Dated: May 18, 2020.

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[FR Doc. 2020–11006 Filed 5–20–20; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XR075]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Offshore Wind Construction Activities Off of Virginia

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 Virginia Electric and Power Company, d/b/a Dominion Energy Virginia (Dominion), to incidentally harass, by Level B harassment only, marine mammals during construction activities off the coast of Virginia in the area of Research Lease of Submerged Lands for Renewable Energy Activities on the Outer Continental Shelf (OCS) Offshore Virginia (Lease No. OCS–A–0497), in support of the Coastal Virginia Offshore Wind (CVOW) Project.

DATES: This authorization is valid for one year from the date of issuance.

FOR FURTHER INFORMATION CONTACT: Jordan Carduner, Office of Protected Resources, NMFS, (301) 427–8401. Electronic copies of the applications and supporting documents, as well as a list of the references cited in this document, may be obtained by visiting the internet at: *www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable.* In case of problems accessing these documents, please call the contact listed above.

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 United States 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 issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be 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 such 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 such takings are set forth.

The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On September 13, 2019, NMFS received a request from Dominion for an IHA to take marine mammals incidental to construction activities off the coast of Virginia in the area of Research Lease of Submerged Lands for Renewable Energy Activities on the Outer Continental Shelf (OCS) Offshore Virginia (Lease No. OCS–A–0497) in support of the CVOW project. A revised application was received on January 21, 2020. NMFS deemed that request to be adequate and complete. Dominion's request is for the take of seven marine mammal species by Level B harassment that would occur over the course of two days of in-water construction. Neither Dominion nor NMFS expects serious injury or mortality to result from this activity and the activity is expected to last no more than one year, therefore, an IHA is appropriate.

Description of Activity

Overview

The CVOW Project (the Project) calls for development of two 6-megawatt wind turbines on a site leased by the Virginia Department of Mines Minerals and Energy (DMME). Dominion has an agreement with DMME to build and operate the two turbines within the 2,135-acre site, which lies 27 miles (mi) off the coast of Virginia Beach, Virginia. Dominion has contracted with Ørsted for construction of the two turbines. The goals of the Project are to provide electricity to Virginia and to inform plans for a future large-scale commercial offshore wind development in the adjacent Virginia Wind Energy Area that is also leased by Dominion.

Dominion proposes to conduct in-water construction activities in the area of Research Lease of Submerged Lands for Renewable Energy Activities on the OCS Offshore Virginia (Lease No. OCS–A–0497) (the Lease Area; see Figure 1–1 in the IHA application), as well as cable-lay and marine site characterization surveys along a 27-mile (mi) submarine cable corridor to a landfall location in Virginia, in support of the Project. The objective of the construction activities is to support installation of the wind turbine generator (WTG) foundations.

Construction activities are expected to occur during two days and could occur any time between May and October, 2020. Cable-lay and site characterization survey activities could occur for up to three months between May and October, 2020. Dominion's activities would occur in the Northwest Atlantic Ocean within Federal and state waters. Construction activities would occur within the Lease Area approximately 27 miles offshore Virginia (see Figure 1–1 in the IHA application) while cable-lay and site characterization survey activities would occur between the Lease Area and a landfall location in Virginia. As described in the notice of proposed IHA (85 FR 14901; March 16, 2020) NMFS has determined the likelihood of cable lay activities and HRG surveys associated with the construction of the project resulting in harassment of marine mammals to be so low as to be discountable; therefore, cable lay activities and HRG surveys associated with the construction of the project are not analyzed further in this document.

In-water construction activities would entail pile driving to support installation of two WTG foundations. The monopiles would have a 7.8 meter (m) (26 feet (ft)) diameter at the seafloor and 6 m (20 ft) diameter flange. The two monopiles would be 63 and 64 m (207 and 210 ft) in length. One monopile would be driven at a time and a maximum of one pile would be driven per day. As described in the notice of proposed IHA (85 FR 14901; March 16, 2020) NMFS has determined that pile driving associated with construction of

the WTG foundations has the potential to result in the take of marine mammals by Level B harassment.

A detailed description of Dominion's planned activities is provided in the notice of proposed IHA (85 FR 14901; March 16, 2020). Since that time, no changes have been made to the activities. Therefore, a detailed description is not provided here. Please refer to that notice for the detailed description of the specified activity. Mitigation, monitoring, and reporting measures are described in detail later in this document (please see Mitigation and Monitoring and Reporting below).

Comments and Responses

A notice of proposed IHA was published in the **Federal Register** on March 16, 2020 (85 FR 14901). During the 30-day public comment period, NMFS received a comment letter from the Marine Mammal Commission (Commission) and a group of non-governmental organizations (NGOs) including Southern Environmental Law Center, Natural Resources Defense Council, National Wildlife Federation, Conservation Law Foundation, Defenders of Wildlife, Whale and Dolphin Conservation, Surfrider Foundation, Sierra Club Virginia Chapter, Assateague Coastal Trust, NY4WHALES, Inland Ocean Coalition, and Ocean Conservation Research. NMFS has posted the comments online at *www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable.* Please see those letters for full detail regarding the commenters' recommendations and underlying rationale.

Comment 1. The NGOs asserted that the proposed mitigation measures for noise attenuation are insufficient and do not comply with the MMPA's requirement to achieve the ''least practicable adverse impact'' to affected marine mammal populations, and that NMFS should require further mitigation of pile driving noise including noise attenuation at the pile itself, such as through pile casings or dampers.

Response: NMFS disagrees with the assertion that the proposed mitigation measures do not comply with the MMPA's requirement to achieve the least practicable adverse impact to affected marine mammal populations. The commenter's position is based on an assumption that the only way to achieve the least practicable adverse impact on affected marine mammal populations through this IHA is to require noise attenuation on both piles planned for installation by Dominion. NMFS does not agree with this assumption. We note that the proposal to drive one pile with an active noise attenuation system (*i.e.* a double bubble curtain) and to drive the second pile with no attenuation was proposed by Dominion with the goal of improving the overall understanding of the effectiveness of double bubble curtains in attenuation of pile driving noise. Data on the effectiveness of the attenuation method will be gathered via acoustic monitoring during the driving of both piles (one with the active double bubble curtain and the other with no attenuation) and this data will then be made available to both NMFS and the Bureau of Ocean Energy Management (BOEM) as well as the public. Thus, the driving of one pile without attenuation, and the acoustic measurements of the driving of both piles, are fundamental components of the applicant's proposed action. To prevent Dominion from undertaking this study would therefore be impracticable for Dominion, as it would preclude them from accomplishing one of the purposes of the project, and would therefore not result in the least practicable impact.

We note that differences in modeled marine mammal exposure numbers between one pile driven with 6 dB attenuation (assumed to be the effective attenuation level achieved from the double bubble curtain) compared with modeled exposure numbers for one pile driven with no attenuation are minimal (Table 6); therefore, the potential conservation benefit from precluding Dominion from undertaking this study would be minimal. Thus, a requirement to apply noise attenuation to both piles would result in a very minor potential benefit to marine mammals, but would prevent the applicant from collecting very valuable information regarding the effectiveness of bubble curtains, and is therefore impracticable.

The data gathered through this study also has the potential to minimize overall impacts on marine mammal populations through improved mitigation and monitoring measures. There is still much to be learned regarding the effectiveness of bubble curtains, especially in offshore environments off the Atlantic coast in the U.S. where virtually none of this type of pile driving has occurred thus far. The acoustic monitoring of both piles, as required in this IHA, will provide NMFS with data that will inform mitigation measures in numerous future authorizations for activities that are expected to be much more impactful to marine mammals than the activity considered here (including a planned commercial-scale project by Dominion in the same geographic area as this IHA that would entail up to 200 planned wind turbine generators). We expect the data gathered from this project will lead to more effective mitigation. More effective mitigation will likely result in lesser overall impacts from expected offshore wind construction. Thus, the data to be collected by Dominion is indeed very valuable, and that information cannot be collected if both piles are treated with bubble curtains as the commenters proposed.

Regarding the commenters recommendation that NMFS require the use of additional noise attenuation devices such as pile casings or dampers, while NMFS is supportive of the use of these attenuation devices, a requirement for additional attenuation devices is not necessary in this particular case as the applicant has demonstrated that the targeted level of attenuation can be achieved through deployment of the proposed double bubble curtain (see the IHA application under Section 2.3 ''Pile Driving''). The application of a double bubble curtain on one pile, in concert with the other mitigation measures required during pile driving including PSOs, pre-clearance, and delay and shutdown upon observation of marine mammals, will ensure the least practicable adverse impact on marine mammal species or stocks and their habitat.

Comment 2. The NGOs commented that NMFS should reassess its acoustic thresholds and criticized NMFS's use of the 160-dB rms Level B harassment threshold, stating that the threshold is based on outdated information and that current research shows that behavioral impacts can occur at levels below the threshold.

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. The commenters 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 simplistic quantitative estimate of take, while we can qualitatively address the variation in responses across different received levels in our discussion and analysis.

As behavioral responses to sound depend on the context in which an animal receives the sound, including the animal's behavioral mode when it hears sounds, prior experience, additional biological factors, and other contextual factors, defining sound levels that disrupt behavioral patterns is extremely difficult. Even experts have not previously been able to suggest specific new criteria due to these difficulties (*e.g.,* Southall et al. 2007; Gomez et al., 2016).

Comment 3. The NGOs commented that NMFS should consider data from state monitoring efforts, passive acoustic monitoring data, opportunistic marine mammal sightings, and other data sources in modeling marine mammal exposure estimates.

Response: NMFS has used the best available scientific information—in this case the marine mammal density models developed by the Duke University Marine Geospatial Ecology Lab (MGEL) (Roberts et al., 2016, 2017, 2018)—to inform our determinations. The commenters cite four alternate sources and recommend that NMFS incorporate information from these sources in modeling marine mammal exposure estimates, stating ''the density maps produced by the Roberts et al. model do not fully reflect the abundance, distribution, and density of marine mammals for the U.S. East Coast.'' The first source cited by the commenters is a report by the Virginia Aquarium & Marine Science Center that summarizes aerial survey data in the Virginia Wind Energy Area from 2012–2015 (Mallette et al, 2016). However, a review of the most recent report on updates to the Duke MGEL density models (Roberts et al, 2018) shows that the aerial sightings data from the Virginia Aquarium & Marine Science Center report have in fact been incorporated into the Duke MGEL density models used to model exposures in this IHA. The second and third sources cited by the commenters summarize North Atlantic right whale passive acoustic monitoring (PAM) data in Virginia and elsewhere along the Atlantic coast. While NMFS agrees that these papers provide valuable information on right whale presence and habitat use in and near the project area, they do not provide density data that can readily be incorporated into exposure models and the commenters do not provide any recommendations as to how this PAM data would be incorporated into exposure estimates. The fourth source cited by the commenters is an article in the popular press about fishermen disentangling a North Atlantic right whale 50 miles offshore Virginia in 2013; the commenters do not provide a recommendation as to how an anecdotal report of a single right whale off Virginia in 2013 would be incorporated into marine mammal exposure estimates.

The commenters also incorrectly state that, for large whales, NMFS ''entirely dismiss[ed] the possibility of take based on a purported lack of presence'' for large whales. In fact, as described in the notice of proposed IHA, the potential for take of large whales to occur as a result of the project was ruled out because of very low densities in the project area. The potential for large whale take was analyzed in the same manner as all marine mammal species that may occur in the project area; that is, the proposed authorized take numbers were based on marine mammal exposure modeling, which incorporated the best available density data, followed by additional qualitative evaluation. This density data includes all marine mammal species that may be present in the project area, including blue, fin, sei, humpback, minke, sperm and North Atlantic right whales (Roberts et al., 2016, 2017, 2018). The exposure modeling that incorporated the density data for these species resulted in estimates of zero takes for all large whale species. This was the first step in the analysis, which indicated that take of these species is unlikely. The addition of required mitigation and monitoring measures further reduces the likelihood of take. We therefore determined, based on the best available information, that take of these species was not expected to occur.

Comment 4. The NGOs commented that NMFS should acknowledge the potential for take that may occur incidental to HRG surveys, cable laying, and vessel collisions. The NGOs also recommended that NMFS authorize take by Level A harassment of harbor porpoises because the agency has authorized Level A harassment for this species in some previous authorizations for HRG surveys.

Response: NMFS acknowledged the general potential for HRG surveys, cable laying, and vessel collisions to result in the take of marine mammals in the notice of proposed IHA (85 FR 14901; March 16, 2020) but explained why the take of marine mammals is not anticipated as a result of these activities. Rather than repeating those explanations here, we refer the reader to the notice of proposed IHA under Detailed Description of the Specified Activities. Regarding the commenters' recommendation that take by Level A harassment be authorized for harbor porpoises, the reasoning behind our authorization of Level A harassment take for harbor porpoises in certain previous IHAs for HRG survey activities was based on the fact that modeling results for those previous authorizations resulted in Level A harassment numbers that exceeded 0. In this instance, exposure modeling resulted in an estimate of 0 Level A harassment takes for harbor porpoises (and all marine mammal species) thus we do not expect Level A harassment to occur and we do not authorize the take by Level A harassment of harbor porpoises as recommended by the commenters.

We further note that the commenters have incorrectly stated that NMFS based its zero take conclusion for HRG surveys ''in part on mitigation measures that are under-protective—and in some cases nonexistent.'' However, the notice of proposed IHA (85 FR 14901; March 16, 2020) clearly stated that NMFS determined the HRG surveys proposed by Dominion are not likely to result in take not because of proposed mitigation measures but because of the frequencies and modeled acoustic propagation of the HRG equipment planned for use by Dominion. Rather than repeating the reasoning behind this determination here, we refer the reader to the notice of proposed IHA under Detailed Description of the Specified Activities.

Comment 5. The NGOs asserted that the required mitigation and monitoring protocols are insufficient in protecting marine mammals and do not comply with the MMPA and recommended that NMFS require additional mitigation measures, including the following, which we respond to in turn:

- For HRG surveys: Surveys should commence during daylight hours only; at least one observer or two observers if

feasible to monitor clearance zones for HRG surveys; a 500 m clearance zone for NARW, and, to the extent feasible, a 1,000 m clearance zone for NARW, including a delay or shut down if a right whale is observed within 1,000 meters from the source.

Response: Regarding the commenters suggestion that HRG surveys should commence during daylight hours only, NMFS acknowledges the limitations inherent in detection of marine mammals at night. However, in this case no harassment (either Level A or Level B) is expected to result from the planned HRG surveys even in the absence of mitigation, given the very small estimated Level A and Level B harassment zones. Restricting surveys in the manner suggested by the commenters would not result in any significant reduction in either intensity or duration of noise exposure. Incorporating this measure would also have the unintended result of extending the overall duration of HRG surveys, thereby resulting in vessels being on the water for an extended period of time. Thus the commenters have not demonstrated that such a requirement would result in a net benefit. In consideration of potential effectiveness of the recommended measure and its practicability for the applicant, NMFS has determined that restricting survey start-ups to daylight hours is not warranted or practicable in this case.

Regarding the commenters recommendation for a 500 m or 1,000 m clearance zone for NARW and a requirement for a delay or shut down if a right whale is observed within 1,000 m, NMFS does not expect take to result from the HRG surveys as proposed by Dominion even in the absence of mitigation measures. The HRG equipment planned for use during Dominion's surveys that operates below 180 kHz would be limited to a Ultra Short Baseline (USBL), which has a modeled Level B harassment zone of less than 25 m, would only be operated when the survey vessel moves at a maximum of 1.5 knots, and which has a beam that is pointed directly downward toward the seabed with a 90 degree beam. Therefore we have determined that the potential conservation benefit from a 500 m or 1,000 m exclusion zone on these activities would be minimal and therefore a requirement for a 500 m or 1,000 m exclusion zone is not warranted. The commenters do not provide any meaningful rationale for the recommendation.

Regarding the commenters recommendation for a required PSO or PSOs during HRG surveys, as described above, NMFS does not expect take to result from the HRG surveys as proposed by Dominion even in the absence of mitigation measures, and the HRG equipment planned for use during Dominion's surveys that operates below 180 kHz would be limited to a USBL, which has a modeled Level B harassment zone of less than 25 m, would be operated only when the survey vessel moves at a maximum of 1.5 knots, and has a beam that is pointed directly downward toward the seabed with a 90 degree beam. When balancing the potential conservation benefit from a requirement for a PSO (or PSOs) with the costs and logistical challenges associated with a requirement to deploy PSOs on the survey vessel, especially during the current public health crisis associated with the COVID–19 pandemic, we have determined a requirement for PSOs during HRG surveys is not warranted.

- A pre-clearance observation period of 60 minutes (versus 30 minutes as proposed in the notice of proposed IHA) prior to beginning or resuming pile driving.

Response: NMFS agrees with the commenters that a pre-clearance observation period of 60 minutes is warranted in this particular situation and is practicable for Dominion to implement and we have incorporated this requirement in the final IHA.

- All activities, including cable-lay and HRG survey activities, should be completed between May and October 2020 due to increased presence of NARW from November 1 through April 30.

Response: NMFS does not expect take to result from the HRG surveys or cable-lay activities as proposed by Dominion even in the absence of mitigation measures, therefore we have determined that the potential conservation benefit from a seasonal restriction on these activities would be minimal and do not agree that a requirement for a seasonal restriction on these activities is warranted. The commenters do not provide adequate support for assertions of potential harm from these activities.

- PAM should be required during pile-driving activity and HRG surveys.

Response: While NMFS agrees that PAM can be a useful tool for augmenting detection capabilities under certain circumstances, there are costs and logistical challenges associated with PAM deployment. Thus, the decision as to whether or not to require PAM as a monitoring or mitigation measure requires a consideration of the potential benefits of PAM specific to the activity and the expected impacts of the activity on marine mammals.

In the case of Dominion's planned pile driving activity, the potential impacts to marine mammals are relatively minor: The total duration of pile driving is very brief (*i.e.* an expected total duration of approximately four hours of pile driving for the entire project). In addition, expected marine mammal exposures would be by Level B harassment only, and authorized takes by Level B harassment are very low for all species (Table 7). PAM is only capable of detecting marine mammals that are actively vocalizing, while many marine mammal species vocalize infrequently or only during certain activities, which means that only a subset of the animals within the range of the PAM system would be detected. Additionally, localization and range detection can be challenging depending on the species, configuration of the PAM system, and the expertise of the PAM observer. For example, odontocetes are fast moving and often travel in large or dispersed groups which makes localization difficult. Taking the above factors into consideration, and weighing the potential conservation benefits of a requirement for PAM against the costs and logistical challenges associated with PAM deployment, we have determined that the requirements for visual monitoring as proposed in the notice of proposed IHA (85 FR 14901; March 16, 2020) are sufficient to ensure the least practicable adverse impact on the affected species or stocks and their habitat and a requirement for PAM is not warranted for Dominion's planned pile driving activities.

Regarding the commenters recommendation for a PAM requirement during HRG surveys, the potential impacts to marine mammals associated with Dominion's planned HRG surveys are minor: the area expected to be ensonified above the Level B harassment threshold is extremely small (less than 25 m to the Level B harassment threshold for the dominant source in terms of acoustic propagation), and no takes by Level B harassment associated with HRG surveys are expected or authorized. The limitations of PAM during HRG surveys include those described above, though the logistical challenges associated with localization of marine mammals is even greater as the vessel (and the PAM system) are mobile. In addition, the ability of PAM to detect baleen whale vocalizations is further limited during HRG surveys due to being deployed from the stern of a vessel, which puts the PAM hydrophones in proximity to propeller noise and low frequency

engine noise which can mask the low frequency sounds emitted by baleen whales, including right whales. Taking the above factors into consideration, and weighing the potential conservation benefits of a requirement for PAM against the costs and logistical challenges associated with PAM deployment, we have determined that the current requirements for visual monitoring as proposed in the notice of proposed IHA (85 FR 14901; March 16, 2020) are sufficient to ensure the least practicable adverse impact on the affected species or stocks and their habitat and a requirement for PAM is not warranted for Dominion's planned HRG survey activities.

• All project vessels operating within the Project Area, including survey and support vessels, should maintain a speed of 10 knots or less during the entire period covered by the IHA.

Response: NMFS has analyzed the potential for vessel strike resulting from Dominion's activity and has determined that the mitigation measures specific to vessel strike avoidance are sufficient to avoid the potential for vessel strike. These include the following requirements: All vessels must comply with 10 knot or less speed restrictions in any Seasonal Management Area (SMA) or Dynamic Management Area (DMA); all vessels must reduce vessel speed to 10 knots or less when any large whale, any mother/calf pairs, pods, or large assemblages of non-delphinoid cetaceans are observed within 100-m of an underway vessel; all vessels must maintain a separation distance of 500-m or greater from any sighted North Atlantic right whale; if underway, vessels must steer a course away from any sighted North Atlantic right whale at 10 knots or less until the 500-m minimum separation distance has been established; and, if a North Atlantic right whale is sighted in a vessel's path, or within 500-m of an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. These measures and additional vessel strike avoidance measures are described in greater detail below under Mitigation. We have determined that these vessel strike avoidance measures are sufficient to ensure the least practicable adverse impact on species or stocks and their habitat.

• NMFS should ''examine'' noise attenuation at the pile itself. While a bubble curtain addresses one pathway of acoustic propagation from the monopile, noise attenuation that addresses direct entry into the water column, such as through pile casings or dampers, should also be examined in the ''least practicable adverse impact'' analysis.

Response: Our response to Comment 1 addresses the use of pile casings and dampers. NMFS must prescribe the ''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. In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat we carefully consider 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) and 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. In this case, we carefully evaluated Dominion's proposed mitigation measures and considered a range of other measures, and determined that the measures specific to noise attenuation represented the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat.

We have determined that the suite of mitigation measures required in this IHA represent the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. For more details on the required mitigation measures, please see the Mitigation section below.

Comment 6. The NGOs objected to NMFS' process to consider extending any one-year IHA with a truncated 15-day comment period as contrary to the MMPA.

Response: NMFS' IHA Renewal process meets all statutory requirements. All IHAs issued, whether an initial IHA or a Renewal IHA, are valid for a period of not more than one year. And the public has at least 30 days to comment on all proposed IHAs, with a cumulative total of 45 days for IHA Renewals. As noted above, the *Request for Public Comments* section made clear that the agency was seeking comment on both the initial proposed IHA and the potential issuance of a Renewal for this project. Because any Renewal (as explained in the *Request for Public Comments* section) is limited to another year of identical or nearly identical activities in the same location (as described in the *Description of Proposed Activity* section) or the same activities that were not completed within the one-year period of the initial IHA, reviewers have the information needed to effectively comment on both the immediate proposed IHA and a possible one-year Renewal, should the IHA holder choose to request one in the coming months.

While additional documents would be required should any such Renewal request be submitted, for a qualifying Renewal these will be limited to documentation that NMFS will make available and use to verify that the activities are identical to those in the initial IHA, are nearly identical such that the changes would have either no effect on impacts to marine mammals or decrease those impacts, or are a subset of activities already analyzed and authorized but not completed under the initial IHA. NMFS will also confirm, among other things, that the activities will occur in the same location; involve the same species and stocks; provide for continuation of the same mitigation, monitoring, and reporting requirements; and that no new information has been received that would alter the prior analysis. The Renewal request will also contain a preliminary monitoring report, specifically to verify that effects from the activities do not indicate impacts of a scale or nature not previously analyzed. The additional 15-day public comment period provides the public an opportunity to review these few documents, provide any additional pertinent information and comment on whether they think the criteria for a Renewal have been met. Between the initial 30-day comment period on these same activities and the additional 15 days, the total comment period for a Renewal is 45 days.

In addition to the IHA Renewal process being consistent with all requirements under section 101(a)(5)(D), it is also consistent with Congress' intent for issuance of IHAs to the extent reflected in statements in the legislative history of the MMPA. Through the provision for Renewals in the regulations, description of the process and express invitation to comment on specific potential Renewals in the Request for Public Comments section of each proposed IHA, the description of the process on NMFS' website, further elaboration on the process through responses to comments such as these,

posting of substantive documents on the agency's website, and provision of 30 or 45 days for public review and comment on all proposed initial IHAs and Renewals respectively, NMFS has ensured that the public ''is invited and encouraged to participate fully in the agency decision-making process.''

Comment 7. The Commission recommended that NMFS authorize at least one take of humpback whales by Level A harassment for each of the two days of pile-driving activities (*i.e.,* two Level A harassment takes) based on sighting and stranding records for the species in the Mid-Atlantic.

Response: Despite exposure modeling that indicated zero takes of humpback whales would be expected, NMFS agrees with the Commission that based on sightings and stranding records that indicate the potential for humpback whales to occur in the project area during pile driving activities, authorization of take of humpback whales is warranted. We do not, however, agree that take by Level A harassment is likely and we have therefore authorized take by Level B harassment only. We have authorized two takes by Level B harassment based on the potential for one group of humpback whales to be taken during the project. Please see the Estimated Take section below for further information.

Comment 8. The Commission recommended that NMFS increase the Level B harassment takes of common dolphins from 39 to 78 based on the potential for a group to be taken on both days of the project. The Commission also recommended that NMFS increase the Level B harassment takes of bottlenose dolphins from 34 to 200 based on visual observations of groups of up to 100 animals in previous monitoring reports (Milne, 2018) and the potential for a group to be taken on both days of the project.

Response: NMFS has already increased the take estimate for common dolphins from the modeled number to mean group size. We do not agree with the Commission's assertion that the authorized take number should be based on an assumption that one group of common dolphins will be encountered on each day of the project; we therefore do not adopt the Commission's recommendation to increase take of common dolphins from 39 to 78. Regarding bottlenose dolphins, we agree that the Level B harassment number should be adjusted based on visual observations of groups of up to approximately 100 animals in previous monitoring reports associated with the Dominion CVOW project (Milne, 2018). However, we do not agree with the Commission's recommendation that the authorized take number should be increased to 200 based on an assumption that one group of bottlenose dolphins will be encountered on each day of the project; we therefore authorize 100 incidents of take for bottlenose dolphins.

Comment 9. The Commission expressed concern that some of the modeled Level A harassment zones (based on SELcum) exceed modeled Level B harassment zones, and recommended that NMFS continue to make this issue a priority to resolve in the near future.

Response: NMFS concurs with the Commission's recommendation and has made this issue a priority.

Comment 10. The Commission recommends that NMFS specify in section 4(l) of the final authorization that a double bubble curtain must be used on the pile that is driven with attenuation.

Response: NMFS agrees with this recommendation and we have included this requirement in the final IHA.

Comment 11. The Commission recommended that NMFS revise the exclusion zones in Table 2 of the final authorization to reflect the modeled distances to the Level A harassment thresholds based on SELcum for LF and MF cetaceans during unattenuated and attenuated pile driving and for HF cetaceans during unattenuated pile driving, as specified in Table 4 of the **Federal Register** notice.

Response: The Commission recommends that exclusion zones be expanded to correspond with the modeled isopleth distances for Level A harassment based on the SELcum metric. However, such a requirement assumes that a marine mammal observed momentarily within such a zone is automatically assumed to be taken by Level A harassment. This assumption ignores the fact that the SELcum metric is by definition based on accumulation time, *i.e.* the animal would need to remain within that particular zone for whatever accumulation time was incorporated in the modeling in order for auditory injury, and thereby take by Level A harassment, to occur. While the incorporation of accumulation time via the SELcum metric represents a valuable theoretical tool for modeling marine mammal exposures, NMFS does not agree that a marine mammal observed momentarily within a Level A harassment zone modeled based on the SELcum metric is automatically considered to be taken by Level A harassment. Therefore, NMFS has determined in this circumstance that an exclusion zone that far exceeds the Level A harassment zone based on the peak SPL metric (*i.e.,* the zone within which instantaneous exposure is assumed to equate to auditory injury) is sufficient to avoid takes by Level A harassment. We note that, in the case of this IHA, the 1,750-m EZ is significantly larger than modeled isopleth distances corresponding to Level A harassment (based on peak SPL) for all marine mammal functional hearing groups (Table 4). We also note that the EZ for North Atlantic right whales would effectively extend beyond 1,750-m to as far as PSOs are able to see, *i.e.,* a North Atlantic right whale observed at any distance from the pile, regardless of the whale's distance from the pile, would trigger further mitigation action (either delay or shutdown).

Comment 12. The Commission recommended that NMFS include in Table 2 of the final authorization the monitoring zone associated with unattenuated pile driving, as specified in Table 4 of the **Federal Register** notice.

Response: The Commission recommends that the monitoring zone be expanded to correspond with the modeled isopleth distance for pile driving with no attenuation, for the pile that is ultimately driven with no bubble curtains activated. NMFS agrees with the recommendation. We have also determined that the monitoring zones should coincide with the greatest potential impact distances, which in this case are associated with Level A harassment zones modeled based on SELcum (Table 4). We have therefore revised the monitoring zones for both the one pile driven with attenuation and the one pile driven without attenuation (Table 8) and we have included the revised monitoring zones in Table 2 of the IHA.

Comment 13. The Commission recommended that NMFS (1) include in section 5(c) of the final authorization that hydroacoustic monitoring must be conducted and (2) require Dominion's hydroacoustic monitoring report to include, along with the information specified in section 5(c) of the final authorization, the spatial configuration of the first and second bubble curtains relative to the pile, whether and when the double bubble curtain is active, and the extents of the Level A and B harassment zones for both unattenuated and attenuated pile driving.

Response: NMFS agrees with this recommendation and we have included this requirement in the IHA.

Comment 14. The Commission recommended that NMFS, in the final authorization (1) require Dominion to

initiate pile driving early enough in the day to ensure that pile driving is completed before sunset and (2) remove measure 4(i) that allows for pile driving to continue into nighttime hours.

Response: Regarding the recommendation to require Dominion to initiate pile driving early enough in the day to ensure that pile driving is completed before sunset, NMFS agrees with this recommendation; as a pile driving event is expected to last no more than two hours per day, we have included a requirement in the IHA that pile driving must not be initiated less than four hours prior to sunset. Regarding the recommendation to remove the measure that allows for pile driving to continue into nighttime hours, we do not agree with the recommendation as it may not be practicable for Dominion to implement. Pile driving may continue after dark only when the installation of the same pile began during daylight when the Exclusion Zone was fully visible for at least four hours, and only in extraordinary circumstances when it must proceed for human safety or installation feasibility reasons as determined by the lead engineer.

Comment 15. The Commission recommended that NMFS ensure Dominion keeps a running tally of the total takes, based on observed and extrapolated takes, for Level A and B harassment.

Response: NMFS agrees that Dominion is responsible for ensuring they do not exceed authorized take numbers. As is typical, we have included a requirement in the IHA that activities must cease if authorized take numbers are exceeded. However, NMFS does not agree that a requirement for PSOs to extrapolate takes based on observed takes as pile driving activities are ongoing is practicable as such a requirement may result in PSOs' attention being diverted from their primary task of observing and documenting marine mammal sightings. NMFS is not responsible for ensuring that Dominion does not operate in violation of an issued IHA.

Comment 16. The Commission recommended that NMFS include in all draft and final incidental harassment authorizations the explicit requirements to cease activities if a marine mammal is injured or killed, both during the proposed activities and in the event of a vessel strike, until NMFS reviews the circumstances involving any injury or death that is likely attributable to the activities and determines what additional measures are necessary to minimize additional injuries or deaths.

Response: NMFS does not expect that the proposed activities, including HRG surveys, cable-lay activities and offshore pile driving activities, have the potential to result in injury or mortality to marine mammals and therefore does not agree that a blanket requirement for project activities to cease would be warranted. While injury or mortality to marine mammals is possible due to vessel strike, NMFS does not agree that a requirement for a vessel that is operating on the open water to suddenly stop operating is practicable, and it is unclear what mitigation benefit would result from such a requirement in relation to vessel strike. The Commission does not suggest what measures other than those prescribed in this IHA would potentially prove more effective in reducing the risk of strike. Therefore, we have not included this requirement in the authorization. NMFS retains authority to modify the IHA and cease all activities immediately based on a vessel strike and will exercise that authority if warranted.

With respect to the Commission's recommendation that NMFS include these requirements in all proposed and final IHAs, NMFS determines the requirements for mitigation measures in each authorization based on numerous case-specific factors, including the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. As NMFS must make these determinations on a case by case basis, we therefore do not agree with this recommendation.

Comment 17. The Commission recommended that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated **Federal Register** notice process, which is similarly expeditious and fulfills NMFS's intent to maximize efficiencies. If NMFS continues to propose to issue renewals, the Commission recommends that it (1) stipulate that a renewal is a one-time opportunity (a) in all **Federal Register** notices requesting comments on the possibility of a renewal, (b) on its web page detailing the renewal process, and (c) in all draft and final authorizations that include a term and condition for a renewal and, (2) if NMFS refuses to stipulate a renewal being a one-time opportunity, explain why it will not do so in its **Federal Register** notices, on its web page, and in all draft and final authorizations.

Response: NMFS does not agree with the Commission and, therefore, does not adopt the Commission's recommendation. NMFS will provide a detailed explanation of its decision within 120 days, as required by section 202(d) of the MMPA. We addressed why renewals are appropriate in certain situations in our Response to Comment 6.

Changes From the Proposed IHA to Final IHA

As described above, the following revisions has been made to authorized take numbers:

- Authorized take by Level B harassment of humpback whales has been increased from zero to two; and
- Authorized take by Level B harassment of bottlenose dolphins has been increased from 34 to 100.

Also as described above, the following revisions have been made to mitigation and monitoring measures:

- The duration for monitoring for marine mammals prior to initiation of pile driving has been increased from 30 minutes to 60 minutes;
- The minimum amount of time before sunset that pile driving must start has been increased from 30 minutes to four hours; and
- The monitoring zones have been revised to coincide with modeled Level A harassment zones based on SELcum (Table 8).

Description of Marine Mammals in the Area of Specified Activity

Sections 4 and 5 of the IHA application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; *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 (*www.fisheries.noaa.gov/find-species*).

All species that could potentially occur in the project area are included in Table 4–1 of the IHA application. However, the temporal and/or spatial occurrence of several species listed in Table 4–1 of the IHA application is such that take of these species is not expected to occur either because they have very low densities in the project area and/or are extralimital to the project area. These are: The blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus),* sei whale *(Balaenoptera borealis),* North Atlantic

right whale (*Eubalaena glacialis),* minke whale (*Balaenoptera acutorostrata),* Bryde's whale (*Balaenoptera edeni*), sperm whale (*Physeter macrocephalus),* long-finned and short-finned pilot whale (*Globicephala* spp.), Cuvier's beaked whale (*Ziphius cavirostris*), four species of Mesoplodont beaked whale (*Mesoplodon* spp.), dwarf and pygmy sperm whale (*Kogia sima* and *Kogia breviceps*), northern bottlenose whale (*Hyperoodon ampullatus*), pygmy killer whale (*Feresa attenuata*), false killer whale (*Pseudorca crassidens*), melon-headed whale (*Peponocephala electra*), harbor porpoise (*Phocoena phocoena),* Risso's dolphin (*Grampus griseus*), striped dolphin (*Stenella coeruleoalba*), white-beaked dolphin (*Lagenorhynchus albirostris*), pantropical spotted dolphin (*Stenella attenuata*), Fraser's dolphin (*Lagenodelphis hosei*), rough-toothed dolphin (*Steno bredanensis*), Clymene dolphin (*Stenella clymene*), spinner dolphin (*Stenella longirostris*), hooded seal (*Cystophora cristata*), and harp seal (*Pagophilus groenlandicus*). As take of these species is not anticipated as a result of the planned activities, these species are not analyzed further in this document.

Table 1 summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2019). 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 mortality is anticipated or authorized here, PBR is included here as a gross indicator of the status of the species 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 in the 2019 draft Atlantic SARs (Hayes *et al.,* 2019), available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region.*

TABLE 1—MARINE MAMMALS KNOWN TO OCCUR IN THE PROJECT AREA THAT MAY BE AFFECTED BY DOMINION'S ACTIVITY

Common name (scientific name)	Stock	MMPA and ESA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	Predicted abundance (CV) [3]	PBR [4]	Annual M/SI [4]	Occurrence in project area
Toothed whales (Odontoceti)							
Atlantic white-sided dolphin (*Lagenorhynchus acutus*).	W. North Atlantic	--; N	93,233 (0.71; 54,443; n/a).	37,180 (0.07)	544	26	Common.
Common dolphin (*Delphinus delphis*).	W. North Atlantic	--; N	172,825 (0.21; 145,216; 2011).	86,098 (0.12)	1,452	419	Common.
Atlantic spotted dolphin (*Stenella frontalis*).	W. North Atlantic	--; N	39,921 (0.27; 32,032; 2012).	55,436 (0.32)	320	0	Common.
Bottlenose dolphin (*Tursiops truncatus*).	W. North Atlantic, Offshore.	--; N	62,851 (0.23; 51,914; 2011).	97,476 (0.06) [5]	23	28	Common offshore.
	W. North Atlantic, Southern Migratory Coastal.	--; N	3,751 (0.06; 2,353; n/a)			0–14.3	Common nearshore in summer.
Harbor porpoise (*Phocoena phocoena*).	Gulf of Maine/Bay of Fundy.	--; N	79,833 (0.32; 61,415; 2011).	45,089 (0.12)	706	255	Common.
Baleen whales (Mysticeti)							
Humpback whale (*Megaptera novaeangliae*).	Gulf of Maine	--; N	1,396 (0; 1,380; n/a)	1,637 (0.07) *	22	12.15	Common.
Earless seals (Phocidae)							
Gray seal [6] (*Halichoerus grypus*).	W. North Atlantic	--; N	27,131 (0.19; 23,158; n/a).		1,389	5,410	Common.
Harbor seal (*Phoca vitulina*).	W. North Atlantic	--; N	75,834 (0.15; 66,884; 2012).		2,006	350	Common.

[1] 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 (see footnote 3) 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.

[2] Stock abundance as reported in NMFS marine mammal stock assessment reports (SAR) except where otherwise noted. SARs available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.* CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable. For certain stocks, abundance estimates are actual counts of animals and there is no associated CV. The most recent abundance survey that is reflected in the abundance estimate is presented; there may be more recent surveys that have not yet been incorporated into the estimate. All values presented here are from the 2019 draft Atlantic SARs (Hayes *et al.,* 2019).

[3] This information represents species- or guild-specific abundance predicted by recent habitat-based cetacean density models (Roberts *et al.,* 2016, 2017, 2018). These models provide the best available scientific information regarding predicted density patterns of cetaceans in the U.S. Atlantic Ocean, and we provide the corresponding abundance predictions as a point of reference. Total abundance estimates were produced by computing the mean density of all pixels in the modeled area and multiplying by its area. For those species marked with an asterisk, the available information supported development of either two or four seasonal models; each model has an associated abundance prediction. Here, we report the maximum predicted abundance.

[4] Potential biological removal, 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 size (OSP). Annual M/SI, found in NMFS' SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, subsistence hunting, ship strike). Annual M/SI values often cannot be determined precisely and is in some cases presented as a minimum value. All M/SI values are as presented in the draft 2019 SARs (Hayes *et al.,* 2019).

[5] Abundance estimates are in some cases reported for a guild or group of species when those species are difficult to differentiate at sea. Similarly, the habitat-based cetacean density models produced by Roberts *et al.* (2016, 2017, 2018) are based in part on available observational data which, in some cases, is limited to genus or guild in terms of taxonomic definition. Roberts *et al.* (2016, 2017, 2018) produced a density model for bottlenose dolphins that does not differentiate between offshore and coastal stocks.

[6] NMFS stock abundance estimate applies to U.S. population only, actual stock abundance is approximately 505,000.

A detailed description of the species likely to be affected by Dominion's activities, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the notice of proposed IHA (85 FR 14901; March 16, 2020). 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 that notice for these descriptions. Please also refer to NMFS' website (*www.fisheries.noaa.gov/find-species*) for generalized species accounts.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

The effects of underwater noise from Dominion's construction activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the project area. The notice of proposed IHA (85 FR 14901; March 16, 2020) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise from Dominion's construction activities on marine mammals and their habitat. That information and analysis is incorporated by reference into this final IHA determination and is not repeated here; please refer to the notice of proposed IHA (85 FR 14901; March 16, 2020).

Estimated Take

This section provides an estimate of the number of incidental takes authorized through the IHA, which will inform both NMFS' consideration of ''small numbers'' and the negligible impact determination.

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 would be by Level B harassment, as noise from pile driving has the potential to result in disruption of behavioral patterns for individual marine mammals. Impact pile driving has source characteristics (short, sharp pulses with higher peak levels and sharper rise time to reach those peaks) that are potentially injurious or more likely to produce severe behavioral reactions. However, modeling indicates there is limited potential for auditory injury even in the absence of the proposed mitigation measures, with no species predicted to experience Level A harassment. In addition, the already limited potential for injury is expected to be minimized through implementation of the proposed mitigation measures including soft start and the implementation of EZs that would facilitate a delay of pile driving if marine mammals were observed approaching or within areas that could be ensonified above sound levels that could result in auditory injury. Given sufficient notice through use of soft start, marine mammals are expected to move away from a sound source that is annoying prior to its becoming potentially injurious or resulting in more severe behavioral reactions. No Level A harassment of any marine mammal stocks are anticipated or authorized.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

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) and the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of 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 take estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed 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 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 (*e.g.,* frequency, predictability, duty cycle), the environment (*e.g.,* bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.,* 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 160 dB re 1 µPa (rms) for impulsive and/or intermittent sources (*e.g.,* impact pile driving) and 120 dB rms for continuous sources (*e.g.,* vibratory driving). Dominion's planned activity includes the use of impulsive sources (*i.e.,* impact pile driving equipment) therefore use of the 160 dB re 1 µPa (rms) threshold 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 components of Dominion's planned activity that may result in the take of marine mammals include the use of impulsive sources.

These thresholds are provided in Table 2 below. The references, analysis, and methodology used in the development of the thresholds are

described in NMFS 2018 Technical Guidance, which may be accessed at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.*

TABLE 2—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

Hearing group	PTS onset acoustic thresholds * (received level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	*Cell 1:* $L_{pk,flat}$: 219 dB; $L_{E,LF,24h}$: 183 dB	*Cell 2:* $L_{E,LF,24h}$: 199 dB.
Mid-Frequency (MF) Cetaceans	*Cell 3:* $L_{pk,flat}$: 230 dB; $L_{E,MF,24h}$: 185 dB	*Cell 4:* $L_{E,MF,24h}$: 198 dB.
High-Frequency (HF) Cetaceans	*Cell 5:* $L_{pk,flat}$: 202 dB; $L_{E,HF,24h}$: 155 dB	*Cell 6:* $L_{E,HF,24h}$: 173 dB.
Phocid Pinnipeds (PW) (Underwater)	*Cell 7:* $L_{pk,flat}$: 218 dB; $L_{E,PW,24h}$: 185 dB	*Cell 8:* $L_{E,PW,24h}$: 201 dB.
Otariid Pinnipeds (OW) (Underwater)	*Cell 9:* $L_{pk,flat}$: 232 dB; $L_{E,OW,24h}$: 203 dB	*Cell 10:* $L_{E,OW,24h}$: 219 dB.

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 µPa, and cumulative sound exposure level (L_E) has a reference value of 1µPa^{2}s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript ''flat'' is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.,* varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

As described above, Dominion proposes to install two WTGs on monopile foundations. The WTG monopile foundations would each be 7.8-m in diameter. The expected hammer energy required to drive the two monopiles is 600 kJ, though a maximum potential hammer energy of 1,000 kJ may be required. Bubble curtains would also be deployed to attenuate pile driving noise on at least one of the piles. Dominion performed acoustic modeling based on scenarios including 600 kJ and 1,000 kJ hammer energy, and on attenuation levels of 15 dB, 10 dB, 6 dB and 0 dB achieved from the deployment of the bubble curtains.

Modeling was performed using the software dBSea, a 3D model developed by Marshall Day Acoustics that is built by importing bathymetry data and placing noise sources in the environment. The dBSea model allows for the incorporation of several site-specific properties including sound speed profile, temperature, salinity, and current. Noise levels are calculated throughout the project area and displayed in 3D. The model also allows for the incorporation of several ''solvers''. Two such ''solvers'' were incorporated in the modeling:

- dBSeaPE (Parabolic Equation Method): The dBSeaPE solver makes use of the parabolic equation method, a versatile and robust method of marching the sound field out in range from the sound source; and
- dBSeaRay (Ray Tracing Method): The dBSeaRay solver forms a solution by tracing rays from the source to the receiver. Many rays leave the source covering a range of angles, and the sound level at each point in the receiving field is calculated by coherently summing the components from each ray.

The number of strikes per pile incorporated in the model were 3,419 blows for the first foundation and 4,819 blows for the second foundation at a rate of 40 blows per minute (the difference in the number of anticipated blows is due to different soil conditions at the two WTG locations). These estimates of the number of blows required are considered conservative; the actual number of blows anticipated for the first and second foundations may ultimately be less. Source levels incorporated in the model were derived from data recorded at the Walney Extension Offshore Wind Farm located off the coast of England (NIRAS Consulting Ltd, 2017). Data from the Walney Extension project represents a suitable proxy for the planned project as the piles at the Walney Extension project were the same diameter as those planned for use in the CVOW project (*i.e.,* 7.8-m) and water depth at the Walney Extension project was very similar to that at the CVOW project site (a depth of 28-m at the Walney Extention project compared to a depth of 25-m at the CVOW project site). Source levels derived from the Walney Extension project and used in the modeling are shown in Table 3.

TABLE 3—SOURCE LEVELS USED IN MODELING PILE DRIVING NOISE FROM THE CVOW PROJECT

Hammer energy scenario	Source level at 1 meter
600 kJ Hammer Energy	222 dBrms$_{90}$. 213 SEL. 235 Peak.
1,000 kJ Hammer Energy	224 dBrms$_{90}$. 215 SEL. 237 Peak.

Acoustic modeling was performed for scenarios including 600 kJ and 1,000 kJ hammer energy. To be conservative, it was assumed for purposes of the exposure estimate that 1,000 kJ hammer energy would be required at all times during the driving of both piles. This represents a conservative assumption, as less energy may ultimately be required. Modeling scenarios included potential attenuation levels of 15 dB, 10 dB, 6 dB and 0 dB achieved from the deployment of the attenuation system. Table 4 shows modeled isopleth distances to Level A and Level B harassment thresholds based on 1,000 kJ hammer energy and potential attenuation levels of 15 dB, 10 dB, 6 dB and 0 dB. Level A harassment isopleths vary based on marine mammal functional hearing groups. The updated acoustic thresholds for impulsive sounds (such as pile driving) contained in the Technical Guidance (NMFS, 2018) were presented as dual metric acoustic thresholds using both cumulative sound exposure level

(SEL_{cum}) and peak sound pressure level metrics. As dual metrics, NMFS considers onset of PTS (Level A harassment) to have occurred when either one of the two metrics is exceeded (*i.e.,* the metric resulting in the largest isopleth). The SEL_{cum} metric considers both level and duration of exposure, as well as auditory weighting functions by marine mammal hearing group.

TABLE 4—MODELED RADIAL DISTANCES TO THRESHOLDS CORRESPONDING TO LEVEL A AND LEVEL B HARASSMENT FROM PILE DRIVING BASED ON 1,000 KJ HAMMER ENERGY

Attenuation scenario	Radial distance to Level A harassment threshold (m) *				Radial distance to Level B harassment threshold (m)
	High frequency cetaceans (peak SPL / SEL_{cum})	Low frequency cetaceans (peak SPL / SEL_{cum})	Mid frequency cetaceans (peak SPL/SEL_{cum})	Phocid pinnipeds (underwater) (peak SPL/ SEL_{cum})	All marine mammals
No attenuation	325/2,670	282/5,930	182/397	N/A/1,722	5,175
6 dB Reduction	80/1,277	N/A/3,830	N/A/252	N/A/567	3,580
10 dB Reduction	N/A/314	N/A/2,217	N/A/229	N/A/317	2,520
15 dB Reduction	N/A/233	N/A/1,277	N/A/124	N/A/236	1,370

* N/A indicates the distance to the threshold is so low it was undetectable in the modeling results.

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

The habitat-based density models produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts *et al.,* 2016, 2017, 2018) represent the best available information regarding marine mammal densities in the project area. The density data presented by Roberts *et al.* (2016, 2017, 2018) incorporates aerial and shipboard line-transect survey data from NMFS and other organizations and incorporates data from 8 physiographic and 16 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 (Roberts et al., 2016). In subsequent years, certain models have been updated on the basis of additional data as well as certain methodological improvements. The updated models incorporate additional sighting data, including sightings from the NOAA Atlantic Marine Assessment Program for Protected Species (AMAPPS) surveys from 2010–2014 (NEFSC & SEFSC, 2011, 2012, 2014a, 2014b, 2015, 2016). More information, including the initial model results and supplementary information for each model, is available online at *seamap.env.duke.edu/models/Duke-EC-GOM-2015/.*

Marine mammal density estimates in the project area (animals/km^2) were obtained using the model results from Roberts *et al.* (2016, 2017, 2018). While pile driving activities are planned for May, these activities could potentially occur any time between May and October. Average seasonal marine mammal densities were developed for each species and for each season when pile driving activities may occur using maximum monthly densities for each species, as reported by Roberts et al. (2016; 2017; 2018) (Densities from March through May were averaged for spring; June through August densities were averaged for summer; and September through November densities were averaged for fall). To be conservative, the highest average seasonal density for each species was then carried forward in the analysis (*i.e.,* whichever of the three seasonal average densities was highest for each species was applied to the exposure estimate). The maximum seasonal density values used in the exposure estimates are shown in Table 7 below.

Take Calculation and Estimates

Here we describe how the information provided above is brought together to produce a quantitative take estimate. 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 harassment thresholds were calculated, as described above. The radial distances modeled based on scenarios of 1,000 kJ hammer energy and 6 dB attenuation, 10 dB attenuation, 15 dB attenuation, and no attenuation (Table 4) were then used to calculate the areas around the pile predicted to be ensonified to sound levels that exceed relevant harassment thresholds.

Marine mammal density values were overlaid on the ensonified zones to relevant thresholds within a geographic information system (GIS). The density values were multiplied by these zones, resulting in daily Level A and Level B harassment exposure estimates. These estimates were then multiplied by the number of days of pile driving activity (*i.e.,* two) in order to estimate the number of marine mammals that would be exposed to pile driving noise above relevant thresholds for the entire project. The exposure numbers were rounded to the nearest whole individual.

The following formula describes these steps:

$$Estimated\ Take = D \times Z \times (d)$$

Where:

D = average highest species density
ZOI = maximum ensonified area to relevant thresholds
d = number of days

Dominion provided exposure estimates based on two days of pile driving for each scenario (*i.e.,* no attenuation, 6 dB attenuation, 10 dB attenuation and 15 dB attenuation). However, as Dominion has proposed driving one pile with the attenuation system activated and the other pile without the attenuation system activated (described further under Mitigation, below), we assumed for the exposure estimate that one pile would be driven with no attenuation and the other pile would be driven with an attenuation system that would achieve an overall 6 dB reduction in pile driving sound. Thus we halved the exposure estimates provided for the 0 dB attenuation and 6 dB attenuation scenarios to come up with exposure estimates for one day of pile driving for each scenario (*i.e.,* one pile driven with no attenuation, and the other pile driven with 6 dB attenuation). We then combined these to come up with exposure estimates for the two piles. We note that an estimate of an overall 6 dB reduction from the attenuation system

represents a conservative assumption, as the attenuation system planned for use is a double bubble curtain which may ultimately result in a greater level of attenuation than the assumed 6 dB (the attenuation system proposed for use is described further under Mitigation, below).

Table 5 shows modeled exposures above the Level A harassment threshold for each of the two piles and both piles combined. Note that modeling resulted in no takes by Level A harassment for any species, thus we do not authorize any takes by Level A harassment and outputs in Table 5 are for illustrative purposes only. Table 6 shows modeled exposures above the Level B harassment threshold for each of the two piles and both piles combined. Table 7 shows maximum seasonal densities used in the take estimate, the number of takes authorized, and the total takes as a percentage of population.

TABLE 5—MODELED EXPOSURES ABOVE THE LEVEL A HARASSMENT THRESHOLD ESTIMATED FOR EACH PILE AND FOR BOTH PILES COMBINED

Species	One pile with no attenuation	One pile with 6 dB attenuation	Both piles combined
Atlantic-spotted Dolphin	0.0025	0.001	0.0035
White-sided Dolphin	0.005	0.002	0.007
Bottlenose Dolphin (W.N.A. Offshore)	0.118	0.0475	0.1655
Bottlenose Dolphin (W. N. A. Southern Coastal Migratory)	0.118	0.0475	0.1655
Risso's Dolphin	0	0	0
Common Dolphin	0.008	0.003	0.011
Pilot Whales	0	0	0
Sperm Whale	0	0	0
Fin Whale	0.256	0.1065	0.3625
Harbor Porpoise	0.17	0.039	0.209
Humpback Whale	0.11	0.046	0.156
Minke Whale	0.1065	0.0445	0.151
North Atlantic Right Whale	0.0845	0.0355	0.12
Sei Whale	0.002	0.0005	0.0025
Harbor Seal	0.086	0.0095	0.0955
Gray Seal	0.086	0.0095	0.0955

TABLE 6—MODELED EXPOSURES ABOVE THE LEVEL B HARASSMENT THRESHOLD ESTIMATED FOR EACH PILE AND FOR BOTH PILES COMBINED

Species *	One pile with no attenuation	One pile with 6 dB attenuation	Both piles combined (rounded)
Common dolphin	1.34	0.45	2
Atlantic-spotted dolphin	0.43	0.14	1
Atlantic white-sided dolphin	0.86	0.29	1
Bottlenose dolphin (W. N. A. Offshore)	20.08	6.75	27
Bottlenose dolphin (W. N. A. Southern Coastal Migratory)	20.08	6.75	27
Harbor porpoise	0.64	0.22	1
Harbor seal	0.78	0.26	1
Gray seal	0.78	0.26	1

* All species potentially occurring in the project area were modeled; only species with at least one exposure above the Level B harassment threshold that were carried forward in the take analysis are shown.

TABLE 7—MARINE MAMMAL DENSITIES, NUMBERS OF POTENTIAL INCIDENTAL TAKE OF MARINE MAMMALS AUTHORIZED AND TAKES AS A PERCENTAGE OF POPULATION

Species	Density (animals/ 100 km^2)	Estimated takes by Level B harassment [1]	Total authorized takes by Level B harassment	Total authorized takes as a percentage of population [2]
Humpback whale	0.099	0	2	0.1
Common dolphin [3]	1.591	2	39	0.0
Atlantic white-sided dolphin [3]	1.018	1	40	0.1
Bottlenose dolphin (W. N. Atlantic Coastal Migratory) [4 5]	23.861	27	100	2.7
Bottlenose dolphin (W. N. Atlantic Offshore) [4 5]	23.861	27	100	0.2
Atlantic spotted dolphin [3]	0.508	1	100	0.3
Harbor porpoise [3]	0.760	1	4	0.0
Gray seal [4]	0.925	1	1	0.0
Harbor seal [4]	0.925	1	1	0.0

[1] Estimated takes based on a scenario of 1,000 kJ hammer energy and one pile driven with 6 dB attenuation and the other pile driven with no attenuation.

[2] Calculations of percentage of stock taken are based on the best available abundance estimate as shown in Table 1. In most cases the best available abundance estimate is provided by Roberts *et al.* (2016, 2017, 2018), when available, to maintain consistency with density estimates derived from Roberts *et al.* (2016, 2017, 2018).

[3] Number of authorized takes (Level B harassment only) for these species has been increased from the modeled take number to mean group size. Sources for group size estimates are as follows: Atlantic white-sided dolphin: Cipriano (2018); common dolphin: Palka et al. (2015); harbor porpoise: Palka et al. (2015); Atlantic spotted dolphin: Herzing and Perrin (2018); humpback whale: NOAA Fisheries Northeast and Southeast Fisheries Science Centers (2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011).

[4] Roberts *et al.* (2016, 2017, 2018) produced a single density model for all bottlenose dolphins and did not differentiate by bottlenose dolphin stocks, and produced a single density model for all seals and did not differentiate between seal species. Hence, the density value is the same for both stocks of bottlenose dolphin stocks that may be present and for both seal species.

[5] Number of authorized takes (Level B harassment only) has been increased from the modeled take number to a group size estimate based on sighting records from previously-submitted Dominion monitoring reports.

Modeling results predicted no takes by Level A harassment for any marine mammal species (based on both SEL_{cum} and peak SPL) (See Table 5). NMFS has therefore determined that the likelihood of take of marine mammals in the form of Level A harassment occurring as a result of the planned activity is so low as to be discountable, and we do not authorize the take by Level A harassment of any marine mammals.

Using the take methodology approach described above, the resulting take estimates for humpback whale, Atlantic white-sided dolphin, common dolphin, spotted dolphin and harbor porpoise were less than the average group sizes estimated for these species. However, information on the life histories of these species indicates they are likely to be encountered in groups, therefore it is reasonable to conservatively assume that one group of each of these species will be taken during the planned activities. We therefore authorize the take of the average group size for these species to account for the possibility that a group of any of these species or stocks is taken by the planned activities (Table 7). We note that for humpback whales zero takes by Level B harassment were modeled, however as described above we have authorized the take of the mean group size of humpback whales (*i.e.,* two) based on a recommendation from the Marine Mammal Commission that authorized takes of humpback whales are warranted based on stranding and sighting records.

Roberts *et al.* (2016, 2017, 2018) produced a single density model for all bottlenose dolphins and did not differentiate by bottlenose dolphin stocks. The Western North Atlantic southern migratory coastal stock occurs in coastal waters from the shoreline to approximately the 20-m isobath (Hayes *et al.* 2019). The water depth at the WTG installation location is 25 m. As 20-m represents an approximate depth limit for the coastal stock, both stocks have the potential to occur in the project area. Therefore we authorize take for both stocks. The take calculation methodology described above resulted in an estimate of 27 bottlenose dolphin Level B harassment takes. However, the number of authorized Level B harassment takes of bottlenose dolphins has been increased from the modeled number to 100 based on an observation of a group of approximately 100 bottlenose dolphins in a previous monitoring report associated with Dominion offshore wind activity near the project area (Milne et al, 2018). We have concluded that since either stock may be present it is possible that all estimated takes may accrue to either of the stocks and we therefore authorize 100 takes from both stocks that may be present.

Similar to bottlenose dolphins, Roberts *et al.* (2018) produced density models for all seals and did not differentiate by seal species. Because the seasonality of, and habitat use by, gray seals roughly overlaps with that of harbor seals in the project area, it is possible that modeled seal takes could occur to either species. The take calculation methodology described above resulted in an estimate of one seal take. As the one modeled seal take may accrue to either seal species we therefore authorize one take from both seal species that may be present. We are therefore authorizing twice the amount of takes that the exposure modeling predicts for seal species.

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 such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such 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 such 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, we carefully consider 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, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The mitigation measures described below are consistent with those required and successfully implemented under previous incidental take authorizations issued in association with in-water construction activities. Modeling was performed to estimate zones of influence (ZOI; see ''Estimated Take''); these ZOI values were used to inform mitigation measures for pile driving activities to eliminate Level A harassment and minimize Level B harassment, while providing estimates of the areas within which Level B harassment might occur.

In addition to the specific measures described below, Dominion would conduct briefings for construction supervisors and crews, the marine mammal monitoring teams, and Dominion staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, the marine mammal monitoring protocol, and operational procedures.

Seasonal Restriction on Pile Driving

No pile driving activities may occur from November 1 through April 30. This

seasonal restriction has been established to minimize the potential for North Atlantic right whales to be exposed to pile driving noise. Based on the best available information (Roberts et al., 2017), the highest densities of right whales in the project area are expected during the months of November 1 through April when right whales are migrating. This restriction will greatly reduce the potential for right whale exposure to pile driving noise associated with the project.

Pre-Clearance, Exclusion and Monitoring Zones

Dominion will use PSOs to establish a 1,750-m exclusion zone (EZ) around the pile driving equipment to ensure this zone is clear of marine mammals prior to the start of pile driving. The purpose of ''clearance'' of a particular zone is to prevent potential instances of auditory injury and potential instances of more severe behavioral disturbance as a result of exposure to pile driving noise (serious injury or death are unlikely outcomes even in the absence of mitigation measures) by delaying the activity before it begins if marine mammals are detected within certain pre-defined distances of the pile driving equipment. The primary goal in this case is to prevent auditory injury (Level A harassment), and while we acknowledge that porpoises or seals may not be detected at this distance, the 1,750-m EZ is significantly larger than modeled distances to isopleth distances corresponding to Level A harassment (based on peak SPL) for all marine mammal functional hearing groups (Table 4). The EZ for North Atlantic right whales would effectively extend beyond 1,750-m to as far as PSOs are able to see (*i.e.,* a North Atlantic right whale observed at any distance from the pile, regardless of the whale's distance from the pile, would trigger further mitigation action (either delay or shutdown)).

In addition to the EZ, PSOs must observe a monitoring zone that corresponds with the greatest potential impact zone which in this case is associated with the modeled distance to the Level A harassment isopleth (based on SELcum) for low-frequency cetaceans (Table 4) during pile driving activities. PSOs must record information on marine mammals observed within the monitoring zone, including species, observed behavior, and estimates of number of marine mammals exposed to pile driving noise within the Level B harassment zone. Marine mammals observed within the monitoring zone but outside the EZs would not trigger any mitigation action. All distances are the radius from the center of the pile.

TABLE 8—EXCLUSION AND MONITORING ZONES

Exclusion zone	Monitoring zone (pile driven with /without active bubble curtains)
1,750 m*	3,830 m/5,930 m.

*A North Atlantic right whale observed at any distance from the pile would trigger delay or shutdown of pile driving.

If a marine mammal is observed approaching or entering the relevant EZ prior to the start of pile driving operations, pile driving activity must be delayed until either the marine mammal has voluntarily left the respective EZ and been visually confirmed beyond that zone, or, 15 minutes have elapsed without re-detection of the animal in the case of delphinids and pinnipeds or 30 minutes have elapsed without re-detection of the animal in the case of all other marine mammals.

Prior to the start of pile driving activity, the EZs must be monitored for 60 minutes to ensure that they are clear of marine mammals. Pile driving may only commence once PSOs have declared the respective zones clear of marine mammals. Marine mammals observed within a EZ must be allowed to remain in the clearance zone (*i.e.,* must leave of their own volition), and their behavior must be monitored and documented. The EZs may only be declared clear, and pile driving started, when the entire clearance zones are visible (*i.e.,* when not obscured by dark, rain, fog, etc.) for a full 30 minutes prior to pile driving.

Soft Start

The use of a soft start procedure is believed to provide additional protection to marine mammals by warning marine mammals or providing them with a chance to leave the area prior to the hammer operating at full capacity, and typically involves a requirement to initiate sound from the hammer at reduced energy followed by a waiting period. Dominion must utilize soft start techniques for impact pile driving by performing an initial set of three strikes from the impact hammer at a reduced energy level followed by a 30 second waiting period. The soft start process must be conducted a total of three times prior to driving each pile (*e.g.,* three strikes followed by a 30 second delay, then three additional single strikes followed by a 30 second delay, then a final set of three strikes followed by an additional 30 second delay). Soft start is required at the beginning of each day's impact pile driving work and at any time following a cessation of impact pile driving of thirty minutes or longer.

Shutdown

The purpose of a shutdown is to prevent some undesirable outcome, such as auditory injury or behavioral disturbance of sensitive species, by halting the activity. If a marine mammal is observed entering or within the EZs after pile driving has begun, PSOs must request a temporary cessation of pile driving. When called for by a PSO, shutdown of pile driving would be implemented when practicable; however, there may be instances where a shutdown is not practicable, as any significant stoppage of pile driving progress can allow for displaced sediments along the piling surface areas to consolidate and bind, potentially resulting in a situation where a piling is permanently bound in a partially driven position. If a shutdown is called for before a pile has been driven to a sufficient depth to allow for pile stability, then for safety reasons the pile would need to be driven to a sufficient depth to allow for stability and a shutdown would not be practicable until after that depth was reached. Therefore we require that shutdown be implemented when practicable.

If shutdown is called for by a PSO, and Dominion determines a shutdown to be technically practicable, pile driving must be halted immediately. After shutdown, pile driving may be initiated once all EZs are clear of marine mammals for the minimum species-specific time periods, or, if required to maintain installation feasibility. For North Atlantic right whales, shutdown would occur when a right whale is observed by PSOs at any distance, and a shutdown zone of 1,750 m would be implemented for all other species (Table 8).

Noise Attenuation System

The Project must utilize an attenuation system in order to reduce underwater noise from pile driving during the driving of at least one pile. Bubble curtains are used to reduce acoustic energy emissions from high-amplitude sources and are generated by releasing air through multiple small holes drilled in a hose or manifold deployed on the seabed near the source. The resulting curtain of air bubbles in the water attenuates sound waves propagating through the curtain. The sound attenuating effect of the noise mitigation system bubble curtain or air bubbles in water is caused by: (i) Sound

scattering on air bubbles (resonance effect) and (ii) (specular) reflection at the transition between water layer with and without bubbles (air water mixture; impedance leap). Use of a ''double bubble curtain'' entails two concentric rings of bubbles around the pile and can achieve greater levels of attenuation than the use of a single bubble curtain. A double bubble curtain would be deployed to reduce sound during pile driving activities during the driving of at least one pile.

Dominion has proposed driving one pile with the double bubble curtain activated and the other pile without the double bubble curtain activated with the goal of gathering in situ data on the effectiveness of the double bubble curtain via hydroacoustic monitoring during the driving of both piles. This effort would be supported by the Bureau of Ocean Energy Management (BOEM) Real-time Opportunity for Development Environmental Observations (RODEO) program, which aims to collect real-time measurements of the construction and operation activities from the first offshore wind facilities in the United States to allow for more accurate assessments of actual environmental effects and to inform development of appropriate mitigation measures. Dominion would activate the double bubble curtain on the pile that is expected to require more blows to complete.

The bubble curtains would distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column. The lowest bubble ring would be in contact with the mudline for the full circumference of the ring, and the weights attached to the bottom ring would ensure 100 percent mudline contact. No parts of the ring or other objects would prevent full mudline contact. Air flow to the bubblers would be balanced around the circumference of the pile.

Visibility Requirements

All pile driving must be initiated during daylight hours, no earlier than 30 minutes after sunrise and no later than four hours before sunset. Pile driving must not be initiated at night, or, when the full extent of the 1,750 m EZ cannot be confirmed to be clear of marine mammals, as determined by the lead PSO on duty. The EZ may only be declared clear, and pile driving initiated, when the full extent of the 1,750 m EZ is visible (*i.e.,* when not obscured by dark, rain, fog, etc.) for a full 30 minutes prior to pile driving. Dominion must attempt to complete all pile driving in daylight; pile driving may continue after dark only when the installation of the same pile began during daylight at least four hours prior to sunset when the EZ was fully visible for at least 30 minutes, and only in extraordinary circumstances when it must proceed for human safety or installation feasibility reasons as determined by the lead engineer.

Monitoring Protocols

Monitoring must be conducted before, during, and after pile driving activities. In addition, PSOs must record all incidents of marine mammal occurrence, regardless of distance from the construction activity, and PSOs must document any behavioral reactions in concert with distance from piles being driven. Observations made outside the EZ will not result in delay of pile driving; that pile segment may be completed without cessation, unless the marine mammal approaches or enters the EZ, at which point pile driving activities must be halted when practicable, as described above. Pile driving activities include the time to install a single pile, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

The following additional measures apply to visual monitoring:

(1) A minimum of two PSOs must be on duty at all times during pile driving;

(2) Monitoring must be conducted by qualified, trained PSOs. PSOs must be stationed at the highest practical vantage point on the pile installation vessel;

(3) PSOs may not exceed four consecutive watch hours; must have a minimum two-hour break between watches; and may not exceed a combined watch schedule of more than 12 hours in a 24-hour period;

(4) Monitoring must be conducted from 30 minutes prior to commencement of pile driving, throughout the time required to drive a pile, and for 30 minutes following the conclusion of pile driving;

(5) PSOs must have no other construction-related tasks while conducting monitoring; and

(6) PSOs must have the following minimum qualifications:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target;
- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to document observations including, but not limited to: The number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates and times when in-water construction activities were suspended to avoid potential incidental injury of marine mammals from construction noise within a defined shutdown zone; and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

PSOs employed by Dominion in satisfaction of the mitigation and monitoring requirements described herein must meet the following additional requirements:

- Independent observers (*i.e.,* not construction personnel) are required;
- At least one observer must have prior experience working as an observer;
- Other observers may substitute education (degree in biological science or related field) or training for experience;
- One observer will be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer; and
- NMFS will require submission and approval of observer CVs.

Vessel Strike Avoidance

Vessel strike avoidance measures include, but are not limited to, the following, except under circumstances when complying with these measures would put the safety of the vessel or crew at risk:

- All vessel operators and crew must maintain vigilant watch for cetaceans and pinnipeds, and slow down or stop their vessel to avoid striking these protected species;
- All vessels must travel at 10 knots (18.5 km/hr) or less within any designated Dynamic Management Area (DMA) or Seasonal Management Area for North Atlantic right whales;
- All vessel operators must reduce vessel speed to 10 knots (18.5 km/hr) or less when any large whale, any mother/calf pairs, pods, or large assemblages of non-delphinoid cetaceans are observed near (within 100 m (330 ft)) an underway vessel;
- All vessels must maintain a separation distance of 500 m (1640 ft) or

greater from any sighted North Atlantic right whale;

• If underway, vessels must steer a course away from any sighted North Atlantic right whale at 10 knots (18.5 km/hr) or less until the 500 m (1640 ft) minimum separation distance has been established. If a North Atlantic right whale is sighted in a vessel's path, or within 500 m (330 ft) to an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. Engines will not be engaged until the right whale has moved outside of the vessel's path and beyond 500 m. If stationary, the vessel must not engage engines until the North Atlantic right whale has moved beyond 500 m;

• All vessels must maintain a separation distance of 100 m (330 ft) or greater from any sighted non-delphinoid cetacean. If sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the non-delphinoid cetacean has moved outside of the vessel's path and beyond 100 m. If a vessel is stationary, the vessel will not engage engines until the non-delphinoid cetacean has moved out of the vessel's path and beyond 100 m;

• All vessels must maintain a separation distance of 50 m (164 ft) or greater from any sighted delphinoid cetacean, with the exception of delphinoid cetaceans that voluntarily approach the vessel (*i.e.,* bow ride). Any vessel underway must remain parallel to a sighted delphinoid cetacean's course whenever possible, and avoid excessive speed or abrupt changes in direction. Any vessel underway must reduce vessel speed to 10 knots (18.5 km/hr) or less when pods (including mother/calf pairs) or large assemblages of delphinoid cetaceans are observed. Vessels may not adjust course and speed until the delphinoid cetaceans have moved beyond 50 m and/or the abeam of the underway vessel;

• All vessels must maintain a separation distance of 50 m (164 ft) or greater from any sighted pinniped; and

• All vessels underway must not divert or alter course in order to approach any whale, delphinoid cetacean, or pinniped. Any vessel underway will avoid excessive speed or abrupt changes in direction to avoid injury to the sighted cetacean or pinniped.

Dominion must ensure that vessel operators and crew maintain a vigilant watch for marine mammals by slowing down or stopping the vessel to avoid striking marine mammals. Project-specific training must be conducted for all vessel crew prior to the start of the construction activities. Confirmation of the training and understanding of the requirements will be documented on a training course log sheet.

The mitigation measures are designed to avoid the already low potential for injury in addition to some instances of Level B harassment, and to minimize the potential for vessel strikes. Further, we believe the mitigation measures are practicable for Dominion to implement. There are no known marine mammal rookeries or mating or calving grounds in the project area that would otherwise potentially warrant increased mitigation measures for marine mammals or their habitat (or both).

Based on our evaluation of the required measures, as well as other measures considered by NMFS, NMFS has determined that the mitigation measures provide the means 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 in the proposed action area. 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 action; 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

Dominion must collect sighting data and behavioral responses to pile driving activity for marine mammal species observed in the region of activity during the period of activity. All observers must be trained in marine mammal identification and behaviors and are required to have no other construction-related tasks while conducting monitoring. PSOs must be stationed on the pile installation vessel. The observer platform would be elevated approximately 40-m above the sea surface. Dominion estimates that at this height a PSO with minimum 7x50 binoculars would be able to monitor a first reticule distance of approximately 3.2 miles from the sound source. PSOs must monitor the EZ and the Level B harassment zone at all times and would document any marine mammals observed within these zones, to the extent practicable. PSOs must conduct monitoring before, during, and after pile driving and removal, with observers located at the best practicable vantage points.

Dominion must implement the following monitoring procedures:

• A minimum of two PSOs must maintain watch at all times when pile driving is underway;

• PSOs must be located at the best possible vantage point(s) on the pile installation vessel to ensure that they are able to observe the entire EZ and as much of the monitoring zone as possible;

• During all observation periods, PSOs must use binoculars and the naked eye to search continuously for marine mammals;

• PSOs must be equipped with reticle binoculars and range finders as well as a digital single-lens reflex 35mm camera;

• Position data must be recorded using hand-held or vessel based global

positioning system (GPS) units for each sighting;

• If the EZ is obscured by fog or poor lighting conditions, pile driving must not be initiated until the EZ is fully visible. Should such conditions arise while pile driving is underway, the activity must be halted when practicable, as described above; and

• The EZ and monitoring zone must be monitored for the presence of marine mammals before, during, and after all pile driving activity.

Individuals implementing the monitoring protocol will assess its effectiveness using an adaptive approach. PSOs will use their best professional judgment throughout implementation and seek improvements to these methods when deemed appropriate. Any modifications to the protocol will be coordinated between NMFS and Dominion.

Data Collection

We require that observers use standardized data forms. Among other pieces of information, Dominion must record detailed information about any implementation of delays or shutdowns, including the distance of animals to the pile and a description of specific actions that ensued and resulting behavior of the animal, if any. We require that, at a minimum, the following information be collected on the sighting forms:

• Dates and times (begin and end) of all marine mammal monitoring;

• Construction activities occurring during each daily observation period, including how many and what type of piles were driven and by what method;

• Weather parameters and water conditions during each monitoring period (*e.g.,* wind speed, percent cover, visibility, sea state);

• The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting;

• Age and sex class, if possible, of all marine mammals observed;

• PSO locations during marine mammal monitoring;

• Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting);

• Description of any marine mammal behavior patterns during observation, including direction of travel and estimated time spent within the Level A and Level B harassment zones while the source was active;

• Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate);

• Detailed information about any implementation of any mitigation triggered (*e.g.,* shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any;

• Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals;

• An extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible; and

• All PSO datasheets and/or raw sighting data must be submitted (in a separate file from the Final Report).

Dominion must also note behavioral observations, to the extent practicable, if a marine mammal has remained in the area during construction activities.

Reporting

A draft report must be submitted to NMFS within 90 days of the completion of monitoring for each installation's in-water work window. The report must include marine mammal observations pre-activity, during-activity, and post-activity during pile driving days, and would also provide descriptions of any behavioral responses to construction activities by marine mammals. The report must detail the monitoring protocol, summarize the data recorded during monitoring including an estimate of the number of marine mammals that may have been harassed during the period of the report, and describe any mitigation actions taken (*i.e.,* delays or shutdowns due to detections of marine mammals, and documentation of when shutdowns were called for but not implemented and why). A final report must be submitted within 30 days following resolution of comments on the draft report.

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Dominion must report the incident to the Office of Protected Resources (OPR) (301–427–8401), NMFS and to the Mid-Atlantic regional stranding coordinator as soon as feasible. The report must include the following information:

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

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

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

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

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

• General circumstances under which the animal was discovered.

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 responses (*e.g.,* intensity, duration), the context of any responses (*e.g.,* critical reproductive time or location, migration), 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's 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 environmental 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).

Pile driving activities associated with the planned project, as described previously, have the potential to disturb or temporarily displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (potential behavioral disturbance) from underwater sounds generated from pile driving. Potential takes could occur if individual marine mammals are present in the ensonified zone when pile driving is occurring. To avoid repetition, the our analyses apply to all the species listed in Table 1, given that

the anticipated effects of the planned project on different marine mammal species and stocks are expected to be similar in nature.

Impact pile driving has source characteristics (short, sharp pulses with higher peak levels and sharper rise time to reach those peaks) that are potentially injurious or more likely to produce severe behavioral reactions. However, modeling indicates there is limited potential for auditory injury even in the absence of the mitigation measures, with no species predicted to experience Level A harassment. In addition, the already limited potential for injury is expected to be minimized through implementation of the mitigation measures including soft start and the implementation of EZs that would facilitate a delay of pile driving if marine mammals were observed approaching or within areas that could be ensonified above sound levels that could result in auditory injury. Given sufficient notice through use of soft start, marine mammals are expected to move away from a sound source that is annoying prior to its becoming potentially injurious or resulting in more severe behavioral reactions. No Level A harassment of any marine mammal stocks are anticipated or authorized.

Repeated exposures of individuals to relatively low levels of sound outside of preferred habitat areas are unlikely to significantly disrupt critical behaviors. Thus, even repeated Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in viability for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. Instances of more severe behavioral harassment are expected to be minimized by mitigation and monitoring measures. Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.,* Thorson and Reyff, 2006; HDR, Inc., 2012; Lerma, 2014). Most likely, individuals will simply move away from the sound source and temporarily avoid the area where pile driving is occurring. Therefore, we expect that animals disturbed by project sound would simply avoid the area during pile driving in favor of other, similar habitats. We expect that any avoidance of the project area by marine mammals would be temporary in nature and that any marine mammals that avoid the project area during construction activities would not be permanently displaced.

Feeding behavior is not likely to be significantly impacted, as prey species are mobile and are broadly distributed throughout the project area; therefore, marine mammals that may be temporarily displaced during construction 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 areas of notable biological significance for marine mammal feeding known to exist in the project area, and there are no rookeries, mating areas, or calving areas known to be biologically important to marine mammals within the project area. The area is part of a biologically important migratory area for North Atlantic right whales; however, seasonal restrictions on pile driving activity, which would restrict pile driving to times of year when right whales are least likely to be migrating through the project area, would minimize the potential for the activity to impact right whale migration.

NMFS concludes that exposures to marine mammals due to the project would result in only short-term effects to individuals exposed. Marine mammals may temporarily avoid the immediate area but are not expected to permanently abandon the area. Impacts to breeding, feeding, sheltering, resting, or migration are not expected, nor are shifts in habitat use, distribution, or foraging success. Serious injury or mortality as a result of the planned activities would not be expected even in the absence of the mitigation and monitoring measures, and no serious injury or mortality of any marine mammal stocks are anticipated or authorized. NMFS does not anticipate the marine mammal takes that would result from the planned project would impact annual rates of recruitment or survival.

Gray and harbor seals are experiencing an ongoing unusual mortality event (UME). Although the ongoing UME is under investigation, the UME does not yet provide cause for concern regarding population-level impacts to any of these stocks. For harbor seals, the population abundance is over 75,000 and annual M/SI (345) is well below PBR (2,006) (Hayes et al., 2018). For gray seals, the population abundance is over 27,000, and abundance is likely increasing in the U.S. Atlantic EEZ and in Canada (Hayes et al., 2018). No injury, serious injury or mortality is expected or authorized, and Level B harassment of gray and harbor seals will be reduced to the level of least practicable adverse impact through implementation of mitigation measures. As such, the authorized takes of gray and harbor seals would not exacerbate or compound the ongoing UMEs in any way.

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 the species or stock through effects on annual rates of recruitment or survival:

- No Level A harassment, serious injury or mortality is anticipated or authorized;
- The anticipated impacts of the planned activity on marine mammals would be temporary behavioral changes due to avoidance of the project area;
- Total authorized takes as a percentage of population are low for all species and stocks (*i.e.,* less than one percent of all stocks);
- The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the project area during the project to avoid exposure to sounds from the activity;
- Effects on species that serve as prey species for marine mammals from the project are expected to be short-term and are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations;
- There are no known important feeding, breeding, or calving areas in the project area, and authorized activities are limited to times of year when potential impacts to migration would not be expected; and
- Mitigation measures, including visual monitoring, exclusion and monitoring zones, a bubble curtain used on at least one pile, and soft start, 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 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 above, only small numbers of incidental take 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 less 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.

We authorize incidental take of seven marine mammal stocks. The total amount of taking authorized is less than one third of the best available population abundance estimate for all stocks (Table 7), which we find are small numbers of marine mammals relative to the estimated overall population abundances for those stocks.

Based on the analysis contained herein of the planned 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 all 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 would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must evaluate our proposed action (*i.e.,* the promulgation of regulations and subsequent issuance of incidental take authorization) and alternatives with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 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 would preclude this categorical exclusion. Accordingly, NMFS has determined that the proposed action qualifies to be categorically excluded from further NEPA review.

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act 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. No incidental take of ESA-listed species is authorized or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA was not required for this action.

Authorization

NMFS has issued an IHA to Dominion for conducting pile driving activity offshore of Virginia, for a period of one year, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Donna S. Wieting,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2020–10982 Filed 5–20–20; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XX055]

Atlantic Coastal Fisheries Cooperative Management Act Provisions; General Provisions for Domestic Fisheries; Application for Exempted Fishing Permits

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

ACTION: Notice; request for comments.

SUMMARY: The Assistant Regional Administrator for Sustainable Fisheries, Greater Atlantic Region, NMFS, has made a preliminary determination that an Exempted Fishing Permit application from the Northeast Fisheries Science Center contains all the required information and warrants further consideration. Regulations under the Magnuson-Stevens Fishery Conservation and Management Act and the Atlantic Coastal Fisheries Cooperative Management Act require publication of this notice to provide interested parties the opportunity to comment on applications for proposed Exempted Fishing Permits.

DATES: Comments must be received on or before June 5, 2020.

ADDRESSES: You may submit written comments by any of the following methods:

- *Email: NMFS.GAR.EFP@noaa.gov.* Include in the subject line ''Comments on NEFSC Ropeless Fishing EFP.''
- *Mail:* Michael Pentony, Regional Administrator, NMFS, Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, MA 01930. Mark the outside of the envelope ''Comments on NEFSC Ropeless Fishing EFP.''

FOR FURTHER INFORMATION CONTACT: Laura Hansen, Fishery Management Specialist, (978) 281–9225.

SUPPLEMENTARY INFORMATION: The Northeast Fisheries Science Center (NEFSC) submitted a complete application for an Exempted Fishing Permit (EFP) on March 9, 2020, to conduct fishing activities that the regulations would otherwise restrict. NEFSC is requesting an exemption from Federal lobster regulations that would authorize five federally permitted commercial lobster vessels to participate in a ropeless lobster gear study in Lobster Conservation Management Area 3. NEFSC is requesting an exemption from gear marking requirements at 50 CFR 697.21(b)(2) to allow for the use of a single buoy marker on a trawl of more than three traps.

The purpose of this study is to test a prototype ropeless fishing system as a potential technique to prevent entanglements of protected species, primarily North Atlantic right whales.

The EFP would authorize five participating vessels to modify some of their existing trawls, consisting of 35–45 traps. Experimental trawls would either have a rope spool, a buoy and stowed rope system, or a lift bag system fitted with an acoustic release, deployed on one end of the trawl, with a buoy line attached to the other. Soak time would be between 4–8 days, but may be modified depending on what each fisherman decides is appropriate for fishing. Sampling would occur from May to October, 2020. Initial deployments would be overseen by an