E 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XD648]

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

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Atlantic Shores Offshore Wind, LLC (Atlantic Shores) to incidentally harass, by Level B harassment only, marine mammals during marine site characterization surveys in waters off of New York, New Jersey, Delaware, and Maryland, including in the Bureau of Ocean Energy Management (BOEM) Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549, and associated export cable corridor (ECC) areas.

DATES: This authorization is effective from April 1, 2024, through March 31, 2025.

ADDRESSES: Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-llcs-marine-site*. In case of problems accessing these documents, please call the contact listed below.

FOR FURTHER INFORMATION CONTACT: Alyssa Clevenstine, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other "means of effecting the least practicable adverse impact" on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as "mitigation"); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

August 31, 2023, NMFS received a request from Atlantic Shores for an IHA to take marine mammals incidental to conducting marine site characterization surveys in waters off of New York, New Jersey, Delaware, and Maryland, specifically within

BOEM Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549, and associated ECC areas. Following NMFS' review of the application, Atlantic Shores submitted revised versions on October 11 and November 17, 2023. The application was deemed adequate and complete on November 20, 2023. Atlantic Shores' request is for take of small numbers of 14 species (15 stocks) of marine mammals by Level B harassment. Neither Atlantic Shores nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued IHAs to Atlantic Shores for similar work (85 FR 21198, April 16, 2020; 86 FR 21289, April 22, 2021; 87 FR 24103, April 20, 2022; 87 FR 50293, August 10, 2022; 88 FR 38821, June 9, 2023; 88 FR 54575, August 10, 2023). Atlantic Shores complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHAs and did not exceed authorized levels of take under previous IHAs issued for surveys offshore of New York and New Jersey. These previous monitoring results are available to the public on our website: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-llc-marine-site-characterization* and *https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-bight-llc-marine-site*.

Description of Specified Activity

Overview

Atlantic Shores plans to conduct marine site characterization surveys, including high-resolution geophysical (HRG) surveys, in waters off of New York, New Jersey, Delaware, and Maryland, specifically within BOEM Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549, and associated ECC areas, collectively considered the Survey Area.

Atlantic Shores currently has two active IHAs associated with ongoing HRG survey activities: one in BOEM Lease Areas OCS–A 0499 and OCS–A 0549 effective

June 9, 2023 through June 8, 2024 (88 FR 38821) and another in BOEM Lease Area OCS–A 0541 effective August 10, 2023 through August 9, 2024 (88 FR 54575). The purpose of the IHA authorized herein is to combine all ongoing HRG survey activities, including remaining survey activity associated with the two existing IHAs as well as new activity, under a single IHA. The new activity includes additional areas not covered under either currently active Atlantic Shores HRG survey IHAs. NMFS has made the required determinations and has issued the IHA. As such, NMFS has concurrently modified the effective dates of the two active IHAs to reflect an end date (March 31, 2024) that is 1 day earlier in time than the start date of the issued IHA (April 1, 2024).

The planned marine site characterization surveys are designed to obtain data sufficient to meet BOEM guidelines for providing geophysical, geotechnical, and geohazard information for site assessment plan surveys and/or construction and operations plan development. The objective of the surveys is to support the site characterization, siting, and engineering design of offshore wind project facilities including wind turbine generators, offshore substations, and submarine cables within the Survey Area. Up to two vessels may conduct survey efforts concurrently. Underwater sound resulting from Atlantic Shores' marine site characterization survey activities, specifically HRG surveys, has the potential to result in incidental take of marine mammals in the form of Level B harassment.

Dates and Duration

The surveys are planned to begin no earlier than April 1, 2024 and are estimated to require a maximum of 300 survey days within a single year across a maximum of two vessels, which will include one vessel operating nearshore (less than 10 meters (m; 33 feet (ft)) depth) and one vessel operating offshore (greater than 10 m (33 ft) depth). The survey days may occur any month throughout the year as the exact timing of the surveys during the year is not yet certain. A "survey day" is defined as a 24-hour (hr) activity

period in which an active acoustic sound source is used offshore and a 12-hr activity period when a vessel is operating nearshore. Surveyed at a speed of approximately 3.5 knots (kn; 6.5 kilometer (km) per hr (km/hr)), it is expected that the nearshore vessel will cover approximately 30 km (18.6 miles (mi)) of trackline per day, and the offshore vessel will cover approximately 140 km (87 mi) of trackline per day, based on Atlantic Shores' data acquisition efficiency expectations.

Specific Geographic Region

Atlantic Shores' survey activities will occur in the Northwest Atlantic Ocean within Federal and State waters off of New York, New Jersey, Delaware, and Maryland in BOEM Lease Areas OCS-A 0499, OCS-A 0541, OCS-A 0549, and along the associated ECC areas (figure 1). Overall, the Survey Area is approximately 20,251 square kilometers (km^2; 7,819 mi^2) and extends from the shoreline to approximately 74 km (46 mi) offshore and a maximum depth of approximately 60 m (197 ft).

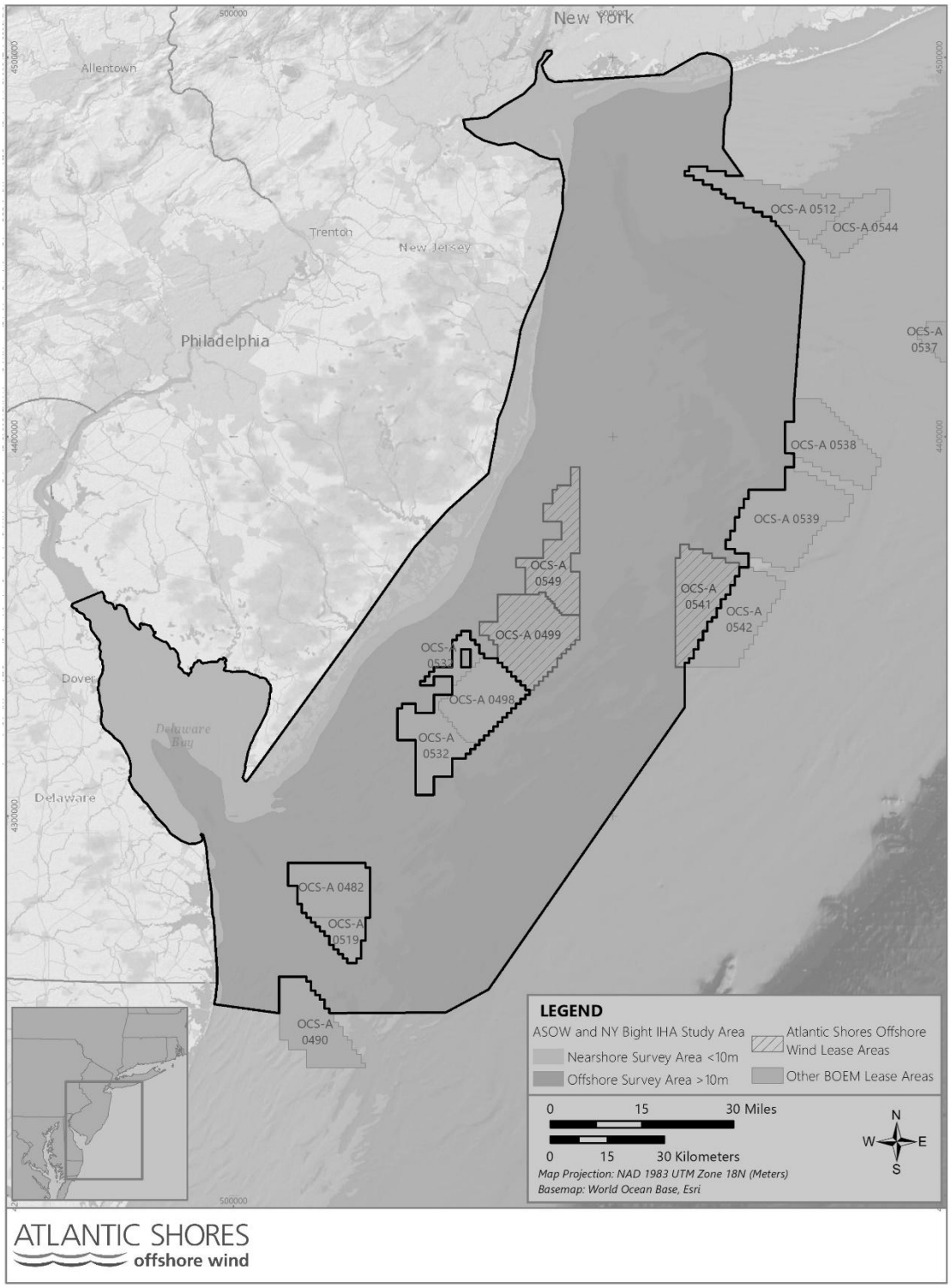

Figure 1 – Survey Area

Detailed Description of the Specified Activity

Atlantic Shores' marine site characterization surveys within the Survey Area include geotechnical and geophysical surveys, including depth sounding to determine water depth, site bathymetry, and general seafloor topography using a single beam and

multibeam echosounder (MBES); magnetic intensity measurements using a gradiometer; seafloor imaging using a side scan sonar; shallow penetration sub-bottom profilers (SBPs; parametric); and a medium penetration SBP (sparker). NMFS does not expect geotechnical survey activities or HRG survey activities using single and MBES, side-scan sonar, gradiometer, or parametric SBP to present a reasonably anticipated risk of causing incidental take of marine mammals, so these activities are not discussed further in this notice.

The only acoustic source planned for use during Atlantic Shores' planned HRG survey activities with the potential to cause incidental take of marine mammals is a sparker. There is only one sparker system planned for use (GeoMarine Geo-Source 400), which will collect two-dimensional (2D) single-channel ultra-high resolution seismic (SUHRS) data while operating 400 tips at a power level of 400 Joules (J).

A detailed description of Atlantic Shores' planned HRG surveys is provided in the **Federal Register** notice for the proposed IHA (89 FR 753, January 5, 2024). Since that time, no changes have been made to the planned HRG survey activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the detailed description of the specified activity.

Comments and Responses

A notice of NMFS' proposal to issue an IHA to Atlantic Shores was published in the **Federal Register** on January 5, 2024 (89 FR 753). That notice described, in detail, Atlantic Shores' specified activities, the marine mammal species that may be affected by the activities, and the anticipated effects on marine mammals. In that notice, we requested interested persons submit relevant information, suggestions, and comments on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed IHA. The proposed notice was available for a 30-day public comment period.

In total, NMFS received 363 comment submissions, comprising 356 individual comments from private citizens, six comment letters from organizations or public groups (Clean Ocean Action, Green Oceans, Defend Brigantine Beach Inc., Protect Our Coast New Jersey, the Warwick Group Consultants, LLC on behalf of the County of Cape May, New Jersey; the State of Delaware Department of Natural Resources and Environmental Control); and one from an elected official for the Borough of Seaside Park, New Jersey. Many of the comments received express concerns related to topics that are outside the scope of NMFS' authority under the MMPA (*e.g.,* offshore wind farm construction; impacts to the coastal ecosystem and local community that are unrelated to marine mammals and marine mammal habitat; concerns for other species outside of NMFS' jurisdiction (*i.e.*, birds, bats); costs associated with offshore wind development; turbine components; national security concerns; other MMPA incidental take authorizations; fishing and the commercial fishing industry; and project decommissioning). These comments are not described herein or discussed further. Moreover, where comments recommended that the final authorization include mitigation, monitoring, or reporting measures that were already included in the proposed authorization and such measures are carried forward in this final authorization, they are not included here as those comments did not raise significant points for NMFS to consider.

Most comments expressed general opposition to issuance of the IHA, takes of any marine mammals, or the underlying associated activities. We reiterate here that NMFS' action concerns only the authorization of marine mammal take incidental to the planned surveys – NMFS' authority under the MMPA does not extend to the specified activities themselves. We reiterate here that no mortality or injury of marine mammals is anticipated or authorized. We do not specifically address comments expressing general opposition to activities related to wind energy development or respond to comments that

are out of scope of the proposed IHA (89 FR 753, January 5, 2024), such as comments on other Federal agency processes and activities not planned under this IHA.

All comments received during the public comment period which contained significant points were considered by NMFS and are described and responded to below. All comment letters are available on NMFS' website (*https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-llcs-marine-site*) and are reflective of the comments received by private citizens.

Comment 1: Commenters stated there is no scientific evidence proving that the project and marine site characterization surveys more broadly would not indirectly lead to the mortality (death) or serious injury of marine mammals via significant behavioral changes due to noise associated with the project. A few commenters stated such significant behavioral changes may cause marine mammals to be displaced from the project area into shipping lanes or areas of higher vessel traffic, which could result in higher risks of vessel strike and that was not considered in NMFS' analysis.

Response: NMFS acknowledges that whales may temporarily avoid the area where the specified activities occur. However, NMFS does not anticipate that whales will be displaced in a manner that would result in a higher risk of vessel strike, and the commenters do not provide scientific evidence that either of these effects should be a reasonably anticipated outcome of the specified activity.

Regarding take by serious injury or mortality, NMFS has carefully reviewed the best available scientific information in assessing impacts to marine mammals and determined that the surveys have the potential to impact marine mammals through behavioral effects. However, NMFS does not expect that the generally short-term, intermittent, and transitory marine site characterization survey activities planned by Atlantic Shores will create conditions of acute or chronic acoustic exposure leading to

long-term physiological or other lethal impacts to marine mammals. Based on the characteristics of the signals produced by the acoustic source planned for use (*i.e.*, sparker), Level A harassment is neither anticipated (even absent mitigation) nor authorized and NMFS' prescribed mitigation measures are expected to further reduce the duration and intensity of acoustic exposure while limiting the potential severity of any possible behavioral disruption. NMFS has determined Atlantic Shores' activities will not result in injury or mortality of any marine mammal species.

Further, NMFS has determined that any harassment from any specified activity is anticipated to, at most, result in some avoidance that would be limited spatially and temporally. It is unlikely that any impacts from the project would increase the risk of vessel strike from non-Atlantic Shores vessels. The commenter has presented no information supporting the speculation that whales would be displaced from the Survey Area into shipping lanes or areas of higher vessel traffic in a manner that would be expected to result in higher risks of vessel strike.

Comment 2: Commenters stated the terms "take" and "harassment" are misleading and inappropriate regulatory language without formal definition or adoption by the U.S. Congress. Several commenters assert that the request for an IHA should be denied because the potential taking of marine mammals is known and, therefore, not considered incidental.

Response: We refer the commenters to the definitions of "take" and "harassment" provided in the MMPA (16 U.S.C. 1362(13), (18)) and the definition of incidental taking in NMFS' implementing regulations (50 CFR 216.103).

Comment 3: A commenter recommended that NMFS increase the size of all pre-start clearance, separation, and shutdown zones for all baleen whales to 500 m regardless of Endangered Species Act (ESA) status.

Response: NMFS disagrees with this recommendation. As described in the proposed notice and this final notice, the required 500-m shutdown zone for North Atlantic right whales (NARWs) and 100-m shutdown zone for other baleen whales (*e.g.*, fin, sei, minke, and humpback whales) exceeds the calculated distance to the largest harassment isopleth (56 m). These mitigation measures ensure the survey activities will have the least practicable adverse impact on baleen whales (*i.e.,* reduce the likelihood they will be harassed by this activity). For other ESA-listed species (*e.g.*, fin and sei whales), NMFS Greater Atlantic Regional Fisheries Office's (GARFO's) 2021 Offshore Wind Site Assessment Survey Programmatic ESA consultation (*https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic*) determined that a 100-m shutdown zone is sufficient to minimize exposure to noise that could be disturbing sufficiently to avoid the potential for take (as defined under the ESA). Accordingly, NMFS has adopted this shutdown zone size for all baleen whale species other than the NARW. Commenters did not provide scientific information for NMFS to consider to support their recommendation to expand the shutdown zone. Therefore, NMFS has determined that an increase in the size of the zones during HRG survey activities is not warranted.

Comment 4: To minimize the risk of vessel strikes for all whales and especially in recognition of the imperiled state of NARWs, commenters do not believe that mitigation measures to reduce the risk of vessel strike are strong enough and have instead suggested NMFS strengthen its existing vessel speed restrictions or require a mandatory 10-knot (kn) (5.14 m/s) speed restriction for all survey vessels 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.

Response: NMFS acknowledges that vessel strikes pose a risk to marine wildlife, including NARWs, but disagrees with the commenters that the mitigation measures to

prevent vessel strike are insufficient. Under the MMPA, NMFS must prescribe regulations setting forth other means of effecting the least practicable adverse impact of the requestor's specified activities on species or stocks and its habitat. In both the proposed and final notices, we analyzed the potential for vessel strike resulting from the planned activities. We determined that the risk of vessel strike is low, based on the nature of the activities, including the number of vessels involved in those activities and the relative slow speed of those vessels (*e.g.*, roughly 3.5 kn (1.8 m/s)).

To effect the least practicable adverse impact from vessels, NMFS has required several mitigation measures specific to vessel strike avoidance. With the implementation of these measures, NMFS has determined that the potential for vessel strike is so low as to be discountable. Whales and other marine mammal species are present within the Project area year-round. As described in the proposed notice and included in this final notice, NMFS is requiring Atlantic Shores to reduce speeds to 10 kn (5.14 m/s) or less in circumstances when NARWs are known to be present or more likely to be in the area where vessels are transiting, which include, but are not limited to, all seasonal management areas (SMAs) established under 50 CFR 224.105 (when in effect), any dynamic management areas (DMA) (when in effect), and Slow Zones (if established by NMFS). Vessels are also required to slow and maintain separation distances for all marine mammals.

While we acknowledge that a year-round 10-kn (5.14 m/s) requirement could potentially reduce the already discountable probability of a vessel strike, this theoretical reduction would not be expected to manifest in measurable real-world differences in impact. NMFS has determined that these and other included measures ensure the least practicable adverse impact on species or stocks and their habitat. Therefore, we are not requiring project-related vessels to travel 10 kn (5.14 m/s) or less at all times.

On August 1, 2022, NMFS announced proposed changes to the existing NARW vessel speed regulations (87 FR 46921, August 1, 2022) to further reduce the likelihood of mortalities and serious injuries to endangered NARWs from vessel collisions, which are a leading cause of the species' decline and a primary factor in an ongoing UME. Should a final vessel speed rule be issued and become effective during the effective period of this authorization (or any other MMPA incidental take authorization), the authorization holder will be required to comply with any and all applicable requirements contained within the final vessel speed rule. Specifically, where measures in any final vessel speed rule are more protective or restrictive than those in this or any other MMPA authorization, authorization holders will be required to comply with the requirements of the vessel speed rule. Alternatively, where measures in this or any other MMPA authorization are more restrictive or protective than those in any final vessel speed rule, the measures in the MMPA authorization will remain in place. The responsibility to comply with the applicable requirements of any vessel speed rule will become effective immediately upon the effective date of any final vessel speed rule, and when notice is published on the effective date, NMFS will also notify Atlantic Shores if the measures in the vessel speed rule were to supersede any of the measures in the MMPA authorization.

Comment 5: Commenters expressed concern about cumulative impacts generally and how such impacts to the marine ecosystem would be measured.

Response: Neither the MMPA nor NMFS' codified implementing regulations call for consideration of other unrelated activities and their impacts on marine mammal populations. The preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989) states in response to comments that the impacts from other past and ongoing anthropogenic activities are to be incorporated into the negligible impact analysis via their impacts on the baseline. Consistent with that direction, NMFS has factored into its negligible impact analysis the impacts of other past and ongoing

anthropogenic activities via their impacts on the baseline (*e.g.*, as reflected in the density, distribution and status of the species, population size and growth rate, and other relevant stressors).

The 1989 final rule for the MMPA implementing regulations also addressed public comments regarding cumulative effects from future, unrelated activities (54 FR 40338, September 29, 1989). There, NMFS stated that such effects are not considered in making findings under MMPA section 101(a)(5) concerning negligible impact. In this case, this IHA, as well as other IHAs currently in effect or proposed within the specified geographic region, are appropriately considered an unrelated activity relative to the others. The IHAs are unrelated in the sense that they are discrete actions under section 101(a)(5)(D), issued to discrete applicants. Section 101(a)(5)(D) of the MMPA requires NMFS to make a determination that the take incidental to a "specified activity" will have a negligible impact on the affected species or stocks of marine mammals. NMFS' implementing regulations 50 CFR 216.104(a)(1) require applicants to include in their request a detailed description of the specified activity or class of activities that can be expected to result in incidental taking of marine mammals. Thus, the "specified activity" for which incidental take coverage is being sought under section 101(a)(5)(D) is generally defined and described by the applicant. Here, Atlantic Shores was the applicant for the IHA, and we are responding to the specified activity as described in that application and making the necessary findings on that basis.

Through the response to public comments in the 1989 implementing regulations (54 FR 40338, September 29, 1989), NMFS also indicated (1) that we would consider cumulative effects that are reasonably foreseeable when preparing a National Environmental Policy Act (NEPA) analysis, and (2) that reasonably foreseeable cumulative effects would also be considered under section 7 of the ESA for ESA-listed species, as appropriate. Accordingly, NMFS has written Environmental Assessments

(EA) that addressed cumulative impacts related to substantially similar activities, in similar locations (*e.g.*, the 2017 Ocean Wind, LLC EA for site characterization surveys off New Jersey and the 2018 Deepwater Wind EA for survey activities offshore Delaware, Massachusetts, and Rhode Island). Cumulative impacts regarding issuance of IHAs for site characterization survey activities such as those planned by Atlantic Shores have been adequately addressed under NEPA in prior environmental analyses that support NMFS' determination that this action is appropriately categorically excluded from further NEPA analysis. NMFS independently evaluated the use of a categorical exclusion (CE) for issuance of Atlantic Shores' IHA, which included consideration of extraordinary circumstances.

Separately, the cumulative effects of substantially similar activities in the northwest Atlantic Ocean have been analyzed in the past under section 7 of the ESA when NMFS has engaged in formal intra-agency consultation, such as the 2013 programmatic Biological Opinion for BOEM Lease and Site Assessment Rhode Island, Massachusetts, New York, and New Jersey Wind Energy Areas (*https://repository.library.noaa.gov/view/noaa/29291*). Analyzed activities include those for which NMFS issued previous IHAs to Atlantic Shores (*e.g.*, 88 FR 38821, June 9, 2023; 88 FR 54575, August 10, 2023), which are similar to those planned by Atlantic Shores under this current IHA request. This Biological Opinion (BiOp) determined that NMFS' issuance of IHAs for site characterization survey activities associated with leasing, individually and cumulatively, are not likely to adversely affect listed marine mammals. NMFS notes that, while issuance of this IHA is covered under a different consultation, this BiOp remains valid.

Comment 6: Two commenters claimed sperm whales should have been included in the estimated take analysis of the proposed IHA because takes were anticipated and authorized in two currently active Atlantic Shores IHAs.

Response: NMFS acknowledges that Atlantic Shores has previously requested and NMFS has previously authorized the taking, by Level B harassment only, of small numbers of sperm whales incidental to marine site characterization surveys using other equipment types and configurations not planned for use here (*see* 88 FR 38821, June 9, 2023 and 88 FR 54575, August 10, 2023). However, in this case, Atlantic Shores did not request and NMFS, using the best scientific information available, did not estimate take of sperm whales from Atlantic Shores' proposed survey activities. Specifically, the GeoMarine Geo-Source 400 operating 400 tips at a power level of 400 J is the only equipment and configuration planned for use by Atlantic Shores for this project with the potential to cause incidental take of marine mammals, which results in an estimated Level B harassment zone of 56 m; the maximum depth of the survey area is 60 m and sperm whales are rarely found in waters less than 300 m, which is consistent with Roberts *et al.* (2023) sperm whale density values in the survey area (*see* Table 6-4 of Atlantic Shores' application). We emphasize that take of any marine mammal that is not authorized is prohibited under the MMPA as well as this IHA (*see* Condition 3(c)).

NMFS has noted in the **Description of Marine Mammals in the Area of Specified Activities** section that the spatial occurrence of species, including sperm whales, is such that take is not expected to occur and they are not discussed further. .

Comment 7: Commenters asserted sound levels expected from the equipment planned for use are inaccurate, citing Rand Acoustics data that "the frequency and sound power levels [Rand] measured did not match the equipment cited in the [Atlantic Shores] IHA. This finding prompted a comprehensive review of other expired and active IHAs [by the commenters] which revealed a regular pattern of NMFS accepting Level B harassment distances that are well under those expected given the peak (pk) and root-mean-square (RMS) source sound pressure levels (SPLpk and SPLrms) for the sonar

devices in use, specifically sub-bottom profilers or 'sparkers.' … We see no reasonable path under NMFS' recommendations to rely on proxy devices."

The Warwick Group and Defend Brigantine Beach also provided an example using another type of equipment as a proxy and asserted that, based on their own choice of source levels from Crocker and Fratantonio (2016), the output source levels and resulting calculated distances to the Level B harassment isopleth were accurate while the applicant's and NMFS' were underestimated and incorrect.

Response: NMFS refers the commenters to the Detailed Description of the Specified Activity section in the proposed IHA notice (89 FR 753, January 5, 2024), which provides operational information from Crocker and Fratantonio (2016) and the reasoning for selecting the SIG ELC 820 operating at 400 J with 100 electrode tips as a proxy for the GeoMarine Geo-Source operating at 400 J with 400 electrode tips. The use of this information and source levels appropriately addresses the equipment and configuration planned for use, which means that the analysis herein, including the selection of source level, is conservative for most typical applications of the acoustic source.

Comment 8: Defend Brigantine Beach suggested a 20 decibel (dB) propagation loss coefficient is only valid until the noise hits the bottom, suggesting that use of the spherical spreading model is inappropriate, inconsistent with the physical laws governing noise propagation in a shallow water environment and contradicted by existing NMFS and BOEM Guidance documents.

Response: A major component of transmission loss is spreading loss and from a point source in a uniform medium, sound spreads outward as spherical waves ("spherical spreading") (Richardson *et al.*, 1995). In water, these conditions are often thought of as being related to deep water, where more homogenous conditions may be likely. However, the theoretical distinction between deep and shallow water is related more to the

wavelength of the sound relative to the water depth versus to water depth itself. Therefore, when the sound produced is in the kilohertz range, where wavelength is relatively short, much of the continental shelf may be considered "deep" for purposes of evaluating likely propagation conditions.

As described in the notice of proposed IHA, the area of water ensonified at or above the RMS 160 dB threshold was calculated using a simple model of sound propagation loss, which accounts for the loss of sound energy over increasing range. Our use of the spherical spreading model (where propagation loss = 20 * log [range]; such that there would be a 6-dB reduction in sound level for each doubling of distance from the source) is a reasonable approximation over the relatively short ranges involved. Even in conditions where cylindrical spreading (where propagation loss = 10 * log [range]; such that there would be a 3-dB reduction in sound level for each doubling of distance from the source) may be appropriate (*e.g.*, non-homogenous conditions where sound may be trapped between the surface and bottom), this effect does not begin at the source. In any case, spreading is usually more or less spherical from the source out to some distance, and then may transition to cylindrical (Richardson *et al.*, 1995). For these types of surveys, NMFS has determined that spherical spreading is a reasonable assumption even in relatively shallow waters (in an absolute sense) as the reflected energy from the seafloor will be much weaker than the direct source and the volume influenced by the reflected acoustic energy would be much smaller over the relatively short ranges involved.

NMFS notes the commenter did not specify or provide the guidance documents they referred to when stating this approach contradicts NMFS and BOEM guidance and NMFS is unaware of guidance documents that support the Commenter's claim. Moreover, NMFS has relied on this approach for past IHAs with similar equipment, locations, and depths. NMFS' User Spreadsheet tool assumes a "safe distance"

methodology for mobile sources where propagation loss is spherical spreading (20LogR) (*https://media.fisheries.noaa.gov/2020-12/User_Manual%20_DEC_2020_508.pdf?null*), and NMFS calculator tool for estimating isopleths to Level B harassment thresholds also incorporates the use of spherical spreading. NMFS has determined that spherical spreading is the most appropriate form of propagation loss for these surveys and represents the best scientific information available.

Comment 9: A commenter asserted the mitigation requirements have little impact on protecting marine mammals citing the ongoing Unusual Mortality Events (UMEs) as evidence, and many commenters asserted a correlation of offshore wind survey activities to currently active UMEs in the region. Several commenters expressed concern regarding the recent whale deaths, which they claim are the result of offshore wind activities and marine site characterization survey activities. Another commenter has suggested that NMFS should consider whether or not authorizing any level of harassment should be permissible given the recent elevated public concern about potential impacts on marine mammals from offshore wind activities. Many commenters stated that NMFS cannot determine the cause of the recent whale deaths accurately without doing necropsies and, therefore, NMFS cannot determine that recent whale mortalities were not related to offshore wind-related surveys.

Response: There is no evidence that noise resulting from offshore wind development-related site characterization surveys, which are conducted prior to construction, could potentially cause marine mammal strandings, and there is no evidence linking recent large whale mortalities and currently ongoing surveys. The commenters offer no such evidence or other scientific information to substantiate their claim. NMFS will continue to gather data to help us determine the cause of death for these stranded whales.

The Marine Mammal Commission's recent statement supports NMFS' analysis: "There continues to be no evidence to link these large whale strandings to offshore wind energy development, including no evidence to link them to sound emitted during wind development-related site characterization surveys, known as HRG surveys. Although HRG surveys have been occurring off New England and the mid-Atlantic coast, HRG devices have never been implicated or causatively associated with baleen whale strandings." (Marine Mammal Commission Newsletter, Spring 2023). There is an ongoing UME for humpback whales along the Atlantic coast from Maine to Florida, which includes animals stranded since 2016. Partial or full necropsy examinations were conducted on approximately half of the whales. Necropsies were not conducted on other carcasses because they were too decomposed, not brought to land, or stranded on protected lands (*e.g.*, national and state parks) with limited or no access. Of the whales examined (roughly 90 individuals), about 40 percent had evidence of human interaction, either ship strike or entanglement. Vessel strikes and entanglement in fishing gear are the greatest human threats to large whales. The remaining 50 necropsied whales either had an undetermined cause of death (due to a limited examination or decomposition of the carcass) or had other causes of death including parasite-caused organ damage and starvation. The best available science indicates that only Level B harassment, or disruption of behavioral patterns, may occur as a result of Atlantic Shores' HRG surveys. NMFS emphasizes that there is no credible scientific evidence available suggesting that mortality and/or serious injury is a potential outcome of the planned survey activity, and commenters provide none. NMFS notes there has never been a report of any serious injuries or mortalities of a marine mammal associated with site characterization surveys.

Furthermore, while NMFS agrees in the value of necropsies in determining the cause of death of a stranded marine mammal, NMFS' stranding partners cannot perform necropsies on every dead animal as some of the carcasses were too decomposed, not

brought to land, or stranded on protected lands (*e.g.*, national and state parks) with limited or no access. Furthermore, large whale necropsies are very complicated, requiring many people and typically heavy equipment (*e.g.*, front loaders, *etc.*). Some whales are found dead floating offshore and need to be towed to land for an examination. There can be limitations for access and using heavy equipment depending on the location where the whale stranded, including protected lands (parks or concerns for other endangered species) and accessibility (remote areas, tides that prevent access at times of day). Also, necropsies are the most informative when the animal died relatively recently. Some whales are not found until they are already decomposed, which limits the amount of information that can be obtained. For more information on offshore wind and whales, we reference the commenter to our website (*https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/frequent-questions-offshore-wind-and-whales*).

Comment 10: The Warwick Group, on behalf of the County of Cape May, New Jersey, asserted a sparker should be considered a continuous noise source, thus the NMFS acoustic threshold of 120 dB (referenced to 1 microPascal (re 1 µPa) for Level B harassment should be used.

Response: As is consistent with the best available science, including, but not limited to, Crocker and Fratantonio (2016), sparkers constitute an impulsive source and, therefore, the SPL threshold of 160 dB re 1 µPa is applicable for assessing potential acoustic impacts from Atlantic Shores' marine site characterization surveys.

Comment 11: Several commenters stated that more time and research is needed to understand what the impacts of offshore wind may be on the ocean and marine life, including a suggestion that all offshore wind-related work should be halted until a pilot project is conducted.

Response: NMFS is required to authorize the requested incidental take if it finds the total incidental take of small numbers of marine mammals by U.S. citizens while

engaging in a specified activity within a specified geographic region during a 1-year period will have a negligible impact on such species or stock and where appropriate, will not have an unmitigable adverse impact on the availability of such species or stock for subsistence uses (16 U.S.C. 1371(a)(5)(A)). While the incidental take authorization must be based on the best scientific information available, the MMPA does not allow NMFS to delay issuance of the requested authorization on the presumption that new information will become available in the future. NMFS has made the required findings, based on the best scientific information available, and has included mitigation measures to effect the least practicable adverse impacts on marine mammals.

Comment 12: Commenters suggested denial of the IHA because "a full re-evaluation of the humpback whales Potential Biological Removal (PBR) level for 2024" is needed in light of the increased number of deaths between December 2022 and December 2023.

Response: NMFS reiterates that no mortality or injury is authorized for any species in this IHA and thus, PBR is not part of the negligible impact determination. For additional information on the SAR process, please see *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*.

Comment 13: Clean Ocean Action noted that, because survey vessel type and number of trips are not provided within the proposed notice, it is insufficient for NMFS to claim that the probability of vessel strikes from project-associated survey vessels is low enough to be discountable when the vessels are not towing gear because the vessel trip information is not provided.

Response: NMFS disagrees with the commenter that the risk of vessel strike was not considered in the analysis or the lack of information on vessel type and number of vessel trips leads to an inability to appropriately assess the potential risks related to vessel

strike. NMFS takes the risk of vessel strike seriously and while we acknowledge that vessel strikes can result in injury or mortality, we have analyzed and determined that the potential for vessel strike is so low as to be discountable. Moreover, to effect the least practicable adverse impact, Atlantic Shores must abide by a suite of vessel strike avoidance measures that include, for example, vessel speed restrictions to 10 kn (5.14 m/s) or less in SMAs and DMAs or when mother/calf pairs, pods, or large assemblages of marine mammals are observed; required use of dedicated observers on all survey vessels; maintaining awareness of NARW presence through monitoring of NARW sighting systems (*see* Condition 5(m)). Further, any observations of a NARW by project-related personnel would be reported to sighting networks, alerting other mariners to NARW presence. Both Atlantic Shores and other mariners are required to abide by all existing approach and speed regulations designed to minimize the risk of vessel strike.

Comment 14: Defend Brigantine Beach questioned the model and measurements that lead to the conclusion "that there is now a very low-density number" of NARW from the Duke University study (Roberts *et al.*, 2023), asserting it contradicts density data used previously by Atlantic Shores in their application for construction as well as 10 years of observational data.

Response: NMFS disagrees that Roberts *et al.* (2023) is not the best scientific information available on NARW density. The commenter provided a New York State Department of Environmental Conservation "Species Status Assessment," along with links to the WhaleMap (*https://whalemap.org*) to support the claim that the Roberts *et al.* (2023) density estimates are not representative of NARW density in the Survey Area.

The Species Status Assessment referenced by the commenter was last revised June 26, 2013, and although it provides information regarding NARW, including multiple references to NOAA-generated data and reports, it does not include density information and is therefore not appropriate for comparison to Roberts *et al.* (2023). Similarly,

WhaleMap was designed to communicate the latest whale survey results but does not include density information.

Regarding data used in previous applications for ITAs by Atlantic Shores, the take numbers, as shown in the proposed and final notice, are based on the best available marine mammal density data, published and peer reviewed scientific literature, on-the-water reports from other nearby projects or past MMPA actions, and, in the case of the proposed rule for Atlantic Shores construction activities (*see* 88 FR 65430, September 2, 2023), highly complex statistical models of which real-world assumptions and inputs have been incorporated to estimate take on a project-by-project basis. Both actions calculate density estimates based on density data from Roberts *et al.* (2023) but, because planned activities and specific geographic areas differ between projects, it would not be appropriate to compare those calculated density estimates between projects.

Comment 15: Green Oceans claims that the proposed IHA does not properly value biodiversity in its assessment of harm and that "impacts to the abundance or distribution of marine mammals can disrupt vital systems that regulate the ocean and the climate."

Response: Green Oceans provides no further development of this comment, *e.g.*, in what way it believes that the MMPA requires that "biodiversity" be accounted for in the analyses required under the MMPA, how it believes that these surveys would be likely to impact the abundance or distribution of marine mammals, or how such impacts might be likely to disrupt unspecified "vital systems." However, we reiterate that the magnitude of behavioral harassment authorized is very low and the severity of any behavioral responses are expected to be primarily limited to temporary displacement and avoidance of the area when some activities that have the potential to result in harassment are occurring (*see* **Negligible Impact Analysis and Determination** section for our full analysis). NMFS does not anticipate that marine mammals would be permanently displaced or displaced for extended periods of time from the area where the planned

activities will occur, and the commenter does not provide evidence that this effect should be a reasonably anticipated outcome of the specified activity. We expect temporary avoidance to occur, at worst, but that is distinctly different from displacement, which suggests longer-term, reduced usage of habitat. Similarly, NMFS is not aware of any scientific information suggesting that the survey activity would cause meaningful shifts in abundance and distribution of marine mammals and disagrees that this would be a reasonably anticipated effect of the specified activities. The authorized take of NARWs by Level B harassment is precautionary but considered unlikely as NMFS' take estimation analysis does not account for the use of mitigation and monitoring measures (*e.g.*, the requirement for Atlantic Shores to implement a shutdown zone for NARWs (500 m) that is more than eight times as large as the estimated harassment zone (56 m)). These requirements are expected to largely eliminate the actual occurrence of Level B harassment events and to the extent that harassment does occur, would minimize the duration and severity of any such events. Level B harassment authorized by this IHA is not expected to negatively impact abundance or distribution of other marine mammal species particularly given that it does not account for the suite of mitigation and monitoring measures NMFS has prescribed, and would be comprised of temporary low severity impacts, with no lasting biological consequences. Therefore, even if marine mammals are in the area of the specified activities, a displacement impact is not anticipated.

Comment 16: Several commenters stated that the "precautionary principle" does not allow NMFS to authorize the "introduction of stressors" to populations undergoing an UME, that authorization of take for such species "violates the spirit and intent of the MMPA," and that NMFS is "precluded from authorizing wind energy development" in habitat utilized by relevant species for which there are active UMEs (*i.e.*, humpback, minke, and NARW).

Response: The commenters refer to supposed standards that do not exist in the MMPA, *e.g.*, the MMPA contains no reference to the "precautionary principle," and fails to adequately explain its supposition that NMFS has violated the "spirit and intent" of the MMPA. As described previously, an IHA does not authorize or allow the activity itself but authorizes the take of marine mammals incidental to the "specified activity" for which incidental take coverage is being sought. In this case, NMFS is responding to Atlantic Shores' request to incidentally take marine mammals while engaged in marine site characterization surveys and determining whether the necessary findings can be made based on Atlantic Shores' application. The authorization of Atlantic Shores' survey activities, or any other activities that introduce stressors, is not within NMFS' jurisdiction.

Regarding UMEs, the MMPA does not preclude authorization of take for species or stocks with ongoing UMEs. Rather, NMFS considers the ongoing UME as part of the environmental baseline for the affected species or stock as part of its negligible impact analyses. Elevated NARW mortalities began in June 2017 and there is an active UME. Overall, preliminary findings support human interactions, specifically vessel strikes and entanglements, as the cause of death for the majority of NARWs. As noted previously, the survey area overlaps a migratory corridor for NARWs. Due to the fact that the survey activities are temporary and the spatial extent of sound produced by the survey would be very small relative to the spatial extent of the available migratory habitat in the Biologically Important Area (BIA), NARW migration is not expected to be impacted by the survey. Given the relatively small size of the ensonified area, it is unlikely that prey availability would be adversely affected by HRG survey operations. Required vessel strike avoidance measures will also decrease risk of ship strike during migration; no ship strike is expected to occur during Atlantic Shores' planned activities. Additionally, only very limited take by Level B harassment of NARWs has been requested and is authorized

by NMFS as HRG survey operations are required to maintain a 500 m distance and shutdown if a NARW is sighted at or within that distance. The 500 m shutdown zone for NARWs is conservative, considering the Level B harassment isopleth is estimated to be 56 m, and thereby minimizes the potential for behavioral harassment of this species. NMFS does not anticipate NARW takes that would result from Atlantic Shores' activities will impact annual rates of recruitment or survival. Thus, any takes that occur would not result in population level impacts.

Elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida since January 2016. Of the cases examined, approximately half had evidence of human interaction (ship strike or entanglement). The UME does not yet provide cause for concern regarding population-level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or DPS) remains stable at approximately 12,000 individuals.

Beginning in January 2017, elevated minke whale strandings have occurred along the Atlantic coast from Maine through South Carolina, with highest numbers in Massachusetts, Maine, and New York. This event does not provide cause for concern regarding population level impacts, as the likely population abundance is greater than 20,000 whales. The minke whale UME is currently non-active, with closure pending.

The required mitigation measures are expected to reduce the number and/or severity of takes for all species in table 3, including those with active UMEs, to the level of least practicable adverse impact. In particular they would provide animals the opportunity to move away from the sound source throughout the survey area before HRG survey equipment reaches full energy, thus preventing them from being exposed to sound levels that have the potential to cause injury (Level A harassment) or more severe Level B harassment. No Level A harassment is anticipated, even in the absence of mitigation measures, or authorized.

NMFS expects that takes would be in the form of short-term Level B behavioral harassment by way of brief startling reactions and/or temporary vacating of the area, or decreased foraging (if such activity was occurring)—reactions that (at the scale and intensity anticipated here) are considered to be of low severity, with no lasting biological consequences. Since both the sources and marine mammals are mobile, animals would only be exposed briefly to a small ensonified area that might result in take. Additionally, required mitigation measures would further reduce exposure to sound that could result in more severe behavioral harassment.

Comment 17: Green Oceans criticized NMFS's use of the 160-dB RMS Level B harassment threshold, stating that the threshold is based on outdated information and that the best available science shows that behavioral impacts can occur at levels below the threshold. Criticism of our use of this threshold also focused on its nature as a step function, *i.e.*, it assumes animals don't respond to received noise levels below the threshold but always do respond at higher received levels. Green Oceans also suggested that reliance on this threshold results in consistent underestimation of impacts because it is "not sufficiently conservative" and that any determination that relies on this threshold is "arbitrary and capricious." Green Oceans stated that NMFS generalized behavioral take thresholds are insufficient and should be revised because they do "not properly consider the nonlinear effects of interactions between multiple stressors on marine mammals."

Response: NMFS acknowledges that the 160-dB RMS step-function approach is simplistic and that an approach reflecting a more complex probabilistic function may more effectively represent the known variation in responses at different levels due to differences in the receivers, the context of the exposure, and other factors. Green Oceans suggested that our use of the 160-dB threshold implies that we do not recognize the science indicating that animals may react in ways constituting behavioral harassment when exposed to lower received levels. However, we do recognize the potential for Level

B harassment at exposures to received levels below 160 dB RMS, in addition to the potential that animals exposed to received levels above 160 dB RMS will not respond in ways constituting behavioral harassment. These comments appear to evidence a misconception regarding the concept of the 160-dB threshold. While it is correct that in practice it works as a step-function, *i.e.*, animals exposed to received levels above the threshold are considered to be "taken" and those exposed to levels below the threshold are not, it is in fact intended as a sort of mid-point of likely behavioral responses (which are extremely complex depending on many factors including species, noise source, individual experience, and behavioral context). What this means is that, conceptually, the function recognizes that some animals exposed to levels below the threshold will in fact react in ways that are appropriately considered take while others that are exposed to levels above the threshold will not. Use of the 160-dB threshold allows for a simple quantitative estimate of take while we can qualitatively address the variation in responses across different received levels in our discussion and analysis.

NMFS also notes Green Oceans' statement that the 160-dB threshold is "not sufficiently conservative." Green Oceans does not further describe the standard of conservatism that it believes NMFS must attain or how that standard relates to the legal requirements of the MMPA. Green Oceans goes on to imply that use of the 160-dB threshold is inappropriate because it addresses only exposures that cause disturbance, versus those exposures that present the potential to disturb through disruption of behavioral patterns. Green Oceans does not further develop this comment or offer any justification for this contention. NMFS affirms that use of the 160-dB criterion is expected to be inclusive of acoustic exposures presenting the potential to disturb through disruption of behavioral patterns, as required through the MMPA's definition.

Green Oceans cited reports of changes in vocalization, typically for baleen whales, as evidence in support of a lower threshold than the 160-dB threshold currently

in use. A mere reaction to noise exposure does not, however, mean that a take by Level B harassment, as defined by the MMPA, has occurred. For a take to occur requires that an act have "the potential to disturb by causing disruption of behavioral patterns," not simply result in a detectable change in motion or vocalization. Even a moderate cessation or modification of vocalization might not appropriately be considered as being of sufficient severity to result in take (Ellison *et al.,* 2012). Green Oceans claims these reactions result in biological consequences indicating that the reaction was indeed a take but does not provide a well-supported link between the reported reactions at lower received levels and the claimed consequences.

Overall, there is a lack of scientific consensus regarding what criteria might be more appropriate. Defining sound levels that disrupt behavioral patterns is difficult because responses depend on the context in which the animal receives the sound, including an animal's behavioral mode when it hears sounds (*e.g.,* feeding, resting, or migrating), prior experience, and biological factors (*e.g.,* age and sex). Other contextual factors, such as signal characteristics, distance from the source, and signal to noise ratio, may also help determine response to a given received level of sound. Therefore, levels at which responses occur are not necessarily consistent and can be difficult to predict (Southall *et al.,* 2007, 2019; Ellison *et al.,* 2012; Bain and Williams, 2006; Gomez *et al.*, 2016).

Green Ocean referenced linear risk functions developed for use specifically in evaluating the potential impacts of Navy tactical sonar. However, Green Oceans provided no suggestion regarding a risk function that it believes would be appropriate for use in this case. There is currently no agreement on these complex issues, and this threshold has remained in use in part because of the practical need to use a relatively simple threshold based on available information that is both predictable and measurable for most activities.

Comment 18: Delaware DNREC recommends: 1) requiring Atlantic Shores follow the proposed speed limitation for smaller vessels outlined in 50 CFR 224 "Amendments to the North Atlantic Right Whale Vessel Strike Reduction Rule" (87 FR 46921, August 1, 2022) if the rule has not been finalized by the time the IHA becomes effective; 2) removing the waiver for shutdown requirements for small delphinids and pinnipeds if the PSO identifies any individuals in distress.

Response: NMFS appreciates the recommendations from DNREC and reiterates that, should a final vessel speed rule be issued and become effective during the effective period of these regulations (or any other MMPA incidental take authorization), Atlantic Shores will be required to comply with any and all applicable requirements contained within the final vessel speed rule.

Regarding removal of the waiver for shutdown requirement for certain delphinids and pinnipeds should PSOs identify an individual in distress, NMFS directs the commenter to measures in the Monitoring and Reporting section of the proposed notice and final authorization for the reporting of injured or dead marine mammals. PSOs are required to record all sightings of marine mammals and provide details of any observed behavioral disturbances. Based on reporting, NMFS may modify the IHA if the prescribed measures are likely not affecting the least practicable adverse impact on the affected marine mammals. There have also been no such observations reported in any reports from similar survey activities.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock

Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species)*.

Table 1 lists all species or stocks for which take is likely and authorized for this activity and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and PBR, where known. PBR is defined by the MMPA as 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 (as described in NMFS' SARs). While no serious injury or mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Atlantic SARs. All values presented in table 1 are the most recent available at the time of publication and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*.

Table 1 – Marine Mammal Species and Stocks Likely Impacted by the Specified Activities [1]

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[2]	Stock abundance (CV, N_{min}, most recent abundance survey)[3]	PBR	Annual M/SI[4]
Order Artiodactyla – Cetacea – Mysticeti (baleen whales)						
Family Balaenidae						
N Atlantic Right Whale [5]	*Eubalaena glacialis*	Western Atlantic	E, D, Y	338 (0, 332, 2020)	0.7	31.2
Family Balaenopteridae (rorquals)						
Fin Whale	*Balaenoptera physalus*	Western N Atlantic	E, D, Y	6,802 (0.24, 5,573, 2016)	11	1.8
Humpback Whale	*Megaptera novaeangliae*	Gulf of Maine	-, -, N	1,396 (0, 1380, 2016)	22	12.15
Minke Whale	*Balaenoptera acutorostrata*	Canadian Eastern Coastal	-, -, N	21,968 (0.31, 17,002, 2016)	170	10.6
Sei Whale	*Balaenoptera borealis*	Nova Scotia	E, D, Y	6,292 (1.02, 3,098, 2016)	6.2	0.8
Family Delphinidae						
Long-Finned Pilot Whale	*Globicephala melas*	Western N Atlantic	-, -, N	39,215 (0.30, 30,627, 2016)	306	9
Atlantic Spotted Dolphin	*Stenella frontalis*	Western N Atlantic	-, -, N	39,921 (0.27, 32,032, 2016)	320	0
Atlantic White-Sided Dolphin	*Lagenorhynchus acutus*	Western N Atlantic	-, -, N	93,233 (0.71, 54,443, 2016)	544	27
Bottlenose Dolphin	*Tursiops truncatus*	Northern Migratory Coastal	-, -, Y	6,639 (0.41, 4,759, 2016)	48	12.2-21.5
Bottlenose Dolphin	*Tursiops truncatus*	Western N Atlantic Offshore	-, -, N	62,851 (0.23, 51,914, 2016)	519	28
Risso's Dolphin	*Grampus griseus*	Western N Atlantic	-, -, N	35,215 (0.19, 30,051, 2016)	301	34
Common Dolphin	*Delphinus delphis*	Western N Atlantic	-, -, N	172,974 (0.21, 145,216, 2016)	1,452	390
Family Phocoenidae (porpoises)						
Harbor Porpoise	*Phocoena phocoena*	Gulf of Maine/ Bay of Fundy	-, -, N	95,543 (0.31, 74,034, 2016)	851	164
Order Carnivora – Pinnipedia						

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[2]	Stock abundance (CV, N_{min}, most recent abundance survey)[3]	PBR	Annual M/SI[4]
Family Phocidae (earless seals)						
Gray Seal [6]	*Halichoerus grypus*	Western N Atlantic	-, -, N	27,300 (0.22, 22,785, 2016)	1,458	4,453
Harbor Seal	*Phoca vitulina*	Western N Atlantic	-, -, N	61,336 (0.08, 57,637, 2018)	1,729	339

1 - Information on the classification of marine mammal species can be found on the web page for The Society for Marine Mammalogy's Committee on Taxonomy (*https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies/*; Committee on Taxonomy (2022)).
2 - ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.
3 - NMFS marine mammal SARs online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region*. CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance.
4 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, vessel strike). Annual mortality and serious injury (M/SI) often cannot be determined precisely and is in some cases presented as a minimum value or range.
5 - Linden (2023) estimated the population size in 2022 as 356 individuals, with a 95 percent credible interval ranging from 346 to 363, and the draft 2023 SAR provides an estimated stock abundance of 340 (Hayes *et al.*, 2024). NMFS acknowledges these recent estimations in addition to the 2022 SAR stock abundance estimate.
6 - NMFS's stock abundance estimate (and associated PBR value) applies to the U.S. population only. Total stock abundance (including animals in Canada) is approximately 451,600. The annual M/SI given is for the total stock.

As indicated above, all 14 species (15 stocks) in table 1 temporally and spatially co-occur with the proposed activity to the degree that take is reasonably likely to occur. While other species (*e.g.*, sperm whales) have been documented in the area (*see* table 3-1 and 6-4 of the IHA application), the temporal and/or spatial occurrence of these species is such that take is not expected to occur and they are not discussed further beyond the explanation provided here.

A detailed description of the species likely to be affected by this project, including brief introductions to the species and relevant stocks, population trends and threats, and local occurrence, were provided in the **Federal Register** notice for the proposed IHA (89 FR 753, January 5, 2024). Since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to the **Federal Register** notice (89 FR 753, January 5, 2024) for these descriptions. Please also refer to the NMFS website (*https://www.fisheries.noaa.gov/find-species*) for generalized species accounts.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 2005, Wartzok and Ketten, 1999, Au and Hastings, 2008). To reflect this, Southall *et al.* (2007), Southall *et al.* (2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing

ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 dB threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in table 2.

Table 2 – Marine Mammal Hearing Groups (NMFS, 2018)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, *Kogia*, river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite (*i.e.*, all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.* 2007) and PW pinniped (approximation).	

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006, Kastelein *et al.*, 2009, Reichmuth *et al.*, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

A description of the potential effects of the specified activities on marine mammals and their habitat can be found in the **Federal Register** notice for the proposed

IHA (89 FR 753, January 5, 2024). There is no new information on the potential effects of the specified activities on marine mammals. Therefore, that information is not repeated here; please refer to the **Federal Register** notice (89 FR 753, January 5, 2024).

Estimated Take

This section provides an estimate of the number of incidental takes authorized through the IHA, which informs NMFS' consideration of "small numbers" and the negligible impact determinations.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) 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 (Level B harassment).

Authorized takes are by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to sound produced by the sparker. Based on the nature of the activity, Level A harassment is neither anticipated nor authorized. As described previously, no serious injury or mortality is anticipated or authorized for this activity. Below, we describe how the take numbers are estimated.

For acoustic impacts, generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these factors can

contribute to a basic calculation to provide an initial prediction of potential takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the authorized take estimates.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur permanent threshold shift (PTS) of some degree (equated to Level A harassment).

Level B Harassment – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.*, frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.*, bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.*, Southall *et al.,* 2007, Southall *et al.,* 2021, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above RMS SPL of 120 dB re 1 µPa for continuous (*e.g.,* vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 µPa for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

Generally speaking, Level B harassment take estimates based on these behavioral harassment thresholds are expected to include any likely takes by temporary threshold shift (TTS) as, in most cases, the likelihood of TTS occurs at distances from the source less than those at which behavioral harassment is likely. TTS of a sufficient degree can manifest as behavioral harassment, as reduced hearing sensitivity and the potential reduced opportunities to detect important signals (conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

Atlantic Shores' marine site characterization surveys include the use of an impulsive (*i.e.*, sparker) source, and therefore the SPL threshold of 160 dB re 1 µPa is applicable.

Level A harassment – NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive).

The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

NMFS has developed a user-friendly methodology for estimating the extent of the Level B harassment isopleths associated with relevant HRG survey equipment (NMFS, 2020). This methodology incorporates frequency and directionality (when relevant) to

refine estimated ensonified zones. For acoustic sources that operate with different beamwidths, the maximum beamwidth was used, and the lowest frequency of the source was used when calculating the frequency-dependent absorption coefficient. Atlantic Shores used 180° beamwidth in the calculation for the sparker system as is appropriate for an omnidirectional source.

NMFS considers the data provided by Crocker and Fratantonio (2016) to represent the best available information on source levels associated with HRG survey equipment and, therefore, recommends that source levels provided by Crocker and Fratantonio (2016) be incorporated in the method described above to estimate isopleth distances to harassment thresholds. In cases where the source level for a specific type of HRG equipment is not provided in Crocker and Fratantonio (2016), NMFS recommends that, in instances where data from a suitable proxy is presented, Crocker and Fratantonio (2016) be used, or, alternatively, when no suitable proxy is available, source levels provided by the manufacturer may be used instead. Table 2 in the **Federal Register** notice for the proposed IHA (89 FR 753, January 5, 2024) shows the sparker type used during the planned surveys and the source levels associated with the sparker.

Atlantic Shores plans to use the GeoMarine Geo-Source 400 Marine Multi-tip Sparker System (400 tip/400 J). No data are provided by Crocker and Fratantonio (2016) for the GeoMarine Geo-Source sparker system, therefore, Atlantic Shores has used the data provided for the SIG ELC 820 operating at 400 J with 100 electrode tips as a proxy for the GeoMarine Geo-Source operating at 400 J with 400 electrode tips. Crocker and Fratantonio (2016) indicates an operational source level of 195 dB_{RMS} for the SIG ELC 820 while operating at a power of 400 J using 100 electrode tips, and Atlantic Shores has determined that an increase in the number of electrode tips decreases the overall peak source pressure translating to a lower operational source level. NMFS concurs with this selection, which is described in table 2 of the **Federal Register** notice for the proposed

IHA (89 FR 753, January 5, 2024). Using the proxy source level of 195 dB RMS SPL results in an estimated distance of 56 m to the Level B harassment isopleth. More detail is provided on the acoustic sources and methodology in the **Federal Register** notice for the proposed IHA; please refer to the **Federal Register** notice (89 FR 753, January 5, 2024).

Marine Mammal Occurrence

In this section, we provide information about the occurrence of marine mammals, including density or other relevant information which will inform the take calculations.

Habitat-based density models produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts *et al.*, 2023) represent the best available information regarding marine mammal densities in the Survey Area. These density data incorporate aerial and shipboard line-transect survey data from NMFS and other organizations and incorporate data from numerous physiographic and dynamic oceanographic and biological covariates, and controls for the influence of sea state, group size, availability bias, and perception bias on the probability of making a sighting. These density models were originally developed for all cetacean taxa in the U.S. Atlantic in 2016 and models for all taxa were updated in 2022 (Roberts *et al.*, 2023). More information is available online at: *https://seamap.env.duke.edu/models/Duke/EC/.* Marine mammal density estimates in the Survey Area (animals/km^2) were obtained using the most recent model results for all taxa.

For the exposure analysis, density data from Roberts *et al.* (2023) were mapped using a geographic information system (GIS). For the Survey Area, the monthly densities of each species as reported by Roberts *et al.* (2023) were averaged by season; thus, a density was calculated for each species for spring, summer, fall, and winter. Density seasonal averages were calculated for both the nearshore and offshore areas (*i.e.*, inside and outside the 10-m isobath) for each species to assess the greatest average seasonal densities for each species. To be conservative since the exact timing for the survey during

the year is uncertain, the greatest average seasonal density calculated for each species was carried forward in the exposure analysis, with exceptions noted later in this discussion. Estimated greatest average seasonal densities (animals/km^2) of marine mammal species that may be taken incidental to the planned survey can be found in tables C-1 and C-2 of Atlantic Shores' IHA application. Below, we discuss how densities were assumed to apply to specific species for which the Roberts *et al.* (2023) models provide results at the genus or guild level.

There are two stocks of bottlenose dolphins that may be impacted by the surveys (Western North Atlantic Northern Migratory Coastal Stock (coastal stock) and Western North Atlantic Offshore Stock (offshore stock)), however, Roberts *et al.* (2023) do not differentiate by stock. These two stocks are considered geographically separated and multiple isobaths, including the 20-m (Hayes *et al.* 2021) and 25-m (Hayes *et al.* 2020), have been considered as the delineation between the two. Atlantic Shores used the 25-m isobath in their calculation and NMFS has accepted this interpretation. The nearshore area of the Survey Area is considered waters less than 10 m depth and only the coastal stock will occur and potentially be taken by survey effort in that area. Both stocks could occur in the offshore area (greater than 10 m depth), so Atlantic Shores calculated separate mean seasonal densities to use for estimating take of the coastal and offshore stocks of bottlenose dolphins, respectively.

In addition, the Roberts *et al.* (2023) density model does not differentiate between the different pinniped species. For seals, given their size and behavior when in the water, seasonality, and feeding preferences, there is limited information available on species-specific distribution. Density estimates from Roberts *et al.* (2023) include all seal species that may occur in the Western North Atlantic combined (*i.e.*, gray, harbor, harp, hooded). For this IHA, only gray seals and harbor seals are reasonably expected to occur in the Survey Area; densities of seals were split evenly between these two species.

Finally, the Roberts *et al.* (2023) density model does not differentiate between pilot whale species. While the exact latitudinal ranges of the two species are uncertain, only long-finned pilot whales are expected to occur in this project area due to their more northerly distribution and tolerance of shallower, colder shelf waters (Hayes *et al.*, 2022). Short-finned pilot whales are not anticipated to occur as far north as the Survey Area so we assume that all pilot whales near the project area will be long-finned pilot whales (Garrison and Rosel, 2017). For this IHA, densities of pilot whales are assumed to be only long-finned pilot whale.

Take Estimation

Here, we describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and authorized.

In order to estimate the number of marine mammals predicted to be exposed to sound levels that would result in harassment, radial distances to predicted isopleths corresponding to Level B harassment thresholds were calculated, as described above. The distance (*i.e.*, 56 m distance associated with the sparker system) to the Level B harassment criterion and the total length of the survey trackline were then used to calculate the total ensonified area, or harassment zone, around the survey vessel. Atlantic Shores plans to conduct HRG surveys for a maximum total of 28,800 km trackline length, of which 25,200 km are in the offshore area and 3,600 km are in the nearshore area. Based on the maximum estimated distance to the Level B harassment threshold (56 m) for the sparker system and maximum total survey length, the total ensonified area is 3,228 km^2 (2,824 km^2 offshore area and 404 km^2 nearshore area), based on the following formula, where the total estimated trackline length (*Distance/day*) in each area was used and buffered with the horizontal distance to the Level B harassment threshold (r) to determine the total area ensonified to 160 dB SPL.

$$Harassment\ Zone = (Distance/day \times 2r) + \pi r^2$$

The number of marine mammals expected to be incidentally taken during the total survey is then calculated by estimating the number of each species predicted to occur within the ensonified area (animals/km^2), incorporating the greatest seasonal estimated marine mammal densities as described above. The product is then rounded to generate an estimate of the total number of instances of harassment expected for each species over the duration of the survey (up to 300 days). A summary of this method is illustrated in the following formula, where the *Harassment Zone* is multiplied by the highest seasonal mean density (*D*) of each species or stock (animals/km^2; except for pilot whales where annual density was used based on data availability).

$$Estimated\ Take = Harassment\ Zone \times D \times number\ of\ days$$

The resulting take of marine mammals (Level B harassment) is shown in table 3.

Table 3 – Estimated Take Numbers and Total Take Authorized

Species	Nearshore Survey Area Maximum Seasonal Density (No./100 km^2) [a]	Nearshore Survey Area Calculated Take	Offshore Survey Area Maximum Seasonal Density (No./100 km^2) [a]	Offshore Survey Area Calculated Take	Total Adjusted Estimated Take Requested (No.)	Estimated takes as a percentage of population
N Atlantic right whale	0.058	0	0.075	2	2	<1
Fin whale	0.004	0	0.135	4	4	<1
Humpback whale	0.058	0	0.105	3	3	<1
Minke whale	0.04	0	0.585	17	17	<1
Sei whale	0.004	0	0.046	1	2[d]	<1
Long-finned pilot whale [b]	0	0	0.071	2	9[d]	<1
Atlantic spotted dolphin	0.002	0	0.657	19	25[d]	<1
Atlantic white-sided dolphin	0.009	0	0.731	21	21	<1
Bottlenose dolphin Northern migratory coastal stock	64.596	261	17.155	194[e]	455	6.9
Bottlenose dolphin offshore stock	NA	NA	17.155	291[e]	291	<1
Risso's dolphin	0	0	0.078	2	8[d]	<1
Common dolphin	0.128	0.5	6.517	184	185	<1
Harbor porpoise	0.393	2	3.374	95	97	<1
Gray seal [c]	10.022	41	5.886	166	207	<1

Species	Nearshore Survey Area Maximum Seasonal Density (No./100 km^2) [a]	Nearshore Survey Area Calculated Take	Offshore Survey Area Maximum Seasonal Density (No./100 km^2) [a]	Offshore Survey Area Calculated Take	Total Adjusted Estimated Take Requested (No.)	Estimated takes as a percentage of population
Harbor seal [c]	10.022	41	5.886	166	207	<1

Note: The nearshore survey area is delineated as waters less than 10 m depth while the offshore survey area is delineated as waters greater than 10 m depth.

[a] Cetacean density values from Duke University (Roberts *et al.*, 2023).

[b] Pilot whale density models from Duke University (Roberts *et al.*, 2023) represent pilot whales as a 'guild' rather than by species. However, since the Survey Area is only expected to contain long-finned pilot whales, it is assumed that pilot whale densities modeled by Roberts *et al.* (2023) in the Survey Area only reflect the presence of long-finned pilot whales.

[c] Pinniped density models from Duke University (Roberts *et al.*, 2023) represent 'seals' as a guild rather than by species. These each represent 50 percent of a generic seal density value.

[d] The number of authorized takes (Level B harassment only) for these species has been increased from the calculated take to consider the mean group size. Source for Atlantic spotted dolphin, long-finned pilot whale, Risso's dolphin, and sei whale group size estimates is Annual Report of a Comprehensive Assessment of Marine Mammal, Marine Turtle, and Seabird Abundance and Spatial Distribution in US waters of the Western North Atlantic Ocean, Atlantic Marine Assessment Program for Protected Species (AMAPPS; NEFSC and SEFSC, 2022).

[e] Density and take numbers were proportioned per stock as a function of depth. More information provided in section 6.3 of the IHA application.

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, NMFS considers two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, and impact on operations.

Pursuant to section 7 of the ESA, Atlantic Shores is also required to adhere to relevant Project Design Criteria (PDC) of the NMFS' GARFO programmatic consultation (specifically PDCs 4, 5, and 7) regarding geophysical surveys along the U.S. Atlantic

coast (*https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic#offshore-wind-site-assessment-and-site-characterization-activities-programmatic-consultation*).

Visual Monitoring and Shutdown Zones

Atlantic Shores must employ independent, dedicated, trained PSOs, meaning that the PSOs must (1) be employed by a third-party observer provider, (2) have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements (including brief alerts regarding maritime hazards), and (3) have successfully completed an approved PSO training course appropriate for geophysical surveys. Visual monitoring must be performed by qualified, NMFS-approved PSOs. PSO resumes must be provided to NMFS for review and approval prior to the start of survey activities.

During survey operations (*e.g.*, any day in which use of the sparker system is planned to occur, and whenever the sparker system is in the water, whether activated or not), a minimum of one visual marine mammal observer (PSO) must be on duty on each source vessel and conducting visual observations at all times during daylight hours (*i.e.*, from 30 minutes (min) prior to sunrise through 30 min following sunset). A minimum of two PSOs must be on duty on each source vessel during nighttime hours. Visual monitoring must begin no less than 30 min prior to ramp-up (described below) and must continue until 30 min after use of the sparker system ceases.

Visual PSOs shall coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and shall conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner. PSOs shall establish and monitor applicable pre-start clearance and

shutdown zones (see below). These zones shall be based upon the radial distance from the sparker system (rather than being based around the vessel itself).

Two pre-start clearance and shutdown zones are defined, depending on the species and context. Here, an extended pre-start clearance and shutdown zone encompassing the area at and below the sea surface out to a radius of 500 m from the sparker system (0–500 m) is defined for NARW. For all other marine mammals, the pre-start clearance and shutdown zone encompasses a standard distance of 100 m (0–100 m) during the use of the sparker. Any observations of marine mammals by crew members aboard any vessel associated with the survey shall be relayed to the PSO team.

Visual PSOs may be on watch for a maximum of 4 consecutive hours followed by a break of at least 1 hr between watches and may conduct a maximum of 12 hr of observation per 24-hr period.

Pre-Start Clearance and Ramp-up Procedures

A ramp-up procedure, involving a gradual increase in source level output, is required at all times as part of the activation of the sparker system when technically feasible. If technically feasible, operators must ramp up sparker to half power for 5 min and then proceed to full power. A 30 min pre-start clearance observation period of the pre-start clearance zones must occur prior to the start of ramp-up. The intent of the pre-start clearance observation period (30 min) is to ensure no marine mammals are within the pre-start clearance zones prior to the beginning of ramp-up. The intent of the ramp-up is to warn marine mammals of pending operations and to allow sufficient time for those animals to leave the immediate vicinity. All operators must adhere to the following pre-start clearance and ramp-up requirements:

- The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time should not be less than 60 min prior to the planned ramp-up in order to allow the PSOs time to

monitor the pre-start clearance zones for 30 min prior to the initiation of ramp-up (pre-start clearance). During this 30 min pre-start clearance period the entire pre-start clearance zone must be visible, except as indicated below.

- Ramp-ups shall be scheduled so as to minimize the time spent with the sparker activated.
- A visual PSO conducting pre-start clearance observations must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO to proceed.
- Any PSO on duty has the authority to delay the start of survey operations if a marine mammal is detected within the applicable pre-start clearance zone.
- The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that mitigation commands are conveyed swiftly while allowing PSOs to maintain watch.

If there is uncertainty regarding identification of a marine mammal species, PSOs may use best professional judgment in making the decision to call for a shutdown.

- Ramp-up may not be initiated if any marine mammal to which the pre-start clearance requirement applies is within the pre-start clearance zone. If a marine mammal is observed within the pre-start clearance zone during the 30 min pre-start clearance period, ramp-up may not begin until the animal(s) has been observed exiting the zones or until an additional time period has elapsed with no further sightings.
- PSOs must monitor the pre-start clearance zones 30 min before and during ramp-up, and ramp-up must cease and the sparker must be shut down upon observation of a marine mammal within the applicable pre-start clearance zone.

- Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of marine mammals in the 30 min prior to beginning ramp-up. Sparker activation may only occur at night where operational planning cannot reasonably avoid such circumstances.

If the sparker is shut down for brief periods (*i.e.*, less than 30 min) for reasons other than implementation of prescribed mitigation (*e.g.*, mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual observation and no detections of marine mammals have occurred within the applicable pre-start clearance zone. For any longer shutdown, pre-start clearance observation and ramp-up are required.

Shutdown Procedures

All operators must adhere to the following shutdown requirements:

- Any PSO on duty has the authority to call for shutdown of the sparker system if a marine mammal is detected within the applicable shutdown zones.
- The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the source to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch.
- When the sparker system is active and a marine mammal appears within or enters the applicable shutdown zones, the sparker must be shut down. When shutdown is instructed by a PSO, the sparker system must be immediately deactivated and any dispute resolved only following deactivation.
- Two shutdown zones are defined, depending on the species and context. An extended shutdown zone encompassing the area at and below the sea surface out to a radius of 500 m from the sparker system (0–500 m) is defined for

NARW. For all other marine mammals, the shutdown zone encompasses a standard distance of 100 m (0–100 m) during the use of the sparker.

The shutdown requirement is waived for small delphinids and pinnipeds. If a small delphinid (individual belonging to the following genera of the Family Delphinidae: *Delphinus, Lagenorhynchus, Stenella,* and *Tursiops*) or pinniped is visually detected within the shutdown zones, no shutdown is required unless the PSO confirms the individual to be of a genus other than those listed, in which case a shutdown is required.

If there is uncertainty regarding identification of a marine mammal species (*i.e.*, whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived or one of the species with a larger shutdown zone), PSOs may use best professional judgment in making the decision to call for a shutdown.

Upon implementation of shutdown, the sparker may be reactivated after the marine mammal has been observed exiting the applicable shutdown zone or following a clearance period (30 min for all baleen whale species, long-finned pilot whales, and Risso's dolphins; 15 min for harbor porpoises) with no further detection of the marine mammal.

If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized number of takes have been met, approaches or is observed within the Level B harassment zone (56 m), shutdown must occur.

Vessel Strike Avoidance

Crew and supply vessel personnel must use an appropriate reference guide that includes identifying information on all marine mammals that may be encountered. Vessel operators must comply with the below measures except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question. These requirements do not apply in any case where compliance will create

an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

Vessel operators and crews must maintain a vigilant watch for all marine mammals and slow down, stop their vessel(s), or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammals. A single marine mammal at the surface may indicate the presence of submerged animals in the vicinity of the vessel; therefore, precautionary measures should always be exercised. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (species-specific distances are detailed below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to (1) distinguish marine mammal from other phenomena, and (2) broadly to identify a marine mammal as a NARW, other whale (defined in this context as baleen whales other than NARWs), or other marine mammals.

All survey vessels, regardless of size, must observe a 10-kn (5.14 m/s) speed restriction in specific areas designated by NMFS for the protection of NARWs from vessel strikes. These include all seasonal management areas (SMA) established under 50 CFR 224.105 (when in effect), any dynamic management areas (DMA) (when in effect), and Slow Zones. See *https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales* for specific detail regarding these areas.

- All vessels must reduce speed to 10 kn (5.14 m/s) or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel.
- All vessels must maintain a minimum separation distance of 500 m from NARWs, other ESA-listed species, and any unidentified large whales. If a NARW, other ESA-listed species, and any unidentified large whale is sighted

within the relevant separation distance, the vessel must steer a course away at 10 kn (5.14 m/s) or less until the 500-m separation distance has been established. If a whale is observed but cannot be confirmed as a species other than a NARW, the vessel operator must assume that it is a NARW and take appropriate action.

- All vessels must maintain a minimum separation distance of 100 m from all non-ESA-listed baleen whales.
- All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel).
- When marine mammals are sighted while a vessel is underway, the vessel must take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area, reduce speed and shift the engine to neutral). This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

Atlantic Shores and members of the PSO team will consult the NMFS NARW reporting system and Whale Alert, daily and as able, for the presence of NARWs throughout survey operations, and for the establishment of DMAs and/or Slow Zones. It is Atlantic Shores' responsibility to maintain awareness of the establishment and location of any such areas and to abide by these requirements accordingly.

Seasonal Operating Requirements

As described above, a section of the Survey Area partially overlaps with portions of two NARW SMAs off the ports of New York/New Jersey and the entrance to Delaware Bay. These SMAs are active from November 1 through April 30 of each year.

The survey vessels, regardless of length, are required to adhere to vessel speed restrictions (less than 10 kn (5.14 m/s)) when operating within the SMAs during times when the SMAs are active (table 4).

Table 4 – North Atlantic Right Whale Dynamic Management Area (DMA) and Seasonal Management Area (SMA) Restrictions within the Survey Area

Survey Area	Species	DMA Restrictions	Slow Zones	SMA Restrictions
Survey Area (outside SMA)	North Atlantic right whale	If established by NMFS, all of Atlantic Shores' vessel will abide by the described restrictions	If established by NMFS, all of Atlantic Shores' vessel will abide by the described restrictions	N/A
Survey Area (within SMA)	North Atlantic right whale	If established by NMFS, all of Atlantic Shores' vessel will abide by the described restrictions	If established by NMFS, all of Atlantic Shores' vessel will abide by the described restrictions	November 1 through April 30 (Ports of New York/New Jersey and entrance to the Delaware Bay)

Note: More information on Vessel Strike Reduction for the NARW can be found at NMFS' website: *https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales*.

Based on our evaluation of the applicant's planned measures, NMFS has determined that the planned mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected

to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the activity; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and,
- Mitigation and monitoring effectiveness.

Monitoring Measures

Visual monitoring must be performed by qualified, NMFS-approved PSOs. Atlantic Shores must submit PSO resumes for NMFS review and approval prior to commencement of the survey. Resumes should include dates of training and any prior

NMFS approval, as well as dates and description of last experience, and must be accompanied by information documenting successful completion of an acceptable training course.

For prospective PSOs not previously approved, or for PSOs whose approval is not current, NMFS must review and approve PSO qualifications. Resumes should include information related to relevant education, experience, and training, including dates, duration, location, and description of prior PSO experience. Resumes must be accompanied by relevant documentation of successful completion of necessary training.

NMFS may approve PSOs as conditional or unconditional. A conditionally-approved PSO may be one who is trained but has not yet attained the requisite experience. An unconditionally-approved PSO is one who has attained the necessary experience. For unconditional approval, the PSO must have a minimum of 90 days at sea performing the role during a geophysical survey, with the conclusion of the most recent relevant experience not more than 18 months previous.

At least one of the visual PSOs aboard the vessel must be unconditionally-approved. One unconditionally-approved visual PSO shall be designated as the lead for the entire PSO team. This lead should typically be the PSO with the most experience, who will coordinate duty schedules and roles for the PSO team and serve as primary point of contact for the vessel operator. To the maximum extent practicable, the duty schedule shall be planned such that unconditionally-approved PSOs are on duty with conditionally-approved PSOs.

At least one PSO aboard each acoustic source vessel must have a minimum of 90 days at-sea experience working in the role, with no more than 18 months elapsed since the conclusion of the at-sea experience. One PSO with such experience must be designated as the lead for the entire PSO team and serve as the primary point of contact for the vessel operator. (Note that the responsibility of coordinating duty schedules and

roles may instead be assigned to a shore-based, third-party monitoring coordinator.) To the maximum extent practicable, the lead PSO must devise the duty schedule such that experienced PSOs are on duty with those PSOs with appropriate training but who have not yet gained relevant experience.

PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or more) a written and/or oral examination developed for the training program.

PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics. The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted to NMFS and must include written justification. Alternate experience that may be considered includes, but is not limited to (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting academic, commercial, or government-sponsored marine mammal surveys; and (3) previous work experience as a PSO (PSO must be in good standing and demonstrate good performance of PSO duties).

Atlantic Shores must work with the selected third-party PSO provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals, and to ensure that PSOs are capable of calibrating equipment as necessary for accurate distance estimates and species identification. Such equipment, at a minimum, shall include:

- At least one thermal (infrared) imaging device suited for the marine environment;

- Reticle binoculars (*e.g.*, 7 x 50) of appropriate quality (at least one per PSO, plus backups);
- Global positioning units (GPS) (at least one plus backups);
- Digital cameras with a telephoto lens that is at least 300-mm or equivalent on a full-frame single lens reflex (SLR) (at least one plus backups). The camera or lens should also have an image stabilization system;
- Equipment necessary for accurate measurement of distances to marine mammal;
- Compasses (at least one plus backups);
- Means of communication among vessel crew and PSOs; and,
- Any other tools deemed necessary to adequately and effectively perform PSO tasks.

The equipment specified above may be provided by an individual PSO, the third-party PSO provider, or the operator, but Atlantic Shores is responsible for ensuring PSOs have the proper equipment required to perform the duties specified in the IHA. Reference materials must be available aboard all project vessels for identification of protected species.

The PSOs will be responsible for monitoring the waters surrounding the survey vessel to the farthest extent permitted by sighting conditions, including pre-start clearance and shutdown zones, during all HRG survey operations. PSOs will visually monitor and identify marine mammals, including those approaching or entering the established pre-start clearance and shutdown zones during survey activities. It will be the responsibility of the PSO(s) on duty to communicate the presence of marine mammals as well as to communicate the action(s) that are necessary to ensure mitigation and monitoring requirements are implemented as appropriate.

PSOs must be equipped with binoculars and have the ability to estimate distance and bearing to detect marine mammals, particularly in proximity to shutdown zones. Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine mammals. During nighttime operations, appropriate night-vision devices (*e.g.*, night-vision goggles with thermal clip-ons and infrared technology) will be used. Position data will be recorded using hand-held or vessel GPS units for each sighting.

During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), to the maximum extent practicable, PSOs must also conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the active acoustic sources and between acquisition periods. Any observations of marine mammals by crew members aboard the vessel associated with the survey will be relayed to the PSO team.

Data on all PSO observations will be recorded based on standard PSO collection requirements (see *Reporting Measures*). This will include dates, times, and locations of survey operations; dates and times of observations, location and weather; details of marine mammal sightings (*e.g.*, species, numbers, behavior); and details of any observed marine mammal behavior that occurs (*e.g.*, noted behavioral disturbances). Members of the PSO team shall consult the NMFS NARW reporting system and Whale Alert, daily and as able, for the presence of NARWs throughout survey operations.

Reporting Measures

Atlantic Shores shall submit a draft comprehensive report to NMFS on all activities and monitoring results within 90 days of the completion of the survey or expiration of the IHA, whichever comes sooner. The report must describe all activities conducted and sightings of marine mammals, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the

dates and locations of survey operations and all marine mammals sightings (dates, times, locations, activities, associated survey activities). The draft report shall also include geo-referenced, time-stamped vessel tracklines for all time periods during which acoustic sources were operating. Tracklines should include points recording any change in acoustic source status (*e.g.*, when the sources began operating, when they were turned off, or when they changed operational status such as from full array to single gun or vice versa). GIS files shall be provided in Environmental Systems Research Institute, Inc. (ESRI) shapefile format and include the Coordinated Universal Time (UTC) date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates shall be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data shall be made available. The report must summarize the information. A final report must be submitted within 30 days following resolution of any comments on the draft report. All draft and final marine mammal monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov, nmfs.gar.incidental-take@noaa.gov*, and *ITP.clevenstine@noaa.gov*.

PSOs must use standardized electronic data forms to record data. PSOs shall record detailed information about any implementation of mitigation requirements, including the distance of marine mammal to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source. If required mitigation was not implemented, PSOs should record a description of the circumstances. At a minimum, the following information must be recorded:

1. Vessel names (source vessel), vessel size and type, maximum speed capability of vessel;

2. Dates of departures and returns to port with port name;

3. PSO names and affiliations;

4. Date and participants of PSO briefings;

5. Visual monitoring equipment used;

6. PSO location on vessel and height of observation location above water surface;

7. Dates and times (Greenwich Mean Time) of survey on/off effort and times corresponding with PSO on/off effort;

8. Vessel location (decimal degrees) when survey effort begins and ends and vessel location at beginning and end of visual PSO duty shifts;

9. Vessel location at 30-second intervals if obtainable from data collection software, otherwise at practical regular interval;

10. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change;

11. Water depth (if obtainable from data collection software);

12. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including BSS and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;

13. Factors that may contribute to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions); and,

14. Survey activity information (and changes thereof), such as acoustic source power output while in operation, number and volume of airguns operating in an array, tow depth of an acoustic source, and any other notes of significance (*i.e.*, pre-start clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, *etc.*).

15. Upon visual observation of any marine mammal, the following information must be recorded:

a. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);

b. Vessel/survey activity at time of sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other);

c. PSO who sighted the animal;

d. Time of sighting;

e. Initial detection method;

f. Sightings cue;

g. Vessel location at time of sighting (decimal degrees);

h. Direction of vessel's travel (compass direction);

i. Speed of the vessel(s) from which the observation was made;

j. Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level or unidentified); also note the composition of the group if there is a mix of species;

k. Species reliability (an indicator of confidence in identification);

l. Estimated distance to the animal and method of estimating distance;

m. Estimated number of animals (high/low/best);

n. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, *etc.*);

o. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars, or markings, shape and size of dorsal fin, shape of head, and blow characteristics);

p. Detailed behavior observations (*e.g.*, number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as

possible; note any observed changes in behavior before and after point of closest approach);

q. Mitigation actions; description of any actions implemented in response to the sighting (*e.g.*, delays, shutdowns, ramp-up, speed or course alteration, *etc.*) and time and location of the action;

r. Equipment operating during sighting;

s. Animal's closest point of approach and/or closest distance from the center point of the acoustic source; and,

t. Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up) and time and location of the action.

If a NARW is observed at any time by PSOs or personnel on the project vessel, during surveys or during vessel transit, Atlantic Shores must report the sighting information to the NMFS NARW Sighting Advisory System (866-755-6622) within 2 hr of occurrence, when practicable, or no later than 24 hr after occurrence. NARW sightings in any location may also be reported to the U.S. Coast Guard via channel 16 and through the Whale Alert app (*https://www.whalealert.org*).

In the event that personnel involved in the survey activities discover an injured or dead marine mammal, the incident must be reported to NMFS as soon as feasible by phone (866-755-6622) and by email (*nmfs.gar.incidental-take@noaa.gov* and *PR.ITP.MonitoringReports@noaa.gov*). The report must include the following information:

1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

2. Species identification (if known) or description of the animal(s) involved;

3. Condition of the animal(s) (including carcass condition if the animal is dead);

4. Observed behaviors of the animal(s), if alive;

5. If available, photographs or video footage of the animal(s); and

6. General circumstances under which the animal was discovered.

In the event of a vessel strike of a marine mammal by any vessel involved in the activities, Atlantic Shores must report the incident to NMFS by phone (866-755-6622) and by email (*nmfs.gar.incidental-take @noaa.gov* and *PR.ITP.MonitoringReports@noaa.gov*) as soon as feasible. The report will include the following information:

1. Time, date, and location (latitude/longitude) of the incident;

2. Species identification (if known) or description of the animal(s) involved;

3. Vessel's speed during and leading up to the incident;

4. Vessel's course/heading and what operations were being conducted (if applicable);

5. Status of all sound sources in use;

6. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;

7. Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;

8. Estimated size and length of animal that was struck;

9. Description of the behavior of the marine mammal immediately preceding and/or following the strike;

10. If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;

11. Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and

12. To the extent practicable, photographs or video footage of the animal(s).

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through harassment, NMFS considers other factors, such as the likely nature of any impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analysis applies to all the species listed in table 1, given that some of the anticipated effects of this activity on these different marine mammal stocks are expected to be relatively similar in nature. Where there are meaningful differences between species or stocks, or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, they are included as separate sub-sections below. Specifically, we provide additional discussion related to NARW and to other species currently experiencing UMEs.

NMFS does not anticipate that serious injury or mortality will occur as a result from HRG surveys, even in the absence of mitigation, and no serious injury or mortality is authorized. As discussed in the **Potential Effects of Specified Activities on Marine Mammals and Their Habitat** section, non-auditory physical effects, auditory physical effects, and vessel strike are not expected to occur. NMFS expects that all potential takes will be in the form of Level B harassment in the form of temporary avoidance of the area or decreased foraging (if such activity was occurring), reactions that are considered to be of low severity and with no lasting biological consequences (*e.g.*, Southall *et al.*, 2007, Ellison *et al.*, 2012).

In addition to being temporary, the maximum expected harassment zone around a survey vessel is 56 m. Therefore, the ensonified area surrounding each vessel is relatively small compared to the overall distribution of the animals in the area and their use of the habitat. Feeding behavior is not likely to be significantly impacted as prey species are mobile and are broadly distributed throughout the Survey Area; therefore, marine mammals that may be temporarily displaced during survey activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Because of the temporary nature of the disturbance and the availability of similar habitat and resources in the surrounding area, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

There are no rookeries, mating or calving grounds known to be biologically important to marine mammals within the Survey Area and there are no feeding areas known to be biologically important to marine mammals within the Survey Area. There is no designated critical habitat for any ESA-listed marine mammals in the Survey Area.

North Atlantic Right Whales

The status of the NARW population is of heightened concern and, therefore, merits additional analysis. As noted previously, elevated NARW mortalities began in June 2017 and there is an active UME. Overall, preliminary findings attribute human interactions, specifically vessel strikes and entanglements, as the cause of death for the majority of NARWs. As noted previously, the Survey Area overlaps a migratory corridor BIA for NARWs that extends from Massachusetts to Florida and from the coast to beyond the shelf break. Due to the fact that the planned survey activities are temporary (will occur for up to 1 year) and the spatial extent of sound produced by the survey will be small relative to the spatial extent of the available migratory habitat in the BIA, NARW migration is not expected to be impacted by the survey. This important migratory area is approximately 269,488 km^2 in size (compared with the approximately 3,228 km^2 of total estimated Level B harassment ensonified area associated with the Survey Area) and is comprised of the waters of the continental shelf offshore the East Coast of the United States, extending from Florida through Massachusetts.

Given the relatively small size of the ensonified area, it is unlikely that prey availability will be adversely affected by HRG survey operations. Required vessel strike avoidance measures will also decrease risk of vessel strike during migration; no vessel strike is expected to occur during Atlantic Shores' planned activities. Additionally, only very limited take by Level B harassment of NARWs has been requested and is authorized by NMFS as HRG survey operations are required to maintain and implement a 500-m shutdown zone. The 500-m shutdown zone for NARWs is conservative, considering the Level B harassment zone for the acoustic source (*i.e.*, sparker) is estimated to be 56 m, and thereby minimizes the intensity and duration of any potential incidents of behavioral harassment for this species. As noted previously, Level A harassment is not expected due to the small estimated zones in conjunction with the aforementioned shutdown requirements. NMFS does not anticipate NARW takes that will result from Atlantic

Shores' planned activities will impact annual rates of recruitment or survival. Thus, any takes that occur will not result in population level impacts.

Other Marine Mammal Species with Active UMEs

As noted previously, there are several active UMEs occurring in the vicinity of Atlantic Shores' Survey Area. Elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida since January 2016. Of the cases examined, approximately half had evidence of human interaction (*i.e.*, vessel strike, entanglement). The UME does not yet provide cause for concern regarding population-level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or DPS) remains stable at approximately 12,000 individuals.

Beginning in January 2017, elevated minke whale strandings have occurred along the Atlantic coast from Maine through South Carolina, with highest numbers in Massachusetts, Maine, and New York. This event does not provide cause for concern regarding population level impacts, as the likely population abundance is greater than 20,000 whales.

Elevated numbers of harbor seal and gray seal mortalities were first observed from 2018–2020 and, as part of a separate UME, again in 2022. These have occurred across Maine, New Hampshire, and Massachusetts. Based on tests conducted so far, the main pathogen found in the seals is phocine distemper virus (2018–2020) and avian influenza (2022), although additional testing to identify other factors that may be involved in the UMEs is underway. The UMEs do not provide cause for concern regarding population-level impacts to any of these stocks. For harbor seals, the population abundance is over 60,000 and annual M/SI (339) is well below PBR (1,729) (Hayes *et al.*, 2022). The population abundance for gray seals in the United States is over 27,000, with an estimated abundance, including seals in Canada, of approximately

450,000. In addition, the abundance of gray seals is likely increasing in the U.S. Atlantic as well as in Canada (Hayes *et al.*, 2021, Hayes *et al.*, 2022).

The required mitigation measures are expected to reduce the number and/or severity of takes for all species listed in table 3, including those with active UMEs, to the level of least practicable adverse impact. In particular, they will provide animals the opportunity to move away from the sound source before HRG survey equipment reaches full energy, thus preventing them from being exposed to sound levels that have the potential to cause injury. No Level A harassment is anticipated, even in the absence of mitigation measures, or authorized.

NMFS expects that takes will be in the form of short-term Level B harassment by way of brief startling reactions and/or temporary vacating of the area, or decreased foraging (if such activity was occurring)—reactions that (at the scale and intensity anticipated here) are considered to be of low severity, with no lasting biological consequences. Since both the sources and marine mammals are mobile, animals will only be exposed briefly to a small ensonified area that might result in take. Additionally, required mitigation measures will further reduce exposure to sound that could result in more severe behavioral harassment.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect any of the species or stocks through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- No Level A harassment (PTS) is anticipated, even in the absence of mitigation measures, or authorized;

- Foraging success is not likely to be significantly impacted as effects on species that serve as prey species for marine mammals from the survey are expected to be minimal;
- The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the ensonified areas during the planned survey to avoid exposure to sounds from the activity;
- Take is anticipated to be by Level B harassment only consisting of brief startling reactions and/or temporary avoidance of the ensonified area;
- Survey activities will occur in such a comparatively small portion of the BIA for the NARW migration that any avoidance of the area due to survey activities will not affect migration. In addition, mitigation measures require shutdown at 500 m (over eight times the size of the Level B harassment zone of 56 m) to minimize the effects of any Level B harassment take of the species; and
- The required mitigation measures, including visual monitoring and shutdowns, are expected to minimize potential impacts to marine mammals.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the required monitoring and mitigation measures, NMFS finds that the total marine mammal take from the planned activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted previously, only take of small numbers of marine mammals may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and

so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The number of take NMFS has authorized relative to the best available population abundance is less than 1 percent for 14 of the 15 managed stocks (less than 7 percent for the Western North Atlantic Northern Migratory Coastal Stock of bottlenose dolphins; table 3). The take numbers authorized are considered conservative estimates for purposes of the small numbers determination as they assume all takes represent different individual animals, which is unlikely to be the case.

Based on the analysis contained herein of the activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks will not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the ESA of 1973 (16 U.S.C. 1531 *et seq*.) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in

the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species, in this case, with NMFS GARFO.

NMFS Office of Protected Resources has authorized take of three species of marine mammals which are listed under the ESA (*i.e.,* NARW, fin whale, and sei whale) and has determined these activities fall within the scope of activities analyzed in the NMFS GARFO programmatic consultation regarding geophysical surveys along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions (completed June 29, 2021; revised September 2021).

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq*.) and NAO 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an IHA) and alternatives with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NAO 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that will preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of this IHA qualifies to be categorically excluded from further NEPA review.

Authorization

NMFS has issued an IHA to Atlantic Shores for the harassment of small numbers of 14 marine mammal species (15 stocks) incidental to conducting marine site characterization surveys in waters off of New York, New Jersey, Delaware, and Maryland for a period of 1 year, that includes the previously explained mitigation,

monitoring, and reporting requirements. The IHA can be found at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-llcs-marine-site*.

Dated: March 18, 2024.

Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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