

November 10, 2022

Ms. Kelsey Potlock Office of Protected Resources National Marine Fisheries Service 1315 East-West Highway Silver Spring, MD 20910

RE: REQUEST FOR EXTENSION TO RESPOND TO OCEAN WIND, LLC ITR/LOA

Dear Ms. Potlock,

I'm writing on behalf of the Natural Resources Defense Council (NRDC) to respectfully request a 15-day extension to the comment period for the proposed rulemaking for the five-year Incidental Take Regulation (ITR) and associated Letter of Authorization (LOA) for Ocean Wind 1. 87 Fed. Reg. 64,868 (Oct. 26, 2022). This would extend the comment period to 45-days closing on December 10, 2022.

The five-year ITR/LOA proposed rulemaking is precedential for the offshore wind industry in the United States and additional time is necessary for stakeholders to be able to fully assess the relevant documentation and comment on the agency's proposal.

Sincerely,

Francine Kershaw, Ph.D. Senior Scientist, Oceans Division Natural Resources Defense Council (917) 450-0994 | fkershaw@nrdc.org



Clean Ocean Action 49 Avenel Blvd. Long Branch, NJ 07740 Info@cleanoceanaction.org 732-872-0111

December 9, 2022

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

RE: Application for Incidental Take Regulations and Letter of Authorization for Construction of Ocean Wind I Wind Energy Facility off New Jersey, NOAA-NMFS-2022-0109, Docket No. 221020-0223

Dear Chief Harrison:

Clean Ocean Action ("COA") is a regional, broad-based coalition of conservation, environmental, fishing, boating, diving, student, surfing, women's, business, civic, and community groups with a mission to improve the water quality of the marine waters off the New Jersey/New York coast. COA submits the following comments to National Oceanic and Atmospheric Administration's ("NOAA") National Marine Fisheries Service ("NMFS") in opposition to the request for an Incidental Take Regulation ("ITR") and associated Letter of Authorization ("LOA") from Ocean Wind, LLC ("Ocean Wind"), a subsidiary of Orsted Wind Power North America, LLC's ("Orsted) and a joint venture partner of the Public Service Enterprise Group Renewable Generation, LLC (PSEG)'s (henceforth, the "Applicant"), for the construction of an offshore wind energy project off the coast of New Jersey. Clean Ocean Action's comments acknowledge the "Revised Density and Take Estimate Memo" provided by the Applicant to NMFS Office of Protected Resources related to the original ITR and NOA request.

The NMFS describes the request as the:

incidental take of small numbers of marine mammals during the construction of an offshore wind energy facility which would include both Level A and Level B harassment, of small numbers of marine mammals over a 5-year period incidental to construction-related pile driving activities (impact and vibratory), potential unexploded ordnances or munitions and explosives of concern (UXOs/MECs) detonation, and high-resolution geophysical (HRG) site characterization surveys conducted by Ocean Wind in Federal and State waters off of New Jersey for the Ocean Wind 1 offshore wind energy facility.¹

Prior to this current application, "NMFS has previously issued three Incidental Harassment Authorizations (IHAs), including a renewed IHA, to Ocean Wind for related work regarding high resolution site characterization surveys (see <u>82 FR 31562</u>, July 7, 2017; <u>86 FR 26465</u>, May 14, 2021; and <u>87 FR 29289</u>, May 13, 2022 (renewal))."² Now, the Applicant requests to take at least **13,379 marine mammals**, including endangered, threatened, and federally protected species, during the construction of the *first* of two offshore wind energy projects.

COA requests that NMFS reject and deny this ITR and associated LOA request because it:

 is an incomplete evaluation due to the lack of new information and new protection strategies under development by federal agencies, particularly for the NARW,
 would allow thousands of Level A and Level B takings of endangered, threatened, and protected marine mammal species, including the crucially endangered North Atlantic Right Whale ("NARW"), which will have significant and more than "negligible" impacts on species;

(3) will unacceptably add these impacts to the already detrimental cumulative impacts of the numerous IHA requests from the Applicant's previous activities and projects in the region, as well as by other offshore wind industry companies' previous, current, and forthcoming IHA and ITR/NOA authorizations for surveys, construction, operation, and decommissioning of offshore wind facilities in the region, and

(4) raises other issues of importance, including lack of fairness, transparency, and accountability.

Of more specific concern is, "Five of the marine mammal species for which take is requested have been designated as ESA-listed, including North Atlantic right, blue, fin, sei, and sperm whales."³

Indeed, it appears there are no NMFS limits to the allowance of incidental take impacts from the current application, much less for the full scope of pending proposals as provided by the NMFS:

By 2030 the Northeast large marine ecosystem will be occupied by over 2.4 million acres of leases, 3,400 turbines, and 10,000 miles of submarine cables; and an additional 5.7 million acres is also under consideration for further development.⁴

It is impossible for marine mammals to adapt to such massive industrial scope and scale of offshore wind development with each project at minimum causing the excessive impacts

¹ Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

https://www.federalregister.gov/documents/2022/10/26/2022-23200/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

² See id.

 $^{^{3}}$ See id.

⁴ National Marine Fisheries Service, EBM/EBFM Seminar Series Announcement, electronic mail communication to Clean Ocean Action, September 2022.

described by just one applicant's project. Ocean Wind's request is for the "incidental, but not intentional, take of a small number of 17 marine mammal species (comprising 18 stocks) by Level B harassment (for all 18 marine mammal species and stocks) and by Level A harassment (for 10 marine mammal species or stock)."⁵ The NMFS is speculative by stating that "neither Ocean Wind nor NMFS expects serious injury or mortality to result from the specified activities."⁶ The activities described in the application have been documented to result in species mortality.

The mission of the NOAA NMFS Office of Protected Species is "responsible for the protection, conservation, and recovery of more than 160 endangered and threatened marine and anadromous species under the Endangered Species Act. The goal of the ESA is to conserve these species and the ecosystems they depend on."⁷ The government is obligated to provide assessments of the potential and real marine ecosystem impacts, and then stipulate policies and regulations to avoid and reduce negative impacts and ensure appropriate and meaningful mitigation of the unavoidable impacts. This can only be done **prior to construction**. This also requires, at minimum, a fair, comprehensive, and independently reviewed pilot project for this unproven, large-scale industry in US waters. Indeed, this also requires sound science supported by robust baseline ecological assessments and independent and peer-reviewed studies which are currently planned, only just begun, or underway and incomplete.

Instead, the government is fast-tracking projects, including Ocean Wind 1. This project, for which this application is being considered, is a designated federal "Fast-41 project." In 2015, "the Fixing America's Surface Transportation Act (FAST Act) was signed into law. Title 41 of this Act (42 U.S.C. § 4370m et seq.), referred to as 'FAST-41,' created a new governance structure, set of procedures, and funding authorities to improve the Federal environmental review and authorization process for covered infrastructure projects."⁸ However, fast-tracking projects is not protective of marine species. The government's fast-tracking of massive ocean industrialization is inconsistent with good governance of public resources, the precautionary principle, and most importantly, laws including the Endangered Species Act ("ESA"). From the outset:

Section 7(a)(2) of the ESA requires BOEM, in consultation with NOAA Fisheries, to ensure that any action the agencies authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered species or result in the destruction or adverse modification of designated critical habitat; this coordination is accomplished through ESA section 7 consultations. BOEM and

https://www.federalregister.gov/documents/2022/10/26/2022-23200/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

⁵ Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

⁶ See id.

⁷ National Oceanic & Atmospheric Administration, "About Us: Office of Protected Resources," as seen on 12/9/2022, https://www.fisheries.noaa.gov/about/office-protected-resources

⁸ United States Government, "Permitting Dashboard," Federal Infrastructure Projects, as seen 12/9/2022, https://www.permits.performance.gov/documentation/fast-41-fact-sheet

NOAA Fisheries are required by the ESA to use the best scientific and commercial data available when carrying out these consultations.¹

It is unacceptable to be moving forward with IHA, ITR, or NOAs, as well as other authorizations, at the current scope and scale of offshore wind energy development without transparency, due diligence, and meaningful public engagement. Clean Ocean Action urges NMFS to reject the Applicant's ITR and not issue an associated LOA for the construction of the Ocean Wind 1 offshore wind facility for the reasons outlined in these comments.

I. Deny and Rescind all Incidental Take Regulations (ITR) and associated Letters of Authorization (LOA) due to: A.) the Five-Year Strategy to Protect NARW is under development, and B.) a lack of basic research about impacts of construction and operation of offshore wind energy development on large whales.

A. Five-Year Strategy to Protect NARW is Under Development

Recently, the Bureau of Ocean Energy Management ("BOEM") and NOAA Fisheries' "Draft North Atlantic Right Whale and Offshore Wind Strategy" (hereafter "Draft Strategy") was proposed for public review. The comment period just recently closed. This five-year protection plan for the North Atlantic right whale ("NARW"), while flawed and incomplete, is currently under development and stipulates the dire status of the NARW and need for additional protection. To ensure the best chance of survival, Ocean Wind 1 must be halted until the strategy is complete and measures to avoid, minimize or eliminate harm are determined so they can be applied to this project.

The NARW is one of the most critically endangered species. Based on the population status, the outlook for the survival of the NARW is grim, especially with new threats, including offshore wind energy development. The NMFS' last five-year review of the NARW, published in 2017, notes that the species' population grew from 270 to 483 whales between 1990 and 2010; but the number of individuals remaining declined to 440-458 by 2017.⁹ The 2017 five-year review further notes that NMFS declared an unusual mortality event ("UME") under the Marine Mammal Protection Act ("MMPA") in August 2017 after 15 known NARW deaths occurred within a four-month span. The NARW population has continued to decline. In October 2021, the North Atlantic Right Whale Consortium announced that just 336 individual NARWs remain.¹⁰

The Draft Strategy affirms this dire status in Section 2.3 where it states:

"The potential biological removal (PBR) level for the species, defined as the maximum number of animals that can be removed annually while allowing the

⁹ North Atlantic Right Whale (Eubalaena glacialis) 5-year Review: Summary and Evaluation, NATL. MARINE FISHERIES SERV. GREATER ATLANTIC REGIONAL FISHERIES OFFICE (2017),

https://www.fisheries.noaa.gov/resource/document/5-year-review-north-atlantic-right-whale-eubalaena-glacialis [hereafter "2017 5-Year Review"].

¹⁰ H.M. Pettis, et al., North Atlantic Right Whale Consortium 2021 Annual Report Card: Report to the North Atlantic Right Whale Consortium (2022),

https://www.narwc.org/uploads/1/1/6/6/116623219/2021report_cardfinal.pdf.

stock to reach or maintain its optimal sustainable population level, is less than 1 (Hayes et al. 2022)."¹¹

To be clear, <u>not one</u> of the remaining NARW can be lost, an unambiguous and stern statement. It goes on to state: "The species has low genetic diversity, as would be expected based on its low abundance, and the species' resilience to future perturbations is expected to be very low (Hayes et al. 2018)." ¹² This information suggests that harassments can have population impacts and must be avoided or significantly reduced to protect the NARW population. These types of "perturbations" would likely trigger Level B Harassment impacts.

Thus, for the protection of the NARW, all industrial full-scale construction for offshore wind energy should be paused until the federal agencies determine how best to eliminate or avoid all impacts, Level A or B, on the NARW.

B. Lack of Basic Research About Impacts to Large Whales

There is a lack of basic research of the impacts of offshore wind energy development to large whales in US waters, particularly in the mid-Atlantic region. In fact, the NMFS affirms this in the ITR request under review:

available information on impacts to marine mammals from pile driving associated with offshore wind is limited to information on harbor porpoises and seals, as the vast majority of this research has occurred at European offshore wind projects where large whales and other odontocete species are uncommon.¹³

It is reckless to move forward without the scientific baseline assessments for what harms may or could occur to whales, before issuing any permits and authorizations, including IHAs and ITR and associated NOAs.

1. Failure to include crucial scientific assessments and consultation

In a letter obtained under the Freedom of Information Act by Bloomberg Law, a May 2022 letter by Dr. Sean Hayes, PhD, Chief of Protected Species, NOAA NEFSC, clearly documents and confirms the NARW's fragile hold on existence. First, the Chief of Protected Species notes that there are less than 350 remaining NARW animals.¹⁴ This is **18 less than 368** -- the population number in the NOAA Fisheries' most recent Stock Assessment Report and the population used

https://www.federalregister.gov/documents/2022/10/26/2022-23200/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

¹¹ U.S. Department of Interior Bureau of Ocean Energy Management and U.S. Department of Commerce National Oceanic and Atmospheric Administration NOAA Fisheries, *Draft BOEM and NOAA Fisheries North Atlantic Right Whale and Offshore Wind Strategy*. October 2022, page 5.

¹² U.S. Department of Interior Bureau of Ocean Energy Management and U.S. Department of Commerce National Oceanic and Atmospheric Administration NOAA Fisheries, *Draft BOEM and NOAA Fisheries North Atlantic Right Whale and Offshore Wind Strategy*. October 2022, page 5.

¹³ Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

¹⁴ Letter from Sean A. Hayes, PhD, Chief of Protected Species, NOAA NEFSC, to Brian R. Hooker, Lead Biologist Bureau of Ocean Energy Management, Office of Renewable Energy Programs, dated May 13, 2022.

to calculate impacts on NARWs in this application. As stated above, the most recent NARW Consortium estimates 336 individuals, which is 32 fewer individuals. Again, COA notes, the Draft Strategy states that <u>not one</u> animal can be lost.

Second, the letter from Dr. Hayes states:

The development of offshore wind poses risks to these species, which is magnified in southern New England waters due to species abundance and distribution. These risks occur at varying stages, including construction and development, and include increased noise, vessel traffic, habitat modifications, water withdrawals associated with certain sub-stations and resultant impingement/entrainment of zooplankton, changes in fishing effort and related potential increased entanglement risk, and oceanographic changes that may disrupt the distribution, abundance, and availability of typical right whale food (e.g., Dorrell et al 2022).¹⁵

It is clear that any further disturbance of the NARW species will have an impact on this critically endangered species. Some scientists estimate that the species will go extinct within 20 years with current threats.¹⁶

2. Threats to Marine Mammal Health & Survival

The threats to marine mammals include:

negative impacts to whale habitat which may take the form of development, pollution, noise, overfishing, and climate change. Shipping channels, aquaculture, offshore energy development, and recreational use of marine areas may destroy whale habitat or displace whales which would normally use the area. Oil spills and other chemical pollutants are also a threat to whales and the prey which they feed on.¹⁷

Offshore wind, in the current proposed scale, scope, and magnitude significantly added to the threats to marine mammals, including noise, vessel strikes, and impacts to prey.

Access to food sources for large whales is essential. The importance of the waters off New Jersey as feeding grounds for all marine mammals is increasing, and the current application does not adequately assess the impact to prey from construction and operation. Loud noise will scatter prey and make it more difficult for whales to school fish for feeding. This is amplified due to the many other offshore wind construction projects in the area for which impacts are not accounted in this application.

Regarding pile-driving construction needs for Ocean Wind 1, the NMFS prescribes the assumptions for the ITR and LOA, for which Ocean Wind "would not exceed:"

¹⁵ *See id.*

¹⁶ Pennisi, Elizabeth. "The North Atlantic right whole faces extinction." Science, November 7, 2017, https://www.science.org/content/article/north-atlantic-right-whale-faces-extinction.

¹⁷ Conserve Wildlife Foundation of New Jersey, "New Jersey Endangered and Threatened Species Field Guide: North Atlantic Right Whale," as seen 12/9/2022,

http://www.conservewildlifenj.org/species/fieldguide/view/Eubalaena%20glacialis/

- Two monopiles installed per day (4 hours per monopile with a 1 hour preclearance period; 9 hours of total with 8 hours of active pile driving time), although only one monopile may be installed on some days;
- No concurrent monopile and/or pin pile driving would occur.¹⁸

COA emphasizes that eight hours of pile driving will occur daily for the monopiles alone. As seen in Table 12 in the application, the project estimates 52-116 days (10,846 hammer strikes) of the piercing, deafening hammering to install monopoles as well as jacket/pin pile hammering for driving in jacket/pin piles. There are *no clear provisions* for enforcement of these and other restrictions, as many projects are clustered close together within the region. It is impossible to imagine there will not be multiple projects underway at the same time in the same area. The noise issues and impacts are discussed later in these comments.

Moreover, NMFS acknowledges that "more research on the impacts of operational noise on marine mammals and their prey is needed, as currently available information on modern turbine models is limited."¹⁹ It is unacceptable to move forward without this basic science for such basic activity as turbine operation. Without it, accountable protection of mammals is impossible.

Also, the Applicant proposes a seasonal moratorium from January 1 through April 30 on impact pile driving and detonations of unexploded ordnances or munitions from offshore wind construction. However, it is documented that North Atlantic right whales are in the region during proposed times of construction. In fact, there is documentation that NARWs are in the project region and area at all times of the year. Recent data from WhaleMap and the Mid-Atlantic Ocean Data Portal indicate an abundance of NARWs off the NJ coast throughout the year²⁰. Further, a Right Whale Slow Zone southeast of Atlantic City was effective in December 2021²¹. According to the Conserve Wildlife Foundation of New Jersey:

Within the western North Atlantic Ocean, right whales feed during spring, summer, and fall in temperate and subpolar latitudes near eastern Canada and the northeastern U.S. During the winter, many individuals from this population can be found off the northeast coast of Florida and Georgia, their breeding and calving grounds. Some right whales, however, may remain at their northern feeding grounds during the winter.²²

https://content.govdelivery.com/accounts/USNOAAFISHERIES/bulletins/2fef565.

¹⁸ Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

¹⁹ See id.

²⁰ See <u>https://whalemap.org; https://portal.midatlanticocean.org</u>.

²¹ National Oceanic & Atmospheric Administration, Fisheries, "Extension of Right Whale Slow Zone Southeast of Atlantic City, NJ." As seen, 11/15, 2022:

²² Conserve Wildlife Foundation of New Jersey, "New Jersey Endangered and Threatened Species Field Guide: North Atlantic Right Whale," as seen 12/9/2022,

http://www.conservewildlifenj.org/species/fieldguide/view/Eubalaena%20glacialis/

Other studies concur finding "year round presence of right whales in the mid-Atlantic (Whitt et al Atlantic. This may indicate that right whales are present in the mid-Atlantic more often than previously believed."²³ This is contrary to what NMFS states in the notice for this application: "we have confidence that right whales are expected in the project area during certain times of year, while at other times of year right whales are not expected to occur in the project area." ²⁴

Ocean Wind will also increase the number of vessels in the ocean in the project area, leading to an increased threat of harm by vessel strikes to marine mammals. Specifically, "collisions with ships are an increasing threat to right whales...Right whales are especially slow-moving, compared to other large whales, and therefore more susceptible to being struck by ships."²⁵ However, according to the application and NMFS:

Noise from construction-related vessel activity, including the use of dynamic positioning thrusters, is not expected to result in take of marine mammals and Ocean Wind did not request, and NMFS does not propose to authorize any takes associated with construction related vessel activity. However, NMFS acknowledges the aggregate impacts of Ocean Wind 1's vessel operations on the acoustic habitat of marine mammals and has considered it in the analysis.²⁶

COA disagrees and maintains construction related vessel activity will compound the existing vessel strike threats. COA urges NMFS to specifically assess the cumulative impacts on marine mammals, particularly the NARW, from all the vessels associated with the other offshore wind projects proposed or underway in this region.

3. Excessive Takes of Marine Mammals

Under the Marine Mammal Protection Act ("MMPA"), citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region may request authorization for incidental, but not intentional, takes of "**small numbers**" (*emphasis added*) of marine mammals pursuant to that activity for a period of no more than five years.²⁷ The NMFS, which has been delegated the authority to administer the relevant legal framework, may allow takes under the MMPA only if the agency determines that the total number of authorized incidental takes during the five-year period will have a "negligible impact" on the relevant

https://www.federalregister.gov/documents/2022/10/26/2022-23200/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

http://www.conservewildlifenj.org/species/fieldguide/view/Eubalaena%20glacialis/ ²⁶ Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

https://www.federalregister.gov/documents/2022/10/26/2022-23200/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

²³ New York State Department of Environmental Conservation, "Species Status Assessment," as seen 12/9/2022, <u>https://www.dec.ny.gov/docs/wildlife_pdf/sgennatrightwhale.pdf</u>.

²⁴ Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

²⁵ Conserve Wildlife Foundation of New Jersey, "New Jersey Endangered and Threatened Species Field Guide: North Atlantic Right Whale," as seen 12/9/2022,

²⁷ 16 U.S.C. § 1371(a)(5)(A)(i).

species or stock.²⁸ "Negligible impact" is, in turn, defined as an impact that is not reasonably likely or expected to "adversely affect the species or stock through effects on annual rates of recruitment or survival."²⁹ Finally, the applicable legal framework distinguishes between "Level A" takes and "Level B" takes. In the context of offshore wind energy development and related activities, "Level B harassment" refers to "any act of pursuit, torment, or announcement which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."³⁰ "Level A" takings, on the other hand, refer to "any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild."³¹

a) COA rejects the numbers proposed in the application as "Small"

The staggering number of takes in this application for just Ocean Wind 1 is 13,379 marine mammals (see excerpt from *Table 6-23 of the application as shown*). These take numbers are not "small;" however, of greater concern is the cumulative impacts of all the projects concurrently under siting and characterization, construction, and operation. The take numbers are outrageous and fails to meet the legal requirements for mammal protection, much less for endangered species.

North Atlantic Right Whales

The harm that offshore wind energy development may inflict upon NARWs throughout the site assessment, construction, and

Table 6-23. Summary of Level A and Level B Takes for All Activities Conducted During Ocean Wind Construction.

Dcean Wind 1

An Ørsted & PSEG project

Species	Population Size	5 Year Total		
		Level A	Level B	Max Percent
North Atlantic right whale a	368	0	14	3.80
Blue whale a	unknown	0	4	N/A
Fin whale ^a	6,802	4	27	0.46
Sei whale ^a	6,292	1	6	0.11
Minke whale	21,968	22	118	0.64
Humpback whale	1,396	6	37	3.08
Sperm whale a	4,349	0	24	0.55
Atlantic white-sided dolphin	93,233	0	133	0.14
Atlantic spotted dolphin	39,921	0	405	1.01
Common bottlenose dolphins	:		94.	
Offshore	62,851	0	2,822	4.49
Coastal ^b	6,639	11	4,432	66.92
Pilot Whales:		10.020		
Short-finned pilot whale	28,924	0	90	0.31
Long-finned pilot whale	39,215	0	90	0.23
Risso's dolphin	35,215	0	270	0.77
Common dolphin	172,974	0	1,749	1.01
Harbor porpoise	95,543	79	536	0.64
Seals:	13			
Gray seal	27,300	35	641	2.48
Harbor seal	61,336	48	1,775	2.97

a Listed as Endangered under the ESA.

^b Coastal bottlenose dolphin take for bayside (vs. Atlantic-facing) cofferdams is likely overestimated, as this stock has been shown to prefer coastal to estuarine environments (Toth et al. 2011).

operation, is widely recognized.³² Offshore wind projects will significantly exacerbate the existing threats posed to NARWs by ship collisions and entanglements.

³² See Conservation Law Foundation, et al., Strong Mitigation Measures Are Essential to Protect the North Atlantic Right Whale During All Phases of Offshore Wind Energy Development (Feb. 2022),

https://www.nrdc.org/sites/default/files/narw-mitigation_feb2022.pdf; Vineyard Wind – NGO Agreement (Jan. 22, 2019), https://www.nrdc.org/sites/default/files/vineyard-wind-whales-agreement-20190122.pdf.

²⁸ Id. § 1371(a)(5)(A)(i)(I).

²⁹ 50 C.F.R. § 18.27(c).

³⁰ 16 U.S.C. § 1362(18).

³¹ *Id*.

COA objects to the NMFS determination that no change was needed in the number of takes in the Applicant's request when NMFS acknowledged a revision in the density of the NARW population. The agency's webpage for the NARW currently reads: "The North Atlantic right whale is one of the world's most endangered large whale species; the latest preliminary estimate suggests there are fewer than 350 remaining."³³ Yet, the North Atlantic Right Whale Consortium ("the Consortium"), announced in October 2022 that just 336 individuals remain.³⁴ With such low population numbers, and, as noted earlier, based on the recommendation by a federal scientist that not one NARW can be lost, using updated and accurate population numbers is critically important. The calculations for determining the percent of the population to be harassed or injured with the construction of Ocean Wind 1 inaccurately uses a population of 368 individuals. Using this population statistic, the Applicant's request take limit of 14 NARWs amounts to 3.8% of the remaining individuals using the population of 368 individuals. However, when calculated using the Consortium's recent estimate of 336 remaining individuals, the Applicant's requested take limit of 14 rises to over four percent of all remaining NARWs. As a matter of transparency, the Applicant's proposed calculations should accurately reflect the updated and quantifiable extent of the harm that it will permit the Applicant's activities to inflict on one of the planet's most endangered species.³⁵

COA also objects to NMFS's conclusion that the application's take limit of 14 NARWs for construction activities in the coastal waters between off New Jersey and New York will have a "negligible impact" on the species. Even when taking this claim at face value, the agency would authorize harassment of over four percent (4%) of the remaining 336 NARWs, which is significant in and of itself. Moreover, the impacts of activities that may be authorized for the proposed ITR will compound those that already occurred under the terms of the Applicant's previous IHAs for site characterization, assessment, and construction activities for the Ocean Wind's lease area OCS-A 0498 alone.

Moreover, the aforementioned sum must be considered alongside other takes of NARWs that NMFS has authorized for other wind activities along the species' migratory range from North Carolina to Maine, including for site characterization, assessment, and construction activities that are simultaneously occurring for other offshore wind energy development (OWED) lease sites. It is also important to note that this IRT follows three consecutive IHA applications to take marine mammals for this Ocean Wind project alone. Orsted has also received several other IHAs for other offshore wind projects in the region.

³³ North Atlantic Right Whale, NMFS (last accessed Feb. 7, 2022), https://www.fisheries.noaa.gov/species/north-atlantic-right-whale.

³⁴ H.M. Pettis, et al., *North Atlantic Right Whale Consortium 2021 Annual Report Card: Report to the North Atlantic Right Whale Consortium* (2022), NORTH ATLANTIC RIGHT WHALE CONSORTIUM https://www.narwc.org/uploads/1/1/6/6/116623219/2021report cardfinal.pdf.

³⁵ See Katharine Deuel, New Rules to Protect Endangered Whales Fall Short, PEW CHARITABLE TRUSTS (Nov. 17, 2021), https://www.pewtrusts.org/en/research-and-analysis/articles/2021/11/17/new-rules-to-protect-endangered-right-whales-fall-short.

As mentioned, federal agencies have already allowed the OSW industry to harass endangered animals which is in violation of the need to protect them from "*future perturbations*."³⁶ The NMFS has issued Incidental Harassment Authorizations ("IHA"), including for the NARW, for OSW projects in the Atlantic Ocean. Regarding just the Empire Wind 1 & 2, Atlantic Shores 1 & 2, and Ocean Wind 1 & 2 projects off the New Jersey and New York coasts, the combined Level B IHA takes on the NARW is **179** to date. This number of harassments accounts for over **53%** of the NARWs individuals remaining on Earth. This is alarming, especially as it is for *only three* of the currently planned 25 OSW projects in the region; the combined authorizations are likely to have already caused violations under the ESA. Importantly, takes in this application, as well as for previous IHA requests, are for other marine mammals, including other endangered whale species, namely the Humpback, Sei, Sperm, and Fin whales. COA submitted detailed comments objecting to these impacts.

Furthermore, COA objects to the conclusion that the activities covered by the ITR application will result only in *Level B* harassment of NARWs, as opposed to *Level A* harm—i.e., physical injury or death. Indeed, the Applicant requests Level A takes for Fin (4), Minke (22), Humpback (6), and Sei whales (1). Where is the evidence that shows other whales will experience Level A injury and harassment, but the NARW will not in the same region? The NARW is documented in the region. It does not seem plausible that these animals could somehow be protected from impacts that other whales will experience. If Level A Takes are already occurring to endangered whales, it must be assumed or proven with evidence that the threat of Level A takes to NARW are significant, if not already occurring. Of all species under consideration in this application, the NARW population is the most susceptible to even the slightest harm. COA requests NMFS to reject/deny the application because it fails to account for Level A takes that: (1) are reasonably likely to occur to NARW due to the activities in question, and (2) will have more than a mere negligible impact on NARWs.

In this respect, COA first notes that vessel strikes pose one of the largest threats to NARWs. According to NOAA, "vessels of nearly any size can injure or kill a right whale³⁷." Yet the avoidance measures are insufficient and are clearly directed toward the vessels engaged in construction activities for the Applicant, yet the application never accounts for collisions with other vessels caused by NARWs being displaced from the waters in this application. Further, for accountability and fairness, how and who will determine which vessel struck a NARW or other species if that should happen? Especially given the threat posed to NARWs as a species by even one instance of a vessel collision, NMFS should reject/deny the ITR and NOA request.

It is also important to note that while it seems an "accommodation" for the applicant to provide that their installation construction will be during the summer and fall to allegedly avoid NARW migration, it must also be said that it is also the most pleasant weather to be on ships doing construction. However, by concentrating harmful activities in the summer through fall, these are seasons when many other species of mammals, including dolphins and whales, will be in their prime utilization of the region for foraging, birthing, nursing young, migrating and other

³⁶ U.S. Department of Interior Bureau of Ocean Energy Management and U.S. Department of Commerce National Oceanic and Atmospheric Administration NOAA Fisheries, *Draft BOEM and NOAA Fisheries North Atlantic Right Whale and Offshore Wind Strategy*. October 2022, page 5.

³⁷ See id.

essential survival behaviors causing even greater impact to these species. Aggravating impacts on these species must not occur.

In addition, noise is a significant threat to the survival of whales:

Noise pollution created by ship traffic or offshore construction may negatively impact whales by disrupting otherwise normal behaviors associated with migration, feeding, alluding predators, rest, breeding, etc. Any changes to these behaviors may decrease survival, simply by increasing efforts directed at avoidance of the noise and the perceived threat.³⁸

A growing source of noise pollution that interferes with NARWs' most vital social functions is offshore wind-related activities. More specifically, low frequency noise from large ships involved in offshore wind-related activities overlaps with the acoustic signals used by right whales. These large whales rely on sound to breed, navigate coastlines, and find food. Right whales communicate with one another by making calls, which can cover distances of more than 20 miles.³⁹ The calls let whales stay in touch, share information about food, help mates find each other, and keep groups together while traveling.

Rising levels of ocean noise are interfering with whales' ability to communicate. Anthropogenic noise interferes with their ability to eat, mate, and navigate; therefore, it is essential to their survival that these sounds travel the ocean undisturbed.⁴⁰ North Atlantic right whales have been observed increasing their call amplitude with the rise of background noise, and noise pollution has been correlated with an increase in stress-related fecal hormone metabolites.⁴¹

According to the application itself,

Marine mammals exposed to elevated noise levels during impact and vibratory pile driving, potential detonations of UXOs, or site characterization surveys, may be taken, by Level A harassment and/or Level B harassment, depending on the specified activity. At the time of writing this proposed notice, Ocean Wind 1 had not finalized design plans; however, they have indicated the project would consist of either all monopile foundations (a total of 101 8/11-m tapered piles to support all WTGs and the 3 OSSs) or monopiles to support the WTGs (n=98) and jacket foundations with pin piles to support the three OSSs using a total of 48 pin piles (16 pin piles per OSS).⁴² (emphasis added)

³⁸ Conserve Wildlife Foundation of New Jersey, "New Jersey Endangered and Threatened Species Field Guide: North Atlantic Right Whale," as seen 12/9/2022,

http://www.conservewildlifenj.org/species/fieldguide/view/Eubalaena%20glacialis/

³⁹ Woods Hole Oceanographic Institution, "Right Whales," as seen 11/15/2022, <u>https:// www.whoi.edu/know-your-ocean/ocean-topics/ocean-life/marine-mammals/right-whales/</u>.

⁴⁰ National Oceanic & Atmospheric Administration, Fisheries, "North Atlantic Right Whale," as seen 11/15/2022, <u>https://www.fisheries.noaa.gov/species/north-atlantic-right-whale</u>.

⁴¹ North Atlantic Right Whale 5-Year Review, NOAA FISHERIES SERV. NE. REG'L OFFICE 11-12 (Aug. 2012), http://www.nmfs.noaa.gov/pr/pdfs/species/narightwhale_5yearreview.pdf

⁴² Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

https://www.federalregister.gov/documents/2022/10/26/2022-23200/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

How can an ITR and LOA be considered if the activity has not been disclosed by the Applicant yet? Specifically, the rule notice states, "At the time of writing this proposed notice, Ocean Wind 1 had not finalized design plans." For noise impacts, the application proposes for either of these scenarios for piles: 10,846 concussion hammer strikes per for monopiles including nearly 75% at the highest noise level, and 13,191 hammer strikes for Jacket Foundations (pin piles).

For modeling assumptions and impacts, the NMFS also states the following for the project:

- Two monopiles installed per day (4 hours per monopile with a 1-hour preclearance period; 9 hours of total with 8 hours of active pile driving time), although only one monopile may be installed on some days;
- No concurrent monopile and/or pin pile driving would occur; and
- Monopiles would be 80 millimeters (mm) thick and consist of steel.

Based on the above, COA objects to NMFS' determination that the underwater noise generated by offshore wind energy project construction activities will result only in Level B harassment of NARWs. Considered together, the cumulative amount of underwater noise allowed by numerous IHA and ITR and NOA requests is not just an annoyance to NARWs and other whales, but also has the potential to injure species' stock. Despite this, the application does not adequately and accurately assess for Level A takes regarding underwater noise.

Regarding operational noise, when comparing noise from turbines, NMFS acknowledges the use of "older models" and studies that "haven't been validated yet" and a "smaller sample size". Not enough information is known to make comprehensive determinations of the impacts of operational noise from OSW facilities on marine mammals and other wildlife.

Especially in light of the NARW's critically endangered status, the ongoing Unusual Mortality Event that this species is experiencing and, consequently, the existential threat posed to the species by obstacles to even one individual's survival, the best scientific literature cannot justify the conclusion that harassing more than 4% of the species' 336 remaining individuals in a short timeframe for Ocean Wind 1 can be characterized as negligible. This is particularly true upon consideration of the multitude of additional NARW takings that the Applicant will be pursuing for the operation and decommissioning phases of its projects. Again, not one NARW can be lost, as previously noted.

Excessive Takes of Other Marine Mammal Species, including Endangered & Threatened Clean Ocean Action finds the variety of species and total number of individual Level A and Level B takes (13,379) proposed by Ocean Wind 1 unsupportable. Ocean Wind's request is for the "incidental, but not intentional, take of a small number of 17 marine mammal species (comprising 18 stocks) by Level B harassment (for all 18 marine mammal species and stocks) and by Level A harassment (for 10 marine mammal species or stock)."⁴³ In addition to the

⁴³ Federal register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Ocean Wind 1 Wind Energy Facility Offshore of New Jersey," A Proposed Rule by the National Oceanic and Atmospheric Administration, 10/26/2022.

https://www.federalregister.gov/documents/2022/10/26/2022-23200/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

objections to the application regarding impacts to the critically endangered North Atlantic right whale, it is also troubling to see the Applicant request both Level A and Level B harassments of a wide variety of other marine mammals.

Many of these other species are classified as endangered and threatened, including the Humpback⁴⁴, Fin, and Sei whales, and coastal Common bottlenose dolphins. The total number of Level A takes of endangered Fin whales is 4 individuals, and when combined with Level B takes, the number rises to 31 Fin whales. For the endangered Sei whale, the application proposes to take 7 whales, including one by Level A. For the endangered Humpback whales, the Applicant proposes to take 6 by Level A harassment, and 37 by Level B. The request is also based on the lack of relevant baseline information about how these species use the lease site. How is it possible for there to be a calculation of impact when there is limited knowledge about the species in the area?

Further, we draw attention to the 7,265 Level A and B takes of the Common bottlenose dolphin (both coastal and offshore) that the Applicant is seeking to harm. Bottlenose dolphin are highly social, and arguably the most recognized and beloved small cetacean.⁴⁵ In addition to their inherent value to the American public, the dolphins are an increasingly important driver of economic growth for tourism and related industries.⁴⁶ The cumulative impact of harassing nearly thousands of bottlenose dolphin may be considerable and irreversible, but these impacts are not considered in the application as currently proposed. Likewise, missing from the application is consideration of how the identified MMPA-protected species will be affected by the ecosystem changes that will necessarily occur when nearly thousands of marine mammals are harassed or taken within a short timeframe, especially given the unique importance of bottlenose dolphins for keeping their ecosystem in balance.⁴⁷ How can NMFS justify the taking of nearly 67% of the coastal bottlenose dolphins, or any animal for that matter, for construction of one private company's offshore wind project? These shortcomings merit the rejection of the Applicant's request and an associated NOA.

Furthermore, COA strongly encourages NMFS to reject the application due to deficiencies in its analysis concerning the proposed activities' effects on harbor seals. Frequently spotted along both the East and West Coasts of the U.S., harbor seals are known for resting on floating ice with their head and rear flippers elevated in a "banana-like" position, leading to their popularity with excited winter beach-goers.⁴⁸ Besides their wide recognition among the American public, harbor

https://www.mmc.gov/priority-topics/value-marine-mammals/.

⁴⁴ Conserve Wildlife Foundation of New Jersey, "New Jersey Endangered and Threatened Species Field Guide: Humpback Whale." As seen 11/15/2022,

http://www.conservewildlifenj.org/species/fieldguide/view/Megaptera%20novaeangliae/

⁴⁵ Common Bottlenose Dolphin, MARINE MAMMAL CENTER (visited Feb. 28, 2022),

https://www.marinemammalcenter.org/animal-care/learn-about-marine-mammals/cetaceans/common-bottlenose-dolphin.

⁴⁶ The Economic of Marine Mammals, MARINE MAMMAL COMMISSION (visited Feb. 28, 2022),

⁴⁷ Bottlenose Dolphins: Our Smart, Sociable Friends of the Sea, WORLD WILDLIFE FUND UK (visited Feb. 28, 2022),

https://www.wwf.org.uk/learn/wildlife/dolphins#:~:text=Dolphins%20play%20an%20important%20role,have%20as %20much%20to%20eat.

⁴⁸ Harbor Seal, NATL. MARINE FISHERIES SERV. (visited Feb. 28, 2022),

https://www.fisheries.noaa.gov/species/harbor-seal.

seals also play a major role in maintaining balance in marine food webs as well.⁴⁹ Despite the unique importance of this species, however, COA maintains there is not sufficient baseline information about how harbor seals use the waters at lease site OCS-A 0499 to conclude that the activities covered by the application will have a negligible impact on harbor seals. More specifically, a COA employee attended a virtual "Science Saturday" event in early 2022 at which a representative of the New Jersey Department of Environmental Protection ("NJDEP") indicated that, to date, no one has tracked harbor seals to understand the species' preconstruction use of offshore wind energy lease areas off the NJ coast.⁵⁰ This admission strongly suggests that decisionmakers do not yet have sufficient information about the role of these lease areas in harbor seals' life-cycles to substantiate the numbers of harassments expected to occur by this application. With this in mind, the Applicant requests the taking of 1823 harbor seals and 676 gray seals both by Level A and B takes, for a harassment total of 2,499 seals. With so little baseline information available about seals and their use of the project area and waters off New Jersey, NMFS should therefore reject this ITR application and not issue an NOA.

II. Other Issues of Importance, including Lack of Fairness, Transparency, and Accountability

The COA concerns discussed in the previous section is not exhaustive; as the MMPA recognizes, every marine mammal is important, and the effects of the proposed activities on other species including those that are also actively experiencing Unusual Mortality Events, such as the North Atlantic right whale and humpback whale—should encourage NMFS to demand more baseline data and severely restrict the Applicant's authorized takes for the activities in question. COA consequently urges NMFS to reject and deny the application for takes for Ocean Wind I.

Further, a serious issue of concern is a lack of accountability. Again, as referenced above,

*By 2030 the Northeast large marine ecosystem will be occupied by over 2.4 million acres of leases, 3,400 turbines, and 10,000 miles of submarine cables; and an additional 5.7 million acres is also under consideration for further development.*⁵¹

Never has an ecosystem been under such massive industrial development pressure and impact over a span of less than decade. Given this unimaginable and unprecedented scope and scale of industrial offshore wind development in the Northeast region, and off the New Jersey and New York coasts in particular, NMFS must provide clarity and due process *now* for the determination of accountability. At what point will there be too many accumulated Level A and Level B harassments from offshore wind energy development or other activities? What are the guardrails

⁴⁹ Seals, INTL. FUND FOR ANIMAL WELFARE (visited Feb. 22, 2022),

https://www.ifaw.org/animals/seals#:~:text=As%20one%20of%20the%20keystone,%2C%20polar%20bears%2C%2 0and%20sharks.

⁵⁰ "Science Saturday: Offshore Wind," LONG BEACH ISLAND FOUNDATION OF ARTS AND SCIENCES (Feb. 19, 2022). Specifically, the NJDEP representative identified the tracking of harbor seals off the NJ coast to understand their use of lease areas prior to the construction of offshore wind turbines as a project concept that NJDEP is currently considering.

⁵¹ National Marine Fisheries Service, EBM/EBFM Seminar Series Announcement, September 2022, personal communication.

to determine how many takes will be too many? How will NMFS distinguish between impacts, such as those from the wind industry as compared to those from other shipping traffic, especially as wind facilities are built-out and marine life and ships are concentrated into more narrow corridors? Who will be responsible and how will the accountability be managed? How will the number of takes be lowered over time to address the additional, cumulative stress to marine life? Or will it be?

On another matter, how will population dynamics be measured as species populations decline from stress or injury from offshore wind development? Or food scarcity as migratory fish populations move or as fish structure changes? Or will the agencies simply place blame on "climate change" as a catch-all to lower populations of marine mammals? How many marine mammals can be harassed and injured before the populations, and associated ecosystems, collapse, all for the current unfounded benefits of the new offshore wind energy industry? How many takes, for individual projects or requests or cumulatively, are too many? The current process by which takes are evaluated must include cumulative impacts to populations from all IHA and ITR applications and associated NOAs.

These questions and issues, among others, must be addressed at the outset to ensure transparency and accountability for the impacts to the living marine ecosystem from this wholesale, rapid industrial development of the ocean.

Further, numerous IHAs have already been issued, and ITRs and NOAs will be forthcoming for many offshore wind energy projects. The extensive offshore activities for which these authorizations were approved are underway along the entire coast of New Jersey and offshore. It is essential that systems are in place to monitor for impacts from these activities in these areas. Impacts must be documented and fully investigated to inform forthcoming IHA authorizations, ITR approvals, and NOA issuances. Monitoring reports are not enough. It is necessary for onthe-ground independent scientists and response teams to be in the areas under IHA, ITR, and NOA approvals to monitor for impacts so immediate response or investigation can occur.

As an example, on December 5, 2022, an infant endangered Sperm Whale washed-up on the beach in Keansburg, NJ.⁵² Thankfully, volunteers at the Marine Mammal Stranding Center were able to be on the scene. Given that massive, large-scale offshore wind project activities are already underway in this region, am organization charged with responding to an endangered marine mammal incident should be fully funded by the state and federal agencies to collect the animal, if possible, or be provided the means to conduct a thorough and immediate investigation, including a necropsy, to determine that cause of death. The investigation should include what, if any, offshore wind energy related activities, or other offshore activities, were ongoing within the window of time the infant was potentially impacted. An immediate response and thorough investigation of such incidents is necessary to ensure accountability and the protection of marine mammal species.

Of further note, COA protests the double standard that has developed for the offshore wind industry when it comes to protecting marine mammals. COA acknowledges the importance of

⁵²Radel, Dan. "Infant 12-foot sperm whale washes up dead on Keansburg beach." Asbury Park Press, 12/5/2022. <u>https://www.app.com/story/news/local/animals/2022/12/05/keansburg-nj-infant-sperm-whale-washes-up-dead-beach/69703142007/</u>

reducing other common harms to NARWs and other marine mammals, such as entanglements and vessel strikes, but these efforts to help the species will be of limited benefit if they coincide with an increased tolerance for other activities that torment and annoy these invaluable creatures. The noise, electromagnetic fields, and drilling associated with offshore wind turbines and the site characterization activities that precede them, as well as the construction, operation, and decommissioning activities that are forthcoming must be treated as the serious and amplifying threats to the NARW, and other marine mammals, that they are—no different than entanglements or vessel strikes. NMFS should seize the opportunity to set a strong precedent for protecting NARWs and all whales by denying Ocean Wind I's ITR and associated LOA.

III. Conclusion

In sum, COA urges the NMFS to reject and deny the Applicant's request for an ITR and associated NOA for the construction of Ocean Wind 1. It is clear that the Applicant's activities would cause an unacceptable number of Level A and Level B harassments of extremely at-risk and endangered North Atlantic right whales, as well as Humpback, Fin, Minke, and Sei whales, and other marine mammal species, including Common bottlenose dolphins and seals.

The activities in question are reasonably likely or expected to adversely affect NARWs—both individuals and the stock as a whole—through effects on the species' annual rates of recruitment and survival; this impact cannot reasonably be merely minimal or negligible. Additionally, COA asserts that the activities covered by the application are reasonably likely to result in Level A harms to NARWs that are not covered by the authorization's terms, thus rendering approval of the application and an issuance of an NOA an *inappropriate* course of action for NMFS. It is imperative that NMFS engage in all means possible to avoid harm to all the uniquely significant species protected by the MMPA, especially the NARW, and protect their precious ecosystems. Moreover, the application does not include a critically important NMFS agency opinion which provides additional reasons to be concerned about the impacts from offshore wind facilities.

In addition, the cumulative IHAs and ITR and NOA applications for offshore wind projects in the same region, as well as for other uses, must be considered when reviewing each application for "takes." The total takes for all species affected must be considered alongside takes that NMFS has authorized for other wind activities including for site characterization, assessment, and construction activities (and later, operation and decommissioning activities) that are simultaneously occurring in the region and migration areas.

For the foregoing reasons, COA asks that NMFS deny the request for an Incidental Take Regulation ("ITR") and associated Letter of Authorization ("LOA") from Ocean Wind, LLC. Should you have any questions or would like to further discuss the concerns that COA has identified above, please feel free to contact us.

Respectfully submitted,

Cindy Zipf Executive Director

Lau ZMartin

Kari Martin Advocacy Campaign Manager

Submitted via regulations.gov

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

Re: Comments on Proposed Incidental Take Regulations and 5-Year Letter of Authorization for Incidental Take of Marine Mammals in Offshore Wind Construction Activities Related to the Ocean Wind Energy Project in designated Lease Area OCS-A-0498 (NOAA-NMFS-2022-0109)

Dear Ms. Harrison,

On behalf of Conservation Law Foundation, Whale and Dolphin Conservation, NYC Plover Project, and our members and supporters, we respectfully submit these comments to the National Marine Fisheries Service (NMFS) on its proposed 5-year (2023-2028) Incidental Take Regulation (ITR) and associated 5-year Letter of Authorization (LOA) to Ocean Wind, LLC¹ ("Ocean Wind") for the incidental take of marine mammals resulting from offshore wind construction activities off the coast of New Jersey in a designated lease area on the Bureau of Ocean Energy Management's (BOEM) Lease Area Outer Continental Shelf (OCS)-A-0498.²

Our organizations support responsibly developed offshore wind to fight the climate crisis, and we have long advocated for policies and actions needed to bring it to scale in an environmentally protective manner. Responsible development of offshore wind energy: (1) avoids, minimizes, mitigates, and monitors adverse impacts on marine and coastal habitats and the wildlife that rely on them; (2) minimizes negative impacts on other ocean uses; (3) includes robust consultation with Native American tribes and communities; (4) meaningfully engages state and local governments and stakeholders from the outset; (5) includes comprehensive efforts to avoid negative impacts to environmental justice communities; and (6) uses the best available scientific and technological data to ensure science-based and stakeholder-informed decision making.

With those goals in mind, the right whale's seriously imperiled status demands immediate implementation of science-based measures to safeguard this species during all stages of the offshore wind development proposed by Ocean Wind. Our organization have provided detailed comments³ regarding the Proposed Rule in a letter submitted by the Natural Resources Defense Council today, that we hereby incorporate by reference. This letter provides comment specific to

¹ Ocean Wind, LCC is a subsidiary of Orsted Wind Power North America, LLC's (Orsted) and a joint venture partner of the Public Service Enterprise Group Renewable Generation, LLC (PSEG).

² See 87 Fed. Reg. 64,868 (Oct. 26, 2022) ("Proposed Rule").

³ See Joint comments submitted by NRDC, CLF, WDC to NMFS re Ocean Wind, LLC's Request for a Five-Year Incidental Take Regulation and Issuance of a Letter of Authorization for Incidental Take of Marine Mammals from Offshore Wind Construction Activities Related to the Ocean Wind Energy Project in the designated Lease Area OCS-A-0498 (NOAA-NMFS-2022-0109) (Dec. 10, 2022) (The joint comments submitted by NRDC, CLF, and WDC are incorporated by reference).

our concerns surroundings NMFS's issuance of a 5-year LOA with the relevant ITR.

As stated in previous comments to NMFS,⁴ we strongly urge NMFS to issue LOAs on an annual basis to incorporate the best available scientific and commercial information and to modify mitigation and monitoring measures as necessary in a timely fashion. This is particularly important given the ongoing shifting of habitat use of right whales.

I. <u>Status of North Atlantic right whales</u>

Despite 50 years of federal protections, the right whale has not recovered. Indeed, it is one of the most endangered large whales in the world.⁵ In 2020, the International Union for Conservation of Nature changed the species' status from "endangered" to "critically endangered," the last step before "extinct in the wild."⁶ This designation means that the right whale is considered at high risk for global extinction. NMFS has designated North Atlantic right whales as one of nine marine species whose extinction is almost certain in the immediate future if existing threats are not dramatically reduced.⁷

The right whale population has been in decline since 2010. Just over the last decade, the right whale population has declined by 30 percent—with about 340 right whales remaining.⁸ In an ongoing Unusual Mortality Event (UME) that began in June 2017, NMFS has documented 92 whales that are either dead, seriously injured, or in poor health.⁹

Even more alarming, scientists estimate that there are only about 70 reproductively viable females remaining.¹⁰ NMFS is on record stating that "Every single female North Atlantic right whale and calf are vital to this species' recovery."¹¹ Moreover, NMFS estimates the population needs *at least* 50 calves per year to allow for recovery.¹² Recent calving rates have been far

https://www.iucnredlist.org/species/41712/178589687.

downward-trend-continues-as-updated-population-numbers-released/.

⁴ See e.g., Joint comments submitted by CLF and WDC to NMFS re Mayflower Wind, LLC's Request for a Five-Year Incidental Take Regulation and Issuance of a Letter of Authorization for Incidental Take of Marine Mammals from Offshore Wind Construction Activities Related to the Mayflower Wind Project in the designated Lease Area OCS-A-0521, (Nov. 16, 2022).

⁵10 Things You Should Know About North Atlantic Right Whales, NOAA FISHERIES,

https://www.fisheries.noaa.gov/feature-story/10-things-you-should-know-about-north-atlantic-right-whales (last updated Dec. 10, 2021).

⁶ The IUCN Red List of Threatened Species 2020—Eubalaena glacialis, IUCN (2020),

⁷ Species in the Spotlight—North Atlantic Right Whale, NOAA FISHERIES,

https://www.fisheries.noaa.gov/species/north-atlantic-right-whale#spotlight (updated Dec. 8, 2022).

⁸ North Atlantic right whales' downward trend continues as updated population numbers released, NARWC (Oct.

^{24, 2022),} https://www.neaq.org/about-us/news-media/press-kit/press-releases/north-atlantic-right-whales-press-kit/press-releases/north-atlantic-right-whales-press-kit/press-releases/north-atlantic-right-whales-press-kit/press-releases/north-atlantic-right-whales-press-kit/press-releases/north-atlantic-right-whales-press-kit/press-kit/press-releases/north-atlantic-right-whales-press-kit/press-kit/press-releases/north-atlantic-right-whales-press-kit/press-kit/press-releases/north-atlantic-right-whales-press-kit/press-ki

⁹ 2017–2022 North Atlantic Right Whale Unusual Mortality Event, NOAA FISHERIES,

https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2022-north-atlantic-right-whale-unusual-mortality-event (last updated Dec. 8, 2022).

¹⁰ Reed et al., *Multi-event modeling of true reproductive states of individual female right whales provides new insights into their decline. Frontiers in Marine Science*, Front, Mar. Sci. (2022), https://doi.org/10.3389/fmars.2022.994481.

¹¹ North Atlantic Right Whale Calving Season 2022, NOAA FISHERIES,

https://www.fisheries.noaa.gov/national/endangered-species-conservation/north-atlantic-right-whale-calving-season-2022 (last updated Oct. 4, 2022).

below that number.¹³ And many of the calves that have been born have been killed or seriously injured.¹⁴ This population cannot sustain further anthropogenic mortalities, serious injuries, and morbidities of reproductive females or their calves.

Put simply, right whales cannot withstand further losses or additional stress if the species is to reverse its decline and eventually recover. Ocean Wind proposes to conduct wind farm construction activities that would likely impact marine mammals, including impact installation of monopiles for wind turbine generators foundations; impact installation of monopiles and pin piles for offshore substation foundations; unexploded ordnance detonation; construction of cofferdams at the sea-to-shore transitions, which includes vibratory installation and removal of sheet pile; site characterization surveys using a range of frequencies; fisheries monitoring; placement of scour protection; and cable trenching, laying, and burial; vessel use; and sound generated by impact installation of monopiles and pin piles, vibratory installation and removal of sheet piles for cofferdams, and detonations of site characterization surveys using equipment operating below 180 kHz that could potentially cause acoustic disturbance to marine mammals during construction of the Project.¹⁵ Ultimately, Ocean Wind submits to NMFS that it anticipates activities resulting in harassment to marine mammals occurring throughout all five years of the proposed rulemaking (2023-2028).¹⁶

Notably, the Ocean Wind Energy Project is sited in and/or near right whale habitat area used for the species' migratory corridor, calving, and feeding grounds.¹⁷ Ocean Wind has correctly identified that right whales are likely to occur within the project and export cable route areas.¹⁸ And as recently as December 8, 2022, the Woods Hole Oceanographic Institution's acoustic array detected the presence of right whales southeast of Atlantic City, NJ, which triggered a slow zone (as shown below) that is currently in effect over the project area until December 23, 2022.¹⁹

¹³ Id.

¹⁴ North Atlantic Right Whale Morbidity (Sublethally Injured or Ill) Cases; North Atlantic Right Whale Causes of Death for Confirmed Carcasses; North Atlantic Right Whales Initially Determined to be Seriously Injured (Last Seen Alive), NOAA FISHERIES, https://media.fisheries.noaa.gov/2022-

^{10/}North%20Atlantic%20Right%20Whales%20Morbidity%20%28Sublethally%20Injured_Ill%29%20Cases%20Ta bles.pdf (last accessed Dec. 8, 2022).

¹⁵ Ocean Wind LLC, Ocean Wind Offshore Wind Farm: Application for Marine Mammal Protection Act (MMPA) Rulemaking and Letter of Authorization, HRD, 14-15/156 (Feb. 2022), https://media.fisheries.noaa.gov/2022-03/OceanWind1OWF 2022 508APP OPR1.pdf ("Ocean Wind Application").

¹⁶ See 87 Fed. Reg. at 64870.

¹⁷ See Ocean Wind Construction and Operations Plan, Volume II at 216, 220/436 (The endangered fin whales and sei whales are also likely to occur within the project and export cable route areas.).

¹⁸ See Ocean Wind Application at 67/156.

¹⁹ NOAA Fisheries, *Extension of Right Whale Slow Zone SE of Atlantic City, NJ – Effective Through 12/23* (Dec. 9, 2022), https://content.govdelivery.com/accounts/USNOAAFISHERIES/bulletins/33c7a18.



(December 8, 2022 acoustic detections with "Slow Zones" shown in brown²⁰)

The Ocean Wind Energy Project's own ecological baseline studies found that right whales were found to occur in every season.²¹ The studies' sighting of a cow-calf pair, as well as feeding behavior, suggested that near shore waters off New Jersey serve as feeding and nursery habitat.²²

The project area is also located in a high-risk area for vessel strike mortality for right whales. A study assessing the risk of vessel strike mortality for right whales along the U.S. East Coast found that the highest risk areas are those primarily associated with places where there is both a high density of vessel traffic and high densities of right whales—the highest risk areas found included in the mid-Atlantic between Cape Hatteras, North Carolina and New York and in relatively shallow waters over the continental shelf.²³ As mentioned above, vessel use is one of the construction related activities that has the potential to harass marine mammals.²⁴ Ocean Wind's Application anticipates *thousands* of trips to, from, and within the Lease area cross the five years of authorization, involving vessels of various types and sizes.²⁵ As discussed in our previous comments submitted to NMFS,²⁶ vessel strikes are one of two leading threats to right whales, inhibiting the species' recovery and threatening its continued existence. While all large

 ²⁰ WhaleMap: Latest Right Whale Observations, WHALEMAP, https://whalemap.org/ (last accessed Dec. 9, 2022).
 ²¹ See Ocean Wind Application at 67/156.

²² See Id.

²³ Garrison et al., Assessing the risk of vessel strike mortality in North Atlantic right whales along the U.S. East Coast, U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SEFSC-757, 13 (2022).

²⁴ See Ocean Wind Application at 14/156 ("Vessels will be used to transport crew, supplies, and materials to the Project area and to support pile installation").

²⁵ See Ocean Wind Application at 22-23/156.

²⁶ See Conservation Law Foundation's comments submitted to NMFS via regulations.gov re *Comments on the Proposed Amendments to the North Atlantic Whale Vessel Strike Reduction Rule* (NOAA-NMFS-2022-0022) (Oct. 31, 2022).

whale species are susceptible to collisions with vessels, right whales are more vulnerable to such events than other large whale species²⁷ because they spend 67 to 98 percent of their time in the upper 10 meters of the water column throughout much of their range. ²⁸ This is particularly true while migrating through the mid-Atlantic where right whales are exposed to the highest densities of vessel traffic.²⁹

As such, the seriously imperiled status of the right whale demands stringent mitigation measures, assessed and implemented annually, to safeguard this species during site assessment, construction, operations, and decommissioning of any offshore wind energy project,³⁰ including a 10-knot vessel speed restriction on all project vessels.

II. <u>NMFS should issue annual Letters of Authorization consistent with the best scientific and commercially available information</u>

The perilous status of the right whale population necessitates conservation efforts that will ensure the survival and recovery of the species as required by the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA). Yet, Ocean Wind has requested that NMFS not only issue a 5-year ITR but also simultaneously issue a 5-year LOA³¹ that would begin on in 2023 and be completed in 2028.³² NMFS's authorization of a 5-year LOA, however, would require the agency to make a speculative determination regarding the future health of right whales. Given the right whale's rapidly changing (and ever worsening) status, NMFS cannot presently make an accurate determination based on the best available science as to whether activities beginning in 2023 and ending in 2028 will have a negligible impact on small numbers of right whales consistent with the MMPA.

Thus, when NMFS issues a final ITR consistent with U.S.C. § 1371(a)(5)(A) for Ocean Wind, it should issue a one-year LOA for 2023 and subsequent LOAs annually, rather than a concurrent 5-year LOA. This would allow the agency to incorporate the best scientific and commercial information available, including but not limited to updated stock assessments.³³ Similar to NMFS's MMPA authorizations in other contexts, annual LOAs for the incidental take of marine mammals during the described activities and for the specified timeframe, would prescribe permissible methods of take that have the least adverse impact on marine mammal species or stocks and their habitat, and contain monitoring and reporting requirements associated with such taking.³⁴ As NMFS does not take public comment on the issuance of annual LOAs, there is no permitting efficiency lost.

²⁷ Vanderlaan and Taggart, *Vessel Collisions with Whales: The Probability of Lethal Injury Based on Vessel Speed.* Marine Mammal Science 23(1):144-156 (2007).

²⁸ Garrison et al. (2022) at 15.

²⁹ *Id.* at 13.

³⁰ Strong Mitigation Measures Are Essential to Protect the North Atlantic Right Whale during All Phases of Offshore Wind Energy Development (Dec. 2021, updated Aug. 2022) (attached as Appendix A).

³¹ See 87 Fed. Reg. at 65,869.

³² See Ocean Wind Application at 14/156.

³³ See e.g., 50 CFR Part 217 Subpart Q; Incidental Take Authorization: Hilcorp Alaska LLC Oil and Gas Activities in Cook Inlet Alaska, NOAA Fisheries (Jul. 30, 2019), https://www.fisheries.noaa.gov/action/incidental-takeauthorization-hilcorp-alaska-llc-oil-and-gas-activities-cook-inlet-alaska (NMFS's issuance of ITR and annual LOAs to Hilcorp Alaska LLC to take marine mammals incidental to oil and gas activities in Cook Inlet, Alaska.) ³⁴ *Id.*

The issuance of annual LOAs will allow NMFS to consider new information on an annual basis to determine whether mitigation or monitoring measures should be modified. The use of adaptive management will allow NMFS to consider annual stock assessments, results from monitoring, current science and best practices, and the right whales observed and recorded shifting habitat and declining population. Incorporating new information on an annual basis—an adaptive management approach—will also allow NMFS to consider any information which reveals that a marine mammal may have been taken in a manner, extent, or number not authorized by the issued regulations or subsequent LOAs. Such an approach is particularly necessary given that Ocean Wind anticipates activities resulting in harassment to marine mammals occurring *throughout* all five years of the proposed rulemaking (2023-2028).³⁵

Further, if issued on an annual basis, NMFS will have the flexibility to withdraw or suspend an LOA if taking(s) are found to have more than a negligible impact on the species or stock(s). A negligible impact finding is based on the lack of likely adverse effects on <u>annual</u> rates of recruitment or survival (*i.e.*, population-level effects), 50 CFR 216.103. The current potential biological removal (PBR)³⁶ for the right whale is 0.7, indicating that *any* mortality or serious injury is significant for recovery of the species.³⁷ For the last two decades, human-caused right whale mortalities have consistently exceeded the PBR. The gravity of the right whale's health and population status necessitates the implementation of flexible protections which could be enabled through the annual issuance of LOAs.

Marine mammal health and habitat will continue to be threatened by changes in the ocean environment brought on by climate change, underscoring the need to transition to clean energy and responsibly developed offshore wind. As NMFS finalizes the ITR for Ocean Wind, however, we strongly urge the agency to issue annual LOAs, rather than the proposed 5-year LOA so that the project proceeds in the manner most protective of the critically endangered right whale.

Sincerely,

Erica Fuller Chloe Fross Conservation Law Foundation Regina Asmutis-Silvia Whale and Dolphin Conservation

Chris Allieri NYC Plover Project

³⁵ See 87 Fed. Reg. at 64870.

³⁶ PBR "means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population [(OSP)]." 16 U.S.C. § 1362(20). OSP "means, with respect to any population stock, the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element." *Id.* § 1362(9).

³⁷ Meaning that not even a single individual can be lost to human activities each year if the species is to avoid extinction. *See, e.g.*, Sean A. Hayes et al., *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments–2021*, NMFS, 23 (May 2022), https://media.fisheries.noaa.gov/2022-

^{08/}U.S.%20Atlantic%20and%20Gulf%20of%20Mexico%202021%20Stock%20Assessment%20Report.pdf.

APPENDIX A

Strong Mitigation Measures Are Essential to Protect Large Whales and Sea Turtles During All Phases of Offshore Wind Energy Development

Table of Contents

Introduction1
Section 1. Mitigation recommendations during site assessment and characterization4
Section 2: Mitigation recommendations for pile-driven foundations
Section 3: Mitigation recommendations for gravity-based and suction bucket foundations 11

Introduction

As we establish America's important new offshore wind energy industry to transition us away from harmful fossil fuels, we must follow the principles of the mitigation hierarchy and avoid, minimize, and mitigate any impacts to threatened and endangered marine species.¹ The seriously imperiled North Atlantic right whale – only 336 individuals were estimated remaining in 2020² – is in dire straits from vessel strikes, entanglement in fishing gear, underwater noise pollution, and climate change, and cannot withstand further losses or any additional stress.³ Several other endangered and vulnerable large whale species inhabit the waters off the U.S. East Coast, including blue whales, fin whales, humpback whales, minke whales, and are under increasing pressure human activities and climate change.⁴ All six species of sea turtles found in U.S. waters are protected under the Endangered Species Act and face a wide range of threats including bycatch in fishing gear, vessel strikes, direct harvest of turtles and eggs, loss and degradation of nesting and foraging habitat, ocean pollution and marine debris, and climate change.⁵ To protect the future of marine wildlife, we must avoid additional threat to these species from offshore wind, and implement stringent measures to safeguard them during this industry's site assessment, construction, operations, and decommissioning.

Risks from vessel collision and direct and indirect noise impacts on large whales and sea turtles, including potential habitat displacement that may exacerbate existing threats, need to be fully addressed from the start. Strong protections are required to fulfill federal legal requirements for

¹ See, e.g., CSBI (2015). "A cross-sector guide for implementing the mitigation hierarchy." Prepared by the Biodiversity Consultancy on behalf of IPIECA, ICMM and the Equator Principles Association: Cambridge UK. http://www.csbi.org.uk/wpcontent/uploads/2017/10/CSBI-Mitigation-Hierarchy-Guide.pdf.

² New England Aquarium, "Population of North Atlantic right whales continues its downward trajectory." Press release (Oct. 25, 2021). https://www.neaq.org/about-us/news-media/press-kit/press-releases/population-of-north-atlantic-right-whalescontinues-its-downward-trajectory/.

³ NOAA Fisheries, "2017-2022 North Atlantic Right Whale Unusual Mortality Event." https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2022-north-atlantic-right-whale-unusual-mortality-event.

⁴ See, e.g., NOAA Fisheries, "2016-2022 Humpback Whale Unusual Mortality Event Along the Atlantic Coast." https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2022-humpback-whale-unusual-mortality-event-alongatlantic-coast; NOAA Fisheries, "2017-2022 Minke Whale Unusual Mortality Event along the Atlantic Coast." https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2022-minke-whale-unusual-mortality-event-alongatlantic-coast.

⁵ NOAA Fisheries, "Sea Turtles – Overview." https://www.fisheries.noaa.gov/sea-turtles.

protecting large whales and sea turtles⁶ and will ensure we can achieve the administration's commitment to deploy 30 GW of offshore wind energy by 2030 while protecting biodiversity, cultural resources, and ocean uses.⁷

Several science-based solutions and new technologies are now available to avoid or minimize the potential noise and vessel impacts stemming from offshore wind energy development:

- Noise: Quieter foundation technologies such as gravity-based or suction bucket (or "caisson") foundations eliminate the need for pile driving and thus one of the most impactful offshore wind activities on whales and other marine life. We urge the use of quieter foundations during offshore wind energy project installation and stress the importance of providing full consideration to selecting these options as the preferred alternative. If pile driving must occur, effective noise reduction and attenuation technologies are commercially available⁸ and near real-time monitoring technologies that can be used to trigger mitigation measures are being tested or are already being used by other sectors.⁹ Pending further study, we also recommend the use of direct drive turbines as opposed to turbines with a gear box, as direct drive turbines may emit lower noise levels¹⁰ and reduce the risk of behavioral disturbance or habitat displacement of North Atlantic right whales and other species during the operation phase of development.¹¹
- Vessels: Science is unequivocal on the value of vessel speed restrictions in reducing mortalities
 of right whales, other large whale species, and sea turtles from vessel collisions.¹² Service
 operating vessels that host construction workers and technicians for multiple days at sea reduce
 the pressure on limited transit times between the port and the lease area and can help
 developers meet speed requirements.

⁶ All marine mammals are protected under the Marine Mammal Protection Act and strong protections for other endangered and at-risk marine mammal species, including those currently experiencing Unusual Mortality Events (including humpback whales and minke whales), as well as species highly sensitive to noise (*e.g.*, harbor porpoise), are also essential.

⁷ The White House, "Briefing Room FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs." https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administrationjumpstarts-offshore-wind-energy-projects-to-create-jobs/.

⁸ See, e.g., "AdBm Noise Mitigation System." AdBm Technologies. https://adbmtech.com/

⁹ See, e.g., Coutinho, R.W. and Boukerche, A. (2021). "North Atlantic Right Whales Preservation: A New Challenge for Internet of Underwater Things and Smart Ocean-Based Systems." *IEEE Instrumentation & Measurement Magazine*, 24(3), 61-67; Kowarski, K.A., Gaudet, B.J., Cole, A.J., Maxner, E.E., Turner, S.P., Martin, S.B., Johnson, H.D. and Moloney, J.E. (2020). "Near real-time marine mammal monitoring from gliders: Practical challenges, system development, and management implications." *The Journal of the Acoustical Society of America*, 148(3), 1215-1230; Johnson, H., Morrison, D. and Taggart, C. (2021). "WhaleMap: a tool to collate and display whale survey results in near real-time." *Journal of Open Source Software*, 6(62), 3094; Vickers, W., Milner, B., Risch, D., & Lee, R. (2021). "Robust North Atlantic right whale detection using deep learning models for denoising." *Journal of the Acoustical Society of America*, 149, 3797.

¹⁰ Stöber, U. and Thomsen, F. (2021). "How could operation sound from future offshore wind turbines impacts marine life?" *The Journal of the Acoustical Society of America*, 149, 1791.

¹¹ While gravity-based and suction bucket foundations avoid the impacts of pile driving noise, their installation is not necessarily noise free, and the potential use of dynamic positioning systems and other noise related to installation vessels may still lead to some level of behavioral disturbance. As gravity-based and suction bucket foundations are new technologies in the U.S., it will be important to monitor the levels of noise emitted during installation at the source and model the level of potential noise exposure to large whales and other marine mammals, to inform the most appropriate mitigation approaches for future offshore wind energy projects for which these foundation types are used.

¹² A reduction in vessel speed has been successful in reducing collision risk and is the preferred measure to implement when vessels cannot be re-routed. Schoeman, R.P., Patterson-Abrolat, C. and Plön, S. (2020). "A global review of vessel collisions with marine animals." *Frontiers in Marine Science*, 7, 292.

The mitigation measures presented in this document are based on best available scientific information and are needed to ensure offshore wind advances responsibly. These fundamental requirements are necessary to protect the critically endangered North Atlantic right whale from potential impacts posed by offshore wind energy development. Measures that offer co-benefits to other large whale species and sea turtles are also noted. These recommendations may change as new scientific and/or technological advancements occur, and additional recommendations may be developed for these and other marine species. The measures are designed to first avoid, and then minimize and mitigate potential impacts during the site assessment and characterization, construction, and operation phases.¹³ Mitigation measures for the repowering and decommissioning phases of offshore wind energy development will be developed, as needed.

We present two sets of mitigation recommendations for the construction period: one set for pile-driven foundations that includes seasonal restrictions, a prohibition on pile driving at night, requirements for noise reduction technologies, and large monitoring zones (section 2), and a more limited set for quieter gravity-based and suction bucket foundations (section 3).

¹³ This document should be considered together with other ENGO recommendations on how to advance offshore wind energy development in a responsible manner, including the importance selecting sites that offer the least environmental impact.

Section 1. Mitigation recommendations during site assessment and characterization

- i. Prohibit site assessment and site characterization activities during times of highest risk (*North Atlantic right whales only*):
 - Site assessment and characterization activities involving high resolution geophysical survey equipment with noise levels that could injure or harass large whales (defined throughout this section as: source levels at frequencies between 7 and 35 kHz) should not occur during periods of highest risk to North Atlantic right whales. These periods are defined as times of highest relative density of animals during foraging and migration, and times when mothercalf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present. Time periods must be defined based on the best available scientific information.
 - 2. If a near real-time monitoring system and mitigation protocol for North Atlantic right whales and other large whale species is developed and scientifically validated, the system and protocol may be used to dynamically manage the timing of site assessment and characterization activities to ensure those activities are undertaken during times of lowest risk for all relevant large whale species. The development of such a protocol is particularly important where foraging aggregations of other large whale species are observed coincident with the times that pile driving would most likely be undertaken based on times of lower relative risk to North Atlantic right whales.
- ii. Require diel restrictions on site assessment and characterization activities:
 - Site assessment and characterization activities must not be initiated within 1.5 hours of civil sunset or in times of low visibility when the visual "clearance zone" and "exclusion zone" (as defined below) cannot be visually monitored, as determined by the lead Protected Species Observer (PSO)¹⁴ on duty.
- iii. Require the following clearance zone and exclusion zone distances prior to activities known to injure or harass large whales (*large whales only*):
 - A visual clearance zone and exclusion zone of at least 500 m for all large whale species and 1,000 m for North Atlantic right whales must be established around each vessel conducting activities with noise levels that could result in injury or harassment to large whales.
 - 2. An acoustic clearance zone and exclusion zone of at least 1,000 m must be established for North Atlantic right whales around each vessel conducting activities with noise levels that could result in injury or harassment to large whales.
 - 3. If a large whale is detected within the 1000 m clearance zone but the species cannot be identified, it must be assumed to be a North Atlantic right whale.
- iv. Require shutdown of activities if a large whale is detected visually or acoustically (*large whales only*):
 - If a North Atlantic right whale or other large whale species is visually or acoustically detected within the relevant clearance zone, site assessment and characterization activities with noise levels that could result in injury or harassment to large whales must not be initiated.

¹⁴ The term "PSO" refers to an individual with a current NOAA Fisheries approval letter as a Protected Species Observer.

- 2. If a North Atlantic right whale or other large whale species is visually detected within the visual exclusion zone, site assessment and characterization activities with noise levels that could result in injury or harassment to large whales must be halted.
- 3. If a North Atlantic right whale is acoustically detected within the acoustic exclusion zone, site assessment and characterization activities with noise levels that could result in injury or harassment to large whales must be halted.
- 4. Once halted, site assessment and characterization activities may resume following the methods set forth in subsection (v) and after the lead PSO confirms no North Atlantic right whales or other large whale species have been detected within the relevant acoustic and visual clearance zones.
- v. Require robust monitoring protocols during pre-clearance and when site assessment and characterization activities are underway:
 - Monitoring of the acoustic clearance zone must be undertaken using near real-time passive acoustic monitoring (PAM)¹⁵ and must be undertaken from a vessel other than the survey vessel, or from a stationary unit, to avoid the hydrophone being masked by the survey vessel or development-related noise.
 - 2. Monitoring of the visual clearance zone must be undertaken by vessel-based PSOs stationed on the survey vessel to enable monitoring of the entire clearance zones for North Atlantic right whales, other large whale species, and sea turtles. On each vessel, there must be a minimum of four PSOs following a two-on, two-off rotation, each responsible for scanning no more than 180° of the horizon. To effectively monitor the full exclusion zone for sea turtles, multiple PSOs must be stationed at several vantage points at the highest level to allow each to continuously scan a section of the exclusion zone.
 - 3. Acoustic and visual monitoring must be required for North Atlantic right whales, and monitoring must begin at least 30 minutes prior to the commencement or re-initiation of site assessment and characterization activity and must be conducted throughout the duration of activity.

vi. Require mandatory vessel speed restrictions:

- 1. All Project-associated vessels must adhere to a 10-knot speed restriction at all times except for reasons of safety, and in all places except in limited circumstances where the best available scientific information demonstrates that whales do not occur in the area.
- 2. Slowing to 4 knots must be required while transiting through areas of visible jellyfish aggregations or floating vegetation lines or mats to improve protection for sea turtles. The speed must be reduced from an upper limit of 10 knots.
- 3. Project proponents may develop, in consultation with National Oceanic and Atmospheric Administration (NOAA) Fisheries, an "Adaptive Plan" that modifies these vessel speed restrictions. However, the monitoring methods that inform the Adaptive Plan must be proven effective using vessels traveling 10 knots or less and following a scientific study design. If the resulting Adaptive Plan is scientifically proven¹⁶ to be equally or more effective than a 10-knot speed restriction, the Adaptive Plan could be used as an alternative to a 10-knot speed restriction.

¹⁵ Throughout this document "PAM" refers to a real-time passive acoustic monitoring system, with equipment bandwidth sufficient to detect the presence of vocalizing North Atlantic right whales and/or if available at the time of construction other similar high performance sound monitoring systems and arrays).

¹⁶ *I.e., via* a peer-reviewed scientific study.

vii. Implement other vessel-related measures:

- 1. All personnel working offshore must receive training on observing and identifying North Atlantic right whales, other large whale species, and sea turtles.
- 2. Vessels must maintain a separation distances of 500 m for North Atlantic right whales, and 100 m for other large whale species, maintain a vigilant watch for North Atlantic right whales and other large whale species, and slow down or maneuver their vessels as appropriate to avoid a potential interaction with a North Atlantic right whale or other large whale species.
- 3. All vessels responsible for crew transport should use thermal detection systems to supplement visual monitoring of marine mammals.

viii. Require underwater noise reduction to the fullest extent feasible:

- 1. The impacts of underwater noise to be minimized to the fullest extent feasible, including through the use of technically and commercially feasible and effective noise reduction and attenuation measures. For example, project proponents should select and operate subbottom profiling systems at power settings that achieve the lowest practicable source level for the objective.
- ix. Require mandatory reporting of all North Atlantic right whale, other large whale species, and sea turtle detections:
 - 1. Project proponents must report all visual observations and acoustic detections of North Atlantic right whales to NOAA Fisheries or the United States Coast Guard *as soon as possible and no later than the end of the PSO shift*. We note that, in some cases, such as with the use of near real-time autonomous buoy systems, the detections will be reported automatically on a pre-set cycle.
 - 2. Project proponents must immediately report an entangled or dead North Atlantic right whale, other large whale species, or sea turtle to NOAA Fisheries, the Marine Animal Response Team (1-800-900-3622) or the United States Coast Guard immediately via one of several available systems (e.g., phone, app, radio). Methods of reporting are expected to advance and streamline in the coming years, and projects should commit to supporting and participating in these efforts.
 - 3. Quarterly reports of PSO sightings data must be made publicly available to inform marine mammal and sea turtle science and protection.

Section 2: Mitigation recommendations for pile-driven foundations

- i. Prohibit pile driving during times of highest risk (North Atlantic right whales only):
 - Pile driving must not occur during periods of highest risk to North Atlantic right whales, defined as times of highest relative density of animals during foraging and migration, and times when mother-calf pairs, pregnant females, surface active groups (indicative of breeding or social behavior), or aggregations of three or more whales (indicative of feeding or social behavior) are, or are expected to be, present. Time periods must be defined based on the best available scientific information.
 - 2. If a near real-time monitoring system and mitigation protocol for North Atlantic right whales and other large whale species is developed and scientifically validated, the system and protocol may be used to dynamically manage the timing of pile driving and other construction activities to ensure those activities are undertaken during times of lowest risk for all relevant large whale species. The development of such a protocol is particularly important where foraging aggregations of other large whale species are observed coincident with the times that pile driving would most likely be undertaken based on times of lower relative risk to North Atlantic right whales.
- ii. Restrict pile driving activity at night and during periods of low visibility (all large whale species and sea turtles):
 - 1. Pile driving must not be initiated within 1.5 hours of civil sunset or in times of low visibility when the visual "clearance zone" and "exclusion zone" (as hereinafter defined) cannot be visually monitored, as determined by the lead PSO on duty.
 - 2. Pile driving may continue after dark only if the activity commenced during daylight hours and must proceed for human safety or installation feasibility reasons,¹⁷ and if required night-time monitoring protocols are followed (see subsection (v)).
- iii. Require underwater noise reduction levels based on best commercially available technology *(all large whale species)*:
 - A combination of near field¹⁸ and far field noise mitigation,¹⁹ and/or a combination system²⁰ expected to achieve at least 15dB (re: 1μPa²s) reduction of Sound Exposure Level (SEL)²¹

¹⁷ Throughout this document, "installation feasibility" refers to ensuring that the pile installation event results in a usable foundation for the wind turbine (i.e., foundation installed to the target penetration depth without refusal and with a horizontal foundation/tower interface flange). In the event that pile driving has already started and nightfall occurs, the lead engineer on duty will make a determination through the following evaluation: 1) Use the site-specific soil data on the pile location and the real-time hammer log information to judge whether a stoppage would risk causing piling refusal at re-start of piling; and 2) Check that the pile penetration is deep enough to secure pile stability in the interim situation, taking into account weather statistics for the relevant season and the current weather forecast. Such determinations by the lead engineer (or their alternate) on duty will be made for each pile location as the installation progresses and not for the site as a whole. This information will be included in the reporting for the project.

¹⁸ E.g., reduced blow resonant panel noise abatement system (e.g., AdBm Noise Mitigation System. https://adbmtech.com/), hydrosound damper (e.g., OffNoise-Solutions Hydro-Sound-Damper-System (HSD-System). https://www.offnoise-solutions.com/), isolation casing (Noise Mitigation Screen (NMS)), and dewatered cofferdam (see Koschinski, S. and Lüdemann. K. (2020). "Noise mitigation for the construction of increasingly large offshore wind turbines: Technical options for complying with noise limits." Report commissioned by the Federal Agency for Nature Conservation, Isle of Vilm, Germany. https://tethys.pnnl.gov/publications/noisemitigation-construction-increasingly-large-offshore-wind-turbines).

¹⁹ E.g., single bubble curtain.

²⁰ *E.g.*, double bubble curtain.

²¹ Sound Exposure Level (SEL) is defined following Bellmann et al. (2020) at 31-32. Bellmann M. A., Brinkmann J., May A., Wendt T., Gerlach S. & Remmers P. (2020) "Underwater noise during the impulse pile-driving procedure: Influencing factors on pile-

from pile driving operations, including pile strikes, compressors, and operations vessels engaged in construction, must be used.²² At minimum, a 10 dB (re: re: 1μ Pa²s) reduction of SEL must be attained.

- 2. Field measurements must be conducted on the first pile installed and data must be collected from a random sample of piles throughout the construction period. We do not support field testing using unmitigated piles.
- 3. Sound source validation reports of field measurements must be evaluated by both BOEM and NOAA Fisheries prior to additional piles being installed and be made publicly available.
- iv. Require the following clearance zone distances prior to pile driving and exclusion zone distances during pile driving (for a minimum of 10-12 dB noise reduction *(see subsection (iii));* North Atlantic right whales only):
 - 1. A visual clearance zone and exclusion zone must extend at minimum 5,000 m in all directions from the location of the driven pile.
 - 2. An acoustic clearance zone must extend at minimum 5,000 m in all directions from the location of the driven pile.
 - 3. An acoustic exclusion zone must extend at minimum 2,000 m in all directions from the location of the driven pile.
 - 4. Clearance and exclusion zone distances for other large whale species must be designed in a manner that eliminates Level A take and minimizes behavioral harassment to the full extent practicable.
- v. Require shutdown of activities if a large whale is detected visually or acoustically (for a minimum of 10-12 dB noise reduction (see subsection (iii)); North Atlantic right whales only):
 - Pile driving must not be initiated when monitoring methods defined in subsection (vi) result in either an acoustic detection within the acoustic clearance zone or a visual detection within the visual clearance zone of one or more North Atlantic right whales.
 - 2. Pile driving must not be initiated or, if already underway, must be shut down, unless continued pile driving activities are necessary for reasons of human safety or installation feasibility, when monitoring methods defined in subsection (vi) result in acoustic detection within the acoustic exclusion zone or a visual detection within the visual exclusion zone of one or more North Atlantic right whales.
 - 3. Pile driving must be shut down, unless continued pile driving activities are necessary for reasons of human safety or installation feasibility, if a North Atlantic right whale is visually detected by PSOs at any distance from the pile.
 - Once halted, pile driving may resume only after using the methods set forth in subsection (vi) and the lead PSO confirms no North Atlantic right whales or other large species have been detected within the relevant acoustic and visual clearance zones.

driving noise and technical possibilities to comply with noise mitigation values." Supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (BMU)), FKZ UM16 881500. Commissioned and managed by the Federal Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt und Hydrographie (BSH)), Order No. 10036866. Edited by the itap GmbH.

 $https://www.itap.de/media/experience_report_underwater_era-report.pdf.$

²² Taking, as a baseline, projections from prior noise measurements of unmitigated piles from Europe and North America. We note that combination systems using best available technology have achieved noise reduction levels 20 dB or more in the field. The goal should be to achieve the greatest noise reduction level possible, in line with the principles of the mitigation hierarchy. Greater noise reduction levels could also provide more flexibility for developers. See Bellmann et al. (2020) at Table 4 (p. 106). https://www.itap.de/media/experience_report_underwater_era-report.pdf.

- vi. Require robust near real-time monitoring protocols during pre-clearance and when pile driving activity is underway *(all large whale species)*:
 - Monitoring of the acoustic clearance and exclusion zone must be undertaken using near real-time PAM, assuming a detection range of at least 10,000 m, and must be undertaken from a vessel other than the pile driving vessel, or from a stationary unit, to avoid the hydrophone being masked by the pile driving vessel or development-related noise.
 - 2. Monitoring of the visual clearance and exclusion zones must be undertaken by vessel based PSOs stationed at the pile driving site and on additional vessels circling the pile driving site, as needed. On each vessel, there must be a minimum of four PSOs following a two-on, two-off rotation, each responsible for scanning no more than 180° of the horizon per pile driving location. To effectively monitor the full exclusion zone for sea turtles, multiple PSOs must be stationed at several vantage points at the highest level to allow each to continuously scan a section of the exclusion zone. Additional vessels must survey the clearance and exclusion zones at speeds of 10 knots or less.
 - 3. Acoustic and visual monitoring must begin at least 60 minutes prior to the commencement or re-initiation of pile driving and must be conducted throughout the duration of pile driving activity. Visual monitoring must continue until 30 minutes after cessation of pile driving.
 - 4. Infrared technology must be used to support visual monitoring during any pile driving activities that extend into periods of darkness.
 - 5. Additional observers and monitoring technologies (e.g., infrared, drones, hydrophones) must be deployed, as needed, to ensure the ability to monitor the established clearance and exclusion zones, including during periods of darkness or poor visibility.

vii. Require mandatory vessel speed restrictions (all large whale species and sea turtles):

- 1. All Project-associated vessels must adhere to a 10-knot speed restriction at all times except in limited circumstances where the best available scientific information demonstrates that whales do not use the area.
- 2. Slowing to 4 knots must be required while transiting through areas of visible jellyfish aggregations or floating vegetation lines or mats to improve protection for sea turtles. The speed must be reduced from an upper limit of 10 knots.
- 3. Project proponents may develop, in consultation with NOAA Fisheries, an "Adaptive Plan" that modifies these vessel speed restrictions. However, the monitoring methods that inform the Adaptive Plan must be proven effective using vessels traveling 10 knots or less and following a scientific study design. If the resulting Adaptive Plan is scientifically proven²³ to be equally or more effective than a 10-knot speed restriction, the Adaptive Plan could be used as an alternative to a 10-knot speed restriction.

viii. Implement other vessel-related measures (all large whale species and sea turtles):

- 1. All personnel working offshore must receive training on observing and identifying North Atlantic right whales, other large whale species, and sea turtles.
- 2. Vessels must maintain a separation distance of 500 m for North Atlantic right whales and 100 m for other large whale species, maintain a vigilant watch for North Atlantic right whales and other large whale species, and slow down or maneuver their vessels as appropriate to avoid a potential interaction with a North Atlantic right whale or other large whale species.

²³ *I.e., via* a peer-reviewed scientific study.

- 3. All vessels responsible for crew transport (i.e., service operating vessels) should use automated thermal detection systems to assist monitoring efforts while vessels are in transit, maintaining a speed of 10 knots.
- ix. Require mandatory reporting of all North Atlantic right whale, other large whale species, and sea turtle detections:
 - 1. Project proponents must report all visual observations and acoustic detections of North Atlantic right whales to NOAA Fisheries or the United States Coast Guard *as soon as possible and no later than the end of the PSO shift*. We note that, in some cases, such as with the use of near real-time autonomous buoy systems, the detections will be reported automatically on a pre-set cycle.
 - 2. Projects must immediately report an entangled or dead North Atlantic right whale, other large whale species, or sea turtle to NOAA Fisheries, the Marine Animal Response Team (1-800-900-3622), or the United States Coast Guard immediately via one of several available systems (e.g., phone, app, radio). Methods of reporting are expected to advance and streamline in the coming years, and BOEM should require projects to commit to supporting and participating in these efforts.
 - 3. Quarterly reports of PSO sightings data must be made publicly available to inform marine mammal and sea turtle science and protection.

Section 3: Mitigation recommendations for gravity-based and suction bucket foundations

As stated above, quieter gravity-based and suction bucket foundations offer significant environmental benefits over pile driven foundations, require decreased noise mitigation and monitoring measures, and may enable flexibility in construction timing. The installation of quieter foundations may still pose some disruption to North Atlantic right whales, other large whale species, and sea turtles and the risk of vessel strike remains. We offer the following recommendations out of full precaution for these species, until we can monitor the installation process and better understand the potential risk.

i. Require clearance zone and exclusion zone distances that will eliminate Level A take and minimize behavioral harassment (*large whale species only*):

- 1. Clearance and exclusion zone distances for North Atlantic right whales and other large whale species must be designed to eliminate Level A take and minimize behavioral harassment to the full extent practicable during the installation of gravity-based or suction bucket foundations, considering noise levels expected to be generated during installation.
- ii. Require shutdown of activities if a large whale is detected visually or acoustically (*large whale species only*):
 - Installation of gravity-based and suction bucket foundations must not be initiated when the application of monitoring methods defined in subsection (iii) results in a detection of a North Atlantic right whale or other large whale species within the relevant clearance zone (as defined based on noise levels expected during installation; see subsection (i)).
 - Installation of gravity-based and suction bucket foundations must be halted, unless continued installation activities are necessary for reasons of human safety or installation feasibility, when the application of monitoring methods defined in subsection (iii) results in a detection of a North Atlantic right whale or other large whale species within the relevant exclusion zone (as defined based on noise levels expected during installation; see subsection (i)).
 - 3. Once halted, installation may resume after use of the methods set forth in subsection (iii) and the lead PSO confirms no North Atlantic right whales or other large species have been detected within the relevant clearance zones.

iii. Require robust near real-time monitoring protocols during clearance and installation:

- 1. Monitoring of the clearance and exclusion zones must be undertaken using near real-time PAM from a vessel other than the installation vessel, or from a stationary unit, to avoid the hydrophone being masked by installation-related noise.
- 2. Monitoring of the clearance and exclusion zone must be undertaken by vessel based PSOs stationed at the installation site. On each vessel, there must be a minimum of four PSOs following a two-on, two-off rotation, each responsible for scanning no more than 180° of the horizon per gravity-based or suction bucket foundation installation location. To effectively monitor the full exclusion zone for sea turtles, multiple PSOs must be stationed at several vantage points at the highest level to allow each to continuously scan a section of the exclusion zone.
- 3. Acoustic and visual monitoring must be required, and monitoring must begin at least 60 minutes prior to the commencement or installation activity and must be conducted
throughout the duration of installation. Visual monitoring must continue until 30 minutes after installation.

4. Additional observers and monitoring technologies (e.g., infrared, drones, hydrophones) must be deployed, as needed, to ensure the ability to monitor the established clearance and exclusion zones, including during periods of darkness or poor visibility.

iv. Require mandatory vessel speed restrictions:

- 1. All Project-associated vessels must adhere to a 10-knot speed restriction at all times except in limited circumstances where the best available scientific information demonstrates that whales do not occur in the area.
- 2. Slowing to 4 knots must be required while transiting through areas of visible jellyfish aggregations or floating vegetation lines or mats to improve protection for sea turtles. The speed must be reduced from an upper limit of 10 knots.
- 3. Project proponents may develop, in consultation with NOAA Fisheries, an "Adaptive Plan" that modifies these vessel speed restrictions. However, the monitoring methods that inform the Adaptive Plan must be proven effective using vessels traveling 10 knots or less and following a scientific study design. If the resulting Adaptive Plan is scientifically proven²⁴ to be equally or more effective than a 10-knot speed restriction, the Adaptive Plan could be used as an alternative to a 10-knot speed restriction.

v. Implement other vessel-related measures:

- 1. All personnel working offshore must receive training on observing and identifying North Atlantic right whales, other large whale species, and sea turtles.
- 2. Vessels must maintain a separation distances of at least 500 m for North Atlantic right whales and 100 m for other large whale species. They must maintain a vigilant watch for North Atlantic right whales and other large whale species, and slow down or maneuver their vessels as appropriate to avoid any potential interaction with them.
- 3. All vessels responsible for crew transport (i.e., service operating vessels) should use automated thermal detection systems to assist monitoring efforts while vessels are in transit, maintaining a speed of 10 knots.

vi. Require mandatory reporting of all North Atlantic right whale, other large whale, and sea turtle detections:

- 1. Project proponents must report all visual observations and acoustic detections of North Atlantic right whales to NOAA Fisheries or the United States Coast Guard *as soon as possible and no later than the end of the PSO shift*. We note that, in some cases, such as with the use of near real-time autonomous buoy systems, the detections will be reported automatically on a preset cycle.
- 2. Project proponents must immediately report an entangled or dead North Atlantic right whale, other large whale species, or sea turtle to NOAA Fisheries, the Marine Animal Response Team (1-800-900- 3622), or the United States Coast Guard immediately via one of several available systems (e.g., phone, app, radio). Methods of reporting are expected to advance and streamline in the coming years, and agencies should require projects to commit to supporting and participating in these efforts.
- 3. Quarterly reports of PSO sightings data must be made publicly available to inform marine mammal and sea turtle science and protection.

²⁴ *I.e., via* a peer-reviewed scientific study.



MARINE MAMMAL COMMISSION

6 December 2022

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

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Marine Fisheries Service's (NMFS) 26 October 2022 notice (87 Fed. Reg. 64868) and the letter of authorization (LOA) application submitted by Ocean Wind, LLC (Ocean Wind) seeking promulgation of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act (the MMPA). Taking of marine mammals would be incidental to construction of the Ocean Wind 1 wind energy facility and other associated activities. Ocean Wind's windfarm area is located approximately 24 km southeast of Atlantic City, New Jersey¹.

Background

Ocean Wind is proposing to conduct (1) impact pile driving to install up to 98 tapered 8/11m monopiles to support wind turbine generators (WTGs) and either three monopiles or 48 2.44-m pin piles (16 pin piles per jacket foundation) to support three offshore substations (OSSs), (2) vibratory pile driving and removal of up to seven temporary cofferdams to assist in the installation of the export cable route, (3) detonation of up to 10 unexploded ordnances or munitions and explosives of concern (UXOs), as needed, and (4) high-resolution geophysical (HRG) site characterization surveys of the inter-array cable and export cable construction areas. Ocean Wind would install the monopiles (and pin piles, if used) using an impact hammer on up to 116 days² in water depths of 15 to 36 m. Vibratory pile driving and removal would occur on up to 28 days in water depths up to 20 m, and UXO detonations would occur for no more than 10 days in water depths up to 40 m. In addition, Ocean Wind could use non-parametric sub-bottom profilers (including chirps, sparkers, and boomers), parametric sub-bottom profilers, multibeam echosounders, side-scan sonar, and acoustic positioning systems for up to 624 days during its HRG surveys in water depths up to 40 m. Mitigation measures would include time-area restrictions, sound attenuation system usage and minimum operating requirements, visual and passive acoustic monitoring to implement delay and shut-down procedures, sound field verification (SFV) with

¹ In the Bureau of Ocean Energy Management (BOEM) lease area OCS-A 0498.

² For the joint monopile-jacket pile foundation scenario, Ocean Wind would install one monopile per day for the WTGs (98 days) and three pin piles per day for the OSS jacket foundations (18 days). Ocean Wind's alternative scenario would include installing two monopiles per day for the WTGs (49 days) and one monopile per day for the OSSs (3 days), for a total of 52 days of impact pile driving.

mitigation and monitoring zone adjustments and sound attenuation system additions as needed, soft-start and ramp-up procedures, and various vessel strike avoidance measures.

Impact pile driving

The Commission reviewed Ocean Wind's application, JASCO Applied Sciences Inc.'s (JASCO) underwater acoustic and exposure modeling reports³, and NMFS's preamble to and the proposed rule. The Commission's review revealed numerous issues, and many of the same or similar issues were discussed in the Commission's <u>1 March 2021 letter</u> regarding the request by South Fork Wind, LLC (South Fork Wind) to install monopiles off Rhode Island.

Level A and B harassment zones for impact pile driving of 8/11-m monopiles⁴—JASCO used its pile driving source model (PDSM) and various sound propagation models (see JASCO's underwater acoustic and exposure modeling report in Ocean Wind's application) to estimate the ranges to effect for the monopiles. PDSM has not been validated by in-situ measurements, but the model has underperformed when compared to other models as part of a benchmark validation⁵ (Lippert et al. 2016). Lippert et al. (2016) indicated that JASCO's time-domain finite-difference (TDFD) PSDM model predicted lower sound exposure levels (SELs) in the far-field region than various finiteelement (FE) models, because the PDSM model did not reproduce the secondary decaying pulses characteristic of the other models, resulting in a faster decay of the pile vibration and lower SEL estimates (see Figures 3, 4, and 6)⁶. While the exact source level difference between the TDFD PDSM and FE models was not reported, Lippert et al. (2016) indicated that the SELs predicted by the TDFD PDSM were approximately 2.5 dB lower than the FE models at 750 m. The authors suggested that adjusting the bottom boundary parameters of the PDSM could create a closer match with the other models. JASCO has indicated that no such adjustment had been made, and thus the accuracy of the PDSM model for piles up to 8/11 m in diameter remains unknown. To help resolve this issue, the Commission recommended in its 1 March 2021 letter that JASCO add 3 dB to the SEL predictions from the PDSM, which would be consistent with the differences identified in Lippert et al. (2016).

In response, NMFS indicated that Lippert et al. (2016) stated that a drawback of the FE approach was that it simulates the energy loss due to friction in an indirect and rather nonphysical way. Therefore, adding 3 dB to the SEL predictions from JASCO's TDFD PDSM was not warranted (87 Fed. Reg. 810). It is the Commission's view that estimating energy loss due to frictional boundary conditions between the pile and the sediment in an indirect manner is more reflective of real-world scenarios than assuming a reflection coefficient just at the pile foot, as is the case for TDFD PDSM—particularly since the frictional boundary conditions were estimated using a standard equivalent damping approach following Zampolli et al. (2013) that was validated, along with other FE modeling aspects, based on in-situ measurements.

³ Appendix A in Ocean Wind's application is JASCO's underwater acoustic and exposure modeling report, and Appendix C is JASCO's underwater acoustic modeling of UXO detonations report.

⁴ These issues may apply to the 2.44-m pin piles as well.

⁵ For a 2-m pile in 10 m of water.

⁶ Lippert et al. (2016) indicated that PDSM could not be compared to the frequency-domain damping coefficients specified in the benchmark case in a straightforward manner and that this issue highlights an important difference between time-domain and frequency-domain methods.

To substantiate the Level B harassment zones estimated by JASCO, NMFS could have used the damped cylindrical spreading model (DCSM; Lippert et al. 2018) *and* the source levels provided by TDFD PDSM, as DCSM was developed using, and validated by, in-situ measurements and is simple to implement⁷. Level B harassment zones also can be scaled based on differences in source levels and known initial zones. If one were to use DCSM and assume a 3-dB difference in source levels, the model-estimated Level B harassment zone of approximately 3,490 m, and α =1.22 dB/km (based on medium sand, the modeled scenario of 30.9 m of water depth, and DCSiE), the modelestimated Level B harassment zone would increase by 38 percent⁸ resulting in a zone of more than 4,810 m. If, on the other hand, one were to assume a 3-dB difference in source levels and a worstcase scenario of 36 m of water depth⁹, the model-estimated Level B harassment zone would increase by 41 percent¹⁰ resulting in a zone of more than 4,920 m.

When comparing JASCO's model-estimated single-strike SELs (SEL_{ss}) at 750 m to those from the Institute of Technical and Applied Physics GmbH's (itap)¹¹ empirical model, JASCO's SEL_{ss} estimates were less than itap's (Appendix I in JASCO's underwater acoustic and exposure modeling report). Although JASCO's SEL_{ss} were based on median values (50th percentile) and itap's SEL_{ss} were based on 95th percentile values (Bellmann et al. 2020)¹², JASCO has indicated that the difference in those statistical metrics should equate to approximately 2 dB. However, JASCO's SEL_{ss} for monopiles across all hammer energies are on average 4 dB less than¹³ those from itap (see Table I-1 in Appendix I of JASCO's underwater acoustic and exposure modeling report). The resulting 2to 4-dB difference in SEL_{ss} for hammer energies of 3,000 kJ or less has implications regarding underestimated Level A harassment zones, particularly since 80 percent of the total estimated number of strikes would originate at energies of 3,000 kJ or less (Table 12 in the *Federal Register* notice).

In addition, in-situ measurements from other recent pile-driving activities suggest that the Level B harassment zones have been underestimated. JASCO estimated¹⁴ the Level B harassment zone for impact driving of 8/11-*m piles* to be 3,490 m, assuming a 10-dB sound attenuation reduction factor based on use of two sound attenuation devices and up to 4,000 kJ of hammer

⁸ A 31-percent increase is estimated when assuming a 2.5-dB difference in source levels.

⁷ The Bureau of Ocean Energy Management (BOEM) funded the development of the DCSM spreadsheet tool (DCSiE; Heaney et al. 2020) for wind energy development. The spreadsheet tool incorporates information related to bathymetry and substrate type, in addition to the measured sound level at a reference distance (typically no less than three times the water depth at the source). Although the DCSiE results cut off at 5 km, DCSM-fit equations can be easily extended beyond 5 km. Heaney et al. (2020) indicated that DCSM is valid up to $\alpha r < 20$ dB and, for the studies they investigated, that equated to 8.7 km from the source, after which 25logR should be used as a precautionary estimate.

 $^{^{9} \}alpha$ =1.05 dB/km.

¹⁰ A 34-percent increase is estimated when assuming a 2.5-dB difference in source levels.

 ¹¹ itap is a German agency accredited for measuring and forecasting sound levels produced during impact pile driving for installations, including wind farms (see Appendix I in JASCO's underwater acoustic and exposure modeling report).
¹² Bellmann n et al.'s (2020) SEL_{ss} data represent averaged empirical measurements from different locations and different conditions.

¹³ Based on SEL_{ss} comparisons at each hammer energy during each season (i.e., JASCO 500-kJ SEL_{ss} in winter compared to itap 500-kJ SEL_{ss} in winter). A 6-dB SEL_{ss} difference was observed for hammer energies less than or equal to 2,000 kJ.

¹⁴ Ocean Wind indicated in its application that water depths ranged from 15–36 m in the windfarm area, presumably the blue box in Figure 1-1 of the application. NMFS indicated that JASCO assumed medium sand substrate in a water depth of 30.9 m for its modeling of monopiles and a water depth of 26.4 m for pin piles.

energy (see Table 1-12 in Ocean Wind's application). In contrast, in-situ measurements¹⁵ for impact driving of a 7.8-*m pile* with a measured 9–12 dB sound attenuation reduction during use of a double big bubble curtain¹⁶ for a hammer operating at a maximum of 550 kJ estimated the Level B harassment zone to be 3,891 m¹⁷ (WaterProof 2020). It is unrealistic that an impact hammer with five times more energy intensity would result in a smaller harassment zone; rather, one would expect the Level B harassment zone to nearly double¹⁸. When Ocean Wind's environmental propagation characteristics are accounted for in DCSM, the Level B harassment zone would increase by 150 percent from 3,891 m to 9,710 m¹⁹.

Similar results of more than a 7-dB difference between source levels at 500 and 4,000 kJ hammer energies are evident in the itap data as well (Bellmann et al. 2020; see Table I-1 of Appendix I of JASCO's underwater acoustic and exposure modeling report). Further, JASCO has intimated that Dominion's 3,891-m Level B harassment zone was based on the maximum measured source level rather than the median source level, as was used in its modeling (87 Fed. Reg. 812). That may be the case, but the maximum measured source level is as close as one will get in the field to an acoustic range based on R_{max}^{20} —the metric upon which Level B harassment zones for mitigation and monitoring purposes were based.

Since JASCO appears to be conducting underwater acoustic and exposure modeling for nearly all windfarm installation projects in the Atlantic, if its model(s) is inaccurate, it would have repercussions across the entire industry and could cause unnecessary delays, require additional costs, and hinder wind energy operators from meeting their milestones and adhering to their tight schedules. Further, given the scarcity of available installation vessels and appropriately-sized hammers in the United States, delays for a single project could ripple through the industry. So as not to hamper wind energy installation progress, <u>the Commission recommends</u> that, until JASCO's model has been validated with in-situ measurements of impact installation of monopiles and pin

¹⁵ In water depths of approximately 25 m with medium sand substrate. The observed sound propagation was fit and supported by DCSM from Lippert et al. (2018; see Figure 3.4 in WaterProof Marine Consultancy & Services BV (WaterProof) 2020). Based on Heaney et al.'s (2020) assertion that DCSM is valid for a range up to $\alpha r < 20$ dB, WaterProof (2020) indicated that DCSM could be applied up to 13.6 km from the source based on its measurements and environmental parameters, including an $\alpha = 1.47$ dB/km.

¹⁶ Deployed 84 and 124 m from the pile.

¹⁷ Dominion Energy Virginia (Dominion) estimated the Level B harassment zone with a 10-dB sound attenuation reduction to be less than that measured in the field (85 Fed. Reg. 30940).

¹⁸ The underlying source level should be proportional to the ratio of energy intensity over circumference of the pile. Since the impact hammer for Ocean Wind could exert 7 times more energy than the hammer used for Dominion but over a 1.02 times larger circumference, the source level for Ocean Wind should be more than 7 times larger than was determined by Dominion resulting in a source level increase of more than 8 dB. (4,000 kJ/550 kJ)/(25.1 m/24.5 m)=7.1, with $10\log(7)=8.5$ dB. Based on DCSM, an 8.5-dB difference in source levels, the measured Level B harassment zone of more than 3,890 m at Dominion, and $\alpha=1.47$ dB/km for Dominion, the measured Level B harassment zone would increase by 96 percent resulting in a Level B harassment zone of approximately 7,640 m based on the increased hammer energies and pile size.

¹⁹ To further adjust the revised Level B harassment zone based on the environmental propagation conditions at Ocean Wind, one must again use DCSM with α =1.05 dB/km. The revised Level B harassment zone would increase by more than 26 percent, resulting in a final Level B harassment zone of approximately 9,710 m based on the hammer energies, source levels, and propagation conditions expected for Ocean Wind.

 $^{^{20}}$ R_{max} represents the maximum distance in any direction that the threshold was exceeded, which is similar to using the maximum measured source level to estimate the Level B harassment zone.

piles in the northwest Atlantic, NMFS require Ocean Wind and thus JASCO to re-estimate the various Level A and B harassment zones for the final rule using source levels that are at a minimum 3 dB greater than those currently used.

Ocean Wind would be required to conduct in-situ measurements of the first three monopiles²¹ to determine whether the in-situ Level A and B harassment zones are greater than the model-estimated zones and, if so, to add additional or modify the current sound attenuation measures and devices, increase the range(s) of the zones, and conduct additional measurements to ensure the model-estimated zones are not exceeded²² (see section 217.264(d)(3) in the proposed rule). It is unclear how Ocean Wind will meet these requirements if the model-estimated Level A or B harassment zones have been vastly underestimated for monopiles, with similar issues applying to impact installation of pin piles. It also is unclear which model-estimated zones (i.e., acoustic ranges, exposure ranges²³, or mitigation and monitoring zones²⁴) and which metric (flat R_{max}, flat R_{95%}) the in-situ measurements would be compared to and which zone (i.e., acoustic or exposure ranges²⁵) and metric would be calculated from the in-situ measurements. Specifically, exposure ranges are two to three times smaller than acoustic ranges for Level A harassment during installation of monopiles²⁶ (e.g., 1.58 vs. 4.31 km for LF cetaceans in summer and 2.33 vs. 6.69 km in winter; see Tables 1-11, 1-9, and 1-10 in Ocean Wind's application).

Further, it is unclear whether additional measurements would be required to be conducted beyond the first three piles, if subsequent piles need higher hammer energies or more strikes to be driven to depth or if a greater number of piles²⁷is driven on a given day than was previously measured. All such circumstances must be considered to ensure that the model-estimated Level A and B harassment zones are not exceeded. For these reasons, <u>the Commission recommends</u> that in the final rule NMFS (1) specify which model-estimated zones (i.e., acoustic ranges, exposure ranges, mitigation zones, monitoring zones) and which metrics (i.e., flat R_{max}, flat R_{95%}) should be compared to the in-situ Level A and B harassment zones, (2) specify which type of in-situ Level A harassment

²¹ And those thereafter that are not represented by the previous three locations (i.e., substrate composition, water depth).

²² If use of additional and modification of current sound attenuation measures still do not achieve ranges less than or equal to those modeled, assuming a 10-dB attenuation, and no other actions can further reduce sound levels, the clearance and shut-down zones would be expanded in consultation with NMFS. If harassment zones are expanded beyond an additional 1,500 m, additional PSOs would be deployed on additional platforms, with each observer responsible for maintaining watch in no more than 180° and of an area with a radius no greater than 1,500 m.

²³ Acoustic ranges represent the distance to a harassment threshold based on sound propagation through the environment (i.e., independent of any receiver); while exposure ranges represent the distance at which an animal can accumulate enough acoustic energy to exceed a harassment threshold based on how it moves through the environment (i.e., using animat movement modeling; 87 Fed. Reg. 64919).

²⁴ Level A harassment zones were based on exposure ranges and, depending on the species, inform the mitigation zones; while Level B harassment zones were based on acoustic ranges and inform the monitoring zones (see Tables 6 and 7 in Appendix B of Ocean Wind's application).

²⁵ Cumulative SELs (SEL_{cum}) can be measured in situ and weighted for acoustic ranges; while exposure ranges would need to be calculated based on an in-situ measured source level, environmental and animat modeling parameters, and the number of pile strikes that occurred.

²⁶ Exposure ranges are smaller than acoustic ranges for Level B harassment too, but to a much lesser degree (e.g., 3.49 vs. 3.78 km for low-frequency (LF) cetaceans in winter; see Tables 1-12 and 1-10 in Ocean Wind's application, respectively).

²⁷ i.e., two instead of one monopile, three instead of two pin piles, two instead of one pin pile, 5,000 strikes instead of 10,846 strikes for one monopile, etc.

zone (i.e., acoustic or exposure ranges) should be calculated, and (3) require that in-situ measurements be conducted for monopiles that are not represented by the previous three locations (i.e., substrate composition, water depth) *or* by the hammer energies and numbers of strikes needed or number of piles installed in a given day.

Level A and B harassment takes for impact pile driving—In addition to the underestimated harassment zones, some of JASCO's assumptions used to seed its exposure modeling were questionable or inappropriate. For example, JASCO used seven-day simulations²⁸ for its exposure modeling to inform its take estimates rather than single-day simulations adjusted by the respective density and multiplied by the number of days of each activity (30 days of the highest mean density month and 19 days of the second highest mean density month; see Table 17 in the *Federal Register* notice). Single-day simulations run 30 or 50 times per activity, species, and season are more consistent with other entities' methods for conducting exposure modeling and would reduce the variance and standard error in the predictions as compared to single seven-day²⁹ simulations.

JASCO indicated that its animat density was seeded at 0.5 animats/km² and is much greater than real-world densities. With the revised densities from Roberts et al. (2022), that is no longer the case for common bottlenose dolphins³⁰ during impact pile driving and UXO detonations. Underpopulating animats for exposure modeling can result in underestimation of rare events, particularly Level A harassment. JASCO similarly indicated that the probability of an event's occurrence is determined by the frequency with which it occurs in the simulation—the greater the number of random samples (i.e., animats) the better the approximation of the probability distribution function (Appendix J in JASCO's underwater acoustic and exposure modeling report).

NMFS also based the Level B harassment takes for WTG monopole installation on two piles being installed per day. If only one pile ultimately is installed per day, then the numbers of Level B harassment takes would be underestimated³¹. The number of proposed takes could be multiplied by two for simplicity, or recalculated based on 98 days of activities in the four highest mean density months. A similar issue could exist for impact installation of pin piles.

In general, an underestimation of takes is costly, both monetarily and time-wise, if the operator must shut down activities when the authorized number of takes is met and/or if any issued LOA must be revised. Other wind-energy operators have had to revise their incidental harassment authorization mid-authorization, and in some cases, twice when the authorized number of takes had been met (e.g., 86 Fed. Reg. 13695). Although delphinids have elicited authorization revisions, other species could as well. For example, 42 humpback whales were observed during Ocean Wind's HRG surveys from May 2021 to March 2022. NMFS proposed to authorize 19 harassment takes associated with impact installation of monopiles and one Level A harassment take for both OSS

²⁸ Seven-day simulations are more relevant for continuous activities such as seismic surveys. They are not relevant to 4 hours of impact pile driving for each monopole, with up to 8 hours per day.

²⁹ Seven-day simulations should not be retained because it is time consuming to rewrite the code for single-day simulations and additional Monte Carlo simulations. Rather they should be retained because they reflect the proposed activities more accurately.

³⁰ It also is the case for cofferdam vibratory installation and HRG surveys but exposure modeling was not used for those activities.

³¹ NMFS acknowledged in the preamble to the proposed rule that only one monopile may be installed on some days (87 Fed. Reg. 64871).

installation scenarios (Tables 20 and 21, respectively, in the *Federal Register* notice). The Commission is not convinced that the number of humpback whale takes for impact installation of monopiles is sufficient given the size of the harassment zones, the number of days of potential activities, and the known presence of the whales in the area. Further, Level A harassment takes associated with OSS impact installation are less than group size.

For these reasons, <u>the Commission recommends</u> that NMFS (1) require Ocean Wind to revise its take estimates for impact installation of monopiles and pin piles based on an animat density that is greater than any species-specific, real-world density and the possibility that only a single monopile is installed per day rather than two per day and (2) increase Level A harassment takes of humpback whales to mean group size for OSS impact installation in the final rule. Similarly for cofferdam vibratory installation, <u>the Commission recommends</u> that NMFS increase the Level B harassment takes to mean group size for common dolphins and Atlantic white-sided dolphins in the final rule. Additionally, <u>the Commission recommends</u> that NMFS determine whether Department of the Navy's (2017) group size estimates are more appropriate or reflective of expected group size estimates for Ocean Wind than those used in the proposed rule and if so, amend the numbers of takes accordingly in the final rule for all activities that would be conducted. Moreover, JASCO should strongly consider revising its exposure modeling to include single-day simulations for stationary, discrete sound sources and numerous Monte Carlo simulations (e.g., at least 30) for modeling reports that inform any future proposed rule.

Coastal migratory bottlenose dolphin takes for impact pile driving—In addition to animat underpopulation issues associated with JASCO's modeling, Ocean Wind did not request and NMFS did not propose to authorize takes of coastal migratory³² bottlenose dolphins during impact pile driving of monopiles or pin piles. JASCO indicated that portions of the wind farm area were seeded with animats representing the coastal migratory stock of bottlenose dolphins (see in Figure J-8 in Appendix J of JASCO's underwater acoustic and exposure modeling report). However, when JASCO accounted for the revised densities from Roberts et al. (2022), it indicated that it re-ran the animat movement modeling and seeded coastal migratory bottlenose dolphins only in waters less than 20 m depth and offshore³³ bottlenose dolphins only in waters greater than 20 m depth (see the Addendum to Ocean Wind's application). Although coastal migratory and offshore stocks of bottlenose dolphins were delineated using the 20-m isobath (87 Fed. Reg. 64913) and JASCO modeled impact installation of monopiles in 30.9 m of water and pin piles in 26.4 m, the water depths range from 15–36 m in the wind farm area (87 Fed. Reg. 64872). The revised coastal migratory bottlenose dolphin densities also were four to five times greater³⁴ than the offshore bottlenose dolphin densities (see Table 8 in the Federal Register notice). As such, it is curious that zero takes of the coastal migratory stock of bottlenose dolphins were estimated to occur during impact installation of monopiles and pin piles and, for example, 936 Level B harassment takes of offshore bottlenose dolphins were estimated to occur (see Tables 18 and 19 in the Federal Register notice).

NMFS did specify in the preamble to the proposed rule that the coastal migratory and offshore stocks of bottlenose dolphins were adjusted based on the 20-m isobath cutoff, such that take predicted to occur in any area less than 20 m in depth was apportioned to the coastal stock only

³² Formally the western North Atlantic northern migratory coastal stock.

³³ Formally the western North Atlantic offshore stock.

³⁴ Which accounted for scaling based on relative abundance of the two stocks as well.

and take predicted to occur in waters of greater than 20 m depth was apportioned to the offshore stock (87 Fed. Reg. 64913). But, the agency also specified that the densities were adjusted based on relative abundance (see Table 8 in the *Federal Register* notice). Regardless, if either type of pile would be installed in 20 m or less of water or if any Level B harassment zone would extend into 20 m or less of water, then the agency should have proposed to authorize takes of coastal migratory bottlenose dolphins³⁵. Therefore, <u>the Commission recommends</u> that NMFS include in the final rule Level B harassment takes of coastal migratory bottlenose dolphins during impact installation of monopiles and pin piles, if any pile will be installed in 20 m of water or less or if any Level B harassment zone extends into 20 m or less of water.

Mitigation and monitoring measures for impact pile driving—NMFS reduced the model-estimated number of Level A harassment takes of North Atlantic right whales during impact installation of monopiles based on the mitigation measures that Ocean Wind would be required to implement, including monitoring various mitigation zones and initiating a shut down if a right whale is detected at any distance using a combination of visual monitoring from the construction vessel, a secondary monitoring vessel stationed at 2 km in summer or 2.5 km in winter, and real-time passive acoustic monitoring (PAM; 87 Fed. Reg. 64928). If the intent is to minimize impacts on North Atlantic right whales as specified in the *Federal Register* notice (87 Fed. Reg. 64992), attempting to monitor a minimum assumed 3.5-km zone in the summer and 3.8-km zone in winter could prove difficult, and more so if the zones have been underestimated.

A single vessel stationed at 2 km would not be sufficient for monitoring the farther extents of the zones³⁶—that is, the distance to the farthest extent of the Level A harassment zone would be 3.65 and 5 km based on the Level B harassment zone. Less than half of the Level B harassment zone could be monitored in summer, with even less of it in winter. NMFS clarified in the preamble to the proposed rule that if, after SFV, harassment zones are expanded beyond an additional 1,500 m, additional PSOs would be deployed on additional platforms, with each observer responsible for maintaining watch in no more than 180° and of an area with a radius no greater than 1,500 m (87 Fed. Reg. 64982). Although no such requirement was included in the proposed rule, NMFS seems to acknowledge the limitations of visual monitoring. Recently Oedekoven and Thomas (2022) estimated effectiveness of marine mammal observers (MMOs) to be 54 percent for detecting rorquals at 914 m or more, 31 percent for small cetaceans in pods of more than six, and 14 percent for small cetaceans in pods of six or fewer. The presumption that mitigation can be effective with visual observations alone is unsubstantiated.

To supplement visual monitoring, NMFS indicated that Ocean Wind plans to implement PAM arrays outside of the shut-down zone(s) to monitor animals entering the zone(s) (87 Fed. Reg. 64981) and proposed to require the PAM operator to implement a shut down if an animal occurred within 1,650 m of the pile driving platform in summer (2,500 m in winter; Table 37 in the *Federal Register* notice). However, Ocean Wind did not provide a PAM plan, it merely provided examples of PAM devices and capabilities in Appendix B of its application. Not requiring Ocean Wind to have a fleshed-out PAM monitoring plan runs counter to NMFS being able to assess whether the company would be able to implement the mitigation measures successfully and would be effecting the least

³⁵ The total number of bottlenose dolphin takes that were all attributed to the offshore stock could be reapportioned to include takes of coastal migratory dolphins without having to remodel.

³⁶ Since NMFS assumes that the zones are radii of circles.

practicable adverse impact on the species. Rather, NMFS proposed to require that Ocean Wind provide the PAM plan at least 180 days prior to installation of the first pile (section 217.265(c)(1)(vii) of the proposed rule). In addition, failing to require a PAM plan compromises the transparency of the public review process.

Since neither Ocean Wind nor NMFS provided information on the minimum number, type (e.g., moored, drifting, or towed), location, bandwidth/sampling rate, estimated acoustic detection range, or sensitivity of the hydrophones or the detection software (e.g., PAMGUARD) that would be used, it is impossible to determine whether Ocean Wind would be able to monitor effectively in real time the currently-estimated 3.5- and 3.8-km Level B harassment zones. This information is necessary to ensure that Ocean Wind can detect, classify, and localize North Atlantic right whales, as intended. NMFS also did not appear to consider how the direct strike pulses and reverberation from impact pile driving could inhibit detection of marine mammal vocalizations, primarily those of right whales. The Commission recommends that NMFS require Ocean Wind to submit a PAM plan and allow for public comment prior to issuing any final rule. The PAM plan should include the number, type(s) (e.g., moored, towed, drifting, autonomous), deployment location(s), bandwidth/sampling rate, sensitivity of the hydrophones, estimated detection range(s) for ambient conditions and during pile driving, and the detection software to be used. Further, Ocean Wind and other wind energy applicants should consider whether vector sensors should be used in addition to hydrophones to enhance detections, particularly those vocalizations that may be drowned out by the hammer strikes and resulting reverberation.

Similar to the PAM plan, Ocean Wind did not provide and NMFS did not require an SFV plan to be submitted for impact pile driving before publishing the proposed rule. Ocean Wind will just have to provide the SFV plan to NMFS and BOEM at least 180 days prior to installation of the first pile (section 217.264(d)(3)(vi) of the proposed rule). In previous authorizations, the SFV requirements have been incomplete or incorrect. In this case, section 217.264(d)(3) of the proposed rule omitted the requirement to determine root-mean-square sound pressure level (SPL_{rms}) source levels and specified TTS thresholds instead of behavior thresholds for determining ranges to Level B harassment thresholds. Section 217.265(d)(11)(i)³⁷ of the proposed rule also omitted the requirement to specify the cumulative SEL, ranges to the Level A and B harassment zones, and type(s) and location(s) of the sound attenuation systems in the interim SFV reports. The Commission could not determine whether NMFS specified a minimum number of hydrophones that Ocean Wind would be required to deploy for SFV. The Commission recommends that NMFS address the aforementioned issues and include the noted omissions in sections 217.264 and 217.265 of the final rule and require in the final rule that Ocean Wind deploy a minimum of three hydrophones for SFV during impact pile driving.

UXO detonations

Behavior thresholds for explosives—With respect to detonations, NMFS has again assumed that temporary threshold shift (TTS) and startle responses, not behavioral responses³⁸, are the most likely

³⁷ This section also apparently applies to UXO detonations.

³⁸ NMFS incorrectly specified that UXO detonations are impulsive sources and that the 160-dB re 1 µPa threshold applied in cases of behavior takes (87 Fed. Reg. 64908). UXO detonations are explosive sources, and the behavior threshold for underwater detonations is 5 dB less than the TTS thresholds for each functional hearing group.

impact to result from the proposed underwater detonations (87 Fed. Reg. 64901). The Commission has disagreed for many years with NMFS's stance that single detonations do not have the potential to cause a behavioral response (see the Commission's <u>6 September 2022 letter</u> detailing this issue). Although animals may not have been observed to exhibit significant behavioral reactions to temporally- and spatially-isolated detonations in the past, sufficient monitoring also has not occurred to verify that behavioral responses have not occurred. Evidence also has yet to be provided supporting that an animal exhibiting a significant behavioral response to two 5-lb charges detonated within a few minutes of each other would not exhibit a similar response to a single detonation of 100 lbs., let alone detonations of up to 1,000 lbs.

Changing behavior state, ceasing a vital function (e.g., feeding, resting, nursing), and/or avoiding the area are behavioral responses that are likely to occur, particularly when a 1,000-lb UXO detonates near a marine mammal. In fact, NMFS indicated in the preamble to the proposed rule that (1) behavioral avoidance alters energetic expenditures, as energy is required to move away from a sound source and (2) marine mammals disturbed by anthropogenic sound are commonly reported to shift from resting to active behavioral states, implying an energy cost (87 Fed. Reg. 64901). NMFS also specified that lower-level physiological stress responses (e.g., change in orientation, startle response, change in respiration, change in heart rate) are likely to co-occur with behavioral modifications (87 Fed. Reg. 64986). Continuing to deny that a single explosive event, including that of a 1,000-lb UXO, has the potential to cause behavior takes of marine mammals underwater is illogical, unsubstantiated, and reflective of an entrenched position rather than best available science. This is especially nonsensical since NMFS routinely authorizes behavior takes of marine mammals associated with exposure to *single* in-air explosive events (e.g., 84 Fed. Reg. 28462). <u>The Commission again recommends</u> that NMFS estimate and authorize behavior takes of marine mammals, in addition to Level B harassment TTS takes, for UXO detonations in the final rule.

Efficacy of sound attenuation systems for UXO detonations—Ocean Wind plans to use a sound attenuation system³⁹ during all UXO detonations and presumed, along with NMFS, that it would achieve at least a 10-dB sound reduction (87 Fed. Reg. 64938). NMFS also indicated that the potential for mortality and non-auditory injury during UXO detonations is *de minimis* (87 Fed. Reg. 64939). Mortality and non-auditory injury may be unlikely, but they are not *de minimis*. Furthermore, the potential for any of the various types of taking relies heavily on the assumed 10-dB sound reduction.

That assumption was based upon Bellmann et al. (2020) and Bellmann (2021)⁴⁰. Bellmann et al. (2020) mentioned UXO detonations only once—

Big Bubble Curtains [BBCs] were already successfully applied in Europe during detonations of ammunition dumpsites (UXO clearance) in up to 70 m water depth in the North- and Baltic Sea. However, in most cases, no underwater noise measurements were carried out to evaluate the applied Big Bubble Curtain.

³⁹ Termed noise mitigation system and noise abatement system in the preamble to and the proposed rule.

⁴⁰ This reference was cited incorrectly as Bellmann and Betke (2021) in the preamble to the final rule.

Successful deployment and efficacy are not synonymous. Bellmann (2021) indicated that currently the only reliable, offshore-tested noise mitigation system for UXO clearance is reduction of charge weights, which is not feasible with UXOs, and that the typical charge weight of UXOs was 10 kg. He went on to state that the only technically feasible and offshore-reliable *possibility* to reduce underwater sound during UXO clearance is the application of an optimized single or double BBC (DBBC). Although 750-kg UXOs may have a charge weight of only 10 kg or less in European waters, that might not be the case in U.S. waters. UXOs in Europe have been degrading in water for the last 75 years, compromising the integrity of the TNT-equivalent material. NMFS indicated that UXOs in U.S. waters typically could be left behind following Navy military training, testing, or other operations (87 Fed. Reg. 64872). Those activities are ongoing.

In addition, Bellmann (2021) discussed modeled and measured detonations of 100 g, 5 kg, and 10 kg, which are much less than the 1,000-lb, or 454-kg, UXO that Ocean Wind could detonate. Bellmann (2021) noted that an overall SEL reduction of 11 dB was observed with the first application of a BBC during UXO clearance, but did not specify how large of a charge was detonated. Since Bellmann (2021) was based on 10-kg (or less) charges, one can assume that the measurements of UXO clearance using a BBC were for small charges as well.

BBCs attenuate high-frequency (HF) sound (<1 kHz) more efficiently than LF sound (Bellmann et al. 2020) that corresponds to most of the UXO energy. There also was no discussion of whether the shockwave from the UXO detonation would disrupt or displace the bubble curtain. Shockwaves travel at supersonic speeds and would reach the BBC before the sound. Placement of the BBC around a UXO detonation was not discussed in any of Ocean Wind's documents but would greatly affect whether and to what degree the BBC could attenuate the sound.

Bellmann (2021) also indicated that currents >2 knots led to a reduction of sound attenuation that cannot be resolved with additional compressed air or larger distances to the source and that the overall achieved sound reduction of a BBC depends significantly on the configuration and application of the BBC. If neither is optimized, then the sound reduction decreases significantly. The Commission finally notes that NMFS would not require Ocean Wind to deploy a DBBC in the proposed rule (see section 217.264(f)(1)(ii)), which is inconsistent with requirements for impact pile driving. Given the lack of proven efficacy and limitations of use of sound attenuation systems during UXO detonations, the Commission recommends that in the final rule NMFS re-estimate the various mortality, Level A harassment, and Level B harassment zones and mitigation and monitoring zones based on 0 dB of sound attenuation and re-estimate the numbers of takes accordingly, increasing to group size where necessary. The Commission also recommends that in the final rule NMFS require Ocean Wind to use a DBBC during UXO detonations and prohibit Ocean Wind from conducting UXO detonations when currents are greater than 2 knots.

Level A harassment takes for UXO detonations—NMFS reduced the number of model-estimated Level A harassment takes during UXO detonations from four bottlenose dolphins and three minke whales to zero Level A harassment takes each, citing the mitigation measures that Ocean Wind would be required to implement (see Table 27 and 28 in the *Federal Register* notice). Presumably, that means the efficacy of such measures. As stated previously herein, the efficacy of visual monitoring is not 100 percent and the extent to which the PAM that would be employed can detect marine mammals is unknown. In this instance, NMFS has increased the clearance zones (compare Tables 25 and 26 to Table 39 in the *Federal Register* notice) to 10 km for LF and HF cetaceans, 5 km for phocids, and 2

km for mid-frequency (MF) cetaceans. NMFS would require that six PSOs and one PAM PSO monitor before, during, and after the detonation—two PSOs on two different vessels⁴¹ and two PSOs in an aircraft. That number of PSOs would not guarantee that all LF and MF cetaceans are sighted, similar to HF cetaceans and phocids for which NMFS proposed to authorize Level A harassment takes. Minke whales are difficult to observe out to 10 km with only three platforms, and dolphins could occur within the Level A harassment zone undetected depending on group size and the speed at which they are traveling, as well as where the platforms are surveying (e.g., Oedekoven and Thomas 2022). For these reasons, <u>the Commission recommends</u> that NMFS authorize Level A harassment takes for minke whales and increase the Level A harassment takes to group size for bottlenose dolphins during UXO detonations in the final rule.

SFV plan for UXO detonations—Similar to impact pile driving, Ocean Wind did not provide and NMFS did not require an SFV plan to be submitted for UXO detonations before publishing the proposed rule. However, in this instance, NMFS also did not require Ocean Wind to provide the SFV plan to NMFS and BOEM at least 180 days prior to the first UXO detonation. Section 217.264(f)(5)(i) of the proposed rule also incorrectly specified the source levels as 'peak and cumulative sound exposure level', instead of impulse (Pa-sec), SPL_{peak}, and SEL for UXO detonations and omitted the requirement to provide ranges to the mortality isopleths. The proposed rule also omitted many of the details and requirements set forth for the impact pile-driving SFV plan in section 217.264(d)(3) of the proposed rule. A minimum number of hydrophones that Ocean Wind would be required to deploy was not specified, nor whether a pressure transducer would be required to capture the fast rise times and overpressure produced from a UXO detonation that are crucial for measuring impulse and SPL_{peak} metrics. <u>The Commission recommends</u> that NMFS address the aforementioned issues and include the noted omissions in sections 217.264(f)(5) and 217.265 of the final rule and require in the final rule that Ocean Wind deploy a minimum of two hydrophones and one pressure transducer for SFV during UXO detonations.

Mitigation and monitoring measures for UXO detonations—Section 216.24(d)(5) of the proposed rule would require that PAM operators review acoustic data from at least 24 hours prior to pile driving. As a precautionary measure, <u>the Commission recommends</u> that NMFS require Ocean Wind to have PAM operators also review acoustic data for at least 24 hours prior to UXO detonations, when available.

General mitigation and monitoring measures

Section 217.265(a)(1)(x) of the proposed rule stated that two of the PSOs (on the vessel or aircraft) must have a minimum of 90 days of at-sea experience and must have had this experience within the last 18 months. However, the experience required for the Lead PSO is not as specific with respect to length of experience or how recent that experience should be. Section 217.625(a)(1)(ix) merely states that "the Lead PSO must demonstrate prior experience working as a PSO in offshore environments, specifically with prior experience observing mysticetes, odontocetes, and pinnipeds in the Northwest Atlantic Ocean." Presumably, the Lead PSO should have the same experience as, or more experience than, the other experienced PSOs required for the project. <u>The Commission recommends</u> that NMFS specify in section 217.625(a)(1)(ix) of the final rule that the

⁴¹ The Commission notes that the required numbers of PSOs and vessels for UXO detonations are inconsistent in sections 217.265(b)(4)(i) and (iii) of the proposed rule and should be consistent in the final rule.

Lead PSO must have a minimum of 90 days of at-sea experience and must have had this experience within the last 18 months.

The following omissions and errors were noted in the proposed rule and should be addressed in the final rule.

- Section 217.260(c)(2) should also specify 'removal' of cofferdams.
- Section 217.264(a)(4) omitted UXO detonations in the list of specified activities.
- The duration that PSOs must monitor the area around each foundation pile (monopiles or pin piles) <u>after</u> pile driving has stopped should be specified as 30 minutes in section 217.264(d)(4) or (d)(5), as noted in the preamble to the proposed rule.
- The terms 'small odontocetes', 'delphinids and harbor porpoises', and 'dolphins and porpoises' were used interchangeably throughout the various mitigation measures in section 217.264.
- The terms 'seals' and 'pinnipeds' were used interchangeably or omitted altogether from the various mitigation measures in section 217.264.

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

Sincerely,

Peter o Thomas

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

cc: Amy Scholik-Schlomer, NMFS Office of Protected Resources Nick Sisson, NMFS Greater Atlantic Regional Office

References

- Bellmann, M. A. 2021. Expert opinion report regarding underwater noise emissions during UXOclearance activity and possible options for noise mitigation. Report number 3960, Institut für Technische und angewandte Physik (ITAP) GmbH, Oldenburg, Germany. 17 pages.
- Bellmann, M.A., A. May, T. Wendt, S. Gerlach, P. Remmers, and J. Brinkmann. 2020. Underwater noise during percussive pile driving: Influencing factors on pile-driving noise and technical possibilities to comply with noise mitigation values. itap GmbH, Oldenburg, Germany. 137 pages.
- Department of the Navy. 2017. Dive distribution and group size parameters for marine species occurring in the U.S. Navy's Atlantic and Hawaii-Southern California Training and Testing Areas. Naval Undersea Warfare Center, Division Newport, Newport, Rhode Island. 114 pages.
- Heaney K.D., M.A. Ainslie, M.B. Halvorsen, K.D. Seger, R.A.J. Müller, M.J.J. Nijhof, and T. Lippert. 2020. Parametric analysis and sensitivity study of the acoustic propagation for renewable energy sources. OCS Study BOEM 2020-011, U.S. Department of the Interior, Bureau of Ocean Energy Management, Sterling, Virginia. 186 pages. https://espis.boem.gov/final%20reports/BOEM_2020-011.pdf.
- Lippert, T., M.A. Ainslie, and O. von Estorff. 2018. Pile driving acoustics made simple: Damped cylindrical spreading model. The Journal of the Acoustical Society of America 143: 310–317.
- Lippert, S., M. Nijhof, T. Lippert, D. Wilkes, A. Gavrilov, K. Heitmann, M. Ruhnau, O. von Estorff, A. Schäfke, I. Schäfer, J. Ehrlich, A. MacGillivray, J. Park, W. Seong, M.A. Ainslie, C. de Jong, M. Wood, L. Wang, and P. Theobald. 2016. COMPILE: A generic benchmark case for predictions of marine pile-driving noise. IEEE Journal of Oceanic Engineering 41(4):1061– 1071. <u>https://doi.org/10.1109/JOE.2016.2524738</u>.
- Oedekoven, C., and L. Thomas. 2022. Effectiveness of Navy lookout teams in detecting cetaceans. Report number CREEM-24289-1, University of St Andrews, St Andrews, Scotland. 41 pages.
- Roberts, J.J., T. Yack, and P.N. Halpin. 2022. Habitat-based marine mammal density models for the U.S. Atlantic: Latest versions. Duke University Marine Geospatial Ecology Lab, Durham, North Carolina. <u>https://seamap.env.duke.edu/models/Duke/EC/</u>
- WaterProof. 2020. Coastal Virginia Offshore Wind: Noise monitoring during monopile installation A01 and A02. WaterProof Marine Consultancy & Services BV, Lelystad, The Netherlands. 34 pages.
- Zampolli, M., M.J.J. Nijhof, C.A.F. de Jong, M.A. Ainslie, E.H.W. Jansen, and B.A.J. Quesson. 2013. Validation of finite element computations for the quantitative prediction of underwater noise from impact pile driving. Journal of the Acoustical Society of America 133:72–81.

Submitted electronically via www.regulations.gov (Docket No. NOAA-NMFS-2022-0109)

December 10, 2022

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

RE: Proposed rule to promulgate a five-year (2023-2028) Incidental Take Regulation and issue an associated Letter of Authorization for construction of Ocean Wind 1

Dear Ms. Harrison,

On behalf of the Natural Resources Defense Council, Animal Welfare Institute, Connecticut Audubon Society, Conservation Law Foundation, Mass Audubon, Nassau Hiking and Outdoor Club, National Wildlife Federation, New Jersey Audubon, NY4WHALES, Surfrider Foundation, and WDC North America, and our millions of members, we respectfully submit these comments on the proposed rule to promulgate a five-year (2023-2028) Incidental Take Regulation ("ITR") and issue an associated Letter of Authorization ("LOA") to Ocean Wind, LLC. ("Ocean Wind") for incidental take of marine mammals resulting from the construction of the Ocean Wind 1 offshore wind project off of New Jersey in Commercial Lease OCS-A-0498.¹

Our organizations are united in support of responsibly developed offshore wind energy as a critically needed climate change solution, and have long advocated for policies and actions needed to bring the industry to scale in an environmentally protective manner. Among other factors,² responsible development of offshore wind energy avoids, minimizes, mitigates, and monitors for adverse impacts on wildlife and habitats. In addition to rich wind resources, the extensive waters of the Ocean Wind 1 project area support a diversity of marine life, including at least 17 species (18 managed stocks) of marine mammals: seven large and eight small cetaceans and two pinnipeds.³ The National Marine Fisheries Service ("NMFS") is mandated under the Marine Mammal Protection Act ("MMPA") to ensure that the Ocean Wind 1 project moves forward in a manner sufficiently protective of all marine mammal species and stocks that may be impacted by the project.

Ocean Wind has proposed to construct and operate a 1,100-megawatt ("MW") wind energy facility (*i.e.*, "Ocean Wind 1") in State and Federal waters within lease area OCS-A-0498. The Ocean Wind 1 project

¹ 87 Fed. Reg. 64,868 (Oct. 26, 2022) (hereinafter, "Proposed rule").

² Responsible development of offshore wind energy: (i) avoids, minimizes, mitigates, and monitors for adverse impacts on wildlife and habitats; (ii) minimizes negative impacts on other ocean uses; (iii) includes robust consultation with Native American tribes and communities; (iv) meaningfully engages state and local governments and stakeholders from the outset; (v) includes comprehensive efforts to avoid negative impacts to underserved communities; and (vi) uses the best available scientific and technological data to ensure science-based and stakeholder-informed decision making.

³ Proposed rule at 64,884, Table 3.

would allow the State of New Jersey to meet its renewable energy goals under the New Jersey Offshore Wind Economic Development Act. Ocean Wind 1 requires the construction of several types of offshore infrastructure, and some construction activities are expected to result in Level A and/or Level B take of marine mammals. Specifically, Ocean Wind 1 will require the installation of 98 wind turbine generators ("WTGs") and three offshore substations ("OSS") via impact pile driving; the temporary installation and removal of cofferdams to assist in the installation of the export cable route by vibratory pile driving; high-resolution geophysical ("HRG") vessel-based site characterization surveys using active acoustic sources with frequencies of less than 180 kHz; and the potential detonation of up to ten unexploded ordnances or munitions and explosives of concern ("UXOs/MECs") of different charge weights, as necessary. Vessels would also transit within the project area, and between ports and the wind farm to transport crew, supplies, and materials to support pile installation.⁴ Activities are proposed to be authorized for a five-year construction period (2023-2028), but WTG and OSS foundation installation is expected to be completed within the first two years, and HRG surveys will be the primary activity requiring MMPA authorization during years three through five.⁵

The following comments are intended to support Ocean Wind in advancing offshore wind in a sustainable manner. We focus, in particular, on the avoidance, minimization, mitigation, and monitoring requirements necessary to ensure sufficient protections of marine mammals are in place throughout the five-year construction period. We strongly recommend that the Final ITR and LOA achieve the following:

- Minimize Level A take to as close to zero as possible for all endangered and strategic stocks, and stocks actively declining or recovering from a UME.
- Assess cumulative impacts to North Atlantic right whales and other marine mammal stocks posed by multiple projects and leasing phases, and factor consideration of those cumulative impacts into the impact avoidance, minimization, and mitigation requirements for Ocean Wind 1.
- Increase the frequency of information review for adaptive management to at least once a quarter and develop a mechanism to undertake information review and adaptive management on an *ad hoc* basis if a serious issue is identified.
- Require a mandatory 10-knot speed restriction for all project-associated vessels at all times, unless monitoring methods scientifically proven to be equally or more effective at reducing vessel strike risk as a 10-knot speed restriction and approved by NMFS are employed (*i.e.*, via an "Adaptive Plan").
- Extend the time period of the seasonal restriction on impact pile driving to November 1 through April 30 to reflect the period of highest detections of vocal activity, sightings, and abundance estimates of North Atlantic right whales.
- Prohibit impact pile driving at night unless monitoring methods scientifically proven to be equally effective as monitoring during good visibility conditions and approved by NMFS are employed.
- Require Ocean Wind to implement the best commercially available *combined* (*i.e.*, near- and farfield) noise abatement systems proven in Europe to be capable of a 15 dB (re: 1 µPa²s) reduction in sound exposure level ("SEL"), or greater.

⁴ Proposed rule at 64,870.

⁵ Proposed rule at 64,871, Figure 1.

• Increase the area of Clearance and Exclusion Zones to further reduce the risk of behavioral harassment of North Atlantic right whales.

Our comments focus on recommendations for improved mitigation and monitoring, rather than NMFS's impact analysis. However, we note the serious concerns expressed to your agency by the Marine Mammal Commission regarding JASCO's pile driving source model ("PDSM"), including that the model underestimates the size of Level B harassment zones for impact pile driving; underestimates the Level A and Level B harassment takes for impact pile driving; overestimates Level B harassment zones for vibratory pile driving; and estimates inaccurate Level B harassment takes for vibratory pile driving.⁶ It is our hope and expectation that NMFS will fully address these concerns for the Ocean Wind 1 project to ensure the impact analysis is accurate and does not under- or over-estimate take.

I. BACKGROUND

A. The Marine Mammal Protection Act

Congress enacted the MMPA because "certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities."⁷ The statute seeks to ensure that species and population stocks are not "permitted to diminish beyond the point at which they cease to be a significant functioning element of the ecosystem of which they are a part," and do not "diminish below their optimum sustainable population."⁸ Congress intended for NMFS to act conservatively in the face of uncertainty when authorizing activities harmful to marine species.⁹ This careful approach to management was deemed necessary because of the vulnerable status of many species and because it is difficult to measure the impacts of human activities on marine mammals in the wild.¹⁰

At the heart of the MMPA is its "take" prohibition, which establishes a moratorium on the capture, harassing, hunting, or killing of marine mammals, and generally prohibits any person or vessel subject to the jurisdiction of the United States from taking a marine mammal on the high seas or in waters or on land under the jurisdiction of the United States.¹¹ Harassment is any act that "has the potential to injure a marine mammal or marine mammal stock in the wild" or to "disturb a marine mammal . . . by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding,

⁶ Letter from the Marine Mammal Commission to Ms. Jolie Harrison, Chief, Permits and Conservation Division, NMFS, regarding the promulgation of regulations for the construction and operation of Ocean Wind 1 (Dec. 6, 2022). https://www.mmc.gov/wp-content/uploads/22-12-06-Harrison-Ocean-Wind-proposed-rule.pdf. We note that the Commission previously raised similar concerns in response to the draft incidental harassment authorization for the construction of the South Fork wind project. However, these issues remain largely unaddressed by NMFS. *See* Letter from the Marine Mammal Commission to NMFS regarding the application from South Fork Wind, LLC to take marine mammals incidental to construction of the South Fork Wind Farm off Rhode Island and associated high-resolution geophysical surveys (Mar. 1, 2021). https://www.mmc.gov/wp-content/uploads/21-03-01-Harrison-South-Fork-Wind-construction-HRG-IHA.pdf.

⁷ 16 U.S.C. § 1361(1).

⁸ *Id.* § 1361(2); see also *Conservation Council for Hawaii v. Nat'l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1216 (D. Haw. 2016).

⁹ H.R. Rep. No. 92-707 (Dec. 4, 1971), as reprinted in 1972 U.S.C.C.A.N. 4144, 4148.

¹⁰ 16 U.S.C. § 1361(1), (3).

¹¹ *Id.* §§ 1362(13), 1371(a).

feeding, or sheltering."12

NMFS may grant exceptions to the take prohibition. As relevant here, the agency may authorize, for not more than a one-year period, the incidental, but not intentional, "taking by harassment of small numbers of marine mammals of a species or population stock" if the agency determines that such take would have only "a negligible impact on such species or stock."¹³ The agency must prescribe permissible methods of taking to ensure that the activity has "the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance."¹⁴ NMFS must also establish monitoring and reporting requirements.¹⁵ No later than 45 days after receiving an application for an IHA, NMFS must publish a proposed authorization and open a 30-day comment period.¹⁶

B. The status of marine mammals found in the Ocean Wind project area

As noted above, at least 17 species (18 managed stocks) of marine mammals, including seven large and eight small cetaceans and two pinnipeds are expected to be found within the Ocean Wind 1 project area.¹⁷ Of the seven large whale species, five (North Atlantic right whale, blue whale, fin whale, sei whale, and sperm whale) are listed as endangered under the Endangered Species Act ("ESA") and as depleted and strategic stocks under the MMPA. In addition, humpback whale and minke whale stocks in the Northwestern Atlantic have been experiencing Unusual Mortality Events ("UMEs") since 2016 and 2017, respectively.¹⁸

The protection of the critically endangered North Atlantic right whale throughout the development of Ocean Wind 1, and all offshore wind projects planned off the East Coast, is of utmost concern. North Atlantic right whales are rapidly declining towards extinction. Fewer than 340 individual North Atlantic right whales now remain, including fewer than 70 reproductively active females.¹⁹ The species is currently experiencing high levels of mortalities, injuries, and sub-lethal effects resulting from vessel strikes and entanglement in fishing gear,²⁰ underwater noise pollution is causing chronic stress,²¹ and

²⁰ NMFS. "2017–2022 North Atlantic Right Whale Unusual Mortality Event." (Accessed Dec. 10, 2022). https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2022-north-atlantic-right-whale-unusual-mortality-event.

¹² Id. § 1362(18)(A).

¹³ Id. § 1371(a)(5)(D)(i).

¹⁴ Id. § 1371(a)(5)(D)(ii)(I).

¹⁵ *Id.* § 1371(a)(5)(D)(iii).

¹⁶ *Id.* § 1371(a)(5)(D)(iii).

¹⁷ Proposed rule at 64,884, Table 3.

¹⁸ NMFS, "2016-2022 Humpback whale Unusual Mortality Event along the Atlantic Coast." (Accessed Dec. 10, 2022). https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2022-humpback-whale-unusual-mortality-event-alongatlantic-coast; NMFS, "2017-2012 Minke whale Unusual Mortality Event along the Atlantic Coast." (Accessed Dec. 10, 2022). https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2022-minke-whale-unusual-mortality-event-along-atlanticcoast.

¹⁹ North Atlantic Right Whale Consortium (NARWC). "North Atlantic right whale species estimate." (Accessed Dec. 10. 2022). https://www.narwc.org/report-cards.html; NMFS. "North Atlantic right whale calving season 2022." (Accessed Dec. 10, 2022). https://www.fisheries.noaa.gov/national/endangered-species-conservation/north-atlantic-right-whale-calving-season-2022.

²¹ Rolland, Rosalind M., et al. "Evidence that ship noise increases stress in right whales." Proceedings of the Royal Society B: Biological Sciences 279.1737 (2012): 2363-2368.

climate change-driven shifts in the distribution and quantity and quality of its prey is causing malnourishment.²² NMFS estimates an average of 31 North Atlantic right whale mortalities occurred per year from 2015 through 2019.²³ In October 2022, NMFS added 37 morbidity (*i.e.*, sublethal impact or illness) cases to the 55 identified deaths and serious injuries recorded during the North Atlantic right whale UME for a more accurate total of 92 whales impacted by the event to date.²⁴ North Atlantic right whales <u>cannot withstand further losses or additional stress</u> if the species is to reverse its decline and eventually recover.²⁵

Blue whales (Western North Atlantic Stock), fin whales (Western North Atlantic Stock), sei whales (Nova Scotia Stock), and sperm whales (North Atlantic Stock) are also listed as endangered under the ESA and may occur in the project area.²⁶ Blue whales are considered to be an occasional visitor to the U.S. Exclusive Economic Zone ("EEZ") and the population size thought to be very small (minimum population estimate: 402 individuals).²⁷ PBR for the stock is extremely low (0.8) and blue whales are vulnerable to vessel strikes, among other human activities, meaning the stock needs to be fully protected during time spent in U.S. waters.²⁸ Fin whales commonly occur in the U.S. EEZ, principally from Cape Hatteras northward, and have a minimum abundance estimate of 5,573 individuals.²⁹ The stock is considered at risk from fishery entanglements and are impacted by vessel collisions. The stock structure of sei whales is not yet fully resolved making estimation of abundance challenging. The average spring 2020-2013 abundance estimate of 6,292 is considered the best available for the stock (minimum population estimate: 3,098), but there remain key uncertainties in this calculation, with insufficient data to determine population trends.³⁰ Sei whales are also impacted by fishery interactions and vessel collisions. The current minimum abundance estimate for the Western Atlantic Stock of sperm whale (3,451

²² E.g., Meyer-Gutbrod, Erin L., et al. "Redefining North Atlantic right whale habitat-use patterns under climate change." *Limnology and Oceanography* (2022); Christiansen, Fredrik, et al. "Population comparison of right whale body condition reveals poor state of the North Atlantic right whale." *Marine Ecology Progress Series* 640 (2020): 1-16.

²³ NMFS. "Information Webinar: Update on Right Whale Population and Mortality Estimates." Atlantic Large Whale Take Reduction Team Webinar (Nov. 2, 2021), at slide 38.

²⁴ NMFS. "Thirty-seven morbidity cases added to North Atlantic right whale Unusual Mortality Event." (Accessed Dec. 10, 2022). https://www.fisheries.noaa.gov/feature-story/thirty-seven-morbidity-cases-added-north-atlantic-right-whale-unusual-mortality-event.

²⁵ The Potential Biological Removal ("PBR") level for the species is now 0.7, meaning that not even a single individual can be killed or seriously injured by human activities each year if the species is to avoid extinction. As NMFS is well aware, annual levels of documented mortalities and serious injuries far exceed this number, and recent scientific research shows that only approximately 30 percent of mortalities are ever documented. *See* NMFS. "2017–2022 North Atlantic Right Whale Unusual Mortality Event," *supra*; and Pace III, Richard M., et al. "Cryptic mortality of North Atlantic right whales." *Conservation Science and Practice* 3.2 (2021): e346.

²⁶ Exposure modeling for blue whales was not conducted by NMFS because the impacts on the species approached zero due to low density estimates. Because of this, values for these species have been excluded from the quantitative analyses and subsequent tables. Proposed rule at, *e.g.*, 64928.

²⁷ NMFS. "Blue whale (*Balaenoptera musculus musculus*): Western North Atlantic Stock. Stock Assessment Report" (Apr. 2020), at 101. https://media.fisheries.noaa.gov/dam-migration/2019_sars_atlantic_bluewhale.pdf.

²⁸ Id.

²⁹ NMFS. "Fin whale (*Balaenoptera physalus*): Western North Atlantic Stock. Stock Assessment Report" (May 2022), at 39. https://media.fisheries.noaa.gov/2022-08/Fin%20Whale-West%20N%20Atl%20Stock SAR%202021.pdf.

³⁰ NMFS. "Sei whale (*Balaenoptera borealis borealis*): Nova Scotia Stock. Stock Assessment Report" (May 2022), at 47-48. https://media.fisheries.noaa.gov/2022-08/Sei%20Whale-Nova%20S%20Stock SAR%202021.pdf.

individuals) is also uncertain and there is insufficient information to determine population trends.³¹ Total U.S. fishery-related mortality and serious injury for this stock is considered to be insignificant, but the extent of other stressors is unclear and vessel collisions are a concern for sperm whales in U.S. waters.³² Further, there have been UMEs for the Atlantic population of minke whales since January 2017 and humpback whales since January 2016.³³ Alarmingly, 135 minke whales have stranded between Maine and South Carolina from January 2017 to December 2022 (data through Dec. 3, 2022).³⁴ Elevated numbers of humpback whales have also been found stranded along the Atlantic Coast since January 2016 and, in seven years, 168 humpback whale mortalities have been recorded (data through Dec. 3, 2022), with strandings occurring in every state along the East Coast, including New Jersey.³⁵ The declaration of these UMEs by the agency in the past several years for three large whale species for which anthropogenic impacts are a significant cause of mortality demonstrates an increasing risk to whales from human activities along the U.S. East Coast.

Considering the elevated threat to federally protected large whale species and populations in the Atlantic, key uncertainties in the status assessment of several endangered large whale stocks, and emerging evidence of dynamic shifts in the distribution of large whale habitat, NMFS must ensure that any potential stressors posed by the proposed construction activities are mitigated to effectuate the least practicable impact on *all* affected species and stocks.³⁶

Of the small cetaceans, the Northern Migratory Coastal Stock of common bottlenose dolphin has strategic stock status under the MMPA.³⁷ The Northern Migratory Coastal Stock of common bottlenose dolphin is a strategic stock due to its designation as depleted under the MMPA as a result of a UME in 1988-1989, and because current total fishery-related mortality cannot be considered insignificant.³⁸ Harbor porpoise also require special attention during offshore wind energy development because of their extreme sensitivity to noise. Harbor porpoises are substantially more susceptible to temporary threshold shift (*i.e.*, hearing loss) from low-frequency pulsed sound than are other cetacean species that have thus far been tested.³⁹ European studies demonstrate that harbor porpoises are easily disturbed by the low-frequency noise produced by pile driving operations during offshore wind energy development. Harbor porpoises

³⁴ Id.

³⁵ Id.

³¹ NMFS. "Sperm whale (*Physeter macrocephalus*): North Atlantic Stock. Stock Assessment Report" (Apr. 2020), at 106. https://media.fisheries.noaa.gov/dam-migration/2019_sars_atlantic_spermwhale.pdf.

³² Id.

³³ NMFS, "2016-2022 Humpback whale Unusual Mortality Event along the Atlantic Coast," *supra*; NMFS, "2017-2022 Minke whale Unusual Mortality Event along the Atlantic Coast," *supra*.

³⁶ 16 U.S.C. § 1371(a)(5)(D)(ii)(I).

³⁷ The proposed rule states that the Western North Atlantic stock of short-finned pilot whales are also designated as a strategic stock under the MMPA (Proposed rule at 64,885, Table 3); however, this does not reflect the latest NMFS Stock Assessment Report that states the stock is not considered strategic. *See* NMFS. "Short-finned pilot whale (*Globicephala macrorhynchus*): Western North Atlantic Stock" (May 2022), at 87. https://media.fisheries.noaa.gov/2022-08/Short%20Fin%20Pilot%20Whale-West%20N%20Atl%20Stock SAR%202021.pdf.

³⁸ NMFS. "Common bottlenose dolphin (*Tursiops truncatus truncatus*): Western North Atlantic Northern Migratory Coastal Stock" (Apr. 2021), at 77-78. https://media.fisheries.noaa.gov/2021-07/f2020 AtlGmexSARs NmigBottlenoseDolphin.pdf?null.

³⁹ Lucke, Klaus, et al. "Temporary shift in masked hearing thresholds in a harbor porpoise (*Phocoena phocoena*) after exposure to seismic airgun stimuli." *The Journal of the Acoustical Society of America* 125.6 (2009): 4060-4070.

have been reported to react to pile driving beyond 20 kilometers and may be displaced from areas for months or years after construction.⁴⁰ Both captive and wild animal studies show harbor porpoises abandoning habitat in response to various types of pulsed sounds at well below 120 dB (re 1 uPa²s);⁴¹ in fact, evidence of the acoustic sensitivity of the harbor porpoise has led scientists to call for a revision to the NMFS acoustic exposure criteria for behavioral response.⁴² Impacts to harbor porpoises must therefore also be minimized and mitigated to the full extent practicable during offshore wind siting and development in the waters off New Jersey.

Harbor seals are particularly acoustically and behaviorally sensitive species. Pile driving can permanently impair hearing in pinnipeds at close range⁴³ and lead to changes in behavior at greater distances, including temporary or long-term displacement.⁴⁴ While not listed under the ESA or as a strategic or depleted stock under the MMPA, a UME has previously been issued for harbor and gray seals, as well as two other seal species across the Northeast, extending as far south as Virginia. Due to infectious disease, 3,152 strandings of seals occurred between July 2018 and March 2020, including 101 in New Jersey. Current population trends show abundance is likely increasing along the U.S. East Coast.⁴⁵

II. RECOMMENDATIONS FOR IMPROVED MITIGATION AND MONITORING

In authorizing take by incidental harassment under the general authorization provision of the MMPA, NMFS must prescribe "methods" and "means of effecting the least practicable adverse impact" on marine mammals and set additional "requirements pertaining to the monitoring and reporting of such taking."⁴⁶ In light of the significant risks posed to marine mammal stocks by the activities outlined in the proposed

⁴⁰ See, e.g., Carstensen, Jacob, et al. "Impacts of offshore wind farm construction on harbour porpoises: acoustic monitoring of echolocation activity using porpoise detectors (T-PODs)." *Marine Ecology Progress Series* 321 (2006): 295-308; Evans, Peter GH. "Offshore wind farms and marine mammals: impacts & methodologies for assessing impacts." Proceedings of the ASCOBANS/ECS Workshop. ECS Special Publication Series. Vol. 49. 2008.

http://www.ascobans.org/sites/default/files/document/MOP6_5-06_WindFarmWorkshop_1.pdf; Tougaard, Jakob, et al. "Pile driving zone of responsiveness extends beyond 20 km for harbor porpoises (*Phocoena phocoena* (L.))." *The Journal of the Acoustical Society of America* 126.1 (2009): 11-14; Brandt, Miriam J., et al. "Responses of harbour porpoises to pile driving at the Horns Rev II offshore wind farm in the Danish North Sea." *Marine Ecology Progress Series* 421 (2011): 205-216; Olesiuk, Peter F., et al. "Effect of the sound generated by an acoustic harassment device on the relative abundance and distribution of harbor porpoises (*Phocoena phocoena*) in Retreat Passage, British Columbia." *Marine Mammal Science* 18.4 (2002): 843-862.

⁴¹ See, e.g., Bain, D.E., and R. Williams, "Long-range effects of airgun noise on marine mammals: responses as a function of received sound level and distance" Report by Sea Mammal Research Unity (SMRU), 2006.; Kastelein, Ronald A., et al. "Behavioral avoidance threshold level of a harbor porpoise (*Phocoena phocoena*) for a continuous 50 kHz pure tone." *The Journal of the Acoustical Society of America* 123.4 (2008): 1858-1861; Kastelein, R. A., et al. "The influence of acoustic emissions for underwater data transmission on the behaviour of harbour porpoises (*Phocoena phocoena*) in a floating pen." *Marine Environmental Research* 59.4 (2005): 287-307.; Olesiuk, P.F., Nichol, L.M., Sowden, M.J., and Ford, J.K.B., "Effect of the sound generated by an acoustic harassment device on the relative abundance and distribution of harbor porpoises (*Phocoena phocoena*) in Retreat Passage, British Columbia." *Marine Mammal Science*, vol. 18 (2002): 843-862.

⁴² Tougaard, Jakob, et al. "Cetacean noise criteria revisited in the light of proposed exposure limits for harbour porpoises." *Marine Pollution Bulletin* 90.1-2 (2015): 196-208.

⁴³ Hastie, Gordon D., et al. "Sound exposure in harbour seals during the installation of an offshore wind farm: predictions of auditory damage." *Journal of Applied Ecology* 52.3 (2015): 631-640.

⁴⁴ Id.; Skeate, Eleanor R., et al. "Likely effects of construction of Scroby Sands offshore wind farm on a mixed population of harbour *Phoca vitulina* and grey *Halichoerus grypus* seals." *Marine pollution bulletin* 64.4 (2012): 872-881.

⁴⁵ Johnston, David W., et al. "Trends in stranding and by-catch rates of gray and harbor seals along the northeastern coast of the United States: Evidence of divergence in the abundance of two sympatric phocid species?" *PLoS One* 10.7 (2015): e0131660.

⁴⁶ 16 U.S.C. § 1371(a)(5)(D)(vi).

rule, NMFS has an obligation to impose robust avoidance, mitigation, and monitoring requirements to protect these stocks to the maximum extent practicable.

The seriously imperiled status of the North Atlantic right whale demands implementation of the most stringent measures possible to safeguard this species during site assessment, construction, operations, and decommissioning of offshore energy projects. The best scientific and commercial data available show that the North Atlantic right whale population cannot withstand any additional stressors; any potential interruption of foraging, reproductive, or migratory behavior may lead to population-level effects and is of critical concern. The increased risks of vessel collisions and direct and indirect noise impacts, including potential habitat displacement from the project area that may exacerbate existing threats, are significant and need to be fully addressed from the start. Several of our groups developed a suite of measures based on the best available scientific information to ensure offshore wind advances responsibly.⁴⁷ These fundamental measures are necessary to protect the North Atlantic right whale from potential impacts posed by offshore wind energy development, and several measures offer co-benefits to other species of large whale.

NMFS must also ensure that take of other endangered and strategic stocks, and stocks actively declining or recovering from a UME, is minimized. While maximum estimated Level A harassment levels for a representative year of the project do not exceed PBR for any of these stocks, they do, in some cases represent a significant proportion of PBR. For example, four fin whales are estimated to experience Level A harassment in a representative year of construction for Ocean Wind 1, and PBR for this stock is 11 whales per year.⁴⁸ This means that just over a third of allowable take for the stock from any human activities within the year would be attributable to the Ocean Wind 1 project. Similarly, 11 Level A takes are estimated for the Northern Migratory Coastal Stock of common bottlenose dolphin, representing more than 22 percent of PBR.⁴⁹ In light of the multiple types of human activities that are sources of take for both large and small cetaceans, agency consideration should be paid to the degree to which this single project could contribute to cumulative impacts on these stocks. NMFS must require protective measures to minimize Level A take to as close to zero as possible for these already vulnerable marine mammal stocks.

Ocean Wind 1 is one of 17 offshore wind projects currently being permitted off the East Coast, and new regional leasing processes are underway in the New York Bight, Central Atlantic, and Southeast regions. NMFS must not avoid the responsibility of assessing cumulative impacts to North Atlantic right whales and other marine mammal species posed by these multiple projects and leasing phases, and factoring considerations of those cumulative impacts into the requirements for individual projects. Requirements that avoid and minimize risks at the outset, such as foundation types that can be installed without pile driving, ambitious noise reduction and attenuation targets, and blanket vessel speeds of 10 knots or less, will help ensure the industry can advance responsibly at the scale and pace needed to meet the ambitious and necessary clean energy goals set forth by the Biden Administration.

⁴⁷ NRDC, et al. "Essential Mitigation Measures to Protect Right Whales During All Phases of Offshore Wind Development." https://www.nrdc.org/resources/essential-mitigation-measures-protect-right-whales-during-all-phases-offshore-wind.

⁴⁸ Proposed rule at 64,884, Table 3, and 64,961, Table 36.

⁴⁹ Id.

The proposed rule is precedential in that it is the first five-year ITR proposed to be issued for a commercial-scale offshore wind project. As offshore wind is a new industry in the United States, it is essential that NMFS employ an effective mechanism for adaptive management so that, as the industry moves forward, any unforeseen risks can be identified and mitigated, and any identified risks can be retired if they do not occur, or as new risk reduction methods and technology becomes available. NMFS states its intention to adaptively manage the Ocean Wind 1 project in the proposed rule and has included reporting requirements designed to support that process.⁵⁰ The agency intends to "consider new information from different sources to determine (with input from Ocean Wind regarding practicability) on an annual or biennial basis if mitigation or monitoring measures should be modified (including additions or deletions)."⁵¹ While we agree with this general approach, we note that the most potentially harmful activities to marine mammals will occur during the first two years of the proposed authorization. Construction of several other offshore wind projects is also planned within a similar time window, leaving little time for issues to be reported and adjustments made if information is considered only one to two times per year. We recommend NMFS increase the frequency of information review for adaptive management to at least once a quarter and also have a mechanism in place to undertake review and adaptive management on an ad hoc basis if a serious issue is identified (e.g., if unauthorized levels of Level A take of marine mammals are reported, or if serious injury or mortality of an animal occurs). Cumulative impacts of projects should also receive consistent review, as the number of projects offshore increases and as the timeline for some survey and construction activities may change from what was originally projected.

In addition to these overarching issues, we would like to draw the agency's attention to five specific concerns regarding Ocean Wind's application:

A. Vessel strike avoidance measures are insufficient.

Vessel strikes are a leading cause of large whale injury and mortality and have been implicated as one of the major causes of death underlying the ongoing UME for North Atlantic right whales.⁵² The dire conservation status of the North Atlantic right whale means that even a single vessel strike poses an unacceptable risk as it will have population-level consequences.⁵³ Reproductive females and their calves are at elevated risk,⁵⁴ exacerbating the impact of vessel strikes on the species' recovery potential. Vessel strikes also pose a significant risk to other large whale species currently experiencing UMEs, such as humpback whales and minke whales, as well as endangered fin whales and sei whales.⁵⁵

⁵⁰ Proposed rule at 64,996.

⁵¹ Id.

⁵² NMFS, "2017-2022 North Atlantic right whale Unusual Mortality Event," supra.

⁵³ As previously stated, the potential biological removal (PBR) level—or the number of North Atlantic right whales that can be killed or seriously injured each year as a result of human causes—is only 0.7 individuals. NMFS, "North Atlantic right whale (*Eubalaena glacialis*): Western Atlantic Stock" (May 2022), at 17. https://media.fisheries.noaa.gov/2022-08/N%20Atl%20Right%20Whale-West%20Atl%20Stock SAR%202021.pdf.

⁵⁴ Cusano, D. A., et al. "Implementing conservation measures for the North Atlantic right whale: considering the behavioral ontogeny of mother-calf pairs." *Animal Conservation* 22.3 (2019): 228-237.

⁵⁵ NMFS. "2016–2022 Humpback Whale Unusual Mortality Event Along the Atlantic Coast," *supra*; NMFS. "2017–2022 Minke Whale Unusual Mortality Event along the Atlantic Coast," *supra*; Schoeman, Renée P., et al. "A global review of vessel collisions with marine animals." *Frontiers in Marine Science* 7 (2020): 292.

To halt the decline of the North Atlantic right whale and promote the species' recovery, and protect other vulnerable large whale species, NMFS must require of all boats management measures that reduce the risk of lethal vessel strike to a level approaching zero.

We acknowledge, however, that reducing risk of vessel strike to a level approaching zero is extremely challenging. Our groups spoke in strong support of the proposed amendments to the Vessel Speed Rule put forth by NOAA Fisheries⁵⁶ and believe these measures—with certain improvements, as detailed in our letters⁵⁷—would significantly reduce the risk of mortality and injury of North Atlantic right whales from vessel strike. Any interaction between a vessel and a whale poses a risk of serious injury and mortality, however, particularly for vessels travelling at speeds greater than 10 knots.⁵⁸ Reducing speeds to no more than 10 knots for all vessels is the most effective way to prevent serious injury and mortality to marine mammals and sea turtles from vessel strikes. We urge the agency to act expeditiously to require vessels of all ocean users operating where whales are or are expected to occur to travel at 10 knots or less.

To ensure our national offshore wind industry begins on a firm footing, we urge NMFS to require a mandatory 10-knot speed restriction for all project-associated vessels at all times, except in limited circumstances where the best available scientific information demonstrates that whales do not use an area. Project proponents may develop, in consultation with NMFS, an "Adaptive Plan" that modifies these vessel speed restrictions. However, the adaptive monitoring methods that inform the Adaptive Plan must be proven effective using vessels traveling 10 knots or less and following a scientific study design. If the resulting Adaptive Plan is scientifically proven (*i.e.*, *via* peer-reviewed scientific study) to be equally or more effective than a 10-knot speed restriction, the Adaptive Plan could be used as an alternative to a 10-knot speed restriction.

B. Noise reduction and attenuation requirements should be strengthened.

Underwater noise pollution has deleterious consequences for most marine life and represents a significant stressor to marine mammals, including North Atlantic right whales. Without sufficient avoidance and minimization measures in place, potentially harmful levels of noise pollution may be generated at each stage of offshore wind development, including pre-construction site assessment and characterization, during construction, and long-term operations. Cumulative noise impacts may also be considerable, particularly in areas where pile driving is taking place simultaneously across adjacent lease areas—a possibility that is increasing in likelihood as projects experience delays and construction windows for different projects overlap—and during operations, where expansive areas of the ocean may experience elevated noise levels that exceed the harassment threshold for right whales and other low-frequency hearing cetaceans.⁵⁹

⁵⁶ 87 Fed. Reg. 46,921 (Aug. 1, 2022).

⁵⁷ E.g., Dynamic Speed Zones should be triggered following the confirmed detection of a single North Atlantic right whale.

⁵⁸ The amount of vessel activity associated with the development of Ocean Wind 1 is significant. Ocean Wind's application anticipates that the maximum number of return trips for all vessel types across the five years of authorization will exceed 3,000 return trips. *See* Ocean Wind 1 LOA application at 22, Table 1-1. (Any redundancy in number of vessel trips across development activities is not noted in the Table).

⁵⁹ Stöber, Uwe, and Frank Thomsen. "How could operational underwater sound from future offshore wind turbines impact marine life?" *The Journal of the Acoustical Society of America* 149.3 (2021): 1791-1795; Carduner, Jordan. "*Characterizing*

By far the most effective way to reduce noise during construction is to install quieter foundation types, and we encourage NMFS, and BOEM, to do more to bring gravity-based foundations and suction caissons online in the United States. This evolution may ultimately provide developers with more flexibility (e.g., wider construction schedules, the possibility of commencing pile driving at night), at least in some areas. If pile driving cannot be avoided, we encourage NMFS to work closely with BOEM on activities that could lead to greater levels of noise reduction during impact pile driving for future projects, as noise minimizing approaches during discrete phases of development have been identified by experts as the most promising solution to overcoming noise challenges associated with offshore wind development.⁶⁰ Such activities may include the development of a noise reduction standard⁶¹ (akin to the German standard for harbor porpoise) that is tailored to protect species of concern in U.S. waters, and designed to account for the larger diameter monopiles planned to be installed, as well as other projectand site-specific conditions in the United States. Given that underwater noise pollution negatively affects species across frequency hearing groups, in the pursuance of this standard we encourage BOEM and NOAA Fisheries to consider a hybrid approach, where risk is reduced for low-, mid-, and high frequencies, rather than solely at the low frequencies at which right whales are most vulnerable. A hybrid approach would help support overall marine ecosystem health rather than prioritize a single species or species group (*i.e.*, low-frequency hearing cetaceans).

To reduce impacts from noise produced by the impact pile driving requested for Ocean Wind 1, NMFS proposes to require a minimum of 10 dB (re: $1 \mu Pa^2s$) reduction of Sound Exposure Level ("SEL").⁶² This level of noise reduction and attenuation falls below what can now be achieved with best available noise control technology, and we recommend NMFS strengthen its requirements to maximize the level of noise reduction during construction. As described in Bellman et al. (2020) and Bellman et al. (2022),⁶³ noise reduction levels achieved in Europe through the combined use of two noise abatement systems ("NAS"); one positioned in the near-field and one in the far-field) have reached a 20 dB (re: $1 \mu Pa^2s$) reduction in SEL, or greater.⁶⁴ A combination of the IHC Noise Mitigation Screen ("IHC-NMS") and an optimized big bubble curtain ("BBC") has proven among the most effective to date, with a minimum, average, and

the operational soundscape of floating offshore wind parks: Implications for environmental risk assessment and wildlife." Presentation at the State of the Science Workshop on Wildlife and Offshore Wind Energy. New York, USA. July 28, 2022.

⁶⁰ Lee, Juliette and Brandon Southall. "Practical Approaches for Reducing Ocean Noise Associated with Offshore Renewable Energy Development." Global Alliance for Managing Ocean Noise, Workshop Report. 2022.

⁶¹ Note that building robust regulatory standards for noise reduction and attenuation which can be used internationally was identified by ocean noise experts as an important next step (*id*). Our groups support this recommendation and encourage BOEM's rapid development of this standard.

⁶² Proposed rule at 64,923.

⁶³ Bellmann, Michael A., et al. "Underwater noise during the impulse pile-driving procedure: Influencing factors on pile-driving noise and technical possibilities to comply with noise mitigation values." Supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (BMU)), FKZ UM16 881500. Commissioned and managed by the Federal Maritime and Hydrographic Agency (Bundesamt für Seeschiftfahrt und Hydrographie (BSH)), Order No. 10036866. Edited by the itap GmbH (2020); Bellman, Michael A., et al. "Underwater noise during percussive pile driving: influencing factors on pile-driving noise and technical possibilities to comply with noise mitigation values (ERA report)." Presentation at The Effects of Noise on Aquatic Life conference, Berlin, Germany (2022).

⁶⁴ Sound Exposure Level ("SEL") is defined following Bellmann et al. (2020), at 31-32. Findings are based on post-processed underwater noise measurement data and many relevant meta data of more than 2,000 pile installations with and without the application of noise abatement systems ("NAS") for complying with German thresholds.

maximum reduction in sound exposure level (" Δ SEL") of 17, 19, and 23 dB, respectively.⁶⁵ The deployment of a combination NAS (*i.e.*, two different systems) is considered by those authors to be "state of the art"⁶⁶ in terms of SEL reduction and is also important for attenuating sound across a range of frequencies⁶⁷ and maximizing transmission loss.⁶⁸

We recognize that there are differences between the European offshore wind context and that of the U.S., making the direct transference of findings difficult. The monopiles included in the data set examined by Bellman et al. (2020, 2022) were approximately 8 meters or less in diameter, compared with the approximately 10-meter diameter monopiles planned for the U.S. Larger diameter monopiles generate greater noise levels at the source. The noise reduction standard the NAS were compared against in Europe was also specifically designed to protect harbor porpoises in German waters (*i.e.*, SEL less than or equal to 160 dB (re: 1 μ Pa2s) at 750 meters from the monopile installation site), and not tailored to the lowfrequency cetaceans that are a priority in the U.S. That said, the water depths are, in some cases, comparable across both regions (up to 40 meters), and the European findings can be directly applied to the installation of smaller diameter pin-piles in the U.S. The limited evidence that is available from U.S. offshore wind projects also indicate alignment with Bellman et al. (2020, 2022). For example, the limitations of using a single NAS have been demonstrated. Measurements of sound pressure recorded during the installation of an unmitigated and mitigated monopile for the Coastal Virginia Offshore Wind (CVOW) pilot project indicate that a double bubble curtain (*i.e.*, a single NAS) was most effective at higher frequencies (>200 Hz) and did not attenuate sound as effectively at lower frequencies.⁶⁹ This indicates that the deployment of a second NAS designed to attenuate noise at lower frequencies would have further reduced noise impacts.

Given these developments, NMFS should require Ocean Wind to implement the best commercially available *combined* NAS technology to achieve the greatest level of noise reduction and attenuation possible, in line with the mitigation hierarchy. Based on the findings of Bellman et al. (2020, 2022), which indicate a reduction of 20 dB SEL is feasible for monopiles 8 meters in diameter, we recommend that the minimum requirement of a 10 dB (re: 1 μ Pa2s) reduction of SEL be viewed as a floor only. NMFS should require developers to deploy technologies proven in Europe to be capable of a 15 dB (re: 1 μ Pa2s) reduction in SEL, or greater.

As offshore wind rapidly advances in the U.S., more stringent noise reduction requirements will form an important means of reducing the cumulative impacts on species and ecosystems that the industry poses. It would also be beneficial at the project-level by reducing the size of necessary monitoring areas and increasing the probability that a protected species is detected prior to the start of pile driving activity.

⁶⁵ Bellman et al. (2020), at Table 4.

⁶⁶ Bellman et al. (2022), *id*.

⁶⁷ Bellman et al. (2020, 2022), *id*.

⁶⁸ Peng, Yaxi, et al. "Study of the sound escape with the use of an air bubble curtain in offshore pile driving." Journal of Marine Science and Engineering 9.2 (2021): 232.

⁶⁹ Ampala, K., et al. "Measuring the effectiveness of a double bubble curtain during impact pile driving at the Coastal Virginia Offshore Wind (CVOW) Pilot Project." Poster presentation at the State of the Science Workshop on Wildlife and Offshore Wind Energy. New York, USA (2022).

Additionally, a wealth of research exists which details the impacts of continuous noise on marine life, and the importance of reducing this impact. Best available scientific information indicates that, during the operation phase, offshore wind turbines may generate noise audible and potentially impactful to large whales and other marine species over significant distances.⁷⁰ NMFS voices this concern in the proposed rule and notes the lack of current knowledge on potential impacts: "NMFS acknowledges that more research on the impacts of operational noise on marine mammals and their prey is needed, as currently available information on modern turbine models is limited." We concur that understanding levels and impacts of operational noise is an immediate research and monitoring priority as the first offshore wind projects are constructed in the United States. Pending further study, we recommend the use of direct-drive turbines—as proposed for Ocean Wind 1—as opposed to turbines with a gear box. Direct drive turbines may emit lower noise levels and reduce risk of behavioral disturbance or habitat displacement of North Atlantic right whales and other marine mammal species, and also impacts to key marine mammal prey species, during the operation phase of development.

C. Seasonal restrictions on pile driving must be based on best available scientific information.

NMFS must use the best available scientific information on marine mammal presence and density, as required by law,⁷¹ when considering seasonal restrictions to protect North Atlantic right whales and measures designed to minimize impacts to other marine mammal stocks in the Ocean Wind 1 project area.⁷² NMFS proposes a four-month seasonal restriction on impact pile driving from January 1 through April 30 to minimize impacts to North Atlantic right whales.⁷³ However, these dates do not reflect the best available scientific information for the project area and broader region where right whales are often detected outside of this time period.

Since 2010, the distribution and habitat use of North Atlantic right whales and other large whale species off the U.S. East Coast has shifted in response to climate change-driven shifts in prey availability.⁷⁴ Best available scientific data indicate that North Atlantic right whales rely heavily on the waters within, and regionally proximate (*i.e.*, the New York-New Jersey Bight and Mid-Atlantic regions) to, the project area year-round. During the New Jersey Ecological Baseline Study conducted in nearshore waters (0-30 NM) off New Jersey monthly between January 2008 and December 2009, North Atlantic right whales were

⁷⁰ Stöber, Uwe, and Frank Thomsen, "How could operation sound from future offshore wind turbines impact marine life?" *supra*; Carduner, Jordan, "Characterizing the operational soundscape of floating offshore wind parks: Implications for environmental risk assessment and wildlife," *supra*.

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

⁷² In addition to the Roberts et al. habitat-density model, NMFS should consider data and information from regional shipboard and aerial surveys, acoustic detections, photo-identification data, stranding data, a series of Dynamic Management Areas ("DMAs") declared by NMFS pursuant to ship strike rule, and prey data.

⁷³ Ocean Wind 1 LOA application, at 59-60.

⁷⁴ E.g., Davis, Genevieve E., et al. "Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014." *Scientific reports* 7.1 (2017): 1-12; Davis, Genevieve E., et al. "Exploring movement patterns and changing distributions of baleen whales in the western North Atlantic using a decade of passive acoustic data." *Global change biology* 26.9 (2020): 4812-4840; Meyer-Gutbrod, Erin L., et al. "Redefining North Atlantic right whale habitat-use patterns under climate change," *supra*.

detected throughout the year.⁷⁵ Sightings included four groups of right whales, including a cow-calf pair, and occurred close to shore (10 - 17 NM) and in shallow waters (55 - 85 ft). Sightings of females and subsequent confirmations of these same individuals in the calving grounds a month or less later confirm that these waters are part of this species' migratory corridor. Observations of skim-feeding behavior suggest that feeding may also occur in areas farther south than the main feeding grounds.²³

Just to the north of the project area in the New York Bight, North Atlantic right whales have been acoustically detected year-round in the New York Bight during concurrent studies conducted between 2017 and 2020 by the Wildlife Conservation Society and Woods Hole Oceanographic Institution⁷⁶ and New York State Department of Environmental Conservation (NYSDEC).⁷⁷ Year-round presence of North Atlantic right whales is supported by a recently published synthesis of opportunistic sightings of baleen whales from 1998-2017.⁷⁸ Crucially, the majority of vocal activity detected by Murray et al. (2022) occurred from November to April, while the Port of New York-New Jersey Seasonal Management Area (SMA) was active, and peak vocal states occurred within this period from November to February.⁷⁹ Monthly aerial surveys conducted from March 2017 through February 2020 by NYSDEC sighted right whales in every season except summer,⁸⁰ and sighting rates were highest during the period of peak vocalizations detected by Murray et al. (2022). Abundances estimates derived from the NYSDEC aerial survey effort indicated 25-65 right whales were present in the survey area during this time.⁸¹ Intermittent vocal activity consisting of low, medium, or high vocal states was also detected between May and October, when the SMA was inactive.⁸²

The New York-New Jersey Bight was previously a relatively under-surveyed area relative to some other areas of the East Coast and the distribution of North Atlantic right whales in this region not well understood. The new scientific study by Murray et al. (2022) and the work of Zoidis et al. (2021) provides important new information on the distribution and seasonality of North Atlantic right whales and should be factored into NMFS's analysis. Based on those findings, we recommend NMFS extend the time period

⁷⁵ GMI (Geo-Marine Inc.). "Ocean/Wind power ecological baseline studies January 2008 - December 2009. Final report." New Jersey Department of Environmental Protection, Trenton, New Jersey (2010); Whitt, Amy D., et al. "North Atlantic right whale distribution and seasonal occurrence in nearshore waters off New Jersey, USA, and implications for management." *Endangered Species Research* 20.1 (2013): 59-69; incorporated into Davis, Genevieve E., et al. "Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014," *supra*.

⁷⁶ Murray, Anita, et al. "Acoustic presence and vocal activity of North Atlantic right whales in the New York Bight: Implications for protecting a critically endangered species in a human-dominated environment." *Conservation Science and Practice* (2022): e12798.

⁷⁷ Estabrook, Bobbi J., et al. "Year-1 Annual Survey Report for New York Bight Whale Monitoring Passive Acoustic Surveys October 2017–October 2018." Contract C009925. New York State Department of Environmental Conservation (2019); Estabrook, Bobbi J., et al. "Year-2 Annual Survey Report for New York Bight Whale Monitoring Passive Acoustic Surveys October 2018–October 2019." Contract C009925. New York State Department of Environmental Conservation (2020).

⁷⁸ Chou, Emily, et al. "Occurrence of baleen whales in the New York Bight, 1998–2017: insights from opportunistic data." *Journal of the Marine Biological Association of the United Kingdom* (2022): 1-7.

⁷⁹ Murray, Anita, et al. "Acoustic presence and vocal activity of North Atlantic right whales in the New York Bight: Implications for protecting a critically endangered species in a human-dominated environment," *supra*.

⁸⁰ Zoidis, Ann M., et al. "Distribution and density of six large whale species in the New York Bight from monthly aerial surveys 2017 to 2020." *Continental Shelf Research* 230 (2021): 104572.

⁸¹ Id. Murray, Anita, et al. "Acoustic presence and vocal activity of North Atlantic right whales in the New York Bight: Implications for protecting a critically endangered species in a human-dominated environment," *supra*.

⁸² Id.

of the proposed seasonal restriction to November 1 through April 30 to reflect the period of highest detections of vocal activity, sightings, and abundance estimates of North Atlantic right whales. We also underscore that the species should be expected to be found throughout the year in and close to the project area, and the most stringent impact avoidance, minimization, and mitigation are required to protect this species at all times during potentially harmful construction activities.

Detections of humpback whales and fin whales in nearshore New Jersey waters, particularly during times of the year when individuals are known to occur in geographically proximate areas (e.g., the New York Bight), also demonstrate the potential year-round importance of this region for these species.⁸³ Humpback whales have been observed feeding in waters as shallow as 15 m, and cow-calf pairs have also been sighted in shallow New Jersey waters, suggesting that nearshore New Jersey waters may be important foraging and nursery habitats for this species.⁸⁴ The year-round presence of fin whales recorded during this same baseline study included a cow-calf pair, and the cow appeared to be making foraging dives.⁸⁵ The New York Bight-just to the north of the project area-represents an important aggregation and feeding area for these two species, including for juvenile humpback whales, and both humpback whale and fin whale mother-calf pairs and nursing calves.⁸⁶ Peak opportunistic sightings of humpback whales between 1998-2017 occurred from June through November, and peak sightings of fin whales occurred in July and August, Several sightings of feeding minke whales (single individuals and groups) were also observed, during the same time period, from July through September.⁸⁷ While the timing of opportunistic sightings of these species in the New York Bight is not directly transferable to the waters off New Jersey, these data suggest that summer and fall may represent the months of peak occurrence in and close to the project area (*i.e.*, time periods when the seasonal restriction on impact pile driving for North Atlantic right whales would be inactive).

While NMFS must minimize existing and potential stressors to the North Atlantic right whale, the agency must also address potential impacts to other protected large whale and small cetacean species. It is therefore imperative that NMFS fully account for the consequences of any proposed North Atlantic right whale seasonal restriction on other protected species and evaluate alternative risk reduction strategies sufficiently protective of multiple species. Requiring a robust and scientifically proven near real-time monitoring and mitigation system for North Atlantic right whales and other endangered and protected species for use during impact pile driving and potentially other noise-generating activities would support the development of alternatives.

D. Commencement of impact pile driving at night must be prohibited.

⁸³ Whitt, Amy D., et al. "Abundance and distribution of marine mammals in nearshore waters off New Jersey, USA," *supra*; Chou, Emily, et al. "Occurrence of baleen whales in the New York Bight, 1998–2017: insights from opportunistic data," *supra*.

⁸⁴ Whitt, A.D., et al., *id*.

⁸⁵ Id.

⁸⁶ Chou, Emily, et al. "Occurrence of baleen whales in the New York Bight, 1998–2017: insights from opportunistic data," supra.

⁸⁷ Id.

We are extremely concerned by the request made by Ocean Wind for authorization to commence impact pile driving after dark.⁸⁸ As the acoustic models for the project demonstrate, impact pile driving generates levels of noise harmful to marine mammals over large distances.⁸⁹ Based on the limitations of currently available monitoring methods and technologies, the detection probability of North Atlantic right whales and other protected species during darkness and periods of poor visibility (*i.e.*, rain, fog, etc.) will be reduced relative to clear visibility conditions.⁹⁰ It is imperative that no North Atlantic right whale, or other marine mammal species, is present in the applicable Clearance Zone when pile driving starts (*see*, *also*, Section II.E).

We therefore <u>support NMFS's proposal to require Ocean Wind to commence impact pile driving only</u> <u>during the daytime</u>, in the first instance. Our recommendation is that pile driving be initiated 1.5 hours *prior to* civil sunset at the latest, rather than 1.5 hours after civil sunset as stated in the proposed rule,⁹¹ in order to maximize monitoring activities during hours of optimal visibility/daylight. Impact pile driving started at least 1.5 hours prior to civil sunset during good visibility conditions can then continue after dark, as necessary,⁹² providing the best available infrared technologies are used to support visual monitoring of the clearance and exclusion zones during periods of darkness (*see* Attachment 1).

NMFS is proposing to condition the LOA such that nighttime pile driving would only be allowed if Ocean Wind submits an Alternative Monitoring Plan to NMFS and the Bureau of Ocean Energy Management (BOEM) for approval that proves the efficacy of the intended night vision devices (*e.g.*, mounted thermal/IR camera systems, hand-held or wearable night vision devices (NVDs), infrared (IR) spotlights) in detecting protected marine mammals. The plan must include a full description of the proposed technology, monitoring methodology, and data supporting that marine mammals can reliably and effectively be detected within the clearance and shutdown zones for monopiles before and during impact pile driving.⁹³ We are supportive of this approach only if the technologies and methodologies proposed are independently and scientifically proven (*i.e.*, *via* peer-reviewed scientific study) to have detection rates that are equally or more effective than can be achieved by monitoring during daylight hours with good visibility conditions.

E. Clearance and Exclusion zones are under-protective.

⁸⁸ Proposed rule at 64,965.

⁸⁹ Exposure ranges for impact pile driving for North Atlantic right whales based on animal movement modeling are estimated to be up to 2.03 km for Level A take and 3.35 km for Level B take (winter, 2 piles per day). Proposed rule at 64,922. As discussed in Section D of this letter, the estimate for Level B take is not based on best available scientific information and underestimates exposure range.

⁹⁰ Smith, Heather R., et al. "A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada." *Marine Pollution Bulletin* 154 (2020): 111026; Zitterbart, D. "*Automatic whale detection from vessels for real-time vessel-strike and noise impact mitigation – current developments and applicability.*" Presentation at the NYSERDA 2022 State of the Science Workshop (Jul. 27, 2022).

⁹¹ Proposed rule at 64,965. "NMFS is not proposing, at this time, to allow Ocean Wind to initiate pile driving later than 1.5 hours after civil sunset or 1 hour before civil sunrise."

⁹² Proposed rule at 64,965, 64,991.

⁹³ Id.

NMFS' reliance on a 160 dB (re 1 μ Pa²s) threshold for behavioral harassment is not supported by the best available scientific information and such reliance grossly underestimates Level B take.⁹⁴ As previously noted, behavioral disturbance of North Atlantic right whales must be minimized to the greatest extent possible if the species is to be adequately protected. For impact pile driving with a minimum noise reduction/attenuation level of 10-12 dB (re 1 μ Pa²s), the following minimum Clearance and Exclusion Zone distances⁹⁵ should be required for the Ocean Wind 1 project for pile-driven foundations:

- 1. A visual Clearance Zone and Exclusion Zone must extend at minimum 5,000 m in all directions from the location of the driven pile.
- 2. An acoustic Clearance Zone must extend at minimum 5,000 m in all directions from the location of the driven pile.
- 3. An acoustic Exclusion Zone must extend at minimum 2,000 m in all directions from the location of the driven pile.

In addition, Clearance and Exclusion Zone distances for other large whale species must be designed in a manner that eliminates Level A take and minimizes behavioral harassment to the fullest extent possible.

Thank you in advance for considering our comments. Please don't hesitate to contact us if you have any questions or require further information.

Sincerely,

Francine Kershaw, Ph.D. Senior Scientist Natural Resources Defense Council

Georgia Hancock Marine Program Director and Counsel Animal Welfare Institute Patrick M. Comins Executive Director The Connecticut Audubon Society

Erica Fuller Senior Attorney Conservation Law Foundation

⁹⁴ See, e.g., Gomez, Catalina, et al. "A systematic review on the behavioural responses of wild marine mammals to noise: the disparity between science and policy." Canadian Journal of Zoology 94.12 (2016): 801-819; Tyack, Peter L., and Len Thomas. "Using dose-response functions to improve calculations of the impact of anthropogenic noise." Aquatic Conservation: Marine and Freshwater Ecosystems 29 (2019): 242-253. See, also, Letter from the Marine Mammal Commission to Ms. Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, regarding the IHA requested by Orsted Wind LLC. (Jun. 13, 2018). https://www.mmc.gov/wp-content/uploads/18-06-13-Harrison-Orsted-Bay-State-IHA.pdf. The Marine Mammal Commission "…remains concerned that NMFS" current behavior thresholds do not reflect the current state of understanding regarding the temporal and spectral characteristics of various sound sources and their impacts on marine mammals."

⁹⁵ The minimum Clearance Zone and Exclusion Zone distances are designed to offer North Atlantic right whales additional protection from behavioral harassment given the under-protective nature of the 160 dB re 1 μPa²s threshold for impulsive sources, while also being of a size that is feasible to monitor using a combination of visual and acoustic detection methods.

E. Heidi Ricci Director of Policy and Advocacy Mass Audubon

Guy Jacob Conservation Chair Nassau Hiking & Outdoor Club

James Murphy Director, Legal Advocacy National Wildlife Federation William Rossiter Vice President NY4WHALES

Matt Gove Mid-Atlantic Policy Manager Surfrider Foundation

Regina Asmutis-Silvia Executive Director WDC North America

Eileen Murphy, Ph.D. Vice President, Government Relations New Jersey Audubon



1025 Connecticut Ave., NW Suite 200 Washington, DC 20036 +1.202.833.3900 OCEANA.ORG

December 10, 2022

Submitted via www.regulations.gov at NOAA-NMFS-2022-0109

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

Re: Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to the Ocean Wind 1 Offshore Wind Energy Project Offshore of New Jersey (87 Fed. Reg. 64,868, October 26, 2022)

Dear Jolie Harrison:

Oceana is the largest international ocean 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 nearly 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 almost 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

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 2 of 10

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 those areas where NARWs migrate are likely more appropriate because of the reduced frequency, intensity, and duration of interactions with 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 incidental take regulations (ITRs) and a Letter of Authorization (LOA) for construction of an offshore wind project near New Jersey. This comment letter includes the following key points:

- The LOA must include use of best available science, cumulative impacts analysis, and project conditions that avoid, minimize, and mitigate adverse environmental impacts.
- The LOA must include a vessel traffic plan to minimize the effects of service vessels on marine wildlife
- The LOA 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 ITR and LOA 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. Due to the rapidly changing situation for NARWs and the need to react quickly to protect the species, the Fisheries Service should issue five-year ITRs but limit LOAs under this and similar applications to one-year periods instead of the proposed five-year LOA.

1) The role of Letters of Authorization

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

¹ 16 U.S.C. § 1361(6).

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 3 of 10

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: Incidental Harassment Authorizations (IHA) and LOAs. LOAs can only be issued after the Fisheries Service promulgates ITRs 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 ITRs must be promulgated after notice and the opportunity to comment.⁹ LOAs can be issued pursuant to ITRs for up to five years.¹⁰

2) Comments on the Contents of an LOA for Construction

ITRs and LOAs for construction of any offshore wind project must ensure that the application meets the requirements set out in the MMPA and its implementing regulations and that the ITRs and LOAs include conditions that will guarantee that construction activities have the least practicable impact on marine mammal species or stocks and their habitats in and around the project site.¹¹ Given the dire situation of NARWs, the Fisheries Service should make clear in any ITR or LOA for wind projects on the East Coast, that the activities cannot result in any Level A harassment, serious injury, or mortality of NARWs.

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 <u>https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act</u> (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 ITRs).

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).

¹¹ 50 C.F.R. § 216.105(b)(2).
Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 4 of 10

Oceana hopes the comments provided on these important elements will make the construction 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.¹² 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.¹³ Additionally, MMPA implementing regulations require the agency to use the "best scientific information available."¹⁴ 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.¹⁵ This 2021 population estimate is a 2.3% decrease from the previous year's estimate, representing a continued decline for the species. As NOAA considers the LOA application, it must use the most recent population estimate.

In the years since the leasing process was completed for the Wind Energy Area near Massachusetts, NARWs have shifted their aggregation and feeding areas. Because of this shift the region south of Nantucket and Martha's Vineyard is now considered a year-round "core habitat" for foraging NARWs where up to 100 whales have been seen during aerial surveys in recent years.^{16,17}

Additionally, new research has demonstrated that since 2017, NARWs have been sighted in wind energy development areas off Massachusetts and Rhode Island nearly every month, with sightings being most common between late winter and spring. Research suggests that around 23% of the entire species is present in these areas between late winter and spring.¹⁸ The importance of this area should not be underestimated. The true importance of the area to NARWs year-round needs

 ¹² 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).
¹³ 16 U.S.C. § 1371(a)(3)(A).

¹⁴ 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.").

¹⁵ 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/

¹⁶ Erin M. Oleson, Jason Baker, Jay Barlow, Jeff E. Moore, Paul Wade. 2020. North Atlantic Right Whale Monitoring and Surveillance: Report and Recommendations of the National Marine Fisheries Service's Expert Working Group. NOAA Tech. Memo. NMFS-F/OPR-64, 47 p.

¹⁷ Leiter, et al. 2017. North Atlantic right whale Eubalaena glacialis occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA. Endangered Species Research July 2017, 45-59.

¹⁸ Quintana-Rizzo, E., Leiter, S., Cole, T.V.N., Hagbloom, M.N., Knowlton, A.R., Nagelkirk, P., Brien, O.O., Khan, C.B., Henry, A.G., Duley, P.A. and Crowe, L.M., 2021. Residency, demographics, and movement patterns of North Atlantic right whales Eubalaena glacialis in an offshore wind energy development in southern New England, USA. Endangered Species Research, 45, pp.251-268.

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 5 of 10

to be analyzed before an LOA is issued. Specifically, 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.¹⁹ Disruptive site characterization or construction 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 LOA 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 project 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 an LOA.

c) Project Conditions

Consistent with the requirement to achieve "the least practicable impact on such species or stock and its habitat," the LOA must include conditions for the survey and construction activities that will first avoid adverse effects on NARWs in and around the area 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 and construction to inform development of the offshore wind projects and which are not critical. If, for example, a lower impact technique or technology will achieve the same goals without adverse effects, that should be permitted while other tools with more frequent, intense, or long-lasting effects should be prohibited.

Pile driving

Offshore wind development will include installation of equipment at the project site and may include both driven piles and piles installed using vibratory techniques. Each of these produces disruptive noise in and around the project area and NMFS should include clear requirements on these activities to minimize the effects of the project. Specifically, the LOA should prohibit pile driving during seasons when protected species are known to be present or migrating in the project area, in addition to any dynamic restrictions due to the presence of NARW or other endangered species.

¹⁹ Stewart, et al. 2021. Decreasing body lengths in North Atlantic right whales. Current Biology 2021, 31, 1-6.

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 6 of 10

Clearance Zones for all pile driving, including vibratory

If piling installation is permitted to the LOA must require both acoustic and visual clearance zones to ensure protected species are not in the affected area. Oceana suggests that NMFS include an acoustic clearance zone that extends at least 5,000m in all directions from the location of the driven pile, including a visual clearance zone that extend at least 5,000m in all directions from the location of the driven pile and an acoustic exclusion zone of at least 2,000 meters from the location of the driven pile.

These zones should be monitored and enforced via:

Acoustic monitoring

Acoustic monitoring should be undertaken using near real-time PAM, assuming a detection range of at least 10,000m, should be undertaken from a vessel other than the pile driving vessel, or from a stationary unit, to avoid the hydrophone being masked by construction related noise. PAM should be used during impact pile driving, vibratory pile driving installation of the cofferdam, and HRG surveys.

Visual monitoring

Visual monitoring should use PSOs stationed at the pile driving site and on additional vessels, as appropriate, to enable monitoring of the entire clearance zone.

Each vessel should have a minimum of 4 PSOs following a two-on, two-off rotation, each responsible for scanning no more than 180° of the horizon per pile driving locations. Human observation should be supplemented with IR technology and drones, where appropriate.

Timing and Prohibitions on Pile Driving

Acoustic and visual monitoring should begin at least 60 minutes prior to the commencement or resumption of pile driving and should be conducted throughout the duration of pile driving activity. Visual observation of the Visual Clearance Zone should continue until 30 minutes after pile driving.

Because avoidance of protected species is critical, the LOA should include a prohibition on initiating pile driving within 1.5 hours of civil sunset or in times of low visibility when the visual clearance zone cannot be monitored. Oceana understands that in *rare* circumstances pile driving must proceed after dark for safety reasons. If this occurs the project must notify NMFS 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.

Mitigation concerning unexploded ordnances

Before removing unexploded ordnances, careful review should be conducted to determine if they can be safely removed without detonation. If detonation must occur the same mitigation

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 7 of 10

measures should be observed as with pile driving including noise abatement technology, clearance zones, and the use of PSOs. If the predicted area of impact from the ordnance detonation is larger than from the sound from pile driving, then expanded mitigation measures should be implemented.

3) Vessel traffic associated with Wind Energy Area

Construction activities will increase the vessel traffic in and around the project area. The LOA 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:

a) Observers

All vessels associated with the proposed construction 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 LOA 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.²⁰

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.²¹ Due to the risk of ship strikes to NARWs in the project area, the LOA should limit all vessels of all sizes associated with the proposed construction 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 LOA 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 during construction, the LOA 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

²⁰ 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.

²¹ 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.

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 8 of 10

The LOA 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 LOA 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

The project will be a private enterprise conducted on shared public waters and as such, the LOA must include a requirement for all phases of construction 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 LOA should require all reports and data to be accessible on a publicly available website.

4) Noise Reduction

Best commercially available technology and methods should be used to minimize sound levels from pile driving coupled with a robust monitoring and reporting program to ensure compliance.

Viable noise reduction technologies include bubble curtains, noise mitigation systems, or sound dampeners. The projects should achieve no less than 10dB (SEL) in combined noise reduction and attenuation, taking as a baseline, projections from prior noise measurements of unmitigated piles from Europe and North America.

Compliance with these requirements is critically important and the LOA should require field measurements to be taken throughout the construction process including on the first pile installed. These compliance measurements should be taken by independent evaluators at intervals established to reduce observer bias and ensure full compliance with noise reduction requirements.

5) Shutdown Requirements

Despite the best information informing seasonal restriction on site characterization and construction activities, it is likely interactions with NARWs will occur in and around the project site. The LOA 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 and construction activities. Key conditions should include:

• A prohibition on initiating pile driving if a North Atlantic right whale or other protected species is detected by visual or acoustic surveys within the acoustic or visual clearance zones described above.

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 9 of 10

- Condition for resumption of pile driving after the lead Protected Species Observer confirms that no North Atlantic right whale or other protected species have been detected within the acoustical and visual clearance zones.
- 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 urges the Fisheries Service to only issue ITRs and LOAs for this construction if it includes a thorough discussion of the new science discussed above and includes the range of conditions that will ensure the construction is completed responsibly with the least practicable impact on marine mammals. And due to the quickly evolving situation for NARWs, Oceana asks that the Fisheries Service limits LOAs associated with this project to one year.

Oceana looks forward to our ongoing engagement in the Ocean Wind 1 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,

South City

Sarah Giltz, Ph.D. Marine Scientist

Oceana's Comments on LOA-Ocean Wind 1 December 10, 2022 Page 10 of 10

Oceana Washington, DC

BELIZE BRAZIL CANADA CHILE EUROPEAN UNION MEXICO PERU PHILIPPINES UNITED KINGDOM UNITED STATES