered Northern Right Whale. Despite safeguards listed, the proposed action would allow Atlantic Shores to unintentionally harm or even kill these mammals. With so

few left in the wild, POCNJ believes that the federal agencies tasked with enforcing the Endangered Species Act and the Marine Mammal Protection Act must halt all survey work for offshore and nearshore construction to protect these cetaceans for the foreseeable future. Recent news reports and scientific papers have correlated the unrelenting din caused by survey offshore wind survey vessels to the death of hundreds of whales and dolphins since 2016.

6. **Extensive Impact:** A total of 583,354 whales and dolphins will be affected if the proposed action is approved. The action would allow for the "take" or unintended death of 37 whales, 985 dolphins, 97 porpoises and 414 seals. Atlantic Shores would be expected to kill approximately two critically endangered Northern Right Whales. NOAA estimates that there are only 368 Northern Right Whales left in the world today. POCNJ asks—shouldn't the agency tasked with protecting marine life reject any proposal that includes the avoidable death of so many protected species?

7. **Precautionary Principle:** As stated in the United Nations' 1992 Rio Declaration, in the face of likely threats of "serious or irreversible damage" to an ecosystem, the "lack of full scientific certainty" should not be used as an excuse not to implement measures to prevent such degradation. Moreover, the principle includes the critical tenet that shifts the burden of proving a proposed activity will not cause environmental harm to the entity proposing the activity—in this case Atlantic Shores.

Obviously, the burden of proving the activities in the proposed action will not cause harm is not met because the applicant is asking for the right to cause harm in the first place. POCNJ does not believe it is in the best interests of the federal government to issue what amounts to a license to kill along the continental shelf to two foreign energy companies. For the reasons outlined above, POCNJ respectfully asks the agency not to grant Atlantic Shores' IHA until a more robust investigation by scientists and other subject matter experts can be arranged.

Warwick Group
CONSULTANTS

CAPE MAY COUNTY COMMENTS ON THE PROPOSED INCIDENTAL HARASSMENT AUTHORIZATION FOR SITE CHARACTERIZATIONS ATLANTIC SHORES OFFSHORE WIND PROJECT

DOCKET RTID 0648-XD557

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

Dear Ms. Harrison,

Thank you for the opportunity to submit comments to NOAA regarding the proposed Incidental Harassment Authorization (IHA) to take marine mammals incidental to marine site characterization surveys in waters off of New York, New Jersey, Delaware, and Maryland, including in the Bureau of Ocean Energy Management (BOEM) Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) Lease Areas OCS–A 0499, OCS–A 0541, OCS–A 0549, and associated export cable corridor (ECC) areas.

Cape May County would first like to make it clear that it is not against the development of clean energy. However, it has significant concerns about the process in which projects such as Atlantic Shores are developed. The IHA discussed here, which impacts an expansive area of open ocean used by fishermen and mariners who reside in Cape May County, is a perfect example of why the County shares such strong concerns.

The recent Incidental Harassment Authorization (IHA) under consideration by BOEM, Docket RTID 0648-XD557, raises several concerns for Cape May County, including:

1. The GeoMarine GeoSource 2D SUHRS Sparker Device
2. Zone of Influence for Disturbance of Whales
3. The Geographic Scope of the Proposed Survey Area
4. Combined Factors, North Atlantic Right Whale, Humpback Whales

These concerns are addressed individually following a brief summary about the general concerns about offshore wind surveys from East Coast communities in addition to facts related to the impacts to marine mammals from acoustic survey equipment.

BACKGROUND AND GENERAL CONCERNS

The County's concerns about the impact of offshore wind related High Resolution Geophysical (HRG) surveying on marine mammals are shared across Cape May County municipalities and stem from thorough scientific assessments and public knowledge relied on by the industry and NOAA. Both residents and visitors have numerous unanswered questions about the effects of offshore wind projects on the environment, economy, and culture and recent polls indicate a significant decline in support for offshore projects in the State of New Jersey, with a majority of residents now expressing opposition. The County's strong fishing, tourism, and recreation industries are the primary economic drivers in Southern New Jersey, and offshore wind's impacts to the marine environment pose significant risks to the well-being in Cape May County communities. Cape May County cannot support any activities that threaten the economy or culture of South Jersey.

In 2023, the County, together with 51 communities across New Jersey, Maryland, and Delaware, officially called for a moratorium on offshore wind surveying until federal, state, and independent scientists conclusively determine that offshore wind surveys are not a contributing factor to the recent spate of marine mammal fatalities. Neither NOAA nor BOEM, however, have yet to conclusively explain the cause of death, but they continue to insist that acoustic surveying has no impact on marine mammals. The County's comments challenge NOAA's stated claims and add to the growing mountain of evidence that offshore surveys do impact whales and are much louder than NOAA has reported.

If marine surveying poses no harm to marine mammals (as BOEM and NOAA claim), why has the National Marine Fisheries issued so many Incidental Harassment Authorizations (IHA) to wind developers and why are the numbers of disturbed animals so high? The total number of cumulative authorizations is summarized in Table 1, showing that NOAA has authorized the harassment of nearly 1 million marine mammals. The cumulative impact of multiple simultaneous surveys has not been considered by BOEM or NOAA in its analyses of sequential IHA's. Many of the survey areas are occupied by several survey vessels at any given time, which creates widespread ocean noise that could harass a variety of marine mammals out of their preferred habitats and into hazardous areas such as shipping lanes.

Table 1: Takes by Species, compiled from NOAA IHA data

Take Category	NY/NJ Bight	Atlantic Coast
Level A Proposed Takes	1,238	1,306
Level B Proposed Takes	437,811	524,760
Level A Authorized Takes	122	122
Level B Authorized Takes	96,362	115,611
Level B Expired Takes	153,528	173,104
Totals	689,061	814,903

IMPACTS TO MARINE MAMMALS FROM ACOUSTIC SURVEY EQUIPMENT

At the time of writing, there are estimated to be less than 340 North Atlantic Right Whale's remaining, with less than 90 females of reproductive age.[1] There is currently an ongoing Unusual Mortality Event for the NAWR as a result of vessel strikes and entanglements according to NMFS.[2] In addition, there are dozens of other marine mammals that rely on the survey area to migrate and feed, such as humpback, fin, sei, sperm and minke whales, bottlenose dolphins, common dolphins, harbor porpoises and seals.

The activities being performed by marine acoustic surveyors off Cape May County are known to have behavioral impacts on marine mammals, and while Federal Government scientists claim no connection exists between recent fatalities and acoustic surveying, the same scientists have no conclusive evidence that rules out the connection between acoustic surveying and marine mammal fatalities. In fact, according to Gardline, an established marine surveyor, these activities use equipment that operates with volumes and frequencies directly within the communicative frequencies of a variety of whales and other low-frequency cetaceans, such as Humpback Whales and North Atlantic Right Whales, which use New Jersey waters for feeding, breeding, and migration (see Figure 1, below). In addition, according to Incidental Harassment Authorizations issued by NOAA, the decibel volumes of such equipment can exceed the thresholds for temporary and even permanent hearing loss, depending on proximity to the sound source.[3,4] Continuous widespread noise can result in acoustic masking of whales' communication and navigation, causing behavioral disturbances that may limit foraging, migration, and mating, or result in other behavioral or stress-related collisions with large vessels.

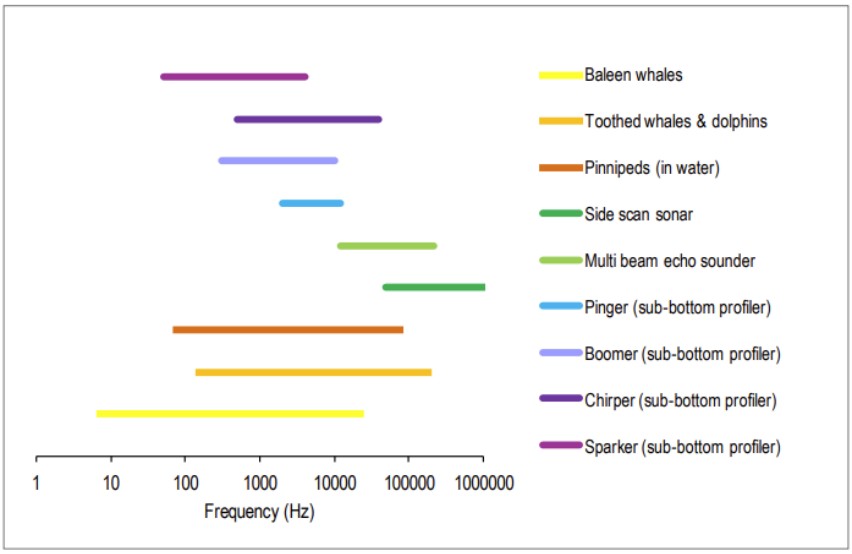

Figure 1: Auditory frequencies used by marine mammals and the main frequency range of analogue equipment (Based on Gotz et al., 2009 & Southall et all., 2007)

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1. GeoMarine GeoSource 2D SUHRS Sparker Device

The applicant proposes the use of a sparker device known as the GeoMarine GeoSource 2D SUHRS. The applicant states that it relied on data collected from Crocker (2016) to determine approximate values of the acoustic output of the GeoMarine GeoSource 2D SUHRS.[5] This technique is a common method of approximating the acoustic output of HRG equipment, however, it appears that the reported values differ from the extrapolated data from Crocker. The application states an Operation Source Level of 195 dB_{RMS} re 1µPa@1m based on the SIG ELC 820 operating at 400 joules (J) and 100 tips. However, it is likely that the operator is going to require a higher input energy between 500J and 750J to reach the depths necessary for the surveys (75m-100m, as stated in the application). Table 2, below, is taken directly from Crocker 2016 and shows that the actual RMS levels range from 200 dB_{RMS} re 1µPa@1m at 500J to 206 dB_{RMS} re 1µPa@1m at 750J. Therefore, carefully extrapolating the source levels would place the actual value between 200 dB and 206 dB, far higher than the 195 dB cited in the application.

Table 2. ELC820 Sparker Acoustic Characteristics

Source Settings		Source Level (dB re 1µPa@1m)				Pulse Width (ms)	Bandwidth 3 dB (kHz)
Energy (Joules)	Depth* (m)	Pk-Pk	Pk	RMS	SEL		
300 (low)	1	212	207	198	174	4.1	1.7
300 (low)	5	212	207	196	171	4.1	3.7
300 (high)	1	209	204	195	171	3.5	2.4
300 (high)	5	210	205	200	168	0.7	4.6
400 (low)	1	215	212	201	177	3.9	1.4
400 (low)	5	213	208	195	174	7.2	1.6
500 (low)	1	219	214	204	180	3.8	1.2
500 (low)	5	215	210	200	176	4.7	1.9
500 (high)	1	215	210	201	177	3.8	1.3
500 (high)	5	213	208	200	173	2.2	3.1
600 (low)	1	220	215	205	181	3.7	1.1
600 (low)	5	216	212	201	177	5.0	1.6
700 (low)	1	220	215	206	182	3.6	1.1
700 (low)	5	217	214	201	179	6.4	1.0
750 (high)	1	220	214	206	182	3.9	1.2
750 (high)	5	217	213	203	178	3.4	1.9
* Source depths are approximate							

For certainty, the County also examined the Dura-Spark 400 tip unit operating from 500J to 1000J and found similarly that the actual acoustic output is likely to fall between the recorded 209 dB_{RMS} re 1µPa@1m and 213 dB_{RMS} re 1µPa@1m, also far higher than the 195 dB cited in the application. Table 10, below, highlights the figures from Crocker 2016 used in the extrapolation.

[5] Crocker, S. E., & Fratantonio, F. D. (2016, March 24). Characteristics of Sounds Emitted During High-Resolution Marine Geophysical Surveys (NUWC-NPT Technical Report No. 12,203). Newport, Rhode Island: Naval Undersea Warfare Center Division, Sensors and Sonar Systems Department. https://apps.dtic.mil/sti/pdfs/AD1007504.pdf

Table 3. Applied Acoustics Dura-Spark Acoustic Characteristics

Source Settings		Source Level (dB re 1µPa@1m)				Pulse Width (ms)	Bandwidth 3 dB (kHz)
Energy (Joules)	Tips	Pk-Pk	Pk	RMS	SEL		
100	80	213	207	200	173	2.2	2.6
200 (high)	80	216	212	203	177	2.2	2.8
400 (low)	80	222	218	207	182	2.8	1.9
500 (high)	240	223	219	209	181	1.4	4.4
1,000 (high)	240	228	223	213	186	2.1	3.2
1,250 (high)	240	229	225	214	187	2.3	2.8
500 (high)	400	216	211	203	174	1.1	4.6
2,000 (high)	400	229	224	214	188	2.4	2.8
2,400 (high)	400	229	225	214	188	2.2	2.9
2,400 (high)*	400	226	221	212	185	2.3	2.7
* Source moved closer to side wall							

These seemingly small changes in sound source level result in significant changes in the exposure areas for marine mammals, as calculated using NOAA's public Level B harassment threshold calculator, designed specifically to model HRG acoustic levels during surveys. This tool is known as the *Associated Level B Harassment Isopleth Calculator*[6] and is used to determine the isopleths for specific input source levels and can be found on NOAA's website (see footnote).

In this case, the applicant has selected the lowest acceptable value by relying on Crocker 2016 without consideration for the actual sound output. While the lowest possible estimated value using a Crocker 2016 proxy is 195 dB_{RMS} re 1µPa@1m, the actual output will likely fall between 200 dB_{RMS} and 213 dB_{RMS} based on the depths the surveyor will need to collect data from and the actual energy input in joules. During nearshore surveys, the surveyor may be able to use 400J, but for deeper depths the surveyor will require a higher energy input closer to or greater than 800J. The manufacturer's specification sheet for the sparker cited in the application shows an acoustic waveform with a peak of 2 Bars/m with an input of 800J. This is equivalent to a source level peak of 226 dB, which is equivalent to 219 dB_{RMS}. Adjusted proxy source settings and corresponding RMS values from Crocker were used to calculate more accurate distances to level B thresholds (160 dB), which range from 355m to 890m. The results are shown below in Table 4.

Table 4. Distances to Level B Threshold Based on Reported dB_{RMS} Values

Source Settings	400J	500J	500J	750J	800J	1000J
SIG ELC 820, 100 tips	195	200	-	203	219	-
Dura-Spark, 240 tips	-	-	209	-	211	213
Distance to 160 dB (m)	**56**	**100**	**282**	**141**	**355-890**	**446**

[6] Associated Level B Harassment Isopleth Calculator (June 2022) | Found directly here: https://media.fisheries.noaa.gov/2022-06/HRG_LevelBCalc_Public_OPR1.xlsx

Due to these discrepancies, Cape May County requests that NOAA and BOEM publicly release data logs of the track lines and operational equipment settings for all surveys conducted in the vicinity of Atlantic Shores North and South and Ocean Wind 1 and 2 with timestamps and all other recorded data from survey ships from January 1, 2022 to December 31, 2023.

2. ZONE OF INFLUENCE FOR DISTURBANCE OF WHALES

In calculating the Zone of Influence (ZOI) for marine mammals, the applicant uses 195dB, which corresponds with 56 meters rather than a larger (more appropriate) figure. This severely underestimates the actual number of takes that would occur under a higher acoustic output. NOAA accepts this value. It must also be noted that while the ZOI approximates the area exposed to Level B takes, the threshold for continuous noise is even lower (120 dB) and extends much farther. Many of the surveys involve continuous noise although NOAA has not categorized it that way.

Using the figures from Table 3 to extrapolate an output decibel value for 800J produces a Zone of Influence (ZOI) that is nearly 16 times larger than the area used in the application to determine the number of impacted marine mammals. NOAA should therefore revise its approval of the use of proxies to require more representative values.

For example, even using a simple average of the low and high figures provided for the SIG ELC 820 at would produce a value over 200 dB_{RMS} re 1µPa@1m, which correlates to a ZOI with a radius of 100 meters, compared to just 56 meters when using 195 dB_{RMS} re 1µPa@1m. Under the worst-case scenario, the actual distance could extend as far as 890 meters or more, which corresponds with a maximum daily ZOI of 250km^2. Input source settings and corresponding daily and annual maximum ZOI's are shown in Table 5.

With such a large discrepancy between these values, the County cannot support the IHA as described because marine mammals within range of survey vessels could be impacted by sound levels that are far higher than what NOAA has authorized. The County requests that the applicant resubmit the application with revised ZOI's and accompanying Level B takes.

Equation 1: $$Mobile\ Source\ ZOI = \left(\frac{Distance}{Day} \times 2r\right) + \pi r^2$$

Table 5. Maximum ZOI Based on Reported dB_{RMS} Values

Source Settings	400J	500J	500J	750J	800J	1000J
SIG ELC 820, 100 tips	195	200	-	203	219	-
Dura-Spark, 240 tips		-	209	-	211	213
Distance to 160 dB (m)	**56**	**100**	**282**	**141**	**355-890**	**446**
Maximum Daily ZOI (km^2)	**15.6**	**28**	**78.9**	**39.4**	**99.4-249.2**	**124**
Maximum Annual ZOI (km^2)	**2,824**	**5,040**	**14,212**	**7,106**	**17,892-44,856**	**22,478**

3. THE GEOGRAPHIC SCOPE OF THE PROPOSED SURVEY AREA

Despite established geolocation data for each turbine and export cables, NOAA is proposing to authorize the applicant to study a geographic area that is roughly more than 31 times larger than the area required for the project. The proposed survey area is greater than 5.7 million acres, while the project area is just 183,353 acres. While this is not the first time NOAA has done this, it gives no reason for surveying such a vast area outside the established project area. The area proposed for surveys is distinctly larger than the Atlantic Shores Offshore Wind Farm, shown below in Figure 2. In addition, the export cable routes are well known. Therefore, the County requests the applicant resubmit this request with the survey area strictly limited to the designated project area and its anticipated export cable routes. Surveying outside of these areas is disruptive to marine mammals as well as fishermen operating in these areas. Furthermore, if such a large area is approved for surveying, then the maximum ZOI should be drastically increased to a conservative estimate such as those calculated above using NOAA's data. By further defining the geographic scope of the survey activity in close proximity to the project location, NOAA would also limit potential unintended cumulative impacts of several surveys occurring simultaneously offshore of New Jersey.

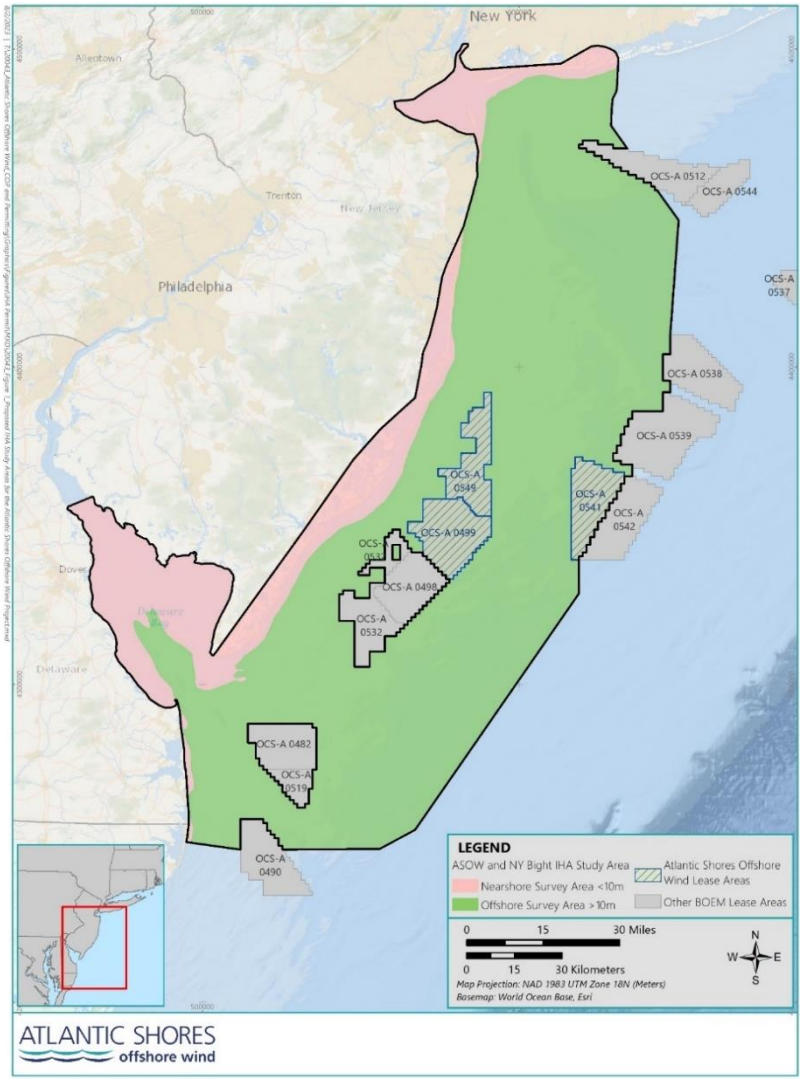

Figure 2. Proposed Offshore Survey Area

4. Combined Factors Impacting North Atlantic Right Whales, Humpback Whales, Other Marine Mammals

Equally as important is the extremely low Potential Biological Removal rate of the North Atlantic Right Whale at 0.7, meaning that the loss of just one whale could have population-level effects on the species, of which only 340 or fewer remain today. This means that NOAA must determine with near absolute certainty that no North Atlantic Right whale will be harmed by this activity. The County questions whether this is possible given that whales live off New Jersey during survey months, and that with over 300 days of annual surveying over 2 years, it is likely that the North Atlantic Right Whale will be vacated from its natural habitats offshore of New Jersey and forced into busy shipping lanes or other areas densely populated with boat traffic where they are at significant risk of a vessel strike. Throughout last year's spate of whale deaths in the immediate vicinity of offshore wind survey vessels NOAA continued to discredit the potential role acoustic surveys could have on marine mammal behavior.

In regard to ship strikes, during last year's spate of whale deaths NOAA, together with other pro-wind environmental organizations, formally declared that the episode of whale deaths was caused by an overall increase in ship traffic into the Port of New York. This was not true. In fact, according to the Port Authority, overall cargo volume was down on average 24% month-to-month with a year over year change of -19.2%. These metrics are plotted month-to-month below in Figure 3, showing the significant decrease in total loads between 2023 (orange) and 2022 (blue). Until the Port Authority releases the 2023 Port At A Glance, which will show the total number of ships, it is assumed that a decrease in total loads correlates with a decrease in the total number of ships.

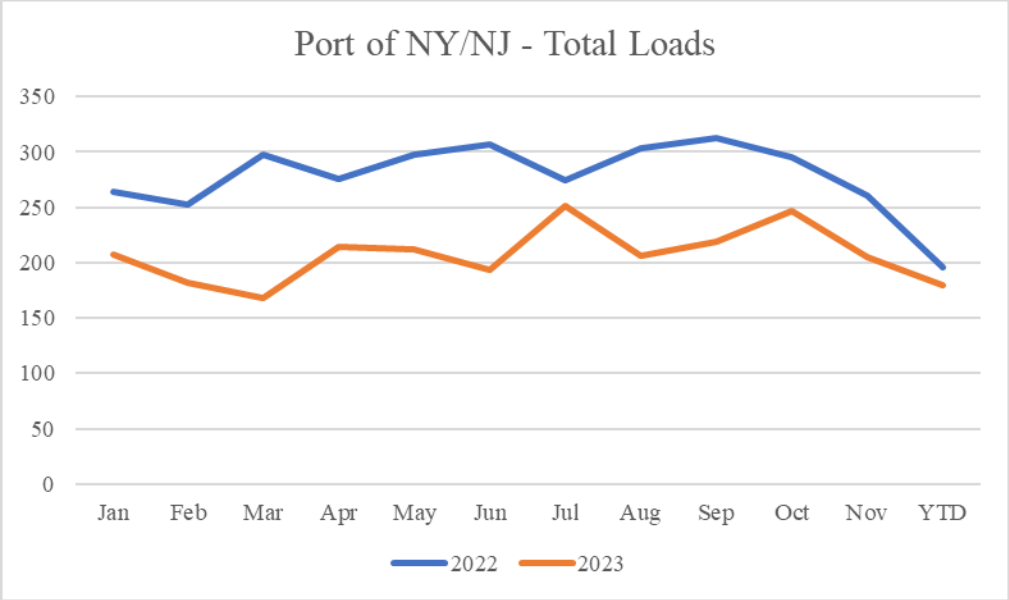

Figure 3: Total TEU Loads, Port of New York and New Jersey

CONCLUSIONS

Cape May County officials have attempted to work with offshore wind developers and federal agencies to mitigate their concerns about the proposed offshore wind projects, but all have been reluctant to offer any meaningful engagement. The County has outstanding concerns about the Atlantic Shores project that have yet to be addressed, and this IHA adds to that list. Until the County has had the opportunity for its concerns to be appropriately addressed, it cannot support the projects or any associated survey activities that may impinge on its stunning ecological value and associated coastal resources that drive tourism and commercial fishing. The County therefore urges NOAA to reject the application until it is revised accordingly, incorporating the comments noted above.

Please direct all correspondence to Dan Ginolfi at Dan.Ginolfi@WarwickConsultants.Net or:

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STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
RICHARDSON & ROBBINS BUILDING
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

OFFICE OF THE SECRETARY

PHONE
(302) 739-9000

Ms. Jolie Harrison, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration

RE: Request for comments on proposed authorization and possible renewal for Atlantic Shores takes of marine mammals incidental to marine site characterization surveys off New York, New Jersey, Delaware, and Maryland (Agency/Docket Number: RTID 0648-XD557)

Dear Chief Harrison:

On January 5, 2024, the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) published a notice in the Federal Register requesting comments on the proposed Incidental Harassment Authorization (IHA) requested by Atlantic Shores Offshore Wind, LLC ("Atlantic Shores") to take marine mammals incidental to marine site characterization surveys in waters off New York, New Jersey, Delaware, and Maryland pursuant to the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 et seq.). Additionally, NMFS seeks comments on the possible one-time, one-year renewal that could be issued under certain circumstances and if all requirements are met as specified in the January 5, 2024, Federal Register notice. The Delaware Department of Natural Resources and Environmental Control (DNREC) appreciates the opportunity to provide comments on this proposed activity. Supporting responsible renewable energy development in the Atlantic region, conservation of marine and estuarine habitats, and the success of the coastal economy are of the utmost importance to Delaware.

The current request from Atlantic Shores is for an IHA to take marine mammals incidental to conducting marine site characterization surveys, including high-resolution geophysical (HRG) surveys, in waters off New York, New Jersey, Delaware, and Maryland, specifically within Bureau of Ocean Energy Management (BOEM) Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549, and associated export cable corridor areas. Atlantic Shores currently has two active IHAs associated with ongoing HRG survey activities in BOEM Lease

Areas OCS-A 0499 and OCS-A 0549 and another in OCS-A 0541. The purpose of the current request is to combine all ongoing HRG survey activities under a single IHA. The new proposal includes additional areas not covered under the currently active IHAs. The proposed activity is planned to begin on April 1, 2024, and surveys are estimated to require a maximum of 300 survey days within a single year across a maximum of two vessels with survey days proposed to occur in any month throughout the year. Serious injury or mortality are not expected to result from the proposed activity; therefore, NMFS has preliminarily determined this action qualifies to be categorically excluded from further National Environmental Policy Act (NEPA) review.

Marine site characterization surveys are necessary to obtain data sufficient to meet BOEM guidelines for providing geophysical, geotechnical, and geohazard information for site assessment plan surveys and/or construction and operations plan development to support future wind facility site development activities. Underwater sound resulting from Atlantic Shores' proposed site characterization survey activities, specifically HRG surveys, have potential to result in take of small numbers of 14 species (15 stocks) of marine mammals by Level B harassment.

DNREC has reviewed the proposed IHA and the potential effects of incidental take of 14 species of marine mammals in the form of behavioral harassment from underwater sound and vessel strike associated with the site characterization studies and provides the following comments:

NMFS notes that movement data on the federally endangered North Atlantic Right Whale (NARW) seems to be incomplete, with surveys showing that NARW demonstrated nearly continuous year-round presence across their entire habitat range, including in locations previously thought of as migratory corridors. However, 50 CFR 224.105 only establishes a seasonal management area from November 1 through April 30 for nearshore waters of the Mid-Atlantic Bight, which require a mandatory vessel speed of less than 10 knots per hour for all vessels longer than 65 feet. In 2022, NMFS proposed changes to the vessel speed regulations to further reduce the likelihood of mortalities and serious injuries to NARW from collisions with vessels longer than 35 feet, although the rule has not been finalized. DNREC recommends requiring Atlantic Shores to follow the proposed speed limitation for smaller vessels if the rule has not been finalized by the time the IHA becomes effective. DNREC appreciates the establishment of slow zones and dynamic management areas to better minimize impacts outside established seasonal management areas.

DNREC commends the establishment of shutdown zones around the HRG survey equipment with monitoring conducted by protected species observers (PSOs) among other mitigation measures. Additionally, DNREC is supportive of the use of passive acoustic monitoring in combination with monitoring by PSOs, especially during nighttime operations to allow for earlier detection of marine mammals entering the shutdown zones, thus minimizing any negative impacts to protected species. However, NMFS should consider not waiving the shutdown requirement for small delphinids and pinnipeds if the PSO identifies any individuals in distress.

Please also note that the proposed HRG surveys could impact sea turtles in Delaware nearshore waters, Delaware Inland Bays, and the Delaware Bay through the production of soundwaves. Delaware is a migratory pathway for many sea turtle species, including the green (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and loggerhead (*Caretta caretta*) sea turtles. These species migrate northward from southern wintering areas and enter estuaries along the coast to forage and are present in Delaware waters from approximately early June to late October, as evidenced by sightings, strandings, incidental capture, and individuals tracked by satellite. DNREC recommends a time of year restriction on HRG surveys within the Delaware Bay from June 1 through October 31. Additionally, DNREC recommends the establishment of shutdown zones in Delaware's Atlantic Ocean waters around the HRG survey equipment with monitoring conducted by PSOs to limit impacts to sea turtles.

Thank you for the opportunity to review and comment on the proposed IHA. If you have any questions, please contact Jennifer Holmes in the DNREC Division of Climate, Coastal and Energy at (302) 739-9283.

Sincerely,

Shawn M. Garvin
Secretary

Borough of Seaside Park

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January 30, 2024

Jolie Harrison, Chief
Permits & Conservation Division
Office of Protected Resources
National Marine Fisheries Service

Comments Submitted By Email To: ITP.clevenstine@noaa.gov

RE.: Comments As To Atlantic Shores Offshore Wind, LLC'S (Atlantic Shores) Request For Authorization To "Take" Marine Mammals Incidental to Marine Site Characterization Surveys In Waters Off Of New York, New Jersey, Delaware, and Maryland, Including BOEM (OCS), Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549, And Any Associated Export Cable Corridor (ECC)

Deadline For Comments: February 5, 2024

Request That NOAA And Applicable Federal Agencies Immediately Implement A Moratorium And "No Action" As To Atlantic Shores' Request To "Take" Marine Mammals Off The Atlantic Coast

Dear Chief Jolie Harrison:

I am hereby submitting the within official comments in a timely manner, with regard to the pending request from Atlantic Shores Offshore Wind, LLC (Atlantic Shores), for authorization to "take" marine mammals incidental to marine site characterization surveys in waters off of New York, New Jersey, Delaware and Maryland, including the BOEM Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549 and the associated export cable corridor (ECC). I understand that the all too short deadline imposed for comments, has been established, as February 5, 2024. The within comments, therefore, are clearly timely, having been transmitted via email, and via priority mail.

As the Mayor of a coastal New Jersey tourist community, I am particular mindful of the devastating impacts, posed by the untested pre-construction, construction, and operational stages of the proposed massive industrialization, with wind turbines constructed off our coast.

For years, I have spoken publicly on the record, before BOEM, and other federal agencies, that further pre-construction and other activities associated with the vast number of wind turbines proposed in the areas of the Atlantic Ocean off of our shores, all be "paused", until such time as truly independent, scientific research, with an applicable monitored pilot project is completed, as to such experimental and never appropriately vetted proposals. Numerous officials' requests for such a thorough scientific review have not been responded to, as to what can only be characterized as uncertain, if not, irresponsible, construction projects off the precious Atlantic Ocean. As such, the offshore wind turbine industrialization approval process, has left numerous extremely important questions unanswered, as to the potentially devasting impacts of such activity upon marine life, the Atlantic Ocean eco system itself, maritime commerce and activities, our commercial and recreational fishing industries, and our vital coastal tourism industry.

Accordingly, I would urge NOAA to apply a narrow review, to deny without prejudice, the pending request from Atlantic Shores for authorization to "take" additional numbers of marine mammals. Such a determination would implement a moratorium, pending independent scientific investigation, with further answers and recommendations as may be suggested, and with future environmental research, review, oversight, and, if need be, a pilot project being conducted. I therefore urge NOAA to recommend such an immediate moratorium, with the implementation of a stay, and "no action", to be taken as to the pending request from Atlantic Shores, for further authorization to "take" marine mammals, as well as Atlantic Shores accompanying request for a one (1) year renewal of any and all such future authorizations, as well.

I. Until such time as further background information and the results of necessary independent scientific research, have been obtained and disseminated to the public, and to the elected officials from all levels of government, I would urge the imposition of such a stay and a moratorium on further action as to the taking application, until such time, at the very least, as the following have occurred:

1. There should be a completion of the ongoing study being conducted by the Government Accountability Office, to investigate the impacts of offshore wind turbines. This GAO audit process is currently investigating the adequacy of the environmental review process for offshore wind turbine projects, of the Marine Fisheries Service, the Bureau of Energy Management, and any and all other federal agencies involved, including but not limited to NOAA. At the very least, any and all recommendations generated from the above study, should be distributed, commented upon, by the public and elected officials, and acted upon, as necessary. Again, the necessary review process, as to the economic and environmental feasibility and advisability of such massive offshore wind turbine construction, must be carefully and thoroughly completed.

2. Prior to any further agency permitting, as to, the within review process associated with Atlantic Shores' "taking" request, a truly independent, scientifically peer-reviewed study should occur, as to the never explained numbers of marine mammals deaths off the coast of New Jersey, in the 2022, 2023 time frame.

3. Depending on the recommendations and results obtained with respect to the above referenced urgently needed scientific studies and investigation, a carefully monitored, offshore wind turbine, pilot project should be considered, especially with respect to the New Jersey/New York coastline. As such, a thorough economic, and especially, environmental study could then be conducted, as to future projected impacts of the pre-construction activities, construction activities themselves, and the ongoing operation and maintenance associated with the proposed construction of three thousand four hundred (3,400) offshore wind turbines, off of the New Jersey coast.

As noted above, until such time as the above referenced, critically needed actions have been taken, and as need be, a test pilot project proposal has been thoroughly vetted as well, I would urge NOAA to recommend an immediate moratorium, and a "no action" alternative. Such a determination would stay the within application of Atlantic Shores, to "take" further marine mammals off of our coast.

I recognize that the all too limited focus of the within solicitation for comments to be provided to the National Marine Fisheries Service, should be devoted to the request from Atlantic Shores for authorization to "take" further marine mammals, incidental to marine site characterization surveys in the waters off of our portion of the Atlantic Coast. As per my above comments, however, I object to such an arbitrarily narrow scope of comments. I urge that the necessary cumulative review process be implemented, as to the overall large scale of industrialization, proposed off of our entire coast, with respect to all such massive wind turbine projects.

II. Nevertheless, in anticipation of National Marine Fisheries Service rejecting my initial request, and moving forward with the within limited review process of Atlantic Shores' request, I will also submit the following more narrow comments, relevant to the proposed "taking" itself:

1. As per documents and data already comprised by the National Oceanic and Atmospheric Administration (NOAA) Fisheries records, the contemplated vast number of marine mammal "takes", support the conclusion that such a quantity of marine mammals sought to be "taken" is not "incidental", but rather, the end result of knowing, and practically certain actions. Pursuant to the Marine Mammal Protection Act (MMPA), the National Marine Fisheries Service, is requesting comments on the proposal, in conjunction with your definitions described, as an "Incidental Harassment Authorization" (IHA), to "incidentally

take marine mammals during the specified activities". Related thereto, the pending request from Atlantic Shores seeks a one (1) year renewal of the application, under the assumption that the approval will already have been granted by NMFS. Under the readily available public information obtained and published, by NOAA Fisheries, you already know the vast numbers of this area's marine mammal "takes", caused by offshore, wind turbine, massive industrial projects, previously authorized, with IHA's, either granted by NOAA, or under review by NOAA, for the time period from April 25, 2014, up until June 11, 2023.

These overall numbers and percentages in the published "pie chart" of data, relevant to the New York/NJ Bight, outline the fact that six hundred eighty-nine thousand, sixty-one (689,061) total marine mammal "takes" have either been authorized, or are already under current review, by NOAA.

Further, the aforereferenced definitions under the Marine Mammal Protection Act describe **"incidental"** "takings", of marine mammals, not **"knowing or practically certain"** ""takings". By NOAA's own admission, and that of other agencies, including but not limited to BOEM, vast numbers of already acknowledged deaths of marine mammals, and "takings", as described above, reference the inevitable, expected, and admitted deaths of such huge numbers of marine creatures. As such, the acknowledged contemplated deaths of creatures, can not be described as an "incidental" act, **but rather a "practically certain"** one. These admitted numbers, coupled with the documentation in support of the proposal for Atlantic Shores, yield an acknowledged and inevitable result. As such, the actions, with the "taking" (a/k/a killing) of marine mammals, are tantamount to knowing and practically certain acts of such "taking" of marine mammals. In light of the data already available, and admitted to, by NOAA, and all applicable federal agencies, the proposal of Atlantic Shores, does not meet the definition of "incidental", and must therefore, be denied.

2. The bureaucratically fueled definitions in regulations, never formally adopted by Federal Statutes, are so euphemistically misleading, as to deny the public appropriate and reasonable knowledge of the nature of the application itself, and a fair and reasonable opportunity to comment.

I would hereby object to the inappropriate utilization of inaccurate and misleading euphemisms to describe activities which are the subject matter of the pending application of Atlantic Shores, to "take marine mammals incidental to marine site characterization surveys…" The United States Congress has never adopted such a formal definition for such "takings". In reality, the actions of wind turbine agents, and contractors, constitute killing, rendering indefensible, or condemning various marine mammals in question, to their deaths. The word "take" being inaccurately used to describe the deaths of the six hundred eighty-nine thousand sixty-one (689,061) marine mammals inevitably killed by the activities already approved, or contemplated for final review, by NOAA, as per NOAA's own documents. Regulatory officials created this

misleading definition, which was never subject to the appropriate legislative process, public comment, or the required enactment into law.

The above inappropriate use of definitions, never subject to public scrutiny or adoption by the Congress, becomes so misleading with respect to whales in particular, as to constitute a denial of the public's right to due process, and an opportunity to be heard, in general. Such a conclusion is especially supported by the fact that documents in the hearing record already before BOEM, describe disruption to the internal hearing abilities, and sensitivity of whale species, thereby causing such disorientation, that the mammals are temporarily, if not, permanently, deprived of their natural abilities to negotiate around vessels. At present, the inevitable death, and dismemberment of the whales, and other mammals in question, has not been directly attributed by NOAA, to the pre-construction or construction activities, associated with wind turbines. The record before BOEM, merely states an opinion that no direct evidence has been presented, linking such loss of marine mammals to wind turbine construction activities. Such a non-scientific conclusory statement, has been memorialized, with no scientific evidence presented, as to why so many marine mammals have become so disoriented as to be rendered vulnerable to vessel strikes.

Related to the disorientation and disruption in the species' internal steering, hearing, and other bodily functions, must be the never scientifically explained, unprecedent numbers of deaths of dolphins, whales and sea turtles, in the time period up to the 2023 calendar year. NOAA regulators have acknowledged and agreed that offshore wind turbine construction activities pose numerous risks to marine life, in various ways, including but not limited to, disorienting the animals, by creating ocean noise, sonar and otherwise.

Again, as previously argued herein, the inevitable and well documented sudden deaths, the slower maiming, dismemberment, and more immediate crippling of numerous mammals through vessel strikes, are acknowledged and admitted results. The end results of such wind turbine activities, are therefore inevitable, predictable and predetermined.

Accordingly, this loss of marine mammals is anything but "incidental".

A similar analysis, as to such inappropriately utilized terms, must include the misdirected use of the word "harassment". Again, the usual and common Webster's Dictionary definition for "harassment", objectively and clearly would never include torturing, maiming or killing mammals.

As already documented on record, the massive industrialization of offshore wind turbines off of our coast, will have a devastating impact on the critically endangered North Atlantic Right Whale. This fact cannot be overstated. I would urge NMFS to review the complete record of the Massachusetts Federal Appeal of the BOEM approval of wind turbine construction, off the Massachusetts coast. Therein, there are well

documented admissions, which stand for the proposition that if the currently proposed wind turbine pre-construction, construction and implementation of activity, off the New Jersey/New York coast, continues, unabated, such construction will condemn the North Atlantic Right Whale to extinction. I urge you to utilize this related, complete record, as part of your own record, with regard to the focus of Atlantic Shores' request for authorization to "take" marine mammals incidental to marine site characterization surveys, in waters off New York, New Jersey, Delaware, and Maryland. The granting of this request, would demonstrate a lack of compliance with the U.S. National Environmental Policy Act (NEPA), as well as the United States Endangered Species Act (ESA). It would be absolutely inappropriate to condemn to extinction, off the face of the earth, an entire species, as would occur, with the approval of Atlantic Shores', pending "taking" request, as well as the ongoing, fast track, general approval process, for offshore wind turbine development, without any independent cost benefit analysis, or scientific review.

I thank your agency for its kind consideration of the within request to implement a moratorium or stay upon the pending application of Atlantic Shores, for "taking" more marine mammals, off our coast.

Respectfully submitted,

Mayor John A. Peterson, Jr.

JAP/cr

cc: Jenna Jankowski, Seaside Park Clerk (for distribution to members of the town council for informational purposes only)

itp Clevenstine - NOAA Service Account <itp.clevenstine@noaa.gov>

SRWC comments Atlantic Shores deadline 2024-02-05

1 message

llinowes@windaction.org <llinowes@windaction.org> Sun, Feb 4, 2024 at 1:35 PM
To: ITP.clevenstine@noaa.gov
Cc: info@saverightwhales.org

Dear Ms. Harrison,

Attached please find comments provided on behalf of the Save Right Whales Coalition. These comments are in response to a request from Atlantic Shores Offshore Wind, LLC for authorization to take marine mammals incidental to marine site characterization surveys in waters off of New York, New Jersey, Delaware, and Maryland, including in the Bureau of Ocean Energy Management (BOEM) Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) Lease Areas OCS–A 0499, OCS–A 0541, OCS–A 0549, and associated export cable corridor (ECC) areas.

All references relied on in preparing these comments are embedded within the document as web links.

If you have any questions regarding the attached, please do not hesitate to contact me.

Sincerely,

--Lisa Linowes

_____
lisa linowes
executive director
603-838-6588
windaction.org
like us on facebook - https://www.facebook.com/windactionorg

SRWC Comments Atlantic Shores IHA 2024-02-5 FINAL.pdf
268K

SUBMITTED VIA ELECTRONIC MAIL

February 5, 2022

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

RE: Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off New York, New Jersey, Delaware, and Maryland

Dear Ms. Harrison:

On behalf of members of the Save Right Whales Coalition ('SRWC'), thank you for the opportunity to comment on Atlantic Shores Offshore Wind, LLC's (Atlantic Shores) request for authorization to take marine mammals incidental to marine site characterization surveys in waters off of New York, New Jersey, Delaware, and Maryland, including within offshore wind lease areas referenced as OCS–A 0499, OCS–A 0541, OCS–A 0549, and associated export cable corridor (ECC) areas.

Our comments focus on the sparker devices Atlantic Shores has indicated it will be using during its survey, the source sound levels (peak and RMS) for the equipment, and the resulting Zone of Influence (ZOI) radius and calculated numbers of take.

1) Background

NOAA Fisheries (also referenced herein as NMFS) has made clear to incidental harassment authorization (IHA) applicants that data provided by Crocker and Fratantonio (Crocker) represent the best available information on source sound levels for sonar devices and that applicants should use Crocker when determining Level B threshold distances. When peak or RMS levels for specific sparker devices and configurations are not directly available in Crocker, NMFS recommends source levels from the manufacturer be used. NMFS has also allowed for proxies from Crocker to be used "in instances where source levels provided by the manufacturer are unavailable or unreliable" (Ex: 88 FR 47846, July 25, 2023) but at no time explains what it means for a manufacturer's data to be unreliable. In fact, peak sound levels for the various configurations of sparker devices are readily available from the respective manufacturers and their levels are consistent with Crocker.

In instances where peak levels are available, but the RMS is absent, NMFS's 2020 Interim Recommendation for Sound Source Level and Propagation Analysis for High Resolution Geophysical

(HRG) Sources provides guidance on computing RMS levels. We see no reasonable path under NMFS' recommendations to rely on proxy devices.

Yet, when SRWC reviewed the specifics of the currently active IHAs for site characterization work in wind lease areas in the Atlantic, we found that they all relied on a Crocker proxy and in all cases the peak and RMS levels were well below typical levels for the planned device make, model, and intended configuration.

Applying lower dB,RMS[1] levels for a sparker device results in shortened distances out to which PSOs search for marine mammals. For example, a 219 dB,RMS under NMFS's model for transmission loss produces a Level B threshold distance of 890 meters. Using the same model with an RMS of 203 dB shows a Level B distance of only 141 meters. The consequence of applying a lower source RMS is a smaller calculated Zone of Influence (ZOI) and an understating of marine mammal takes.

2) Atlantic Shores: Pattern of claiming quieter sonar sound levels

NOAA previously reviewed six (6) separate IHA applications submitted for approval by Atlantic Shores for site characterization activity. These applications generally cover large ocean swaths off the New Jersey coast. The current application, number 7, includes these areas and extends further from New York to Maryland. Of the six IHA requests approved, 4 have expired and 2 remain active.

Table 1 - Atlantic Shores IHA applications with project area description, duration of IHA, status

No.	Project area description	Start Date	End Date	Permit	Status
1	Site characterization surveys off the coasts of New York and New Jersey in the area of OCS-A 0499 and along potential submarine cable routes to a landfall location in New York or New Jersey.	4/20/2020	4/19/2021	IHA	Exp.
2	Site characterization surveys off the coasts of New York and New Jersey in the area of OCS-A 0499 and along potential submarine cable routes to a landfall location in New York or New Jersey.	4/20/2021	4/19/2022	IHA Renewal	Exp.
3	Site characterization surveys off New Jersey and New York.	4/20/2022	4/19/2023	IHA	Exp.
4	Site characterization surveys off New Jersey and New York in the area of OCS-A 0541	8/10/2022	8/9/2023	IHA	Exp.
5	Marine site characterization surveys off New Jersey and New York.	6/9/2023	6/8/2024	IHA	Active
6	Marine site characterization survey activities offshore of New Jersey and New York	8/10/2023	8/9/2024	IHA	Active
7	Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549, and associated export cable corridor areas	1/5/2024	tbd	IHA	Pend

[1] All decibel values in this letter, peak and RMS, are referenced to 1 micropascal (µPa).

The water depths and subsurface depths that Atlantic Shores anticipated for each IHA request are consistent across the first 6 applications. The current application shows an intent to penetrate the subsurface down to 60 meters. (Table 2)

Table 2 - Atlantic Shores water and subsurface depths for each IHA application

No.	Start Date	End Date	Water Depth		SubSurface Depth	
1	4/20/2020	4/19/2021	Min	Max	Min	Max
2	4/20/2021	4/19/2022	5	40	75	100
3	4/20/2022	4/19/2023	5	40	75	100
4	8/10/2022	8/9/2023	5	40	75	100
5	6/9/2023	6/8/2024	5	40	75	100
6	8/10/2023	8/9/2024	5	40	75	100
7	1/5/2024	tbd	5	60	75	100

SRWC reviewed the specifications Atlantic Shores provided in each application for the sparker devices it planned to use. Here we found that Atlantic Shores has shown a pattern of claiming sonar sound levels that are quieter than the peak levels likely generated.

In its first six applications, Atlantic Shores asserts that successful site characterization at the intended water depths and subsurface penetration levels requires sparker devices to operate at energy levels up to 800 joules (j). Two commercial sparker devices are cited as candidates, the Applied Acoustics Dura-Spark 240 and the GeoMarine Geosource 400, configured to 800 j and 400 tips. The manufacturer peak sound levels for these sparkers at 800 joules is 226 dB peak.[2]

Crocker does not offer proxy units that match the makes, models, and configurations for the Acoustics Dura-Spark 240 and the GeoMarine Geosource 400 sparkers. NOAA guidance correctly directs applicants to utilize the manufacturers' data when a match cannot be found in Crocker, but Atlantic Shores does not follow this guidance.

For the first application with its renewal (No. 1 and 2 in Table 3), Atlantic Shores calculated the peak and RMS levels for 800 j by interpolating between Crocker values for the Applied Acoustics Dura-Spark 240. The results were 221.4 dB, peak and 211.4 dB,RMS. For each subsequent application (No. 4-6), Atlantic Shores selected an entirely different make and model of sparker to serve as a proxy, the SIG ELC 820, which Crocker shows to have substantially quieter sonar sound levels for source peak and RMS. (See

[2] The 226 dB peak level is taken directly from the GeoMarine Geosource 400 800 j data sheet (convert from bars/meter to dB). The similar figure is provided by Applied Acoustics for the Dura-Sparke 240 at 800 j. A 219 dB, RMS is consistent with NMFS's recommendation for computing RMS from peak levels.

Table 3) In all cases, it appears NMFS accepted these values submitted by Atlantic Shores even if actual sonar sound levels during HRG surveys exceeded these levels.[3]

Table 3 - Atlantic Shores specs for intended sparker with Crocker proxies and ZOI radii in meters

No.	Start Date	End Date	Sparker Proposed for use (joule or j, tips)	Proxy sparker used from Crocker	RMS from Crocker	ZOI radius (m)
1	4/20/2020	4/19/2021	Applied Acoustics Dura-Spark 240 &/or GeoMarine Geo-Source 400 (800 j, 400 tips)	Applied Acoustics Dura-Spark 240 (500 j, 400 tip)	211.4 (interpolated to 800 j)	372
2	4/20/2021	4/19/2022	Applied Acoustics Dura-Spark 240 &/or GeoMarine Geo-Source 400 (800 j, 400 tips)	Applied Acoustics Dura-Spark 240 (500 j, 400 tip)	211.4 (interpolated to 800 j)	372
3	4/20/2022	4/19/2023	Applied Acoustics Dura-Spark 240 &/or GeoMarine Geo-Source 400 (800 j, 400 tips)	SIG ELC 820, 750 j 5m	203	141
4	8/10/2022	8/9/2023	Applied Acoustics Dura-Spark 240 &/or GeoMarine Geo-Source 400 (800 j, 400 tips)	SIG ELC 820, 750 j 5m	203	141
5	6/9/2023	6/8/2024	Applied Acoustics Dura-Spark 240 &/or GeoMarine Geo-Source 400 (800 j, 400 tips)	SIG ELC 820, 750 j at 5m	203	141
6	8/10/2023	8/9/2024	Applied Acoustics Dura-Spark 240 &/or GeoMarine Geo-Source 400 (800 j, 400 tips)	SIG ELC 820, 750 j at 5m	203	141
7	1/5/2024	tbd	GeoMarine Geosource 400 (400 J, 400 tips)	SIG ELC 820, 400 j at 5 m	195	56

Of the four IHAs issued to Atlantic Shores that are now expired, post-survey monitoring reports are only available online for the first two surveys covering the period from April 20, 2020 to April 19, 2022. Neither report identifies the actual sonar devices used. Nor do they include the maximum energy levels in joules applied or the RMS levels. Unless NMFS has taken sound measurements during these HRG activities, there is no way for NOAA to know whether the sonar complied with Atlantic Shores' claims. We have reason to doubt there was compliance given the apparent misapplication of proxy units from Crocker.

[3] For an IHA issued to Equinor Wind LLC at 85 FR 60424, September 20, 2020, NMFS concurred with the applicant's use of a Crocker 2016 proxy with lower peak and RMS levels despite Equinor claiming to provide the manufacturer numbers of 220 dB,pk and 216 dB,RMS. A 216 dB,rms would result in a Level B harassment distance of 631 meters versus the lower 141 meters that NMFS accepted.

Independent, calibrated sound measurements acquired on May 8, 2023 during the Attentive Energy, LLC HRG survey in lease OCS-A 0538 showed source peak levels near 226 dB which were well over the 211 dB peak that Attentive cited using a Crocker proxy in its application approved by NOAA.[4] This is a serious issue. SRWC has written two letters to NMFS on this matter but have not received a reply.

3) Incorrect Sonar Levels: Impacts on mitigations and estimated marine mammal take

As NMFS is aware, mitigations relating to sonar sound levels defined in the IHA are predicated on the noise level emitted from the sonar when measured at the source i.e. at the point where the sonar explosion occurs. By applying sonar levels that are quieter than those actually emitted, the Level B threshold distances would be materially shorter. This results in the Protected Species Observers looking for marine mammals at distances that are much closer to the sonar than would be allowed had the correct sound levels been applied. It also means that NMFS would understate the estimated instances of take authorized in the IHAs since these numbers are tied to the ocean area exposed to loud noise levels. Louder sonar devices create larger zones of influence.

Table 4 - Source Peak, RMS sonar sound levels for planned sparker device and proxy units with ZOI radii

Source of Data	Sparker Make/Model/Configuration	Source Peak Level	Source RMS Level	ZOI radius (m)
Manufacturer[5] Planned	GeoMarine Geosource 400 (800 j and 400 tip)	226 dB	219 dB	890
Crocker Proxy	SIG ELC 820 (750 j at 5m depth)	213 dB	203 dB	141
Crocker Proxy	SIG ELC 820 (400 j at 5m depth)	208 dB	195 dB	56

According to Atlantic Shores' application, the 195 dB RMS for the quieter sparker device will result in a radius of just 56 meters for the ZOI, with a total annual ensonified area offshore (vs. nearshore) of 2,824 km.[2] Applying the more realistic RMS level of 219 dB,RMS produces a ZOI radius of 890 meters and a much larger total annual ensonified area of 44,858 km^2.

These figures are just for the areas offshore where water levels and subsurface penetration are deeper and require a higher energy sonar.

[4] The IHA issued Attentive Energy (September 15, 2022 to September 14, 2023, for OCS-A 0538) shows that Attentive stated in its application that the GeoMarine sparker operating at 800 j would likely be used but cited the Applied Acoustics Dura-spark 240 500 J, 400 tip as the closest match from Crocker with 211 dB, peak and 203 dB, RMS source levels. These levels do not reflect manufacturer peak of 226 dB or the levels Rand Acoustics LLC recorded. Rand Acoustics, LLC of Maine published the sonar levels measured on its website.

[5] The 226 dB peak level is taken directly from the GeoMarine Geosource 400 800 j data sheet (convert from bars/meter to dB). The 219 dB, RMS is consistent with NMFS's recommendation for computing RMS from peak sound levels.

Source Name:

INPUT VALUES (LEVEL B)	
Threshold Level	160
Source Level (dBrms)	219
Frequency (kH)	1
Beamwidth (degree)	180
Water depth (m)	60

COMPUTED VALUES (LEVEL B)	DO NOT CHANGE
alpha (dB/km)	0.00882342
TL coefficient	20
Slant distance of threshold (m)	**890**
Vertical depth of threshold (m)	5.45191E-14
Horizontal Threshold Range (m)	**890**

Source Name:

INPUT VALUES (LEVEL B)	
Threshold Level	160
Source Level (dBrms)	195
Frequency (kH)	1
Beamwidth (degree)	180
Water depth (m)	60

COMPUTED VALUES (LEVEL B)	DO NOT CHANGE
alpha (dB/km)	0.00882342
TL coefficient	20
Slant distance of threshold (m)	**56**
Vertical depth of threshold (m)	3.43042E-15
Horizontal Threshold Range (m)	**56**

Using Atlantic Shores' marine mammal density figures for offshore areas, the differences in take estimates for the different sonar sound levels are substantial. (Table 5) Even if there were a dispute over the peak and RMS numbers from the manufacturer, the sheer degree of difference in marine mammal takes based on different RMS levels demands that this issue be investigated closely and that Atlantic Shores' sonar and take levels not be accepted.

Table 5

Offshore Survey Area			
Species	**Max seasonal density (#/100 km2)**	**Proposed Calculated Take**	**Actual Calculated Take**
NARW	0.075	2	34
Humpback Whale	0.105	3	47
Fin Whale	0.135	4	61
Sei Whale	0.046	1	21
Minke Whale	0.585	17	262
Sperm Whale	0.01	0	4
Analysis only considers 180 day survey further offshore using 800 j 400 tip sparker			

4) Conclusion

In examining IHA applications for the last five years, SRWC has found what appears to be a systematic effort to choose proxy sonar units from Crocker that understate actual source sound levels. The consequence of this, as noted above, is that the ZOI for each activity is artificially made smaller and the number of marine mammals at risk of being exposed to loud noise is grossly understated.

For the immediate need, Atlantic Shores' IHA application should be reassessed based on a louder sonar and NMFS should take steps to independently validate Atlantic Shores' claims regarding the sonar configuration required for the work and the corresponding sound levels. More generally, it is essential that NOAA follow its own guidance and require all IHA applicants to provide the exact equipment specifications they will use and to disallow cheery-picked proxy devices from Crocker to reduce the ZOI. While it may be possible that applicants, including Atlantic Shores, will not always operate the sparker at high energy levels, it is incumbent on NOAA to ensure marine life is protected during periods when higher joule levels are activated. This requires accurately matching mitigation efforts to sonar sound levels.

Correct estimates for take are required to reflect the noise levels. Given a larger ZOI, the number of Level B takes for the North Atlantic right whale for this application (34 individuals) would represent a significant percentage of the current population size – 10.1% as opposed to 0.592% reported by Atlantic Shores. Atlantic Shores and NMFS must justify why it believes the SIG ELC 820 (400 j at 5m depth) is the appropriate proxy as opposed to utilizing sound levels cited by the manufacturer when no legitimate match is included in Crocker.

We ask that NMFS require post-survey monitoring reports to provide a listing of the actual sonar devices used with full operating specifications, the maximum energy levels in joules applied, and the RMS levels produced at the source. NMFS should arrange for monitoring of sonar levels at 800 j to confirm that applicants are operating in compliance with the noise levels stated in their applications. If NMFS determines that these levels are exceeded, an immediate shut down must be implemented and the IHA suspended to allow for a full investigation.

Thank you for the opportunity to comment. If you have questions regarding the enclosed information, please reach me by email at llinowes@windaction.org or by phone at 603-838-6588.

Sincerely,
--Lisa Linowes

On behalf of the Save Right Whales Coalition