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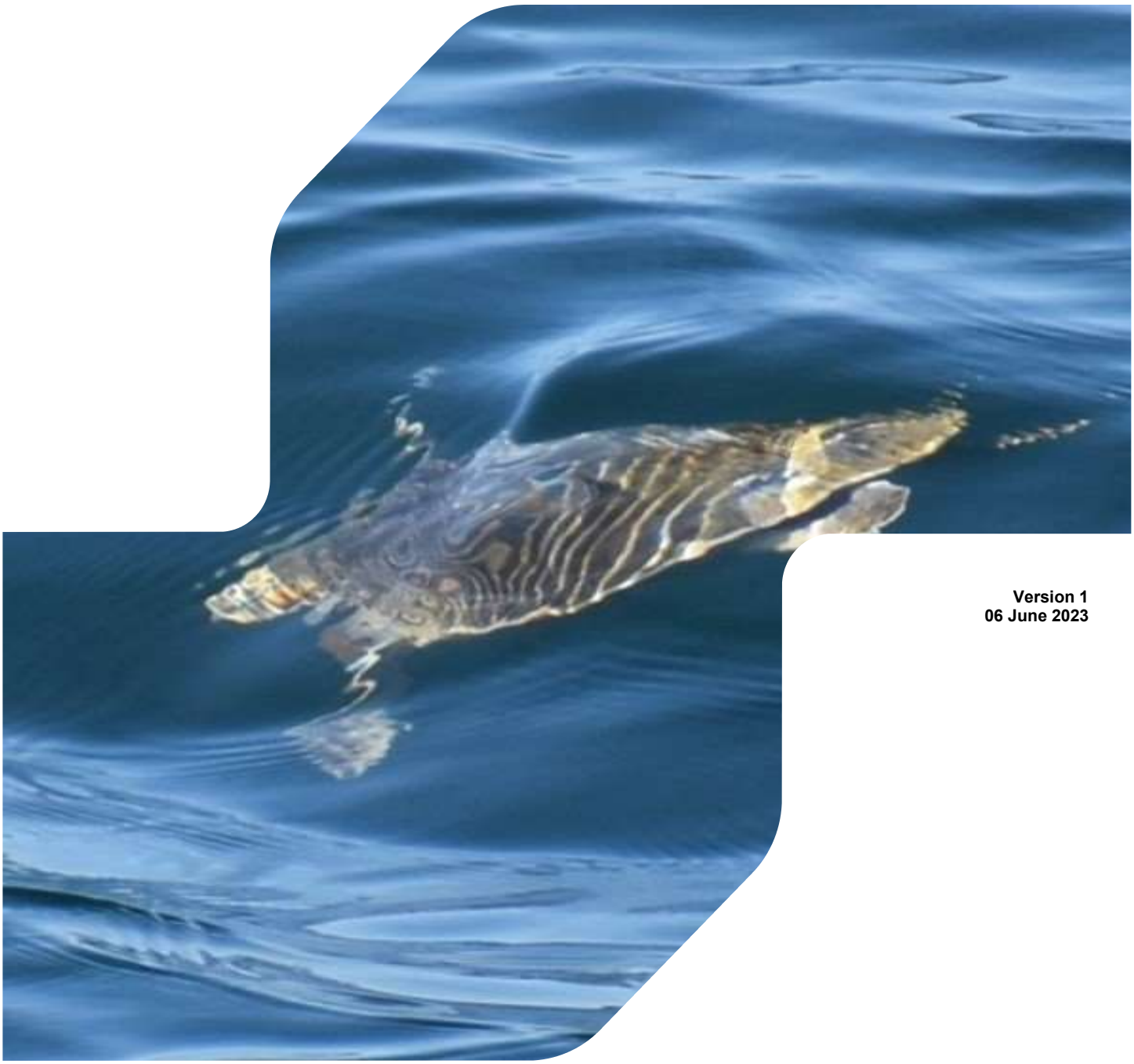
DOMINION CVOW UNEXPLODED ORDINANCE SURVEY PROTECTED SPECIES OBSEVER FINAL REPORT

Prepared for: Alpine



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DOMINION CVOW UNEXPLODED ORDINANCE SURVEY PROTECTED SPECIES OBSEVER FINAL REPORT

Final Report

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Acronyms and Abbreviations

BOEM – Bureau of Ocean Energy Management

CPA – Closest Point of Approach

CVOW – Coastal Virginia Offshore Wind

DSLR – Digital Single-Lens Reflex

DMA – Dynamic Management Area

ESA – Endangered Species Act

EMP – Environmental Management Plan

LF – Low Frequency

NMFS – National Marine Fisheries Service

NVD – Night Vision Device

NARW – North Atlantic right whale

OCS-A – Outer Continental Shelf Area

PSO – Protected Species Observer

UXO – Unexploded Ordinance

UTC – Universal Coordinated Time

VA - Virginia

1 EXECUTIVE SUMMARY

This is the Final Protected Species Observer Report for the Dominion Energy's (Dominion) Coastal Virginia Offshore Wind (CVOW) Unexploded Ordinance (UXO) 2022 - 2023 Survey, hereafter referred as the UXO Survey. The survey was conducted by Dominion within state and federal waters off the coast of Virginia (VA). Alpine Ocean Seismic Survey, Inc. (Alpine) was contracted to conduct surveys in accordance with Outer Continental Shelf Area (OCS-A) Lease number OCS-A 0483, issued by the Bureau of Ocean Energy Management (BOEM).

The report covers the protected species mitigation and monitoring efforts undertaken by Protected Species Observers (PSO) that were provided by RPS and deployed aboard the Research Vessels (R/V).

Dominion conducted operations using three survey vessels: The *R/V Minerva Uno* from 31 July 2022 to 04 May 2023, *R/V Shearwater* from 05 August 2022 to 06 May 2023, and R*/V Henry Hudson* from 20 August 2022 to 28 September 2022.

Three PSOs were deployed to the *R/V Shearwater* and *R/V Minerva Uno* to undertake visual observations and implement mitigation to support the day and night survey operations, and two PSOs were deployed to the *R/V Henry Hudson* to support their daytime operations.

Mitigation protocols for these surveys included vessel strike avoidance maneuvers and separation distances according to the protected species.

Visual monitoring was conducted for a total of 3311 hours and 53 minutes for the *R/V Shearwater*, 4441 hours and 39 minutes for the *R/V Minerva Uno*, and 150 hours and 57 minutes by the *R/V Henry Hudson.* Visual monitoring was conducted for a combined total of 7,904 and 29 minutes.

A total of 653 detections of protected species, of which 570 were identified to the species level and 83 were identified only to a group level. A total of 482 visual detections of marine mammals were made by PSOs during the survey operations including 12 fin whales (*Balaenoptera physalus*), 15 humpback whales (*Megaptera novaeangliae*), one minke whale (*Balaenoptera acutorostrata*), two North Atlantic right whales (NARW) (*Eubalaena glacialis*), four Atlantic spotted dolphins (*Stenella frontalis*), 233 bottlenose dolphins (*Tursiops truncatus*), 155 common dolphins (*Delphinus delphis*), two pantropical spotted dolphins (*Stenella attenuata*), one Risso's dolphin (*Grampus griseus*), one striped dolphin (*Stenella coeruleoalba*), 15 unidentified whales, and 42 unidentified dolphins. A total of 166 visual detections of sea turtles included five green sea turtles (*Chelonia mydas*), nine Kemp's ridley sea turtles (*Lepidochelys kempii*), one leatherback sea turtle (*Dermochelys coriacea*), 125 loggerhead sea turtles (*Caretta caretta*), and 26 unidentified sea turtles. There were five detections of giant manta rays during the survey. There were no seal or Atlantic sturgeon sightings during the survey.

There were two NARW sightings by PSOs onboard the *R/V Shearwater*. The sightings were reported to the National Marine Fisheries Service (NMFS) and BOEM as described further in this report and as required by the Lease.

Additionally, two dead sea turtles were observed.

In accordance with stipulations set forth in OCS-A 0483, a total of 237 strike avoidance mitigation actions were implemented including course changes, speed reductions, shifting into neutral, and maintaining course and speed.

2 INTRODUCTION

The following report summarizes protected species monitoring and mitigation procedures undertaken throughout the CVOW UXO Survey. The purpose of the survey was to identify any potential UXO targets within the survey area, off the coast of Virginia (VA) which is shown in Figure 1. Alpine was contracted by Dominion to conduct the UXO Survey.

Alpine began the survey work with the *R/V Minerva Uno* on 31 July 2022 through 04 May 2023. The *R/V Shearwater* joined the survey efforts on 05 August 2022 and continued through 06 May 2023. The *R/V Henry Hudson* began its nearshore portion of the survey on 20 August 2022 and completed its efforts on 28 September 2022.

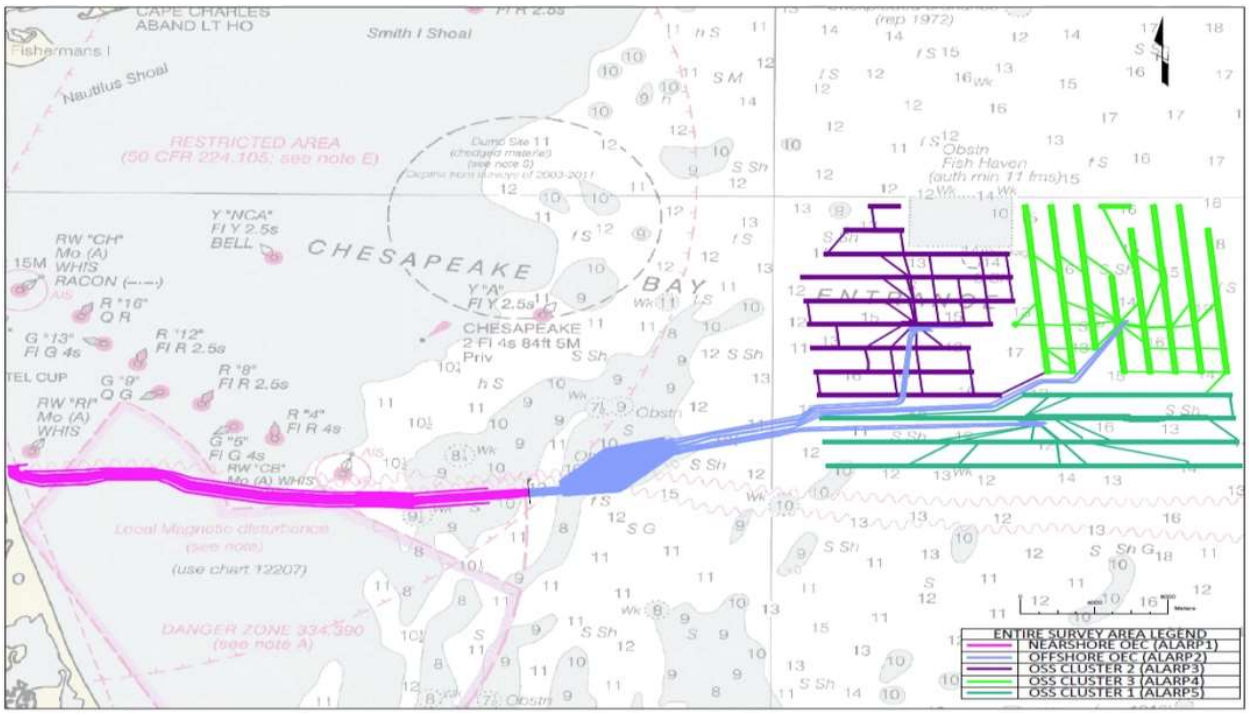

Figure 1: CVOW UXO Survey area

NMFS and BOEM have advised that sound-producing survey equipment operating in the hearing range of marine species has the potential to cause acoustic harassment to marine mammals in particular. Protected species monitoring was conducted in accordance with BOEM and NMFS standards, Alpine was responsible for contracting PSOs to conduct monitoring and mitigation for protected species, including marine mammals, sea turtles, and Endangered Species Act (ESA)-listed species, during their activities where RPS was contracted to fulfill this scope of work. Monitoring and mitigation procedures that were implemented during the surveys are described in Section 4 of this report.

2.1 BOEM Reporting Requirements

This technical report summarizes the information required by the BOEM Lease OCS-A 0483 identified in Table 1.

An Environmental Management Plan (EMP) was prepared for the survey and is included in Appendix B.

Required content	Source reference	Location addressed in technical report
The Lessee must ensure that sightings of any injured or dead protected species (e.g., marine mammals, sea turtles or sturgeon) are reported to the Lessor, NMFS, and the NMFS Northeast Regional Stranding Hotline within 24 hours of sighting, regardless of whether the injury or death is caused by a vessel. In addition, if the injury or death was caused by a collision with a project-related vessel, the Lessee must ensure that the Lessor is notified of the incident within 24 hours. The Lessee must use the form provided in Appendix A to ADDENDUM "C" to report the sighting or incident. If the Lessee's activity is responsible for the injury or death, the Lessee must ensure that the vessel assist in any salvage effort as requested by NMFS.	BOEM Lease Section 4.4.1	Section 4.4.1 and Appendix K
The Lessee must ensure that the protected species observers record all observations of protected species using standard marine mammal observer data collection protocols. The required data elements are Vessel name, Observers' name and affiliations, date, time and latitude/longitude when daily visual survey began, time and latitude/longitude when daily visual survey ended, Average environmental conditions (wind speed, wind direction, sea state, swell, overall visibility), species, certainty of identification, total number of animals, number of juveniles, characteristic description, direction of animal's travel relative to the vessel, behavior of animals, and activity of vessel when sighting occurred.	BOEM Lease section 4.4.2	Appendix F
Each report must include a summary of survey activities.	BOEM Lease section 4.4.3	Section 3

Table 1: Reporting requirements per Lease OCS-A 0483 and locations within this technical report.

3 PROJECT OVERVIEW

The objective of this survey was to identify any potential UXO targets within the survey area.

The *R/V Minerva Uno began* survey work on 31 July 2022 and transited to and from Norfolk, VA. The *R/V Shearwater* began survey work on 05 August 2022 and transited to and from Portsmouth, VA. The *R/V Henry Hudson* began survey work on 20 August 2022 and transited to and from Virginia Beach, VA.

Each vessel and the location of their operations is summarized in Table 2. A high-level overview of survey events for the is outlined in Table 3.

	R/V Minerva Uno	***R/V Shearwater***	***R/V Henry Hudson***
Location	Norfolk, VA	Portsmouth, VA	Virginia Beach, VA
Dates on project	31 July 2022 – 04 May 2023	05 August 2022 – 05 May 2023	20 August 2022 – 28 September 2022

Table 2: Summary of vessels and dates

Event	***R/V Minerva Uno***	***R/V Shearwater***	***R/V Henry Hudson***
PSO team mobilizes	21 July 2022	29 July 2022	17 August 2022
Kick-off meetings	22 July 2022	02 August 2022	18 August 2022
Vessel departs dock. PSO effort begins	31 July 2022	05 August 2022	20 August 2022
Data acquisition complete	03 May 2023	05 May 2023	26 September 2022
PSO monitoring complete	04 May 2023	06 May 2023	28 September 2022

Table 3: Summary of key UXO survey events

3.1 Vessel Summary

The UXO Survey was undertaken by the *R/V Shearwater*, the *R/V Minerva Uno,* and the *R/V Henry Hudson* survey vessels owned and operated by Alpine. Specifications of the vessels are provided in Table 4 and a photo of each vessel is provided in Appendix D.

Vessel parameter	*R/V Minerva Uno*	*R/V Shearwater*	*R/V Henry Hudson*
Vessel length (m)	46.60	33.53	13.71
Vessel speed (kts)	10 (Transit) 3-5 (Survey)	5-7 (Transit) 3-5 (Survey)	25 (Transit) 2-4 (Survey)
Vessel configuration and description	Multi-role survey vessel. Offshore.	Multi-role survey vessel. Nearshore and offshore.	Multi-role survey vessel. Inshore.

Table 4: Survey vessels

3.2 Summary of UXO Survey Equipment Used

Low-frequency (LF) sources (operating below 200 kHz), for which monitoring, and mitigation are required in order to minimize potential impacts to protected species, were not used during this survey. Other equipment that either did not produce sound or produced sound outside of the hearing range of protected species and, as such, not regulated by NMFS, were operated by the survey vessels but are not considered further in this technical report.

On the *R/V Minerva Uno, R/V Shearwater,* and *R/V Henry Hudson*, none of the survey equipment was subject to monitoring and mitigation requirements.

4 MONITORING AND MITIGATION PROGRAM

This section describes the protected species monitoring and mitigation measures established to meet the requirements of OCS-A 0483. Survey mitigation measures were designed to minimize potential impacts of the survey activities on marine mammals, sea turtles, and other protected species of interest.

The following monitoring protocols were implemented to meet these objectives, and each are described in detail in a sub-section below:

- Visual observations were conducted day and night to provide real-time sighting data, allowing for the implementation of mitigation procedures as necessary.
- Species-specific separation distances were established around the vessels, where strike avoidance maneuvers including speed reductions, and course changes were implemented when protected species were detected inside their respective separation distances.

Trained and experienced PSOs were on board the survey vessels during survey activities to conduct the monitoring for protected species, record and report detections, and request mitigation actions in accordance with the established regulatory requirements and monitoring plan.

RPS was responsible for ensuring that each PSO deployed met the minimum requirements set forth by BOEM and NMFS, which include training in protected species identification and behavior in addition to field experience in protected species observation in the Atlantic Ocean or the Gulf of Mexico.

RPS was responsible for the provision of training certifications and CVs to be reviewed and approved prior to deployment on the vessels.

All certified PSOs who were deployed during the UXO Survey are listed in Appendix C.

4.1 Visual Monitoring: Protocols and Methods

A team of three PSOs was deployed on the *R/V Minerva Uno* and *R/V Shearwater,* and a team of two PSOs was deployed on the *R/V Henry Hudson* to meet the monitoring requirements of those vessels as outlined in Table 5.

Visual monitoring locations on each vessel were selected in consideration of the following factors:

1. To afford PSOs a 360-degree viewpoint around the vessel, such that the strike avoidance separation distances could be simultaneously monitored,
2. Provide the highest vantage point possible to allow for monitoring out to the greatest distances ahead and around the vessel,
3. Provide shelter from inclement weather, as needed,
4. Provide real-time communication with vessel operators.

PSOs conducted their visual monitoring by actively scanning with the naked eye out to the furthest observation points visible, methodically sweeping areas closer to the vessel and focusing on the separation distances and ahead of the vessel. PSOs conducted regular sweeps of the surrounding areas using magnification devices as described below. PSOs monitored for cues that might indicate the presence of protected species including but not limited to splashing, footprints, blows, and presence of other marine species (diving seabirds, fish feeding activity).

	R/V Shearwater	*R/V Minerva Uno*	*R/V Henry Hudson*
Total number of PSOs	3	3	2
Number of PSOs on watch - day	1	1	1
Visual monitoring equipment- Day	Reticle binoculars 10x50 & 7x50 magnification	Reticle binoculars 10x50 & 7x50 magnification	Reticle binoculars 7x50 magnification
Visual monitoring conducted at night	Yes	Yes	No
Visual monitoring equipment- night	NVDs	NVDs	N/A
Range estimation	Calibrated reticle binoculars	Calibrated reticle binoculars	Calibrated reticle binoculars
Primary monitoring location	Bridge wings	Bridge wings	Deck

Table 5: Visual monitoring methodology on each UXO survey vessel

Displays inside the bridge showed current information about the vessel necessary for the PSO reports. Information consisted of the vessel's position, speed, heading and survey status. Sea conditions like water depth, Beaufort Sea State, cloud cover, glare, wind direction and wind speed were all determined based on the PSO's knowledge and experience with collecting environmental condition data. A line of data was taken every hour on the hour and once the vessel had changed its activity.

4.1.1 Daylight Visual

The PSOs on board were equipped with 7x50 or 10x50 reticle binoculars as well as DSLR cameras with 200mm and 500mm zoom lens to aid in visual monitoring watches conducted during the day. PSO teams used field notebooks to record data while on watch and laptops were used to enter data.

Range estimates were made by comparison to object of known distance, as well as with reticle binoculars. Reticle binoculars were calibrated whenever possible to ensure accuracy of distance data. These reticle calibration tables are provided in Appendix E.

4.1.2 Nighttime Visual Observations

On the *R/V Shearwater,* and *R/V Minerva Uno* one PSO conducted visual monitoring during all nighttime operations and transits, whenever the vessel was not in port or at anchor. The PSO used handheld night vision devices (NVD). For the *R/V Henry Hudson* no nighttime operations were conducted.

4.2 Monitoring: Data Collection

During or immediately after each sighting event, the PSOs recorded the detection details in a standardized detection datasheet provided to them by RPS. Excel data forms included tabs for project data, monitoring effort data, survey operations data, and protected species detection data. RPS supplied a set of standardized variables for specific data fields that were to be implemented on the data form provided to their PSOs.

Each sighting event was linked to an entry on an effort datasheet where specific environmental conditions and vessel activity were logged.

Species identifications were made whenever the distance of the animal(s), length of the sighting, and visual observation conditions allowed. Whenever possible during detections, photographs were taken with DSLR cameras that had telephoto lenses. Protected species identification manuals were consulted, and photos were examined during observation breaks to confirm identifications.

4.2.1 Data Collection Requirements & Methods

Data was collected to meet the requirements of BOEM, and NMFS, as summarized in Table 1 of this report.

PSOs collected data in handwritten notepads or on portable / tablet devices during watches. During watch breaks and at the end of daylight hours, data was compiled in proprietary data forms on laptop computers and backed up on portable hard drives.

The following information was collected for each protected species detection:

1. Date, time of first and last sighting, observers on duty during the detection, location of the observers, vessel information (e.g., position, speed, heading), water depth, and environmental conditions (e.g., Beaufort Sea State, wind force, swell height, visibility, and glare).
2. Species, detection cue, group size (including number of adults and juveniles), visual description (e.g., overall size, shape of the head, position and shape of the dorsal fin, shape of the flukes, height, and direction of the blow), observed behaviors (e.g., porpoising, logging, diving, etc.), and the initial and final pace, heading, bearing, and direction of travel in relation to the vessel (e.g., towards, away, parallel, perpendicular, etc.).
3. Photographs were taken of each visual sighting event whenever possible.
4. Initial and final distance to the vessel, time, and distance of the closest point of approach (CPA), time when entering and exiting the separation distances, description of other vessels in the area, and any avoidance maneuvers conducted.

4.3 Mitigation Measures & Methodology

The following mitigation protocols were implemented during the survey.

These procedures were implemented for detections of protected species for the UXO Survey, including marine mammals, sea turtles, sturgeon, and manta rays.

- Separation distances established when the vessel was underway, per the BOEM Lease:
    - 500 meters for NARW, ESA-listed whales, and unidentified whales.
    - 100 meters for all other non-delphinoid cetaceans
    - 50 meters for delphinoid cetaceans, pinniped, and sea turtles
    - Avoid abrupt changes in speed or direction

4.4 Reporting

Reporting requirements of the Lease were outlined in Table 1. The agency requires that a final survey report be prepared detailing operations, PSO effort, and detection of protected species.

4.4.1 Injured or Dead Protected Species

Any injured or dead marine mammal, sea turtle, or other protected species observed either by a PSO on watch or by a crew member was required to be reported as described in Table 1. Reporting requirements included a phone notification to the NMFS Regional Stranding hotline made by either the Lead PSO or shore based RPS onshore project support team, as communications permitted from the vessel.

The Lead PSO would also prepare a written report in accordance with standard reporting guidelines provided by BOEM and using the template provided by RPS, which would be submitted to Dominion for submittal to the agencies.

4.4.2 NARW Sightings

Sighting reports were to include a description of the detection event including date, time, distance to vessel, observed behaviors and any photographs or screenshots taken during the sighting. Reporting requirements included a phone notification to the NMFS NARW Sighting Advisory System made by either the Lead PSO or shore based RPS onshore project support team, as communications permitted from the vessel.

4.4.3 Final Report

RPS have prepared this final report to meet the OCS-A 0483 reporting requirements outlined in Table 1 of this report. Each of the elements of required final PSO reporting is provided in Table 1 with the section in this report in which the element is addressed.

5 DATA RECORDS AND ANALYSIS METHODS

5.1 Operation Activity

PSOs collected the UXO Survey vessel activity status each day that they were deployed on the vessel. Vessel activity was recorded as transit, deploying/retrieving equipment, testing, or data acquisition.

5.2 Monitoring Effort

PSOs recorded monitoring effort by entering start of watch and end of watch times into data sheets where the vessel position and environmental data was also documented for that duration. Total monitoring effort was calculated by summing the durations of each watch period. Visual monitoring while the survey equipment was off included monitoring conducted during transit to survey sites and any other recorded silent periods (equipment downtime, or weather standby time).

5.2.1 Summary of Environmental Conditions

Each PSO monitoring effort data form included environmental conditions present during that watch period. Environmental variables were recorded every 30 to 60 minutes or when conditions changed. Beaufort Sea State was recorded for each monitoring period using the accepted scale (Table 6):

Beaufort number	Description	Wave height (m)	Sea conditions
0	Calm	0	Sea like a mirror
1	Light air	0 – 0.3	Ripples with appearance of scales are formed, without foam crests
2	Light breeze	0.3 – 0.6	Small wavelets still short but more pronounced; crests have a glassy appearance but do not break
3	Gentle breeze	0.6 –1.2	Large wavelets: crests begin to break; foam of glassy appearance; perhaps scattered white horses
4	Moderate breeze	1 – 2	Small waves becoming longer; fairly frequent white horses
5	Fresh breeze	2 – 3	Moderate waves taking a more pronounced long form; many white horses are formed; chance of some spray
6	Strong breeze	3 – 4	Large waves begin to form; the white foam crests are more extensive everywhere; probably some spray
7	High wind	4 – 5.5	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind; spindrift begins to be seen
8	Gale	5.5 – 7.5	Moderately high waves of greater length; edges of crests break into spindrift; foam is blown in well-marked streaks along the direction of the wind
9	Severe gale	7 –10	High waves; dense streaks of foam along the direction of the wind; sea begins to roll; spray affects visibility
10	Storm	9 –12.5	Very high waves with long overhanging crests; resulting foam in great patches is blown in dense white streaks along the direction of the wind; on the whole the surface of the sea takes on a white appearance; rolling of the sea becomes heavy; visibility affected
11	Violent storm	11.5 –16	Exceptionally high waves: small- and medium-sized ships might be for a long time lost to view behind the waves; sea is covered with long white patches of foam; everywhere the edges of the wave crests are blown into foam; visibility affected
12	Hurricane force	>14	The air is filled with foam and spray; sea is completely white with driving spray; visibility very seriously affected

Table 6: Beaufort Sea State scale

Swell heights in meters were recorded by all the vessel PSO teams. The swell heights were either provided as the actual estimated height in meters or categorized (< 2 m, 2 – 4 m, and > 4 m). To calculate the overall monitoring effort for each swell height, the data was assigned to the appropriate swell height category.

PSOs categorized visibility during monitoring effort in kilometers and/or meters where values were selected from categories.

5.3 Visual Sightings of Protected Species

PSOs used standardized reporting forms provided by RPS to record all detections of marine mammals and sea turtles made during survey operations. These records were completed any time a sighting was made, regardless of distance, not just for detections where mitigation was implemented.

Sighting ID or detection event numbers were assigned chronologically for all protected species observed on a vessel throughout that vessel's survey activity. A new detection number was assigned for a new species sighting or when enough time had passed between observations of animals of the same species such that PSOs could not be certain that they were observing the same animals previously documented. A standard duration of time was to be applied between observations: 15 minutes for delphinid and pinniped detections and 30 minutes for large whales. If there were multiple species in a single detection, the same sighting ID or detection event was used.

Protected species movement relative to the vessel, pace, and initial and subsequent behavior states were recorded for each protected species sighting where standardized categories for each were provided as controlled fields in the provided data form.

5.3.1 Closest Point of Approach

All PSOs recorded closest point of approach during each detection.

5.3.2 Detection Rate

Detection rate was calculated using the number of protected species events per hour of visual monitoring effort for all vessels. On vessels where more than one PSO was on watch simultaneously, effort was not duplicated: one hour of monitoring effort by two PSOs consisted of one hour of effort for the purpose of detection rate calculations.

5.3.3 Behavior State

The PSO protected species detection template included an initial behavior and initial pace field for the detection. It included the direction of travel relative to the vessel at initial detection, pace, and direction of travel at final detection and other behaviors documented throughout the event.

5.4 Mitigation Measures Implemented

Mitigation measures were implemented on the vessels as previously described. The onboard PSO team communicated requested mitigation in real time to the vessel crew operating the vessel. Communications were conducted in person.

Implemented mitigation actions were recorded on PSO data sheets in the detection data form and in the operations activity logs.

5.5 Data Quality Control

The RPS data analysts reviewed all the PSO data sets received and conducted QC as described in Table 7.

Data type	Data field	Corrections made
Monitoring effort	Start of watch / End of watch	• Times were corrected or added where errors were evident, typically by inconsistency with adjacent times
	Daytime vs. night-time	• Failures to adjust the time to UTC were corrected. • Times were corrected when the end of effort overlapped with the start of subsequent effort
Protected species detections	Position	• Positions that plotted out of place were corrected using effort positions or vessel track line positions of corresponding times, where available
	Combining unidentified categories	• Unidentified mysticetes/delphinids/pinnipeds/sea turtles were combined within an Unidentified category for data analysis

Table 7: Quality control editing performed by RPS on PSO datasets by data field

6 RESULTS

This section of the report details UXO Survey operations, protected species monitoring effort, environmental conditions during monitoring effort and distribution, and sighting data inside and outside the Lease Area during operations and transits.

The monitoring effort, survey operations and protected species detections for the *R/V Minerva Uno, R/V Shearwater, R/V Henry Hudson* are provided as an excel dataset in Appendix F.

6.1 Operation Activity

Survey operations began with the vessel conducting equipment calibrations at the dock and then in the survey area before proceeding to acquisition, according to the survey plan. Survey operations were briefly suspended when necessary for weather, crew changes and equipment maintenance.

The dates of operation, and total days of survey activity by survey vessel are provided in Table 8.

Vessel	Dates of operation	Total survey days
R/V Minerva Uno	31 July 2022 – 04 May 2023	218
R/V Shearwater	05 August 2022 – 06 May 2023	188
R/V Henry Hudson	20 August 2022 – 28 September 2022	29

Table 8: Summary of UXO survey operations on each survey vessel

6.2 Monitoring Effort

Visual and monitoring effort for all survey vessels during the UXO Survey are summarized in **Table 9.**

Monitoring effort	HH.HH
Daytime	4173.88
Night-time	3730.60
Total	7904.48

Table 9: Summary of visual monitoring effort by time of day

6.3 Environmental Conditions

Environmental conditions can have an impact on the probability of detecting protected species in a survey area. The environmental conditions present during visual observations undertaken during this survey program were mild to moderate.

Visibility

Visibility was classified as 'excellent' if it extended to 5 km or greater, 'moderate' if it was between 2 to 4 km, and 'poor' if it was less than 2 km. The majority of visual monitoring effort (50% of the overall visual monitoring effort) for the survey was conducted in conditions where visibility was less than 2 km (Table 10).

Visibility	Duration (HH.HH)	% of overall monitoring effort
Greater than 5 km	3670.03	46
2 to 5 km	325.42	4
Less than 2 km	3909.03	50

Table 10: Summary of visibility during visual monitoring effort

Beaufort Sea State

Monitoring effort was conducted in Beaufort Sea States ranging from 0 to 8. More than half of the monitoring effort was accumulated at sea states at or below Level 4, which is generally considered to be favorable conditions for monitoring for most marine mammal species. Visual observations at Level 4 Beaufort Sea States or below accounted for 93% of the total visual monitoring effort (Table 11).

Beaufort Sea State	Duration (HH.HH)	% of overall monitoring effort
B0	5.78	<1
B1	409.90	5
B2	2764.59	35
B3	2620.63	33
B4	1529.25	19
B0 through B4	**7330.15**	**93**
B5	495.03	6
B6	75.55	<1
B7	2.75	<1
B8	1.00	<1
B4 and above	**574.33**	**7**

Table 11: Summary of Beaufort Sea State during visual monitoring during the survey

Swell

Swell heights during visual observations were generally low, with swells of less than 2 m recorded for 96% of visual monitoring effort (Table 12). Swells did not exceed 4 m during the survey.

Swell height	Duration (HH.HH)	% of overall monitoring effort
Less than 2 m	7594.97	96
2 to 4 m	308.15	4
Greater than 4 m	1.37	<1

Table 12: Summary of swell height during visual monitoring during the survey

6.4 Visual Sightings

This section of the report summarizes visual sightings of protected species (marine mammals, sea turtles, and fish) made during the UXO Survey. There was a total of 653 protected species detection events both inside and outside the Lease Area, of which 570 were identified to the species level and 83 were identified only to a group level. There were 482 marine mammal detections,166 sea turtle sightings, and five giant manta ray sightings (Table 13).

Species	Total number of detection records	Total number of animals
Dolphins		
Atlantic spotted dolphin	4	28
Bottlenose dolphin	233	2067
Common dolphin	155	758
Pantropical spotted dolphin	2	9
Risso's dolphin	1	7
Striped dolphin	1	6
Unidentified dolphin	42	136
Whales		
Fin whale	11	12
Humpback whale	15	19
Minke whale	1	1
North Atlantic right whale	2	4
Unidentified whale	15	16
Sea Turtles		
Green sea turtle	5	5
Kemp's ridley sea turtle	9	9
Leatherback sea turtle	1	1
Loggerhead sea turtle	125	128
Unidentified sea Turtle	26	26
Fish		
Giant manta ray	5	7
Total	**653**	**3239**

Table 13: Detection records collected for each protected species detected during the survey program

The distribution of protected species detections both inside and outside the Lease area is provided in Figure 2 through Figure 6 below. The maps include detections which occurred during survey activities and during transits. Species specific detection maps are provided in Appendix I. Photographs of the identified protected species visually detected during the survey are provided in Appendix G.

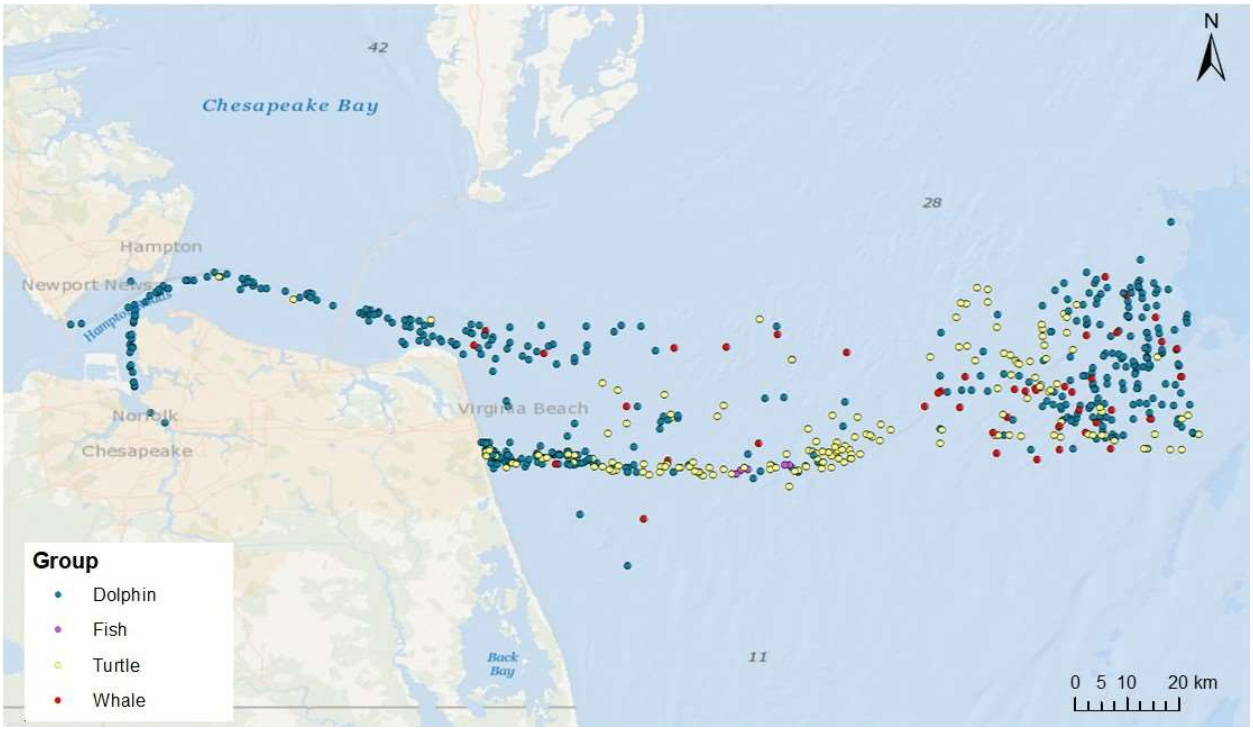

Figure 2: Distribution of all protected species during the survey

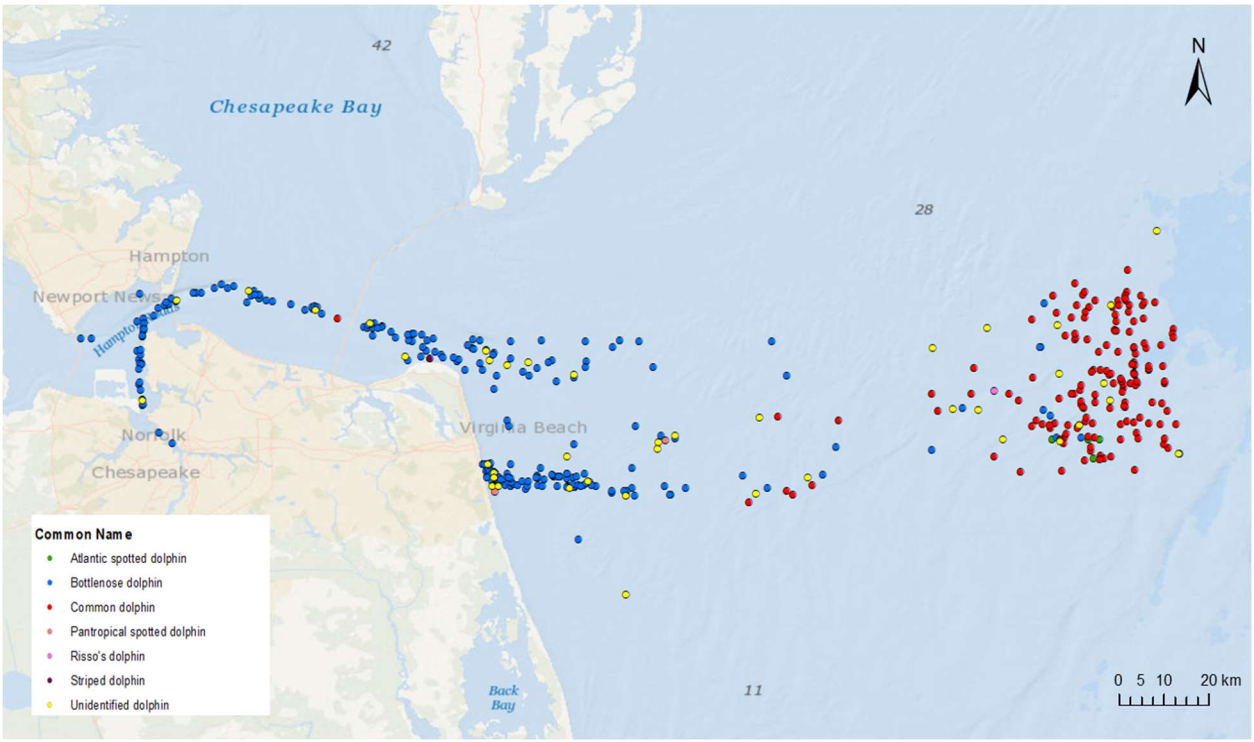

Figure 3: Distribution of dolphins during the survey

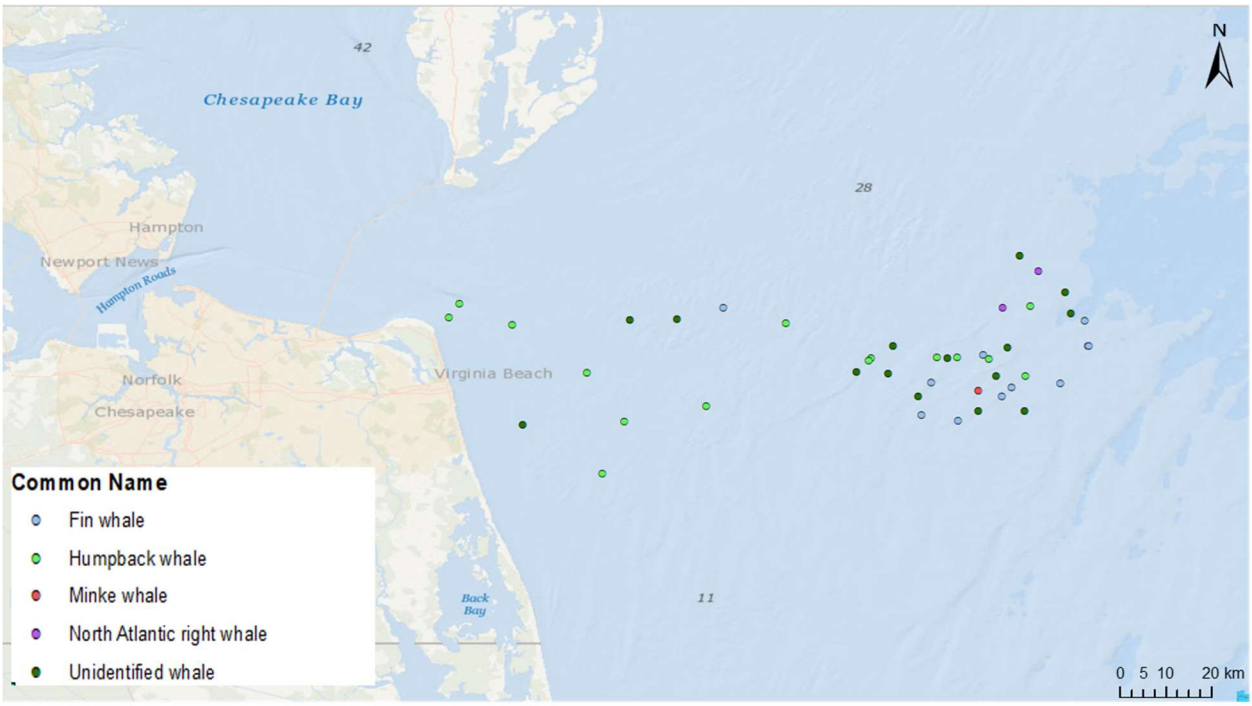

Figure 4: Distribution of whales during the survey

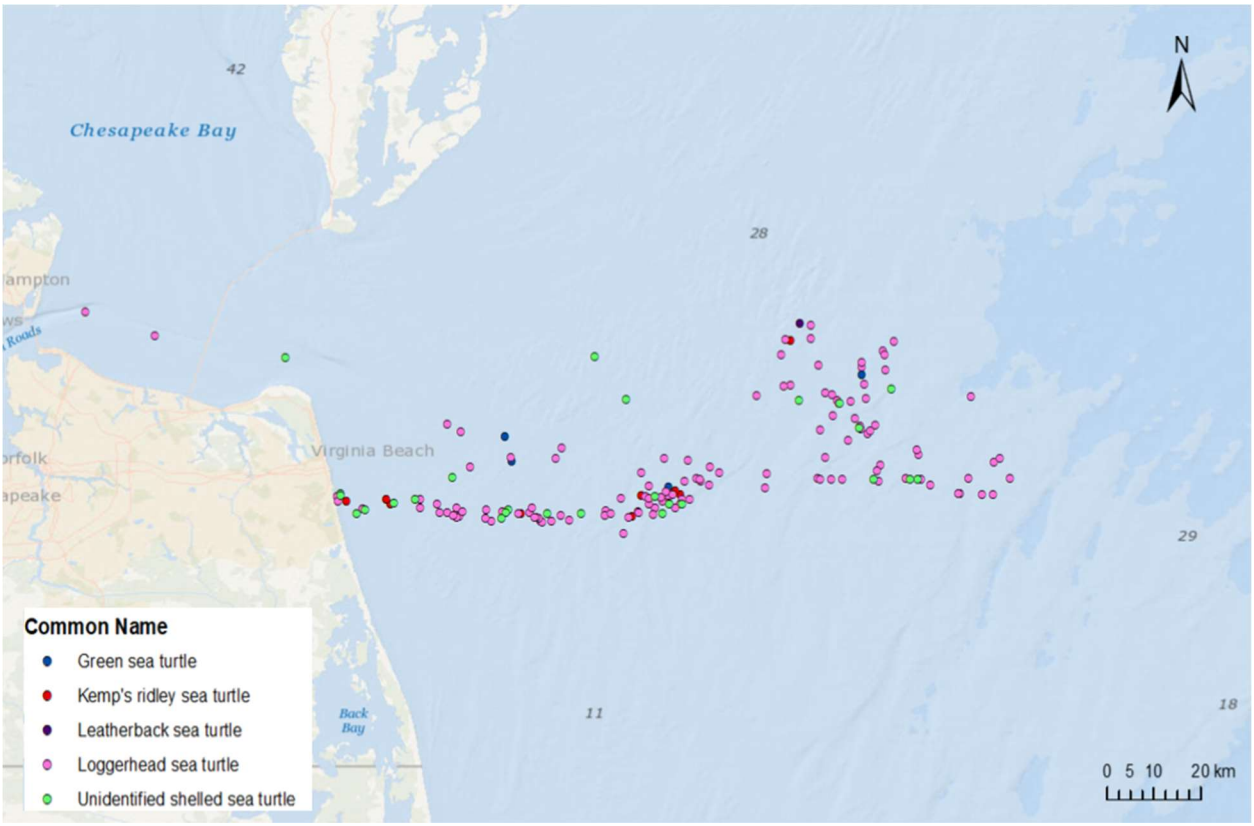

Figure 5: Distribution of sea turtles during the survey

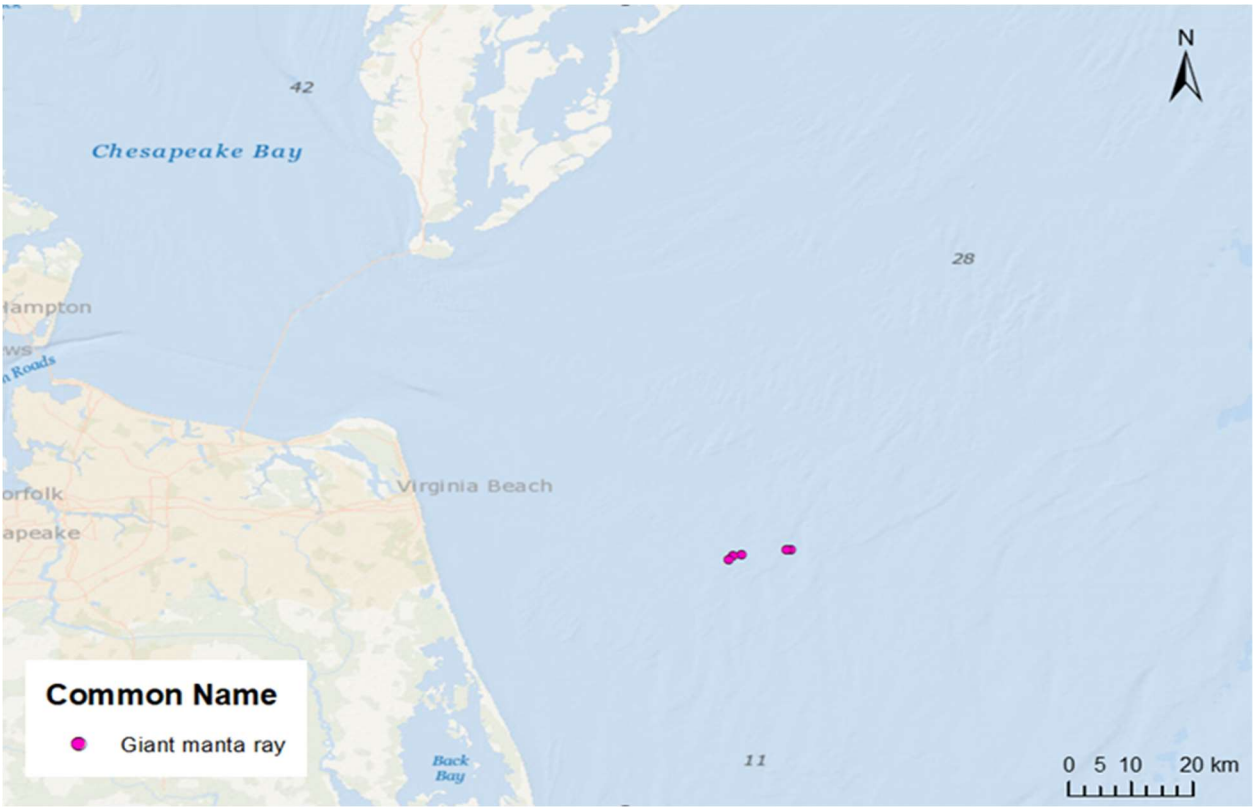

Figure 6: Distribution of giant manta rays during the survey

6.4.1 Detection and Distance Summary

The most commonly recorded species was the bottlenose dolphin (233 detections of an estimated 2067 individuals), followed by the common dolphin (155 detections of 758 individuals). The most commonly observed whale species was the humpback whale (n = 15 animals). The number of detection events, approximate number of animals observed, mean group size and detection rate for each species group detected over the course of the survey is provided in Table 14.

The largest mean distance at first detection by group was for giant manta rays at 1340 m, followed by whales.

Protected species	Whales	Dolphins	Giant manta ray	Turtles
Number of detection records	44	438	5	166
Estimated # of individuals detected	52	3011	7	169
Mean group size	1	7	1	1
Mean distance (m) at first detection	1193	448	1340	143
Detection rate	0.00556	0.05541	0.00063	0.02100

Table 14: Protected species detections

The humpback whale was the most observed whale species. The NARWs had the highest mean group size because of the two detections of pairs of whales. The mean distance at first detection for all whale species were greater than 100 meters (Table 15).

Whales	Fin whale	Humpback whale	Common minke whale	North Atlantic right whale	Unidentified whale
Number of detection records	11	15	1	2	15
Estimated number of individuals detected	12	19	1	4	16
Mean group size	1.1	1.37	1	2	1.1
Mean distance (m) at first detection	1031	1092	118	1370	1463
Detection rate	0.00139	0.00190	0.00013	0.00025	0.00190

Table 15: Visual detection summary of whales

Bottlenose dolphins had a larger mean group size than any other dolphin species (n=8.9) followed by Atlantic spotted dolphins (n=7). Bottlenose dolphins were the most frequently sighted species during the survey (n=233 events).

The Atlantic spotted dolphins had the closest mean detection distance at first detection at a distance of 80 meters of the identified species, followed by the pantropical spotted dolphins, common dolphins, and Risso's dolphins, all species that are known to approach vessels (Table 16).

Dolphins	Atlantic spotted dolphin	Bottlenose dolphin	Common dolphin	Pantropical spotted dolphin	Risso's dolphin	Striped dolphin	Unidentified dolphin
Number of detection records	4	233	155	2	1	1	42
Estimated number of individuals detected	28	2067	758	9	7	6	136
Mean group size	7	8.9	4.9	4.5	7	6	3.2
Mean distance (m) at first detection	80	508	158	135	300	400	1241
Detection rate	0.00051	0.02948	0.01961	0.00025	0.00013	0.00013	0.00531

Table 16: Visual detection summary for dolphins

Sea turtle detections commonly consisted of one animal, and mean detection distances were typically small with sightings occurring quite close to the vessel, both trends of which can be seen in the sea turtle sighting data collected during this survey (Table 17).

Sea Turtles	Green sea turtle	Kemp's ridley sea turtle	Leatherback sea turtle	Loggerhead sea turtle	Unidentified Sea Turtle
Number of detection records	5	9	1	125	26
Estimated number of individuals detected	5	9	1	128	26
Mean group size	1	1	1	1.024	1
Mean distance (m) at first detection	107	65	30	158.8	103
Detection rate	0.00063	0.00114	0.00013	0.01581	0.00329

Table 17: Visual detection summary for turtles

6.4.2 Protected Species Incident Reporting

The PSO team on the *R/V Minerva Uno* observed one dead sea turtle during the course of the survey and the *R/V Shearwater* observed one dead sea turtle during the course of this survey.

Description of the *R/V Minerva Uno* sighting event:

On 17 September 2022, at 18:17 UTC, a Kemp´s ridley sea turtle (*Lepidochelys kempii*) approximately 60 cm in length was spotted floating on the surface at a bearing of 300 degrees, 15 m off port side of *R/V Minerva Uno* while the vessel was on a survey line. The turtle was observed motionless. Photos were taken and it was determined to be in a medium state of decomposition, showing discoloration on the head, fore-limbs, and carapace. Likewise, the forelimbs showed wear. The sighting was brief as the vessel moved on and the turtle was last sighted 25 m from stern, at a bearing of 200 degrees, when the glare and the swell made difficult continuing the observation. Due to the advanced decomposition state, it was also determined by the PSOs onboard that the survey activities and vessel movement did not have an impact on the death of this sea turtle. There were no visible tags or markers on the animal, and no signs of tar, oil, gear entanglement or propeller damage.

Description of *R/V Shearwater* sighting event:

On 05 May 2023, at 15:03 UTC, the body of a loggerhead sea turtle was observed 153 m from the vessel's starboard bow, at a bearing of 40 degrees, with its head pointing at 270 degrees. The turtle was drifting along the current, and after further observation it was determined the turtle was dead, there was no movement, and the head was hanging below the water surface, balancing with the movement of the water, for the entirety of the sighting. At 15:07 UTC, the turtle was last observed at 306 m from the vessel, at a bearing of 130 degrees, its body heading to 0 degrees. The closest approach of the turtle was 60 m to the vessel at 15:04 UTC. During the detection, the vessel was on a survey line. The turtle did not enter the separation distance, and no vessel strike avoidance measures were required.

6.4.3 Summary of DMAs & NARW Reporting

6.4.3.1 NARW Detections

The PSO team on the *R/V Shearwater* had two sightings of NARWs during the survey.

At 20:18 UTC on 24 January 2023, two North Atlantic right whales were observed 1200 m from vessel's port bow, at a bearing of 310 degrees, blowing and swimming at a moderate pace, parallel in opposite direction as vessel, with a heading of 200 degrees. The NARWs were observed swimming with normal behavior, with surface activity showing caudal fins to the side and maintaining the same heading during the detection. The closest approach to the marine mammals was 800 m from vessel at 20:25 UTC. At 20:49 UTC the protected species were last observed 1500 m from the starboard beam, bearing 110 degrees and continued blowing, surfacing, and diving showing the flukes with the same heading. This detection occurred while the vessel was running data acquisition, following of a line change of the non-mitigable sources. As the marine mammal did not enter the minimum separation distance of 500 m there wasn't any strike avoidance applied. The bridge was informed about it, and the vessel continued with normal operations.

At 22:32 UTC on 15 February 2023, two North Atlantic right whales were observed 1540 m in front of the vessel with a heading of 90 degrees at a bearing of 0 degrees. The animals were observed blowing and fin slapping. They changed course toward the vessel and when they were at a distance of 1,000 m the mate on duty was informed that they would likely be approaching and to go ahead and reduce speed; the mate did so immediately. As the whales entered into the 500 m range, the mate was asked to alter course and steer away from the whales and did so immediately. As the whales approached further, the mate was asked if we could shift into neutral, to which he informed me that we could not because of the equipment in tow. The closest point of approach to the vessel was 10 m. The whales were last observed at a distance of 1,000 m heading away from the vessel with a heading of 180 degrees at a bearing of 180 degrees.

In both instances sighting notification was made to NMFS NARW Sighting Advisory System. The full reports are included in Appendix J.

6.4.3.2 Summary of DMAs & Slow Zones

There was one DMA established in the region of the Lease during the survey. RPS confirmed this with National Oceanic and Atmospheric Administration (NOAA) Office of Protected Resources. The details of the DMA established during this survey are below:

East of Virginia Beach, VA DMA Slow Zone: Effective 24 January 2023 through 08 February 2023.
Waters bounded by:
Northern Boundary: 37°23' N
Southern Boundary: 36°39' N
Eastern Boundary: 74°50' W
Western Boundary: 75°44' W

There was one acoustic slow zone established in the region of the Lease during the survey. RPS confirmed this with National Oceanic and Atmospheric Administration (NOAA) Office of Protected Resources. The details of the acoustic slow zone established during this survey are below:

East of Virginia Beach, VA Acoustic Slow Zone: Effective 08 February 2023 through 06 March 2023, and 05 April 2023 through 20 April 2023.
Waters bounded by:
Northern Boundary: 37°03' N
Southern Boundary: 36°23' N
Eastern Boundary: 75°04' W
Western Boundary: 75°53' W

6.5 Summary of Mitigation Measures Implemented

Mitigation was implemented as described over the course of the UXO Survey to prevent adverse impacts to protected species from physical interactions with vessels and / or towed equipment (strike avoidance mitigation).

The strike avoidance maneuvers undertaken are summarized by species group and maneuver type in Table 18 as well as in more detail, to the individual species and date, in Appendix L.

Species groups	Number of animals	Strike avoidance maneuver
Whale	2	Kept course and maintain speed
Whale	1	Kept course
Dolphin	89	Kept course and maintain speed
Dolphin	440	Kept course
Dolphin	68	Maintain speed
Dolphin	121	Speed reduction
Dolphin	98	Alter course
Dolphin	65	Maintain vessel heading
Turtle	2	Kept course and maintain speed
Turtle	1	Kept course

Table 18: Summary of strike avoidance measures

Appendix A: Survey Permits

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

INCIDENTAL HARASSMENT AUTHORIZATION

Virginia Electric and Power Company doing business as Dominion Energy Virginia (Dominion Energy) and their designees are hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to incidentally harass marine mammals, under the following conditions:

1. This incidental harassment authorization (IHA) is valid for one year from the date of issuance.

2. This IHA authorizes take incidental to marine site characterization surveys in coastal waters off Virginia, as specified in Dominion Energy's IHA application.

3. General Conditions

   (a) A copy of this IHA must be in the possession of Dominion Energy, the vessel operator, other relevant personnel, the lead marine mammal observer (PSO) (see description below), and any other relevant designees operating under the authority of the IHA.

   (b) The species and/or stocks authorized for taking are listed in Table 1. Authorized take, by Level B harassment only, is limited to the species and numbers listed in Table 1.

   (c) The taking by injury, serious injury or death of any of the species listed in Table 1 or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA. Any taking exceeding the authorized amounts listed in Table 1 is prohibited and may result in the modification, suspension, or revocation of this IHA.

   (d) Dominion Energy shall instruct relevant vessel personnel with regard to the authority of the marine mammal monitoring team, and shall ensure that relevant vessel personnel and the marine mammal monitoring team participate in a joint onboard briefing (hereafter PSO briefing), led by the vessel operator and lead PSO, prior to beginning survey activities to ensure that responsibilities, communication procedures, marine mammal monitoring protocols, safety and operational procedures, and IHA requirements are clearly understood. This PSO briefing must be repeated when relevant new personnel (*e.g.*, PSOs, acoustic source operator) join the survey operations before work commences.

   (e) The acoustic source must be deactivated when not acquiring data or preparing to acquire data, except as necessary for testing. Unnecessary use of the acoustic source shall be avoided.

(f) Dominion Energy must abide by the relevant Project Design Criteria (PDC 4, 5 and 7) of the programmatic consultation completed by NMFS' Greater Atlantic Regional Fisheries Office on June 29, 2021 (revised September 2021), pursuant to section 7 of the Endangered Species Act (ESA).

4. Mitigation Requirements

(a) Dominion Energy must employ qualified, NMFS-approved visual PSOs (see Section 5 of this IHA). When specified acoustic sources (impulsive: sparkers; non-impulsive: non-parametric sub-bottom profilers) are operating, a minimum of one PSO must be on duty, per source vessel, during daylight hours and two PSOs must be on duty, per source vessel, during nighttime hours.

(b) Visual monitoring must begin no less than 30 minutes prior to initiation of specified acoustic sources (see condition 4(a) of this IHA) and must continue until 30 minutes after use of specified acoustic sources ceases.

(c) PSOs shall establish and monitor applicable Exclusion Zones (see below). These zones shall be based upon the radial distance from the acoustic source (rather than being based around the vessel itself).

(d) Pre-start clearance and ramp-up – A ramp-up procedure, involving a gradual increase in source level output, is required at all times as part of the activation of the acoustic source when technically feasible. Operators should ramp up sources to half power for 5 minutes and then proceed to full power. A 30-minute pre-start clearance observation period must occur prior to the start of ramp-up (or initiation of source use if ramp-up is not technically feasible). Pre-start clearance observation zones must be as follows: 500-m for all ESA-listed marine mammals and 100-m for all other marine mammals (Table 2). All operators must adhere to the following pre-start clearance and ramp-up requirements:

(i) The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time should not be less than 60 minutes prior to the planned ramp-up in order to allow the PSOs time to monitor the Exclusion Zones for 30 minutes prior to the initiation of ramp-up (pre-start clearance). During this 30 minute pre-start clearance period, the entire applicable Exclusion Zones must be visible, except as indicated in (viii) below.

(ii) Ramp-ups shall be scheduled so as to minimize the time spent with the source activated.

(iii) A visual PSO conducting pre-start clearance observations must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO that the Exclusion Zone is clear prior to proceeding.

(iv) Any PSO on duty has the authority to delay the start of survey operations if a marine mammal is detected within the applicable pre-start clearance zone.

(v) The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that mitigation commands are conveyed swiftly while allowing PSOs to maintain watch.

(vi) Ramp-up may not be initiated if any marine mammal is within the applicable Exclusion Zone. If a marine mammal is observed within the applicable Exclusion Zone during the 30 minute pre-start clearance period, ramp-up may not begin until the animal(s) has been observed exiting the zones or until an additional time period has elapsed with no further sightings (15 minutes for small odontocetes and pinnipeds and 30 minutes for all other species).

(vii) PSOs must monitor the Exclusion Zone 30 minutes before and during ramp-up, and ramp-up must cease and the source must be shut down upon observation of a marine mammal within the applicable Exclusion Zone.

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

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

(e) Shutdown requirements

(i) Any PSO on duty has the authority to call for shut down of the acoustic source if a marine mammal is detected within the applicable Exclusion Zone.

(ii) The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch.

(iii) When the acoustic source is active and a marine mammal appears within or enters the applicable Exclusion Zone, the acoustic source must be shut down (Table 2). When shutdown is instructed by a PSO, the acoustic source must be immediately deactivated and any dispute resolved only following deactivation.

(iv) The shutdown requirement is waived for small delphinids[1] and pinnipeds.

(A) If a delphinid (individual belonging to the genera of the Family *Delphinidae*) or pinniped is visually detected within the Exclusion Zone, no shutdown is required unless the PSO confirms the individual to be of a genus other than those described in Table 1; in which case, a shutdown is required.

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

(vi) Upon implementation of shutdown, the source may be reactivated after the marine mammal has been observed exiting the applicable Exclusion Zone or following a clearance period (15 minutes for harbor porpoises and 30 minutes for all other species; Table 2) with no further detection of the marine mammal.

(vii) Shutdown of acoustic sources is required upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within the Level B harassment zone (141-m for all marine mammals during survey operations employing impulsive sources (*e.*g., boomers and/or sparkers) as the predominant acoustic source).

(f) Vessel Strike Avoidance - Vessel operators must comply with the below measures except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question. These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

(i) Vessel operators and crews must maintain a vigilant watch for all marine mammals and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A

[1] Small delphinids include members of the following genera: *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops*.

single marine mammal at the surface may indicate the presence of additional submerged animals in the vicinity of the vessel; therefore, precautionary measures should always be exercised. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (species-specific distances detailed below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish marine mammal from other phenomena and 2) broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammals.

(ii) All vessels, regardless of size, must observe a 10-knot speed restriction in specific areas designated by NMFS for the protection of North Atlantic right whales from vessel strikes. These include all Seasonal Management Areas (SMA) (when in effect) and any Dynamic Management Areas (DMA) (when in effect). See *www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales* for specific detail regarding these areas.

(iii) Vessel speeds must be reduced to 10 knots or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel.

(iv) All vessels must maintain a minimum separation distance of 500-m from right whales and other ESA-listed species. If an ESA-listed species is sighted within the relevant separation distance, the vessel must steer a course away at 10-knots or less until the 500-m separation distance has been established (Table 2). 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.

(v) All vessels must maintain a minimum separation distance of 100-m from non-ESA-listed baleen whales (Table 2).

(vi) All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50-m from all other marine mammal, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel; Table 2).

(vii) When marine mammals are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the

area, reduce speed and shift the engine to neutral). This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

5. Monitoring Requirements

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

(b) PSO names must be provided to NMFS by the operator for review and confirmation of their approval for specific roles prior to commencement of the survey[2]. For prospective PSOs not previously approved, or for PSOs whose approval is not current, NMFS must review and approve PSO qualifications. Resumes should include information related to relevant education, experience, and training, including dates, duration, location, and description of prior PSO experience. Resumes must be accompanied by relevant documentation of successful completion of necessary training.

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

(d) At least one of the visual PSOs aboard the vessel must be unconditionally-approved. One unconditionally-approved visual PSO shall be designated as the lead for the entire PSO team. This lead should typically be the PSO with the most experience, would coordinate duty schedules and roles for the PSO team[3], and serve as primary point of contact for the vessel operator. To the maximum extent practicable, the duty schedule shall be planned such that unconditionally-approved PSOs are on duty with conditionally-approved PSOs.

(e) PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one

[2] PSO-related inquiries should be directed to *nmfs.psoreview@noaa.gov*.
[3] Responsibility for coordination of duty schedules and roles may be delegated, such as to a shore-based monitoring coordinator employed by the third-party observer provider.

undergraduate course in math or statistics. The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted to NMFS and must include written justification. Alternate experience that may be considered includes, but is not limited to (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting academic, commercial, or government-sponsored marine mammal surveys; and (3) previous work experience as a PSO (PSO must be in good standing and demonstrate good performance of PSO duties).

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

(g) PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and shall conduct visual observations using binoculars or night-vision equipment and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

(h) PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period.

(i) Any observations of marine mammal by crew members aboard any vessel associated with the survey shall be relayed to the PSO team.

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

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

(ii) Reticle binoculars (*e.g.*, 7 x 50) of appropriate quality (at least one per PSO, plus backups);

(iii) Global Positioning Units (GPS) (at least one plus backups);

(iv) Digital cameras with a telephoto lens that is at least 300 mm or equivalent on a full-frame single lens reflex (SLR) (at least one plus backups). The camera or lens should also have an image stabilization system;

(v) Equipment necessary for accurate measurement of distances to marine mammal;

(vi) Compasses (at least one plus backups);

(vii) Means of communication among vessel crew and PSOs; and

(viii) Any other tools deemed necessary to adequately and effectively perform PSO tasks.

(k) Equipment specified in (i) through (viii) above may be provided by an individual PSO, the third-party PSO provider, or the operator, but Dominion Energy is responsible for ensuring PSOs have the proper equipment required to perform the duties specified within this IHA.

(l) During good conditions (*e.g.*, daylight hours; Beaufort sea state 3 or less), PSOs shall conduct observations when the specified acoustic sources (see condition 4(a) of this IHA) are not operating for comparison of sighting rates and behavior with and without use of the specified acoustic sources and between acquisition periods, to the maximum extent practicable.

(m) Dominion Energy must consult the NMFS North Atlantic right whale reporting system and Whale Alert, daily and as able, for the presence of North Atlantic right whales before and throughout survey operations, and for the establishment of a DMA. If NMFS should establish a DMA in the Lease Areas during the survey, the vessels will abide by speed restrictions in the DMA.

6. Reporting Requirements

(a) Dominion Energy shall submit a draft comprehensive report on all activities and monitoring results within 90 days of the completion of the survey or expiration of the IHA, whichever comes sooner. The report must describe all activities conducted and sightings of marine mammals, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the dates and locations of survey operations and all marine mammals sightings (dates, times, locations, activities, associated survey activities). The draft report shall also include geo-referenced, time-stamped vessel tracklines for all time periods during which acoustic sources were operating. Tracklines should include points recording any change in acoustic source status (*e.g.*, when the sources began operating, when they were turned off, or when they changed operational status such as from full array to single gun or vice versa). GIS files shall be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates shall be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data shall be made available. The report must summarize the information submitted in interim monthly reports (if required) as well as additional data collected as described above in *Data Collection*. A final report must be submitted within 30 days following resolution of any comments on the draft report. All draft and final marine mammal monitoring reports must be

submitted to *PR.ITP.MonitoringReports@noaa.gov, ITP.Davis@noaa.gov,* and *nmfs.gar.incidental-take@noaa.gov*.

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

(i) Vessel names (source vessel and other vessels associated with survey), vessel size and type, maximum speed capability of vessel;

(ii) Dates of departures and returns to port with port name;

(iii) The lease number;

(iv) PSO names and affiliations;

(v) Date and participants of PSO briefings;

(vi) Visual monitoring equipment used;

(vii) PSO location on vessel and height of observation location above water surface;

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

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

(x) Vessel location at 30-second intervals if obtainable from data collection software, otherwise at practical regular interval;

(xi) Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change;

(xii) Water depth (if obtainable from data collection software);

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

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

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

(c) Upon visual observation of any marine mammal, the following information must be recorded:

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

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

3. PSO who sighted the animal;

4. Time of sighting;

5. Initial detection method;

6. Sightings cue;

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

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

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

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

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

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

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

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

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

16. Detailed behavior observations (*e.g*., number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior before and after point of closest approach);

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

18. Equipment operating during sighting;

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

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

(d) Reporting sightings of North Atlantic right whales:

(i) If a North Atlantic right whale is observed at any time by PSOs or personnel on any project vessels, during surveys or during vessel transit, Dominion Energy must report the sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System (866-755-6622) within two hours of occurrence, when practicable, or no later than 24 hours after occurrence.

(ii) North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via Channel 16 and through the WhaleAlert app (*http://www.whalealert.org/*).

(e) Reporting injured or dead marine mammals:

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

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

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

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

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

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

6. General circumstances under which the animal was discovered.

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

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

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

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

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

5. Status of all sound sources in use;

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

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

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

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

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

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

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

7. This Authorization may be modified, suspended or revoked if the holder fails to abide by the conditions prescribed herein (including, but not limited to, failure to comply with monitoring or reporting requirements), or if NMFS determines: (1) the authorized taking is having more than a negligible impact on the species or stocks of affected marine mammals, or (2) the prescribed measures are likely not or are not effecting the least practicable adverse impact on the affected species or stocks and their habitat.

8. Renewals – On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical, or nearly identical, activities are planned or (2) the specified activities would not be completed by the time this IHA expires and a Renewal would allow for completion of the activities, provided all of the following conditions are met:

(a) A request for Renewal is received no later than 60 days prior to the needed Renewal IHA effective date (the Renewal IHA expiration date cannot extend beyond one year from expiration of this IHA).

(b) The request for Renewal must include the following:

(i) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed for this IHA, are a subset of the activities, or include changes so minor that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).

(ii) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

(c) Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings made in support of this IHA remain valid.

_____ _____

For Kimberly Damon-Randall, Director, Office of Protected Resources, National Marine Fisheries Service.

Date

Table 1—Authorized Incidental Take by Level B Harassment

Taxonomic group	Common name	Scientific name	Stock	ESA-listed?	Marine mammal category as it applies to mitigation requirements in the IHA	Level B harassment takes
Cetacean (Mysticete)	North Atlantic right whale	*Eubalaena glacialis*	Western Atlantic Stock	Yes	North Atlantic right whale	5
	Fin whale	*Balaenoptera physalus*	Western North Atlantic Stock	Yes	Large whale	7
	Minke whale	*Balaenoptera acutorostrata*	Canadian East Coastal Stock	No	Large whale	2
	Humpback whale	*Megaptera novaeangliae*	West Indies DPS	No	Large whale	2
Cetacean (Odontocete)	Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Western North Atlantic Stock	No	Small odontocete	25
	Atlantic spotted dolphin	*Stenella frontalis*	Western North Atlantic Stock	No	Small odontocete	4,880
	Common bottlenose dolphin	*Tursiops truncatus*	Western North Atlantic Offshore Stock	No	Small odontocete	279
			Western North Atlantic Southern Migratory Coastal Stock			147
	Pilot whale	*Globicephala spp.*	Western North Atlantic Stock	No	Large odontocete	20
	Risso's dolphin	*Grampus griseus*	Western North Atlantic Stock	No	Large odontocete	25
	Common dolphin	*Delphinus delphis*	Western North Atlantic Stock	No	Small odontocete	4,880
	Harbor porpoise	*Phocoena phocoena*	Western North Atlantic Stock	No	Small odontocete	32
Pinniped (Phocid)	Gray seal	*Halichoerus grypus*	Western North Atlantic Stock	No	Seal	12
	Harbor seal	*Phoca vitulina*	Western North Atlantic Stock	No	Seal	12

Table 2—Distances/Times for Clearance, Shutdown/Exclusion, Vessel Separation Zones

<table>
<tr><th rowspan="2">Authorized marine mammal species</th><th rowspan="2">ESA-listed?</th><th colspan="2">Pre-clearance zone</th><th>Vessel separation zone</th><th colspan="2">Exclusion/shutdown zone</th></tr>
<tr><th>Distance (meters)</th><th>Duration (minutes)</th><th>Distance (meters)</th><th>Distance (meters)</th><th>Duration (minutes)</th></tr>
<tr><td>North Atlantic right whale</td><td rowspan="2">Yes</td><td rowspan="2">500</td><td rowspan="14">30</td><td rowspan="2">500</td><td>500</td><td rowspan="8">30</td></tr>
<tr><td>Fin whale</td><td rowspan="8">100</td></tr>
<tr><td>Humpback whale</td><td rowspan="12">No</td><td rowspan="12">100</td><td>100</td></tr>
<tr><td>Minke whale</td></tr>
<tr><td>Short-finned pilot whale</td><td rowspan="10">50</td></tr>
<tr><td>Long-finned pilot whale</td></tr>
<tr><td>Risso’s dolphin</td></tr>
<tr><td>Harbor porpoise</td><td>15</td></tr>
<tr><td>Atlantic white-sided dolphin</td><td colspan="2" rowspan="6">Not required. See condition 4(f)(iv) in this IHA</td></tr>
<tr><td>Atlantic spotted dolphin</td></tr>
<tr><td>Common bottlenose dolphin</td></tr>
<tr><td>Common dolphin</td></tr>
<tr><td>Gray seal</td></tr>
<tr><td>Harbor seal</td></tr>
</table>

BOEM Waiver and Exclusion Zone Modification Request & Response Matrix
[Dominion] - Commercial Lease OCS-A 0483
[COP/SAP Combined Survey Plan 3/4/2020]
Project Coordinator: [Casey Reeves] EBRE Coordinator: [Algene Byrum]

Lease #	Lease Stipulation from "ADDENDUM C"	Lessee Requested Change in Lease Stipulation Language	Lessee Explanation	BOEM Decision Y – yes N - no P - partial approval	BOEM Change in Lease Stipulation Language	BOEM Explanation
483	2.1.2 Pre-Survey Meeting with the Lessor. At least 60 calendar days prior to the initiation of survey activities in support of the submission of a plan (i.e., SAP and COP), the Lessee must hold a pre-survey meeting with the Lessor to discuss the applicable proposed survey plan and timelines. The Lessee must ensure the presence of a Qualified Marine Archaeologist at this meeting (See 4.2.2).	**Waive 60 days requirement prior to start of surveys**. **Waive 60 days requirement following submittal of survey plan.** (Actual is 25 days) & Commence Surveys April 11, 2020.	Dominion Energy is seeking concurrence from BOEM that approval of this request will satisfy the requirements of the timing of Pre-Survey Meeting with Lessor prior to commencing surveys, and Tribal Pre-Survey Meeting Invitations and Tribal Pre-Survey Meeting prior to the BOEM Pre-Survey Meeting as required by Lease Stipulations 2.1.2 and 4.2.3, respectively	Y	N/A	A Combined COP/SAP Pre-Survey Meeting held on March 17. All comments have been resolved on the Survey Plans before 60 days prior to the start of surveys Commence Surveys, All comments have been resolved on the Survey Plans before 60 days prior to the start of surveys
483	4.2.3Tribal Pre-Survey Meeting. Subsequent to any pre-survey meeting with the Lessor (see 2.1.2) and at least 45 calendar days prior to commencing survey activities performed in support of plan (i.e., SAP and COP) submittal, the Lessee must invite by certified mail the Narragansett Indian Tribe, the Shinnecock Indian Nation, and the Lenape Tribe of Delaware to a tribal pre-survey meeting. The purpose of this meeting will be for the Lessee and the Qualified Marine Archaeologist to discuss the Lessee's Survey Plan and consider requests to monitor portions of the archaeological survey and the geotechnical sampling activities, including the visual logging and analysis of geotechnical samples (e.g., cores). The meeting must be scheduled for a date at least 30 calendar days prior to commencing survey and at a location and time that affords the participants a reasonable opportunity to participate. The anticipated date for the meeting must be identified in the timeline of activities described in the applicable survey plan (see 2.1.1).	**Waive requirement to hold Tribal Pre-Survey meeting prior to BOEM Pre-Survey Meeting.** • Initial request received 2/6/20 • Tribal Pre-Survey Meeting Held March 10, 2020. • BOEM Pre-Survey Meeting March 17, 2020	Dominion Energy is seeking concurrence from BOEM that approval of this request will satisfy the requirements of the timing of Pre-Survey Meeting with Lessor prior to commencing surveys, and Tribal Pre-Survey Meeting Invitations and Tribal Pre-Survey Meeting prior to the BOEM Pre-Survey Meeting as required by Lease Stipulations 2.1.2 and 4.2.3, respectively	Y	N/A	Allowing the Lessee to hold the tribal pre-survey meeting *prior to* rather than *subsequent to* any pre-survey meeting with the Lessor, as required under the stipulation, would not trigger the need for additional government to government consultation or undermine the Section 106 consultation that was concluded prior to the issuance of this commercial lease, so long as all other timing requirements outlined in the stipulations are met. Requiring the Lessor meeting to occur first allows the Lessee to receive BOEM's feedback prior to the tribal pre-survey meeting; therefore, the Lessee is assuming some risk if substantial alterations to their approach were to occur as a result of BOEMs review of the survey plan.
OCS-A 0483	Lease Stipulation 4.1.1.2 The Lessee must ensure that all vessel operators comply with 10	*The Lessee must ensure that all vessel operators comply with 10*	Dominion Energy is requesting a waiver from lease stipulation 4.1.1.2 in order to modify a portion of this Stipulation to align the stipulation with more	P	4.1.1.2 Vessel Strike Avoidance. *The Lessee must ensure that all vessel operators comply with 10*	Speed restrictions in DMAs and SMAs generally apply to all vessels, seasonal speed restrictions (Nov. 1-April 30) apply to vessels

	knot (18.5 km/hr) speed restrictions in any Dynamic Management Area (DMA). In addition, the Lessee must ensure that all vessels operating from November 1 through April 30 operate at speeds of 10 knots (18.5 km/hr) or less.	*knot (18.5 km/hr) speed restrictions in any Dynamic Management Area (DMA). In addition, the Lessee must ensure that all vessels* ***over 65 feet in length****, operating from November 1 through April 30* ***in Seasonal Management Areas (SMAs)*** *operate at speeds of 10 knots (18.5 km/hr) or less*	recent guidance that has been issued for vessel strike avoidance measures on other offshore wind projects.		*knot (18.5 km/hr) speed restrictions in any Dynamic Management Area (DMA). In addition, the Lessee must ensure that all vessels* ***greater than or equal to 65 feet in length****, operating from November 1 through April 30 operate at speeds of 10 knots (18.5 km/hr) or less.*	greater than or equal to 65 feet in length. This is consistent with current guidance from NMFS.
OCS-A 0483	Lease Stipulations 4.1.1.4 through 4.1.1.4.2.2 4.1.1.4.1 The Lessee must ensure all vessels maintain a separation distance of 100 meters (328 ft) or greater from any sighted non-delphinoid cetacean. 4.1.1.4.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 100 meters (328 ft) of any non-delphinoid cetacean: 4.1.1.4.2.1 If any non-delphinoid cetacean is 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 beyond 100 meters (328 ft). 4.1.1.4.2.2 If a vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean has moved beyond 100 meters (328 ft).	*4.1.1.4.1 The Lessee must ensure all vessels maintain a separation distance of 100 meters (328 ft) or greater from any sighted* ***ESA-listed whales other than the North Atlantic right whale****.* *4.1.1.4.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 100 meters (328 ft) of any* ***ESA-listed whales other than the North Atlantic right whale****:* *4.1.1.4.2.1 If any* ***ESA-listed whales other than the North Atlantic right whale*** *are sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the* ***ESA-listed whales other than the North Atlantic right whale*** *have moved beyond 100 meters (328 ft).* *CVOW Commercial* *Lease Waiver Request G&G Surveys* 3 *4.1.1.4.2.2 If a vessel is stationary, the vessel must not engage engines until the* ***ESA-listed whales other than the North Atlantic right whale*** *have moved beyond 100 meters (328 ft).* Additionally, Dominion Energy is requesting a waiver from Lease Stipulations *within 50 meters (164 ft) of any non-delphinoid cetacean* ***and non-ESA-listed whales****:*	Dominion Energy is making this request projects to modify the language to include only ESA-listed whales other than the North Atlantic right whale to align the stipulations with more recent guidance that has been issued for minimum separation distances from protected species and vessel strike avoidance measures on other offshore wind	N	Stipulations 4.1.1.4 through 4.1.1.4.2.2 apply to all non-delphinoid species other than the NARW, primarily large whales, both listed and non-listed species.	Stipulations 4.1.1.4 through 4.1.1.4.2.2: These stipulations are intended to decrease the chance that a vessel strike may occur, they apply to both listed and non-listed species. The stipulations as written are consistent with current guidance from NMFS (see for example, the Skipjack IHA).

OCS-A 0483	Lease Stipulations 4.1.1.5 through 4.1.1.5.2.2 4.1.1.5.1 The Lessee must ensure that all vessels maintain a separation distance of 50 meters (164 ft) or greater from any sighted delphinoid cetacean. 4.1.1.5.2 The Lessee must ensure that the following avoidance measures are taken if the vessel comes within 50 meters (164 ft) of any delphinoid cetacean: 4.1.1.5.2.1 The Lessee must ensure that any vessel underway remain parallel to a sighted delphinoid cetacean's course whenever possible, and avoid excessive speed or abrupt changes in direction. The Lessee may not adjust course and speed until the delphinoid cetacean has moved beyond 50 meters (164 ft) or the delphinoid cetacean has moved abeam of the underway vessel. 4.1.1.5.2.2 The Lessee must ensure that any vessel underway reduce vessel speed to 10 knots (18.5 km/h) or less when pods (including mother/calf pairs) or large assemblages of delphinoid cetaceans are observed. The Lessee may not adjust course and speed until the delphinoid cetaceans have moved beyond 50 meters (164 ft) or abeam of the underway vessel.	4.1.1.5.1 The Lessee must ensure that all vessels maintain a separation distance of 50 meters (164 ft) or greater from any sighted delphinoid cetacean. 4.1.1.5.2 The Lessee must ensure that the following avoidance measures are *4.1.1.5.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 50 meters (164 ft) of any non-delphinoid cetacean* ***and non-ESA-listed whales****:* *4.1.1.5.2.1 The Lessee must ensure that any vessel underway remain parallel to a sighted delphinoid cetacean* ***or non-ESA-listed whales'*** *course whenever possible, and avoid excessive speed or abrupt changes in direction. The Lessee may not adjust course and speed until the delphinoid cetacean* ***or non-ESA-listed whale*** *has moved beyond 50 meters (164 ft) or the delphinoid cetacean* ***or non-ESA-listed whale*** *has moved abeam of the underway vessel.* *4.1.1.5.2.2 The Lessee must ensure that any vessel underway reduce vessel speed to 10 knots (18.5 km/h) or less when pods (including mother/calf pairs) or large assemblages of delphinoid cetaceans* ***or non-ESA-listed whales*** *are observed. The Lessee may not adjust course and speed until the delphinoid cetaceans* ***or non-ESA-listed whales*** *have moved beyond 50 meters (164 ft) or abeam of the underway vessel.*	Dominion Energy is making this request to modify the language to include non-ESA-listed whales: to align the stipulations with more recent guidance that has been issued for minimum separation distances from protected species and vessel strike avoidance measures on other offshore wind projects.	N	Stipulations 4.1.1.5 through 4.1.1.5.2.2 apply only to delphinoid species, which are highly mobile and often occur in large groups and may approach vessels.	Stipulations 4.1.1.5 through 4.1.1.5.2.2: Species other than delphinoids may lack the same level of maneuverability and speed, making 50m insufficient to adequately protect them from vessel strikes. The stipulation as written is consistent with current guidance from NMFS (see for example, Skipjack IHA.)
OCS-A 0483	Lease Conditions	Dominion Energy is requesting a waiver from lease stipulation 4.3.2, as allowed in stipulation 4.3.3, as it	Dominion Energy will provide an alternative monitoring plan to support their request to allow	N	4.3.2 Visibility. The Lessee must not conduct G&G surveys in support of plan (i.e., SAP and COP) submittal at any time when lighting or weather	Not at this time, BOEM will review the AMP when provided and determine whether it provides for adequate marine mammal and sea

	4.3.2 Visibility. The Lessee must not conduct G&G surveys in support of plan (i.e., SAP and COP) submittal at any time when lighting or weather conditions (e.g., darkness, rain, fog, sea state) prevents visual monitoring of the HRG survey exclusion zone (see 4.3.6) or the geotechnical sampling exclusion zone (see 4.3.7), except as allowed under 4.3.3. 4.3.3 Modification of Visibility Requirement. If the Lessee intends to conduct G&G survey operations in support of plan submittal at night or when visual observation is otherwise impaired, the Lessee must submit to the Lessor an alternative monitoring plan detailing the alternative monitoring methodology (e.g., active or passive acoustic monitoring technologies). The Lessor may decide to allow the Lessee to conduct G&G surveys in support of plan submittal at night or when visual observation is otherwise impaired using the proposed alternative monitoring methodology.	pertains to conducting G&G surveys at any time when lighting or weather conditions prevent visual monitoring of the HRG Survey Exclusion Zone. Dominion Energy also requests that BOEM consider the following activities not be subject to the requirement for an alternative monitoring plan, as outlined in lease stipulation 4.3.3: the use of equipment operating above 200 kHz; the use of dynamic positioning (DP) thrusters; and the use of ultra-short baseline (USBL) positioning equipment.	G&G surveys to be conducted during periods of reduced visibility (lighting and weather conditions).		conditions (e.g., darkness, rain, fog, sea state) prevents visual monitoring of the HRG survey exclusion zone (see 4.3.6) or the geotechnical sampling exclusion zone (see 4.3.7), except as allowed under 4.3.3. 4.3.3 Modification of Visibility Requirement. If the Lessee intends to conduct G&G survey operations in support of plan submittal at night or when visual observation is otherwise impaired, the Lessee must submit to the Lessor an alternative monitoring plan detailing the alternative monitoring methodology (e.g., active or passive acoustic monitoring technologies). The Lessor may decide to allow the Lessee to conduct G&G surveys in support of plan submittal at night or when visual observation is otherwise impaired using the proposed alternative monitoring methodology. Equipment operating above 200kHz, the use of dynamic positioning (DP) thrusters; and the use of ultra-short baseline (USBL) positioning equipment are not subject to an Alternative Monitoring Plan (AMP).	turtle mitigation during operations at night or operations in other low visibility conditions. Upon receipt of an adequate AMP which would allow PSOs to clear the required zones, BOEM may approve nighttime/ poor visibility operations for some or all equipment in conjunction with receipt of the final IHA.
OCS-A 0483	Lease Condition 4.3.4 Protected-Species Observer The Lessee must ensure that the exclusion zone for all G&G surveys performed in support of plan (i.e., SAP and COP) submittal is monitored by one or more NMFS - approved protected species observers around the sound source. The Lessee must provide to the Lessor a list of observers and their résumés no later than 45 calendar days prior to the scheduled start of surveys performed in support of plan submittal. The résumés of any additional observers must be provided at least 15 calendar days prior to each observer's start date.	Dominion Energy is requesting a waiver from lease stipulation 4.3.4 as it pertains to PSO monitoring of the use of DP thrusters; and, the use of USBL positioning equipment operating above 200 kHz. Additionally, Dominion Energy is requesting a waiver from lease stipulation 4.3.4 to allow submittal of a list of NMFS approved PSOs to BOEM 7 days prior to the observers start date.	Dominion Energy is requesting a waiver from lease stipulation 4.3.4 as it pertains to PSO monitoring of the following activities, as that equipment is part of standard vessel operation and is unlikely to result in harassment of marine mammals: the use of equipment operating above 200 kHz; the use of DP thrusters; and, the use of USBL positioning equipment.	P	Lease Condition 4.3.4 Protected-Species Observer The Lessee must ensure that the exclusion zone for all G&G surveys performed in support of plan (i.e., SAP and COP) submittal is monitored by one or more NMFS - approved protected species observers around the sound source. The Lessee must provide to the Lessor a list of observers, their NMFS approval letters and their résumés no later than 15 calendar days prior to the scheduled start of surveys performed in support of plan submittal. The résumés of any additional observers must be provided and approved by BOEM prior to each observer's start date.	BOEM has found that 15 days is sufficient to review PSO qualifications and confirm that they are NMFS- approved PSOs. Additional PSOs may be approved as needed due to personnel changes prior to their work start date. PSO monitoring is not specifically required during the use of DP thrusters or USBL positioning equipment, however it may be required for vessel strike avoidance and in order to clear zones for other equipment in operation at the same time.

	The Lessor will send the observer information to NMFS for approval					
OCS-A 0483	Lease Conditions 4.3.6, 4.3.6.1, and 4.3.6.4 4.3.6 High-Resolution Geophysical (HRG) Surveys. Stipulations specific to HRG surveys conducted in support of plan (i.e., SAP and COP) submittal where one or more acoustic sound sources is operating at frequencies below 200 kHz are provided in 4.3.6.1 through 4.3.6.9: 4.3.6.1 Establishment of Default Exclusion Zone. The Lessee must ensure a 200-meter radius exclusion zone for cetaceans, pinnipeds, and sea turtles. The Lessee may not use HRG survey devices that emit sound levels that exceed the 180 dB Level A harassment radius (200 meter) boundary without approval by the Lessor. If the Lessor determines that the exclusion zone does not encompass the 180 dB Level A harassment radius, the Lessor may impose additional, relevant requirements on the Lessee, including but not limited to, required expansion of this exclusion zone. 4.3.6.4 Clearance of Exclusion Zone. The Lessee must ensure that active acoustic sound sources will not be activated until the protected species observer has reported the exclusion zone clear of all cetaceans, pinnipeds, and sea turtles for 60 minutes	Dominion Energy is requesting a waiver from lease stipulation 4.3.6 to waive the conditions of 4.3.6.1 and 4.3.6.4 as follows. Dominion Energy is requesting a waiver from lease stipulation 4.3.6.1 as it applies to the size of the default exclusion zone for HRG Surveys where one or more acoustic sound sources is operating at frequencies below 200 kHz, with the exception of DP Thrusters and USBL as that equipment is part of standard vessel operation and is unlikely to result in harassment of marine mammals, in order to align with conditions on exclusion zones imposed by the IHA as follows: • 500-m (1,640-ft) North Atlantic right whale exclusion zone; • 100-m (328-ft) non-delphinid large cetacean and ESA-listed marine mammal exclusion zone; • 20-m (66-ft) Level A exclusion zone; and • 200-m (656-ft) monitoring zone for all marine mammals except those species otherwise excluded above. Additionally, Dominion Energy requests that use of DP thrusters and USBL positioning systems not be subject to the same requirements as other HRG survey equipment that operates below 200 kHz, as that equipment is part of standard vessel operation and is unlikely to result in harassment of marine mammals. We are also requesting a waiver from 4.3.6.4 as it applies to the time required for clearance of the exclusion zone in order to align with conditions on exclusion zones imposed by the IHA as follows: • 30-minute clearance period for ESA-listed whales, humpback whales, Kogia, and beaked whales; and,	The use of DP thrusters and USBL positioning systems should not be subject to the same requirements as other HRG survey equipment that operates below 200 kHz, as that equipment is part of standard vessel operation and is unlikely to result in harassment of marine mammals.	P	The use of DP thrusters and USBL positioning systems is not subject to the same requirements as other HRG survey equipment that operate below 200 kHz, as that equipment is part of standard vessel operation and is unlikely to result in harassment of marine mammals.	DP thrusters and USBL positioning systems are standard vessel operating equipment that are unlikely to result in the take of protected species, however, standard mitigation measures for geotechnical and geophysical surveys, and for vessel strike avoidance still apply. BOEM cannot approve changes in exclusion zones or clearance periods at this time, however, upon receipt of the IHA, exclusion zones and clearance time periods may be altered from those specified in the lease stipulations to the exclusion zones and clearance time periods specified in the IHA. Please provide BOEM with the final IHA once issued.

		• 15-minute period for small cetaceans and seals.				
OCS-A 0483	Lease Condition 4.3.6.7 Power Down for Delphinoid Cetaceans and Pinnipeds. If a delphinoid cetacean or pinniped is sighted at or within the exclusion zone, the electromechanical survey equipment must be powered down to the lowest power output that is technically feasible. The vessel operator must comply immediately with such a call by the observer. Any disagreement or discussion must occur only after power-down. Subsequent power up of the electromechanical survey equipment must use the ramp-up provisions described in 4.3.6.5 and may occur after (1) the exclusion zone is clear of delphinoid cetaceans and pinnipeds or (2) a determination by the observer after a minimum of 10 minutes of observation that the delphinoid cetacean or pinniped is approaching the vessel or towed equipment at a speed and vector that indicates voluntary approach to bow-ride or chase towed equipment An incursion into the exclusion zone by a non-delphinoid cetacean or sea turtl~ during a power-down requires implementation of the shutdown procedures described in 4.3.6.6.	4.3.6.7 Power Down for Delphinoid Cetaceans and Pinnipeds. *If a delphinoid cetacean or pinniped is sighted at or within the exclusion zones* ***defined in the IHA****, the electromechanical survey equipment must be powered down to the lowest power output that is technically feasible. The vessel operator must comply immediately with such a call by the observer. Any disagreement or discussion must occur only after power-down. Subsequent power up of the electromechanical survey equipment must use the ramp-up provisions described in 4.3.6.5 and may occur after (1) the exclusion zone is clear of delphinoid cetaceans and pinnipeds.* ***HRG survey equipment may continue operating if marine mammals voluntarily approach the vessel (e.g., to bow ride) when the sound sources are at full operating power.*** *An incursion into the exclusion zone by a nondelphinoid cetacean or sea turtle during a power-down requires implementation of the shutdown procedures described in 4.3.6.6.*	Dominion Energy is requesting a waiver from lease stipulation 4.3.6.7 to waive the requirement to shut down if a marine mammal voluntarily approaches the vessel. Dominion Energy is making this request to align the stipulations with more recent guidance that has been issued for power down and shut down procedures on other offshore wind projects.	N	Lease Condition 4.3.6.7 Power Down for Delphinoid Cetaceans and Pinnipeds. If a delphinoid cetacean or pinniped is sighted at or within the exclusion zone, the electromechanical survey equipment must be powered down to the lowest power output that is technically feasible. The vessel operator must comply immediately with such a call by the observer. Any disagreement or discussion must occur only after power-down. Subsequent power up of the electromechanical survey equipment must use the ramp-up provisions described in 4.3.6.5 and may occur after (1) the exclusion zone is visually clear of delphinoid cetaceans and pinnipeds or (2) or the appropriate observation period has elapsed. An incursion into the exclusion zone by a non-delphinoid cetacean or sea turtle during a power-down requires implementation of the shutdown procedures described in 4.3.6.6.	Not at this time, however, upon receipt of an IHA that states that HRG equipment may continue operating if the PSO determines that delphinoid species or pinnipeds are voluntarily approaching the vessel or towed equipment at a speed and vector that indicates voluntary approach to bow-ride or chase towed equipment, BOEM will re-assess.
OCS-A 0483	Lease Stipulations 4.3.7, 4.3.7.1, and 4.3.7.2 4.3.7 Geotechnical Exploration. Stipulations specific to geotechnical exploration limited to borings and vibracores and conducted in support of plan (i.e., SAP and COP) submittal are provided in 4.3.7.1 through 4.3.7.4. 4.3.7.1 Establishment of Default Exclusion Zone. The Lessee must ensure a 200-meter default	Dominion Energy is requesting a waiver from lease stipulation 4.3.7 to waive the conditions of 4.3.7.1 and 4.3.7.2 as follows. Dominion Energy is requesting a waiver from lease stipulation 4.3.7 to waive the conditions of 4.3.7.1 and 4.3.7.2 as follows. Additionally, Dominion Energy requests a waiver from Lease stipulation 4.3.7.2 as it applies to the time required for clearance of the exclusion zone for geotechnical surveys in order to align with conditions on exclusion zones imposed by the IHA as follows:	Dominion Energy requests a waiver from Lease stipulation 4.3.7.1 as is applies to the size of the default exclusion zone for geotechnical surveys in order to align with conditions on exclusion zones imposed by the IHA as follows: • 500-m (1,640-ft) North Atlantic right whale exclusion zone; • 100-m (328-ft) non-delphinid large cetacean and ESA-listed marine mammal exclusion zone; • 20-m (66-ft) Level A exclusion zone; and • 200-m (656-ft) monitoring zone for all marine mammals except those species otherwise excluded above.	N	Upon receipt of an IHA, exclusion zones and time periods may be altered from those in the lease stipulations to those outlined in the final IHA.	Not at this time, however, upon receipt of an IHA, exclusion zones and time periods may be altered from those in the lease stipulations to those outlined in the final IHA Please provide BOEM with the final IHA when it is completed.

	exclusion zone for cetaceans, pinnipeds, and sea turtles. The Lessee may not use geotechnical survey equipment that emits sound levels that exceed the 120 dB Level B harassment radius (200 meter) boundary without approval by the Lessor. If the Lessor determines that the exclusion zone does not encompass the 120 dB Level B harassment radius, the Lessor may impose additional, relevant requirements on the Lessee, including but not limited to, required expansion of this exclusion zone. 4.3.7.2 Clearance of Exclusion Zone. The Lessee must ensure that the geotechnical sound source is not activated until the observer has reported the exclusion zone clear of all cetaceans, pinnipeds, and sea turtles for 60 minutes	• 30-minute clearance period for ESA-listed whales, humpback whales, Kogia, and beaked whales; and, • 15-minute period for small cetaceans and seals as follows: • 500-m (1,640-ft) North Atlantic right whale exclusion zone; • 100-m (328-ft) non-delphinid large cetacean and ESA-listed marine mammal exclusion zone; • 20-m (66-ft) Level A exclusion zone; and • 200-m (656-ft) monitoring zone for all marine mammals except those species otherwise excluded above. Additionally, Dominion Energy requests a waiver from Lease stipulation 4.3.7.2 as it applies to the time required for clearance of the exclusion zone for geotechnical surveys in order to align with conditions on exclusion zones imposed by the IHA as follows: • 30-minute clearance period for ESA-listed whales, humpback whales, Kogia, and beaked whales; and, • 15-minute period for small cetaceans and seals				

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

ADDENDUM "C"

LEASE-SPECIFIC TERMS, CONDITIONS, AND STIPULATIONS

Lease Number OCS-A 0483

The Lessee's rights to conduct activities on the leased area are subject to the following terms, conditions, and stipulations. The Lessor reserves the right to impose additional terms, and conditions incident to the future approval or approval with modifications of plans, such as a Site Assessment Plan (SAP) or Construction and Operations Plan (COP).

1 DEFINITIONS

1.1 Definition of "Archaeological Resource": The term "archaeological resource" has the same meaning as "archaeological resource" in BOEM regulations provided in 30 CFR 585.112.

1.2 Definition of "Dynamic Management Area (DMA)": The term "DMA" refers to a temporary area designated by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and consisting of a circle around a confirmed North Atlantic right whale sighting. The radius of this circle expands incrementally with the number of whales sighted, and a buffer is included beyond the core area to allow for whale movement. Mandatory or voluntary speed restrictions may be applied by NOAA NMFS within DMAs. Information regarding the location and status of applicable DMAs is available from the NMFS Office of Protected Resources.

1.3 Definition of "Effective Date": The term "Effective Date" has the same meaning as "effective date" in BOEM regulations provided in 30 CFR 585.237.

1.4 Definition of "Geological and Geophysical Survey (G&G Survey)": The term "G&G Survey" serves as a collective term for surveys that collect data on the geology of the seafloor and landforms below the seafloor. High resolution geophysical surveys and geotechnical (sub-bottom) sampling are components of G&G surveys.

1.5 Definition of "Geotechnical Exploration": The term "Geotechnical Exploration" is used to refer to site-specific sediment and underlying geologic data acquired from the seafloor and the sub-bottom and includes geotechnical surveys utilizing borings, vibracores, and cone penetration tests.

1.6 Definition of "High Resolution Geophysical Survey (HRG Survey)": The term "HRG Survey" means a marine remote-sensing survey using electromechanical survey equipment. This equipment includes, but is not limited to, such equipment as side-scan sonar, magnetometer, shallow and medium (Seismic) penetration sub-bottom profiler systems, narrow beam or multibeam echo sounder, or other such equipment employed for the purposes of providing data on geological conditions, identifying shallow hazards, identifying archaeological resources, charting bathymetry, and gathering other site characterization information.

1.7 Definition of "Listed Species": The term "listed species," also referred to in adjective form as "listed," means any species of fish, wildlife, or plant that has been determined to be endangered or threatened under Section 4 of the Endangered Species Act. Listed species are provided in 50 CFR 17.11-17.12.

1.8 Definition of "Protected-Species Observer": The term "protected-species observer," or "observer," means an individual who is trained in the shipboard identification and behavior of protected species. Protected species include marine mammals (those protected under the Endangered Species Act and those protected under the Marine Mammal Protection Act) and sea turtles.

1.9 Definition of "Ramp-up": The term "ramp-up" means the process of incrementally increasing the acoustic source level of the survey equipment when conducting HRG surveys until it reaches the operational setting.

1.10 Definition of "Site Assessment Activities": The term "site assessment activities" or "site assessment," has the same meaning as "site assessment activities" in 30 CFR 585.112.

1.11 Definition of "Qualified Marine Archaeologist": The term "qualified marine archaeologist" means a person retained by the Lessee who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (48 FR 44738-44739), and has experience analyzing marine geophysical data.

1.12 Definition of "Take": The terms "Takes" and "Taken" and "Taking" have the same meaning as the term "take" as defined in 16 U.S.C. § 1532(19).

2 SCHEDULE

2.1 Site Characterization

2.1.1 Survey Plans.

2.1.1.1 SAP Survey Plan. If the Lessee proposes to conduct site assessment activities during the site assessment term, then the Lessee must submit to the Lessor a complete SAP survey plan. This SAP survey plan must include details of any surveys to be conducted on this lease necessary to support the submission of a SAP (i.e., necessary to satisfy the information requirements in the applicable regulations, including but not limited to 30 CFR 585.606, 610, 611).

The Lessee must submit the SAP survey plan to the Lessor 30 calendar days prior to the date of the required pre-survey meeting with the Lessor (See 2.1.2). The Lessor may require that the Lessee modify the SAP survey plan to address any comments the Lessor submits to the Lessee on the contents of the SAP survey plan in a manner deemed satisfactory to the Lessor prior to the commencement of any survey activities described in the SAP survey plan.

2.1.1.2 COP Survey Plan. The Lessee must submit to the Lessor for review a complete COP survey plan providing details and timelines of the surveys to be conducted on this lease that are necessary to support the submission of a COP (i.e., necessary to satisfy the information requirements in the applicable regulations, including but not limited to 30 CFR 585.621, 626, 627). The COP survey plan must be submitted to the Lessor no later than on the first anniversary of this lease's Effective Date and at least 30 calendar days prior to the date of the pre-survey meeting with the Lessor (see 2.1.2). The Lessee must modify the COP survey plan to address any comments the Lessor submits to the Lessee on the contents of the COP survey plan in a manner deemed satisfactory to the Lessor prior to the commencement of these survey activities.

2.1.2 Pre-Survey Meeting with the Lessor. At least 60 calendar days prior to the initiation of survey activities in support of the submission of a plan (i.e., SAP and COP), the Lessee must hold a pre-survey meeting with the Lessor to discuss the applicable proposed survey plan and timelines. The Lessee must ensure the presence of a Qualified Marine Archaeologist at this meeting (See 4.2.2).

2.1.3 HRG Survey Milestone. The Lessee must complete the HRG surveys that are necessary to support the submission of a COP no later than the third anniversary of this lease's Effective Date. The Lessee must include this milestone in the COP survey plan (See 2.1.1.2).

2.2 Progress Reporting

2.2.1 Semi-Annual Progress Report. The Lessee must submit to the Lessor a semi-annual (i.e., every six months) progress report through the duration of the site assessment term that includes a brief narrative of the overall progress since the last progress report, or – in the case of the first report – since the Effective Date. The progress report must include an update regarding progress in executing the activities included in the survey plans, and include as an enclosure updated survey plans accounting for any modifications in schedule.

3 NATIONAL SECURITY AND MILITARY OPERATIONS

The Lessee must comply with the requirements specified in stipulations 3.1, 3.2, and 3.3 when conducting site characterization activities in support of plan (i.e., SAP and COP) submittal.

3.1 Hold and Save Harmless

Whether compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the Lessee assumes all risks of damage or injury to persons or property, which occur in, on, or above the OCS, to any persons or to any property of any person or persons in connection with any activities being performed by the Lessee in, on, or above the OCS, if such injury or damage to such person or property occurs by reason of

the activities of any agency of the United States Government, its contractors, or subcontractors, or any of its officers, agents or employees, being conducted as a part of, or in connection with, the programs or activities of the individual military command headquarters (hereinafter "the appropriate command headquarters") listed in the contact information provided as an enclosure to this lease.

Notwithstanding any limitation of the Lessee's liability in Section 9 of the lease, the Lessee assumes this risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of its officers, agents, or employees. The Lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury in connection with the programs or activities of the command headquarters, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors, or subcontractors, or any of its officers, agents, or employees and whether such claims might be sustained under a theory of strict or absolute liability or otherwise.

3.2 Evacuation or Suspension of Activities

3.2.1 General. The Lessee hereby recognizes and agrees that the United States reserves and has the right to temporarily suspend operations and/or require evacuation on this lease in the interest of national security pursuant to Section 3(c) of this lease.

3.2.2 Notification. Every effort will be made by the appropriate military agency to provide as much advance notice as possible of the need to suspend operations and/or evacuate. Advance notice will normally be given before requiring a suspension or evacuation. Temporary suspension of operations may include but is not limited to the evacuation of personnel and appropriate sheltering of personnel not evacuated.

"Appropriate sheltering" means the protection of all Lessee personnel for the entire duration of any Department of Defense activity from flying or falling objects or substances and will be implemented by an order (oral and/or written) from the BOEM Office of Renewable Energy Programs (OREP) Program Manager, after consultation with the appropriate command headquarters or other appropriate military agency or higher Federal authority. The appropriate command headquarters, military agency or higher authority will provide information to allow the Lessee to assess the degree of risk to, and provide sufficient protection for, the Lessee's personnel and property.

3.2.3 Duration. Suspensions or evacuations for national security reasons will not generally exceed 72 hours; however, any such suspension may be extended by order of the OREP Program Manager. During such periods, equipment may remain in place, but all operations, if any, must cease for the duration of the temporary suspension if so directed by the OREP Program Manager. Upon cessation of any temporary suspension, the OREP Program Manager will immediately notify the Lessee such suspension has terminated and operations on the leased area can resume.

3.2.4 Lessee Point-of-Contact for Evacuation/Suspension Notifications. The Lessee must inform the Lessor of the persons/offices to be notified to implement the terms of 3.2.2 and 3.2.3.

3.2.5 Coordination with Command Headquarters. The Lessee must establish and maintain early contact and coordination with the appropriate command headquarters, in order to avoid or minimize the potential to conflict with and minimize the potential effects of conflicts with military operations.

3.2.6 Reimbursement. The Lessee is not entitled to reimbursement for any costs or expenses associated with the suspension of operations or activities or the evacuation of property or personnel in fulfillment of the military mission in accordance with 3.2.1 through 3.2.5 above.

3.3 Electromagnetic Emissions

The Lessee, prior to entry into any designated defense operating area, warning area, or water test area for the purpose of commencing survey activities undertaken to support SAP or COP submittal, must enter into an agreement with the commander of the appropriate command headquarters to coordinate the electromagnetic emissions associated with such survey activities. The Lessee must ensure that all electromagnetic emissions associated with such survey activities are controlled as directed by the commander of the appropriate command headquarters.

4 STANDARD OPERATING CONDITIONS

4.1 General

4.1.1 Vessel Strike Avoidance Measures. The Lessee must ensure that all vessels conducting activities in support of plan (i.e., SAP and COP) submittal comply with the vessel-strike avoidance measures specified in stipulations 4.1.1.1 through 4.1.1.7, except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question.

4.1.1.1 The Lessee must ensure that vessel operators and crews maintain a vigilant watch for cetaceans, pinnipeds, and sea turtles and slow down or stop their vessel to avoid striking these protected species.

4.1.1.2 The Lessee must ensure that all vessel operators comply with 10 knot (18.5 km/hr) speed restrictions in any Dynamic Management Area (DMA). In addition, the Lessee must ensure that all vessels operating from November 1 through April 30 operate at speeds of 10 knots (18.5 km/hr) or less.

4.1.1.3 North Atlantic right whales.

4.1.1.3.1 The Lessee must ensure all vessels maintain a separation distance of 500 meters (1,640 ft) or greater from any sighted North Atlantic right whale.

4.1.1.3.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 500 meters (1,640 ft) of any North Atlantic right whale:

4.1.1.3.2.1 If underway, any vessel must steer a course away from the North Atlantic right whale at 10 knots (18.5 km/h) or less until the 500 meters (1,640 ft) minimum separation distance has been established (except as provided in 4.1.1.3.2.2).

4.1.1.3.2.2 If a North Atlantic right whale is sighted within 100 meters (328 ft) to an underway vessel, the vessel operator must immediately reduce speed and promptly shift the engine to neutral. The vessel operator must not engage the engines until the North Atlantic right whale has moved beyond 100 meters (328 ft).

4.1.1.3.2.3 If a vessel is stationary, the vessel must not engage engines until the North Atlantic right whale has moved beyond 100 meters (328 ft), at which point the Lessee must comply with 4.1.1.3.2.1.

4.1.1.4 Non-delphinoid cetaceans other than the North Atlantic right whale.

4.1.1.4.1 The Lessee must ensure all vessels maintain a separation distance of 100 meters (328 ft) or greater from any sighted non-delphinoid cetacean.

4.1.1.4.2 The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 100 meters (328 ft) of any non-delphinoid cetacean:

4.1.1.4.2.1 If any non-delphinoid cetacean is 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 beyond 100 meters (328 ft).

4.1.1.4.2.2 If a vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean has moved beyond 100 meters (328 ft).

4.1.1.5 Delphinoid cetaceans.

4.1.1.5.1 The Lessee must ensure that all vessels maintain a separation distance of 50 meters (164 ft) or greater from any sighted delphinoid cetacean.

4.1.1.5.2 The Lessee must ensure that the following avoidance measures are taken if the vessel comes within 50 meters (164 ft) of any delphinoid cetacean:

4.1.1.5.2.1 The Lessee must ensure that any vessel underway remain parallel to a sighted delphinoid cetacean's course whenever possible, and avoid excessive speed or abrupt changes in direction. The Lessee may not adjust course and speed until the delphinoid cetacean has moved beyond 50 meters (164 ft) or the delphinoid cetacean has moved abeam of the underway vessel.

4.1.1.5.2.2 The Lessee must ensure that any vessel underway reduce vessel speed to 10 knots (18.5 km/h) or less when pods (including mother/calf pairs) or large assemblages of delphinoid cetaceans are observed. The Lessee may not adjust course and speed until the delphinoid cetaceans have moved beyond 50 meters (164 ft) or abeam of the underway vessel.

4.1.1.6 Sea Turtles and Pinnipeds.

4.1.1.6.1 The Lessee must ensure all vessels maintain a separation distance of 50 meters (164 ft) or greater from any sighted sea turtle or pinniped.

4.1.1.7 Vessel Operator Briefing. The Lessee must ensure that all vessel operators are briefed to ensure they are familiar with the requirements specified in 4.1.1.

4.1.2 Marine Trash and Debris Prevention. The Lessee must ensure that vessel operators, employees, and contractors actively engaged in activity in support of plan (i.e., SAP and COP) submittal are briefed on marine trash and debris awareness and elimination, as described in the BSEE NTL No. 2012-G01 ("Marine Trash and Debris Awareness and Elimination") or any NTL that supercedes this NTL, except that the Lessor will not require the Lessee, vessel operators, employees, and contractors to undergo formal training or post placards. The Lessee must ensure that these vessel operator employees and contractors are made aware of the environmental and socioeconomic impacts associated with marine trash and debris and their responsibilities for ensuring that trash and debris are not intentionally or accidentally discharged into the marine environment. The above-referenced NTL provides information the Lessee may use for this awareness training.

4.2 Archaeological Survey Requirements

4.2.1 Archaeological Survey Required. The Lessee must provide the results of an archaeological survey with its SAP and COP.

4.2.2 Qualified Marine Archaeologist. The Lessee must ensure that the analysis of archaeological survey data collected in support of plan (i.e., SAP and COP) submittal and the preparation of archaeological reports in support of plan submittal are conducted by a Qualified Marine Archaeologist.

4.2.3 Tribal Pre-Survey Meeting. Subsequent to any pre-survey meeting with the Lessor (see 2.1.2) and at least 45 calendar days prior to commencing survey activities performed in support of plan (i.e., SAP and COP) submittal, the Lessee must invite by certified mail the Narragansett Indian Tribe, the Shinnecock Indian Nation, and the Lenape Tribe of Delaware to a tribal pre-survey meeting. The purpose of this meeting will be for the Lessee and the Qualified Marine Archaeologist to discuss the Lessee's Survey Plan and consider requests to monitor portions of the archaeological survey and the geotechnical sampling activities, including the visual logging and analysis of geotechnical samples (e.g., cores). The meeting must be scheduled for a date at least 30 calendar days prior to commencing survey and at a location and time that affords the participants a reasonable opportunity to participate. The anticipated date for the meeting must be identified in the timeline of activities described in the applicable survey plan (see 2.1.1).

4.2.4 Geotechnical Exploration. The Lessee may only conduct geotechnical exploration activities, including geotechnical sampling or other direct sampling or investigation techniques, which are performed in support of plan (i.e., SAP and COP) submittal, in locations where an analysis of the results of geophysical surveys has been completed. This analysis must include a determination by a Qualified Marine Archaeologist as to whether any potential archaeological resources are present in the area. Except as allowed by the Lessor under 4.2.6, the geotechnical exploration activities must avoid potential archaeological resources by a minimum of 50 meters, and the avoidance distance must be calculated from the maximum discernible extent of the archaeological resource. A Qualified Marine Archaeologist must certify, in the Lessee's archaeological reports, that geotechnical exploration activities did not impact potential historic properties identified as a result of the HRG surveys performed in support of plan submittal, except as follows: in the event that the geotechnical exploration activities did impact potential historic properties identified in the archaeological surveys without the Lessor's prior approval, the Lessee and the Qualified Marine Archaeologist who prepared the report must instead provide a statement documenting the extent of these impacts.

4.2.5 Monitoring and Avoidance. The Lessee must inform the Qualified Marine Archaeologist that he or she may be present during HRG surveys and bottom-disturbing activities performed in support of plan (i.e., SAP and COP) submittal to ensure avoidance of potential archaeological resources, as determined by the Qualified Marine Archaeologist (including bathymetric, seismic, and magnetic anomalies; side scan sonar contacts; and other seafloor or sub-surface features that exhibit potential to represent or contain potential archaeological sites or other historic properties). In the event that this Qualified Marine Archaeologist indicates that he or she wishes to be present, the Lessee must facilitate the Qualified Marine Archaeologist's presence, as requested by the Qualified Marine Archaeologist, and provide the Qualified Marine Archaeologist the opportunity to inspect data quality.

4.2.6 No Impact without Approval. In no case may the Lessee knowingly impact a potential archaeological resource without the Lessor's prior approval.

4.2.7 Post-Review Discovery Clauses. If the Lessee, while conducting site characterization activities in support of plan (i.e., SAP and COP) submittal, discovers a potential archaeological resource, such as the presence of a shipwreck (e.g., a sonar image or visual confirmation of an iron, steel, or wooden hull, wooden timbers, anchors, concentrations of historic objects, piles of ballast rock), prehistoric artifacts, or relict landforms, etc. within the project area, the Lessee must:

4.2.7.1 Immediately halt seafloor/bottom-disturbing activities within the area of discovery;

4.2.7.2 Notify the Lessor within 24 hours of discovery;

4.2.7.3 Notify the Lessor in writing via report to the Lessor within 72 hours of its discovery;

4.2.7.4 Keep the location of the discovery confidential and take no action that may adversely affect the archaeological resource until the Lessor has made an evaluation and instructs the applicant on how to proceed; and

4.2.7.5 Conduct any additional investigations as directed by the Lessor to determine if the resource is eligible for listing in the National Register of Historic Places (30 CFR 585.802(b)). The Lessor will do this if: (1) the site has been impacted by the Lessee's project activities; or (2) impacts to the site or to the area of potential effect cannot be avoided. If investigations indicate that the resource is potentially eligible for listing in the National Register of Historic Places, the Lessor will tell the Lessee how to protect the resource or how to mitigate adverse effects to the site. If the Lessor incurs costs in protecting the resource, under Section 110(g) of the National Historic Preservation Act, the Lessor may charge the Lessee reasonable costs for carrying out preservation responsibilities under the OCS Lands Act (30 CFR 585.802(c-d)).

4.3 Geological and Geophysical (G&G) Survey Requirements

4.3.1 General. The Lessee must ensure that all vessels conducting activity in support of a plan (i.e., SAP and COP) submittal comply with the geological and geophysical survey requirements specified in 4.3 except under extraordinary circumstances when the safety of the vessel or crew are in doubt or the safety of life at sea is in question.

4.3.2 Visibility. The Lessee must not conduct G&G surveys in support of plan (i.e., SAP and COP) submittal at any time when lighting or weather conditions (e.g., darkness, rain, fog, sea state) prevents visual monitoring of the HRG survey exclusion zone (see 4.3.6) or the geotechnical sampling exclusion zone (see 4.3.7), except as allowed under 4.3.3.

4.3.3 Modification of Visibility Requirement. If the Lessee intends to conduct G&G survey operations in support of plan submittal at night or when visual observation is otherwise impaired, the Lessee must submit to the Lessor an alternative monitoring plan detailing the alternative monitoring methodology (e.g., active or passive acoustic monitoring technologies). The Lessor may decide to allow the Lessee to conduct G&G surveys in support of plan submittal at night or when visual observation is otherwise impaired using the proposed alternative monitoring methodology.

4.3.4 Protected-Species Observer. The Lessee must ensure that the exclusion zone for all G&G surveys performed in support of plan (i.e., SAP and COP) submittal is monitored by one or more NMFS-approved protected-species observers around the sound source. The Lessee must provide to the Lessor a list of observers and their résumés no later than 45 calendar days prior to the scheduled start of surveys performed in support of plan submittal. The résumés of any additional observers must be provided at least 15 calendar days prior to each observer's start date. The Lessor will send the observer information to NMFS for approval.

4.3.5 Optical Device Availability. The Lessee must ensure that reticle binoculars and other suitable equipment are available to each observer to adequately perceive and monitor protected marine species within the exclusion zone during surveys conducted in support of plan (i.e., SAP and COP) submittal.

4.3.6 High-Resolution Geophysical (HRG) Surveys. Stipulations specific to HRG surveys conducted in support of plan (i.e., SAP and COP) submittal where one or more acoustic sound sources is operating at frequencies below 200 kHz are provided in 4.3.6.1 through 4.3.6.9:

4.3.6.1 Establishment of Default Exclusion Zone. The Lessee must ensure a 200-meter radius exclusion zone for cetaceans, pinnipeds, and sea turtles. The Lessee may not use HRG survey devices that emit sound levels that exceed the 180 dB Level A harassment radius (200 meter) boundary without approval by the Lessor. If the Lessor determines that the exclusion zone does not encompass the 180 dB Level A harassment radius, the Lessor may impose additional, relevant requirements on the Lessee, including but not limited to, required expansion of this exclusion zone.

4.3.6.2 HRG Survey Chesapeake Bay Seasonal Management Area (SMA) Right Whale Monitoring. The Lessee must ensure that between November 1 and April 30 vessel operators monitor National Marine Fisheries Service (NMFS) North Atlantic Right Whale reporting systems (e.g., the Early Warning System, Sighting Advisory System, and Mandatory Ship Reporting System) for the presence of North Atlantic right whales during HRG survey operations within or adjacent to this SMA.

4.3.6.3 Dynamic Management Area Shutdown Requirement. The Lessee must ensure that vessels cease HRG survey activities within 24 hours of NMFS establishing a DMA in the Lessee's HRG survey area. HRG surveys may resume in the affected area after the DMA has expired.

4.3.6.4 Clearance of Exclusion Zone. The Lessee must ensure that active acoustic sound sources will not be activated until the protected species observer has reported the exclusion zone clear of all cetaceans, pinnipeds, and sea turtles for 60 minutes.

4.3.6.5 Electromechanical Survey Equipment Ramp-Up. The Lessee must ensure that, when technically feasible, a "ramp-up" of the electromechanical survey equipment occurs at the start or re-start of HRG survey activities. A ramp-up would begin with the power of the smallest acoustic equipment for the HRG survey at its lowest power output. The power output would be gradually turned up and other acoustic sources added in a way such that the source level would increase in steps not exceeding 6 dB per 5-minute period.

4.3.6.6 Shutdown for Non-Delphinoid Cetaceans and Sea Turtles. If a non-delphinoid cetacean or sea turtle is sighted at or within the exclusion zone, an immediate shutdown of the electromechanical survey equipment is required. The vessel operator must comply immediately with such a call by the observer. Any disagreement or discussion must occur only after shutdown. Subsequent restart of the electromechanical survey equipment may only occur following clearance of the exclusion zone (see 4.3.6.4) and implementation of ramp-up procedures (see 4.3.6.5).

4.3.6.7 Power Down for Delphinoid Cetaceans and Pinnipeds. If a delphinoid cetacean or pinniped is sighted at or within the exclusion zone, the electromechanical survey equipment must be powered down to the lowest power output that is technically feasible. The vessel operator must comply immediately with such a call by the observer. Any disagreement or discussion must occur only after power-down. Subsequent power up of the electromechanical survey equipment must use the ramp-up provisions described in 4.3.6.5 and may occur after (1) the exclusion zone is clear of delphinoid cetaceans and pinnipeds or (2) a determination by the observer after a minimum of 10 minutes of observation that the delphinoid cetacean or pinniped is approaching the vessel or towed equipment at a speed and vector that indicates voluntary approach to bow-ride or chase towed equipment. An incursion into the exclusion zone by a non-delphinoid cetacean or sea turtle during a power-down requires implementation of the shutdown procedures described in 4.3.6.6.

4.3.6.8 Pauses in Electromechanical Survey Sound Source. The Lessee must ensure that, if the electromechanical sound source shuts down for reasons other than encroachment into the exclusion zone by a non-delphinoid cetacean or sea turtle, including reasons such as, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, restart of the electromechanical survey equipment commences only after clearance of the exclusion zone (see 4.3.6.4) and implementation of ramp-up procedures (see 4.3.6.5). If the pause is less than 20 minutes the equipment may be restarted as soon as practicable at its operational level as long as visual surveys were continued diligently throughout the silent period and the exclusion zone remained clear of cetaceans, pinnipeds, and sea turtles. If visual surveys were not continued diligently during the pause of 20-minutes or less, the Lessee must restart the electromechanical survey equipment following clearance of the exclusion zone (see 4.3.6.4) and implementation of ramp-up procedures (see 4.3.6.5).

4.3.6.9 Compliance with Equipment Noise Standards. All HRG survey equipment used by the Lessee must comply with applicable equipment noise standards of the U.S. Environmental Protection Agency (EPA), unless directed otherwise by the Lessor. All HRG survey equipment, even if modified from the original, must have noise-control devices no less effective than those provided on the original equipment.

4.3.7 Geotechnical Exploration. Stipulations specific to geotechnical exploration limited to borings and vibracores and conducted in support of plan (i.e., SAP and COP) submittal are provided in 4.3.7.1 through 4.3.7.4.

4.3.7.1 Establishment of Default Exclusion Zone. The Lessee must ensure a 200-meter default exclusion zone for cetaceans, pinnipeds, and sea turtles. The Lessee may not use geotechnical survey equipment that emits sound levels that exceed the 120 dB Level B harassment radius (200 meter) boundary without approval by the Lessor. If the Lessor determines that the exclusion zone does not encompass the 120 dB Level B harassment radius, the Lessor may impose additional, relevant requirements on the Lessee, including but not limited to, required expansion of this exclusion zone.

4.3.7.2 Clearance of Exclusion Zone. The Lessee must ensure that the geotechnical sound source is not activated until the observer has reported the exclusion zone clear of all cetaceans, pinnipeds, and sea turtles for 60 minutes.

4.3.7.3 Shutdown for Non-Delphinoid Cetaceans and Sea Turtles. If any non-delphinoid cetaceans or sea turtles are sighted at or within the exclusion zone, an immediate shutdown of the geotechnical survey equipment is required. The vessel operator must comply immediately with such a call by the observer. Any disagreement or discussion must occur only after shutdown. Subsequent restart of the geotechnical survey equipment may only occur following clearance of the exclusion zone (see 4.3.7.2).

4.3.7.4 Pauses in Geotechnical Survey Sound Source. The Lessee must ensure that, if the geotechnical sound source shuts down for reasons other than encroachment into the exclusion zone by a non-delphinoid cetacean or sea turtle, including reasons such as, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, restart of the geotechnical survey equipment commences only following clearance of the exclusion zone (see 4.3.7.2). If the pause is less than 20 minutes, the equipment may be restarted as soon as practicable as long as visual surveys were continued diligently throughout the silent period and the exclusion zone remained clear of cetaceans, pinnipeds, and sea turtles. If visual surveys were not continued diligently during the pause of 20 minutes or less, the Lessee may restart the geotechnical survey equipment only after clearance of the exclusion zone (see 4.3.7.2).

4.4 Protected-Species Reporting Requirements

The Lessee must ensure compliance with the following reporting requirements for site characterization activities performed in support of plan (i.e., SAP and COP) submittal and must use the contact information provided as an enclosure to this lease, or updated contact information as provided by the Lessor, to fulfill these requirements:

4.4.1 Reporting Injured or Dead Protected Species. The Lessee must ensure that sightings of any injured or dead protected species (e.g., marine mammals, sea turtles or sturgeon) are reported to the Lessor, NMFS, and the NMFS Northeast Regional Stranding Hotline within 24 hours of sighting, regardless of whether the injury or death is caused by a vessel. In addition, if the injury or death was caused by a collision with a project-related vessel, the Lessee must ensure that the Lessor is notified of the incident within 24 hours. The Lessee must use the form provided in Appendix A to ADDENDUM "C" to report the sighting or incident. If the Lessee's activity is responsible for the injury or death, the Lessee must ensure that the vessel assist in any salvage effort as requested by NMFS.

4.4.2 Protected Species Observer Reports. The Lessee must ensure that the protected-species observer record all observations of protected species using standard marine mammal observer data collection protocols. The list of required data elements for these reports is provided in Appendix B to ADDENDUM "C".

4.4.3 Final Report of G&G Survey Activities and Observations. The Lessee must provide the Lessor with a report within 90 calendar days following the commencement of HRG or geotechnical sampling activities that includes a summary of survey activities, all protected-species observer reports, a summary of the survey activities and an estimate of the number of listed marine mammals and sea turtles observed and/or Taken during these survey activities.

4.4.4 Marine Mammal Protection Act Authorization(s). If the Lessee is required to obtain an authorization pursuant to section 101(a)(5) of the Marine Mammal Protection Act prior to conducting survey activities, then the Lessee must provide to the Lessor a copy of the authorization prior to commencing these activities.

5 COORDINATION

5.1 Notification. The Lessor will endeavor to notify the Lessee of any activity that the Lessor authorizes or funds that the Lessor has determined may affect the activities of the Lessee within the lease area.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

APPENDIX "A" TO ADDENDUM C

Lease Number OCS-A 0483

INCIDENT REPORT: PROTECTED SPECIES INJURY OR MORTALITY

Photographs and/or video footage should be taken of all injured or dead animals, if possible.

Observer's full name and/or Reporter's full name: _____

Date and Time animal observed: _____

Date and Time animal/samples collected: _____

Location of Incident (Latitude/Longitude): _____

Species Identification (closest taxonomic level possible): _____

Photograph/Video footage collected: YES / NO If Yes, was the data provided to NMFS? YES / NO

Name of vessel, vessel speed at time of incident, and activity ongoing at time of observation (e.g., transit, survey, pile driving): _____

_____

Environmental conditions at time of observation (i.e., Beaufort sea state, cloud cover, wind speed, glare):

_____

_____

Water temperature (°C) and depth at site of observation: _____

Describe location of animal and events leading up to, including, and after, the incident: _____

_____

Status of all sound-source use in the 24 hours preceding the incident: _____

_____

Describe all marine mammal, sea turtle, and sturgeon observations in the 24 hours preceding the incident:

_____

_____

_____

Marine Mammal information:

Injuries observed: _____

Condition/description of animal: _____

_____

_____

Other remarks: _____

_____

_____

Date and time incident reported to NMFS Stranding Hotline: _____

_____

Sturgeon Information:

Fork length (or total length): _____ Weight: _____

Condition of specimen/description of animal:

_____
_____
_____
_____

Fish Decomposed: NO SLIGHTLY MODERATELY SEVERELY

Fish tagged: YES / NO *Please record all tag numbers*. Tag #: _____

Photograph taken: YES / NO
(please label *species, date, geographic site* and *vessel name* when transmitting photo)

Genetics sample taken: YES / NO

Genetics sample transmitted to: _____ on (mm/dd/yyyy)_____

Sea Turtle Species Information: *(please designate cm/m or inches)*

Weight (kg or lbs): _____

Sex (circle): Male Female Unknown How was sex determined? _____

Straight carapace length: _____Straight carapace width: _____

Curved carapace length: _____ Curved carapace width: _____

Plastron length: _____ Plastron width: _____

Tail length: _____ Head width: _____

Condition of specimen/description of animal: _____

_____

_____

_____

Existing Flipper Tag Information

Left: _____ Right: _____

PIT Tag #: _____

Miscellaneous:

Genetic biopsy taken: YES / NO

Photos taken: YES / NO

Turtle Release Information:

Date: _____ Time: _____

Latitude: _____Longitude: _____

State: _____ County: _____

Remarks: (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, old tag locations, etc.):

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

Appendix B to ADDENDUM "C"

Lease Number OCS-A 0483

REQUIRED DATA ELEMENTS FOR PROTECTED SPECIES OBSERVER REPORTS

Per ADDENDUM "C", 4.4.2, the Lessee must ensure that the protected-species observer record all observations of protected species using standard marine mammal observer data collection protocols. The list of required data elements for these reports is provided below:

1. Vessel name;
2. Observers' names and affiliations;
3. Date;
4. Time and latitude/longitude when daily visual survey began;
5. Time and latitude/longitude when daily visual survey ended; and
6. Average environmental conditions during visual surveys including:
    a. Wind speed and direction;
    b. Sea state (glassy, slight, choppy, rough, or Beaufort scale);
    c. Swell (low, medium, high, or swell height in meters); and
    d. Overall visibility (poor, moderate, good).
7. Species (or identification to lowest possible taxonomic level);
8. Certainty of identification (sure, most likely, best guess);
9. Total number of animals;
10. Number of juveniles;
11. Description (as many distinguishing features as possible of each individual seen, including length, shape, color and pattern, scars or marks, shape and size of dorsal fin, shape of head, and blow characteristics);
12. Direction of animal's travel – related to the vessel (drawing preferably);
13. Behavior (as explicit and detailed as possible; note any observed changes in behavior);
14. Activity of vessel when sighting occurred.

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ADDENDUM "D"

PROJECT EASEMENT

Lease Number OCS-A 0483

This section includes a description of the Project Easement(s), if any, associated with this lease, and the financial terms associated with it. This section will be updated as necessary.

I. Rent

The Lessee must begin submitting rent payments for any project easement associated with this lease commencing on the date that BOEM approves the Construction and Operations Plan (COP) or modification of the COP describing the project easement. Annual rent for a project easement 200 feet wide, centered on the transmission cable, is $70.00 per statute mile. For any additional acreage required, the Lessee must also pay the greater of $5.00 per acre per year or $450.00 per year.

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ADDENDUM "E"

RENT SCHEDULE

Lease Number OCS-A 0483

This section includes a description of the schedule for rent payments that will be determined after the Construction and Operations Plan (COP) has been approved or approved with modifications. This section will be updated as necessary.

Unless otherwise authorized by the Lessor in accordance with the applicable regulations in 30 CFR Part 585, the Lessee must make rent payments as described below.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT

Lease Number OCS-A 0483

CONTACT INFORMATION FOR REPORTING REQUIREMENTS

The following contact information must be used for the reporting and coordination requirements specified in Addendum C, Stipulation 3:

United States Fleet Forces (USFF) N46
1562 Mitscher Ave, Suite 250
Norfolk, VA 23551
(757) 836-6206

The following contact information must be used for the reporting requirements in Addendum C, Stipulation 4.4:

Reporting Injured or Dead Protected Species

NOAA Fisheries Northeast Region's Stranding Hotline
800-900-3622

All other reporting requirements in Stipulation 4.4

Bureau of Ocean Energy Management
Environment Branch for Renewable Energy
Phone: 703-787-1340
Email: renewable_reporting@boem.gov

National Marine Fisheries Service
Northeast Regional Office, Protected Resources Division
Section 7 Coordinator
Phone: 978-281-9328
Email: incidental.take@noaa.gov; kellie.foster-taylor@noaa.gov

Vessel operators may send a blank email to ne.rw.sightings@noaa.gov for an automatic response listing all current DMAs.

Appendix B: Environmental Management Plan

DOMINION CVOW OCS-A 0483 ALPINE UXO SURVEYS

Environmental Management Plan: Marine Mammals and Sea Turtles Monitoring, Mitigation, and Reporting

Version 1
June 24, 2022

rpsgroup.com

DOMINION CVOW OCS-A 0483 ALPINE UXO SURVEYS

Environmental Management Plan: Marine Mammals and Sea Turtles Monitoring, Mitigation, and Reporting

Revision		
Date	**Version**	**Revision made**
24 Jun 2022	1	Draft issued for review

Approval for issue	
Stephanie Milne	24 June 2022

Contents

List of Acronyms

BOEM – Bureau of Ocean Energy Management

COP – Construction and Operations Plan

CVOW – Coastal Virginia Offshore Wind

DMA – Dynamic Management Area

DSLR – Digital Single Lens Reflex

ECR – Export Cable Route

EMP – Environmental Management Plan

ESA - Endangered Species Act

EZ – Exclusion zone

IHA- Incidental Harassment Authorization

IR- Infrared

kHz- Kilohertz

km - Kilometer

MMPA – Marine Mammal Protection Act

NARW – North Atlantic Right Whale

m - Meter

NMFS- National Marine Fisheries Service

NOAA- National Oceanographic and Atmospheric Administration

NVD- Night-vision device

OCS – Outer Continental Shelf

PSO – Protected Species Observer

UXO – Unexploded Ordinance

1 INTRODUCTION

Dominion has contracted with Alpine to undertake UXO surveys within Lease Area OCS-A 0483 and along the associated Export Cable Route (ECR). The details of the survey activities to be executed by Alpine are provided in the Dominion Coastal Virginia Offshore Wind (CVOW) Construction and Operations Plan (COP).

Alpine has selected RPS Group (RPS) to provide the team of Protected Species Observers (PSOs) to develop and execute an Environmental Management Plan (EMP) to ensure that vessel strike avoidance measures are implemented for marine protected marine species in accordance with the requirements set forth in Dominion's Lease as set forth by the Bureau of Ocean Energy Management (BOEM) and as described in this document.

1.1 Applicable Regulatory Documents and Permits

BOEM Lease OCS-A 0483 contains monitoring and strike avoidance requirements that apply to marine mammals and sea turtles.

The UXO survey shall be conducted in accordance with the measures stipulated in the Lease granted by BOEM. This document outlines the monitoring, reporting and strike avoidance procedures that will be applied during survey activities.

2 MARINE PROTECTED SPECIES

Marine protected species or protected species refers to any marine species for which dedicated monitoring and mitigation procedures will be implemented, including:

- All marine mammals (whales, dolphins, seals, porpoise)
- Sea turtles

3 ENVIRONMENTAL MONITORS

3.1 Staffing Plan

A team of three PSOs supplied by RPS will be on board each vessel that will be conducting 24-hour UXO survey operations to undertake visual watches, implement mitigation, and conduct data collection and reporting in accordance with procedures and practices included in the Dominion CVOW BOEM Lease.

A team of two PSOs supplied by RPS will be on board each vessel that will be conducting 12-hour UXO survey operations to undertake visual watches, implement mitigation, and conduct data collection and reporting in accordance with procedures and practices included in the Dominion CVOW BOEM Lease.

3.2 Roles and Responsibilities

Lead PSO

- Coordinate and Oversee PSO Operations and ensure compliance with monitoring requirements
- Visually monitor, detect, and identify marine mammals and determine distance to source
- Record and report marine mammal sightings, survey activities and environmental conditions according to survey plan
- Monitor and advise on sound source and vessel operations for compliance with the environmental requirements for the survey plan
- Communicate with the crew to implement mitigation actions as required by environmental protocols (including delays to initiation of survey equipment operating below 180kHz)
- Participate in daily meetings and drills with crew when appropriate

PSO

- Visually monitor, detect, and identify protected species
- Record and report according to survey plan
- Monitor and advise on sound source and vessel operations for compliance with the environmental requirements for the survey plan
- Communicate with the crew to implement mitigation actions as required by environmental protocols
- Participate in daily operation meeting with crew when appropriate

3.3 PSO Requirements

All PSOs will have completed a BOEM / NMFS approved protected species observer training program. PSOs will have relevant observation experience in the Atlantic or Gulf of Mexico. The CVs, PSO training certifications and NMFS approval letters of all proposed PSOs will be submitted to Alpine and Dominion such that they can be submitted to BOEM for review and approval at least two weeks prior to the start of survey operations.

4 MONITORING EQUIPMENT

4.1 Visual Monitoring Equipment

4.1.1 Day-time monitoring equipment

The PSO on duty will monitor for marine protected species using the naked eye and hand-held reticle binoculars. Digital single-lens reflex camera equipment will be provided to record sightings and verify species identification.

4.1.2 Night-time monitoring equipment

The PSO on duty will monitor for marine protected species using night vision goggles that will either be equipped with a thermal clip-on or a hand-held FLIR monocular will be provided. The specifications of this equipment are provided in Appendix A.

RPS has used this equipment on multiple renewable wind leases and have collected data on the detection distances of various species groups.

Note that this equipment will only be utilized on the vessels conducting 24-hour operations.

4.1.3 Distance estimation and calibration of equipment of visual monitoring equipment

Reticle binoculars have the capability to localize the distance to detected animals.

Reticle binoculars will be calibrated when possible, throughout the duration of the survey using the vessel radar, by comparing estimated distances to known distances and will be conducted during varying sea states and both at night and during the day. Calibration requires a clear view of the horizon and cannot be calibrated if the vessel is surrounded by land or reduced visibility.

At night, if reticles cannot be used to localize a detection, distance to detected animals will be determined using range finder sticks or by comparing the location of the animal to known distances, such as the length of the vessel.

5 VISUAL MONITORING PROCEDURES

5.1 Visual Monitoring Watches

PSOs will conduct visual watches during operations, as described below.

24-Hour Operations Vessels:

- One PSO will be on watch at all times during transit, day, or night.
- One PSO will be on watch at all times during daylight operations.
- One PSO will be on watch at all times during nighttime operations.

12-Hour Operations Vessels:

- One PSO will be on watch at all times during daylight transits.
- One PSO will be on watch at all times during daylight operations.

The following guidelines will apply to these watch periods:

- Other than brief alerts to bridge personnel of maritime hazards and the collection of ancillary wildlife data, no additional duties should be assigned to the PSO during his/her visual observation watch
- No PSO will be allowed more than four consecutive hours on watch as a visual observer before being allocated a two-hour break from visual monitoring
- No PSO will be assigned a combined watch schedule of more than 12 hours in a 24-hour period

The PSOs will stand watch in a suitable location that will not interfere with the navigation or operation of the vessel and affords an optimal view of the sea surface. PSOs will maintain 360° coverage surrounding the operational area of the vessel.

If a protected species is observed, the PSO should first take care of any necessary recommended actions, or if no actions are required, they will note and monitor the position (including latitude/longitude of the vessel and relative bearing and estimated range to the animal) until the animal dives or moves out of visual range of the observer.

5.2 Proposed Monitoring Schedules for 24-hour and 12-hour Operations

Table 1 PSO watch schedules

	LOCAL	A	B	C
Night	20:00			PSO
	21:00			PSO
	22:00		PSO	
	23:00		PSO	
	0:00			PSO
	1:00			PSO
	2:00		PSO	
	3:00		PSO	
	4:00	PSO		
	5:00	PSO		
Day	6:00			PSO
	7:00			PSO
	8:00	PSO		
	9:00			PSO
	10:00			PSO
	11:00	PSO		
	12:00	PSO		
	13:00		PSO	
	14:00		PSO	
	15:00		PSO	
	16:00	PSO		
	17:00	PSO		
	18:00	PSO		
	19:00		PSO	
	Monitoring	8	8	8
	Sleep break	9	9	9

	LOCAL	A	B
Day	6:00	PSO	
	7:00	PSO	
	8:00	PSO	
	9:00		PSO
	10:00		PSO
	11:00		PSO
	12:00	PSO	
	13:00	PSO	
	14:00		PSO
	15:00		PSO
	16:00	PSO	
	17:00	PSO	
	18:00		PSO
	19:00		PSO
	Monitoring	7	7

6 MITIGATION PROCEDURES: STRIKE AVOIDANCE

6.1 Vessel Speed Restriction

PSOs will monitor the following NMFS' NARW (North Atlantic Right Whale) reporting systems daily for the presence of NARWs and for the establishment of Dynamic Management Areas (DMAs):

- Whale Alert
- NOAA
  https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales
  https://www.fisheries.noaa.gov/resource/map/north-atlantic-right-whale-sightings

Vessel speed will be restricted to 10 knots or less inside any established DMA.

Vessels will be operated in accordance with the following Dominion Lease Requirements, including that vessels 19.8 meters (m) (65 feet [ft]) in length or greater that operate between November 1 through July 31, operate at speeds of 10 knots (11.5 mph) or less.

6.2 Separation Distances

6.2.1 North Atlantic Right Whale, ESA-listed species, and unidentified whales

All survey vessels will maintain a separation distance of 500 meters or greater from any sighted North Atlantic right whale (NARW), ESA-listed whale, and unidentified whale

- If sighted within 500 meters to underway vessel, reduce speed and shift the engine to neutral until the NARW has moved beyond 500 meters and out of path, then re-engage engines and steer away
- If sighted within 500 meters to underway vessel that is towing gear or otherwise navigationally constrained, reduce speed and steer a course away from any sighted NARW at 10 knots or less until the separation distance is achieved
- If a whale is observed but the species cannot be confirmed, it must be assumed to be a right whale and all applicable strike avoidance procedures for NARWs implemented

6.2.2 Other Non-Delphinoid Cetaceans

All survey vessels will maintain a separation distance of 100 meters or greater from all other species of whales

- If sighted within 100 meters to underway vessel, reduce speed and shift the engine to neutral until the NARW has moved beyond 100 meters and out of path, then re-engage engines and steer away
- If sighted within 100 meters to underway vessel that is towing gear or otherwise navigationally constrained, reduce speed and steer a course away from the animal at 10 knots or less until the separation distance is achieved

6.2.3 Small Cetaceans (dolphins and porpoise), Seals, and Sea Turtles

All vessels will maintain a separation distance of 50 meters or greater from any sighted small cetaceans (dolphins and porpoise), pinnipeds, and sea turtles.

- Underway vessel will remain parallel to a sighted delphinoid cetacean's, pinniped's, or sea turtle's course whenever possible, avoiding speed or direction changes until the animal has moved beyond 50 meters.

- Reduce vessel speed to 10 knots or less when pods (including mother/calf pairs) or large assemblages are observed
- DO NOT make abrupt changes to vessel course or speed

7 REPORTING

7.1 Data Forms

PSOs will utilize standardized data forms that have been provided. These forms will contain, at minimum, all the data elements listed below, and data will be recorded in the field daily.

- Vessel name;
- Observers' names and affiliations;
- Date and location of survey operations;
- Time and latitude/longitude when daily visual survey began;
- Time and latitude/longitude when daily visual survey ended;
- Average environmental conditions during visual surveys, including
  - Wind speed and direction;
  - Sea state (glassy, slight, choppy, rough, or Beaufort scale, tidal state);
  - Swell (low, medium, high, or swell height in meters); and
  - Weather conditions (i.e., percent cloud cover, visibility, percent glare); and
  - Overall visibility (poor, moderate, good);
- Species (or identification to lowest possible taxonomic level, sex, age, classification [if known], numbers);
- Certainty of identification (sure, most likely, best guess);
- Total number of animals;
- Number of juveniles;
- Time and location (i.e., distance from sound source) of observation;
- Description (as many distinguishing features as possible of each individual seen, including length, shape, color and pattern, scars or marks, shape and size of dorsal fin, shape of head, and blow characteristics);
- Direction of animal's travel – related to the vessel (drawing preferably);
- Reaction of the animal(s) to relevant sound source (if any) and behavior - as explicit and detailed as possible; note any observed changes in behavior (e.g., avoidance, approach) including bearing and direction of travel; and
- Activity of vessel when sighting occurred.

7.2 Reporting Observed Impacts to Protected Species

It will be the responsibility of the Lead PSO on duty to report any impacts to an ESA species to NMFS, BOEM and the RPS Project Manager as soon as practicably possible but no more than 48 hours of any observations concerning impacts to ESA listed species and no more than 24 hours of the take of any ESA listed species. The ESA listed species is not just marine mammals or sea turtles but includes giant manta rays.

The RPS Project Manager will send reports to:

On-board:
- Alpine Onboard Party Chief
- Dominion Representative

On-shore:
- Alpine Project Manager
- Dominion Offshore Permitting Manager
- Dominion Project Manager

7.3 Injured or Dead Protected Species Reporting

1. The PSO on watch will report the sightings of a dead and/or injured marine species to the Lead PSO, RPS project manager, on board client representative and Alpine Party Chief.
2. The Lead PSO will report any observed injury or mortality in accordance with NMFS standard reporting guidelines, as well as to the stranding hotline for BOEM and NMFS coordination of proper response. This will occur as soon as practicably possible but no more than 24 hours of the detection. The shore-based RPS Project Manager may collect the data and assist with the initial phone report.
3. A report will be sent to RPS on the first break.
4. The RPS office will submit the report, which will include details of the BOEM and NMFS notifications, to the following distribution list within 12 hours of the detection:

   On-board:
   - Alpine Onboard Party Chief
   - Dominion Representative

   On-shore:
   - Alpine Project Manager
   - Dominion Offshore Permitting Manager
   - Dominion Project Manager

It will be the responsibility of the designated Dominion representative to provide the report to NOAA and BOEM.

Unless otherwise directed by BOEM, NOAA Fisheries, or NOAA, the dead or injured marine mammal or sea turtle SHOULD NOT be touched! Dead and injured marine mammals and sea turtles are still protected by the ESA and the MMPA (Marine Mammal Protection Act) and touching the animals in any manner is considered harassment and is punishable by law.

7.4 Potential Vessel Non-Compliance for Protected Species

If a non-compliance is protected species related:

1. PSO notifies Lead PSO as soon as possible
2. Lead PSO informs Party Chief, Client Representative, RPS Project Manager, and COSW onshore of incident as soon as practicable.
3. PSO fills out Non-Compliance Report as soon as practicable.
4. Lead PSO submits Non-compliance report with daily report to distribution list unless otherwise instructed.

7.5 Daily Progress Report

A daily report will be completed and submitted to the Alpine Party chief, onboard client representative, RPS project manager, Dominion Project Manager and Dominion Offshore Permitting Manager. This will include an effort and detection summary. If there were no detections that day, the lead PSO will email the distribution list noting that there were no detections on that day.

7.6 Final Report

The PSO team will develop a final report summarizing the Dominion UXO survey activities and all PSO observations. The report will contain all of the data required to meet the requirements of the Lease reporting requirements.

Reports will be completed and submitted to the RPS Project Manager within 10 days of survey completion. The RPS Project Manager will provide the finalized report to the Alpine Project Manager within 30 days of project completion for review and comment by the Alpine and Dominion team.

The RPS Project Manager will submit the final report to Alpine and Dominion who will be responsible for submitting the report to BOEM and NMFS.

Appendix A Night Monitoring Equipment Specifications

A.1 Night Monitoring Equipment Specifications

Night monitoring watches were conducted with night vision goggles with head mounts and thermal clip-ons or handheld forward-looking infrared monocles. Regular night vision binoculars work by enhancing the disponible light to allow a brighter image with the use of phosphor screen. The PVS-7D night vision goggles (Figure 1) withstand water immersion and runs on two AA batteries for more than 40 hours. Also provided were three pairs of batteries and a batteries charger with the equipment.

Figure 1: Night vision goggles with thermal clip.

The thermal clip on the night vision binocular enabled the capture of infrared light, which provided thermal imaging. The handheld forward-looking infrared (FLIR) system may also be provided (Figure 2). This allows a bit more flexibility with the IR detached from the headpiece.

Figure 2: Handheld thermal FLIR.

Night Vision Goggle Technical Specifications

- Generation: 3 U.S.
- Resolution: 64 lp/mm (Min)
- Film: Thin-filmed
- Magnification: 1x
- Field of View: 40º
- Objective Lens: 25mm f/1.2
- Eyepiece Lens EFL: 26 mm
- Diopter Adjustment: +2 to -6
- Interpupillary Adjustment: 55 to 71 mm
- Range of Focus: 20cm to infinity
- Battery Type: Two (2) AA batteries
- Weight w/batteries: 24 oz / 680 grams
- Dimensions: 6 3/8”(L) x 6”(W) x 3”(H)
- Operating Temperature: -51°C to +52° C
- Weather Resistant: Yes
- IR Illuminator: Yes (built in)

Thermal Acquisition Clip-On Technical Specifications

- Field of View: 20° circular (centered)
- Magnification: 1X, optical unity
- Sensor: 320 x 240 Vox uncooled LWIR microbolometer
- Display Brightness: Adjustable
- Polarity: White hot/black hot
- Calibration: Manual
- Range: Detection – 300m, Recognition – 260m
- Compatibility: PVS-7
- Interface: Standard quick connect
- Battery Type: CR123, 3V lithium
- Battery Life: >3.0 hours (23°C), 2.5 hours (0°C)
- Dimensions: 38 x 64 x 89 mm (W x H x L)
- Weight: 166g with battery

Forward-looking Infrared (FLIR) Monocular Technical Specifications

- Dimensions: 5.5”(L) x 2.7”(W) x 1.9”(H)
- Weight: 0.46 pounds
- Detector Type: 320 x 256 V0x Microbolometer
- FOV: 24° x 19° (NTSC)
- Refresh Rate: 60 Hz
- Video Output: Digital Video
- Optical Magnification: 1x
- Display: Quad-VGA (1280 x 960) FLCOS
- Battery Type: One CR123A 3V Lithium Battery
- USB Power: 5 VDC

Appendix C: Protected Species Observers

Appendix C: List of PSOs

R/V Minerva Uno
PSOs onboard
Paola Diaz
Tamara Popovska
Britain Francisco
Yesenia Balderas
Daniel Ruz
Ana Cardenas
Victor Cancino
Laura Vallin
Alejandra Otero
Leo De La Rosa
Jessica Roberts
Ana Salomón
Elizabeth Bretón
Ana Lira
Chase Robert
Sachin Ramnarine
Jorge Simancas
Miguel Toxtle
Shane Mohammed

R/V Shearwater
PSOs onboard
Sofia Juarez
Gloria Ponce
Mario Reyes
Britney Roberts
Yosiris Osuna
Gregory Zmirak
Omar Salgado
Diego Gonzalez
Jaime Santiago
Daniela Gutierrez
Tiffany Ramdoo
Pablo Curiel
Duncan Breeze
Laura Cuevas
Caylin Ashcraft
Camila Azevedo
Felipe Rodriguez
Esmeralda Bravo
Rosario Garcia
Heber Huizar
Axel Maldonado

R/V Henry Hudson
PSOs onboard
Andrea Aguilar
Mario Reyes

Appendix D: Vessel Photos

Appendix D: Vessel Photos

Figure D - 1. R/V Minerva Uno

Figure D - 2. R/V Shearwater

Figure D - 3. R/V Henry Hudson

Appendix E: Reticle Binocular Calibration Table

Appendix E: Reticle Binocular Calibration Tables

Reticle Binocular Calibration Tables *R/V Minerva Uno*

Week #	Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
4	8/20/2022	Ana Cardenas	1430	1480	2	7	less than 2	Weather buoy used as reference
4	8/20/2022	Yesenia Balderas	1430	1480	2	7	less than 2	Weather buoy used as reference
4	8/21/2022	Daniel Ruz	358	365	1	5	less than 2	Touristic boat
5	8/24/2022	Yesenia Balderas	1430	1439	B1	5	0.2	Weather buoy as reference
5	8/28/2022	Daniel Ruz	715	731	B2	12	0.2	Vessel
5	8/26/2022	Ana Cardenas	1430	1426	B2	6	0.2	Vessel class A
6	9/2/2022	Daniel Ruz	1430	1350	2	6	<2	Cargo Vessel
6	9/3/2022	Yesenia Balderas	715	698	3	11	<2	Sport vessel
6	9/2/2022	Ana Cardenas	715	833	2	5	<2	Yatch in high speed
8	9/14/2022	Daniel Ruz	1430	1362	2	7	<2	Vessel
8	9/16/2022	Ana Cardenas	1430	1503	2	16	<2	Survey vessel
8	9/17/2022	Yesenia Balderas	1430	1535	2	10	<2	Cargo vessel
9	19-09-2022	Daniel Ruz	1430	1389	4	23	<2	Cargo Vessel
9	24-09-2022	Yesenia Balderas	715	698	5	25	<2	Weather bouy
9	25-09-2022	Ana Cardenas	1430	1512	4	18	<2	Weather bouy
11	10/7/2022	Yesenia B	715	775	2	8	less than 2	Cargo vessel as reference
11	10/7/2022	Daniel Ruz	1430	1528	2	14	less than 2	Cargo vessel as reference
12	10/10/2022	Victor Cancino	750	737	2	5	<2	Pleasure craft
12	10/10/2022	Laura Vallin	1519	1610	3	8	<2	Recreational vessel
12	10/13/2022	Alejandra Otero	1725	1500	2	10	<2	Recreational vessel "Jordan"
13	10/18/2022	Alejandra Otero	1450	1200	5	17	<2	Wagenborg vessel used
13	10/20/2022	Victor Cancino	1200	1345	4	10	<2	Brenda B - Scout vessel
13	10/22/2022	Laura Vallin	1600	1700	4	15	<2	Recreational vessel

14	10/26/2022	Victor Cancino	1800	1765	3	12	<2	Shearwater survey vessel
14	10/27/2022	Alejandra Otero	2900	3000	4	24	<2	Wind turbine
14	10/29/2022	Laura Vallin	207	228	2	9	<2	Commercial vessel
15	11/1/2022	Victor Cancino	700	685	2	4	<2	Cargo vessel at Norfolk channel
15	11/2/2022	Alejandra Otero	2600	2850	5	18	<2	Wind turbine
15	11/2/2022	Laura Vallin	2540	2315	4	14	<2	Meteorological buoy
16	11/6/2022	Laura Vallin	363	320	4	15	<2	Safety water buoy
16	11/7/2022	Alejandra Otero	2900	2780	1	5	<2	Wind Turbine
16	11/12/2022	Leo de la Rosa	1436	1500	2	9	<2	Tug boat
17	11/14/2022	Leo de la Rosa	775	800	3	9	<2	Used wind turbine base as ref.
17	11/15/2022	Alejandra Otero	2900	2780	3			Used wind turbine base as ref.
18	11/22/2022	Laura Vallin	484	500	2	10	<2	Meteorological buoy
18	11/24/2022	Leo de la Rosa	2870	2500	3	18	<2	Cargo vessel
18	11/24/2022	Alejandra Otero	1416	1390	3	16	<2	Cargo vessel
19	11/29/2022	Alejandra Otero	725	710	2	5	<2	Distance from Wind Turbine
19	12/3/2022	Leo de la Rosa	1436	1480	4	18	<2	Distance from Wind Turbine
20	12/6/2022	Leo de la Rosa	718	750	3	11	<2	Used Wind Turbine maintenance vessel to calibrate.
20	12/6/2022	Alejandra Otero	708	750	3	11	<2	Used Wind Turbine maintenance vessel to calibrate.
21	12/15/2022	Alejandra Otero	3150	2900	4	22	2- 4	CGM container vessel
21	12/17/2022	Leo de la Rosa	3200	2960	2	12	< 2	Unknown cargo vessel
21	12/17/2022	Jessica Roberts	Near horizon	9200	2	8	< 2	Cargo vessel near the horizon
22	12/19/2022	Jessica Roberts	3780	3900	3	11	<2	Used cargo vessel
22	12/21/2022	Alejandra Otero	1870	1812	3	9	<2	Used "Magic seas" vessel
22	12/22/2022	Leo de la Rosa	2870	3000	3	12	<2	Used traffic buoy
23	12/30/2022	Ana Salomon	2500	2800	2	9	<2	Cargo vessel lees than 1 reticule
23	12/30/2022	Elizabeth Flores	2631	2945	2	7	<2	Container ship as reference
24	1/2/2023	Ana Salomon	1304	1200	2	7	<2	Container ship as reference
24	1/3/2023	Elizabeth Flores	780	790	3	15	<2	Container ship as reference
24	1/2/2023	Jessica Roberts	957	900	2	8	<2	Container ship as reference
25	1/10/2023	Elizabeth Flores	1200	1800	3	9	<2	Container ship as reference
25	1/11/2023	Jessica Roberts	957	1000	2	16	<2	Shearwater (vessel) as a

								reference
26	1/19/2023	Elizabeth Flores	900	1200	3	14	<2	Vessel Shearwater as reference
28	1/29/2023	Ana Salomon	1350	1400	2	7	<2	Shearwater (less than one reticule)
28	1/29/2023	Jessica Roberts	2870	2565	3	15	<2	Shearwater (0.5 reticule)
28	2/2/2023	Elizabeth Flores	1560	2000	3	10	<2	Container ship as reference
29	5/2/2023	Jessica Roberts	2870	2860	3	10	<2	Shearwater (0.5 reticule)
30	2/14/2023	Elizabeth Flores	1200	1172	3	10	<2	R/V Shearwater as reference
30	2/15/2023	Jessica Roberts	2870	2564	3	10	<2	R/V Shearwater used
31	2/22/2023	Ana Lira	1780	1820	3	11	<2	Fishing boat-Robin Nest
31	2/25/2023	Sachin Ramnarine	1460	1367	3	10	<2	Recreational Fishing Vessel
32	3/4/2023	Ana Lira	1670	1740	4	13	<2	Cargo vessel
33	3/6/2023	Sachin Ramnarine	1710	1690	3	11	<2	Fishing boat
33	3/6/2023	Ana Lira	1490	1564	3	9	<2	Recreational Fishing Vessel
34	3/16/2023	Ana Lira	1436	1300	3	11	<2	R/V Shearwater
34	3/16/2023	Chase McShane	1500	1733	3	13	<2	R/V Shearwater
35	3/23/2023	Ana Lira	1560	1690	3	14	<2	Fishing vessel
36	3/28/2023	Ana Lira	1600	1500	2	6	<2	R/V Shearwater
36	3/28/2023	Chase McShane	2744	2800	2	6	<2	R/V Shearwater
36	3/28/2023	Sachin Ramnarine	1600	1500	2	6	<2	R/V Shearwater
37	4/4/2023	Ana Lira	1890	2008	3	10	<2	R/V Shearwater
37	4/4/2023	Chase McShane	2650	3200	3	11	<2	R/V Shearwater
37	4/4/2023	Sachin Ramnarine	1600	1500	2	6	<2	R/V Shearwater
38	4/12/2023	Chase McShane	2850	3464	2	8	<2	R/V Shearwater
38	4/13/2023	Ana Lira	488	479	3	11	<2	R/V Shearwater
38	4/14/2023	Sachin Ramnarine	2080	2187	3	12	<2	R/V Shearwater
40	4/24/2023	Miguel Toxtle	1422	1500	3	19	< 2 m	Sailing boat to portside
40	4/25/2023	Jorge Simancas	1436	1600	3	15	<2 m	sailing boat
41	4/30/2023	Jorge Simancas	1025	1043	3	9	<2	Marine buoy

Reticle Binocular Calibration Tables *R/V Shearwater*

Week #	Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
1	8/8/2022	Sofia Juarez	700	800	2	4.5	<2	fishing boat
1	8/8/2022	Gloria Ponce	750	800	2	4.5	<2	fishing boat
1	8/8/2022	Mario Reyes	750	800	2	4.5	<2	fishing boat
2	8/27/2022	Gloria Ponce	2500	2735	2	9	<2	Cargo Ship
2	8/28/2022	Britney Roberts	2850	2945	2	8	<2	Container Ship
3	8/21/2022	Gloria Ponce	950	965.6	2	6	<2	Reference: Tug
3	8/21/2022	Britney Roberts	1400	1455	2	10	<2	Container Ship
3	8/21/2022	Gregory Zmirak	1800	2160	2	5	<2	Container Ship
4	8/27/2022	Gloria Ponce	2500	2735	2	9	<2	Cargo Ship
4	8/27/2022	Gregory Zmirak	1800	1852	2	7	<2	Construction Vessel
4	8/28/2022	Britney Roberts	2850	2945	2	8	<2	Container Ship
5	9/3/2022	Diego Gonzalez	1650	1759	3	14	<2	Stacionary buoy
5	9/4/2022	Omar Salgado	467	463	2	7	<2	Touristic boat crossing parallel
5	9/4/2022	Gregory Zmirak	470	463	2	5.4	<2	Rec vessel passing parallel
7	9/15/2022	Gregory Zmirak	750	740.8	3	11.1	<2	Port buoy
7	9/16/2022	Omar Salgado	700	685.24	3	13.4	<2	Port buoy
7	9/18/2022	Diego Gonzalez	400	370	3	11.9	<2	Anchored container ship: Maersk
8	9/20/2022	Omar Salgado	467	509.3	3	3.2	<2	Anchored container ship: Maersk
8	9/21/2022	Diego Gonzalez	1550	1660	3	10.6	<2	Anchored container ship: Maersk
11	10/13/2022	Diego Gonzalez	3700	3880	3	12.6	<2	Container ship: Maersk
11	10/15/2022	Jaime Santiago	710	400	2	9.3	<2	No relevant fishing vessel
11	10/15/2022	Yosiris Osuna	473	400	2	9.3	<2	No relevant fishing vessel
12	10/20/2022	Diego Gonzalez	1111	1000	3	16.1	<2	Recreational fishing vessel
12	10/20/2022	Jaime Santiago	1550	1500	3	12.3	<2	Container ship
12	10/20/2022	Yosiris Osuna	1420	1609	3	15	<2	Container ship

13	10/25/2022	Daniela Gutierrez	5200	5700	2	12.4	<2	Cargo Ship
13	10/25/2022	Yosiris Osuna	3040	3218	3	12	<2	Navy ship crossing ahead
14	11/1/2022	Daniela Gutierrez	2500	2770	2	9.8	<2	Minerva I
14	11/2/2022	Yosiris Osuna	760	804	4	20	<2	Recreational fishing vessel
16	11/17/2022	Jaime Santiago	1400	1550	3	18	<2	Container ship
16	11/15/2022	Daniela Gutierrez	3300	3900	3	14	<2	Minerva I
16	11/15/2022	Yosiris Osuna	3218	3550	4	16	<2	Container ship
20	12/12/2022	Tiffany Ramdoo	450	510	2	14.5	<2	Close object
20	12/12/2022	Duncan Breeze	1000	850	2	16	<2	Close object
23	1/3/2023	Yosiris Osuna	2600	2350	2	11.2	<2	Coast guard vessel
23	1/3/2023	Duncan Breeze	2800	2760	2	10.3	<2	Container ship
24	1/10/2023	Yosiris Osuna	407	400	3	15.4	<2	Fishing buoy
24	1/10/2023	Duncan Breeze	690	700	3	16.6	<2	Fishing buoy
25	1/18/2023	Yosiris Osuna	2333	2574	3	13.2	<2	Minerva uno
26	1/23/2023	Laura Cuevas	1900	1931	2	10.6	<2	Container Ship
27	1/30/2023	Yosiris Osuna	2300	2414	2	7.9	<2	Calibrated with Minerva Uno
28	2/5/2023	Laura Cuevas	1200	1223	5	17.2	<2	Minerva Uno
29	2/15/2023	Laura Cuevas	1300	1368	4	13.3	<2	Minerva Uno
29	2/18/2023	Caylin Ashcraft	1540	1648	2	3.5	<2	Calibrated with cargo ship
30	2/21/2023	Laura Cuevas	1200	1205	5	18.3	<2	Cargo Ship Seaspan "Loncomilla"
32	3/5/2023	Britney Roberts	1645	1609	2	6.4	<2	Bulk Carrier "Kumpula"
32	3/6/2023	Caylin Ashcraft	2000	2037	3	8.3	<2	Calibrated with turbine
33	3/16/2023	Felipe Rodriguez	1550	1800	2	4.3	1	Channel buoy
34	3/20/2023	Felipe Rodriguez	950	900	3	12.2	<2	The target was the Minerva uno
34	3/26/2023	Esmeralda Bravo	1250	1850	4	16	<2	Wind turbine
36	4/3/2023	Esmeralda Bravo	1250	1380	5	21	<2	MSC Cargo Vessel
37	4/14/2023	Heber Huizar	1526	1650	4	12	<2	Reference was a cargo ship
38	4/17/2023	Heber Huizar	800	926	4	12	<2	Reference: Minerva Uno
38	4/18/2023	Esmeralda Bravo	937	926	4	9	<2	Wind turbine as target
38	4/22/2023	Axel Maldonado	782	648	2	12.2	<2	Buoy as target
39	4/24/2023	Jaime Santiago	764	804	2	9	<2	Reference was a cargo ship
39	4/25/2023	Heber Huizar	763	741	2	4.5	<2	Reference was RV Minerva Uno

39	4/27/2023	Axel Maldonado	521	111.2	2	6.5	<2	Reference was a buoy
40	5/5/2023	Heber Huizar	1527	1704	2	9	<2	Reference: cargo vessel
40	5/4/2023	Axel Maldonado	521	685.24	3	13.7	<2	Reference: Buoy

Reticle Binocular Calibration Tables *R/V Henry Hudson*

Week #	Date	Observer Name	Reticle Binocular Estimated Distance (m)	True Distance from Radar (m)	Sea State (Beaufort)	Wind Force (knots)	Swell (m)	Comments
3	9/2/2022	Andrea Aguilar	255	303	1	4	<2	
5	9/17/2022	Andrea Aguilar	200	230	1	7	<2	
6	9/21/2022	Andrea Aguilar	1000	1023	1	8	<2	

Appendix F: Excel Data Sheets of Monitoring Effort and Detections of Protected Species During the Survey

Appendix G: Photographs of Protected Species Detections

Visual Detections from R/V Minerva Uno

Figure G - 1. Visual Detection #11: Loggerhead Sea Turtle, 08 August 2022

Figure G - 2. Visual Detection #12: Atlantic spotted dolphin, 09 August 2022

Figure G - 3. Visual Detection #15: Loggerhead Sea Turtle, 10 August 2022

Figure G - 4. Visual Detection #16: Loggerhead Sea Turtle, 10 August 2022

Figure G - 5. Visual Detection #27: Bottlenose Dolphin, 24 August 2022

Figure G - 6. Visual Detection #29: Loggerhead Sea Turtle, 24 August 2022

Figure G - 7. Visual Detection #31: Bottlenose Dolphin, 24 August 2022

Figure G - 8. Visual Detection #33: Bottlenose Dolphin, 25 August 2022

Figure G - 9. Visual Detection #35: Loggerhead Sea Turtle, 26 August 2022

Figure G - 10. Visual Detection #39: Giant Manta Ray, 27 August 2022

Figure G - 11. Visual Detection #44: Loggerhead Sea Turtle, 28 August 2022

Figure G - 12. Visual Detection #47: Bottlenose Dolphin, 29 August 2022

Figure G - 13. Visual Detection #49: Loggerhead Sea Turtle, 30 August 2022

Figure G - 14. Visual Detection #51: Bottlenose Dolphin, 30 August 2022

Figure G - 15. Visual Detection #52: Bottlenose Dolphin, 30 August 2022

Figure G - 16. Visual Detection #53: Giant Manta Ray, 30 August 2022

Figure G - 17. Visual Detection #54: Loggerhead Sea Turtle, 30 August 2022

Figure G - 18. Visual Detection #57: Bottlenose Dolphin, 01 September 2022

Figure G - 19. Visual Detection #60: Loggerhead Sea Turtle, 01 September 2022

Figure G - 20. Visual Detection #62: Loggerhead Sea Turtle, 02 September 2022

Figure G - 21. Visual Detection #63: Bottlenose Dolphin, 02 September 2022

Figure G - 22. Visual Detection #64: Loggerhead Sea Turtle, 03 September 2022

Figure G - 23. Visual Detection #67: Giant Manta Ray, 04 September 2022

Figure G - 24. Visual Detection #68: Loggerhead Sea Turtle, 04 September 2022

Figure G - 25. Visual Detection #69: Bottlenose Dolphin, 05 September 2022

Figure G - 26. Visual Detection #78: Loggerhead Sea Turtle, 14 September 2022

Figure G - 27. Visual Detection #80: Loggerhead Sea Turtle, 15 September 2022

Figure G - 28. Visual Detection #82: Loggerhead Sea Turtle, 15 September 2022

Figure G - 29. Visual Detection #83: Loggerhead Sea Turtle, 16 September 2022

Figure G - 30. Visual Detection #84: Loggerhead Sea Turtle, 16 September 2022

Figure G - 31. Visual Detection #85: Loggerhead Sea Turtle, 17 September 2022

Figure G - 32. Visual Detection #87: Kemp's Ridley Sea Turtle, 17 September 2022

Figure G - 33. Visual Detection #89: Loggerhead Sea Turtle, 18 September 2022

Figure G - 34. Visual Detection #91: Loggerhead Sea Turtle, 19 September 2022

Figure G - 35. Visual Detection #93: Loggerhead Sea Turtle, 20 September 2022

Figure G - 36. Visual Detection #94: Unidentified Dolphin, 20 September 2022

Figure G - 37. Visual Detection #95: Bottlenose Dolphin, 20 September 2022

Figure G - 38. Visual Detection #96: Loggerhead Sea Turtle, 20 September 2022

Figure G - 39. Visual Detection #97: Loggerhead Sea Turtle, 20 September 2022

Figure G - 40. Visual Detection #98: Loggerhead Sea Turtle, 20 September 2022

Figure G - 41. Visual Detection #99: Loggerhead Sea Turtle, 20 September 2022

Figure G - 42. Visual Detection #101: Loggerhead Sea Turtle, 21 September 2022

Figure G - 43. Visual Detection #102: Loggerhead Sea Turtle, 21 September 2022

Figure G - 44. Visual Detection #107: Bottlenose Dolphin, 24 September 2022

Figure G - 45. Visual Detection #108: Loggerhead Sea Turtle, 24 September 2022

Figure G - 46. Visual Detection #109, Loggerhead Sea Turtle, 24 September 2022

Figure G - 47. Visual Detection #110: Bottlenose Dolphin, 25 September 2022

Figure G - 48. Visual Detection #111: Loggerhead Sea Turtle, 26 September 2022

Figure G - 49. Visual Detection #113: Loggerhead Sea Turtle, 27 September 2022

Figure G - 50. Visual Detection #117: Bottlenose Dolphin, 28 September 2022

Figure G - 51. Visual Detection #121: Green Sea Turtle, 06 October 2022

Figure G - 52. Visual Detection #123: Kemp's Ridley Sea Turtle, 07 October 2022

Figure G - 53. Visual Detection #124: Leatherback Sea Turtle, 10 October 2022

Figure G - 54. Visual Detection #125: Loggerhead Sea Turtle, 10 October 2022

Figure G - 55. Visual Detection #127: Loggerhead Sea Turtle, 11 October 2022

Figure G - 56. Visual Detection #132: Loggerhead Sea Turtle, 15 October 2022

Figure G - 57. Visual Detection #135: Loggerhead Sea Turtle, 15 October 2022

Figure G - 58. Visual Detection #137: Loggerhead Sea Turtle, 19 October 2022

Figure G - 59. Visual Detection #138: Loggerhead Sea Turtle, 19 October 2022

Figure G - 60. Visual Detection #139: Bottlenose Dolphin, 21 October 2022

Figure G - 61. Visual Detection #141: Unidentified Dolphin, 21 October 2022

Figure G - 62. Visual Detection #144: Bottlenose Dolphin, 24 October 2022

Figure G - 63. Visual Detection #149: Bottlenose Dolphin, 27 October 2022

Figure G - 64. Visual Detection #150: Bottlenose Dolphin, 01 November 2022

Figure G - 65. Visual Detection #151: Bottlenose Dolphin, 01 November 2022

Figure G - 66. Visual Detection #152: Bottlenose Dolphin, 01 November 2022

Figure G - 67. Visual Detection #153: Bottlenose Dolphin, 01 November 2022

Figure G - 68. Visual Detection #154: Bottlenose Dolphin, 01 November 2022

Figure G - 69.Visual Detection #156: Bottlenose Dolphin, 11 November 2022

Figure G - 70. Visual Detection #157: Bottlenose Dolphin, 11 November 2022

Figure G - 71. Visual Detection #158: Bottlenose Dolphin, 11 November 2022

Figure G - 72. Visual Detection #159: Bottlenose Dolphin, 11 November 2022

Figure G - 73. Visual Detection #160: Bottlenose Dolphin, 11 November 2022

Figure G - 74. Visual Detection #161: Bottlenose Dolphin, 11 November 2022

Figure G - 75. Visual Detection #162: Loggerhead Sea Turtle, 17 November 2022

Figure G - 76. Visual Detection #163: Unidentified Dolphin, 21 November 2022

Figure G - 77. Visual Detection #164: Loggerhead Sea Turtle, 17 November 2022

Figure G - 78. Visual Detection #165: Loggerhead Sea Turtle, 23 November 2022

Figure G - 79. Visual Detection #168: Bottlenose Dolphin, 27 November 2022

Figure G - 80. Visual Detection #169: Bottlenose Dolphin, 27 November 2022

Figure G - 81. Visual Detection #170: Loggerhead Sea Turtle, 27 November 2022

Figure G - 82. Visual Detection #171: Risso's Dolphin, 07 December 2022

Figure G - 83. Visual Detection #173: Humpback Whale, 14 December 2022

Figure G - 84. Visual Detection #178: Humpback Whale, 25 December 2022

Figure G - 85. Visual Detection #179: Humpback Whale, 25 December 2022

Figure G - 86. Visual Detection #182: Humpback Whale, 26 December 2022

Figure G - 87. Visual Detection #183: Bottlenose Dolphin, 27 December 2022

Figure G - 88. Visual Detection #185: Common Dolphin, 30 December 2022

Figure G - 89. Visual Detection #186: Common Dolphin, 30 December 2022

Figure G - 90. Visual Detection #187: Common Dolphin, 31 December 2022

Figure G - 91. Visual Detection #195: Common Dolphin, 02 January 2023

Figure G - 92. Visual Detection #224: Common Dolphin, 22 January 2023

Figure G - 93. Visual Detection #227: Common Dolphin, 29 January 2023

Figure G - 94. Visual Detection #238: Common Dolphin, 29 January 2023

Figure G - 95. Visual Detection #239: Common Dolphin, 31 January 2023

Figure G - 96. Visual Detection #242: Common Dolphin, 02 February 2023

Figure G - 97. Visual Detection #244:Humpback Whale, 04 February 2023

Figure G - 98. Visual Detection #249: Unidentified Whale, 05 February 2023

Figure G - 99. Visual Detection #269: Common Dolphin, 24 February 2023

Figure G - 100. Visual Detection #270: Humpback Whale, 25 February 2023

Figure G - 101. Visual Detection #272: Humpback Whale, 27 February 2023

Figure G - 102. Visual Detection #273: Bottlenose Dolphin, 28 February 2023

Figure G - 103. Visual Detection #275: Common Dolphin, 06 March 2023

Figure G - 104. Visual Detection #277: Fin Whale, 21 March 2023

Figure G - 105. Visual Detection #279: Fin Whale, 21 March 2023

Figure G - 106. Visual Detection #281: Common Dolphin, 24 March 2023

Figure G - 107. Visual Detection #282: Fin Whale, 24 March 2023

Figure G - 108. Visual Detection #284: Common Dolphin, 25 March 2023

Figure G - 109. Visual Detection #285: Common Dolphin, 26 March 2023

Figure G - 110. Visual Detection #287: Common Dolphin, 26 March 2023

Figure G - 111. Visual Detection #288: Common Dolphin, 26 March 2023

Figure G - 112. Visual Detection #289: Common Dolphin, 27 March 2023

Figure G - 113. Visual Detection #290: Common Dolphin, 27 March 2023

Figure G - 114. Visual Detection #291: Common Dolphin, 27 March 2023

Figure G - 115. Visual Detection #292: Unidentified Whale, 29 March 2023

Figure G - 116. Visual Detection #293: Common Dolphin, 29 March 2023

Figure G - 117. Visual Detection #294: Bottlenose Dolphin, 02 April 2023

Figure G - 118. Visual Detection #297: Fin Whale, 04 April 2023

Figure G - 119. Visual Detection #299: Unidentified Whale, 05 April 2023

Figure G - 120. Visual Detection #300: Bottlenose Dolphin, 06 April 2023

Figure G - 121. Visual Detection #303: Unidentified Whale, 11 April 2023

Figure G - 122. Visual Detection #304: Atlantic Spotted Dolphin, 12 April 2023

Figure G - 123. Visual Detection #305: Atlantic Spotted Dolphin, 14 April 2023

Figure G - 124. Visual Detection #307: Unidentified Whale, 17 April 2023

Figure G - 125. Visual Detection #309: Green Sea Turtle, 20 April 2023

Figure G - 126. Visual Detection #310: Loggerhead Sea Turtle, 21 April 2023

Figure G - 127. Visual Detection #311: Loggerhead Sea Turtle, 21 April 2023

Figure G - 128. Visual Detection #312: Loggerhead Sea Turtle, 22 April 2023

Figure G - 129. Visual Detection #313: Loggerhead Sea Turtle, 22 April 2023

Figure G - 130. Visual Detection #316: Unidentified Dolphin, 23 April 2023

Figure G - 131. Visual Detection #317: Bottlenose Dolphin, 25 April 2023

Figure G - 132. Visual Detection #318: Loggerhead Sea Turtle, 26 April 2023

Figure G - 133. Visual Detection #319: Loggerhead Sea Turtle, 27 April 2023

Figure G - 134. Visual Detection #320: Loggerhead Sea Turtle, 27 April 2023

Figure G - 135. Visual Detection #322: Common Dolphin, 27 April 2023

Figure G - 136. Visual Detection #324: Loggerhead Sea Turtle, 02 May 2023

Figure G - 137. Visual Detection #325: Loggerhead Sea Turtle, 02 May 2023

Visual Detections from R/V Shearwater

Figure G - 138. Visual Detection #21: Bottlenose Dolphin, 17 August 2022

Figure G - 139. Visual Detection #26: Bottlenose Dolphin, 18 August 2022

Figure G - 140. Visual Detection #29: Bottlenose Dolphin, 18 August 2022

Figure G - 141. Visual Detection# 29: Bottlenose Dolphin, 18 August 2022

Figure G - 142. Visual Detection #36: Bottlenose Dolphin, 20 August 2022

Figure G - 143. Visual Detection 38: Bottlenose Dolphin, 20 August 2022

Figure G - 144. Visual Detection #40: Unidentified Dolphin, 21 August 2022

Figure G - 145. Visual Detection #42: Bottlenose Dolphin, 22 August 2022

Figure G - 146. Visual Detection #44: Bottlenose Dolphin, 24 August 2022

Figure G - 147. Visual Detection #50: Unidentified Dolphin, 26 August 2022

Figure G - 148. Visual Detection #54: Bottlenose Dolphin, 30 August 2022

Figure G - 149. Visual Detection #56: Bottlenose Dolphin, 31 August 2022

Figure G - 150. Visual Detection #57: Bottlenose Dolphin, 01 September 2022

Figure G - 151. Visual Detection #58: Bottlenose Dolphin, 01 September 2022

Figure G - 152. Visual Detection #59: Bottlenose Dolphin, 02 September 2022

Figure G - 153. Visual Detection #60: Loggerhead Sea Turtle, 02 September 2022

Figure G - 154. Visual Detection #61: Green Sea Turtle, 02 September 2022

Figure G - 155. Visual Detection #62: Bottlenose Dolphin, 03 September 2022

Figure G - 156. Visual Detection #63: Bottlenose Dolphin, 03 September 2022

Figure G - 157. Visual Detection #64: Bottlenose Dolphin, 03 September 2022

Figure G - 158. Visual Detection #65: Bottlenose Dolphin, 04 September 2022

Figure G - 159. Visual Detection #66: Bottlenose Dolphin, 04 September 2022

Figure G - 160. Visual Detection #68: Bottlenose Dolphin, 05 September 2022

Figure G - 161. Visual Detection #69: Bottlenose Dolphin, 05 September 2022

Figure G - 162. Visual Detection #70: Bottlenose Dolphin, 06 September 2022

Figure G - 163. Visual Detection #71: Bottlenose Dolphin, 06 September 2022

Figure G - 164. Visual Detection #72: Bottlenose Dolphin, 06 September 2022

Figure G - 165. Visual Detection # 74: Bottlenose Dolphin, 07 September 2022

Figure G - 166. Visual Detection #75: Bottlenose Dolphin, 07 September 2022

Figure G - 167. Visual Detection #76: Bottlenose Dolphin, 11 September 2022

Figure G - 168. Visual Detection #77: Bottlenose Dolphin, 11 September 2022

Figure G - 169. Visual Detection #78: Bottlenose Dolphin, 13 September 2022

Figure G - 170. Visual Detection #79: Bottlenose Dolphin, 13 September 2022

Figure G - 171. Visual Detection #80: Bottlenose Dolphin, 13 September 2022

Figure G - 172. Visual Detection #81: Bottlenose Dolphin, 13 September 2022

Figure G - 173. Visual Detection #83: Bottlenose Dolphin, 14 September 2022

Figure G - 174. Visual Detection #84: Bottlenose Dolphin, 14 September 2022

Figure G - 175. Visual Detection #86: Bottlenose Dolphin, 16 September 2022

Figure G - 176. Visual Detection #87: Bottlenose Dolphin, 16 September 2022

Figure G - 177. Visual Detection #88: Bottlenose Dolphin, 16 September 2022

Figure G - 178. Visual Detection #89: Bottlenose Dolphin, 17 September 2022

Figure G - 179. Visual Detection #90: Loggerhead Sea Turtle, 17 September 2022

Figure G - 180. Visual Detection #91 Bottlenose Dolphin, 18 September 2022

Figure G - 181. Visual Detection #93: Kemp's Ridley Sea Turtle, 19 September 2022

Figure G - 182. Visual Detection #94: Loggerhead Sea Turtle, 19 September 2022

Figure G - 183. Visual Detection #95: Loggerhead Sea Turtle, 19 September 2022

Figure G - 184. Visual Detection #96: Loggerhead Sea Turtle, 19 September 2022

Figure G - 185. Visual Detection #97: Loggerhead Sea Turtle, 20 September 2022

Figure G - 186. Visual Detection #98: Loggerhead Sea Turtle, 20 September 2022

Figure G - 187. Visual Detection #100: Loggerhead Sea Turtle, 21 September 2022

Figure G - 188. Visual Detection #101: Bottlenose Dolphin, 26 September 2022

Figure G - 189. Visual Detection #102: Bottlenose Dolphin, 26 September 2022

Figure G - 190. Visual Detection #103: Loggerhead Sea Turtle, 26 September 2022

Figure G - 191. Visual Detection #104: Bottlenose Dolphin, 26 September 2022

Figure G - 192. Visual Detection #105: Bottlenose Dolphin, 26 September 2022

Figure G - 193. Visual Detection #106: Loggerhead Sea Turtle, 27 September 2022

Figure G - 194. Visual Detection #107: Bottlenose Dolphin, 27 September 2022

Figure G - 195. Visual Detection #108: Bottlenose Dolphin, 27 September 2022

Figure G - 196. Visual Detection #109: Bottlenose Dolphin, 28 September 2022

Figure G - 197. Visual Detection #110: Bottlenose Dolphin, 06 October 2022

Figure G - 198. Visual Detection #111: Unidentified Shelled Sea Turtle, 07 October 2022

Figure G - 199. Visual Detection #112: Bottlenose Dolphin, 07 October 2022

Figure G - 200. Visual Detection #113: Kemp's Ridley Sea Turtle, 07 October 2022

Figure G - 201. Visual Detection #114: Bottlenose Dolphin, 07 October 2022

Figure G - 202. Visual Detection #115: Kemp's Ridley Sea Turtle, 07 October 2022

Figure G - 203. Visual Detection #116: Bottlenose Dolphin, 09 October 2022

Figure G - 204. Visual Detection #117: Bottlenose Dolphin, 11 October 2022

Figure G - 205. Visual Detection #118: Bottlenose Dolphin, 11 October 2022

Figure G - 206. Visual Detection #119: Bottlenose Dolphin, 11 October 2022

Figure G - 207. Visual Detection #120, Bottlenose Dolphin, 11 October 2022

Figure G - 208. Visual Detection #122: Bottlenose Dolphin, 11 October 2022

Figure G - 209. Visual Detection #123: Bottlenose Dolphin, 12 October 2022

Figure G - 210. Visual Detection #126: Bottlenose Dolphin, 15 October 2022

Figure G - 211. Visual Detection #127: Common Dolphin, 15 October 2022

Figure G - 212. Visual Detection #128: Common Dolphin, 15 October 2022

Figure G - 213. Visual Detection #129: Bottlenose Dolphin, 18 October 2022

Figure G - 214. Visual Detection #130: Bottlenose Dolphin, 18 October 2022

Figure G - 215. Visual Detection #133: Bottlenose Dolphin, 19 October 2022

Figure G - 216. Visual Detection #134: Bottlenose Dolphin, 19 October 2022

Figure G - 217. Visual Detection #135: Loggerhead Sea Turtle, 20 October 2022

Figure G - 218. Visual Detection #136: Kemp's Ridley Sea Turtle, 20 October 2022

Figure G - 219. Visual Detection #137: Loggerhead Sea Turtle, 21 October 2022

Figure G - 220. Visual Detection #138: Green Sea Turtle, 21 October 2022

Figure G - 221. Visual Detection #140, 22 October 2022

Figure G - 222. Visual Detection #144: Bottlenose Dolphin, 01 November 2022

Figure G - 223. Visual Detection #145: Bottlenose Dolphin, 01 November 2022

Figure G - 224. Visual Detection #146: Bottlenose Dolphin, 01 November 2022

Figure G - 225. Visual Detection #148: Bottlenose Dolphin, 01 November 2022

Figure G - 226. Visual Detection #149: Bottlenose Dolphin, 01 November 2022

Figure G - 227. Visual Detection #153: Bottlenose Dolphin, 14 November 2022

Figure G - 228. Visual Detection #157: Bottlenose Dolphin, 17 November 2022

Figure G - 229. Visual Detection #158: Bottlenose Dolphin, 17 November 2022

Figure G - 230. Visual Detection #159: Bottlenose Dolphin, 17 November 2022

Figure G - 231. Visual Detection #160: Bottlenose Dolphin, 20 November 2022

Figure G - 232. Visual Detection #161: Bottlenose Dolphin, 25 November 2022

Figure G - 233. Visual Detection #162: Humpback Whale, 25 November 2022

Figure G - 234. Visual Detection #163: Bottlenose Dolphin, 25 November 2022

Figure G - 235. Visual Detection #166: Bottlenose Dolphin, 26 November 2022

Figure G - 236. Visual Detection #167: Bottlenose Dolphin, 26 November 2022

Figure G - 237. Visual Detection #173: Bottlenose Dolphin, 05 January 2023

Figure G - 238. Visual Detection #174: Common Dolphin, 06 January 2023

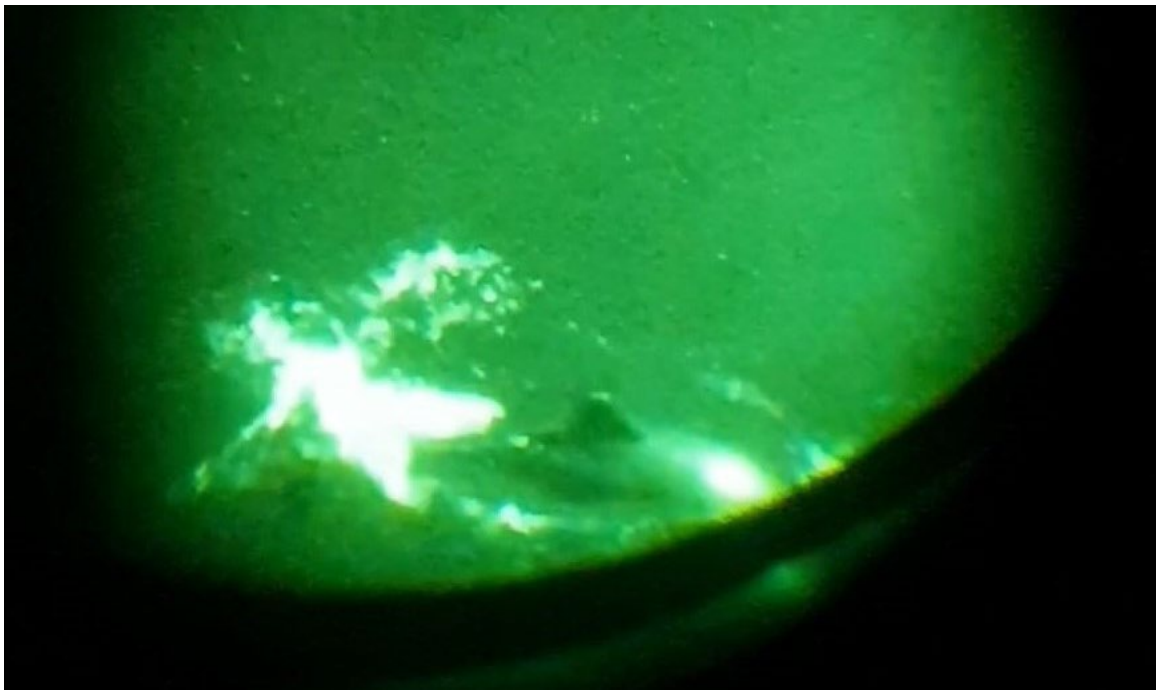

Figure G - 239. Visual Detection #177: Common Dolphin, 08 January 2022

Figure G - 240. Visual Detection #183: Fin Whale, 18 January 2023

Figure G - 241. Visual Detection #185: Humpback Whale, 19 January 2023

Figure G - 242. Visual Detection #188: Common Dolphin, 22 January 2023

Figure G - 243. Visual Detection #191, Common Dolphin, 24 January 2022

Figure G - 244. Visual Detection #192: North Atlantic right whale, 24 January 2023

Figure G - 245. Visual Detection #199: Common Dolphin, 28 January 2023

Figure G - 246. Visual Detection #200: Common Dolphin, 28 January 2023

Figure G - 247. Visual Detection #206: Common Dolphin, 29 January 2023

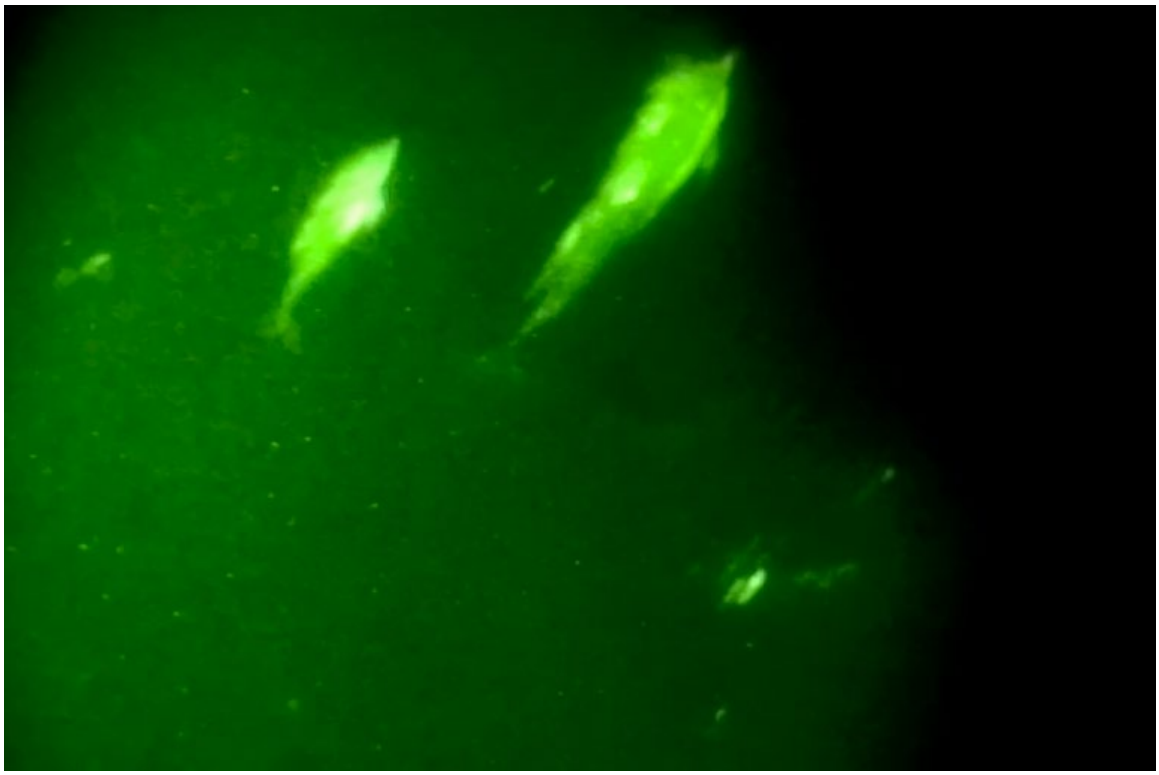

Figure G - 248. Visual Detection #232: Common Dolphin, 21-February 2023

Figure G - 249. Visual Detection #234: Common Dolphin, 21 February 2023

Figure G - 250. Visual Detection #236: Common Dolphin, 22 February 2023

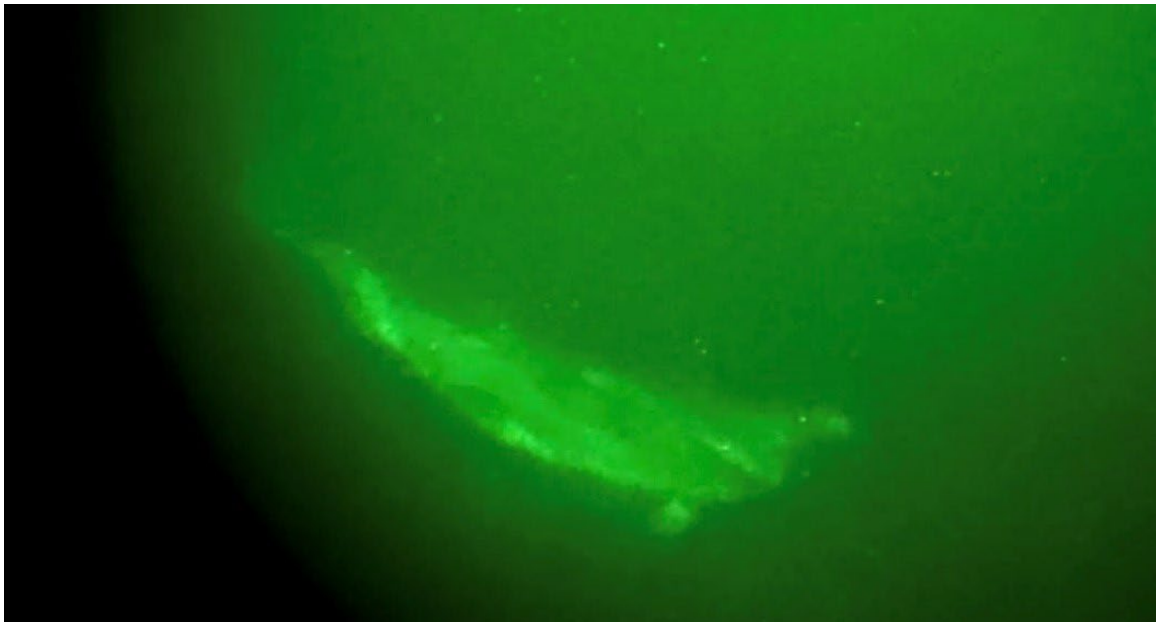

Figure G - 251. Visual Detection #237: Common Dolphin, 22 February 2023

Figure G - 252. Visual Detection #243: Minke Whale, 05 March 2023

Figure G - 253. Visual Detection #245: Fin Whale, 21 March 2023

Figure G - 254. Visual Detection #246: Atlantic Spotted Dolphin, 21 March 2023

Figure G - 255. Visual Detection #247: Common Dolphin, 26 March 2023

Figure G - 256. Visual Detection #248: Common Dolphin, 26 March 2023

Figure G - 257. Visual Detection #254: Common Dolphin, 27 March 2023

Figure G - 258. Visual Detection #256 Fin Whale, 28 March 2023

Figure G - 259. Visual Detection #260: Common Dolphin, 04 April 2023

Figure G - 260. Visual Detection #262: Unidentified Dolphin, 12 April 2023

Figure G - 261. Visual Detection #264: Bottlenose Dolphin, 15 April 2023

Figure G - 262, Visual Detection #266: Unidentified Dolphin, 18 April 2023

Figure G - 263. Visual Detection #269: Bottlenose Dolphin, 19 April 2023

Figure G - 264. Visual Detection #270: Bottlenose Dolphin, 19 April 2023

Figure G - 265. Visual Detection #273: Bottlenose Dolphin, 21 April 2023

Figure G - 266. Visual Detection #275: Loggerhead Sea Turtle, 21 April 2023

Figure G - 267. Visual Detection #276: Bottlenose Dolphin, 23 April 2023

Figure G - 268. Visual Detection #281: Loggerhead Sea Turtle, 23 April 2023

Figure G - 269. Visual Detection #282: Bottlenose Dolphin, 23 April 2023

Figure G - 270. Visual Detection #283: Loggerhead Sea Turtle, 25 April 2023

Figure G - 271. Visual Detection #284: Loggerhead Sea Turtle, 26 April 2023

Figure G - 272. Visual Detection #285: Loggerhead Sea Turtle, 27 April 2023

Figure G - 273. Visual Detection #286: Loggerhead Sea Turtle, 27 April 2023

Figure G - 274. Visual Detection #287: Loggerhead Sea Turtle, 27 April 2023

Figure G - 275. Visual Detection #288: Loggerhead Sea Turtle, 27 April 2023

Figure G - 276. Visual Detection #292: Loggerhead Sea Turtle, 05 May 2023

Figure G - 277. Visual Detection #293: Loggerhead Sea Turtle, 05 May 2023

Figure G - 278. Visual Detection #294: Loggerhead Sea Turtle, 05 May 2023

Figure G - 279. Visual Detection #296: Loggerhead Sea Turtle, 05 May 2023

Figure G - 280. Visual Detection #299: Loggerhead Sea Turtle, 05 May 2023

Visual Detections from R/V Henry Hudson

Figure G - 281. Visual Detection #1: Striped Dolphin, 22 August 2022

Figure G - 282. Visual Detection #5: Bottlenose Dolphin, 26 August 2022

Figure G - 283. Visual Detection #6: Bottlenose Dolphin, 28 August 2022

Figure G - 284. Visual Detection #8: Bottlenose Dolphin, 30 August 2022

Figure G - 285. Visual Detection #9: Bottlenose Dolphin, 01 September 2022

Figure G - 286. Visual Detection #10: Bottlenose Dolphin, 02 September 2022

Figure G - 287. Visual Detection #11: Bottlenose Dolphin, 02 September 2022

Figure G - 288. Visual Detection #12: Bottlenose Dolphin, 02 September 2022

Figure G - 289. Visual Detection #14: Bottlenose Dolphin, 03 September 2022

Figure G - 290. Visual Detection #17: Bottlenose Dolphin, 04 September 2022

Figure G - 291. Visual Detection #18: Bottlenose Dolphin, 05 September 2022

Figure G - 292. Visual Detection #20: Bottlenose Dolphin, 05 September 2022

Figure G - 293. Visual Detection #23: Bottlenose Dolphin, 21 September 2022

Figure G - 294. Visual Detection #24 Bottlenose Dolphin, 26 September 2022

Figure G - 295. Visual Detection #25: Bottlenose Dolphin, 26 September 2022

Figure G - 296. Visual Detection #26: Bottlenose Dolphin, 26 September 2022

Figure G - 297. Visual Detection #27: Bottlenose Dolphin, 26 September 2022

Appendix H: Night Monitoring Equipment Specs

Appendix G: Night Monitoring Equipment Specifications

Night monitoring watches will be conducted with night vision goggles with head mounts and thermal clip-ons. Regular night vision binoculars work by enhancing the disponible light to allow a brighter image with the use of phosphor screen. The PVS-7D night vision goggles (Figure 1) withstand water immersion and runs on two AA batteries for more than 40 hours. Also provided were three pairs of batteries and a batteries charger with the equipment.

Figure 1: Night vision goggles with thermal clip.

The thermal clip on the night vision binocular enabled the capture of infrared light, which provided thermal imaging. The handheld forward-looking infrared (FLIR) system may also be provided (Figure 2). This allows a bit more flexibility with the IR detached from the headpiece.

Figure 2: Handheld thermal FLIR

Night Vision Goggle Technical Specifications

- Generation: 3 U.S.
- Resolution: 64 lp/mm (Min)
- Film: Thin-filmed
- Magnification: 1x
- Field of View: 40º
- Objective Lens: 25mm f/1.2
- Eyepiece Lens EFL: 26 mm
- Diopter Adjustment: +2 to -6
- Interpupillary Adjustment: 55 to 71 mm
- Range of Focus: 20cm to infinity
- Battery Type: Two (2) AA batteries
- Weight w/batteries: 24 oz / 680 grams
- Dimensions: 6 3/8”(L) x 6”(W) x 3”(H)
- Operating Temperature: -51°C to +52° C
- Weather Resistant: Yes
- IR Illuminator: Yes (built in)

Thermal Acquisition Clip-On Technical Specifications

- Field of View: 20° circular (centered)
- Magnification: 1X, optical unity
- Sensor: 320 x 240 Vox uncooled LWIR microbolometer
- Display Brightness: Adjustable
- Polarity: White hot/black hot
- Calibration: Manual
- Range: Detection – 300m, Recognition – 260m
- Compatibility: PVS-7
- Interface: Standard quick connect
- Battery Type: CR123, 3V lithium
- Battery Life: >3.0 hours (23°C), 2.5 hours (0°C)
- Dimensions: 38 x 64 x 89 mm (W x H x L)
- Weight: 166g with battery

Forward–looking Infrared (FLIR) Monocular Technical Specifications

- Dimensions: 5.5”(L) x 2.7”(W) x 1.9”(H)
- Weight: 0.46 pounds
- Detector Type: 320 x 256 V0x Microbolometer
- FOV: 24° x 19° (NTSC)
- Refresh Rate: 60 Hz
- Video Output: Digital Video
- Optical Magnification: 1x
- Display: Quad-VGA (1280 x 960) FLCOS
- Battery Type: One CR123A 3V Lithium Battery
- USB Power: 5 VDC

Appendix I: Protected Species Distribution Maps

Appendix I: Protected Species Distribution Maps

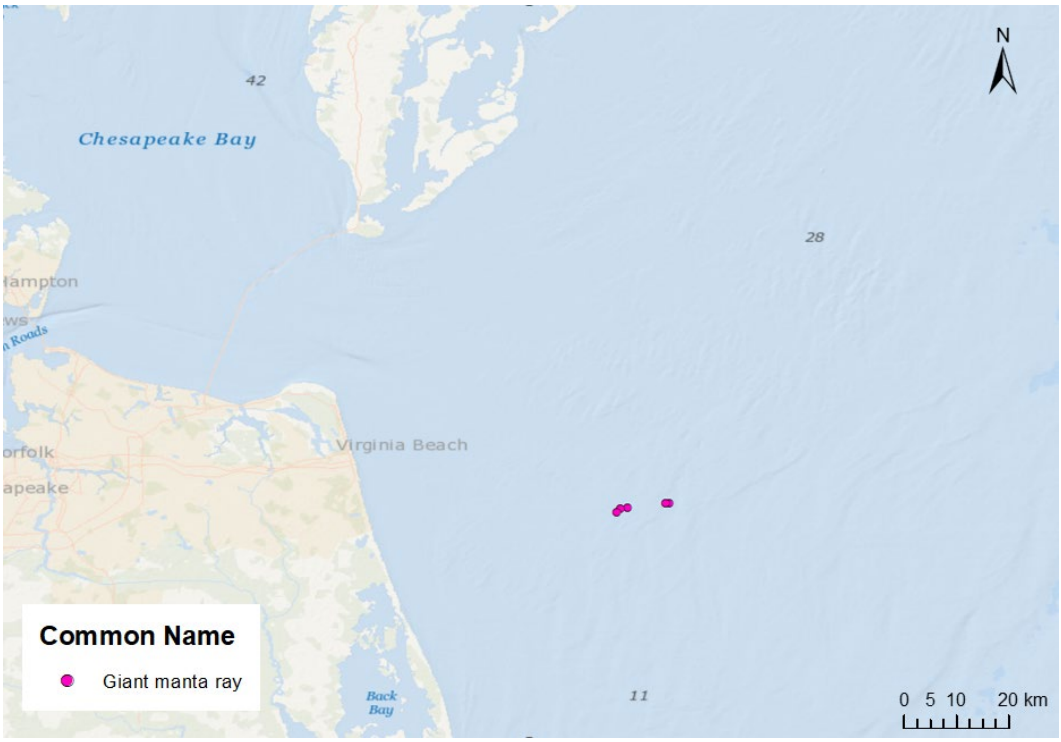

Figure I - 1. Map of the giant manta ray detections during the survey

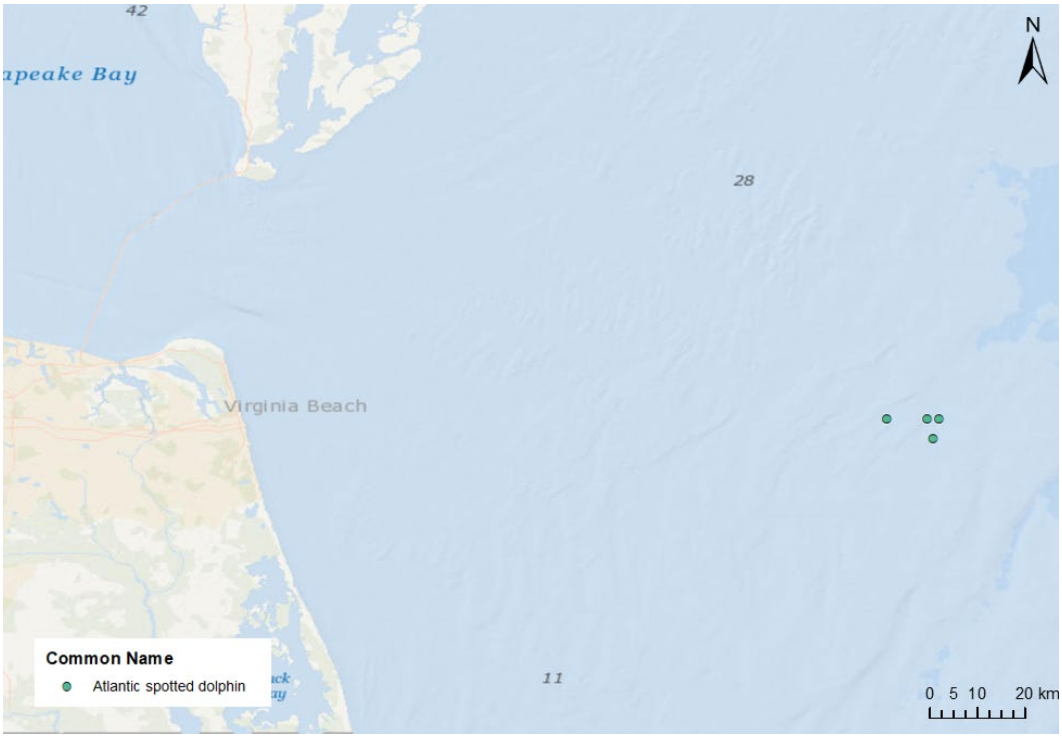

Figure I - 2. Map of the Atlantic spotted dolphin detections during the survey

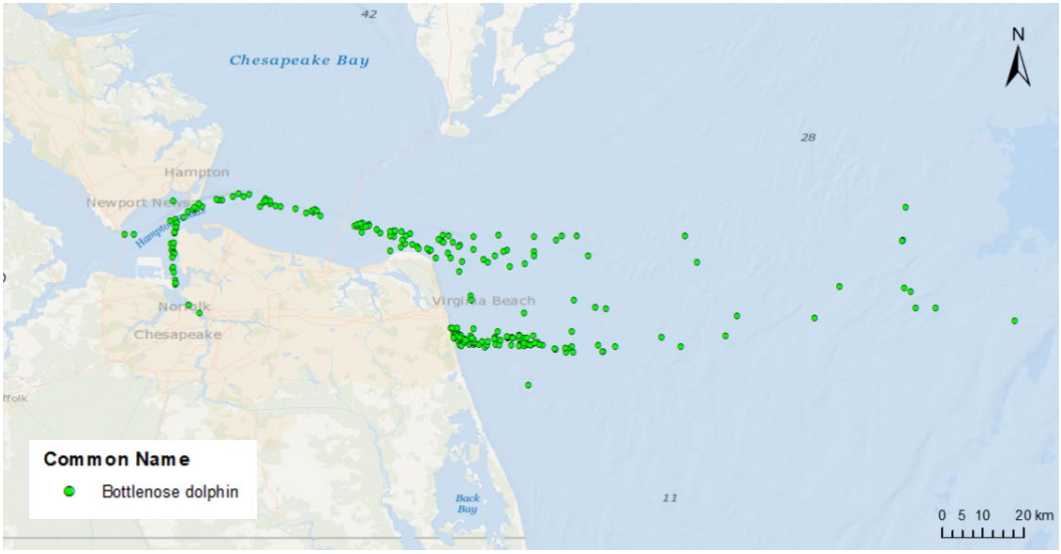

Figure I - 3. Map of the bottlenose dolphin detections during the survey

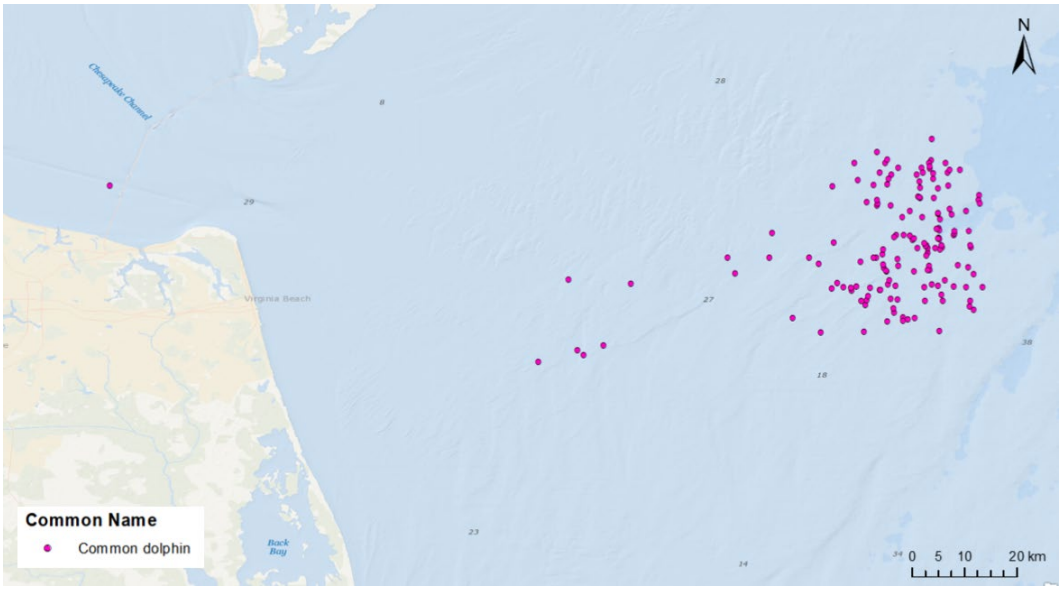

Figure I - 4. Map of the common dolphin detections during the survey

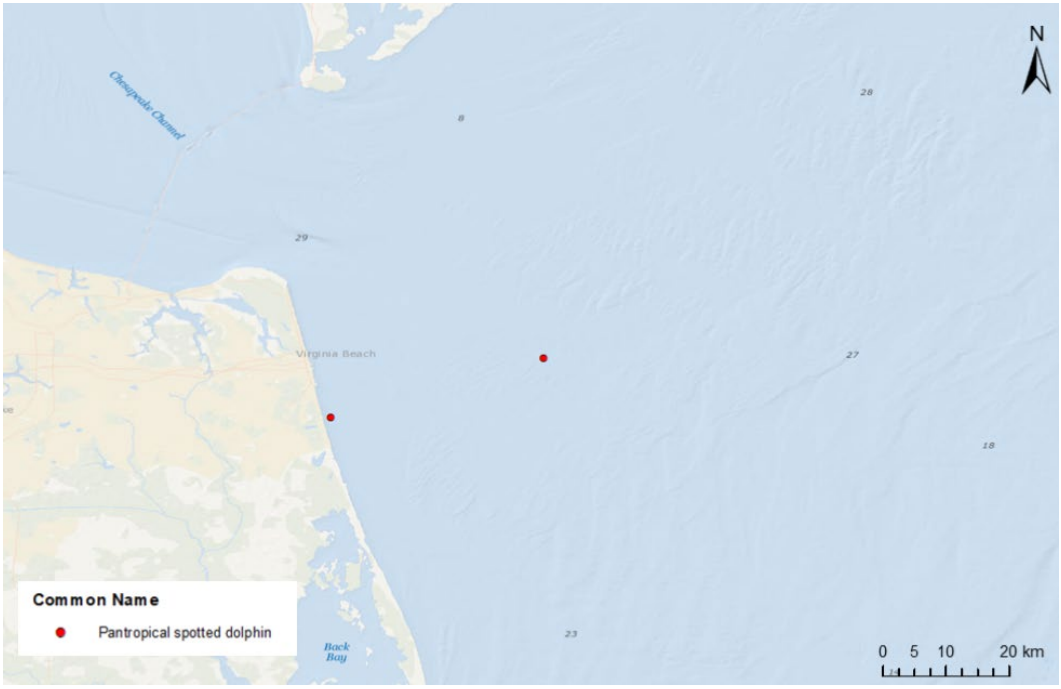

Figure I - 5. Map of the pantropical spotted dolphin detections during the survey

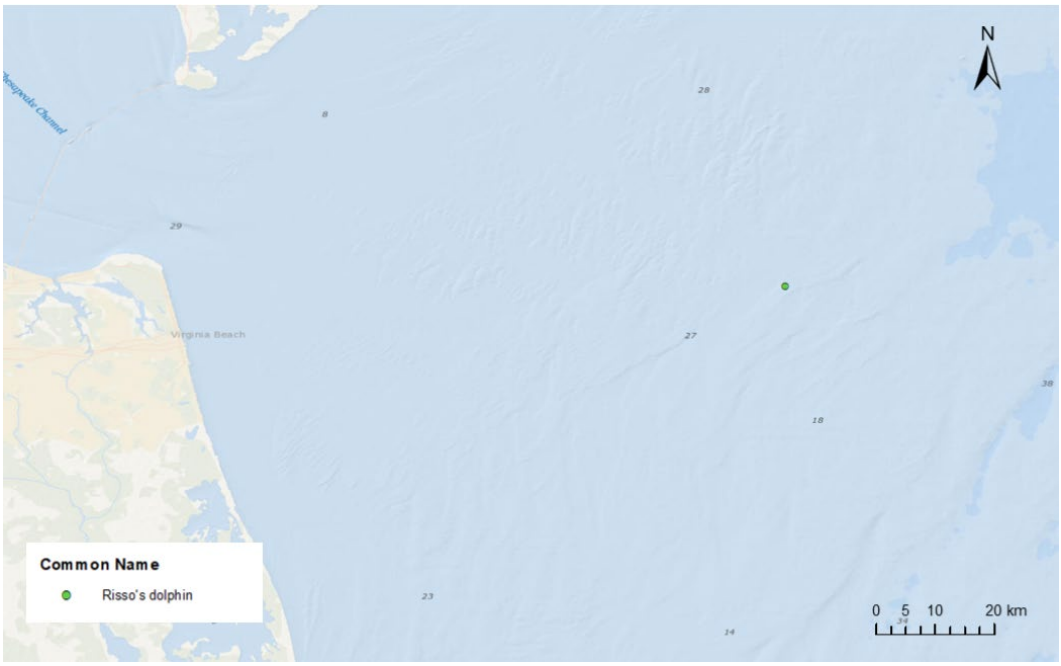

Figure I - 6. Map of the Risso's dolphin detections during the survey

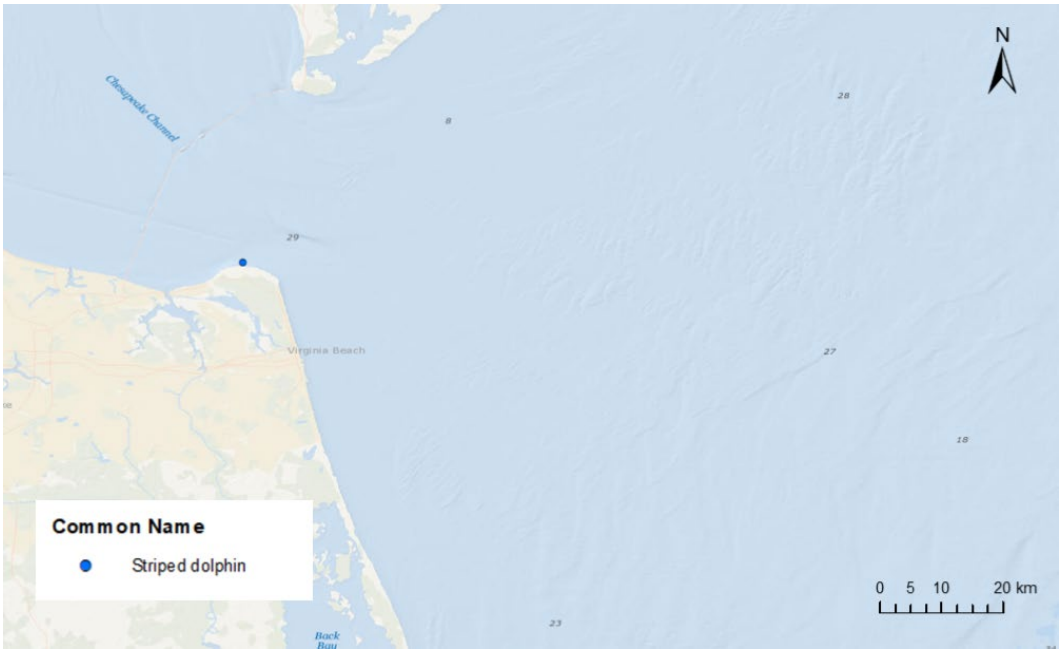

Figure I - 7. Map of the striped dolphin detections during the survey

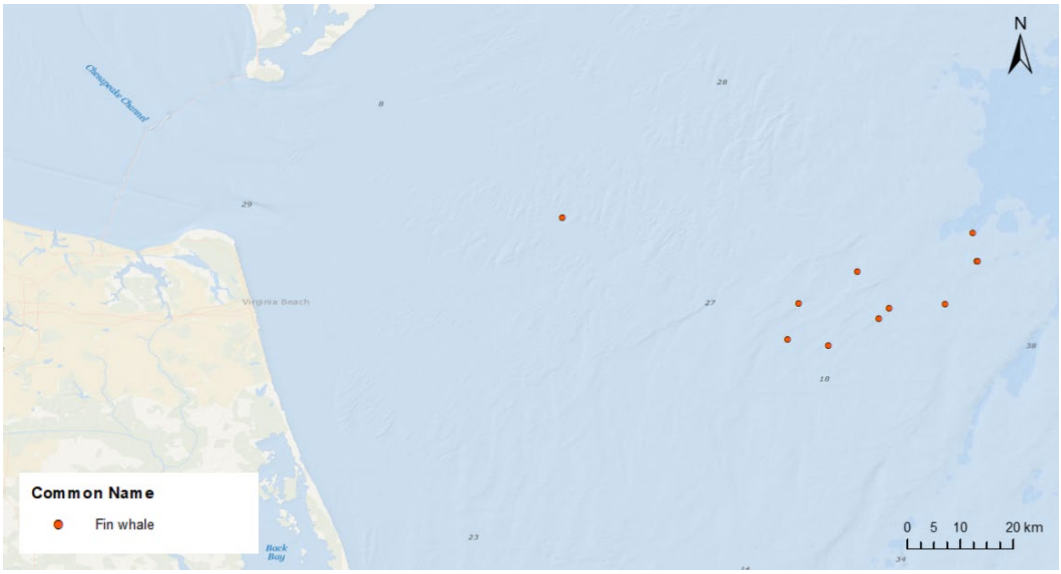

Figure I - 8. Map of the fin whale detections during the survey

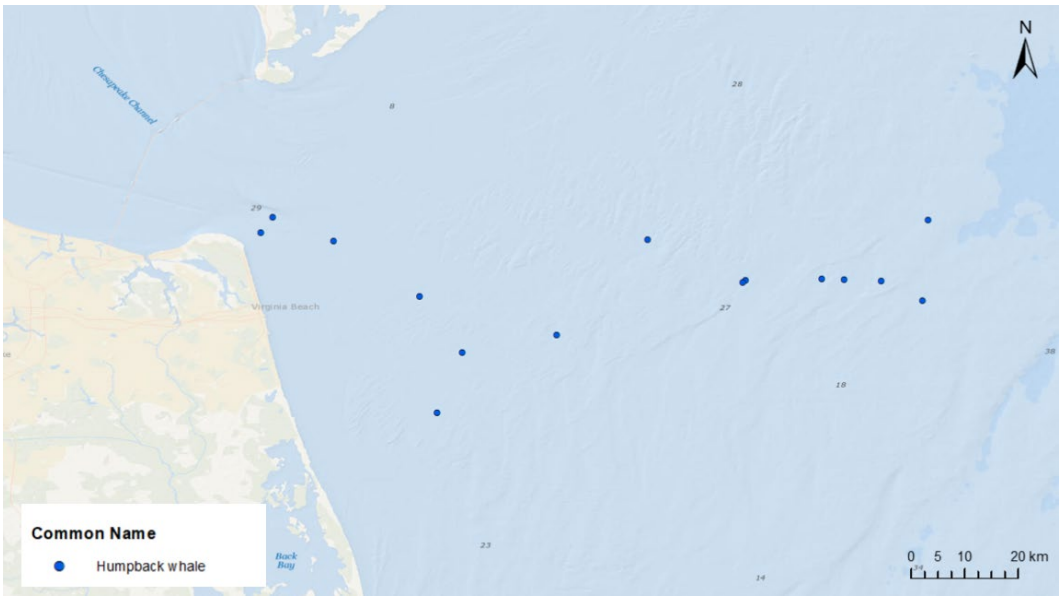

Figure I - 9. Map of the humpback whale detections during the survey

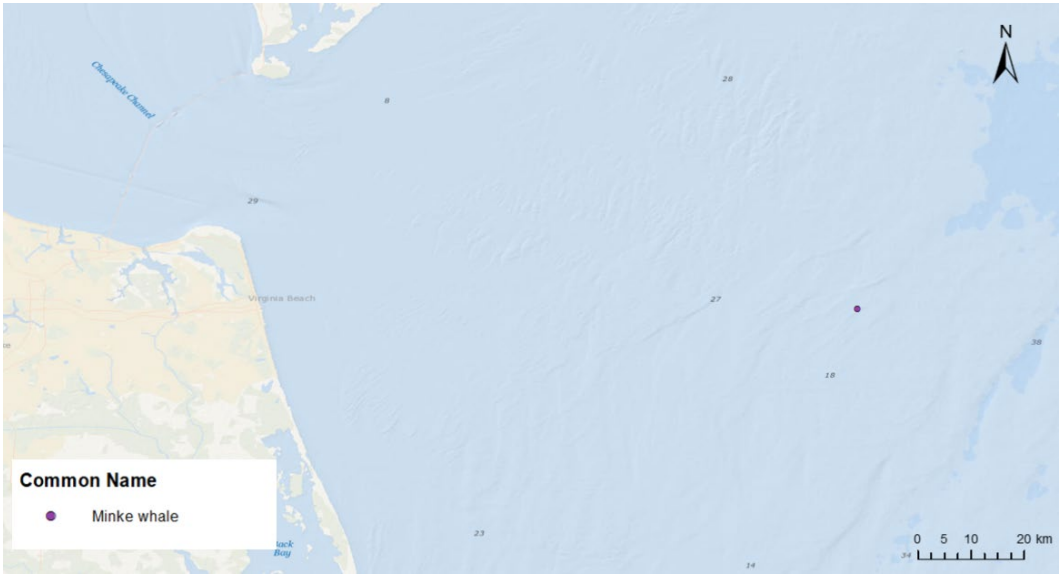

Figure I - 10. Map of the minke whale detections during the survey

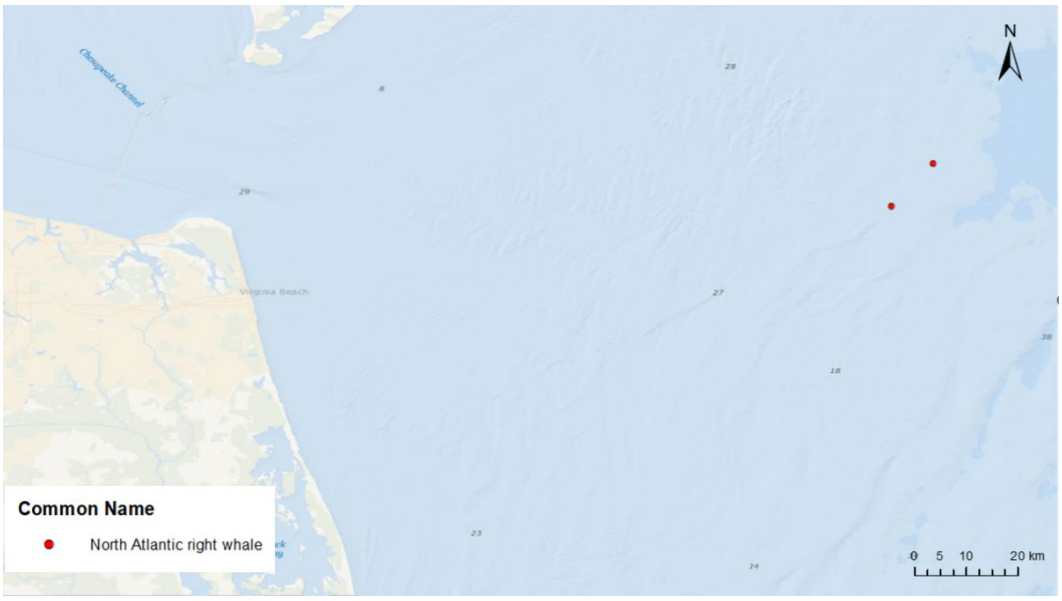

Figure I - 11. Map of the North Atlantic right whale detections during the survey

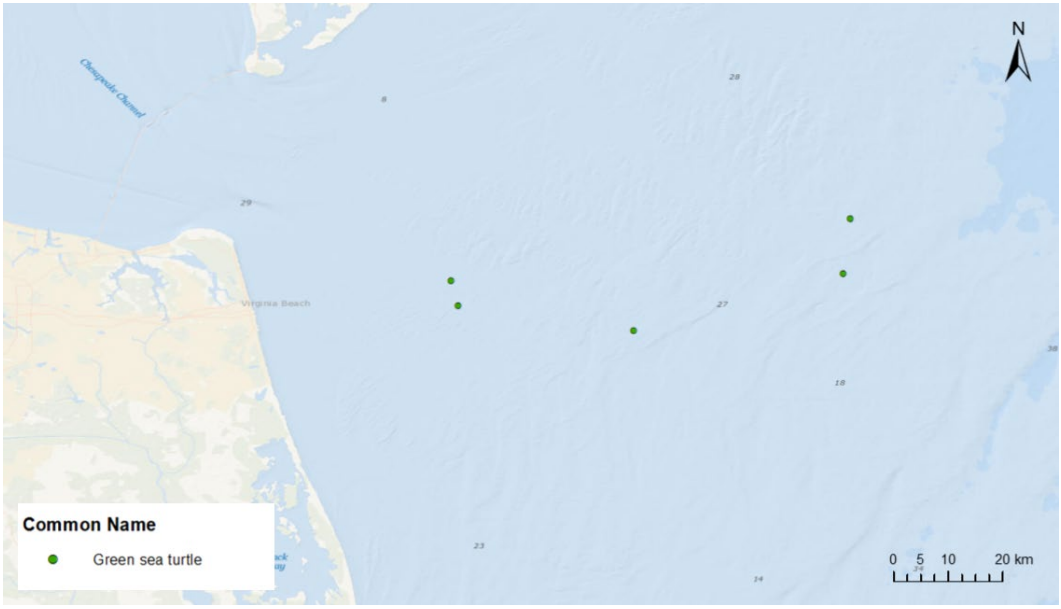

Figure I - 12. Map of the green sea turtle detections during the survey

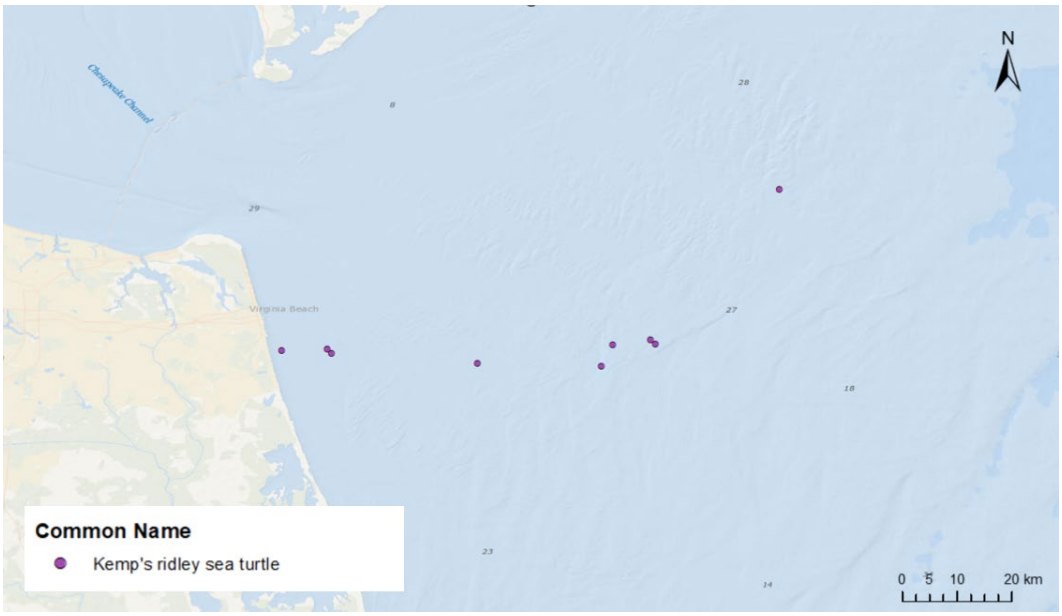

Figure I - 13. Map of the Kemp's ridley sea turtle detections during the survey

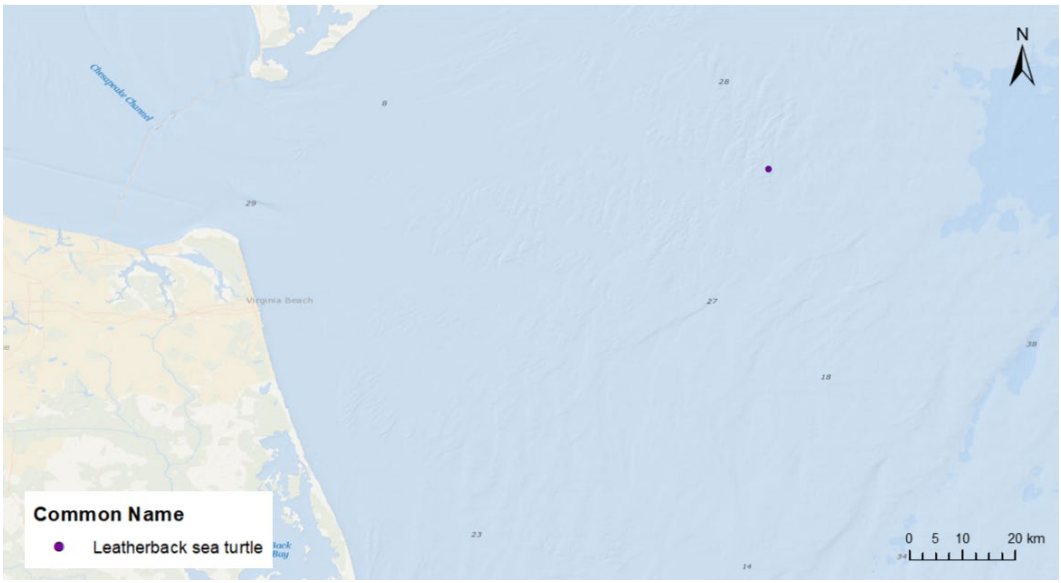

Figure I - 14. Map of the leatherback sea turtle detections during the survey

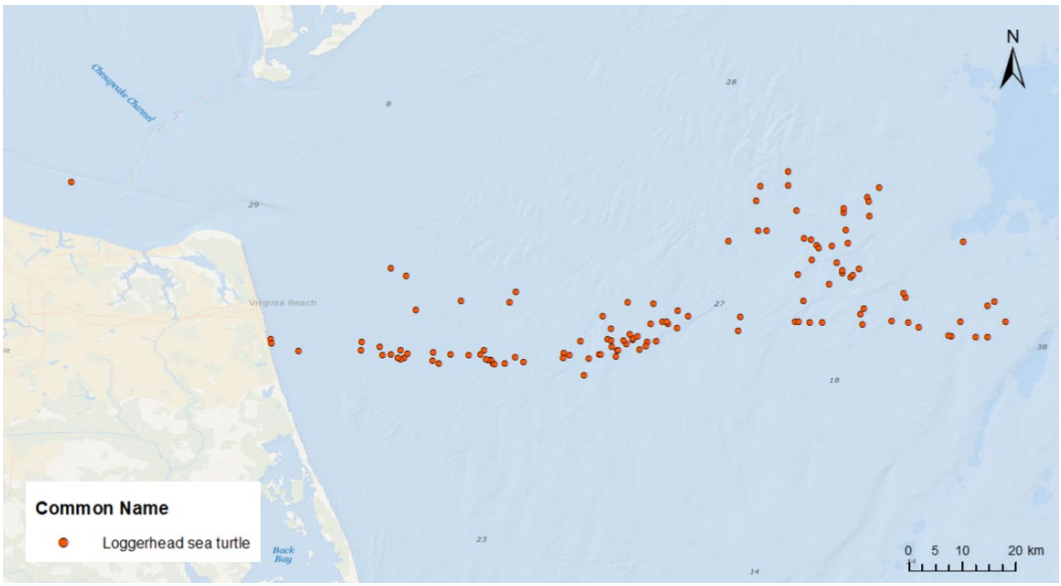

Figure I - 15. Map of the loggerhead sea turtle detections during the survey

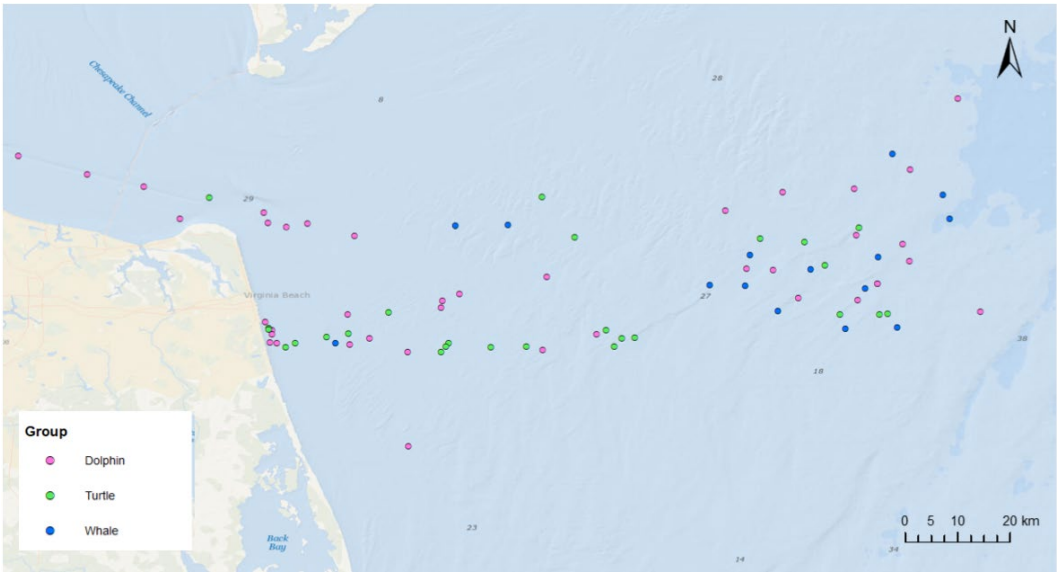

Figure I - 16. Map of the unidentified detections by group during the survey

Appendix J: NARW Sighting Reports

Dominion Offshore Wind Lease
Alpine, Shearwater

OCS-A 0483
North Atlantic Right Whale Sighting
15-February-2023

Observer's full name: Caylin Ashcraft, Camila Xavier

Reporter's full name: Caylin Ashcraft

Species Identification: North Atlantic right whale

Name and type of platform: Shearwater, survey vessel

Position of vessel at time of sighting: Latitude 36.94336°N Longitude 075.32631°W

Date animal observed: 15th February 2023

Time animal observed: 22:32 UTC

Environmental conditions at time of observation:

Depth: 29.28 meters

Wind speed: 18.9 knots

Beaufort Sea State: 5

Swell: <2 meters

Visibility: 2-5 km, haze on horizon

Detection Summary: At 22:32 UTC, two North Atlantic Right Whales were observed 1540 meters in front of the vessel with a heading of 90 degrees at a bearing of 0 degrees. The animals were observed blowing and fin slapping. They changed course toward the vessel and when they were at a distance of 1,000 meters the mate on duty was informed that they would likely be approaching and to go ahead and reduce speed; the mate did so immediately. As the whales entered into the 500 meter range, the mate was asked to alter course and steer away from the whales and did so immediately. As the whales approached further, the mate was asked if we could shift into neutral, to which he informed me that we could not because of the equipment in tow. The closest point of approach to the vessel was 10 meters. The whales were last observed at a distance of 1,000 meters heading away from the vessel with a heading of 180 degrees at a bearing of 180 degrees.

Date and Time reported to NMFS Hotline: Ben Finkes, shore-based project manager for RPS, placed call to (866) 755-6622 at 23:26 UTC to report the sighting.

Figure 1; Callosities on head

Figure 2; No dorsal fin

Figure 3; paddle shaped pectoral fin

Dominion Offshore Wind Lease
Alpine, Shearwater

OCS-A 0483
North Atlantic Right Whale Sighting
24-January-2023

Observer's full name: Yosiris Osuna, Laura Cuevas

Reporter's full name: Yosiris Osuna

Species Identification: North Atlantic right whale

Name and type of platform: R/V Shearwater, survey vessel

Position of vessel at time of sighting: Latitude 36.98628°N Longitude 075.28453°W

Date animal observed: 24th January 2023

Time animal observed: 20:18 UTC

Environmental conditions at time of observation:

Depth: 29 meters

Wind speed: 12.4 kt

Beaufort Sea State: 3

Swell: <2

Visibility: >5 Clear horizon

Sighting event details:

At 20:18 UTC, two north Atlantic right whales were observed 1200 meters from vessel's port bow, bearing 310 degrees, blowing and swimming at a moderate pace, parallel in opposite direction as vessel, with a heading of 200 degrees. The NARWs were observed swimming with normal behaviour, with surface active showing caudal fins to the side and maintaining the same heading during the detection. The closest approach to the marine mammals was 800 meters from vessel at 20:25 UTC. At 20:49 UTC the protected species were last observed 1500 meters from the starboard beam, bearing 110 degrees and continued blowing, surfacing, and diving showing the flukes with the same heading. This detection occurred while the vessel was running data acquisition, following of a line change of the no mitigable sources. As the marine mammal did not enter the minimum separation distance of 500 meters there wasn't any strike avoidance applied. The bridge was informed about it, and the vessel continued with normal operations.

Figure 1: NARW. Callosities on rostrum.

Figure 2: NARW. Caudal fin free of any entanglements.

Figure 3; NARW. Long and robust body and caudal fin.

Figure 4: NARW. No dorsal fin on back.

Figure 5: NARW. One blow in shape of V.

Figure 7: NARW. Caudal fin at the distance

Appendix K: Dead or Injured Protected Species Sighting Reports

Dominion, CVOW
Alpine, Shearwater

OCS-A 0483
Incident Report: Loggerhead sea turtle - Mortality
05-05-2023

Observer's full name: Jaime Santiago

Reporter's full name: Jaime Santiago

Species Identification: *Caretta caretta* – Loggerhead sea turtle

Name and type of platform: Shearwater, research vessel

Position of vessel at time of sighting: 36.83783 N, -75.41997 W

Date animal observed: 05-05-2023

Time animal observed: 15:03 UTC

Date animal collected: N/A

Time animal collected: N/A

Environmental conditions at time of observation: 7.2 Knots wind speed, NW wind direction, sea state 2 Beaufort scale, <2 meters swell, >5 km visibility, 5% cloud coverage, severe glare, no precipitation

Water temperature (°C) and depth (m/ft) at site: 25 meters water depth.

Description of sighting event:
At 15:03 UTC, the body of a loggerhead sea turtle was observed 153 meters from the vessel's starboard bow, at a bearing of 40 degrees, with its head pointing at 270 degrees. The turtle was drifting along the current, and after further observation it was determined the turtle was dead, there was no movement, and the head was hanging below the water surface, balancing with the movement of the water, for the entirety of the sighting. At 15:07 UTC, the turtle was last observed at 306 meters from the vessel, at a bearing of 130 degrees, its body was oriented with the head at 0 degrees. The closest approach of the turtle was 60 meters to the vessel at 15:04 UTC. During the detection, the vessel was on a survey line. The turtle did not enter the separation distance, and no vessel strike avoidance measures were required.

Figure 1: Loggerhead sea turtle

Figure 2: Loggerhead sea turtle

Photograph/Video taken: Yes

If Yes, was the data provided to NMFS? Yes

Date and Time reported to NMFS Stranding Hotline: Reported to NMFS Stranding Hotline By Cara Sands at 14:00 on 5May2023.

Dominion, CVOW
Alpine, Minerva Uno

OCS-A 0483
Incident Report: Kemp's ridley sea turtle- Mortality
September 17, 2022

Observer's full name: Veronica Yesenia Balderas Gonzalez

Reporter's full name: Veronica Yesenia Balderas Gonzalez

Species Identification: Kemp's ridley sea turtle

Name and type of platform: *Minerva Uno*, survey vessel

Position of vessel at time of sighting: 36.80040°N, 075.63164°W

Date animal observed: September 17, 2022

Time animal observed: 18:17 UTC

Date animal collected: N/A

Time animal collected: N/A

Environmental conditions at time of observation: Beaufort state 2, wind speed 5 knots

Water temperature (°C) and depth (m/ft) at site: 24˚C, 22 meters

Description of sighting event:

On September 17, at 18:17 UTC, a Kemp´s ridley sea turtle (*Lepidochelys kempii*) approximately 60 cm in length was spotted floating on the surface at a bearing of 300 degrees, 15 meters off port side of *Minerva Uno* while the vessel was on a survey line. The turtle was observed motionless. Photos were taken and it was determined to be in a medium state of decomposition, showing discoloration on the head, fore-limps, and carapace. Likewise, the fore-limps showed wear. The sighting was brief as the vessel moved on and the turtle was last sighted 25 meters from stern, at a bearing of 200 degrees, when the glare and the swell made difficult continuing the observation.

Due to the advanced decomposition state, it was also determined by the PSOs onboard that the survey activities and vessel movement did not have an impact on the death of this sea turtle.

There were no visible tags or markers on the animal, and no signs of tar, oil, gear entanglement or propeller damage.

Figure 1: Kemp's ridley sea turtle

Figure 2: Scutes on the carapace

Figure 3: Kemp's ridley sea turtle floating.

Photograph/Video taken:

If Yes, was the data provided to NMFS? No, RPS has not provided photos to NMFS.

Date and Time reported to NMFS Stranding Hotline: 17 September 2022, 19:20 (EST), by RPS Project Manager (Ben Finkes)

Appendix L: Vessel Strike Avoidance Table

Appendix L: Vessel Strike Avoidance Maneuvers

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Minerva Uno	2022-08-03	4	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-03	6	Common bottlenose dolphin	5	Maintain vessel heading
R/V Minerva Uno	2022-08-04	8	Unidentifiable Shelled Sea Turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-07	9	Common bottlenose dolphin	4	Maintain vessel heading
R/V Minerva Uno	2022-08-08	11	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-09	12	Atlantic spotted dolphin	3	Maintain vessel heading
R/V Minerva Uno	2022-08-03	13	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-09	14	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-10	15	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-10	16	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-13	17	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-13	18	Loggerhead sea turtle	2	Maintain vessel heading
R/V Minerva Uno	2022-08-24	27	Common bottlenose dolphin	43	Maintain vessel heading
R/V Minerva Uno	2022-08-24	29	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-08-26	35	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-28	43	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-28	44	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-08-29	46	Unidentifiable shelled sea turtle	1	Kept course
R/V Minerva Uno	2022-08-29	47	Common bottlenose dolphin	55	Alter course
R/V Minerva Uno	2022-08-30	55	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-01	60	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-13	74	Common bottlenose dolphin	1	Kept course
R/V Minerva Uno	2022-09-13	75	Common bottlenose dolphin	1	Kept course
R/V Minerva Uno	2022-09-14	78	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-15	80	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-16	83	Loggerhead sea turtle	1	Kept course

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Minerva Uno	2022-09-17	87	Kemp's Ridley sea turtle	1	Kept course
R/V Minerva Uno	2022-09-18	88	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-18	90	Unidentifiable shelled sea turtle	1	Kept course
R/V Minerva Uno	2022-09-20	92	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-21	100	Unidentifiable shelled sea turtle	1	Kept course
R/V Minerva Uno	2022-09-24	105	Common bottlenose dolphin	1	Kept course
R/V Minerva Uno	2022-09-24	106	Common bottlenose dolphin	2	Kept course
R/V Minerva Uno	2022-09-26	111	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-28	114	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-09-28	118	Common bottlenose dolphin	5	Kept course
R/V Minerva Uno	2022-10-06	119	Common bottlenose dolphin	2	Kept course
R/V Minerva Uno	2022-10-06	121	Green sea turtle	1	Kept course
R/V Minerva Uno	2022-10-06	122	Kemp's Ridley sea turtle	1	Kept course
R/V Minerva Uno	2022-10-07	123	Kemp's Ridley sea turtle	1	Kept course
R/V Minerva Uno	2022-10-10	124	Leatherback sea turtle	1	Kept course
R/V Minerva Uno	2022-10-12	128	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-10-12	129	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-10-14	131	Loggerhead sea turtle	1	Alter course
R/V Minerva Uno	2022-10-15	132	Loggerhead sea turtle	1	Alter course
R/V Minerva Uno	2022-10-15	135	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-10-17	136	Common bottlenose dolphin	3	Kept course
R/V Minerva Uno	2022-10-19	138	Loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-10-21	139	Common bottlenose dolphin	8	Kept course
R/V Minerva Uno	2022-10-22	142	Loggerhead sea turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-10-22	143	Loggerhead sea turtle	1	Alter course
R/V Minerva Uno	2022-10-24	144	common bottlenose dolphin	4	Speed reduction
R/V Minerva Uno	2022-10-24	145	common bottlenose dolphin	3	Kept course
R/V Minerva Uno	2022-10-25	146	loggerhead sea turtle	1	Kept course
R/V Minerva Uno	2022-10-26	147	Unidentifiable Shelled Sea Turtle	1	Kept course
R/V Minerva Uno	2022-10-26	148	loggerhead sea turtle	1	Alter course
R/V Minerva Uno	2022-10-27	149	Common bottlenose dolphin	4	Kept course
R/V Minerva Uno	2022-11-01	150	Common bottlenose dolphin	3	Kept course

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Minerva Uno	2022-11-01	151	common bottlenose dolphin	2	Kept course
R/V Minerva Uno	2022-11-12	157	Common bottlenose dolphin	4	Maintain vessel heading
R/V Minerva Uno	2022-11-12	158	Common bottlenose dolphin	4	Maintain vessel heading
R/V Minerva Uno	2022-11-23	166	Unidentifiable Shelled Sea Turtle	1	Maintain vessel heading
R/V Minerva Uno	2022-11-27	167	common bottlenose dolphin	5	Kept course
R/V Minerva Uno	2022-12-14	172	Common bottlenose dolphin	2	Maintain vessel heading
R/V Minerva Uno	2022-12-20	174	Unidentifiable baleen whale	1	Alter course
R/V Minerva Uno	2022-12-22	175	Common bottlenose dolphin	3	Kept course
R/V Minerva Uno	2022-12-22	176	Common bottlenose dolphin	8	Kept course
R/V Minerva Uno	2022-12-22	177	common bottlenose dolphin	3	Kept course
R/V Minerva Uno	2022-12-25	178	Humpback whale	2	Alter course
R/V Minerva Uno	2022-12-30	184	Common dolphin	2	Maintain vessel heading
R/V Minerva Uno	2022-12-31	187	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-01	188	Common dolphin	2	Maintain vessel heading
R/V Minerva Uno	2023-01-01	189	Unidentifiable Shelled Sea Turtle	1	Maintain vessel heading
R/V Minerva Uno	2023-01-02	191	Common dolphin	4	Kept course
R/V Minerva Uno	2023-01-02	192	Common dolphin	5	Kept course
R/V Minerva Uno	2023-01-02	193	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-03	196	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-07	197	Common dolphin	7	Kept course
R/V Minerva Uno	2023-01-08	198	Common dolphin	4	Kept course
R/V Minerva Uno	2023-01-08	199	Common dolphin	6	Kept course
R/V Minerva Uno	2023-01-08	200	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-09	201	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-09	202	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-10	203	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-10	204	Unidentifiable Dolphin	1	Kept course
R/V Minerva Uno	2023-01-11	205	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-11	206	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-11	207	Common dolphin	7	Kept course
R/V Minerva Uno	2023-01-12	208	Common dolphin	5	Kept course
R/V Minerva Uno	2023-01-12	209	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-12	210	Common dolphin	4	Kept course

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Minerva Uno	2023-01-12	211	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-12	212	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-12	213	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-12	214	Common dolphin	5	Kept course
R/V Minerva Uno	2023-01-13	215	Common dolphin	6	Kept course
R/V Minerva Uno	2023-01-13	216	Unidentifiable Dolphin	1	Kept course
R/V Minerva Uno	2023-01-16	217	Common bottlenose dolphin	5	Kept course
R/V Minerva Uno	2023-01-18	218	Common dolphin	5	Kept course
R/V Minerva Uno	2023-01-19	219	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-20	220	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-20	221	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-21	222	Common dolphin	9	Kept course
R/V Minerva Uno	2023-01-22	223	Common dolphin	4	Kept course
R/V Minerva Uno	2023-01-22	224	Common dolphin	4	Kept course
R/V Minerva Uno	2023-01-29	225	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-29	226	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-29	227	Common dolphin	12	Kept course
R/V Minerva Uno	2023-01-30	228	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-30	229	Common dolphin	1	Kept course
R/V Minerva Uno	2023-01-30	230	Common dolphin	4	Kept course
R/V Minerva Uno	2023-01-30	231	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-30	232	Common dolphin	8	Kept course
R/V Minerva Uno	2023-01-30	233	Common dolphin	7	Kept course
R/V Minerva Uno	2023-01-30	234	Common dolphin	7	Kept course
R/V Minerva Uno	2023-01-30	235	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-31	236	Common dolphin	4	Kept course
R/V Minerva Uno	2023-01-31	237	Common dolphin	2	Kept course
R/V Minerva Uno	2023-01-31	238	Common dolphin	3	Kept course
R/V Minerva Uno	2023-01-31	239	Common dolphin	10	Kept course
R/V Minerva Uno	2023-02-02	240	Common dolphin	3	Kept course
R/V Minerva Uno	2023-02-02	241	Common dolphin	2	Kept course
R/V Minerva Uno	2023-02-02	242	Common dolphin	5	Kept course
R/V Minerva Uno	2023-02-03	243	Common dolphin	6	Kept course
R/V Minerva Uno	2023-02-04	244	Humpback whale	1	Alter course
R/V Minerva Uno	2023-02-05	247	Common dolphin	2	Kept course
R/V Minerva Uno	2023-02-05	248	Common dolphin	3	Kept course
R/V Minerva Uno	2023-02-06	251	Common dolphin	10	Kept course
R/V Minerva Uno	2023-02-06	252	Common dolphin	3	Kept course
R/V Minerva Uno	2023-02-14	255	common dolphin	3	Kept course
R/V Minerva Uno	2023-02-15	256	common dolphin	9	Kept course
R/V Minerva Uno	2023-02-15	257	common dolphin	5	Kept course
R/V Minerva Uno	2023-02-15	258	common dolphin	3	Kept course
R/V Minerva Uno	2023-02-16	259	common dolphin	3	Kept course

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Minerva Uno	2023-02-19	260	Common dolphin	2	Kept course
R/V Minerva Uno	2023-02-19	261	Common dolphin	12	Kept course
R/V Minerva Uno	2023-02-19	262	Common dolphin	1	Kept course
R/V Minerva Uno	2023-02-19	263	Common dolphin	1	Kept course
R/V Minerva Uno	2023-02-20	264	Common dolphin	3	Kept course
R/V Minerva Uno	2023-02-24	266	Common dolphin	4	Kept course
R/V Minerva Uno	2023-02-24	267	Common dolphin	1	Kept course
R/V Minerva Uno	2023-02-24	268	Common dolphin	2	Kept course
R/V Minerva Uno	2023-02-24	269	Common dolphin	6	Kept course
R/V Minerva Uno	2023-02-25	271	Common dolphin	4	Kept course
R/V Minerva Uno	2023-02-28	273	Common bottlenose dolphin	50	Speed reduction
R/V Minerva Uno	2023-03-06	274	Common dolphin	3	Kept course
R/V Minerva Uno	2023-03-07	276	Common bottlenose dolphin	3	Kept course
R/V Minerva Uno	2023-03-21	279	Fin whale	1	Maintain vessel heading
R/V Minerva Uno	2023-03-24	280	Common dolphin	5	Kept course
R/V Minerva Uno	2023-03-24	281	Common dolphin	4	Kept course
R/V Minerva Uno	2023-03-25	283	Common dolphin	4	Kept course
R/V Minerva Uno	2023-03-25	284	Common dolphin	3	Kept course
R/V Minerva Uno	2023-03-26	285	Common dolphin	7	Kept course
R/V Minerva Uno	2023-03-26	287	Common dolphin	3	Kept course
R/V Minerva Uno	2023-03-26	288	Common dolphin	6	Kept course
R/V Minerva Uno	2023-03-27	289	Common dolphin	10	Kept course
R/V Minerva Uno	2023-03-27	290	Common dolphin	5	Kept course
R/V Minerva Uno	2023-03-27	291	Common dolphin	2	Kept course
R/V Minerva Uno	2023-03-29	293	Common dolphin	1	Kept course
R/V Minerva Uno	2023-04-04	297	Fin whale	1	Alter course
R/V Minerva Uno	2023-04-05	298	Unidentifiable whale	1	Alter course
R/V Minerva Uno	2023-04-06	300	Common bottlenose dolphin	12	Kept course
R/V Minerva Uno	2023-04-08	301	Common dolphin	5	Kept course
R/V Minerva Uno	2023-04-08	302	Common bottlenose dolphin	3	Kept course
R/V Minerva Uno	2023-04-11	303	Unidentifiable whale	1	Kept course
R/V Minerva Uno	2023-04-12	304	Atlantic spotted dolphin	14	Kept course
R/V Minerva Uno	2023-04-26	318	Loggerhead sea turtle	1	Kept course and maintained speed
R/V Minerva Uno	2023-04-27	321	Loggerhead sea turtle	1	Kept course and maintained speed
R/V Minerva Uno	2023-04-27	322	Common dolphin	15	Kept course and maintained speed
R/V Minerva Uno	2023-04-28	323	Loggerhead sea turtle	1	Kept course and maintained speed

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Shearwater	2023-01-03	171	Common bottlenose dolphin	4	Maintain vessel heading
R/V Shearwater	2023-01-05	172	Common bottlenose dolphin	3	Maintain vessel heading
R/V Shearwater	2023-01-06	174	Common dolphin	2	Maintain vessel heading
R/V Shearwater	2023-01-07	175	Common dolphin	2	Maintain vessel heading
R/V Shearwater	2023-01-08	176	Common dolphin	2	Maintain vessel heading
R/V Shearwater	2023-01-08	177	Common dolphin	4	Maintain vessel heading
R/V Shearwater	2023-01-08	178	Common dolphin	3	Maintain vessel heading
R/V Shearwater	2023-01-11	181	Common dolphin	2	Maintain vessel heading
R/V Shearwater	2023-01-18	182	Unidentifiable Dolphin	2	Maintain vessel heading
R/V Shearwater	2023-01-18	183	Fin whale	1	Alter course
R/V Shearwater	2023-01-19	184	Unidentifiable Dolphin	2	Kept course
R/V Shearwater	2023-01-21	186	Unidentifiable Dolphin	1	Maintain vessel heading
R/V Shearwater	2023-01-22	187	Common Dolphin	1	Maintain vessel heading
R/V Shearwater	2023-01-22	188	Common Dolphin	4	Maintain vessel heading
R/V Shearwater	2023-01-22	189	Common Dolphin	4	Maintain vessel heading
R/V Shearwater	2023-01-25	194	Common Dolphin	4	Maintain vessel heading
R/V Shearwater	2023-01-28	198	Common Dolphin	3	Maintain vessel heading
R/V Shearwater	2023-01-31	210	Common dolphin	2	Kept course
R/V Shearwater	2023-02-04	211	Common bottlenose dolphin	1	Kept course
R/V Shearwater	2023-02-04	212	Unidentifiable whale	1	Kept course
R/V Shearwater	2023-02-04	213	Common dolphin	2	Kept course
R/V Shearwater	2023-02-05	214	Unidentifiable dolphin	2	Kept course
R/V Shearwater	2023-02-05	215	Common dolphin	3	Kept course
R/V Shearwater	2023-02-06	216	Unidentifiable Dolphin	1	Kept course
R/V Shearwater	2023-02-06	217	Unidentifiable Dolphin	1	Kept course
R/V Shearwater	2023-02-14	218	Common bottlenose dolphin	9	Maintain speed
R/V Shearwater	2023-02-14	219	Common dolphin	5	Maintain speed
R/V Shearwater	2023-02-15	221	Common dolphin	4	Maintain speed
R/V Shearwater	2023-02-15	222	Common dolphin	4	Maintain speed
R/V Shearwater	2023-02-15	223	Common dolphin	10	Maintain speed
R/V Shearwater	2023-02-15	224	Common dolphin	4	Maintain speed
R/V Shearwater	2023-02-15	226	North Atlantic right whale	2	Alter course and reduce speed
R/V Shearwater	2023-02-18	227	Common bottlenose dolphin	3	Kept course and maintained speed
R/V Shearwater	2023-02-19	228	Common dolphin	6	Kept course and maintained speed
R/V Shearwater	2023-02-20	229	Common dolphin	8	Maintain speed
R/V Shearwater	2023-02-20	230	Common dolphin	5	Kept course and maintained speed

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Shearwater	2023-02-21	231	Common dolphin	3	Maintain speed
R/V Shearwater	2023-02-21	232	Common dolphin	4	Kept course and maintained speed
R/V Shearwater	2023-02-21	233	Common dolphin	1	Maintain speed
R/V Shearwater	2023-02-21	235	Common dolphin	3	Kept course and maintained speed
R/V Shearwater	2023-02-22	236	Common dolphin	15	Maintain speed
R/V Shearwater	2023-02-22	237	Common dolphin	8	Maintain speed
R/V Shearwater	2023-02-22	238	Common dolphin	5	Kept course and maintained speed
R/V Shearwater	2023-02-26	240	Common dolphin	5	Kept course and maintained speed
R/V Shearwater	2023-02-27	241	Common dolphin	2	Kept course and maintained speed
R/V Shearwater	2023-02-27	242	Unidentifiable dolphin	1	Kept course and maintained speed
R/V Shearwater	2023-03-19	244	Unidentifiable dolphin	3	Maintain vessel heading
R/V Shearwater	2023-03-21	246	Atlantic spotted dolphin	7	Maintain vessel heading
R/V Shearwater	2023-03-26	247	Common dolphin	12	Maintain vessel heading
R/V Shearwater	2023-03-26	248	Common dolphin	5	Maintain vessel heading
R/V Shearwater	2023-03-27	250	Common dolphin	6	Kept course and maintained speed
R/V Shearwater	2023-03-27	251	Common dolphin	3	Kept course and maintained speed
R/V Shearwater	2023-03-27	252	Common dolphin	2	Kept course and maintained speed
R/V Shearwater	2023-03-27	253	Common dolphin	2	Kept course and maintained speed
R/V Shearwater	2023-03-27	254	Common dolphin	3	Kept course and maintained speed
R/V Shearwater	2023-03-28	255	Unidentifiable baleen whale	1	Kept course and maintained speed
R/V Shearwater	2023-03-28	256	Fin whale	1	Kept course and maintained speed
R/V Shearwater	2023-04-04	257	Common dolphin	8	Kept course and maintained speed
R/V Shearwater	2023-04-04	258	Common dolphin	8	Kept course and maintained speed
R/V Shearwater	2023-04-15	264	Common bottlenose dolphin	5	Kept course and maintained speed
R/V Shearwater	2023-04-26	284	Loggerhead sea turtle	1	Alter course
R/V Shearwater	2023-05-05	294	Loggerhead sea turtle	1	Alter course
R/V Shearwater	2023-05-05	299	Loggerhead sea turtle	1	Alter course
R/V Henry Hudson	2022-09-26	26	Common bottlenose dolphin	9	Maintain vessel heading

Vessel	Date	Detection number	Species	Number of animals	Strike avoidance maneuver
R/V Henry Hudson	2022-09-26	27	Common bottlenose dolphin	20	Speed reduction
R/V Henry Hudson	2022-09-27	28	Common bottlenose dolphin	3	Maintain vessel heading
R/V Henry Hudson	2022-09-28	29	Common bottlenose dolphin	4	Speed reduction