# Dominion Energy Coastal Virginia Offshore Wind Commercial Project

## Vessel Strike Avoidance Plan

**Prepared for:**


600 East Canal Street
Richmond, VA 23219

**Prepared by:**


Tetra Tech, Inc.
4101 Cox Road, Suite 100
Glen Allen, VA 23060

www.tetratech.com

**March 2024, Revised July and August 2024**

## TABLE OF CONTENTS



## FIGURES



## TABLES

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| BOEM | Bureau of Ocean Energy Management |
| BSEE | Bureau of Safety and Environmental Enforcement |
| CMMP | Construction Mitigation & Monitoring Plan |
| DMA | Dynamic Management Area |
| DVO | Dedicated Visual Observer |
| Dominion Energy | Virginia Electric and Power Company, doing business as Dominion Energy Virginia |
| ECM | Environmental Compliance Monitor |
| ESA | Endangered Species Act |
| ft | foot |
| IR | infrared |
| km/h | kilometer per hour |
| Lease Area | Lease No. OCS-A 0483 |
| LOA | Letter of Authorization |
| lp/mm$^3$ | line pairs per cubic millimeter |
| m | meter |
| mm | millimeter |
| NARW | North Atlantic right whale |
| NN | Night Navigator |
| NOAA | National Oceanic and Atmospheric Administration |
| NOAA Fisheries | NOAA National Marine Fisheries Service |
| OCS | Outer Continental Shelf |
| OPR | Office of Protected Resources |
| PAM | Passive Acoustic Monitoring |
| Plan | Vessel Strike Avoidance Plan |
| PMT | Portsmouth Marine Terminal |
| Project | Dominion Coastal Virginia Offshore Wind Commercial Project |
| PSO | Protected Species Observer |
| ROD | Record of Decision |
| RWSAS | Right Whale Sighting Advisory System |
| SMA | Seasonal Management Area |
| T&Cs | Terms and Conditions |
| USACE | U.S. Army Corps of Engineers |
| WHOI | Woods Hole Oceanographic Institute |

# 1 INTRODUCTION

Virginia Electric and Power Company doing business as Dominion Energy Virginia (Dominion Energy), proposes to construct, own, and operate the Coastal Virginia Offshore Wind Commercial Project (the Project; Figure 1). This Vessel Strike Avoidance Plan (the Plan) applies to all Project-related vessels (Dominion Energy/Project-owned, contracted, subcontracted, etc.) year-round within the spatial delineation of the specified geographical region, the Mid-Atlantic Bight, defined as the region between Cape Hatteras, North Carolina, and Martha's Vineyard, Massachusetts, extending eastward into the Atlantic to the 100-meter (m; 328-foot [ft]) isobath (Figure 1). This region includes, but is not limited to, the Bureau of Ocean Energy Management (BOEM) Lease Area Outer Continental Shelf (OCS)-A 0483 Commercial Lease of Submerged Lands for Renewable Energy Development, one export cable route, and a sea-to-shore transition point located at the State Military Reservation in Virginia Beach, Virginia (Lease No. OCS-A 0483; the Lease Area). The proposed activities will occur within the vicinity of the North Atlantic right whale (*Eubalaena glacialis*, NARW) Mid-Atlantic Seasonal Management Area (SMA) at the mouth of the Chesapeake Bay. Rather than only adhering to the seasonal NARW speed restrictions (operating at less than 10 knots [18.5 kilometers per hour (km/h)]) within the spatial delineation of the SMAs, the seasonal speed restrictions apply to all Project-related vessels operating within the Mid-Atlantic Bight region to the 100-m (328-ft) isobath during the seasonal restriction period (November 1 through April 30). A speed restriction (10 knots [18.5 km/hr]) for Project-related vessels transiting within the vessel corridor, defined as the Portsmouth Marine Terminal (PMT) to the Lease Area, is also in place year-round except during the months of May through October, provided a Passive Acoustic Monitoring (PAM) system is approved by NOAA Fisheries and deployed in the transit corridor.

Dominion Energy has committed to the following comprehensive set of monitoring and mitigation measures for all Project-associated vessels during all Project-related activities, including but not limited to construction, operation, maintenance, decommissioning, and survey activities; Dominion Energy also commits to engaging in ongoing coordination with the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NOAA Fisheries) regarding mitigation and monitoring protocols. This Plan details the measures designed to ensure that marine protected species are not adversely affected by the Project activities, with particular focus on the NARW.

Dominion Energy is dedicated to upholding the requirements of the issued Letter of Authorization (LOA)[1], applicable conditions of the NOAA Fisheries Biological Opinion Terms and Conditions[2], BOEM COP approval Terms and Conditions (T&Cs), the joint BOEM and NOAA Fisheries Record of Decision T&Cs

[1] Measures of the issued LOA that have been integrated into this Appendix A include, but are not limited to, 3.(a)(2)Training; 3.(a)(3)NARW monitoring; 3.(a)(4) Sighting communication; 3.(a)(11) A.I.S.; 3.(b)(1)-(16) Vessel strike avoidance measures; 4(a) PSO and PAM operator qualifications 4(b)(2) PSO observational position; 4(g) Reporting; and 5(c) Adaptive management.

[2] Dominion Energy is committed to compliance with the Terms and Conditions (T&Cs) of the Biological Opinion (see Section 11.3), which implement the Reasonable and Prudent Measures from Section 11.2 of the aforementioned document, including, but not limited to T&Cs 5(b), 6, and 8(e).

(to the extent consistent with the COP approval T&Cs),[3] and the United States Army Corps of Engineers Individual Permit Special Conditions.[4] This Plan is subject to updates in accordance with all future amendments or revisions to the aforementioned requirements and regulations. Dominion Energy is committed to communicating any changes and seeking approval of a revised Plan with the relevant agencies should future amendments or revisions be necessary.

The mitigation measures contained in this Plan will be adhered to except in cases where the health, safety, and/or life of a person is at risk, or when additional speed is necessary to ensure a safe speed for navigation.[5] As per the *Vessel Strike Avoidance Measures* in the LOA, COP approval T&Cs, and the NOAA Fisheries Biological Opinion issued for the Project, vessels and their operators are exempt from complying with the speed and maneuverability requirements described in this Plan for the entire life of the Project, including the five years of the active LOA and beyond through decommissioning, when approaching, attempting to avoid, and/or avoiding an emergency situation. In these situations, vessels and their operators will use their discretion to avoid or prevent an emergency.

There are specific navigational areas of concern for vessels over 500 gross tons associated with the Project, depicted in Figure 2. These areas of navigational concern begin when vessels transiting through the vessel transit corridor from the Project Area enter the mouth of the Chesapeake Bay[6] estuary, beginning in the waters north of Fort Story, Virginia. Vessels and their operators continue through the navigational areas of concern for the entire duration of their transit through the Chesapeake Bay estuary to the end of the vessel transit, approximately at the Middle Reach, a portion of the Chesapeake Bay estuary where the Elizabeth River meets Paradise Creek. The same navigational areas of concern are relevant for Project vessels exceeding 500 gross tons transiting eastwards from the end of the vessel transit corridor to the Project Area, until they exit the mouth of the Chesapeake Bay in the waters north of Fort Story.

These areas pose a navigational concern to Project vessels over 500 gross tons, as maintaining course at low speeds within a confined and at times constricted traffic separation scheme is difficult due to the physical limitations of the vessel equipment. Hazards that influence navigation in these areas include limited space, traffic density, hydrodynamic effects of ship interaction and channel contours, restricted maneuverability, traffic congestion, and tides and currents. The vessel traffic scheme is primarily designed to avoid interactions with other maritime commerce and traffic but also to ameliorate the possibility of a negative environmental interaction (i.e. vessel encountering a shoal area). For large vessels, reduced speed leads to diminished steering control and maneuverability, a wider turning radius, and overall increased difficulty in maintaining course. These factors can create hazardous situations for the vessel and crew, as

[3] Dominion Energy is committed to upholding the T&Cs of BOEM's approval of the Construction and Operations Plan. The Project's Record of Decision (ROD) constitutes BOEM and NOAA Fisheries joint ROD for the Final Environmental Impact Statement prepared for the Project's Construction and Operations Plan following the requirements of the National Environmental Policy Act, 42 United States Code §§ 4321 *et seq.*, and 40 Code of Federal Regulations §§ 1500-1508. Appendix A of the Project's ROD identifies mitigation, monitoring, and reporting requirements (measures 5.13.1, 5.13.4, and 5.13.5) that apply to extent consistent with the T&Cs of BOEM's COP approval.

[4] The Project-specific Special Conditions of note for vessel strike avoidance include, but are not limited to 7, 51, 59(b), and 60(a) through 60(d).

[5] For this purpose, the Chesapeake Bay includes the inland waters westward of a line drawn between the Cape Charles Lighthouse and the Cape Henry Lighthouse, as indicated on Figure 2.

well as nearby traffic. As a result, a safe speed greater than 10 knots (18.5 km/h) may be necessary to avoid vessel allisions (an accident where only one of the objects is moving), collisions (an accident where two moving objects strike each other), or groundings (the impact of a vessel on seabed or waterway side). Vessels over 500 gross tons may operate at a speed necessary to maintain safe maneuvering speed instead of the required 10 knots (18.5 km/h) only if justified by the aforementioned hazards, and if the need to operate at such speed is confirmed by the pilot onboard or, in the event a vessel is not carrying a pilot, the master of the vessel.

Dominion Energy and Project-related vessels over 500 gross tons will not report exemptions to these requirements when the exemption was taken to maintain a safe speed within the navigational areas of concern in the narrow channels of the Chesapeake Bay per the *LOA Condition 4 - Monitoring and Reporting Requirements (g)Reporting 15(i) – "All instances wherein an exemption is taken must be reported to the NOAA Fisheries Office of Protected Resources within 24 hours."* However, the vessel operators will not exceed speeds of 10 knots (18.5 km/h) in all other situations. As soon as navigational and safety conditions permit, the vessel master will return the vessel to a speed of 10 knots (18.5 km/h) or less. At all other times, if an exemption is taken in the transit corridor but outside of the areas of navigational concern designated in the map below (see areas depicted in red on Figure 2), the exemption will be reported to NOAA Fisheries Office of Protected Resources within 24 hours after the event. Additionally, the reason the exemption was necessitated, the speed at which the vessel was operating, the latitude and longitude of the area, and the time and duration of the exemption will be entered into the vessel logbook. The master of the vessel will attest to the accuracy of the logbook entry of the exemption by validating the log with their date and signature upon verification.

.

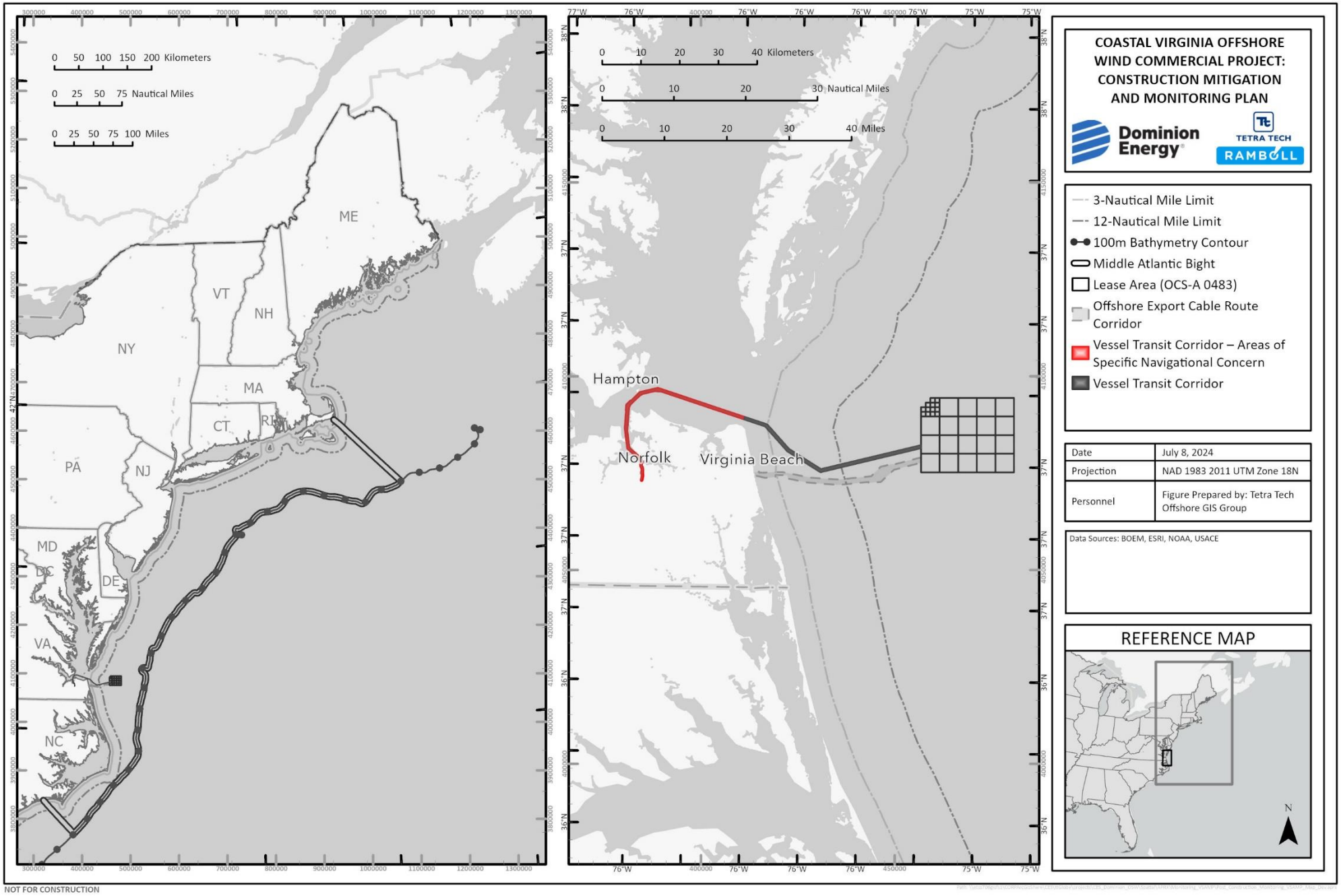



**Figure 1. Spatial Delineation of the Vessel Speed Restrictions**

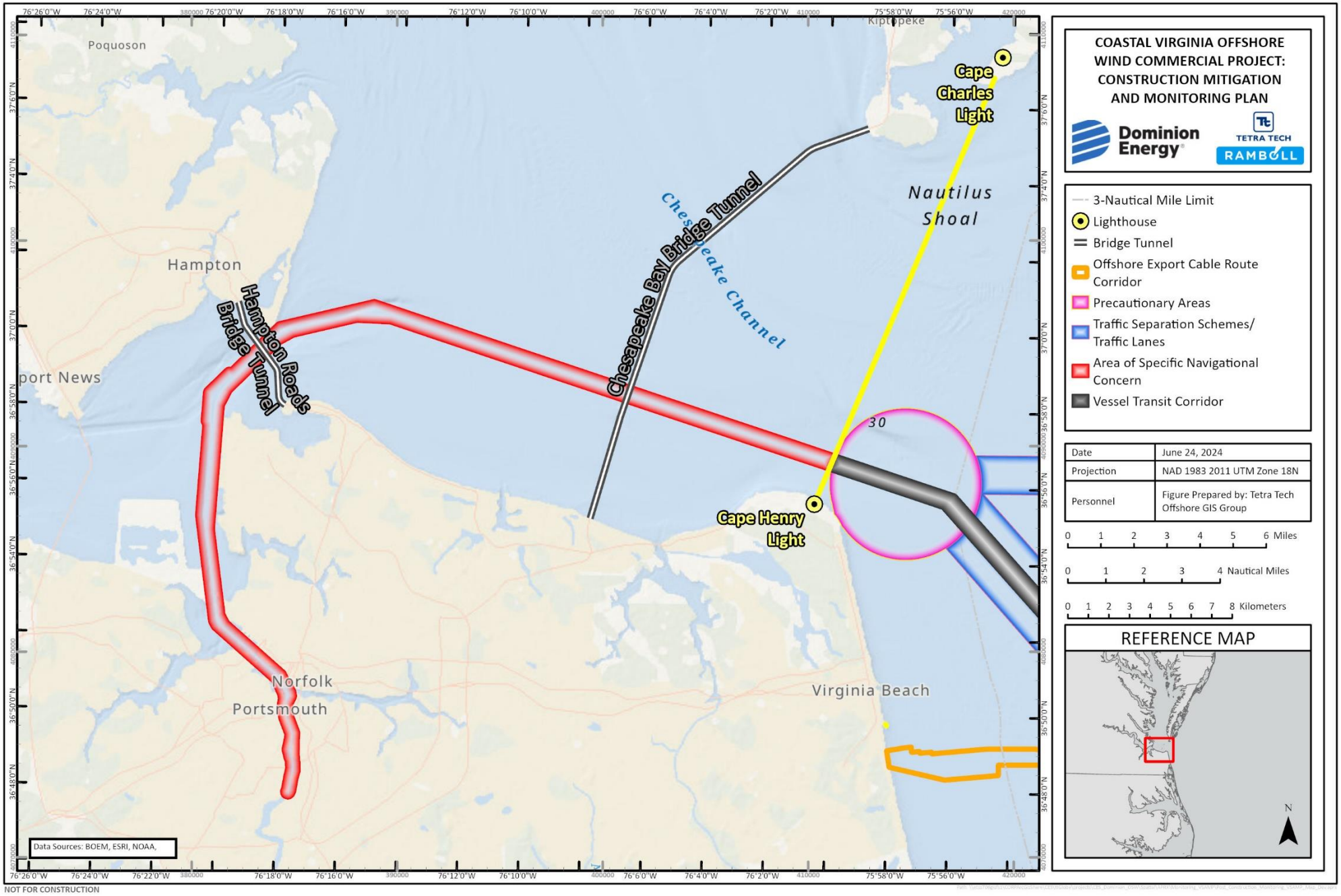



**Figure 2. Navigational Areas of Concern**

Note: The Precautionary Area is where vessel traffic routes converge. Mariners are advised to exercise extreme caution when navigating within this area.

# 2 OVERVIEW

All Project-associated vessels will be equipped with an Automatic Identification System (AIS) and Dominion Energy will report all Maritime Mobile Service Identities numbers to NOAA Fisheries Office of Protected Resources prior to initiating in-water activities [LOA Measure (3) (b) AIS]. Prior to initiation of Project activities, an environmental training program will be provided to NOAA Fisheries for review. Prior to commencement of Project activities, all Project personnel will undergo this comprehensive environmental training, encompassing protected species identification and the specific details outlined in this Plan. Upon completion of this environmental training, each individual will be trained and able to fulfill the responsibilities of a Designated Visual Observer (DVO), a mandatory role for all vessels in motion (i.e., vessels that are 'underway,' signifying the vessel is in motion and progressing, excluding anchoring, being made fast to the shore, aground, or otherwise remaining stationary in position). As elaborated in Section 6 of this Plan, DVOs are entrusted with the exclusive duty of vigilantly monitoring the forward trajectory of underway vessels. Subsequently, they are required to communicate their observations for the implementation of mitigative actions, as specified in Sections 7 and 8.

Dominion Energy will ensure that vessel operators and dedicated vessel crew members, excluding visitors or temporary technicians or contractors, maintain a vigilant watch for protected species during all Project activities. All vessel crew members will receive site-specific environmental training on protected species sighting, reporting, and vessel strike avoidance measures. Dominion Energy will track and document the aforementioned environmental training. Central to this document is a steadfast commitment to navigational and human safety. The vessel strike avoidance measures, which include, but are not limited to, the provisions described in Section 3 through Section 6, will be followed diligently by Dominion Energy. Exceptions apply solely in extraordinary circumstances when complying with these requirements would put the safety of the vessel or crew at risk, presenting an imminent threat to the health, safety, or life of a person, or when a vessel is actively engaged in emergency rescue or response duties, necessitating speeds exceeding 10 knots (18.5 km/hr). It is the responsibility of all crew members to communicate observations of marine protected species and it is important to note that the priority of all crew members is their safety and tasks which can include being the DVO or Environmental Compliance Monitor (ECM). Any crew member serving as an ECM or DVO will not be performing duties in another capacity during that specific time. This is inclusive of the Protected Species Observers (PSOs) who are typically exclusively assigned to their roles on vessels. Where vessel capacity is limited or restricted by regulation or statute, Dominion Energy will ensure that the personnel responsible for safely operating and navigating smaller vessels shall appoint a trained crew member or trained person onboard with the responsibility of acting in the capacity of a DVO to the best of their abilities. The marine protected species monitoring crew (i.e., DVO, ECM, and PSO) are all marine species visual observers working to monitor marine protected species.

**Note:** The environmental training, provided as Appendix B to the Construction Mitigation and Monitoring Plan (CMMP), as well as daily health, safety and environment briefings will ensure the crew understands the major risks and any concerns for protected species for that day.

# 3 NARW MONITORING

*** Note:** *This section will be updated in accordance with all future amendments or revisions to the NOAA North Atlantic Right Whale Vessel Strike Reduction Rule (79 FR 34245).* **

All vessel operators, regardless of vessel size, will comply with the 10 knot (18.5 km/hr) speed restrictions set in place within the specified geographic region of the Mid-Atlantic Bight to the 100 m (328 ft) isobath.

## 3.1 Seasonal Management

Project-related activities conducted from November 1 through April 30 must comply with the mandatory speed restriction period for Mid-Atlantic NARW seasonal management for the entirety of the Mid-Atlantic Bight region to the 100 m (328 ft) isobath. Therefore, all vessels, regardless of size, operating from November 1 through April 30 will not exceed 10 knots (18.5 km/hr) in accordance with the speed restrictions for NARW seasonal management within the Mid-Atlantic Bight.

## 3.2 Dynamic Management

Dominion Energy personnel and contractors (e.g., vessel operators, PSOs) must use available sources of information on NARW presence in or near the Project Area, including daily monitoring of the Right Whale Sightings Advisory System (RWSAS) and monitoring of U.S. Coast Guard VHF Channel 16 throughout the day to receive notification of any sightings and/or information associated with any Slow Zones (i.e., Dynamic Management Area (DMA) and/or visually or acoustically triggered Slow Zones) to provide situational awareness for all Project personnel, but especially the vessel operators, PSO(s), and PAM operator(s). The marine protected species monitoring team must monitor these systems no less than every four hours.

All vessel operators, regardless of vessel size, will not exceed 10 knots (18.5 km/hr) through any DMA and/or any visually or acoustically triggered Slow Zone within the Mid-Atlantic Bight region.

## 3.3 NARW Monitoring System

All vessel operators will maintain comprehensive situational awareness on NARW sightings and presence in the Project Area by continuous monitoring of U.S. Coast Guard VHF Channel 16. PSOs or ECMs will monitor NOAA Fisheries' North Atlantic RWSAS and WhaleAlert software at least once every four hours. Monitoring of notification systems by PSOs/ECMs will be documented and reported to the appropriate Dominion Energy contact. In the temporary unavailability of the PSO/ECM during a sighting event, a DVO will maintain visual monitoring of the forward path of the vessel while the other PSOs/ECMs are recording the sighting event and monitoring the whale reporting systems and software.

In summary, to maintain situational awareness of NARW presence, vessel operators, crew members, and the marine protected species monitoring team will monitor U.S. Coast Guard VHF Channel 16, WhaleAlert, the RWSAS, and the PAM system. Any marine protected species observed by Project personnel must be immediately communicated to any on duty PSOs, PAM operator(s), and all vessel captains. Any NARW or large whale observation or acoustic detection by PAM operators must be conveyed to all vessel captains.

## 3.4 Vessel Transit Corridor PAM System

**Note:** Attachment A-1 of the VSAP, the Framework for Passive Acoustic Monitoring of the Vessel Transit Corridor, may be revised and re-submitted along with this Vessel Strike Avoidance Plan for NOAA Fisheries concurrence plan prior to vessels transiting in the transit corridor at more than 10 knots (18.5 km/hr) outside of active seasonal management for NARWs, DMAs, or Slow Zones. Until NOAA Fisheries approves, BOEM, and the Bureau of Safety and Environmental Enforcement (BSEE) concur with the proposed Plan, all Project-related vessels will transit at less than 10 knots (18.5 km/hr) in the vessel transit corridor at all times.

Visual monitoring will be performed by PSOs, ECMs, and/or DVOs during all Project-related vessel transits. All marine protected species observations will be communicated to the appropriate Dominion Energy personnel, which will ensure all other vessels (outgoing or incoming) have situational awareness.

In addition to visual monitoring, Dominion Energy will conduct PAM monitoring during foundation pile driving and vessel transit. The inclusion of PAM, which will be conducted by NOAA Fisheries-approved PAM operators, follows a standardized measurement, processing methods, reporting metrics, and metadata standards for offshore wind. Alongside visual monitoring, data collection by PAM is valuable to provide the most accurate record of species presence as possible.

Trained, qualified, and NOAA Fisheries-approved PAM operators are the only personnel that receive and analyze the acoustic data. PSOs/ECMs/DVOs will not undergo PAM training, nor will they be interpreting data. The PAM team will receive acoustic data transmitted in real-time for review and validation. If there is an acoustic detection, the PAM operator(s) will communicate with relevant operations and vessel crew regarding the presence of protected species (including NARW) and any large unidentified whale will be treated as a NARW.

### 3.5 Monitoring of Vessels in Transit Corridor

In order for Project vessels to exceed 10 knots (18.5 km/h) in the transit corridor from May 1 to October 31 (from the PMT to the Lease Area or return, see Figure 1), Dominion Energy must monitor the vessel transit corridor in real-time with PAM prior to and during transits [LOA Measure (13)(b) Vessel Strike Avoidance Measures]. The real-time PAM coverage of the transit corridor will start 24 hours prior to and continue during transits. Please see Attachment A-1 of the CMMP for additional details on PAM monitoring of vessels in the transit corridor and note that Figure 1 is subject to revisions based on Attachment A-1. Once approved for implementation, if a NARW is detected via visual observation at any distance or PAM detection within or approaching the transit corridor, all vessels in the transit corridor must travel at 10 knots (18.5 km/h) or less for 24 hours following the detection. Each subsequent detection shall trigger a 24-hour reset. This speed restriction expires only when there has been no further visual or acoustic detection within the past 24 hours [LOA Measure (13)(b) Vessel Strike Avoidance Measures].

- PAM coverage of portions of the vessel transit corridor is also provided by Woods Hole Oceanographic Institute (WHOI) Digital Acoustic Monitoring buoys. The WHOI Norfolk buoy was deployed 28 miles southeast of Virginia Beach, Virginia in July 2022, to monitor the presence of baleen whales in real-time by automatically detecting and identifying their calls. The WHOI Cape Charles buoy, another autonomous real-time Digital Acoustic Monitoring buoy, was

deployed in October 2023 off the coast of the eastern shore of Virginia, just north of the Chesapeake Bay shipping lanes. These buoys improve monitoring efforts for whales by providing real-time information on whale presence in the vessel transit corridor. Details on verified daily detections can be viewed on the Robots4Whales website [LOA Measure (13)(b) Vessel Strike Avoidance Measures].

- Dominion Energy personnel will monitor all acoustic and visual detections reported to the U.S. Coast Guard VHF Channel 16, RWSAS, and WhaleMap, and disseminate data on any NARW detections to other Project vessels and communicate with other ongoing marine protected species survey work in the area to maintain situational awareness of NARW presence during all vessel transits as well as monitoring vessels in the transit corridor.
- Dominion Energy may incorporate innovative technology including remote sensing and/or real-time detection capabilities for monitoring of the transit corridor as available and in coordination with NOAA Fisheries through the adaptive management process [LOA Measure (5) Modifications]

# 4 SPEED RESTRICTIONS

## 4.1 General Speed Restrictions

******Note**: This section will be updated in accordance with all future amendments or revisions to the NOAA North Atlantic Right Whale Vessel Strike Reduction Rule (79 FR 34245). ***

Vessel speed and navigation requirements are as follows:

- All vessels operating from November 1 through April 30 will operate at speeds of 10 knots (18.5 km/h) or less within the Mid-Atlantic Bight region to the 100 m (328 ft) isobath [LOA Measure (13)(b) Vessel Strike Avoidance Measures].
- Vessels may only exceed 10 knots (18.5 km/h) in the vessel transit corridor, defined as the PMT to the Lease Area) from May 1 through October 31 if Dominion Energy deploys a real-time PAM system that is capable of providing accurate protections for marine protected species as concurred by NOAA Fisheries (Section 3.4).
- All vessels must immediately reduce speeds to 10 knots (18.5 km/h) or less for at least 24 hours when a NARW is sighted at any distance (where applicable for the specified activities) by any Project-related personnel or acoustically detected by any Project-related PAM system [LOA Measure (13)(b) Vessel Strike Avoidance Measures].
- All vessels, regardless of size, must immediately reduce speed to 10 knots (18.5 km/h) or less when any large whale, mother/calf pairs, pods, or larger assemblages of cetaceans are observed near (within 500 m [1,640 ft]) an underway vessel.

**Note:** If the implementation of a NOAA Fisheries-approved real-time PAM system for the vessel transit corridor is approved, this section may be modified and submitted for approval at a later date.

# 5 VESSEL SPACING AND SEPARATION DISTANCES

******Note**: This section will be updated in accordance with all future amendments or revisions to the NOAA North Atlantic Right Whale Vessel Strike Reduction Rule (79 FR 34245). ***

Note that all Project-related vessels will comply with the vessel spacing and separation distances within the Project's specified geographic region of the Mid-Atlantic Bight to the 100 m (328 ft) isobath. Dominion Energy will comply with all the vessel strike avoidance measures required for threatened and endangered species resulting from the June 29, 2021, programmatic consultation under the Endangered Species Act (ESA), revised November 22, 2021, during all survey operations. For all other Project-related vessel traffic, Dominion Energy will comply with the applicable requirements of the NOAA Fisheries Biological Opinion published on September 18, 2023, the Letter of Authorization, the BOEM COP T&Cs, the ROD T&Cs, and the United States Army Corps of Engineers Permit Special Conditions. Consultation conditions occurring in state waters outside of BOEM jurisdiction may apply to co-action by agencies issuing permits and authorizations under this consultation. Dominion Energy will comply with the following vessel strike avoidance separation distances and mitigation measures (see Table 1).

**Table 1. Vessel Strike Avoidance Separation Distances**

| Species | Separation Distances (m) | Vessel Strike Avoidance Measures |
|---|---|---|
| NARW a/ b/ | 500 | If a NARW is sighted within the relevant separation distance, the vessel must steer a course away at 10 knots (18.5 km/h) or less until the 500 m separation distance has been established. If a NARW is sighted within 500 m of an underway vessel, that vessel operator must turn away from the whale(s), reduce speed, and shift the engine to neutral. |
| Non-NARW whales a/ b/ | 100 | If one of these species is sighted within 100 m of a transiting vessel, the vessel must shift the engine(s) to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 100 m. |
| Delphinid cetaceans b/ | 50 | If a delphinid cetacean or pinniped is sighted within 50 m of a transiting vessel, the vessel must shift the engine to neutral, with an exception made for those that approach the vessel (e.g., bow-riding dolphins). Engines must not be engaged until the animal(s) has moved outside of the vessel's path and beyond 50 m. |
| Pinnipeds | | |
| Sea turtles c/ | 500 | If a sea turtle or sturgeon is spotted within 100 m of a transiting vessel, vessel operators must reduce speed to 4 knots or less and steer away from the animal until the 500 m minimum separation distance has been established If a sea turtle or sturgeon is sighted within 50 m of a vessel's forward path, the underway vessel must reduce speed and shift the engine to neutral as soon as it is safe to do so. |
| Sturgeon c/ | | |

| Species | Separation Distances (m) | Vessel Strike Avoidance Measures |
|---|---|---|

Notes:

Vessel operators must check, daily, for information regarding the establishment of mandatory or voluntary vessel strike avoidance areas (i.e., DMAs, SMAs, Slow Zones) and any information regarding NARW sighting locations. All vessels must not divert or alter course to approach any marine protected species. When a marine protected species(s) is sighted while the vessel(s) is transiting, the vessel must take action as necessary to avoid violating the relevant separation distances (e.g., attempt to remain parallel to the animal's course, slow down, and avoid abrupt changes in direction until the animal has left the area). This measure does not apply to any vessel towing gear or any situation where respecting the relevant separation distance would be unsafe (i.e., any situation where the vessel is navigationally constrained).

a/ If a whale is observed but cannot be confirmed as a species that is not ESA-listed, the vessel operator must assume that it is an ESA-listed species and take appropriate action.

b/ All vessels, regardless of size, must immediately reduce speed to 10 knots (18.5 km/h) or less when any large whale, mother/calf pairs, or large assemblages of cetaceans are observed within 500 m of an underway vessel.

c/ Sea turtle and sturgeon separation distances informed by BOEM Biological Opinion.

- All vessels will maintain a minimum separation distance of 500 m (1,640 ft) from NARW. If underway, all vessels must steer a course away from any sighted NARW at 10 knots (18.5 km/h) or less, such that the 500-m (1,640-ft) minimum separation distance requirement is not violated. If a NARW is sighted within 500 m of an underway vessel, that vessel operator must turn away from the whale(s), reduce speed, and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m.
    - If a NARW is sighted at any distance by any Project personnel or acoustically detected by any Project-related PAM system, all vessel operators must immediately reduce vessel speed to 10 knots (18.5 km/h) or less for at least 24 hours.
- If a whale is observed but cannot be confirmed as a species other than a NARW, the vessel operator must assume that it is a NARW and react accordingly. All vessels must maintain a minimum separation distance of 100 m (328 ft) from any sighted whales (i.e., sperm whales and non-NARW baleen whales). If one of these species is sighted within 100 m (328 ft) of an underway vessel, the vessel must shift the engine(s) to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 100 m (328 ft). If a survey vessel is stationary, the vessel will not engage engines until the whale has moved out of the vessel's path and beyond 100 m (328 ft).
- All vessels must maintain a minimum separation distance of 50 m (164 ft) from all delphinid cetaceans and pinnipeds with an exception made for those that approach the vessel (i.e., bow-riding dolphins). If a delphinid cetacean or pinniped is sighted within 50 m (164 ft) of a transiting vessel, the vessel must shift the engine to neutral, with an exception made for those that approach the vessel (e.g., bow-riding dolphins). Engines must not be engaged until the animal(s) has moved outside of the vessel's path and beyond 50 m (164 ft) [LOA Measure (13)(b) Vessel Strike Avoidance Measures].
    - All vessels underway will not divert to approach any delphinid cetaceans and pinnipeds and ensure that any vessel underway remains parallel to a sighted delphinid's or pinniped's course whenever possible. The vessel will not adjust course and speed until the delphinid, or pinniped has moved beyond 50 m (164 ft) or has moved abeam of the underway vessel,

except for animals known to bow-ride (delphinids from the genera *Delphinus, Lagenorhynchus, Stenella* or *Tursiops* and seals). Any vessel underway will avoid excessive speed or abrupt changes in direction to avoid injury to the sighted dolphin or pinniped.

- A monitoring and vessel strike avoidance zone of 500 m (1,640 ft) in all directions will be maintained for sea turtles and sturgeon unless an emergency situation presents a threat to the health, safety, life of a person, or when a vessel is actively engaged in emergency rescue or response duties, including vessel-in-distress or environmental crisis response.
    - If a sea turtle or sturgeon is spotted within 100 m (328 ft) of the forward path of an underway vessel, vessel operators must reduce speed to 4 knots (<7.4 km/h) or less and steer away from the animal until the 500 m (1,640 ft) minimum separation distance has been established.
    - If a sea turtle or sturgeon is sighted within 50 m (164 ft) of a vessel's forward path, the underway vessel must reduce speed and shift the engine to neutral as soon as it is safe to do so. When safe to do so, engines will be re-engaged, and the vessel will navigate away from the animal at 4 knots (<7.4 km/h) or less until the 500 m (1,640 ft) separation zone is re-established.
    - If stationary, the vessel must not engage engines until the sea turtle or sturgeon has moved beyond 500 m (1,640 ft).
    - Vessel operators will avoid transiting through areas of visible jellyfish aggregations or floating sargassum lines or mats unless operational safety prevents avoidance of such areas, then vessel operators will slow to 4 knots (<7.4 km/h) or less while transiting through such areas.
    - For all vessels operating north of the Virginia/North Carolina border, between June 1 and November 30, Dominion Energy will have a trained lookout posted on all vessel transits during all phases of the Project to observe for sea turtles. The trained lookout will communicate any sightings, in real time, to the captain so that the requirements in Table 1 can be implemented.
    - For all vessels operating south of the Virginia/North Carolina border, year-round, Dominion Energy will have a trained lookout posted on all vessel transits during all phases of the Project to observe for sea turtles. The trained lookout will communicate any sightings, in real time, to the captain so that the requirements can be implemented. This requirement is in place year-round for any vessels transiting south of Virginia, as sea turtles are present year-round in those waters.
    - The trained lookout will monitor the Sea Turtle Sightings Hotline (https://seaturtlesightings.org) prior to each trip and report any observations of sea turtles in the vicinity of the planned transit to all vessel operators/captains and lookouts on duty that day. For more information on sea turtles and sturgeon mitigation measures, please see Section 3 of the CMMP.

    **Note:** The Sea Turtle Sightings Hotline website covers only sightings in New England waters. This is a source of opportunistic sightings and no sightings do not indicate that there are no turtles. The website is to increase situational awareness during vessel operations.

- When a marine protected species is sighted while the vessel(s) is transiting, the vessel must take action as necessary to avoid violating the relevant separation distances (e.g., attempt to remain parallel to the animal's course, slow down, and avoid abrupt changes in direction until the animal has left the area). This measure does not apply to any vessel towing gear or any situation where respecting the relevant separation distance would be unsafe (i.e., any situation where the vessel is navigationally constrained) [LOA Measure (13)(b) Vessel Strike Avoidance Measures].
- All vessels underway must not divert or alter course to approach any marine protected species [LOA Measure (13)(b) Vessel Strike Avoidance Measures].

Dominion Energy will comply with the above measures except under circumstances when doing so would create an imminent and serious threat to a person or vessel or to the extent that a vessel is unable to maneuver and, because of the inability to maneuver, the vessel cannot comply. In situations where avoidance maneuvers present an imminent threat to a person or vessel, vessel operators will make every reasonable and safe attempt to avoid marine protected species, including reducing speed and/or shifting engines to neutral as navigational conditions permit.

# 6 ACTIVE MONITORING

Regardless of the vessel's size, all Project-related vessel operators, crews, and marine protected species monitoring crew (i.e., PSO, ECM, DVO, and/or PAM operators) must maintain a vigilant watch for all marine protected species and slow down, stop their vessel, or alter course (as appropriate) to avoid strikes.

## 6.1 All Crew Members

Prior to commencement of Project activities, all Project personnel will undergo a comprehensive environmental training including protected species identification and the specific details outlined in this Vessel Strike Avoidance Plan. All Project personnel are required to communicate any observations according to Section 7 of this Plan. Additionally, upon completion of this training, each individual will be able to fulfill the responsibilities of a DVO. Section 6.2 of this Plan elaborates on the mandatory roles of DVOs for vessels in transit.

## 6.2 Designated Visual Observer

All vessel operators and crew will maintain vigilant watch for marine protected species and slow down or stop their vessel to avoid striking these protected species. All vessels, regardless of their size, operating at any speed must have a DVO aboard and on duty while the vessel is underway whose sole responsibility (i.e., must not have duties other than observing) is to monitor for marine protected species within a 180° direction of the forward path of the vessel (90° port to 90° starboard) located at an appropriate vantage point for ensuring vessels are maintaining 360˚ coverage and appropriate separation distances. Trained lookouts on watch will communicate if any changes in direction (e.g., line changes during an HRG survey) are necessary to ensure there is 360° monitoring coverage. Visual monitoring crew must be equipped with alternative monitoring technology (e.g., infrared cameras and night vision devices, see Table 2 and Table 3) for periods of low visibility (e.g., darkness, rain, fog, etc.). The DVO must receive prior training on protected species detection and identification, vessel strike minimization procedures, how and when to

communicate with the vessel captain, and reporting requirements in this subpart. These DVO roles may be fulfilled by third-party observers (i.e., NOAA Fisheries-approved PSOs). All vessels will have a DVO on board who is responsible for monitoring the vessel strike avoidance zone for marine protected species.

**Note:** This role will be fulfilled by a PSO if onboard. Please see Section 4 of the CMMP for additional details on role definitions and specifications.

Crew members serving as a DVO must not have duties other than observing for marine protected species and other protected species occurrences. Data on all protected species observations will be recorded based on standard PSO data collection requirements. This includes dates and locations of survey operations; time of observation, location, and weather; details of the sightings (e.g., species, age classification [if known], numbers, length, shape, color, pattern, any distinguishing features or markings [if available], and behavior), and details of any observed "taking" (behavioral disturbances or injury/mortality).

- All vessels will employ a DVO during all vessel transit-related operations. The DVO will be active when all vessels are transiting regardless of vessel size.
- All marine protected species visual observers are responsible for ensuring compliance with any minimum separation zone distances for all protected marine species mentioned in this Plan.
    - Data on any sighting will be recorded and reported as per the BOEM OCS-A 0483 Lease conditions, except where superseded by the Letter of Authorization or BOEM's Conditions of Construction and Operations Plan approval. In low-light or reduced visibility conditions, visual observers will utilize reduced visibility monitoring tools such as night vision devices (such as third-generation night-vision goggles or alternative monitoring technology), infrared, thermal camera systems, or similar night vision devices to supplement standard visual monitoring equipment as available. If the vessel strike avoidance zone of 500 m (1,640 ft) in all directions is visually obscured, the marine protected species visual observers on watch will continue to monitor these zones using the reduced visibility monitoring tools. All marine protected species visual observers on duty will be in contact (through the Lead PSO) with the on-duty PAM operator who will monitor the PAM systems for acoustic detections of marine protected species.
    - If a vessel is underway in reduced visibility conditions when the 500 m (1,640 ft) vessel separation distances cannot be effectively monitored even with alternative monitoring equipment, the vessel shall proceed at a safe speed (less than 10 knots [18.5 km/hr]) adapted to the prevailing circumstances and conditions.

**Table 2. Infrared (IR) System Technical Specifications a/**

| Model b/ | Field of View (Degrees; or Horizontal x Vertical) | Detector Type c/ | IR Focal Length | Resolution d/ | Pan/Tilt | Detection Range | Reference |
|---|---|---|---|---|---|---|---|
| AGM-HS Gen 3 Hand Select Night Vision Monocular | 40° | Uncooled LW planar | 26 mm | 64-72 lp/mm$^3$ e/ | NA | 1,500 m (4,921 ft) | Detective Store Specs |
| CURRENT Night Navigator (NN) 3025 | Narrow (5.9°) | Uncooled SD LWIR | 4X | 640 x 480 | Pan Range: Continuous 360° AZ rotation Tilt Range: +/-90° elevation movement, including stow position | 500 m (1,640 ft) | Personal Communication, CURRENT with Tetra Tech, 2024 |
| CURRENT NN 3040 | Narrow (9.9°) | Uncooled HD LWIR | 7X | 1024 x 768 | Pan Range: Continuous 360° AZ rotation Tilt Range: +/-90° elevation movement, including stow position | 500 m (1,640 ft) | Personal Communication, CURRENT with Tetra Tech, 2024 |
| CURRENT NN 3050 | Narrow (2°) | Cooled SD MWIR | 15X | 640 x 512 | Pan Range: Continuous 360° AZ rotation Tilt Range: +/-90° elevation movement, including stow position | 1,400 m (4,592 ft) | Personal Communication, CURRENT with Tetra Tech, 2024 |
| CURRENT NN 3055 | Narrow (1.8°) | Cooled SD MWIR | 18X | 640 x 512 | Pan Range: Continuous 360° AZ rotation Tilt Range: +/-90° elevation movement, including stow position | 1,600 m (5,249 ft) | Personal Communication, CURRENT with Tetra Tech, 2024 |

| Model b/ | Field of View (Degrees; or Horizontal x Vertical) | Detector Type c/ | IR Focal Length | Resolution d/ | Pan/Tilt | Detection Range | Reference |
|---|---|---|---|---|---|---|---|
| FLIR M400 Thermal Machine Camera | 6 - 18° | Uncooled LW planar | 35 - 105 mm 4X optical & 4X digital zoom | 640 x 480 | variable 360°, +/- 90° tilt | 1,800 m f/ (5,905 ft) | FLIR Specs |
| FLIR Ocean Scout 640 | 18 x 14 | Uncooled LW planar | 4X digital zoom | 640 x 512 | NA | 1,140 m g/ (3,740 ft) | FLIR Specs |
| FLIR MD625S Thermal Camera | 25 x 20 | Uncooled LW planar | 25 mm 4X zoom | 640 x 480 | NA | 1,280 m f/ (4,200 ft) | FLIR Specs |
| FLIR F-606 ID Thermal Security Camera | 6° | Long-Life, Uncooled VOx Microbolometer | 100 mm | 640 x 480 | NA | 500 - 2,100 m h/ (1,640 - 6,890 ft) | Guazzo et al. 2019 |
| FLIR M324XP i/ | 24 x 18 | Uncooled LW planar | 19 mm 2X zoom | 320 x 240 | 360° pan +/- 90° tilt | 450 m j/ (1,467 ft) | FLIR Specs |
| Armasight Command Pro 336 i/ | 13 x 10 | Uncooled LW planar | 25 mm 4X zoom | 640 x 480 | NA | 731 m (2,398 ft) | TE Equipment Specs |
| FLIR ThermaCam Ex Pro series | 45 x 34 | Uncooled LW planar | unknown, no zoom | 120 x 90 | NA | k/ | Personal Communication, FLIR with Tetra Tech, 2024 |
| NVTS Reliant 640HD i/ | 15.5 x 11.6 | Uncooled LW planar | 40 mm 4X digital zoom | 640 x 480 | 360° pan -15 x 90 reversible | 500 m (1,640 ft) | Personal Communication, NVTS with Tetra Tech, 2024 |
| NVTS Guardian 4HD | 25.5 x 21 | Uncooled LW Planar | 15 – 300 mm 20X optical zoom | 640 x 512 | 360° pan -60 x 70 reversible | 1,400 m (4,593 ft) | Personal Communication, NVTS with Tetra Tech, 2024 |
| Rheinmetall AIMMMS | 360 x 18 | Cooled LW rotating line scanner | unknown | 640 x 480 | rotating line scanner giving 360° FOV and 12° tilt | 3,704 m l/ (2 nautical miles) | Rheinmetall Specs |
| Seiche HD Thermal Camera i/ | 18° | Uncooled LW planar | 4X digital zoom | 640 x 480 | 120° pan | minimum 1,000 m m/ (3,281 ft) | Seiche Specs |

| Model b/ | Field of View (Degrees; or Horizontal x Vertical) | Detector Type c/ | IR Focal Length | Resolution d/ | Pan/Tilt | Detection Range | Reference |
|---|---|---|---|---|---|---|---|
| Seiche Dual Camera System | Six options - 7.5 mm to 50 mm fixed | Uncooled LW planar | 8 X digital zoom | 640 x 480 | +/- 168° pan -90 x 25 | minimum 1,000 m m/ (3,281 ft) | Seiche Specs |
| Xenics Gobi/Onca Spectral Camera | 4.2 - 42° range of lenses | Cooled MW planar | Up to 210 mm | 640 x 480 | NA | minimum 500 m n/ (1,640 ft) | Verfuss et al. 2017 |
| Marine Observer Toyon Research Corporation Spectral Camera | 90° | Uncooled LWIR | lens-dependent | 640 x 512 | NA | minimum 500 m n/ (1,640 ft) | Verfuss et al. 2017 |
| Polaris Sensor Technologies Pyxis 640 LWIR Enhanced Thermal Spectral Camera | 30 x 25 | Uncooled LWIR | 20 – 50 mm | 640 x 512 | NA | minimum 500 m n/ (1,640 ft) | Verfuss et al. 2017 |
| Telops Hyper-Cam | 6.4 x 5.1 | Cooled planar | 86 mm | 320 x 256 | NA | minimum 500 m n/ (1,640 ft) | Verfuss et al. 2017 |

Notes:

a/ This list represents proposed IR systems and is subject to adjustment in response to emerging technologies or advancements that exceed current detection capabilities.

b/ IR systems listed are selected for review. Listed is published information in alphabetical order. Omissions (NA) are due to either manufacturer or research data not readily available.

c/ Most uncooled planar-based detectors are Vanadium Oxide long-wavelength (i.e., 7.5-14 microbolometer, thermal sensitivity of <0.05˚C unless noted otherwise.

d/ The resolution is given in megapixels x megapixels unless otherwise stated.

e/ lp/mm$^3$: a metric for resolution indicated as line pairs per cubic millimeter.

f/ Detection range for a person in water.

g/ Small vessel detection range. Person in water detection range is 427 m (1,500 ft).

h/ Detection range calculated for North Pacific gray whale blows.

i/ This product has been discontinued. The subsequent row is the replacement model if applicable. Specifications retained in the event the equipment is available for use at any point during Project duration.

j/ The FLIR M324XP camera has the ability to detect a man to 450 m (1,476 ft) and a small vessel (4 m x 1.5 m [13 ft x 5 ft]) to 1,300 m (4,265 ft). The actual object detection range performance may vary depending on the camera set-up, environmental conditions, user experience, and type of display used.

k/ FLIR does not report specific detection ranges for this series of cameras. However, the camera series is capable of detecting to the desired range (500 m [1,640 ft]) and they provide a Field of View Calculator to determine if the camera can measure a target at a certain distance in the field: https://flir.custhelp.com/app/answers/detail/a_id/920/~/online-fov-calculators.

l/ The automatic detection range of whale blows is within 3,704 m (2 nautical miles) (Zitterbart et al. 2020).

m/ The thermal imaging camera can detect marine targets at distances of up to 2.5 km – 4.0 km (1.35 nautical miles – 2.16 nautical miles) for large cetaceans, 1.5 km – 3.0 km (0.81 nautical miles – 1.62 nautical miles) for medium-size cetaceans, 2.0 km – 3.0 km (1.08 nautical miles – 1.62 nautical miles) for a group of small cetaceans, and 1 km – 1.5 km (0.54 nautical miles – 0.81 nautical miles) for small cetaceans.

n/ In technical review of the probability of detecting an animal from a seismic survey, researchers ranked these thermal IR technologies to be capable of detecting an animal to 500 m (1,640 ft) with the highest possible probability score by evaluating expert's opinion, experience, and reasoning (Verfuss et al. 2017).

Source: Smultea et al. 2021

**Table 3. Night Vision Device Technical Specifications a/**

| Model | Field of View (Degrees) | Detector Type | Focal Length | Resolution | Pan/Tilt | Detection Range | Reference |
|---|---|---|---|---|---|---|---|
| ATN PVS7-3-night vision goggles | 60° | Unknown | 27 mm | 65 lp/mm$^3$ | NA | 500 m b/ (1,640 ft) | Personal Communication, RPS with Tetra Tech, 2024 |
| Lynred USA AstroScope c/ | Depends on the lens type used | Unknown | Depends on the lens type used | Depends on the lens type used | NA | d/ | Personal Communication, Lynred USA with Tetra Tech, 2024 |

Notes:

a/ This list represents proposed night vision detection systems and is subject to adjustment in response to emerging technologies or advancements that exceed current detection capabilities.

b/ Based on field data, the maximum detection range for cetaceans and turtles is 500 m (1,640 ft) (Personal Communication, RPS with Tetra Tech 2024).

c/ The previous company name was Electrophysics. The company is now called Lynred USA. Manufacturer data currently unavailable at the time of this writing. This device is mentioned here to acknowledge its recent use for sea-based mitigation work (e.g., Lee and Nenadovic 2017).

d/ The AstroScope uses GEN III image intensifiers to amplify ambient light and brighten images. The detection range is still within the visible light spectrum, though some frequencies in the near IR spectrum are sometimes picked up. Theoretically, the AstroScope enables cameras to see beyond 1,000 m (3,281 ft) at night (Personal Communication, Lynred USA with Tetra Tech, 2024).

- All marine protected species visual observers will be responsible for:
    - Monitoring marine protected species vessel strike avoidance zones;
    - Monitoring all NARW monitoring notification systems (see Section 3.3);
    - Reviewing relevant communications protocol for reporting any dead, injured, or entangled protected species (refer to Section 10 of the CMMP);
    - Communicating any observations of marine protected species, including NARWs, to the vessel operator and advising appropriate strike avoidance measures immediately (see Section 7);
    - Following all reporting and recordkeeping procedures as described in the Project permits (see Section 10 of the CMMP); and
    - Ensuring communications with other vessels and marine protected species observers, such as DVOs, ECMs, PSOs, and PAM operators are maintained for any detections of NARWs and other protected species (see Section 3).

**Note:** Again, the marine protected species visual monitoring role will be fulfilled by either a PSO, ECM, or DVO; please see Section 4 of the CMMP for additional details on role definitions and specifications.

## 6.3 Situational Awareness

Maintaining situational awareness for marine protected species involves constant vigilance and adherence to conservation protocols. Prior to commencement of Project activities, all Project personnel will undergo a comprehensive environmental training including protected species identification and the specific details outlined in this Plan. Dominion Energy will utilize monitoring protocols and establish communication channels to promptly report sightings of any and all marine protected species. Regular updates on regional and Project-specific conservation guidelines further contribute to a proactive approach, ensuring the safety and well-being of all marine protected species, including, but not limited to, whales, dolphins, porpoises, seals, and sea turtles.

To maintain awareness of all marine protected species, but especially the presence of North Atlantic right whales, vessel operators, crew members, and the marine protected species monitoring team will monitor U.S. Coast Guard VHF Channel 16, WhaleAlert, the RWSAS, and the PAM system. Any marine protected species observed by Project personnel must be immediately communicated to any on-duty PSOs, PAM operator(s), and all vessel captains. Any North Atlantic right whale or large whale observation or acoustic detection by PSOs or PAM operators must be conveyed to all vessel captains.

To maintain situational awareness for sea turtles, vessel operators will avoid transiting through areas of visible jellyfish aggregations or floating sargassum lines or mats unless operational safety prevents avoidance of such areas. For all vessels operating north of the Virginia/North Carolina border, between June 1 and November 30, Dominion Energy will have a trained lookout posted on all vessel transits during all phases of the Project to observe for sea turtles. The trained lookout will communicate any sightings, in real time, to the captain so that the requirements in Table 1can be implemented. For all vessels operating south of the Virginia/North Carolina border, year-round, Dominion Energy will have a trained lookout posted on all vessel transits during all phases of the Project to observe for sea turtles. The trained lookout will communicate any sightings, in real time, to the captain so that the requirements can be implemented.

This requirement is in place year-round for any vessels transiting south of Virginia, as sea turtles are present year-round in those waters. The trained lookout will monitor the Sea Turtle Sightings Hotline (https://seaturtlesightings.org)/ prior to each trip and report any observations of sea turtles in the vicinity of the planned transit to all vessel operators/captains and lookouts on duty that day to maintain situational awareness.

# 7 COMMUNICATION

******Note**: This section will be updated in accordance with all future amendments or revisions to the NOAA North Atlantic Right Whale Vessel Strike Reduction Rule (79 FR 34245). ***

Project personnel will utilize three-way communication including methods such as radio, encrypted messenger applications, and satellite telephone.

Briefings will be conducted between the Project supervisors and crews, the marine protected species visual monitoring crew (i.e., PSOs, ECMs, and DVOs), and Dominion Energy prior to initiation of activities and during the on-boarding of any and all new crew members. The purpose of the briefing will be to:

- Establish responsibilities of each party;
- Define the chains of command;
- Discuss communication procedures (as outlined in CMMP Section 7; Figure 3);
- Provide an overview of monitoring goals and any regulatory requirements (e.g., Incidental Take Authorization requirements); and
- Review operational and safety procedures.

The Monitoring and Coordination Center will be the central communication hub for the Project and will conduct a daily briefing for all vessels which will include communication of the details of all marine protected species observations as well as other Project related observations. Additionally, all visual or acoustic observations of marine protect species will be reported and communicated to other Project visual monitoring crew and vessels as soon as practicable [LOA Measure (3)].

Decision trees formulated to help guide crucial decisions based on real-time conditions to ensure safety and efficiency are in place to guide the best course of action for vessel operators and crew. Figure 4 is a decision trees for vessel speed restrictions for marine protected species mitigation protocols and Figure 5 is a decision tree for vessel captains to determine actions required regarding engine neutrality.

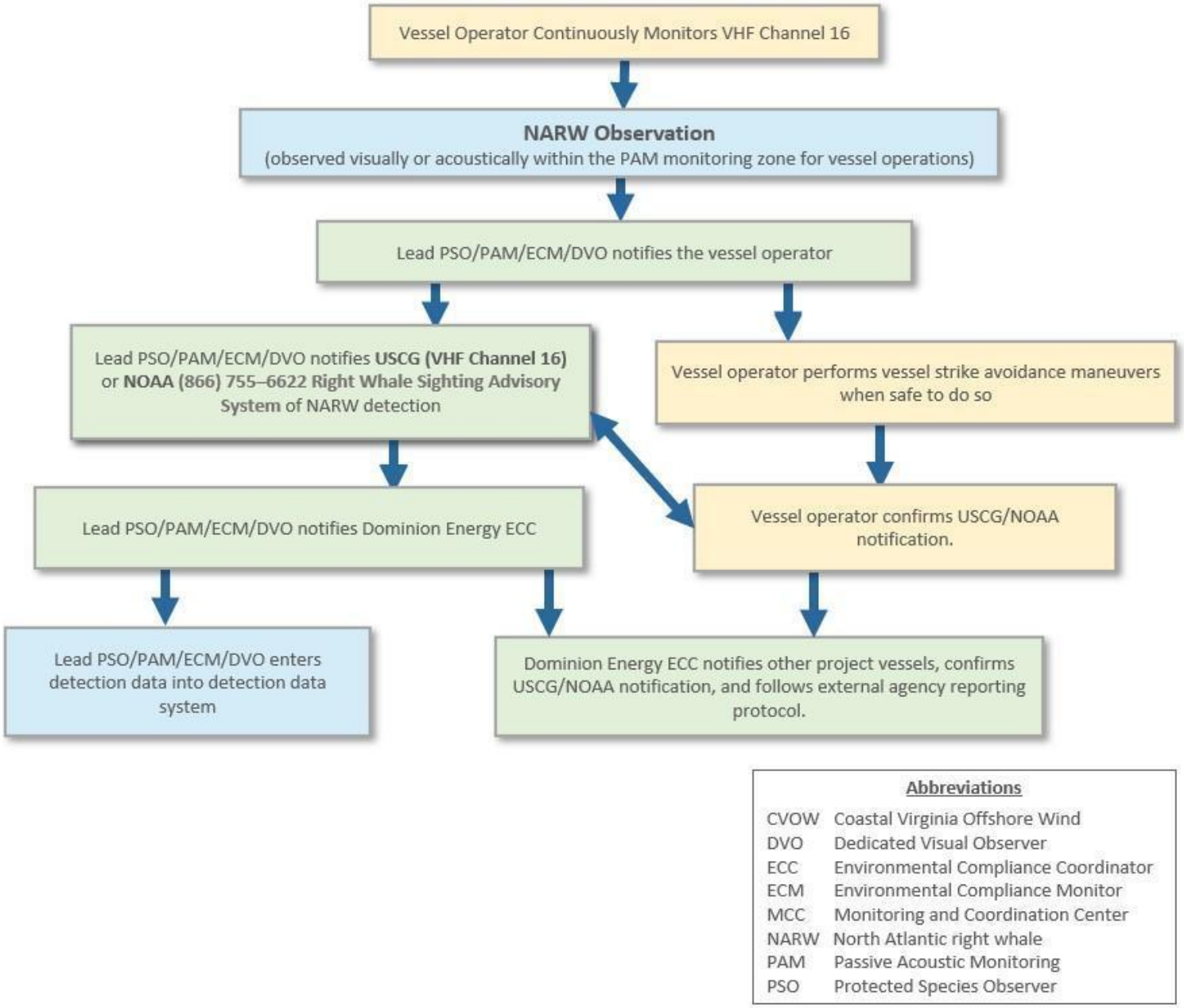



**Figure 3. Communications Flowchart for NARW Detection**

Note: Please see Section 7 of the CMMP for details on the mechanisms of communication between all relevant parties. When a non-visual monitoring crew member observes a protected species, they will report the sighting to the visual monitoring crew on watch or the officer on watch aboard the vessel from which the detection was made.

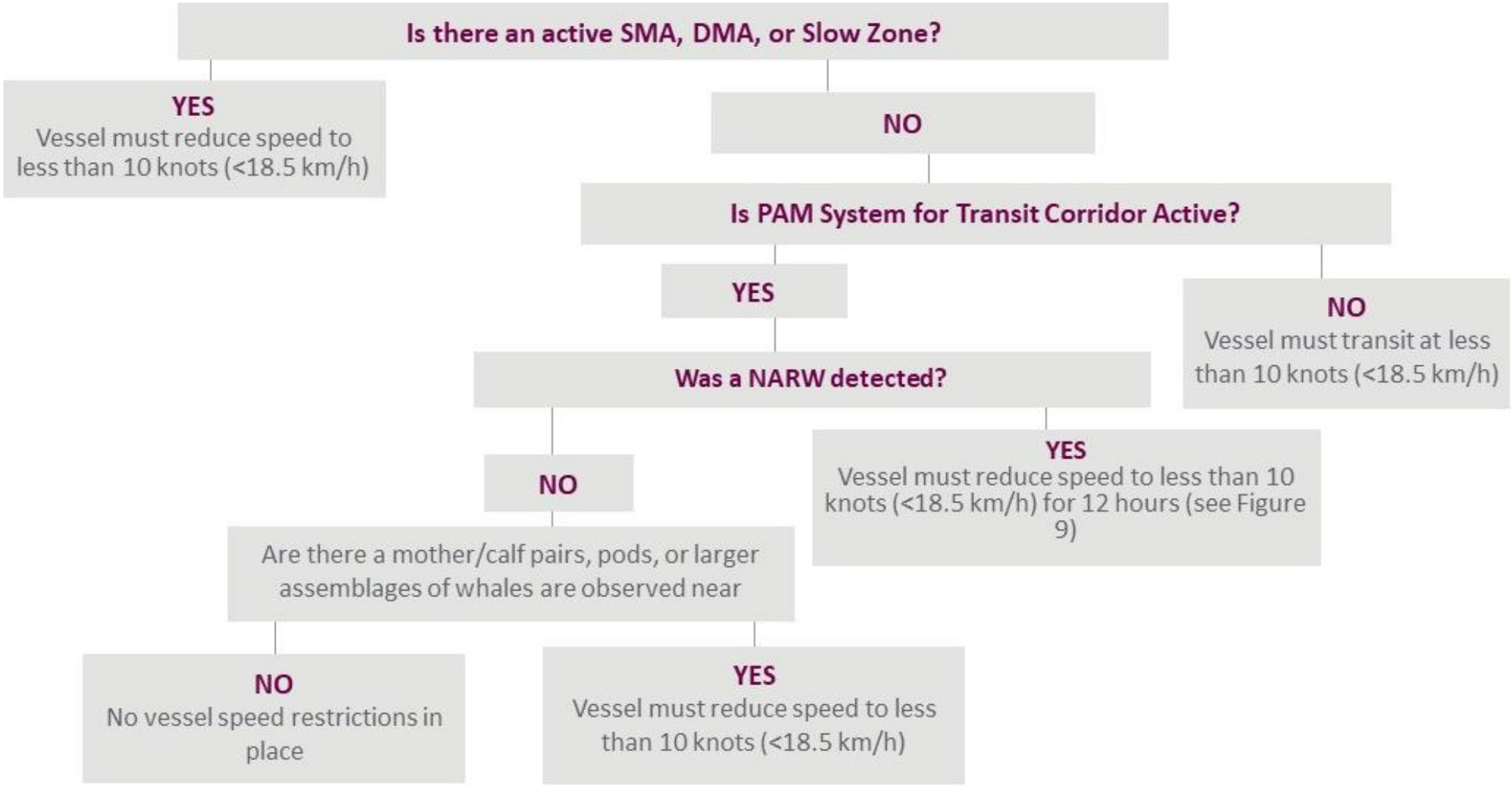
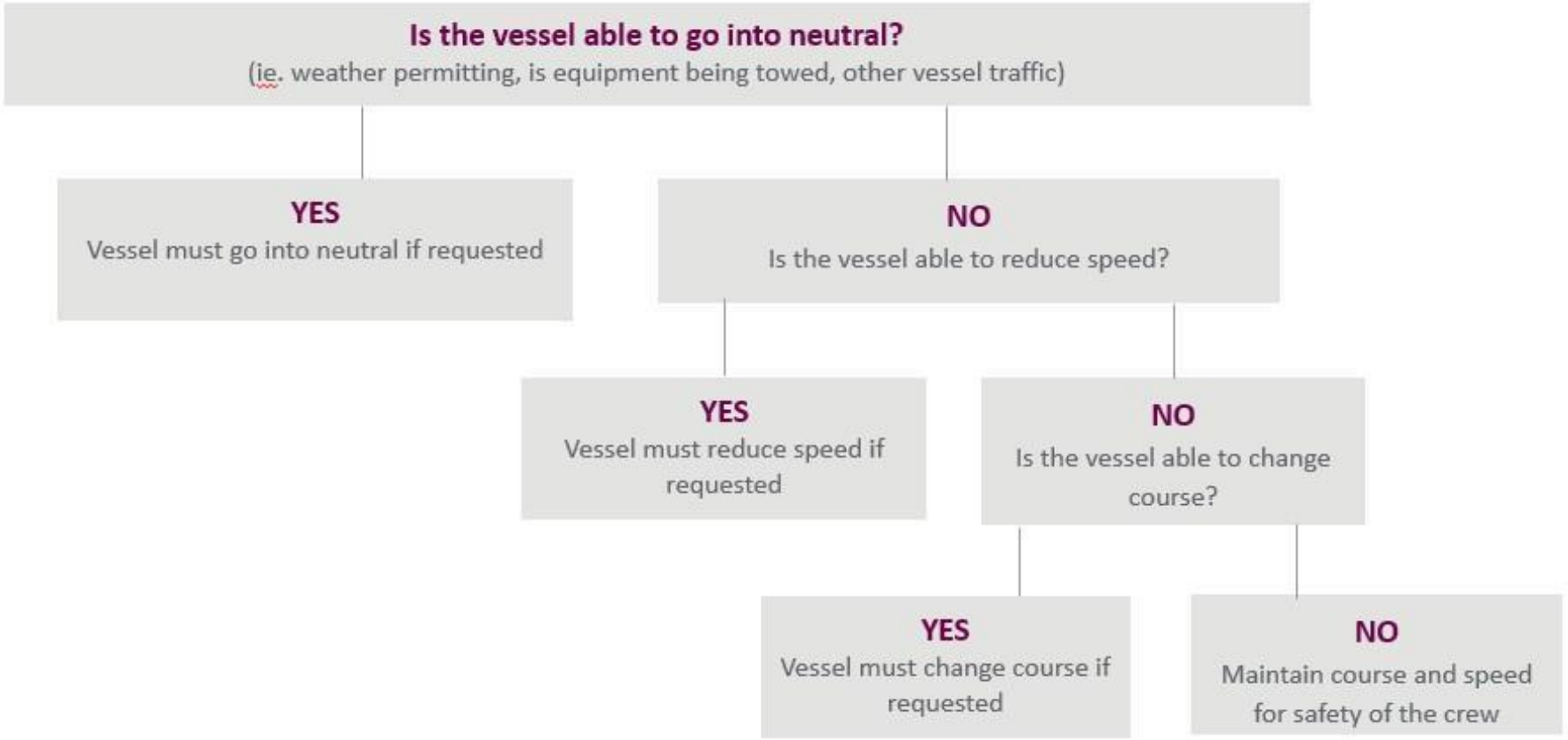



**Figure 4. Vessel Speed Decision Tree**




*At all stages of the decision process, the Captain will take into consideration the health and safety of the crew, which will be prioritized above all else.

**Figure 5. Captain's Vessel Neutrality Decision Tree**

- Vessel operators will monitor NARW notification systems as described in Section 3.3. Any visual detections of any large whale will be communicated immediately to the PSO crew, PAM operator(s), and all vessel captains to increase situational awareness. The ECM or Lead PSO will confirm the detection and document the sighting as per protocol and ensure other Project staff operating in the area are notified of the sighting location, direction, and bearing of the whale.
- For all vessels that are operating real-time PAM equipment (i.e., wind turbine generator foundation installation vessels), the PAM operator will immediately notify the PAM team of any detections of marine protected species (particularly NARW) within the PAM monitoring zone for vessel operations (10 km) as per the final rule for the Project. The PAM team will confirm and report the detection and provide all available location or range information for the vocalization. Dominion Energy will ensure other Project vessels operating in the area are notified of the detection. Vessel-based real-time PAM used during high-resolution geophysical surveys can trigger mitigative measures. PAM used during foundation installation would be deployed from static arrays but could inform general situational awareness for transiting vessels. However, if a NARW is detected via visual observation or PAM detection within or approaching the transit corridor, all vessels in the transit corridor must not exceed 10 knots (18 km/h) for 24 hours following a detection. Additional details on PAM team responsibilities are available in Section 4 of the CMMP.
- All crew responsible for marine species visual monitoring will monitor and report any protected species sightings to the ECM or Lead PSO on the vessel immediately. Please see Section 7 of the CMMP and Figure 2 for additional details on communication procedures.
    - The ECM or Lead PSO will verify sightings, ensure collection of proper documentation and reporting data, and advise on the appropriate mitigation measures (to include change of course or reduction in vessel speed) when required. DVOs will be responsible for temporarily observing the forward path of vessels in transit while the ECM or Lead PSO documents the sighting event.
- Detections and any advised vessel operation alterations should only be communicated to the vessel operator by the ECM or Lead PSO. When PSOs are not present on the vessel, protected species presence observations should be communicated to the ECMs/DVOs for confirmation of identification.
- Any crew members will immediately alert the vessel operator and the marine species visual monitoring crew (i.e., PSOs, ECMs, and DVOs) should a sudden detection of a marine protected species or other protected species occur directly in the forward path of a vessel in transit as the individual is in imminent danger of injury.

# 8 REPORTING REQUIREMENTS

******Note**: This section will be updated in accordance with all future amendments or revisions to the NOAA North Atlantic Right Whale Vessel Strike Reduction Rule (79 FR 34245). ***

Dominion Energy will submit all required documents related to ESA and non-ESA listed marine species reporting conditions in to BOEM at renewable_reporting@boem.gov, to BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, to NOAA Fisheries OPR at

PR.ITP.MonitoringReports@noaa.gov, to NOAA Fisheries GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov, and to the U.S. Army Corps of Engineers (USACE).

## 8.1 Situational Reporting

- If a NARW is observed at any time by PSOs or personnel on any Project vessels, during any Project-related activity, including during vessel transit, Dominion Energy will immediately (less than 24 hours after the sighting) report sighting information to NOAA Fisheries, BOEM, BSEE, Northeast Region RWSAS (866-755-6622), the USACE, the USCG via channel 16, and through the WhaleAlert app (http://www.whalealert.org/). Dominion Energy will include in its report the time, location, and number of animals sighted, animal behavior, animal closest point of approach, Project activities at time of detection, vessel speed, any mitigation measures implemented, and the reporter's contact information.For all visual monitoring efforts and protected species sightings, the following information will be collected by non-PSO trained lookouts.
    - Sighting number;
    - Vessel Name;
    - Sighting date (Eastern Local) (YYY-MM-DD);
    - Time (Eastern Local) (HH:MM);
    - Species;
    - Number of animals;
    - Requested mitigation;
    - Initial sighting distance (m);
    - Closest approach to vessel;
    - Bearing to sighting;
    - Vessel activity;
    - Vessel heading;
    - Vessel speed (kts);
    - Beaufort sea state;
    - Water depth (m);
    - Visibility (km);
    - Vessel latitude and longitude;
    - Injured, entangled, or dead;
    - Any VHF Channel alert;
    - Comments.
- Sighting reports must include the following:
    - PSO/personnel name;
    - PSO provider company (if applicable);

- Lease Area/Project name;
- reporter's contact information;
- date;
- time (record time format, e.g., Coordinated Universal Time, Eastern Standard Time);
- location (latitude/longitude in decimal degrees) of the sighting;
- number of whales; and
- animal description/certainty of sighting (provide photos/video if taken).

If a NARW is confirmed to have been detected via the PAM system, the detection will be immediately reported to Dominion Energy and the notification will be submitted to WhaleAlert (www.WhaleAlert.org) and BOEM (renewable_reporting@boem.gov). A report shall be submitted to nmfs.pacmdata@noaa.gov using the NOAA Fisheries Passive Acoustic Reporting System (Metadata and Detection data spreadsheets [https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates]) no later than 24 hours after the detection. Trained crew are responsible for communicating visual observations when necessary, however, they will not be responsible for PAM monitoring. Trained, qualified, and NOAA Fisheries-approved PAM operators are the only personnel that receive and analyze the acoustic data. Visual marine protected species monitoring crew will not be interpreting PAM data.

A summary report must be sent within 24 hours to NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO) (nmfs.gar.incidentaltake@noaa.gov) and NOAA Fisheries Office of Protected Resources (OPR) (PR.ITP.MonitoringReports@noaa.gov) with the above information and with confirmation that the sighting/detection was reported to the respective hotline, and describing: the vessel/platform from which the sighting/detection was made, the activity the vessel/platform was engaged in at time of sighting/detection, the Project construction and/or survey activity that was ongoing at time of sighting/detection (e.g., pile driving, cable installation, HRG survey), the distance from vessel/platform to animal at time of initial sighting/detection, the closest point of approach of whale to vessel/platform, vessel speed, and any mitigation actions taken in response to the sighting.

If a sighting of a stranded, entangled, injured, or dead marine protected species occurs, the sighting will be reported to NOAA Fisheries OPR, the NOAA Fisheries GARFO Marine Mammal and Sea Turtle Stranding & Entanglement Hotline (866-755-6622), BSEE (via TIMSWeb and notification email to protectedspecies@bsee.gov), the USACE, and the U.S. Coast Guard within 24 hours. If the injury or death was caused by a Project activity, Dominion Energy must immediately cease all activities until NOAA Fisheries OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the Letter of Authorization. NOAA Fisheries may impose additional measures to minimize the likelihood of further prohibited take and ensure Marine Mammal Protection Act compliance. Dominion Energy may not resume their activities until notified by NOAA Fisheries. Dominion Energy will ensure its reports reference the Project and include the Take Report Form available on NMFS webpage (https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf? null). The report must include:

- Contact information (name, phone number, etc.), time, date, and location (coordinates) 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 Biological Opinion and Conference for CVOW 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. Staff responding to the hotline call will provide any instructions for handling or disposing of any injured or dead animals, which may include coordination of transport to shore, particularly for injured sea turtles.

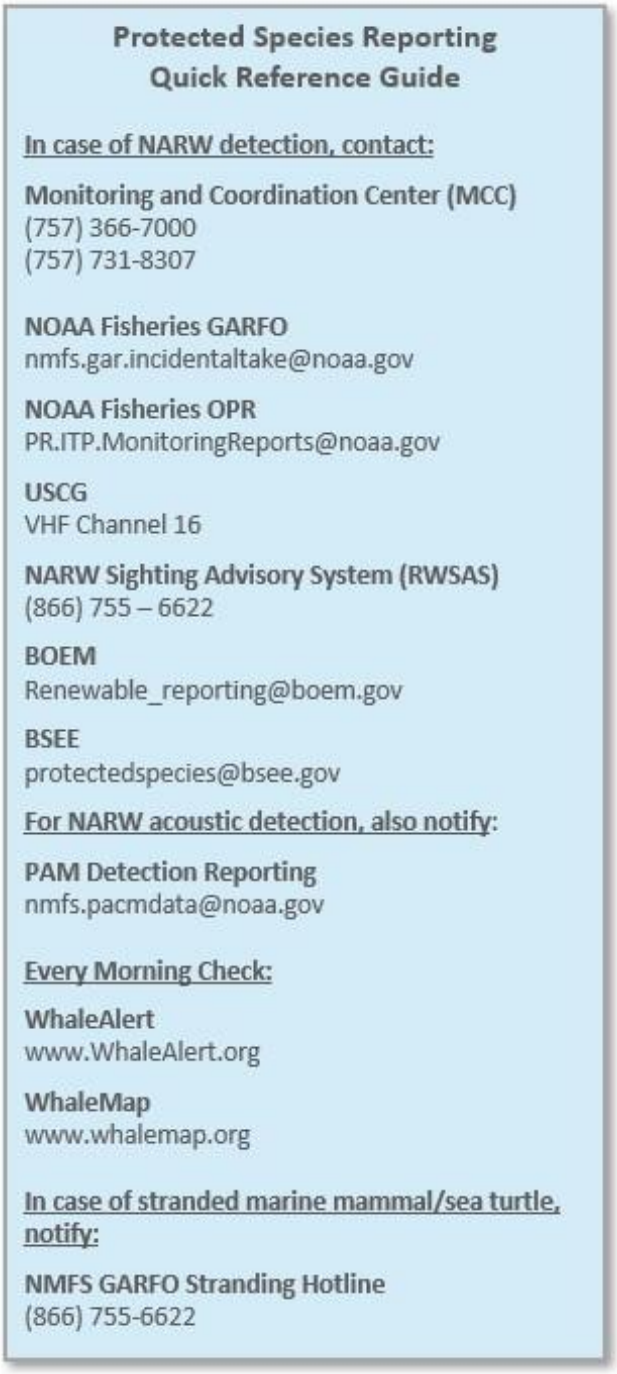
Dominion Energy will ensure reports of Atlantic sturgeon take include a statement as to whether a fin clip sample for genetic sampling was taken. Fin clip samples are required in all cases with the only exception being when additional handling of the sturgeon may result in an imminent risk of injury to the fish or the PSO. Incidents falling within the exception are expected. Instructions for fin clips and associated metadata are available at https://www.fisheries.noaa.gov/new-england-midatlantic/consultations/section-7-take-reportingprogrammatics-greater-atlantic under the "Sturgeon Genetics Sampling" heading.

In the event of a vessel strike of a marine protected species by any vessel associated with the Project, Dominion Energy shall immediately report the strike incident to the NOAA Fisheries OPR, NOAA Fisheries GARFO, BOEM, BSEE, and the USACE no later than 24 hours. Dominion Energy must immediately cease all activities until NOAA Fisheries OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the Letter of Authorization. NOAA Fisheries may impose additional measures to minimize the likelihood of further prohibited take and ensure Marine Mammal Protection Act compliance. Dominion Energy may not resume their activities until notified by NOAA Fisheries. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Species identification (if known) or description of the animal(s) involved (i.e., identifiable features including animal color, presence of dorsal fin, body shape and size);
- Vessel strike reporter information (name, affiliation, email for person completing the report);
- Vessel strike witness (if different than reporter) information (name, affiliation, phone number, platform for person witnessing the event);
- Vessel name and/or MMSI number;
- Vessel size and motor configuration (inboard, outboard, jet propulsion);
- Vessel's speed leading up to and during the incident;
- Vessel's course/heading and what operations were being conducted (if applicable);
- Part of vessel that struck whale (if known);
- Vessel damage notes;
- Status of all sound sources in use;
- If animal was seen before strike event;
- Behavior of animal before strike event;

- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- Environmental conditions (e.g., wind speed and direction, Beaufort scale sea state, cloud cover, visibility) immediately preceding the strike;
- Estimated (or actual, if known) size and length of animal that was struck;
- Description of the behavior of the marine mammal immediately preceding and following the strike;
- If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- Other animal details if known (e.g., length, sex, age class);
- Behavior or estimated fate of the animal post-strike (e.g., dead, injured but alive, injured and moving, external visible wounds (linear wounds, propeller wounds, non-cutting blunt-force trauma wounds), blood or tissue observed in the water, status unknown, disappeared);
- To the extent practicable, photographs or video footage of the animal(s); and

Any additional notes the witness may have from the interaction. All vessel crew will be provided with a Protected Species Reporting Quick Reference Guide (Figure 5, or similar) as part of the onboarding process.



**Protected Species Reporting Quick Reference Guide**

In case of NARW detection, contact:

**Monitoring and Coordination Center (MCC)**
(757) 366-7000
(757) 731-8307

**NOAA Fisheries GARFO**
nmfs.gar.incidentaltake@noaa.gov

**NOAA Fisheries OPR**
PR.ITP.MonitoringReports@noaa.gov

**USCG**
VHF Channel 16

**NARW Sighting Advisory System (RWSAS)**
(866) 755 – 6622

**BOEM**
Renewable_reporting@boem.gov

**BSEE**
protectedspecies@bsee.gov

For NARW acoustic detection, also notify:

**PAM Detection Reporting**
nmfs.pacmdata@noaa.gov

Every Morning Check:

**WhaleAlert**
www.WhaleAlert.org

**WhaleMap**
www.whalemap.org

In case of stranded marine mammal/sea turtle, notify:

**NMFS GARFO Stranding Hotline**
(866) 755-6622

**Figure 5. Project Protected Species Reporting Quick Reference Guide**

# 9 REFERENCES

Guazzo, R.A., D.W. Weller, H.M. Europe, J.W. Durban, G.L. D'Spain, and J.A. Hildebrand. 2019. Migrating eastern North Pacific gray whale call and blow rates estimated from acoustic recordings, infrared camera video, and visual sightings. *Sci Rep* 9, 12617. https://doi.org/10.1038/s41598-019-49115-y.

Lee, R., and T. Nenadovic. 2017. The evolution of mitigation technology for the East Coast USA offshore renewable sector. Poster presentation, 22nd Biennial Conference on the Biology of Marine Mammals, 22-27 October 2017, Halifax, Nova Scotia.

Smultea, M., G. Silber, P. Donlan, D. Fertl, and D. Steckler. 2021. Review of Night Vision Technologies for Detecting Cetaceans from a Vessel at Sea Smultea Environmental Science, LLC, Boston, MA.

Verfuss, U.K., D. Gillespie, J. Gordon, T.A. Marques, B. Miller, R. Plunkett, J.A. Theriault, D.J. Tollit, D.P. Zitterbart, P. Hubert, and L. Thomas. 2017. Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys. *Mar Pollut Bull*. 2018 Jan;126:1-18. Doi: 10.1016/j.marpolbul.2017.10.034. Epub 2017 Nov 7. PMID: 29421075.

Zitterbart, D., H. Smith, M. Flau, S. Richter, E. Burkhardt, J. Beland, L. Bennet, A. Cammareri, A. Davis, M. Holst, C. Lanfredi, H. Michel, M. Noad, K. Owen, A. Pacini, and O. Boebel. 2020. Scaling the Laws of Thermal Imaging-Based Whale Detection. Journal of Atmospheric and Oceanic Technology. *American Meteorological Society*, 37, 807–824, https://doi.org/10.1175/JTECH-D-19-0054.1.