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

July 28, 2023

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Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Re: Comments on Proposed Incidental Take Request for Atlantic Shores Offshore Wind Bight, LLC
RTID 0648-XC903 and Docket number 2023-13764

On behalf of Green Oceans, I am submitting comments on Atlantic Shores Offshore Wind Bight, LLC's 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 they accepted funds or assistance from any individuals outside of their local membership. They support climate activism and CO2 reduction. However, 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]."[1]

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 Offshore Wind Bight, LLC, threaten both. Marine mammals—and in particular, large 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.

[1] The White House 2021

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 Offshore Wind Bight, LLC 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."[2]

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 precedes the final BOEM and NOAA Strategy for Protecting North Atlantic Right Whales During Offshore Wind Development.[3] No further IHAs should be issued until the strategy has been finalized.

2) 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.

3) 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.

[2] 16 U.S.C. § 1361

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

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.

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

5) 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).

6) 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.

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

8) Enforcement and recording are inadequate.

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

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

11) 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.

12) The request does not properly consider the unique habitat of the lease area OCS-A 0541.

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]

[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).

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 Project area (OCS-A 0541) is a subdivision of the larger lease area within the New York Bight first designated by BOEM for wind development and was sold as part of a larger auction.[6]

The area 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.[7] Its population has declined by 25% since 2010, and calving rates have significantly decreased, compromising the viability and resiliency of the population.[8] If the current rate of population decline continues, the species will be functionally extinct by 2040.[9]

The ITR proposes to authorize Level B takes for 24 endangered whales: including, 5 critically endangered North Atlantic right whales, 9 endangered fin whales, 4 endangered sei whales, and 2 endangered sperm whales. Additionally, the ITR proposes to take 46 minke whales and 16 humpback whales, both of which have undergone unusual mortality events. In total, the ITR proposes to take 102 large cetaceans, 960 smaller odontocetes, and 1029 pinnipeds, for a total of 2091 marine mammals, for site characterizations over the course of just one year.

III. THE ITR IN THE LARGER CONTEXT

Currently issued ITRs have allowed for the takes (level A and B combined) of **4512 whales**; **118,542 dolphins** (including the harbor porpoise); and **20,041 seals**. In addition, NOAA is currently reviewing 14 applications (including the current proposal) for an additional **16,152 whales**; **358,497 dolphins** and **80,701 seals**. If NOAA reviews each application in isolation,

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[5] 16 U.S.C. § 1371(a)(5)(A).

[6] Docket No. BOEM-2022-0001

[7] NOAA and BOEM Draft strategy for the NARW

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

[9] 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)

based on the lease areas as isolated boundaries, it will grant permits for total takes of **20,664 whales**; **477,039 dolphins**; 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 table below provides the true percentages of the estimated stocks.

Species	Requested take	Issued + requested	Total takes (Proposed + issued) takes	% Pop (issued)	% Pop (total)
NARW*	5	239	1001	71 %	296 %
Humpback	16	479	2587	34 %	185 %
Fin*	9	572	3199	8.4 %	47 %
Sei*	4	105	481	1.6 %	7.6 %
Minke	46	1127	6,882	5.1 %	31 %
Sperm*	2	95	652	2.2 %	15 %
Pilot	20	1914	5328	4.9 %	13.6 %
Bottlenose D	179	19,394	42,425	30.9 %	68 %
Common D	588	73,830	291,574	42.7 %	169 %
White-sided D	63	5,369	20,976	5.8 %	22.5 %
Spotted D	100	11,000	42,425	27.6 %	106 %
Risso's D	30	863	5,636	2.7 %	17.5 %
Harbor P	281	9,247	27,466	9.7 %	29 %
Harbor Seal	374	10,559	56,719	17.2 %	92 %
Gray Seal	374	10,011	32,741	36 %	120 %

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."[10] 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*."[11] 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

[10] BOEM 2018, Vineyard Wind, FEIS, Volume 1, A-66

[11] BOEM 2022, Revolution Wind DEIS, 3.8-11

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.[12] The current ITR includes a level B request for 5 NARWs.

DISCUSSION

I. THE NARW STRATEGY HAS NOT BEEN FINALIZED

BOEM and NOAA have acknowledged that offshore wind development poses additional risks to NARW. They issued a draft strategy on October 21, 2022 and collected comments during the ensuing weeks. The final strategy has not yet been published. Because the current activity involves five Level B take requests of the NARW, this IHA cannot lawfully be granted until the strategy has been finalized and the activity is deemed compliant.

II. 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.

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

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

biodiversity. The executive order 14008 clearly states that our efforts to combat climate change should not compromise biodiversity.

III. 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.[13]

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.[14] 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

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

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

a difference in view or the product of agency expertise."[15] Accordingly, where, as here, the agency's conclusion relies on incorrect or inaccurate data, its decision is arbitrary and capricious and must be rejected.[16,17,18]; (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.

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."[19] 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.[20] 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").[21] 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

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

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

[17] 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)

[18] 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)

[19] 279 F. Supp. 2d 1129, 1153 (N.D. Cal. 2003)

[20] 73 Fed. Reg. 66,106, 66,111 (Nov. 6, 2008)

[21] Lone Mountain Processing, Inc. v. Sec'y of Labor, 709 F.3d 1161, 1164 (D.C. Cir. 2013), (internal quotation marks and citation omitted)

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.[22] 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 experience a "potential . . . disruption of behavioral patterns."[23 & 24]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."[25]

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.[26] 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.[27] 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

[22] Id (referenced to 1 micropascal (re 1 mPa)) ("120 dB threshold")
[23] 87 Fed. Reg. at 79,110,
[24] 16 U.S.C. § 1362(18)(A)(ii).
[25] Christopher W. Clark et al., Comments on Arctic Ocean Draft EIS at 2 (Feb. 28, 2012), available at https://tinyurl.com/5fsfmwst.
[26] 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).
[27] Christopher W. Clark et al., Comments on Arctic Ocean Draft EIS, supra.

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).[28]

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.[29] 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).[30] 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 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.[31] As a result, NMFS's use of the threshold contravenes the plain language of the statute and cannot withstand scrutiny.[32]

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.[33] 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

[28] Sierra Club, 671 F.3d at 965–66 (9th Cir. 2012)
[29] 16 U.S.C. § 1362(18).
[30] 87 Fed. Reg. at 79,115.
[31] cf. Ocean Mammal Inst. v. Gates, 546 F. Supp. 2d 960, 973–75 (D. Haw. 2008)
[32] 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))
[33] See, e.g., 74 Fed. Reg. 4844, 4844-4885 (Jan. 27, 2009).

species or stock through effects on annual rates of recruitment or survival."[34] NMFS must base its negligible impact determination on the "best available scientific evidence."[35]

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.[36] 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, physical malformations, and birth defects.[37] 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.[38] 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."[39] 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."[40] These effects are known to induce chronic stress in marine mammals.[41] Moreover, as discussed, low-level noise is known to affect marine mammals

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[34] 50 C.F.R. § 216.103.
[35] §§ 216.102(a), .104(c).
[36] J.W. Wright et al., Concerns Related to Chronic Stress in Marine Mammals, IWC SCI. COMM. DOC. IWC/SC/61/E16 (2009).
[37] 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).
[38] 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.").
[39] 87 Fed. Reg. at 79101.
[40] 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).
[41] Rosalind M. Rolland et al., Evidence that ship noise increases stress in right whales, PROCEEDINGS OF THE ROYAL SOCIETY B: BIOLOGICAL SCIENCES (2012).

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.[42]

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.[43] 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.[44] 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] are more likely to experience severe consequences than healthy animals."[45] 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.[46] 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."[47] 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."[48]

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."[49] 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

[42] State Farm, 463 U.S. at 43.
[43] 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.").
[44] 87 Fed. Reg. at 79,153; Rosalind M. Rolland et al., supra.
[45] Draft Strategy at 11.
[46] Cf. 83 Fed. Reg. 19,711, 19,722-23 (May 4, 2018) (discussing marine mammal behavioral responses to underwater sound, including vessel noise).
[47] Draft Strategy at 11.
[48] Draft Strategy at 6.
[49] 87 Fed. Reg. at 79,153

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.[50]

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.[51] 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.[52] 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 Project by asserting that other feeding and migration habitat remains available.[53] 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.[54] 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.[55] 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)."[56]

Here, NMFS acknowledges that the Project may result in the displacement of North Atlantic right whales from the Project area and its surrounding vicinity.[57] 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.[58] For example, NMFS reports that the Project area overlaps a Seasonal Management Area, which was established with the express purpose of reducing the risk

[50] State Farm, 463 U.S. at 43
[51] 87 Fed. Reg. at 79,088-89.
[52] 73 Fed. Reg. 60,173 (Oct. 10, 2008).
[53] 87 Fed. Reg. at 79,153.
[54] Christopher W. Clark et al., Acoustic masking, supra.
[55] K.A. Forney et al., supra.
[56] Draft Strategy at 10.
[57] 87 Fed. Reg. at 79,154.
[58] Amerijet Int'l Inc., 753 F.3d at 1350 ("[C]onclusory statements will not do; an agency's statement must be one of reasoning.").

of vessel strikes.[59] 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."[60] The loss of just one individual in a year reduces the "likelihood of recovery and of the species' achieving optimum sustainable population."[61] 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.[62]

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.[63] 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

[59] 73 Fed. Reg. 60,173 (Oct. 10, 2008).
[60] Draft Strategy at 6.
[61] Draft Strategy at 6-7.
[62] State Farm, 463 U.S. at 43.
[63] 50 C.F.R. § 216.102.

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.[64] Such sources have also been known to cause baleen whales to abandon habitat over the same scale.[65] 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.[66] Such behavior leaves the whales at a substantially greater risk of vessel strike, which is a primary source of mortality for the imperiled species. NMFS, North Atlantic Right Whale (Eubalaena glacialis).[67] Similar observations have been made in other baleen whale species globally and across behavioral states, affecting foraging, breeding, and migration.[68, 69, & 70] 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.[71, 72, 73, & 74]

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

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[64] Susanna B. Blackwell et al., Effects of airgun sounds on bowhead whale calling rates: Evidence for two behavioral thresholds, 10 PLoS ONE e0125720 (2015).
[65] Kelly MacLeod et al., supra.
[66] 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)
[67] Western Atlantic Stock, STOCK ASSESSMENT REPORT, at 25-26 (2022) ("Vessel strikes are a major cause of mortality and injury to right whales.")
[68] 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)
[69] 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)
[70] Salvatore Cerchio et al., Seismic surveys negatively affect humpback whale singing activity off Northern Angola, 9 PLOS ONE e86464 (2014)
[71] e.g., Rosalind M. Rolland et al., supra
[72] e.g., Manuel Castellote et al., supra
[73] e.g., Christopher W. Clark, Acoustic masking in marine ecosystems, supra
[74] e.g., id.

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.[75]

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.[76] Studies indicate that baleen whales have lost a significant portion of their communication space due to increasing ambient noise.[77, 78, & 79] 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.[80]

[75] Cf. Ocean Mammal Inst. v. Gates, 546 F. Supp. 2d 960, 973–75 (D. Haw. 2008)
[76] 87 Fed. Reg. at 79,093.
[77] e.g., Christopher W. Clark, C.W., et al.,
[78] Acoustic masking in marine ecosystems, supra
[79] Lelia T. Hatch et al., Can you hear me here? Managing acoustic habitat in US waters, 30 ENDANGERED SPECIES RES. 171 (2016)
[80] 87 Fed. Reg. at 79,101

This inference is supported by numerous studies demonstrating that seismic surveys have raised ambient noise levels at significant distances from the array.[81, 82, 83, & 84] 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.[85] NMFS cannot ignore this science.[86]

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 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."[87] 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."[88] 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

[81] 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)
[82] 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)
[83] 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)
[84] 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)
[85] 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)
[86] Dist. Hosp. Partners, L.P. v. Burwell, 786 F.3d 46, 57 (D.C. Cir. 2015)
[87] 87 Fed. Reg. at 79, 100-02
[88] Id.

noise into habitat that is "important" to many marine mammal species, including the critically endangered North Atlantic right whale, will have negligible effects.[89]

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, operates at a potentially enormous scale.[90 & 91] 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.[92] The critically endangered North Atlantic right whale is particularly vulnerable to masking from anthropogenic sources, given the acoustic and behavioral characteristics of its calls.[93] 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.[94] 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.[95] 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.[96]

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

[89] 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))
[90] e.g., Christopher W. Clark et al., Acoustic masking in marine ecosystems, supra
[91] 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)
[92] Christopher W. Clark et al., Acoustic masking in marine ecosystems, supra
[93] id.
[94] 87 Fed. Reg. 79,093
[95] State Farm, 463 U.S. at 43
[96] 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)

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."[97] 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."[98 & 99]

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 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.[100] 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).[101] 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."[102] 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."[103]

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."[104] However, NMFS

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[97] NMFS, The NOAA Ocean Noise Strategy and Managed Species 12 (2016)
[98] 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)
[99] 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)
[100] 16 U.S.C. § 1371(a)(5)(A)
[101] Cf. Nat'l Wildlife Fed'n v. NMFS, 524 F.3d 917, 936 (9th Cir. 2008)
[102] 54 Fed. Reg. 40,338, 40, 342 (Sept. 29, 1989)
[103] Id.
[104] 87 Fed. Reg. at 79,148, (citing the preamble to the agency's 1989 implementing regulations, 54 Fed. Reg. 40338 (Sept. 29, 1989))

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.[105]

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 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.[106]

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.[107] At least fifty-five right whale deaths or mortal injuries have been detected, forty-one of which were attributed to vessel strikes or entanglements.[108] 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.

[105] 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")
[106] Sorensen et al., "Anthropogenic noise impairs cooperation in bottlenose dolphins," *Current Biology*, 2023
[107] NMFS, Unusual Mortality Event, supra
[108] Id.

UMEs are also ongoing for the Atlantic populations of minke whales (since January 2017) and humpback whales (since January 2016).[109 & 110] 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, 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."[111] 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."[112] 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."[113] 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.[114] 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

[109] NMFS, 2017–2023 Minke Whale Unusual Mortality Event along the Atlantic Coast, https://tinyurl.com/2uxmpv69
[110] NMFS, 2016–2023 Humpback Whale Unusual Mortality Event Along the Atlantic Coast, https://tinyurl.com/t6vjm4x3
[111] 16 U.S.C. § 1361(1)
[112] H.R. REP. NO. 92-707, at 15, 1972 U.C.C.C.A.N. at 4147-48.
[113] H.R. REP. NO. 92-707, at 15, 1972 U.C.C.C.A.N. at 4148.
[114] H.R. REP. NO. 92-707 at 15, 1972 U.C.C.C.A.N. at 4148.

stability of the marine ecosystem."[115] 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.[116] 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

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."[117] 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.

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[115] 16 U.S.C. § 1361(6).
[116] H.R. REP. NO. 92-707, at 15, 1972 U.C.C.C.A.N. at 4148.
[117] 87 Fed. Reg. at 79,160.

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.[118] 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 species."[119] 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.[120] 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."[121] 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."[122] 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.

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[118] 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").

[119] 16 U.S.C. § 1536(a)(2).

[120] 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'").

[121] Am. Bird Conservancy, Inc. v. FCC, 516 F.3d 1027, 1032 (D.C. Cir. 2008) (quoting 40 C.F.R. § 1508.25(a)).

[122] 40 C.F.R. § 1508.25(a)(3).

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."[123] 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."[124] 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.[125]

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

Prior to the US development of offshore wind, whale experts agreed that seismic surveys in the mid to low-frequency range can injure whales.[126] 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.[127] 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.

[123] 40 C.F.R. § 1508.25(a)(2).
[124] Id. § 1508.7
[125] Am. Bird Conservancy, 516 F.3d at 1032
[126] Fernandez, 2005
[127] 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.

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

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July 28, 2023

Submitted via electronic mail to ITP.clevenstine@noaa.gov.

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

Re:
Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys Off New Jersey and New York (88 Fed. Reg. 41,912, June 28, 2023)

Dear Jolie Harrison:

Oceana is the largest international conservation organization solely focused on protecting the world's oceans, with more than 1.2 million members and supporters in the United States, including over 340,000 members and supporters on the U.S. Atlantic seaboard. For twenty years, Oceana has campaigned to win strategic, directed campaigns that achieve measurable outcomes to help make our oceans more biodiverse and abundant.

Addressing climate change is important for oceans, wildlife, and our future. By shifting from fossil fuel energy to clean, renewable energy sources, the United States can help address this crisis. Oceana was pleased to see the Biden Administration's goal to deploy 30 GW of offshore wind power by 2030 while protecting biodiversity and cultural resources, including imperiled marine life such as the critically endangered North Atlantic right whale (NARW).

Oceana has engaged as a stakeholder in the management of U.S. fisheries and interactions with endangered species, with a particular interest in effective bycatch minimization and reduction, if not elimination, of fishing gear entanglement-related death, injury, and harm to protected species, including the NARW. In addition, Oceana is interested in seeing the reduction, if not elimination, of vessel strike-related death, injury, and harm to NARWs. For these reasons, in 2019, Oceana launched a binational campaign in the United States and Canada to urge the respective governments to effectively enforce environmental laws to protect this critically endangered species and Oceana is currently campaigning to protect these whales from their two biggest threats—entanglement in fishing gear and vessel strikes.

For over 15 years, Oceana has been campaigning to oppose expanded offshore oil and gas exploration and development. Offshore drilling causes dangerous oil spills and perpetuates energy

development based on fossil fuels. The United States must shift from fossil fuel-based energy sources to clean energy. Offshore wind development has the potential to help bridge the transition to our clean energy future.

Oceana is supportive of offshore wind energy if it is responsibly sited, built, and operated throughout its lifespan. The proposals for offshore wind development in areas that the critically endangered NARW may frequent need to consider, avoid, and mitigate effects to protected species, particularly the NARW, to ensure that wind development will not come at the expense of the species. NARWs spend much of the year in the waters of New England and Eastern Canada with mothers migrating south to have calves in the U.S. Southeast region. Wind development in persistent aggregation habitats and calving grounds pose particular concern but the areas where NARWs migrate are likely more appropriate for offshore wind farms because of the reduced frequency, intensity, and duration of NARW interactions within these areas. As offshore wind is developed along the eastern seaboard, strong measures are needed to protect this critically endangered species.

Oceana thanks you for the opportunity to submit comments as your agency considers an application for an Incidental Harassment Authorization (IHA) to support the site characterization of offshore wind projects off New York and New Jersey. To comply with the Marine Mammal Protection Act (MMPA), the Fisheries Service must reconsider its approach to renewing IHAs, including this one, with a shortened comment period. If the Fisheries Service chooses to renew this IHA, it must provide a full 30-day comment period for a renewal notice to ensure adequate public engagement.

This comment letter includes the following key points:

- The Fisheries Service must open a 30-day comment period to reauthorize the IHA.
- The IHA must include use of best available science, cumulative impacts analysis, and project conditions that avoid, minimize, and mitigate adverse environmental impacts.
- The IHA must include a vessel traffic plan to minimize the effects of service vessels on marine wildlife.
- The IHA must include requirements to use effective reactive restrictions that are triggered by detection of protected species before or during site characterization activities.

Oceana submits these comments to help ensure that the proposed activities avoid adverse effects on marine mammals. If adverse effects cannot be avoided, then they should be minimized or mitigated. The Fisheries Service is the steward of the remaining NARWs that swim along our coasts and, as the agency responsible for their recovery, should ensure that the authorization of site characterization is based on the best scientific information available and that strong protections are in place before approving this or any proposed activity that may take, harass, or cause stress to NARWs.

1) The role of Incidental Harassment Authorizations

The MMPA was adopted fifty years ago with the goal of protecting and promoting the growth of marine mammal populations "to the greatest extent feasible commensurate with sound policies of resource management" in order to "maintain the health and stability of the marine ecosystem."[1] To protect marine mammals from human activities, the MMPA prohibits the "take" of marine mammals including activities that harass, hunt, capture, or kill, or any attempt to harass, hunt, capture, or kill any marine mammal.[2] In limited circumstances, the Fisheries Service, the agency responsible for protecting most marine mammal species,[3] may grant exceptions to the take prohibition, such as for the incidental, but not intentional, taking of marine mammals for certain activities, which is done via incidental take authorizations.[4]

The Fisheries Service can only grant an incidental take authorization if the take request is for "small numbers of marine mammals of a species or stock" and will have only "negligible impact."[5] It is important to note that when granting an incidental take authorization, the Fisheries Service must require mitigation measures that achieve "the least practicable impact on such [marine mammal] species or stock and its habitat."[6]

Under the Fisheries Service's regulations, there are two types of incidental take authorizations: IHAs and Letters of Authorization (LOA). LOAs can only be issued after the Fisheries Service promulgates incidental take regulations for the activity. An IHA is limited to one year, and the action authorized may only have the potential to result in harassment. [7] For actions that could result in any "serious injury"[8] or mortality of a marine mammal, the Fisheries Service's regulations indicate that incidental take regulations must be promulgated after notice and the opportunity to comment.[9] LOAs can be issued pursuant to incidental take regulations for up to five years.[10]

2) The Fisheries Service Must Open a 30-Day Comment Period to Reauthorize the IHA

The Fisheries Service must end its approach of renewing IHAs while only giving the public 15 days to comment. The expedited process that the Fisheries Service included in the IHA is a violation of the MMPA, which requires a 30-day public comment period for all IHAs, including

[1] 16 U.S.C. § 1361(6).
[2] 16 U.S.C. §§ 1361(2), 1371.
[3] The Fish and Wildlife Service, within the Department of the Interior, is responsible for dugongs, manatees, polar bears, sea otters and walruses. *See* U.S. Fish and Wildlife Service, *Marine Mammals*, https://www.fws.gov/international/animals/marine-mammals.html (last visited May 3, 2021).
[4] 16 U.S.C. § 1371(a); *Incidental Take Authorizations under the Marine Mammal Protection Act*, NOAA FISHERIES https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act (last visited May 3, 2021) (listing renewable energy activities as activities for which incidental take authorizations have been issued).
[5] 16 U.S.C. § 1371(a)(5)(A), (D).
[6] 16 U.S.C. § 1371(a)(5)(D)(ii)(I) (for IHAs); 16 U.S.C. § 1371(a)(5)(A)(i)(II)(a) (for LOAs).
[7] 16 U.S.C. § 1371(a)(5)(D)(ii)(I).
[8] The Fisheries Service defines the term "serious injury" as "any injury that will likely result in mortality. 50 C.F.R. § 216.3.
[9] 50 C.F.R. § 216.105(b).
[10] 50 C.F.R. § 216.106(a).

reauthorizations. The Fisheries Service should not be adopting processes that are inconsistent with its statutory obligations. The IHA renewal process runs contrary to the text and legislative history of the MMPA and finds no support in MMPA regulations.

In the event of a need for IHA renewal, the agency must issue a Federal Register notice and open a 30-day public comment period. Otherwise, the IHA will be procedurally deficient, making it vulnerable to litigation and creating uncertainty for the project proponents.

a) *The expedited renewal process violates the plain language of the MMPA*

The Fisheries Service's failure to give the public 30 days to comment on the reauthorization of the IHA is a violation of the MMPA's plain language. The MMPA clearly states that the Fisheries Service must provide a 30-day public comment period for every IHA, and the agency has failed to provide an adequate explanation of why the 30 days are not required for renewals.

Section 101(a)(5)(D)(i) of the MMPA states that an IHA may be granted "for periods of not more than 1 year."[11] When the Fisheries Service receives an application, it must publish a proposed IHA in the Federal Register "not later than 45 days" after receiving the application and must provide a 30-day public comment period.[12] The Fisheries Service must then approve the IHA "not later than 45 days" after the end of the public comment period if the IHA meets the MMPA's standards.[13] Therefore, the agency may publish a proposed IHA in the Federal Register and make a final decision faster than the 45-day windows, but the 30-day public comment period cannot be shortened. In other words, a decision on an IHA must be made no later than 120 days of receiving an application but can be made in less time so long as there is a 30-day public comment period.

The agency asserts that if it includes an opportunity to comment on a renewal at the time of the proposed IHA, the original comment period will count towards the 30-day requirement.[14] The text of the MMPA, however, does not explicitly or implicitly recognize an expedited renewal process with a 15-day comment period for IHAs even if the agency determines the activities are nearly identical.

The agency's explanation ignores the timeframe set out in the MMPA. The 30-day comment period must be opened after receiving the application for the IHA. Regardless of how the agency attempts to frame it, the expedited process is a violation of the MMPA. The Fisheries Service cannot segment the original IHA from the renewal for the purpose of keeping IHAs below the one-year limit but also have them count as the same IHA for purposes of the 30-day comment requirement. The only interpretation that comports with the language of the MMPA is for the Fisheries Service to require applicants to submit a new application and open a new 30-day public comment period.

[11] 16 U.S.C. § 1371(a)(5)(D)(i).
[12] 16 U.S.C. § 1371(a)(5)(D)(iii).
[13] *Id.*
[14] Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys, 85 Fed. Reg. 63,508 (Oct. 8, 2020).

b) ***The expedited renewal provision is inconsistent with the legislative history of the MMPA***

The legislative history of Section 101(a)(5)(D) similarly provides no support for the Fisheries Service's position. In fact, it provides evidence that the agency's interpretation is a violation of the MMPA. The MMPA's IHA provision was added as part of the statute's 1994 amendments, with the stated purpose of addressing procedural problems with harassment authorizations.[15] The Committee on Merchant Marine and Fisheries, which added the section to the bill, included the following statement in its report:

> New subparagraph (D)(iii) establishes specific time limits for public notice and comment on any requests for authorization which would be granted under this paragraph. The Committee notes that, in some instances, a request will be made for an authorization identical to one issued in the previous year. In such circumstances, the Committee expects the Secretary to act expeditiously in complying with the notice and comment requirements. There is no need, in such a case, for the Secretary to use the full 120 days allowed.[16]

This statement corroborates the plain reading of the MMPA. The statement shows that the specific timing Congress set out for authorizations includes any reauthorizations. While there is room for the Fisheries Service to expedite the 45-day periods before and after the comment period, the legislative history makes clear that it must comply with the 30-day notice and comment requirement. This is consistent with Congress using the phrase "not later than 45 days" for these decision-making periods but not using similar language for the 30-day period. The Fisheries Service must therefore continue to offer a 30-day public comment period even for re-authorizations like the one at issue here.

c) ***The expedited renewal provision is not supported by MMPA regulations***

The Fisheries Service has previously cited to 50 C.F.R. § 216.107(e) as its authority for renewing IHAs with a truncated comment period, but that provision does not authorize the agency to avoid the 30-day public comment period and does not apply outside of Arctic waters. 50 C.F.R. § 216.107(e) states that IHAs in Arctic waters may be renewed for additional year-long periods,[17] but the provision makes no mention of avoiding the 30-day comment period. Even if that regulation were interpreted to eliminate the 30-day comment period for renewals, it would also be a violation of the MMPA for the reasons outlined above. When adopting a process to issue IHAs, the agency must look to the text of the statute. The agency cannot rely on previous regulations to support its current unlawful interpretation.

[15] Marine Mammal Protection Act Amendments of 1994, P.L. 103-238, § 4, 108 Stat. 532 (1994); H.R. Rep. No. 103-439 (1994).
[16] H.R. Rep. No. 103-439 (1994).
[17] 50 C.F.R. § 216.107(e).

For these reasons, it is clear that the agency's interpretation of the MMPA finds no support in the text, legislative history, or implementing regulations of the statute. To cure this deficiency, the Fisheries Service must reissue the Federal Register notice and give the public a full opportunity to comment.

3) Comments on the Contents of an IHA for Site Characterization

In order to issue an IHA for site characterization or any offshore wind project, the Fisheries Service must ensure that the application meets the requirements for an IHA and that the IHA includes conditions that will guarantee the site characterization surveys have the least practicable impact on marine mammal species or stocks and their habitats in and around the project site. Oceana hopes the comments provided on these important elements will make the site characterization successful while also considering the adverse effects on marine mammals.

a) Use Best Available Science

The MMPA was the first congressional act to include a "best available science" mandate.[18] The statute requires use of "best scientific evidence available" in determining any waiver of the moratorium on the taking and importation of marine mammals and marine mammal products.[19] Additionally, MMPA implementing regulations require the agency to use the "best scientific information available."[20] The Fisheries Service must therefore comply with the "best available science" mandate in analyzing whether or not to authorize incidental takes.

The NARW is a critically endangered species that has experienced a large decline in the last decade. The most recent population estimate is just 340 remaining whales.[21] This 2021 population estimate is a 2.3 percent decrease from the previous year's estimate, representing a continued decline for the species. As NOAA considers the IHA application, it must use the most recent population estimate.

NARWs are known to feed, socialize and breed in the U.S. northeast and eastern Canada before mothers migrate south to calve and then return to the Northeast. As the Federal Register notes, NARWs use the proposed survey area as part of a migratory corridor Biologically Important Area (BIA) for NARWs. However, in the last decade the seasonal habitat usage of NARWs has shifted to include new waters and different seasonality. The IHA application and analysis must be sure to

[18] 16 U.S.C. §§ 1361 et seq. (mandating the use of "best scientific evidence" as well as the "best scientific information available" in several provisions, including the moratorium provision at 16 U.S.C. § 1371).
[19] 16 U.S.C. § 1371(a)(3)(A).
[20] 16 U.S.C. § 1371(a)(3)(A); 50 C.F.R. § 216.105(c) ("[R]egulations will be established based on the best available information.").
[21] New England Aquarium. 2022. North Atlantic right whales' downward trend continues as updated population numbers released, https://www.neaq.org/about-us/news-media/press-kit/press-releases/north-atlantic-right-whales-downward-trend-continues-as-updated-population-numbers-released/

use the most recent and best available science for this critically endangered species, including recent habitat usage patterns for the study area and up to date seasonality information that may differ from the March-April and November-December migration periods cited in the notice. The Fisheries Service should fully consider both the use of the area and the effects of chronic stressors on the health and fitness of NARWs.

Chronic stressors are an emerging concern for NARW conservation and recovery, and research suggests that a range of stressors on NARWs have stunted growth rates.[22] Disruptive site characterization activities may not only startle NARWs in this area, but also cause chronic stress to the whales. The whales may seek other feeding areas at great energetic cost, decreasing their fitness, body condition and ability to successfully feed, socialize and mate.

The IHA renewal must be sure to use the most recent and best available science for this critically endangered species, including updated population estimates, recent habitat usage patterns for the study area, and a revised discussion of acute and cumulative stress on whales in the region.

b) ***Fully Consider Cumulative Effects***

While an individual activity such as a site characterization may have negligible effects on the marine environment or a negligible number of interactions with protected species, many offshore wind-related activities are being considered in the region. It is important that the Fisheries Service fully consider the discrete effects of each activity and the cumulative effects of the suite of approved, proposed, and potential activities on marine mammals including NARWs and ensure that the cumulative effects are not excessive before issuing or renewing an IHA.

c) Project Conditions

Consistent with the requirement to achieve "the least practicable impact on such species or stock and its habitat," the IHA must include conditions for the survey activities that will first avoid adverse effects on NARWs in and around the survey site and then minimize and mitigate the effects that cannot be avoided. This should include a full assessment of which activities, technologies and strategies are truly necessary to achieve site characterization to inform development of the offshore wind projects and which are not critical. If, for example, a lower impact technique or technology will provide necessary information about the site without adverse effects, that should be permitted while other tools with more frequent, intense, or long-lasting effects should be prohibited.

4) Vessel traffic associated with Wind Energy Area

Site characterization activities will increase the vessel traffic in and around the project area. The IHA must include a vessel traffic plan to minimize the effects of service vessels on marine wildlife including requirements for all vessels associated with the project, regardless of function, ownership, or operator to meet the following:

[22] Stewart, et al. 2021. Decreasing body lengths in North Atlantic right whales. Current Biology 2021, 31, 1-6.

a) ***Observers***

All vessels associated with the proposed site characterization should be required to carry and use protected species observers (PSOs) at all times when under way. Because visual sighting of whales, including NARWs is difficult, particularly in low light conditions, the IHA should require service vessels to complement observer coverage with additional monitoring technologies, such as infrared (IR) detection devices for whales and other protected species. Research suggests that a complementary approach combining human and technological tools is most effective for marine mammal detection.[23]

b) Speed

Research suggests that reducing vessel speed can reduce risk of vessel collision mortality by 80-90 percent for large whales like the NARW.[24] Due to the risk of ship strikes to NARWs in the project area, the IHA should limit all vessels of all sizes associated with the proposed site characterization to speeds less than 10 knots at all times with no exceptions.

c) Separation Distance

Consistent with Fisheries Service regulations under the Endangered Species Act for all vessels and aircrafts, the IHA must include requirements for all vessels to maintain a separation distance of at least 500 meters from NARWs at all times.

d) Vessel Transparency

To support oversight and enforcement of the conditions on the high-resolution geophysical (HRG) survey, the IHA should require all vessels to be equipped with and using a Class A Automatic Identification System (AIS) device at all times while on the water. This should apply to all vessels, regardless of size, associated with the project. Class A AIS is a cost-effective technology used in marine industries around the world. AIS provides information including the vessel's identity, location, course, and speed in a format that is compatible with most data collection, storage, and analysis programs.

e) Applicability and Liability

The IHA must require all vessels associated with the project, at all phases of development, follow the vessel plan and rules regardless of ownership, operator, contract. Exceptions and exemptions will create enforcement uncertainty and incentives to evade regulations through reclassification and redesignation. The Fisheries Service can simplify this by requiring all vessels to abide by the same requirements, regardless of size, ownership, function, contract, or other specifics. The IHA must also specify that developers are explicitly liable for behavior of all employees, contractors, subcontractors, consultants, and associated vessels and machinery.

f) ***Transparency and Reporting***

[23] Smith, et al. 2020. A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada. Marine Pollution Bulletin. 154 (2020) 111026.
[24] Conn and Silber. 2013. Vessel speed restrictions reduce risk of collision-related mortality for North Atlantic right whales. Ecosphere (4)4. April, 2013. 1-16.

The project will be a private enterprise conducted on shared public waters and as such, the IHA must include a requirement for all phases of the site characterization to subscribe to the highest level of transparency, including frequent reporting to federal agencies, requirements to report all visual and acoustic detections of NARWs and any dead, injured, or entangled marine mammals to the Fisheries Service or the Coast Guard as soon as possible and no later than the end of the PSO shift.

To foster stakeholder relationships and allow public engagement and oversight of the permitting, the IHA should require all reports and data to be accessible on a publicly available website.

5) **Shutdown Requirements**

Despite the best information informing seasonal restriction on site characterization activities, it is likely interactions with NARWs will occur in and around the project site. The IHA must include requirements to use effective reactive restrictions that are triggered by detection of protected species by visual, acoustic, or other means before or during site characterization activities. Key conditions should include:

- Creation of clearance zones for NARWs that extend at least 1,000 meters with requirements for HRG survey vessels to use PSOs and Passive Acoustic Monitoring (PAM) to establish and monitor these zones with requirements to cease surveys if a NARW enters the clearance zone.
- A shutdown requirement if a NARW or other protected species is detected in the clearance zones noted above, unless necessary for human safety. If this exemption occurs the project must immediately notify the Fisheries Service with reasons and explanation for exemption and a summary of the frequency of these exceptions must be publicly available to ensure that these are the exception rather than the norm for the project.
- When safe to resume, HRG surveys should be required to use a soft start, ramp-up procedure to encourage any nearby marine life to leave the area.

6) Conclusion

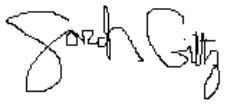
Oceana is supportive of the Biden Administration's focus on development of offshore wind in U.S. waters as part of an effective and responsible response to the climate crisis. As the Administration advances offshore wind development projects, there is an opportunity to advance clean energy goals while protecting biodiversity.

Oceana recognizes the necessity of site characterization in the wind development process and urges the Fisheries Service to only issue an IHA for this survey if it includes a thorough discussion of the best available science discussed above and includes the range of conditions that will ensure the site characterization surveys are conducted responsibly with the least practicable impact on marine mammals.

Oceana looks forward to our ongoing engagement in this project and offshore wind more generally and appreciates the opportunity to provide these comments. These comments have been carefully developed and we consider these to be substantial comments deserving a response from the agency.

We look forward to working with you to advance responsibly developed offshore wind to meet this Administration's ambitious clean energy goals while protecting biodiversity, including the critically endangered North Atlantic right whale.

Thank you,



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Re: RTID 0648-XC903

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VIA EMAIL TO: ITP.Taylor@NOAA.gov

Dear Ms. Daly,

Our organization appreciates the opportunity to comment on the Federal Rule and Authorization proposed by the National Marine Fisheries Service (NMFS) in response to the authorization request made by Atlantic Shores to incidentally take marine mammals pursuant to the provisions of the Marine Mammal Protection Act which authorizes NMFS to, under certain circumstances, permit such takes.

Atlanic Shores plans construction development in lease area OCS A–0541 an area in the New York Bight. Sea Life Conservation is a corporation formed under the not-for-profit laws of New York State. Sea Life Conservation uses a multidisciplinary approach to identify disruptive forces that present challenges to coastal and marine life, in order to ensure the fulfillment of a legacy of ecosystem health and its benefit to humanity for all of the future. Sea Life Conservation preserves coastal, marine, both freshwater and tidal wetland habitat, and other natural resources. Sea Life Conservation seeks to preserve marine life and natural resources that are assets held in the public trust when these are proposed to be appropriated for uses which impair them.

On March 20, 2023, Atlantic Shores requested authorization to take marine mammals as the incidental result of its high-resolution geophysical (HRG) surveys surveys off the coast of New Jersey and New York in Lease Area OCS A–0541 and in cable routes, revised the request on April 7, 2023.

The MMPA definition of harassment refers to acts that can disturb a marine mammal or its population in the wild by disrupting behavior including feeding, migration, breathing, breeding, and nursing.

The separation of level A take (harassment resulting in direct injury) and level B take (harassment that is "disturb[ance]") is a dichotomy that often misleads to the conclusion that animals may either directly receive tissue injuries from the noise or else merely experience a transient behavioral response that is without substantial effect. It appears that the developer, and NOAA-Fisheries (NMFS) has adopted the paradigm of this dichotomy. In reality the proposed activities are can hae substantial effects (*other than PTS*[1]) on marine mammals mortality and reproduction that warrant consideration and estimation. The application and NOAA-Fisheries' (NMFS') proposed authorization does not give such consideration and estimation. Therefore, NOAA-Fisheries (NMFS) should not approve the rule & authorization because it does not correctly estimate how many marine mammals will die or fail to reproduce as a result of the proposed activities.

It is academic that survival and reproduction are essential to a species continued existence. With respect to the proposed activities, there are a myriad of ways (unfortunately left unconsidered by the agency) that survival and reproduction may be impactedby the proposed activities. Abundance or the number of individuals in the population for any generation is determined by survival of, and reproduction by, constituents of the prior generation.

Quantitative descriptions of the expected changes in population number (changes to abundance) and form of population growth or decline for a particular population, and investigations of the forces and biological and physical processes causing those changes are in order. Any rational

[1] Permanent Threshold Shift, meaning some degree of permanent hearing loss in at least a portion of the audible frequency range of the animal.

estimation of "take" within the meaning of the Marine Mammal Protection Act must take into consideration the physical processes causing those changes.

Addressing causal processes is important not only for estimating effect on populations but also because it provide a framework for mitigating reductions in populations. If, ***as here***, an analysis has only given consideration to a small subset of relevant causal processes, the resulting statements as to the effects on a population will be spurious.

Would mitigation techniques (and to what extent would such techniques) be successful in mitigating reductions in populations that would otherwise occur? Are such expected reductions in populations (given mitigation techniques are employed) acceptable in terms of balancing the population loss resulting from the activity against the benefit?

Permanent tissue damage to the body or hearing apparatus caused directly by the (HRG equipment, impact and vibratory pile driving and *drilling*) sound itself or by explosions is not the only mechanisms of harm. There are other mechanisms by which the proposed activities may induce increases in mortality and impair reproduction, both of which are known to impact populations. We itemize them, herein. They include: indirect effects of elevated mortality and lower reproductive success owing to disruption in feeding behaviors and energy-conserving migration behaviors from the animals' response to the sound-producing activity; elevated mortality resulting from temporary hearing impairments occasioning susceptibility to hazards in the environment; progressive hearing loss not accounted for in the utilized models of thresholds for permanent hearing harm; increased mortality from reduced physiological condition owing to stress caused by sound insults; erosion of the base of the food web (primary productivity upon which Baleen whales particularly depend) owing to the "trophic footprint" caused by population explosion of heterotrophic sessile animals exploiting a plethora of abundant new hard surfaces provisioned by the energy infrastructure ("marine urbanization") and concomitant cascade of reduced primary ocean productivity in the areas construction-developed for power production; ocean strata mixing due to turbulent wakes caused by ocean current passing installed cylindrical turbine masts where such strata mixing impairs localized planktonic blooms needed for dense zooplankton feeding areas upon which Baleen whales particularly depend; overlooked physical

injury at the cellular level other than to the hearing apparatus; and progressive, permanent harm to hearing below what is currently recognized as the TTS (threshold for harm for temporary shifts in hearing).

UNSUPPORTED CONCLUSIONS IMPLICIT IN THE DEVELOPER'S APPLICATION

Implicit in the contents of the developer's application[2] are promulgated **two unsupported implicit conclusions**:

1) That disruption of normal essential behaviors (feeding, breathing, nursing, and execution of behaviors by which the animal conserves energy during migration) do not result in any increase in mortality
2) That temporary hearing loss does not result in any mortality increase.

The contents of the developer application also appears to promulgate **two other unsupported implicit conclusions**, namely:

3) That disruption of feeding or execution of behaviors by which the animal conserves energy during migration, does not result in any decrease in condition
   a) which would affect whether sufficient energy stores or physiological condition necessary for conception is met,
   b) which would affect pregnancy loss rate; AND
4) That disruption of courtship and mating behaviors does not result in any change in reproduction.

Clearly (3) and (4) can cause reduced reproductive success, and that reproductive success impairment also adversely affects "recruitment" (the number of new individuals added to a population each year).

From NOAA-Fisheries' (NMFS') failure to reject the developer's application on the basis that the application implicitly makes these fictitious assumptions and fails to make a supported quantitative assessment of the expected change

[2]

in population from these causal processes, it can reasonably be concluded that NOAA-Fisheries' rule and authorization determination is reasonable.

- omitted are each such avenue of harm and its' respective increase in mortality and/or reduction in reproduction
- if it did not expressly preclude that such mechanism has the potential result in harm, the developer grossly underestimated (as non-contributory) such harm by ignoring contributions to mortality and impairment of reproduction effected through these mechanisms, and utterly failing to properly estimate them.

These points speak to the inadequacy of NOAA Fisheries' (NMFS') consideration of the developer's application to take marine mammals. NOAA Fisheries' (NMFS') review of the developer's application, and indeed the developer's application is myopically focused on harm caused by direct and swift permanent hearing damage, and does not give adequate, or any, consideration to or quantification of the increases in mortality or reproduction caused by the proposed activities through these other mechanisms – not for each, *nor for any*, species of marine mammal in the Atlantic waters of the region in which the mentioned activities are proposed to be conducted.

"Take is the total request for all sound-producing activities calculated as described in Sections 6.1–6.7." [Document 01648 Version 8.0, Request for Letter of Authorization for New England Wind, footnote "a" at pg ii].

NOAA-FISHERIES (NMFS) IS PERMITTING THE PROPOSED ACTIVITIES WITHOUT ANY EMPIRICALLY-DETERMINED BENCHMARK FOR WHAT IS THE INJURY-CAUSING SOUND PRESSURE LEVEL ('SPL') AGAINST WHICH TO MEASURE THE PROPOSED ACTIVITIES

A PTS in hearing may be considered injurious, but ***there are no published data on [what] sound levels … cause PTS in marine mammals***. There are data that indicate the received sound levels at which temporary threshold shift (TTS) occurs, therefore PTS onset may be extrapolated from TTS onset level using an assumed growth function ". [See Document 01648 Version 8.0, Request for Letter of Authorization for New England Wind, page 133, §6.2.2.3. Level A Harassment Exposure Criteria]

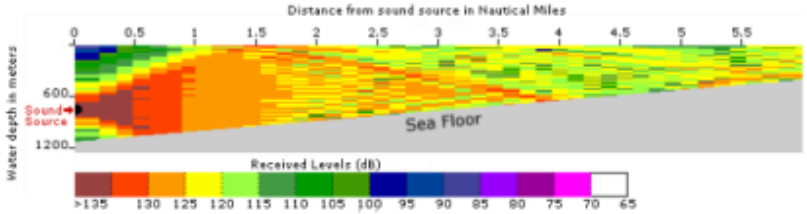
NOAA-Fisheries (also known as NMFS) doesn't have any empirical data on low-frequency baleen whale thresholds of harm to hearing – i.e. doesn't know what levels of sound cause deafness in these animals. Thus, the agency is permitting proposed activities that can have a significant impact on these animals without any empirically-determined sound pressure level (dB re 1 micropascal) 'benchmark for harm' against which to measure the proposed activities.

SPREADING MODELS DO NOT ACCOUNT FOR "RING" OF ELEVATED SPL DISTANT FROM THE SOURCE RESULTING FROM REFLECTION OF SOUND OFF THE WATER'S SURFACE AND OTHER SURFACE REFLECTION

The spreading models that have been used for sound spreading by developers and BOEM in other publications during the process of assessing noise levels for activities associated with offshore wind development do not adequately account for sound bouncing off the underside of the water's surface and other surface reflection.

Diagram and description courtesy of dosits.org :

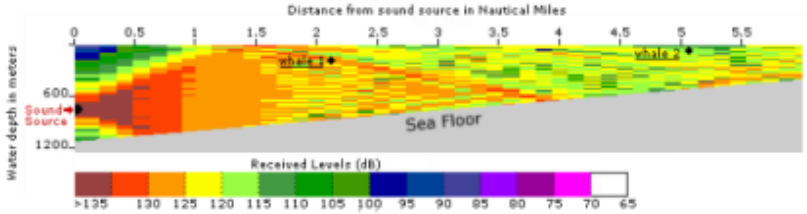
The following figure shows the level of sound at different distances and depths as the sound travels away from the ATOC/NPAL source towards the island of Kauai. Sound travels in all directions away from the source, but only the slice related to the humpback whale example is shown. The ATOC/NPAL source is moored on the seafloor at a depth of approximately 800 meters (2600 feet), approximately 14.8 kilometers (8 nautical miles) north of Kauai. It has a source level of 195 underwater dB at 1 meter and operates at a frequency of 75 Hertz. In this picture, the source is in the upper left hand corner near the dark red. The gray area represents the sea floor. The colors in the picture show the sound level decreasing as it moves away from the sound source. You can also see that the level of sound varies with both water depth and distance from the source.



In the picture, the sound source (with a source level of 195 underwater dB at 1 meter) is at the upper left hand corner in the dark red color. The colors show the predicted sound intensity at various distances and depths. The picture shows the sound level decreases with distance from the sound source.

This figure shows sound traveling away from the ATOC source towards Kauai (due south). As the sound travels further away from the source, the level of sound decreases.

The third step is to combine the sound field created in the first step with the marine animal field created in the second step. One example of what a slice of this picture could look like is found below.



In the picture, the sound source (with a source level of 195 underwater dB at 1 meter) is at the upper left hand corner in the dark red color. The colors show the predicted sound intensity at various distances and depths. The picture shows the sound level decreases with distance from the sound source. The two black diamonds are marine mammals that are predicted to be in the area while the source is transmitting. By combining the picture of the sound field with the probable locations of the marine animals, the amount of sound energy the animals might be exposed to can be estimated.

This is the same sound field shown in the picture above. As before, the sound source is at the upper left hand corner near the dark red. The gray area represents the sea floor. The two black diamonds are humpback whales that are predicted to be in the area while the source is transmitting. By combining the picture of the sound field with the probable locations of the marine animals, the amount of sound energy the animals might be exposed to can be estimated.

The use of sound for communication and acquisition of information about the environment has evolved across many generations and constitutes an important aspect of marine mammal behavior. Given the increasing level of anthropogenic noise in the ocean, it is expected that high-intensity anthropogenic noise (both in Offshore Wind Turbine construction and operations, as well as during ensonification that is used to characterize and study the sea floor) will impact communication and foraging behaviors

involving marine mammal sound production and ability to hear sounds coming from prey or conspecifics over the sounds produced by ocean-bottom site characterization, construction, and operation typical of Offshore Wind development.

Blue whales were found less likely to produce calls in the presence of mid-frequency active sonar. Reduction was more pronounced when the sound source was closer to the animal, and when the anthropogenic sound level was higher. Anthropogenic noise, even at frequencies well above the whales' sound production range, has been demonstrated to have a strong probability of eliciting changes in vocal behavior [Melcón ML, Cummins AJ, Kerosky SM, Roche LK, Wiggins SM, Hildebrand JA (2012) Blue Whales Respond to Anthropogenic Noise. PLoS ONE 7(2): e32681. https://doi.org/10.1371/journal.pone.0032681; February 29, 2012]. This debunks the assumption[3] promulgated in most assessments that anthropogenic noise is only reasonably likely to be significant to the animal when the frequency matches the frequencies range to which the species communicates or is most attuned. The implications for marine mammals of anthropogenic noise likely to be emitted from wind-turbine power plants during operation have not been studied and could result in changes that cause a mortality-influencing decrease in condition of these and other marine mammals in areas within auditory reach of the project. Given the grand scale on which surveys for wind projects are being carried out and that so much of the OCS is intended to be developed, and given that migration of whales are long-range, it is unlikely that they will be able to migrate outside the auditory reach of operational noise from survey equipment without substantial energetic costs. Disruption of the making of calls for foraging or mating or to maintain group cohesion may reduce survival and reproduction and thus can indeed be injurious at the population level. Habitat modification constitutes "harm" within the meaning of a take in the Endangered Species Act. Our U.S. Supreme Court has concluded habitat modification is a take if it actually injures wildlife, with injury including “perturbations that cause them not to use … otherwise suitable habitat." Assessments need to estimate reasonable effects on the NARW of how far a distance from survey activity the effects are expected to attenuate below harassment level, and must determine whether –

[3] On which use of weighting functions are based

within that distance – overlapping areas of harassment would result from adjacent studies to create a larger enjoined harassment area or assemblies of patchy harassment areas. 11 different ITAs have been issued in the region. Sound is a pressure wave which is created by a vibrating object, and moves through a medium such as water or air. When the pressure wave reaches the hearing apparatus, it is perceived as the experience of sound. When we use the word sound or noise to include an effect on other organ systems, we do not mean that the experience of sound or the experience of noise causes the effect, but that the pressure waves that cause the experience of noise can also cause other effects in the body. Thus it is not required that the pressure waves be experienced as a type of noise which causes aversion (nor even that they be audible) in order for such pressure waves to cause actual physiological harm. However, aversion to audible noise is an adaptation present in many animals which serves to prevent physiological harm by the pressure waves themselves on organs and tissues, not only to hearing organs. Noise causes destructive Reactive Oxygen Species in the mammalian vascular system and in organs (not limited to the organs of the hearing apparatus). [E.g. Bayo Jimenez MT, Frenis K, Kröller-Schön S, Kuntic M, Stamm P, Kvandová M, Oelze M, Li H, Steven S, Münzel T, Daiber A. *Noise-Induced Vascular Dysfunction, Oxidative Stress, and Inflammation Are Improved by Pharmacological Modulation of the NRF2/HO-1 Axis. Antioxidants (Basel).* 2021 Apr 19;10(4):625. doi: 10.3390/antiox10040625. PMID: 33921821; PMCID: PMC8073373]. A consequence to marine animals of various taxa of noise exposure is increased Reactive Oxygen Species ("ROS"), such as hydrogen peroxide, superoxide, and hydroxyl radicals which are produced by normal bodily processes but cause oxidative damage to diverse cellular components, including membranes, proteins, and DNA, if they are not "neutralized" by antioxidant defenses. Two important enzymes of the cochlear antioxidant defense system[4] are metalloenzymes that work together to regulate ROS production in virtually every cell in the body [Id.]. These protective systems can become overworked and depleted from exposure to noise, and subject the organism to intense damage at the cellular level.

Thus, behavioral aversion to noise should not necessarily be viewed as maladaptive, even if the avoidance behavior contributes to reduced feeding

[4] cytosolic copper/zinc superoxide dismutase, and selenium-dependent glutathione peroxidase

and reduced reproductive success (i.e. even if the behavioral response to noise has some recruitment[5] consequences) because it may be protective of the integrity of tissues and of essential biochemical processes by preventing noise from eliciting oxidative stress and depleting antioxidant systems that offer such protection. Because of this, noise shouldn't be viewed as a harmless stimulus of an annoyance or spooking response of an animal. Rather, pressure waves bearing certain properties not only produce the experience of noise but are also sources of physiological harm against which aversions, behavioral avoidance, and spooking serves to protect the individual by bringing the individual away from the source of harm. The consequences (loss of effective habitat, immune compromise, energetic tradeoffs creating lowering of survival risk or reproductive success, etc.) of the animal removing itself from physiological harm also constitutes harm. Reactive oxygen species (molecules) can oxidize lipids and proteins - including membrane bound enzymes and receptors- , destroy or destabilize membranes, disrupt ionic balance, interfere with cellular signaling and calcium homeostasis, attack DNA and disrupt protein synthesis, alter cytoskeletal components, and damage DNA repair and transcription processes, and can also lead to nerve cell damage through excitatory amino acids. Activity of these protective systems of antioxidant enzymes have been shown to be present throughout the body, in cochlea, brain, retina (eye), and lung tissues in mammals [Pierson, M. G. and Gray, B. H. 1982) Superoxide dismutase activity in the cochlea. Hear. Res. 6: 141-51]. While adverse effects of noise is widely known to occur through a psychological stress response from auditory perception, as well as (if intense enough) directly harm the auditory apparatus, adverse effects can also occur through other pathways, in other organ systems including mammalian vascular and nervous systems, and have been shown to occur as the result of noise. [See e.g., Cheng H, Wang B, Tang C, Feng G, Zhang C, Li L, Lin T, Du F, Duan H, Shi M, Zhao G. Infrasonic noise induces axonal degeneration of cultured neurons via a Ca^{2+} influx pathway. Toxicol Lett. 2012 Jul 20;212(2):190-7. (Nerve axon degeneration) doi: 10.1016/j.toxlet.2012.05.015. Epub 2012 May 22. PMID: 22626861] Oftentimes, the effects of noise at the fringes of the hearing range of the animal are assumed to have little to no

[5] In population dynamics, this is addition of new individuals to the population, such as by birth and maturation

effect. The purpose of "M-weighting functions" is to be able to predict how loudly a sound of a certain frequency is perceived by the animal. Sounds at frequencies outside of those to which an animal is most sensitive must be actually louder to have the same level of perceived loudness as a sound at a frequency to which an animal is more attuned/sensitive. The assumption often made is that because hearing is less sensitive at the outer limits of the hearing range, the effects to the animal (potential for adverse impact) will be insignificant or non-existent unless inordinately loud. Specifically, what is assumed is that perceived loudness is a reliable measure of potential impact[6]. However, more recent studies show both that this assumption is not met[7] and that sound outside of the ordinary frequencies at which an animal hears can have adverse consequences on the nervous and cardiovascular systems. [8]

Chronic, too-frequently repeated, or unmodifiable (inescapable) stressors can precipitate cardiovascular dysregulation in mammals causing tachycardia, hypertension, and reduced heart rate variability; These and other reactions affect brain function and cause hormonal and immunologic changes in mammals that are self-perpetuating [Grippo AJ. The utility of animal models in understanding links between psychosocial processes and cardiovascular health. Soc Personal Psychol Compass 5: 164–179, 2011] and have health and survival consequences. It is a widely studied phenomenon that stress responses ordinarily adaptive to improve survival from threats that increase mortality. The physiological mechanisms that ordinarily ensure the survival of

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6 [Southall, B. L., Bowles, A. E., Ellison, W. T., Finneran, J. J., Gentry, R. L., Greene, C. R., … Tyack, P. L. (2007). Marine mammal noise exposure criteria: Initial scientific recommendations. Aquatic Mammals, 33(4), 411–414. https://doi.org/10.1578/AM.33.4.2007.411].

7 [See Weichenberger M, Bauer M, Kühler R, Hensel J, Forlim CG, Ihlenfeld A, et al. (2017) Altered cortical and subcortical connectivity due to infrasound administered near the hearing threshold – Evidence from fMRI. PLoS ONE 12(4): e0174420. https://doi.org/10.1371/journal.pone.0174420]

8 [Du F, Yin L, Shi M, Cheng H, Xu X, Liu Z, Zhang G, Wu Z, Feng G, Zhao G. Involvement of microglial cells in infrasonic noise-induced stress via upregulated expression of corticotrophin releasing hormone type 1 receptor. Neuroscience. 2010 May 19;167(3):909-19. doi: 10.1016/j.neuroscience.2010.02.060. Epub 2010 Mar 4. PMID: 20206673.; Pei, ZH., Chen, BY., Tie, R. et al. Infrasound Exposure Induces Apoptosis of Rat Cardiac Myocytes by Regulating the Expression of Apoptosis-Related Proteins. Cardiovascular Toxicology 11, 341 (2011). https://doi.org/10.1007/s12012-011-9126-y ; Ana Lousinha, Maria João R. Oliveira, Gonçalo Borrecho, José Britoa, Pedro Oliveira, António Oliveira de Carvalho, Diamantino Freitas, Artur P. Águas, Eduardo Antunes. Infrasound induces coronary perivascular fibrosis in rats. Cardiovascular Pathology 37 (2018) 39–44. https://www.sciencedirect.com/science/article/abs/pii/S1054880718302862?via%3Dihub; Pei Z, Zhuang Z, Xiao P, Chen J, Sang H, Ren J, Wu Z, Yan G. Influence of infrasound exposure on the whole L-type calcium currents in rat ventricular myocytes. Cardiovasc Toxicol. 2009 Jun;9(2):70-7. doi: 10.1007/s12012-009-9037-3. Epub 2009 Apr 22. PMID: 19387569].

a life form (such as fleeing from a predator or an oncoming vessel) and that are inherent to that organism can become pathophysiological when the organism is exposed to triggers and stressors from which it cannot remove itself or ones that are frequently encountered in a changed environment characterized by repeat onset of the stress response[9]. The Bight Actiities are expected to modify ocean habitat for a period of approximately a year so as to adversely affect marine life. The effects of the project can be expected to be cumulative, i.e. in addition to other wind power plant survey activity on the OCS.

ACOUSTIC MODELING OF UNDERWATER SOUND

Underwater acoustic modeling[10] of construction sound is referred to in the C.O.P. The limitations presented by the available data and the contract specifications to those performing the mathematical modeling are apparent. Bioacousticians have been requesting that NMFS require that the settings (parameters) on the sound testing equipment with which data is harvested be expanded reasonably. *For example, it is standard but inappropriate to use High-Pass Filter settings that filter out relevant information (when sound pressure levels are measured at specific distances from sound-producing activities or equipment); It has been requested that the High-Pass filter be set to 1 Hz or as low as is possible. The reasonable requests weren't satisfied. NOAA-Fisheries' (NMFS) acoustical guidelines suggest a weighting function for "Low Frequency Cetaceans" that includes a 2-pole High-pass filter set at 200Hz, even while Southall et al (2007) suggested moving the high-pass filter down to 7Hz.* **However, there is nothing in the literature, or in empirical evidence, that would suggest that either of these weighting curves align with mysticetes infrasonic hearing.** That

[9] E.g. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6612673/

[10] internet source: https://www.boem.gov/sites/default/files/documents/renewable-energy/stateactivities/Appendix%20U2_Underwater%20Acoustic%20Modeling%20Report.pdf.

some rorquals phonate below the High Pass cutoff[11] substantiates the inadequacy of the NOAA guidelines. Mysticetes below the waterline depend on microbaroms and meteorological energy for migration and navigation cues. Therefore the modeling and analysis is missing proper analysis of biologically relevant sounds and thus, the utility of predictions of the environmental effects of the project based on such modeling and analysis of animal exposure and consequences is limited. The weighting curves in Section D of the noise-modelling appendix aren't representative of the real auditory curves of mysticetes (Baleen whales). Given estimates of harm to marine mammals is dependent upon data harvested from few animals and few species. The curves for the Low Frequency Cetaceans – which is based on informed but speculative understanding of the hearing physiology of mysticetes (some peer-reviewed, some non-peer-reviewed models, and some mere predictions), vocalizations, and, according to the Guidelines Section II:2.1 "taxonomy and behavioral responses to sound" taken from a white paper review[12] of a 1990 paper,[13] whereas valuable verifiable behavioral data are available on mysticete responses to sound; Thus, better estimations for Low Frequency cetaceans based on such data remains within reach[14] and the current thresholds and

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[11] Baumgartner, M.F, Van Parijs, S.M., Wenzel, F.W., Tremblay, C.J., Esch, H.C., and Warde, A.M. (2008). Low frequency vocalizations attributed to sei whales (Balaenoptera borealis) J. Acoust. Soc. Am. 124, pp.1339-1349.

12 Reichmuth, C. 2007. Assessing the hearing capabilities of mysticete whales. A proposed 15 research strategy for the Joint Industry Programme on Sound and Marine Life.

[13] Dahlheim, M.E., Ljungblad, D.K. (1990). Preliminary Hearing Study on Gray Whales (Eschrichtius Robustus) in the Field. In: Thomas, J.A., Kastelein, R.A. (eds) Sensory Abilities of Cetaceans. NATO ASI Series, vol 196. Springer, Boston, MA. https://doi.org/10.1007/978-1-4899-0858-2_22

14 E.g., Goldbogen JA, Southall BL, DeRuiter SL, Calambokidis J, Friedlaender AS, Hazen EL, Falcone EA, Schorr GS, Douglas A, Moretti DJ, Kyburg C, McKenna MF, Tyack PL.2013 Blue whales respond to simulated mid-frequency military sonar. Proc R Soc B 280: 20130657. Blackwell SB, Nations CS, McDonald TL, Thode AM, Mathias D, Kim KH, et al. (2015) Effects of Airgun Sounds on Bowhead Whale Calling Rates: Evidence for Two Behavioral Thresholds. PLoS ONE 10(6): e0125720. Lucia Di Iorio, Christopher W. Clark Exposure to seismic survey alters blue whale acoustic communication. Biol. Lett. (2010) 6, 51–54. Manuel Castellote, Christopher W. Clark, Marc O. Lammers 2012 Acoustic and behavioral changes by fin whales (Balaenoptera physalus) in response to shipping and airgun noise. Biological Conservation 147 (2012) 115–122. Cerchio S, Strindberg S, Collins T, Bennett C, Rosenbaum H, (2014) Seismic Surveys Negatively Affect Humpback Whale Singing Activity off Northern Angola. PLoS ONE 9(3): e86464

thus estimates of harm are not based on the best available data. **Signal kurtosis which has great bearing on the degree of physical assault or damage to hearing and to body tissues need be included in any predictive models.** While some NMFS officials have previously acknowledged kurtosis and acknowledged it's important, it appears not to have been accounted for. We respectfully request to be contacted for input on how FFT (Fast Fourier Transform) can be utilized to take into account this important metric component factor that is relevant to expected harm.

THE LEASE AREA IS USED BY THE ENDANGERED ATLANTIC RIGHT WHALE FEEDING HABITAT

Endangered North Atlantic Right Whales ("NARW") speak or vocalize (make tonal sounds) at less than or equal to 2.5 kHz at volumes less than 162 dB re 1 µPa m [See Table 1 page 155 of May 10, 2013 Section 7 Consultation for Lease Issuance and Site Assessment Activities NER-2012-9211; https://media.fisheries.noaa.gov/2021-03/BOEM_2020IHA_MarineSiteAssessment_BioP_OPR1.pdf?null=]. Site characterization studies include exploration of the ocean bottom by emitting sounds from the surface of the water from a boat and recording the bounceback of sound using microphones fixed to long lines which are towed behind the vessel Sparkers and Boomers / Seismic Air guns will emit sounds of the same sound frequencies as the calls of the NARW, which anthropogenic sounds are received by the NARW louder (188dB and 192 dB[15] respectively) than are the natural calls of the NARW, and thus are reasonably expected to "mask" them, or in plain common terms, drown them out. Right whales are highly dependent upon sound to maintain contact; They emit contact calls to communicate with conspecifics to keep aware of each other's locations. Additionally mothers and young calves must maintain close proximity in order for the calf to nurse and for the mother being able to protect her calf by placing herself between her calf and predators, and NARW use contact calls to

[15] (re 1 µPa).

do this[16]. There are only 340 North Atlantic Right Whales left at this time. It is important to understand that the decibel scale is a logarithmic one. So, as is the case here (example above taken from actual developer's plans), sound emissions with a dB level that is 25 to 35 dB higher than the whale's call has a loudness level many times the whale call's loudness.

Site characterization surveys for any given lease area do not involve a pulse sound being delivered once in a while, but rather continuously between 1 and 20 pulses per second as the vessel travels along transect, as its purpose is to gain a complete picture of the seafloor. This takes place for prolonged periods to cover the transect distances. Whereas Site characterization activities for the subject lease areas can be expected to take place in multiple areas contemporaneously, and whereas all these factors combined can reasonably expected to result in exposure to noise that is repeated over and over from dozens of different sources at the same time or quasi-coincidentally, this collectively affects wide areas.

INJURY TO THE HEARING APPARATUS OCCURS BELOW THE "PTS" (SOUND PRESSURE LEVEL CAUSING FULL/PARTIAL PERMANENT DEAFNESS) AND CAN ALSO OCCUR BELOW THE "TTS" (SOUND PRESSURE LEVEL CAUSING TEMPORARY HEARING LOSS)

Noise previously thought to be "benign" in that it does not manifest in permanent threshold shift soon after an exposure event, can cause irreversible neural damage in mammals after repeated or cumulative exposure. [Wang Y, Ren C. Effects of repeated "benign" noise exposures in young CBA mice. J of

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[16] Christopher W. Clark of the Imogene Powers Johnson Senior Scientist at the Bioacoustics Research Program, Cornell Lab of Ornithology, testifying on March 7, 2019 Before the House Natural Resource Committee, Subcommittee on Water, Oceans, and Wildlife Hearing on "Examining the Threats to the North Atlantic Right Whale"...internet source: https://www.congress.gov/116/meeting/house/109022/witnesses/HHRG-116-II13-WstateClarkC-20190307.pdf]. 6 (+/- 7 individuals)

the Association for Research in Otolaryngology. 2012 Aug;13(4):505-15. doi: 10.1007/s10162- 012-0329-0. Epub 2012 Apr 25. PMID: 22532192; PMCID: PMC3387307.]. Post-exposure recovery of threshold sensitivity to sound, or in layman's terms regaining ordinary perception of and reaction to sound, after "TTS" has been assumed to indicate reversal of damage to delicate structures of the inner ear. However, following noise-induced damage to the ear, damage can be progressive. In a mammalian experiment, Rapid, extensive, and irreversible loss of neuronal synapses was found to have occurred within 24 h post exposure, and delayed and progressive loss of cochlear neurons over the course of months was found, even though the hair cells remained and regained normal function [Kujawa SG, Liberman MC. Adding insult to injury: cochlear nerve degeneration after "temporary" noise-induced hearing loss. J Neurosci. 2009 Nov 11;29(45):14077-85. doi: 10.1523/JNEUROSCI.2845-09.2009. PMID: 19906956; PMCID: PMC2812055.] . Threshold for tissue injury has been found to occurs at lower threshold than the threshold for Temporary Threshold Shift (TTS) onset [See Houser, D.S. When Is Temporary Threshold Shift Injurious to Marine Mammals?. J. Mar. Sci. Eng. 2021, 9, 757. https://doi.org/10.3390/jmse9070757]. While the animals may regain an observable behavioral reaction to sound, as measured by gross reaction to sound, even though the injuries persist, a gross behavioral reaction to sound or an auditory evoked potential at a specified frequency isn't necessarily an indication that the animal is able to hear normally. For example, an animal who is unable to hear complex auditory scenes, or integrate[17] sounds, or who suffers tinnitus or hyperacusis, each and all of which can have survival or other consequences, may still have gross behavioral reactions in sound tests showing responsivity to frequency at specified sound levels. BOEM's and NOAA's nearly singular focus[18,19] on PTS distance (distance from activity at

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[17] Temporal-spectral integration is a phenomenon where sound actually experienced is the result of neural processing to optimize hearing for detection of patterns from acoustic inputs likely to be relevant to the animal. [Räsänen O, Laine UK. Time-frequency integration characteristics of hearing are optimized for perception of speech-like acoustic patterns. J Acoust Soc Am. 2013 Jul;134(1):407-19. doi: 10.1121/1.4807499. PMID: 23862817. https://pubmed.ncbi.nlm.nih.gov/23862817/] This is akin to adjusting the equalizer on one's car radio so that you can hear the signal as intended and to remove sharp peaks and dips that create harsh, unpleasant sounds, or that interfere with the sounds that are important to you.

[18] NOAA Fisheries has assumed the PTS zones associated with HRG equipment use is small. E.g. it states: "Level A harassment is not expected …due to the small PTS zones associated with HRG equipment types planned for use." [https://www.federalregister.gov/documents/2022/10/12/2022-22150/takes-of-marine-mammalsincidental-to-specified-activities-taking-marine-mammals-incidental-to]. PTS zones

which partial or full permanent deafness will be induced in the whale) as the only indicator of “take” (premature death or reproductive failure affecting the population) is not reasonable. What is more, NOAA has no empirically-derived direct measure of thresholds for PTS harm, but rather PTS is modelled from (limited) TTS data.

NMFS states "NMFS considers … marine mammals that have been exposed to received sound levels of 160 dB RMS to have [been] disturbed and therefore classified as a Level B take." The 160 dB RMS threshold for disturbance for impulsive noise has always intended to be applicable to one or a few pulses.

The proposed activity is estimated to require up to 360 survey days using three vessels operating concurrently over the course of the 1-year period of effectiveness of the proposed IHA.

LEVEL A TAKES ARE UNLIKELY TO BE DETECTED IF THEY OCCUR

Detection failure rate (estimate of rate at which false negative occurs – that is probability that a death will not be detected if one should occur incidentally as the result of the proposed activities) has not been determined for injury or death of any marine mammal species. Without this, it is a stretch to conclude that actual takes by injury and death are zero or within the application permit limits.

THE EFFECT OF TURBINE SURVEYNOISE ON ABUNDANCE AND AVAILABILITY OF PREY OF MARINE MAMMALS WARRANTED REVIEW.

A number of Baleen whale species feed on copepods, a very small planktonic marine crustacean. Noise induces oxidative stress in copepods, as inferred by

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are zones in which sounds are so loud that Permanent (hearing) Threshold Shifts (permanent partial or full deafness) in the animal occur.

[19] NOAA Fisheries and the developer-applicant appear focused on mitigating only onPTS (clearing NARW from those areas in which sound production is so loud that it will cause deafness):

oxidative stress indicators under noise conditions as compared to controls. [e.g. Tremblay, Nelly & Leiva, Laura & Beermann, Jan & Meunier, Cédric & Boersma, Maarten. (2020). Effects of low-frequency noise and temperature on copepod and amphipod performance. Proceedings of Meetings on Acoustics. 37. 10.1121/2.0001275. internet source: https://asa.scitation.org/doi/pdf/10.1121/2.0001275] . The repeated insult of noise during the planned survey activities has the potential to kill and harm prey of marine mammals. Since sensitive receptors cover the whole body of crustaceans to detect their surroundings, those low frequency noises may disrupt basic ecological and physiological functions. Researchers designed an experiment to understand the joint effect of noise and temperature on copepod. The copepod Acartia tonsa is commonly used as a proxy for a range of fundamental processes that relate to marine planktonic crustaceans. Noise appears to alter the capacity of Copepod (an Arthropod Crustacean), and challenge gathering the energy required to fulfil all their biological functions (e.g. development, growth, reproduction, and survival by mean of escape behavior), concluded the researchers, who discovered that lowfrequency noise spurs antioxidant activities which is a signal of oxidative stress, and concluded that chronic exposure is likely to deplete antioxidant enzymes important for detoxifying ordinary products of metabolism. [See Tremblay, Leiva, Beermann, Meunier, Boersma, 2019. Effects of low frequency noise and temperature on copepod and amphipod performance. Proc. Mtgs. Acoust. 37, 040005 (2019). https://doi.org/10.1121/2.0001275] Depleted antioxidant activities has observed across almost every taxonomic group exposed to noise that has been studied, including mammals[20] and even plants[21]. E.g. Koc, Ersoy, Ilhan, Erken, Sahın, 2015. Is rosuvastatin protective against on noise-induced oxidative stress in rat serum?. Noise Health, 17, 11–16. ; Also See McFadden, Ohlemiller, Ding, Shero, Salvi (2001). The influence of superoxide

[20] E.g. Koc, Ersoy, Ilhan, Erken, Sahın, 2015. Is rosuvastatin protective against on noise-induced oxidative stress in rat serum?. Noise Health, 17, 11–16. ; Also See McFadden, Ohlemiller, Ding, Shero, Salvi (2001). The influence of superoxide dismutase and glutathione peroxidase deficiencies on noise-induced hearing loss in mice. Noise Health, 3, 49–64

[21] Zohreh Haghighi Kafash, Z. Haghighi Kafash, Shahrzad Khoramnejadian, S. Khoramnejadian, Ali Akbar Ghotbi-Ravandi, A. Akbar Ghotbi-Ravandi, & Somayeh Farhang Dehghan, S. Farhang Dehghan. (0000). Traffic noise induces oxidative stress and phytohormone imbalance in two urban plant species. Basic and applied ecology, Vol 60, pp.1-12. doi: 10.1016/j.baae.2022.01.010

dismutase and glutathione peroxidase deficiencies on noise-induced hearing loss in mice. Noise Health, 3, 49–64 . Traffic noise induces oxidative stress and phytohormone imbalance in two urban plant species. Basic and applied ecology, Vol 60, pp.1-12. doi: 10.1016/j.baae.2022.01.010. Therefore, while the specific effect of surveys on the particular Copepod species that NARW and other whales common to the lease area prey upon has not been studied, the copepod Acartia tonsa is commonly used as a proxy for a range of fundamental processes that relate to marine planktonic crustaceans. Therefore, the best scientific evidence suggests that NARW and other Baleen whale prey are likely to be affected. No noise-induced prey scarcity has been attempted to be quantified, and the effects on different whale species has not been taken into account by NMFS.

Effect of Survey activities on Cephalopod prey of Sperm Whales has not properly been evaluated. Active sonar is not just an annoyance disturbance but can alter the very integrity of tissues. A 200 Db received level of midfrequency sonar can rupture human lungs, and at 201 Db, physically damages brain tissue causing hemorrhage of the brain. Some marine life is far more sensitive within certain frequency ranges and can experience severe damage at even moderate to low intensity within those frequencies.

The listed frequencies of sound emitted by the site-characterizing equipment (in Table 6 of the DEA) does not show the range of frequencies emitted during the operation of this equipment, rather only a single frequency. For example, the operational frequency of an AA Duraspark (which BOEM uses as an example of a Sparker) is listed in the DEA as 1.2 kHz, but the operational frequency of sound emitted by this sparker is in the range of 0.3 kHz– 1.2 kHz22. Even short exposure to relatively low-intensity sound of frequency 0.4 kHz (430 Hz) has been shown to be devastating to Cephalopods. Researchers exposed 87 individual living cephalopods -- including Squid,

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[22] The operational ranges for these devices were provided by NOAA [See FR Vol 86 No. 68 Pages 18943-1896]. Geomarine sparker has similar operational frequency range as the Duraspark referenced. Draft EA states on page 9 that, "***the actual equipment used could have frequencies … below or above those indicated [in Table 6]***. From operational range data for these devices, and the Bureau's statement, it is not reasonable to limit the inquiry of evaluation of impacts to marine life from operation of this equipment to the frequency show in Table 6 of the DEA.

Octopus, and Cuttlefish, to short sweeps of relatively low intensity sound in a frequency range between 50Hz and 0.4 kHz and examined their statocysts. A statocyst is an sensory structure resembling a fluid-filled balloon that also help these invertebrates maintain balance and position. Immediately following exposure to low frequency sound, the cephalopods showed statocyst hair cell damage. Nerve fibers then became swollen and, eventually, large holes appeared -- these lesions became gradually more pronounced in individuals that were examined several hours after exposure. The damage to the cephalopods' statocyst resulted immediately following exposure to short, low intensity sweeps of low frequency sound. All of the individuals exposed to the sound showed evidence of acoustic trauma, compared with unexposed individuals that did not show any damage. The researchers concluded, "[W]e can predict that, since the statocyst is responsible for balance and spatial orientation, noise-induced damage to this structure would likely affect the cephalopod's ability to hunt, evade predators and even reproduce; in other words, this would not be compatible with life." [**Low-frequency sounds induce acoustic trauma in cephalopods**. *Frontiers in Ecology and the Environment*, 2011 by André, Solé, Lenoir, Durfort, Quero, Mas, Lombarte, Van der Schaar, López-Bejar, Morell, Zaugg, Houégnigan; 110408135918022 DOI: 10.1890/100124]

The Bureau acknowledges this study but then strikingly concludes in the Draft EA, "Impacts from acoustic sound sources from HRG surveys and geotechnical exploration are expected to range from negligible to minor. A boomer sub-bottom profiler is the only sound source expected to produce sounds within … invertebrate hearing ranges (Table 6)." [Section 5 Draft EA, emphasis added]. The review by Caroll et al, 2017, cited by the EA stated more research is required to understand effects on invertebrates, it did not conclude negligible effects to invertebrates of all types of sound-emitting characterization equipment, though it cast shade on lab studies, insinuating they might have limited applicability to animals in the field. However, Since the 2011 lab study by Andre', Sole, et al., field studies have been conducted in a Cephalopod by the team demonstrating similar devastating results and confirming the lab findings [Solé, Sigray, Lenoir, van der Schaar, Lalander, André, 2017. Offshore exposure experiments on cuttlefish indicate received sound pressure and particle motion levels associated with acoustic trauma. Sci Rep. 2017 Apr 5;7:45899. doi: 10.1038/srep45899. PMID: 28378762; PMCID:

PMC5381195.]; A 139-141 dB noise at 315-400 Hz caused acoustic trauma in the experiments, which were conducted in the animal's natural habitat. This study had greater spectral resolution than prior studies. The researchers were able to tell that the animals exposed at levels ranging from 139 to 142 dB at 1/3 octave bands centered at 315 Hz and to leval range of 139 to 141 at 1/3 octave band centered at 400 Hz suffered injuries to their statocysts, as revealed by examination by scanning electron microscopy. The threshold estimation of noise levels that trigger acoustic trauma in cephalopods is therefore at or below these levels at these frequencies. The conclusion that the ensonification would produce only negligible effects appears inconsistent with this.

Because even sound that is not loud (low intensity sound) has the potential to have such a devastating impact on cephalopods, taking sound attenuation with increasing distance into account, affected areas (from the sound emitting site-characterization vessels using equipment able to produce these frequencies) should be delineated to estimate the extent of severe adverse effect on cephalopods.

FALSE DICHOTOMY: LEVEL A HARM VERSUS BEHAVIORAL DISTURBANCES THAT HAS NO POPULATION LEVEL CONSEQUENCES

Behaviors in whales that conserve energy during migration, and ordinary behaviors that ensure feeding efficiency are essential to physiological condition and energy reserves required to complete migration in good health, immune system resiliency, and whether sufficient fat stores are present that can sustain a pregnancy. In a species of Baleen whale, the gray whale, whales were observed to move around (avoid) a stationary source of active sonar emissions[23], with avoidance occurring at a received level of approximately 140

[23] Buck, J. R., and Tyack, P. L. (2000). Responses of gray whales to low frequency sounds. J. Acoust. Soc. Am. 107, 2774. doi: 10.1121/1.428908 ; Croll, D. A., Clark, C. W., Calambokidis, J., Ellison, W. T., and Tershy, B. (2001). Effect of anthropogenic low-frequency noise on the foraging ecology of Balaenoptera

dB. Movement to avoid a loud sound source may not seem like a major impact, but it is estimated that just 10 days of lost foraging opportunities due to disturbance could lead to an unsuccessful pregnancy or loss of a calf[24]. For noise, it is incorrect to list behavioral disturbance as a type of minor harm rather than a harm-causing event. This has led to the adoption of the false premise that disturbance-harassment is a temporary, minor and recoverable harm. Behavioral disturbance, should be considered a harm-causing intermediary event the incidence of which is markedly increased by a majority of the proposed activities, and which has real potential to causes bodily harm, death, and population-impacting reduction in survival and reproduction. Neither the applicant-developer nor NMFS has examined energy budgets for any species of marine mammal or estimated cost to reproduction or mortality-affecting physical condition such as sufficient fat stores for immune health, for migration completion. Nor have NMFS or the applicant-developer estimated the health and survival cost of repeated cortical-hormone releasing stressors encountered over many lease areas that are known to cause runaway cardiac and neuronal dysregulation if there is not sufficient relief from the stressors; It can hardly be assumed– for sound pollution - that travelling away from the source of the noise on the part of the marine mammal will offer sufficient relief and recovery when so many lease areas are planned to be explored and built out simultaneously or in time-overlapping fashion.

Sonar anthropogenic noise has been shown in Cetaceans to extend non-feeding periods[25], decrease feed-dives[26], induce a non-feeding state[27], abate

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whales. Anim. Conserv. 4, 13–27. doi: 10.1017/S1367943001001020 ; Tyack, P. (2009). Acoustic playback experiments to study behavioral responses of free-ranging marine animals to anthropogenic sound. Mar. Ecol. Prog. Ser. 395, 187–200. doi: 10.3354/meps08363

[24] Villegas-Amtmann, S., Schwartz, L. K., Sumich, J. L., and Costa, D. P. (2015). A bioenergetics model to evaluate demographic consequences of disturbance in marine mammals applied to gray whales. Ecosphere 6, 1–19. doi: 10.1890/ES15-00146.1

[25] Ziphius cavirostris (Cuvier Beaked) whales responded strongly to playbacks of sonar at low received levels (RLs of 89–127 dB re 1 µPa); They ceased normal fluking and echolocation, swam rapidly and silently away, extended dive duration and subsequently fed less by extending the time between foraging forays.

[26] Blue whales, Balaenoptera musculus, displayed behavioral responses to controlled exposure experiments for mid-frequency active sonar. The whales stopped feeding, increased swimming speed and travelled away from the sound source, with displacement occurring at a received level of 140 dB re 1 µPa, and cessation of feeding, occurring at even lower source levels [Goldbogen, J. A., Southall, B. L., DeRuiter, S. L., Calambokidis, J., Friedlaender, A. S., Hazen, E. L., et al. (2013). Blue whales respond to simulated mid-frequency military sonar. Proc. R. Soc. B 280:20130657. doi: 10.1098/rspb.2013.0657]. The researchers surmised that "frequent exposures to mid-frequency anthropogenic sounds may pose significant risks to the recovery rates of endangered blue whales" because they ceased feeding and were

communications[28], that may be relevant to foraging, mating, social cohesion, or parenting, and to increase whale call loudness at increased energetic cost presumably to increase signal-to-noise ratio in an attempt to maintain basic call function. In some studies, these effects are triggered by sound pressure level (loudness of sound) lower, and in some cases much lower, than standard established regulatory 'general' thresholds for that which constitutes harassment to marine mammals[29].

It is not very plausible that feeding disruption over the number of days during which the proposed activities are suggested to be carried out, together with those activities of neighboring lease areas and those of the other offshore wind lease areas of the U.S. Atlantic Outer Continental Shelf would have only negligible no (or only negligible) effects on fat reserves, nutrition, immune health, survival, and reproduction. One would have to assume that feeding, calling, and that taking large detours off the course of migration to careen around areas where sound-generating offshore wind activity is taking place has no effects on condition, survival, mating, or fecundity. The applicant-developer and NMFS have not provided any explanation or rationale for their estimating that mortality increases and costs to reproduction are zero or negligible. It rather appears they have not estimated and summed such increases in mortality and such costs to reproductive success or population recruitment.

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displaced [page 6, infra]. These baleen whales thus alter biologically important activities in the presence of sonar sounds.

[27] Physeter macrocephalus (Sperm Whales) "switched to the active non-foraging state over received sound pressure levels of 131–165 dB re 1 µPa during LFAS exposure [(1kHz-2kHz frequency active sonar) Isojunno, S., Curé, C., Kvadsheim, P.H., Lam, F.-P.A., Tyack, P.L., Wensveen, P.J. and Miller, P.J.O. (2016), Sperm whales reduce foraging effort during exposure to 1–2 kHz sonar and killer whale sounds. Ecol Appl, 26: 77-93.]

[28] Blue Whales Respond to Anthropogenic Noise. PLOS ONE. February 29, 2012. M. Melcón, A. Cummins, S. Kerosky, L Roche, S. Wiggins, J. Hildebrand. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0032681]

[29] E.g., rates of whale calling increased as soon as airgun noises were detectable, and rate increased with increase in loudness up to a received air-gun sound level of 94dB. To the extent that air gun loudness exceeded 127 dB, calling rates decreased sharply, and past 160 dB, the (Bowhead) whales stopped calling and were virtually silent. [Blackwell, Nations, McDonald, Thode, Mathias, Kim, et al. (2015) Effects of Airgun Sounds on Bowhead Whale Calling Rates: Evidence for Two Behavioral Thresholds. PLoS ONE 10(6): e0125720. doi:10.1371/journal.pone.01257]. Another study of the same species showed calling rates decreased when whales were near (median distance 41—45 km) an airgun. Median received sound levels from the airgun pulse at those sites were at least 116 dB

CATEGORICAL EXCLUSION NOT APPROPRIATE FOR THIS PERMIT AUTHORIZATION

NMFS is in receipt of the knowledge that the beginning of a five-year Unexplained Mortality Event ("UME") in marine mammals on the U.S. Atlantic Coast is coincident with the advent of exploration of a variety of newly-leased areas on the U.S. Atlantic Outer Continental Shelf using HRG (High-resolution geophysical) and G&G (Geologic and Geophysical) surveys whose purpose is to characterize the seafloor and substrate for wind-turbine power plant construction-development projects.

It is quite well known that sales by the U.S. Bureau of Ocean Energy Management of leases for wind-power development shot up in 2016 and 2017, both in terms of frequency of such lease sales compared to times prior, and in terms of acreage. It is also quite well known that seafloor characterization activities by lessees and their assigns - which activities utilize the loud sound-generating equipment – typically begin, for each of lease area, within between a few months to year of the lease start date. NMFS is also in knowledge that *the span* of the UME (now going on in excess of six years) which began in 2016/2017 overlaps with the six years of conduct of HRG (High-resolution geophysical) and G&G (Geologic and Geophysical) surveys for offshore wind development, and that both the occurrence of such sound-generating HRG and G&G surveys by lessees and the cumulative areas subject to such surveys at any given time has increased overall during the time spanned by the UME.

Despite this, NMFS continues to categorically exclude incidental take authorizations, or "IHAs" for commercial activity from NEPA review, as it had done before the UME began. Even though surveys including use of "air gun arrays" and "boomers" and "sparkers" and sonars have been known to harm whales, NMFS is oft quoted as saying that because the sound intensities used during seafloor characterization for offshore wind are less than that for fossil fuel exploration, no serious injury or mortality is anticipated as a result of such activities for offshore wind. This conclusory leap is not substantiated by high-quality accurate and scientific information. While it may be the case that the sound intensities of surveys are substantially lower for offshore wind

exploration than for fossil fuel exploration[30], NMFS has no empirical data that informs what is the minimum level of sound intensity (and at what sound frequencies) at which harm to whales begins to occur and without having such data, a stated expectation of "no mortality" isn't reasonable.

That is, NMFS is permitting the proposed activities without any empirically-determined benchmark for what is the injury-causing sound pressure level ('SPL') against which to measure the proposed activities.

A PTS (permanent threshold shift – i.e. deafness onset in some or all frequencies relevant to the animal) in hearing may be considered injurious, but there are no published data on what sound levels cause PTS in marine mammals. There are data that indicate the received sound levels at which temporary threshold shift (TTS) occurs, and PTS onset is "extrapolated" from TTS onset threshold level using an assumed growth function. No animal testing for PTS in any marine mammal exposed to such survey activity has been conducted. That is, NMFS doesn't have any empirical data on low-frequency baleen whale thresholds of harm to hearing – i.e. doesn't know what levels of sound cause deafness in these animals. Thus, the agency is proposing to permit activities that can have a significant impact on these animals without any empirically-determined sound pressure level (dB re 1 micropascal) 'benchmark for harm' against which to measure the proposed activities.

Neither NMFS, nor the Bureau of Ocean Energy Management, to date, has taken **any** effort to study spatio-temporal correlation between the whale deaths and the use of sound-generating equipment (at specific equipment settings) typical of sea-floor exploration "site characterization" for offshore wind planning of development, even though the data on what equipment was used (at what settings, when, where and for how long) is certainly available or obtainable from the U.S. Coast Guard and lesse-developers.

Scientific inquiry involves dispassionately testing facts and observations against different plausible hypotheses, to see which hypothesis best fits the

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[30] For example, louder sounds need be used for fossil fuel exploration than for wind-turbine power plant development because detection depths below the sea floor for fuel reserves are greater than that needed for understanding substrate characteristics under the sea floor for pile-driving masts.

facts. **All** plausible causes of the whale deaths should be investigated dispassionately, including but not limited to the hypothesis that the widespread use of sound-generating equipment (HRG and G&G surveys) that has been used to explore the sea floor for offshore wind development (which surveys are more expansive and widespread than fossil fuel exploration surveys in the North and Mid- Atlantic) may have affected the whales' ability to perceive their surroundings, or may have had other direct physiological effects, or indirect mortality-influencing or reproductive effects on them, such as energy reserve alterations from reduced feeding or habitat mod effects on prey.

NMFS disregards guidelines issued by the Council for Environmental Quality (hereafter CEQ) for complying with NEPA[31] and the regulations implementing them promulgated by the CEQ which apply to all federal agencies in the following ways: NMFS has not substantiated its CATEX determinations with empirically-derived estimates of how sound generated by the survey equipment impacts whales, dolphins, and seals, has failed to consider the whale UME as an extraordinary circumstance that disqualify HRG (High-resolution geophysical) and G&G (Geologic and Geophysical) surveys from being categorically excluded from further/full NEPA review (i.e. even though a category currently exists, the existence of the UME and its coincidental occurrence in time to similar activities warrants further NEPA review resulting in an Environmental Impact Statement. Additionally, NMFS should have (but did not) review, in light of the UME, whether the CATEX categories should be revised.

A full NEPA review, culminating in an Environmental Assessment ("EA") or in an Environmental Impact Statement "EIS" is not required for a specific activity if it can be shown that the specific activity is one in a category of actions that has been pre-determined to not individually or cumulatively have a significant effect on the quality of the human environment.

The publication titled *The Companion Manual for NOAA Administrative Order 216–6A*[32] defines activities as qualifying for a

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[31] National Environmental Policy Act

[32] Internet Source: https://www.noaa.gov/sites/default/files/2021-10/NOAA-NAO-216-6A-Companion-Manual-03012018%20%281%29.pdf, hereafter"The Companion Manual"

Categorical Exclusion from further NEPA review, hereafter "CATEX", if and only if all of the following criteria are met:

> (a) the proposed action falls within one of the CE categories listed in Appendix F of this Manual,
>
> (b) the proposed action is not part of a larger action, and can therefore be reviewed independently from other actions under NEPA, **and**
>
> (c) there are no extraordinary circumstances that may require further analysis in an EA or EIS.

NMFS purports that the IHA qualifies as a CATEX because such issuance is given "under section 101(a)(5)(A) and (D) of the MMPA for the incidental … take by harassment of marine mammals during specified activities … for which no serious injury or mortality is anticipated."; Class B4 in Appendix F of the Companion Manual.

"All agencies of the Federal Government **shall** comply with the regulations in this subchapter." [40 CFR § 1507.1 emphasis added]. NMFS is a federal agency, and as such is required to comply. "[P]rocedures under this section [adopted by a Federal agency to establish whether an activity qualifies as a CATEX] shall provide for extraordinary circumstances in which a normally excluded action **may** have a significant environmental effect." [40 CFR 1508.4, **emphasis added**]. NMFS is required to provide for extraordinary circumstances in which a normally excluded action **may** have a significant effect. The purpose of further NEPA review (environmental impact review or environmental assessment) for ordinarily excluded activities when extraordinary circumstances arise, is to determine, for actions that **may** have an effect, whether they do. CEQ regulations implementing NEPA to which all federal agencies are subject, 40 CFR 1508.4, reveal thatNMFS is not conscripted to, with certitude, conclusively pre-establish that there **is** an effect prior conduct of the (further) NEPA review which culminates in an EIS, only that there may be substantial effects of the proposed activities and that it is worthy of investigation that the review would provide.

Guidance for federal agencies on how to establish, apply, and revise categorical exclusions in accordance with section 102 of the National

Environmental Policy Act (NEPA), 42 USC 4332, and the CEQ Regulations for implementing the procedural provisions of NEPA (CEQ regulations), 40 CFR Parts 1500-1508 [Memorandum for Heads of Federal Departments and Agencies, dated November 23, 2010, by Nancy H Sutley Chair of the Executive Office of the President of the Council on Enivornmental Quality, hereafter "Memorandum"] states: "[W]hen evaluating whether to apply a categorical exclusion to a proposed activity, an agency must consider the specific circumstances associated with the activity and may not end its review based solely on the determination that the activity fits within the description of the categorical exclusion; rather the agency must also consider whether there are extraordinary circumstances that would warrant further NEPA review."

Citing 48 Fed. Reg. 34263, 34265 (Jul. 28, 1983), the November 23, 2010 memorandum goes on to say "CEQ's prior guidance also urges agencies to consider whether the cumulative effects of multiple small actions 'would cause sufficient environmental impact to take the actions out of the categorically-excluded class."

The memorandum asks agencies to obtain useful substantiating information (to substantiate classification of an activity as a CATEX) by monitoring and/or otherwise evaluating the effects of the implemented actions, and to monitor the environmental effects of their categorically-excluded actions, to inform periodic reviews of existing categorical exclusions (p. 8, Memorandum)[33], and states "[A]gencies should review their categorical exclusions", and should "exercise sound judgement about the appropriateness of categorically excluding activities in light of ... changing conditions that might present new or different environmental impacts or risks. The assumptions underlying the nature and impact of activities encompassed by a categorical exclusion may have changed over time" (p.16, Memorandum). In establishing the process for review of categories to be excluded, "agencies should take into account factors including changed circumstances, how frequently the categorical exclusions are used, **the extent to which resources and geographic areas are potentially affected**, **and the expected duration** of impacts."

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[33] "Findings must be based on high-quality, accurate technical and scientific information." (40 CFR 1500.1(b), 1502.24, cited at p.9 Memorandum).

The guidance also states, "The level of scrutiny and evaluation during the review process [process of reviewing whether the CATEX categories should be revised] should be commensurate with…the extent to which relevant circumstances have changed since it was issued or last reviewed."

Review of whether IHA permitting under the MMPA for offshore wind (HRG and G&G) surveys should continue to be a category of action excluded from further NEPA review is now warranted: Large geographic areas are now potentially affected by the survey activity, circumstances have changed (a UME event coincident with when such surveys increased in occurrence and area has been recognized), and there has been a change in how frequently the categorical exclusions are used, since the activity type was first categorized as excluded.

What is more, the determination that the proposed action qualifies for a CATEX isn't appropriate, since the activity is approving takes that are a part of a larger action, and cannot reasonably be reviewed independently from other (similar) actions under NEPA, especially since marine mammals' range is such that they are **subject to survey activities in multiple** (in the case of whales and migratory dolphins, **dozens**) **of lease areas**. For example, North Atlantic Right Whales' birthing ground is off the coast of the southern states and their winter feeding area is only as far south as off the coast of Massachusetts. Northern migratory dolphins travel to southern North Carolina when the weather turns cold. In the North Atlantic, Humpback whales migrate annually between tropical breeding and mating areas in the late winter and spring, to high latitude feeding areas in the summer, autumn and early winter. There is a lot of variation in Humpback whale movement and migratory habit but it is clear that the vast majority of Humpbacks (a species well-represented in the UME) will be exposed to survey activities in numerous lease areas, call areas, and wind energy areas[34].

ONE-TIME RENEWAL

[34] There is future planning for surveys that are untethered to leases, either because they will be conducted by governmental agencies or their assigns long in advance of lease sale, or because of the recent "modernization rule" that deregulated the use of such equipment (such that in order to conduct surveys an ocean lease is no longer required) where the commercial explorer does not now have to be an assign of a responsible developer-lesee in order to conduct the activity, so long as the equipment is towed or boat-mounted rather than fixed to the sea floor, and can make the data available (for sale) to a future lessee-developer.

The criteria for a one-time renewal are not met; A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized would have had to have been issued. The absence of a marine mammal from an Exclusion Zone does not indicate that an animal has not been harassed. Avoidance of the area, large migration detours, foregoing feeding or vocalization, etc, may all cause decrease in physicological condition causing compromised immune function and increased rate of mortality or insufficient energy stores to complete a pregnancy or have interest in mating whereby resources that are insufficient to sustain a pregnancy would be wasted if put toward a pregnancy that is unlikely to be carried to term.

CLOSING

Respectfully, we suggest NMFS not approve the proposed rule and Authorization as the incidental take estimates were based only on a mere subset of physical processes known to cause, or reasonably expected to cause, abundance species of marine mammal to lower (i.e. populations to reduce). At such time as the respective causes are considered, NMFS can consider the effects summed across all causes and make a proper take estimate, then decide whether or not to authorize based upon the balance of harms with benefits of the proposed activities. Sea Life Conservation notes that the Marine Mammal Protection Act (MMPA) established a national policy to prevent marine mammal species and population stocks from declining below optimal levels in the ecosystems of which they are a part. Due to the multiple avenues by which marine mammals are expected to be affected adversely by the proposed activities, serious and reasonable concerns that the continued existence of the species is jeopardized by the proposed activities for which an authorization issought, together with other survey and construction projects in the greater U.S. Atlantic offshore wind program which are numerous and cover much of the Outer Continental Shelf's area.

Sea Life Conservation
Alena Walters, Executive Director
www.sealife-conservation.org

(212) 608-6112

ITP Taylor - NOAA Service Account <itp.taylor@noaa.gov>

Comment on Atlantic Shores request for Incidental Take Authorization

1 message

Erik Albrecht <erikalbrecht@startmail.com> Fri, Jul 28, 2023 at 6:04 PM
To: ITP.Taylor@noaa.gov

Dear Jolie Harrison,

I would like to comment on Shell's Atlantic Shores wind project's request for an incidental take authorization for their lease area in the area off the New Jersey and New York coasts. I am against NOAA granting Atlantic Shores this request based on the fact that Level B harassment consists of temporary hearing loss or behavior change in marine mammals such as whales, dolphins, porpoises,and seals. Your agency should not grant this company an incidental take authorization because cumulative impacts of the sonar mapping on marine mammals have not been adequately assessed, and in all likelihood the marine mammals exposed to sonar blasting from more than one fleet of sonar mapping vessels in the ocean will lead to permanent hearing loss, which will cause marine mammals, especially cetaceans, to become disoriented and not be able to find their way around the ocean or to communicate with each other, and the whales, dolphins, and porpoises affected will likely die from boat collisions or beachings, or from an inability to find food. Repeated sonar blasting done to marine mammals needs to be adequately assessed, and until that is done, no offshore wind company should be granted incidental take authorizations to harass and harm these amazing animals. Animals should not be harmed in order to construct and erect a supposedly "green" and "clean" technology like wind turbines, which in reality are not clean nor green. The sonar mapping process is harming marine mammals, and if these wind turbines are ever constructed, they will kill thousands of birds every year. This is not debatable. The wind turbine projects off of our east coast and in other parts of the country must be stopped or significantly scaled back so that we can accurately assess how wind turbines will affect wildlife in and above the ocean. Also, sonar blasting kills shellfish like scallops, which are an important source of income for our local fishermen, and fish are also scared off by the sonar blasting, and whales, dolphins and other marine mammals will follow them away from the areas where the sonar blasting is taking place. Marine mammals that are following fish from sonar blasting will have a higher chance of colliding with other boats at sea and can get injured or killed in that process. Please reject Atlantic Shores's request for incidental take authorization for marine mammals. Marine mammal takes as outlined are wrong.

Thank you for reading,

Erik Albrecht
Blue Bell, PA

Atlantic Shores Offshore Wind (public comment due July 28, 2023)
Written comments should be submitted via email to *ITP.Taylor@noaa.gov*.

Objection to the IHA take authorization for Atlantic Shores Offshore Wind

Thank you for the opportunity to respond to your correction. It is not solely the population numbers which were outdated and in need of correction. The entire authorization process is outdated and needs correction. There is nothing "climate smart" about managing cetaceans by issuing "takes" during a period when cetaceans are increasingly vulnerable to anthropogenic threats. The methodology being used to justify the "take" numbers does not comport with the recommendations of the International Whaling Commission's 2021 Workshop on Climate Change[1], in which NOAA participates.

Climate-driven impacts are causing rapid changes to cetacean populations and habitats. Anthropogenic impacts are the leading cause of population decline of many species including the North Atlantic Right Whale (NARW). Offshore wind introduces another anthropogenic threat.

Certainly, your team must be familiar with COP, its emphasis on 30% protection of the oceans by 2030, and a philosophy to make strategic choices to conserve species and ecosystems undergoing ecological transformation. Building thousands of wind turbines in a whale "superhighway" migratory corridor is not best science.

The IWC 2021 Workshop on Climate Change includes a case study of the North Atlantic Right Whale. It begins by declaring "**current scientific and management practices are demonstrably inadequate to address their climate-driven changes in movement and foraging ecology**."

It highlights the importance of a new paradigm based in dynamic conservation management,

> "A new paradigm, that moves beyond the post-hoc approach of attempting to understand a problem long after it has occurred, is required for those cetacean species that occur at low abundance, and arguably, for all. NARW demonstrate that **management for resilience**, rather than management for immediate sustainability, is the required paradigm shift."

The necessity of management for resilience asks authorities to react quickly to prevent harm,

> "The workshop therefore called for relevant authorities to react more quickly and more effectively to reduce anthropogenic impacts in response to these changes."

Marine mammals cannot play second fiddle to man-made wind technology that brings with it a new suite of pollutants to oceans. Formula based on pre-climate change are using poor data assumptions (what killed more than 55 great whales since December, 2022 and how many more died that were not counted; could deaths be from effects of geotechnical surveys).

Offshore Wind is taking us in the direction of increasing whale deaths, not in the direction of increasing whale populations! NextEra, the world's largest producer in renewables energy, quit offshore wind. [2] So should NOAA acknowledge its unpredictability and say "no" to more take permits.

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[1] https://iwc.int/management-and-conservation/environment/climate-change

[2] https://www.reuters.com/business/energy/ceraweek-nextera-ceo-says-offshore-wind-bad-bet-2023-03-08/

Supporting Information:

"Nature's Solution to Climate Change," published in 2019 by the International Monetary Fund advocates **increasing whale populations** as a solution to climate change.

https://www.imf.org/en/Publications/fandd/issues/2019/12/natures-solution-to-climate-change-chami

The carbon capture potential of whales is truly startling. Whales accumulate carbon in their bodies during their long lives. When they die, they sink to the bottom of the ocean; each great whale sequesters 33 tons of CO_2 on average, taking that carbon out of the atmosphere for centuries. A tree, meanwhile, absorbs only up to 48 pounds of CO_2 a year.

Protecting whales could add significantly to carbon capture because the current population of the largest great whales is only a small fraction of what it once was. Sadly, after decades of industrialized whaling, biologists estimate that overall whale populations are now less than one fourth what they once were. Some species, like the blue whales, have been reduced to only 3 percent of their previous abundance. Thus, the benefits from whales' ecosystem services to us and to our survival are much less than they could be.

But this is only the beginning of the story.

The whale pump

Wherever whales, the largest living things on earth, are found, so are populations of some of the smallest, **phytoplankton.** These microscopic creatures not only contribute at least 50 percent of all oxygen to our atmosphere, they do so by capturing about 37 billion metric tons of CO_2, an estimated 40 percent of all CO_2 produced. To put things in perspective, we calculate that this is equivalent to the amount of CO_2 captured by 1.70 trillion trees—four Amazon forests' worth—or 70 times the amount absorbed by all the trees in the US Redwood National and State Parks each year. **More phytoplankton means more carbon capture.**

Authorization text for Atlantic Shores:

This request would allow for the incidental Level B harassment of small numbers of marine mammals during site characterization surveys, including high resolution geophysical (HRG) sources1, off the coasts of New Jersey and New York, within and in proximity to the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS)- A 0541 (Lease Area) and export cable route (ECR) area. Atlantic Shores is currently conducting marine site characterization surveys under a National Marine Fisheries Service (NMFS)-issued IHA covering the period from August 10, 2022 through August 9, 2023.

(NARW). Estimated abundance for the species declined from 368 to 338. However, this change does not affect our analysis of impacts, as described under the 2022 IHA.

used in the 2022 IHA. Atlantic Shores updated the marine mammal densities based on new information (Roberts *et al.*, 2016; Roberts *et al.*, 2023), available online at: *https://seamap.env.duke.edu/*

has not proposed to authorize any take by Level A harassment. Mortality or serious injury is neither anticipated to occur nor proposed for authorization.

TABLE 2—SUMMARY OF TAKE NUMBERS PROPOSED FOR AUTHORIZATION

Species	Scientific name	Stock	Abundance	2022 Authorized take	2023 Proposed IHA take proposed for authorization [1]	Max percent population
North Atlantic right whale	*Eubalaena glacialis*	Western Atlantic	338	24	5	1.5
Humpback whale	*Megaptera novaeangliae*	Gulf of Maine	1,396	8	[6] 8 (16)	1.2
Fin whale	*Balaenoptera physalus*	Western North Atlantic	6,802	16	9	<1
Sei whale [2]	*Balaenoptera borealis*	Nova Scotia	6,292	2	4	<1
Minke whale	*Balaenoptera acutorostrata*	Canadian East Coastal	21,968	8	46	<1
Sperm whale [2]	*Physeter macrocephalus*	Western Atlantic	4,349	3	2	<1
Long-finned pilot whale [3]	*Globicephala melas*	Western North Atlantic	39,215	20	8 (20)	<1
Bottlenose dolphin	*Tursiops truncatus*	Western North Atlantic Offshore Stock.	62,851	232	179	<1
Common dolphin	*Delphinus delphis*	Western North Atlantic	172,974	911	588	<1
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Western North Atlantic	93,233	108	63	<1
Atlantic spotted dolphin	*Stenella frontalis*	Western North Atlantic	39,921	100	42 (100)	<1
Risso's dolphin	*Grampus griseus*	Western North Atlantic	35,215	30	7 (30)	<1
Harbor porpoise	*Phocoena phocoena*	Gulf of Maine/Bay of Fundy	95,543	357	281	<1
Harbor seal [4]	*Phoca vitulina*	Western North Atlantic	61,336	263	374	<1
Gray seal [4 5]	*Halichoerus grypus*	Western North Atlantic	27,300	263	374	1.37

[1] Parentheses denote proposed take authorization where different from calculated take estimates. Increases from calculated values are based on average group size for the following species: humpback whale, King *et al.*, 2021; long-finned pilot whale and Risso's dolphin, NOAA, 2022; and Atlantic spotted dolphin, Jefferson *et al.*, 2008.

[2] Where calculated takes for a species in a given survey area were less than 1 individual, the number was rounded up to 1 take in each survey area.

[3] Roberts *et al.* (2023) only provides density estimates for pilot whales as a guild. Given the project's location, NMFS assumes that all take will be of long-finned pilot whales.

[4] Roberts *et al.* (2023) only provides density estimates for seals without differentiating by species. Harbor seals and gray seals are assumed to occur equally in the survey area; therefore, density values were split evenly between the 2 species, *i.e.*, total estimated take for "seals" is 748.

[5] NMFS' stock abundance estimate (and associated PBR value) applies to U.S. population only. Total stock abundance (including animals in Canada) is approximately 451,600.

[6] According to recent findings that humpback whales were the most commonly sighted species in the New York Bight (King *et al.*, 2021), the number of modeled exposures (4) for each of the lease area and ECR is multiplied by an average whale size of 2 for a total of 8 estimated takes in the lease area and 8 estimated takes in the ECR. The total request (16) represents the sum of estimated take in the lease area (8) and ECR (8).

ITP Taylor - NOAA Service Account <itp.taylor@noaa.gov>

Atlantic Offshore Wind Project Comment

1 message

Bonnie Haeberle <bhaeberle@verizon.net> Fri, Jul 28, 2023 at 8:04 AM
To: ITP.Taylor@noaa.gov

After attending a Zoom meeting that was recently held regarding the Atlantic Offshores Wind Projects, I am compelled to write to you. There are growing concerns over these projects as they relate to the death of marine mammals along the coast of New Jersey. Since the studies' inception, there have been large numbers of dolphins and whales that have stranded themselves or died on our beaches. Coincidently the deaths of coastal birds, fish, and other marine life have also increased. That said many officials have brushed off the reason behind these deaths. We need not let money speak for what is happening and look further at the environmental hazards that face marine life as these so-called "safe" projects advance. Furthermore, as a New Jersey resident, I feel we a being slighted regarding the length of time we are able to view and read through the detailed documents that are made available to the public. It is seemingly evident that our feelings about this project are not being heard or taken seriously by BOEM and they will move forward regardless. My hope is that due in part to my response, as well as others, this project will be put on hold until more information can confirm the safety of marine mammals, the impact it will have on the environment, and the safety of those who call the coast our home. Thank You.

Bonnie Haeberle

ITP Taylor - NOAA Service Account <itp.taylor@noaa.gov>

Strong Opposition to Incidental Harassment Authorization (IHA) Request

1 message

Rolf Kamp <rfkamp@gmail.com> Fri, Jul 14, 2023 at 6:43 PM
To: "itp.taylor@noaa.gov" <itp.taylor@noaa.gov>

Jolie Harrison:

I am writing to express my deep concern and strong opposition to Atlantic Shores Offshore Wind Bight's request for an Incidental Harassment Authorization (IHA) that would allow the "taking" or "harassing" of 15 different endangered and protected marine mammal species. As a passionate environmentalist living near the ocean in New Jersey, I am committed to the protection and conservation of our precious marine ecosystems and their inhabitants.

It is evident that the proposed activities associated with this offshore wind project pose a significant danger to marine mammal species. These animals are already facing numerous threats due to climate change, habitat loss, and human activities. Granting an IHA to allow the harassment or harm of these vulnerable creatures would only exacerbate their already precarious situation. As custodians of this planet, it is our moral duty to ensure the preservation and well-being of all species, including marine mammals, who play a vital role in maintaining the health and balance of our oceans.

The potential consequences of such actions cannot be understated. Marine mammals, including endangered species, are already struggling to adapt to the changing environment. The increased noise levels, underwater disturbances, and physical interactions associated with your project could lead to significant physiological and psychological stress, disruption of vital behaviors, and even injuries or fatalities among these protected creatures. We must recognize that our actions have far-reaching implications and strive for sustainable and responsible practices that prioritize the protection of our marine ecosystems.

I implore you to reconsider the IHA request made by Atlantic Shores Offshore Wind Bight.

Sincerely,
Rolf Kamp
Shrewsbury, NJ

ITP Taylor - NOAA Service Account <itp.taylor@noaa.gov>

Atlantic Shores Offshore Wind Bight, LLC authorization to take marine mammals

1 message

ty1ash2@aol.com <ty1ash2@aol.com> Thu, Jul 27, 2023 at 10:09 PM
To: "itp.taylor@noaa.gov" <itp.taylor@noaa.gov>

Ms Harrison,

Atlantic Shores Offshore Wind Bight, LLC (Atlantic Shores) has requested an incidental harassment authorization ("IHA") to "take" or "harass" 15 different endangered and protected marine mammal species from Massachusetts to New Jersey for its Vineyard Northeast project.

I **strongly oppose the harassment of 2,091 marine mammals by "Level B"** for marine site characterization surveys off NY/NJ for their offshore wind project. Hundreds of whales, dolphins, sea turtles, the endangered Atlantic Sturgeon are just a few that have died over the past few months with offshore work that has already been done. Not to mention all the other sea life that has not washed ashore.

I urge you to do more research before any more permits are given out and before any irreversible negative impacts occur. It is your duty to protect our precious natural resources in our ocean. You can stop this. There are studies out there that do show offshore wind is not good and other countries are turning away from this.

Lastly, I am concerned that Section 50265 of the Inflation Reduction Act now stipulates that in order for the DOI to issue offshore wind development leases, DOI must have offered offshore oil and gas development leases covering at least 60 million acres in the previous year. You need to look further than the studies that fit the offshore wind narrative.

Sincerely,

Regina Littwin

ITP Taylor - NOAA Service Account <itp.taylor@noaa.gov>

STOP THE HARASSMENT OF MARINE MAMMALS

1 message

Teresa <tessietd724@yahoo.com> Fri, Jul 28, 2023 at 10:11 AM
To: "ITP.Taylor@noaa.gov" <ITP.Taylor@noaa.gov>

Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, NMFS.

STOP THE HARASSMENT OF 2,091 MARINE MAMMALS BY “LEVEL B” FOR MARINE SITE CHARACTERIZATION SURVEYS FOR THE “ATLANTIC SHORES OFFSHORE WIND BIGHT” OFFSHORE WIND PROJECT OFF NY/NJ!!! THIS IS NOT OKAY!!!

THIS IS HORRIFYING AND NEEDS TO STOP:

1. Marine Life Disturbance: High-intensity sonar signals can disturb marine mammals and other marine life. The loud noises may disorient or stress animals, affecting their behavior, communication, and migration patterns.
2. Intense sonar signals may physically harm sensitive marine organisms or disrupt their habitats, particularly those that rely on sound for communication or navigation.
3. Sonar mapping can contribute to underwater noise pollution, which can have cumulative impacts on marine ecosystems and disrupt the natural acoustic environment.

TERESA SILLETTI