2023 Annual Marine Monitoring Report
Parallel Thimble Shoal Tunnel Project
Virginia Beach, Virginia

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ACRONYMS AND ABBREVIATIONS

AOC	**Atlantic Ocean Channel**
CTJV	**Chesapeake Tunnel Joint Venture**
DTH	**Down the Hole**
FLSP	**First Landing State Park**
GPS	**Global Positioning System**
IHA	**Incidental Harassment Authorization**
IPP	**Interlocking Pipe Pile**
MA1	**Meeting Area 1**
MHW	**Mean High Water**
MMMP	**Marine Mammal Monitoring Plan**
MCY	**Million Cubic Yards**
PSO	**Protected Species Observer**
NOAA	**National Oceanic and Atmospheric Administration**
NOAA Fisheries	**National Marine Fisheries Service**
PTS	**Permanent Threshold Shift**
PTST	**Parallel Thimble Shoal Tunnel**
SOE	**Support of Excavation**
TBM	**Tunnel Boring Machine**
ZOI	**Zone of Influence**

1. EXECUTIVE SUMMARY

Under the Incidental Harassment Authorization (IHA), issued by NOAA November 16, 2022, a total of 286 -36" steel pipe piles were driven on the project. This work was performed with the use of a Down The Hole (DTH) hammer, traditional impact and vibratory driving.

Pile driving construction under this IHA was done from November 16, 2022, until September 21, 2023, when pile driving activities where completed for the installation of piles on the project.

Pile driving on Island 1 and Island 2 was already underway on November 16, 2022 when CTJV received the new IHA. From then to September 21, 2023, Protected Species Observers (PSOs) were onsite at Portal Island 1 and/ or 2 and at the First Landing State Park (FLSP) observation location 186 days to observe both upland and in-water pile installation. There was a total of 988 marine mammals observed in this period. 947 of the sightings were of bottlenose dolphins, with the possibility of 119 of those sightings being duplicates of already observed individual dolphins. There were also 34 harbor seal and 3 humpback whale sightings. Of these sightings, there were 7 Level A harassment for harbor seals recorded and 264 Level B harassments for bottlenose dolphins and 7 for harbor seals.

An IHA application was submitted to NOAA in September 2023 for pile removal that is expected to begin in late January 2024.

2. INTRODUCTION

The CTJV's Parallel Thimble Shoal Tunnel (PTST) project consists of the construction of a two-lane parallel tunnel to the west of the existing Thimble Shoal Tunnel, connecting Portal Island Numbers (Nos.) 1 and 2. Upon completion, the new tunnel will carry two lanes of southbound traffic and the existing tunnel will remain in operation and carry two lanes of northbound traffic. A tunnel boring machine (TBM) will both excavate material and construct the tunnel as it progresses from Portal Island No. 1 to Portal Island No. 2. Precast concrete tunnel segments will be transported to the TBM for installation. The TBM will assemble the tunnel segments in-place as the tunnel is bored. After the tunnel structure is completed, final upland work for the PTST Project will include installation of the final roadway, lighting, finishes, mechanical systems, and other required internal systems for tunnel use and function. In addition, the existing fishing pier will be repaired and refurbished.

Pile driving activities for the PTST Project have the potential to cause sound levels that exceed Level A and Level B acoustic harassment thresholds for marine mammals, as defined by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Office of Protected Resources (NOAA Fisheries 2016h) and therefore required the need for an IHA.

This project is occurring in the lower Chesapeake Bay which overlaps with a range of several marine mammal species. The granted November 16, 2022 IHA authorized harassments for five species of marine mammals: harbor seal (*Phoca vitulina*), gray seal *(Halichoerus grypus*), bottlenose dolphin (*Tursiops truncatus*), harbor porpoise (*Phocoena phocoena*) and humpback whale (*Megaptera novaeangliae*). These harassments are associated with pile driving activities related to the PTST Project.

Table 1 displays the number of authorized Level A and Level B harassments permissible under this IHA, organized by species and stock.

Table 1- Authorized Amount of Taking, by Level A Harassment and Level B Harassment, by Species and Stock

Species	Stock	Level A Takes	Level B Takes
Humpback Whale	Gulf of Maine	0	12
Harbor Porpoise	Gulf of Maine/ Bay of Fundy	5	7
Bottlenose Dolphin	WNA Coastal, Northern Migratory	0	43,203
	WNA Coastal, Southern Migratory	0	43,203
	NNCES	0	250
Harbor Seal	Western North Atlantic	1,154	1,730
Gray Seal	Western North Atlantic	16	24

3. MONITORING AND METHIDOLOGY

3.1 MONITORING PROCEDURES

The PTST Marine Mammal Monitoring Plan (MMMP) (Appendix A) was revised to reflect updates in the November 16, 2022 issued IHA. This plan served as the protocol for monitoring marine mammals during pile installation activities in the Project Area. The goal of the MMMP was to prevent unauthorized harassments and to minimize allowable harassments by using clearly defined methods for monitoring and shutdown procedures during construction.

Protected Species Observers (PSOs) were in areas that offered the best available views of the shutdown and monitoring zones. At least one PSO was located on a Portal Island if any type of in-water pile driving is occurring on that Island. At least one additional PSO is required at each active driving rig or First Landing State Park (FLSP) location providing best possible views of the shutdown and monitoring zones. The PSO located at FLSP is only needed there when the level B harassment zones were larger than 6000 meters from the driving locations on the Portal Islands (i.e., during DTH hammer driving activities).

Marine mammal monitoring must take place from 30 minutes prior to initiation of pile driving activity through 30 minutes post-completion of pile driving activity. Pre-activity monitoring must be conducted for 30 minutes to ensure that the shutdown zone is clear of marine mammals, and pile driving may commence when observers have declared the shutdown zone clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the shutdown zone, animals shall be allowed to remain in the shutdown zone (i.e., must leave of their own volition) and their behavior shall be monitored and documented.

If a marine mammal enters or is observed within an established shutdown zone, pile driving must be halted or delayed. Pile driving may not commence or resume until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without subsequent detections of the animal. Shutdown and harassment zones designated under the November 16, 2022, IHA are depicted in Table 2.

Table 2- Authorized Shutdown and Harassment Zones (meters)

Method and Piles/ Day	Low Frequency Cetaceans	Mid Frequency Cetaceans	High Frequency Cetaceans	Phocids	Harassment Zone
DTH (3/day)	1230	50	200	150	7609
DTH (6/day)	1950	70	200	150	12060
Impact (4/day)	1010	40	200	150	136
Impact (6/day)	1320	50	200	150	136
Vibratory (4/day)	20	10	20	10	5598
Impact + DTH	Use zones for each source alone				7609
DTH + Vibratory	1230	50	200	150	10344

Impact + Vibratory	1320	50	200	150	5598
Impact + DTH + DTH	1320	50	200	150	12060
DTH + DTH + Vibratory	1950	70	200	1050	14061
DTH + Vibratory + Impact	1320	50	200	710	10344
Impact + Impact + DTH	Use zones for each source alone				7609

3.2 PROTECTED SPECIES OBSERVER QUALIFICATIONS

The CTJV employed NOAA Fisheries-approved PSOs from AZURA, to monitor Level A, Level B and Shutdown Zones. These individuals met the qualifications and experience outlined in Section 5 of the November 16, 2022 issued IHA. Credentials are provided in Appendix D.

Days where pile installation activities occurred, observers were on site and observation records were completed. The following data was included in the observation records:

- Dates and times (begin and end) of all marine mammal monitoring.
- Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed and by what method (*i.e.*, impact or vibratory).
- Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).
- The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
- Age and sex class, if possible, of all marine mammals observed.
- MMO locations during marine mammal monitoring.
- Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
- Description of any marine mammal behavior patterns during observation, including direction of travel.
- Number of individuals of each species detected within the monitoring zone, and estimates of number of marine mammals harassed, by species.
- Detailed information about any implementation of any mitigation triggered (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.
- Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
- Marine mammal observational datasheets or raw data.

The PSOs followed the authorized harassment zones for each activity based on guidance from the November 16, 2022 issued IHA.

4. OBSERVATIONS AND FINDINGS

4.1 SCHEDULE OF ACTIVITIES

The PTST Project pile driving activities that occurred under the November 16, 2022 issued IHA were as followed:

Of the 462 piles requested and authorized under the current Nov. 2022-2023 IHA, the CTJV only needed to install a total of 286 36" in-water piles to complete the project.

The completion of the construction of the temporary omega trestle and trestle extension on Islands 1 and 2, involved the installation of the 36" diameter hollow steel pipe piles using a Down The Hole Hammer (DTH) initially to get through armor stone (where applicable), then driven to the desired depth with an impact hammer. A fully encapsulated bubble curtain was used during impact and vibratory driving of each pile in water depths greater than 10 feet.

Construction of two engineered berms on Islands 1 and 2 included:

Island 1: 11(of 402 total) 36" diameter steel pipe piles
Island 2: 252 (of 402 total) 36" diameter steel pipe piles
Both berms extend channelward from each portal island. Construction methods include dredging; stone placement (core, bedding, filter, and armor stone); impact, vibratory pile driving and use of the DTH hammer.

Table 3 outlines the progression of in- water pile installation throughout the November 16, 2022, IHA Construction Window.

Table 3- Pile Installation Schedule Under November 16, 2022, Issued IHA

Pile Location	Pile Function	Pile Type	Installation/ Removal Method	Bubble Curtain Yes/No	Number of Piles Completed in 2022 IHA
Portal Island No. 1	Berm Construction Trestle Mooring Piles & Dolphins	36-inch Diameter Hollow Steel Pipe Pile	Vibratory	Yes	4
Portal Island No. 1	Berm Support of Excavation Wall - West Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH (install)	No	10
			Impact	Yes	
Portal Island No. 1	Berm Support of Excavation Wall - East Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH (install)	No	1
			Impact	Yes	
Portal Island No. 2	Berm Construction Trestle (Omega Trestle)	36-inch Diameter Hollow Steel Pipe Piles	DTH (Install)	N/A	15
			Impact	N/A	
Portal Island No. 2	Berm Support of Excavation Wall - West Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH (Install)	No	115
			Impact	Yes	
Portal Island No. 2	Berm Support of Excavation Wall - East Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH (Install)	No	137
			Impact	Yes	
Portal Island No. 2	Berm Construction Trestle Mooring Piles	36-inch Diameter Hollow Steel Pipe Piles	Vibratory (Install & Removal)	Yes	4
				TOTAL PILES:	286

A detailed description of the construction activities that occurred may be found in the Federal Register notice of proposed IHA for the 2022 authorization (FR Doc. 2022–24812 Filed 11–14–22; 8:45 am).

4.3 Marine Species Observed in the Project Area

Pile driving construction that took place under this annual report was performed from November 16, 2022, until September 21, 2023. In that time, PSOs were onsite 159 days to observe both upland and in-water pile installation. There was a total of 989 marine mammals observed in this period. 947 of the sightings were of bottlenose dolphins, 3 humpback whales and 38 harbor seal

sightings. Of these sightings, 7 Level B harassments for harbor seals were recorded and 263 Level B harassments occurred for bottlenose dolphins.

Table 4 details the marine mammal sighting that occurred during this IHA in comparison to the previously issued IHAs.

Observed marine mammal log can be found in Appendix B.

Table 4- Observed Mammals During Pile Driving Activities Under November 2022 Issued IHA Compared to March and November 2021 Issued IHA

Species	Species Observed March 9, 2021- November 16, 2021	Species Observed November 16, 2021- November 15, 2022	Species Observed November 16, 2022- September 21, 2023
Humpback Whale	0	2	3
Harbor Porpoise	0	0	0
Bottlenose Dolphin	810	809	947
Harbor Seal	4	11	38
Gray Seal	0	0	0

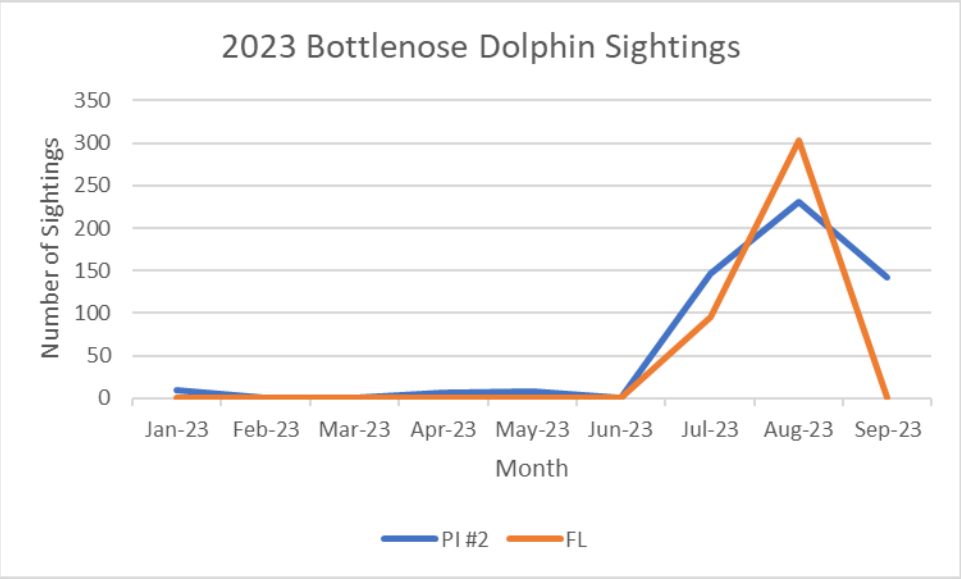
Table 5 indicates how many Level A and B Harassments that were authorized and observed by PSOs broken down by species and stock under the November 2022 IHA.

Table 5- Level A and Level B Harassment, By Species and Stock

Species	Stock	Authorized Level A Harassments	Authorized Level B Harassments	Documented # of Species Sighted (Nov.16 2022- Sept. 21 2023)	Documented Level A Harassments (Nov.16 2022- Sept. 21 2023)	Documented Level B Harassments (Nov.16 2022- Sept. 21 2023)	Documented Shutdowns (Nov.16 2022- Sept. 21 2023)
Humpback Whale	Gulf of Maine	-	12	3	0	0	0
Harbor Porpoise	Gulf of Maine/ Bay of Fundy	5	7	0	0	0	0
Bottlenose Dolphin	WNA Coastal, Northern Migratory	-	43,203	947	0	263	0
	WNA Coastal, Southern Migratory	-	43,203				
	NNCES	-	250				
Harbor Seal	Western North Atlantic	1,154	1,730	38	7	7	0
Gray Seal	Western North Atlantic	16	24	0	0	0	0

Following the guidance of the November 2021 issued IHA, CTJV stationed a PSO at First Landing State Park, located directly next to Fort Story in Virginia Beach, VA, for all days that pile driving activities would create a level B ZOI greater than 6,000 meters. This location was selected due to the historically high documented concentration of bottlenose dolphin activity in that general vicinity. Figure 1 shows that of the 947 bottlenose dolphins observed during the November 16, 2022, to September 21, 2023, construction window 404 (~43%) were observed from the FLSP observation post, as opposed to Portal Island 1 or 2.

Figure 1- Number of Dolphin Sightings per Month by Observation Location (November 16, 2022- September 21, 2023)



5. MITIGATION MEASURES

5.1 GENERAL CONSTRUCTION MITIGATION

The Project followed the guidance of NOAA's November 16, 2022 issued IHA Mitigation Measures. These measures include:

- For in-water construction heavy machinery activities other than pile driving (e.g., use of barge-mounted excavators, or dredging), if a marine mammal comes within 10 m, CTJV must cease operations and reduce vessel speed to the minimum level required to maintain steerage and safe working conditions.

- CTJV is required to conduct briefings for construction supervisors and crews, the monitoring team, and CTJV staff prior to the start of all pile driving activity, and when new personnel join the work, to explain responsibilities, communication procedures, the marine mammal monitoring protocol, and operational procedures.

- CTJV is required to employ between at least 1 PSO per activity, as outlined in the issued November 16, 2022, IHA.

- Marine mammal monitoring must take place from 30 minutes prior to initiation of pile driving activity through 30 minutes post-completion of pile driving activity. Pre-activity monitoring must be conducted for 30 minutes to ensure that the shutdown zone is clear of marine mammals, and pile driving may commence when observers have declared the shutdown zone clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the shutdown zone, animals shall be allowed to remain in the shutdown zone (*i.e.*, must leave of their own volition) and their behavior shall be monitored and documented.

- If a marine mammal enters or is observed within an established shutdown zone pile driving must be halted or delayed. Pile driving may not commence or resume until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without subsequent detections of the animal.

- Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone would not be visible (e.g., fog, heavy rain), pile driving must be delayed until the MMO(s) is confident marine mammals within the shutdown zone could be detected.

- CTJV must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a thirty-second waiting period, then two subsequent reduced energy strike sets. A

soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of thirty minutes or longer.

- CTJV must use an air bubble curtain system during impact and vibratory pile driving of steel pipe piles. Bubble curtains must meet the following requirements:

  i. The bubble curtain must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column.

  ii. The lowest bubble ring must be in contact with the mudline and/or rock bottom for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent mudline and/or rock bottom contact. No parts of the ring or other objects shall prevent full mudline and/or rock bottom contact.

  iii. The bubble curtain must be operated such that there is proper (equal) balancing of air flow to all bubblers.

  iv. CTJV must employ the bubble curtain during impact and vibratory pile driving of all steel piles in water depths greater than 3 m (10 ft.).

- CTJV must establish harassment and shutdown monitoring zones as outlined in Table 2 of the November 16. 2022 issued IHA.

If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized takes are met, is observed entering or within the monitoring zones outlined in the November 16, 2022, IHA, pile driving activities must shut down immediately using delay and shutdown procedures. Activities must not resume until the animal has been confirmed to have left the area on their own or the 15-minute observation time has elapsed.

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APPENDIX A-

Marine Mammal Monitoring Plan

Marine Mammal Monitoring Plan
for the
Parallel Thimble Shoal Tunnel Project

Prepared by:

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November 2021

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ACRONYMS AND ABBREVIATIONS

CTJV	Chesapeake Tunnel Joint Venture
DTH	Down the Hole
ft	feet
GPS	Global Positioning System
IHA	Incidental Harassment Authorization
IPP	Interlocking Pipe Pile
MHW	Mean High Water
MLW	Mean Low Water
MMMP	Marine Mammal Monitoring Plan
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
PSO	Protected Species Observer
PTS	Permanent Threshold Shift
PTST	Parallel Thimble Shoal Tunnel
SOE	Support of Excavation
TBM	Tunnel Boring Machine
ZOI	Zone of Impact

1. INTRODUCTION

The Parallel Thimble Shoal Tunnel (PTST) Project consists of the construction of a two-lane parallel tunnel to the west of the existing Thimble Shoal Tunnel, connecting Portal Island Numbers (Nos.) 1 and 2. Upon completion, the new tunnel will carry two lanes of southbound traffic and the existing tunnel will remain in operation and carry two lanes of northbound traffic. The 6,525 linear feet (ft) of new tunnel will be constructed using a tunnel boring machine (TBM), with 5,356 linear ft located below Mean High Water (MHW).

Pile driving during construction of the PTST Project has the potential to cause sound levels that exceed Level A and Level B acoustic harassment thresholds for marine mammals as defined by the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NOAA Fisheries) Office of Protected Resources (NOAA Fisheries 2016) and updated June 2020 NOAA guidelines for the Down The Hole (DTH) Hammer Sound Modeling.

The following activities are scheduled to occur during the 12-month construction period extending from November 2021 through October 2022 and is illustrated in table 1.

- Berm Construction Mooring piles on Portal Island 1& Island 2:

  - Portal Island No.1: Installation of (28) 36-inch hollow steel pipe piles. Installation will be by vibratory hammer with bubble curtain. It is expected to take a total of 7 days over several months to install the 28 piles (4 piles/day).

  -Portal Island No. 2: Installation of (16) 36-inch hollow steel pipe piles, which shall be installed by vibratory hammer with bubble curtain. The anticipated installation is expected to take a total of 4 days, which shall be completed over several months.

- Construction of two temporary Omega trestles:
  - Portal Island No. 1- Installation of (26) 42” pipe piles diameter steel pipe piles. These will be installed using a vibratory hammer with bubble curtain. In the event a large boulder is encountered during installation then the vibratory hammer will be switched out with an impact hammer. The estimated production rate for the installation of these piles are 2 piles/day. There will be a 2-week span between the driving of a pair of these pipe piles to allow for the installation of the trestle super structure before continuing with the extension. The total number of days of actual driving of these piles should not exceed 13 days.
  - Portal Island No. 2- Installation of (24) 36” piles hollow steel piles for the original design of the trestle will be done with the DTH and impact hammer with bubble curtain. As with on Island 1, the estimated production rate will be 2 piles per day followed by the installation of the superstructure. It will take a total of 12 days spanning over several months in install the (24) 36” piles. The (24) 42” piles for the trestle extension will be installed via vibratory hammer with bubble curtain. Based on the forecasted schedule of activities during the year of this IHA, it is anticipated that only 16 of these 24 piles will be installed. If boulders are encountered during installation the vibratory hammer will be switched out with an

impact hammer with bubble curtain and will follow the same production schedule as the 36" piles, taking a total of 8 days under this IHA, spread over several months.

- Construction of two engineered berms, which as described here in; Portal Island No. 1, is approximately 1,395 ft. in length (in that length, 435 ft. is located above MHW and 960 ft. below MHW). Portal Island No. 2 is approximately 1,354 ft. in length (in that length 446 ft. is located above MHW and 908 ft. below MHW). Both berms will extend channelward from the west side of the existing berm on each portal island. Methods for construction will include dredging; stone placement (core, bedding, filter, armor 1 & 2 stone); DTH hammer and impact pile driving of 36" interlocked pipe piles; excavation between SOE walls; and placement of engineered and flowable fill. Below are the details of these activities.

  - Portal Island No. 1- Installation of (209) 36" hollow steel interlocking piles on the west wall and (107) on the East wall of the Portal Island 1 Berms. Both will be installed to the West of the existing berm, starting on the northwest corner of Island 1, extending channelward in alignment with the existing tunnel. Pile installation will occur with the use of the DTH hammer to cut through existing armor stone and the impact hammer with bubble curtain to drive the remainder of the pile to the design elevation. On the west wall, 3 piles a day can be installed, while only 2 piles a day can be installed on the east wall. This is due to the significant size and quantity of the boulders encountered on the east wall, which is closer to the existing berm. It will take 70 days to install the west wall and 54 days to install the east wall, although some of these piles will be installed simultaneously.

  -Portal Island No. 2- Installation of (257) 36" hollow steel interlocking piles on the west wall and (166) on the east wall of the Portal Island 2 Berms. Based on the forecasted schedule of activities during the year of this IHA, it is anticipated that only 204 of the 257 piles on the west wall and 134 of the 166 on the east wall will be installed. Both will be installed to the west of the existing berm, starting on the southwest corner of Island 2, extending channelward in alignment with the existing tunnel. Pile installation will occur with the use of the DTH hammer to cut through existing armor stone and the impact hammer with bubble curtain to drive the remainder of the pile. Production rates will be the same as on Island 1 and will take 68 days to install the west wall and 67 days to install the east wall.

Table 1. Anticipated Pile Installation Schedule (November 2021- October 2022)

Pile Location	Pile Function	Pile Type	Installation/ Removal Method	Bubble Curtain Yes/No	Number of Piles Below MHW	Number of Days per Activity (Total)	Number of Days per Activity (Per Hammer Type)	Anticipated Installation Date
Portal Island No. 1	Berm Construction Trestle Mooring Piles & Dolphins	36-inch Diameter Hollow Steel Pipe Pile	Vibratory	Yes	28	*7*	7 Days (4 Piles/Day)	**November 2021 through June 2022**
Portal Island No. 1	Berm Construction Trestle Extension (Omega Trestle Extension)	42-inch Diameter Hollow Steel Pipe Piles	Vibratory	Yes	26	*13*	13 Days (2 Piles/Day)	**November 2021 through May 2022**
			Impact (If needed)	Yes				
Portal Island No. 1	Berm Support of Excavation Wall - West Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH	No	209	*140*	70 Days (3 Piles/Day)	**November 2021 through June 2022**
			Impact	Yes			70 Days (3 Piles/Day)	
Portal Island No. 1	Berm Support of Excavation Wall - East Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH	No	107	*108*	54 Days (2 Piles/Day)	**November 2021 through June 2022**
			Impact	Yes			54 Days (2 Piles/Day)	
Portal Island No. 2	Berm Construction Trestle (Omega Trestle)	36-inch Diameter Hollow Steel Pipe Piles	DTH	No	24	*24*	12 Days (2 Piles/Day)	**January 2022 through June 2022**
			Impact	Yes			12 Days (2 Piles/Day)	
Portal Island No. 2	Berm Construction Trestle (Omega Trestle)	42-inch Diameter Hollow Steel Pipe Piles	Vibratory	Yes	16*	*8*	8 Days (2 Piles/Day)	**July 2022 through October 2022**
			Impact (If needed)	Yes				
Portal Island No. 2	Berm Support of Excavation Wall - West Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH	No	204*	*136*	68 Days (3 Piles/Day)	**February 2022 through October 2022**
			Impact	Yes			68 Days (3 Piles/Day)	
Portal Island No. 2	Berm Support of Excavation Wall - East Side	36-inch Diameter Hollow Steel Interlocked Pipe Piles	DTH	No	134*	*134*	67 Days (2 Piles/Day)	**February 2022 through October 2022**
			Impact	Yes			67 Days (2 Piles/Day)	
Portal Island No. 2	Berm Construction Trestle Mooring Piles	36-inch Diameter Hollow Steel Pipe Piles	Vibratory	Yes	16	*4*	4 Days (4 Piles/Day)	**1 March 2022 through October 2022**

* Operation won't be completed under this IHA

Although 40 species of marine mammals under NMFS jurisdiction have been documented to occur within the waters of the mid-Atlantic region of the western North Atlantic Ocean; only 8 of those species (six cetacean and two pinniped) have regular (species that occurs as a regular or normal part of the fauna of the area, regardless of how abundant or common it is) or rare (species that only occurs in the area sporadically, not common) occurrences in the Chesapeake Bay (Department of the Navy (DoN) 2008). Any occurrences of other marine mammal species would be considered extralimital (a species that does not normally occur in the area). Based on correspondence between NOAA Fisheries and Federal Highway Administration and use of the U.S. Fish and Wildlife Service's Information for Planning and Conservation Online System, a list of marine mammals that may be present in the Project Area was developed (Table 2).

Table 2 lists all species with expected potential for occurrence near the project area and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and Potential Biological Removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2020). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock, or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in draft United States Atlantic and Gulf of Mexico Marine Mammal Stock Assessments (Hayes *et al.* 2019; 2020) and the North Atlantic Right Whale Consortium 2020 Annual Report Card (Pettis et al. 2020).

Table 2: Marine Mammal Species Known to Occur Within the CTJV Project Area

Species / Stock	ESA/MMPA Status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)				
Family Balaenidae				
North Atlantic Right Whale[7] *(Eubalaena glacialis)* Western North Atlantic (WNA)	E, D; Y	368 (95% credible intervals 0, 408, 2018)	0.8	18.6
Family Balaenopteridae (rorquals)				
Humpback Whale[5] *(Megaptera novaeangliae)* Gulf of Maine	-,-; N	1393 (0; 1375; 2016)	22	58
Fin Whale[7] *(Balaenoptera physalus)* WNA	E,D; Y	6,802 (0.24; 5,573; 2016)	11	2.5
Superfamily Odontoceti (toothed whales, dolphins and porpoises)				
Family Delphinidae				
Bottlenose Dolphin *(Tursiops truncatus)* WNA Coastal, Northern Migratory	-,-; Y	6,639 (0.41; 4,759; 2011)	48	12.2-21.5
Bottlenose Dolphin *(Tursiops truncatus)* WNA Coastal, Southern Migratory	-,-; Y	3,751 (0.06; 2,353; 2011)	23	0-148.3
Bottlenose Dolphin *(Tursiops truncatus)* Northern North Carolina Estuarine System	-,-; Y	823 (0.06; 782; 2017)	7.8	7.2-30
Family Phocoenidae (porpoises)				
Harbor porpoise *(Phocoena phocoena)* Gulf of Maine/Bay of Fundy	-, -; N	95,543 (0.31; 74, 034; 2016)	851	217
Order Carnivora – Superfamily Pinnipedia				

Family Phocidae (earless seals)				
Harbor Seal *(Phoca vitulina)* WNA	-; N	75,834 (0.1; 66,884, 2012)	2,006	350
Gray Seal[6] *Halichoerus grypus* WNA	-; N	27,131 (0.19, 23,158, 2016)	1,359	4,729

1 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR, or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2- NMFS marine mammal stock assessment reports online at*: https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region.* CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable

3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

4 - For the North Atlantic right whale the best available abundance estimate is derived from the North Atlantic Right Whale Consortium 2020 Annual Report Card (Pettis *et al.* 2020).

5 - 2018 U.S. Atlantic SAR for the Gulf of Maine feeding population lists a current abundance estimate of 896 individuals. However, we note that the estimate is defined based on feeding location alone (*i.e.*, Gulf of Maine) and is therefore likely an underestimate.

6 - The NMFS stock abundance estimate applies to U.S. population only; however, the actual stock abundance is approximately 505,000.

7 - Species are not expected to be taken or authorized for take.

Of the marine mammal species that may occur in the Project Area, harbor seals, gray seals, harbor porpoise, bottlenose dolphin, and humpback whales are the most likely to be present. Whales, seals, and porpoises are mobile species and are expected to easily avoid the disturbance and activity associated with construction.

Given the preference of whales for water deeper than is found in the Project Area, their presence near the construction areas is unlikely. Although, whales have been observed in the deeper waters in the vicinity of the PTST Project. Construction activity within open water will be located adjacent to Portal Island Nos. 1 and 2, and the use of the bored method for construction will prevent open water impacts in the areas more likely to be used by whale species. Given the feeding habits of whales, they are unlikely to be attracted to the portal islands and are not expected to venture into shallower construction areas.

Seals and harbor porpoises may be found in shallower areas; however, it is unlikely that harbor porpoises are using the shallowest areas of the Project Area. Both species may be temporarily displaced from the Project Area and within the Level A and B ZOIs. Seals are known to use the shallow portion of the Project Area to reach shoreline haul out areas on the portal islands. Seals would be displaced from these upland areas during construction areas and would likely continue to use Portal Island Nos. 3 and 4. Portal Island No. 3 would be used for storage of monthly materials, which would be consistent with existing routine operations associated with CBBT maintenance. Portal Island No. 4 is not located within the Project footprint.

Authorized takes are shown below in Table 3.

Table 3. Number of Level A and Level B Takes Authorized Per Species

Species	Stock	Level A Takes Requests	Level B Takes Requests
Humpback Whale	Gulf of Maine	-	12
Harbor Porpoise	Gulf of Maine/ Bay of Fundy	5	7
Bottlenose Dolphin	WNA Coastal, Northern Migratory	-	43,228
	WNA Coastal, Southern Migratory	-	43,228
	NNCES	-	200
Harbor Seal	Western North Atlantic	1,154	1,730
Gray Seal	Western North Atlantic	16	24

2. METHODS

2.1 MITIGATION, MONITORING AND SHUTDOWN PROCEDURES

Mitigation efforts are set forth to ensure the permissible methods of taking are pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat. The following measures would apply to CTJV's mitigation, monitoring and shutdown procedures during pile driving activities.

- Establishment of Shutdown Zone— For all pile driving and drilling activities, the IHA has established a shutdown zone. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). These shutdown zones are used to prevent incidental Level A harassment from pile driving. Shutdown zones for species proposed for authorization are as follows: • 200 meters for harbor porpoise and bottlenose dolphin. • 150 meters for harbor seal and gray seal. • For humpback whale, shutdown distances are shown in Table 3 under low-frequency cetaceans and are dependent on activity type.

- Establishment of Monitoring Zones for Level A and Level B Harassment— Established monitoring zones are based on the IHA's Level A and Level B harassment isopleths associated with specific pile driving activities and scenarios. These are areas beyond the established shutdown zone in which animals could be exposed to sound levels that could result in Level A harassment in the form of Permanent Threshold Shift (PTS).

- Use of Protected Species Observers (PSO)s during pile driving activities. Observers must meet the criteria defined in Section 2.2.

- Monitoring distances, in accordance with the Level A Shutdown Zone and Level B ZOI identified in Section 3, will be determined by using a range finder, scope, hand-held global positioning system (GPS) device or landmarks with known distances from the monitoring positions. Monitoring locations will be based on land at either Portal Island No. 1, Portal Island No. 2 or Fort Story/ First Landing State Park.

- If the entire Level B monitoring zone is not visible, pile driving activities may continue, and the number of individual listed animals within the Level B zone will be estimated and recorded. Estimated numbers of individuals will be extrapolated by dividing the number of observed individuals by the percentage of the monitoring zone that was visible.

- Monitoring will be continuous unless the contractor takes a break longer than 2 hours from active pile and sheet pile driving, in which case, monitoring will be required 30 minutes prior to restarting pile installation.

- If marine mammals are observed, they must be documented as outlined in Section 2.3 of this monitoring plan.

- If a marine mammal crosses into the designated ZOIs for that species, additional monitoring or a temporary stop to pile driving activity will occur, in accordance with the procedures outlined in Section 5 of this Monitoring Plan.

- Avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 m of such activity, operations must cease, and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions.

- Pile driving activity must be halted 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 harassment zone

- Establish and implement the shutdown zones indicated in Table 4.

- The CTJV must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. For all pile driving and removal at least one PSO must be used. The PSO will be stationed as close to the activity as possible.

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- CTJV must use a bubble curtain during impact and vibratory pile driving in water depths greater than 3m (10ft.).

- CTJV must use soft start techniques when impact driving. This requires an initial set of three strikes at reduced energy, followed by a 30- second waiting periods, then two subsequent reduced- energy strike sets. Soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a periods of 30 minutes or longer.

- Marine monitoring must take place 30 minutes prior to initiation of pile driving activity (pre-start clearance monitoring) and 30 minutes post- completion of pile driving activity. Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in the IHA are clear of marine mammals.

- If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and has been visually confirmed beyond the shutdown zone indicated in table 4 or 15 minutes has passed without re-detection of the animal.

- If weather or sea conditions restrict the observer's ability to observe, or become unsafe, pile installation will be suspended until conditions allow for monitoring to resume.

- For in-water pile driving, under conditions of fog or poor visibility that might obscure the presence of a marine mammal within the shutdown zone, the pile in progress will be completed and then pile driving suspended until visibility conditions improve. Visibility will be confirmed and approved by the PSO at the beginning of the shift.

- Monitoring will occur year-round, during pile driving operations, because some marine mammal species have the potential to be present at any time of the year.

2.2 OBSERVER QUALIFICATIONS

The CTJV will employ NOAA Fisheries-approved PSOs to monitor Level A Shutdown Zones and Level B ZOI. PSOs must be approved by NMFS prior to beginning any activity. These individuals must be independent contractors (i.e., not construction personnel) trained biologists. At least one PSOs must be in close proximity to each pile driving rig during active operation of single, multiple or concurrent driving devices. One additional PSO is required to be stationed at Fort Story to observe activities with Level B harassment zones larger than 6000 meters.

PSOs shall scan the waters using binoculars, and/or spotting scopes, and shall use a handheld GPS or range-finder device to verify the distance to each sighting from the project site. All PSOs shall be trained in marine mammal identification and behaviors and are required to have no other project-related tasks while conducting monitoring. In addition, monitoring will be conducted by qualified observers, who will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. CTJV shall adhere to the following PSOs qualifications:

- Visual acuity in both eyes sufficient to see moving objects on the water's surface; ability to estimate object size and distance.
- The ability to make visual field observations and collect data as described in the protocol.
- Experience or training with identifying marine mammals in the field.
- Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).
- The ability to prepare a status report of monitoring activities that describes the species and number of individuals observed, dates and times of construction activities; dates when construction activities were ceased or shutdown to avoid Level A harassment to any species or Level B harassment for any species for that the PTST Project is not authorized to take.

2.3 DATA COLLECTION

Observers will be required to use approved data forms. Among other pieces of information, CTJV shall keep recorded detailed information about any implementation of shutdowns, including the distance and direction of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. PSOs s shall attempt to distinguish between the number of individual animals taken and the number of incidences of take. Required sighting forms shall include the following information be collected:

- Dates and times (begin and end) of all marine mammal monitoring.

- Construction activities occurring during each daily observation period, including: The number and type of piles that were driven and the method (e.g., impact, vibratory, down-the-hole).

- Total duration of driving time for each pile (vibratory driving) and number of strikes for each pile (impact driving); and for down-the-hole drilling, duration of operation for both impulsive and non-pulse components.

- PSO locations during marine mammal monitoring.

- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort Sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.

- Upon observation of a marine mammal, the following information:
- Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting.
- Time of sighting.
- Identification of the animal(s) (e.g., genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species.
- Distance and location of each observed marine mammal relative to the pile being driven for each sighting.
- Estimated number of animals (min/max/best estimate).
- Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.).
- Animal's closest point of approach and estimated time spent within the harassment zone.
- Description of any marine mammal behavioral observations (e.g., observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching).
- Number of marine mammals detected within the harassment zones, by species; and

- Detailed information about implementation of any mitigation (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

2.4 EQUIPMENT

Marine mammal observers will have the following equipment available during monitoring:

- Binoculars
- Range finder
- Logbook
- Cell phone or other wireless communication

3. LEVEL A AND LEVEL B MONITORING ZONES

3.1 NOAA/ NMFS FISHERIES SERVICE ACOUSTIC CRITERIA

To assess potential effects of exposure to underwater anthropogenic sound on the hearing of marine mammals, the CTJV used NMFS published updated Technical Guidance (NMFS 2020a). This Technical Guidance identifies the received levels, or thresholds, above which individual marine mammals are predicted to experience permanent changes (e.g., a PTS in their hearing sensitivity from incidental exposure to underwater anthropogenic sound sources (NMFS 2020a)). NMFS considers the Technical Guidance to represent the best available scientific information and, on this basis, suggests that these thresholds and weighting functions be used to assess the potential for PTS in marine mammals, which equates to Level A harassment under the MMPA. The models used to derive the acoustic thresholds for onset of PTS incorporate marine mammal auditory weighting functions in recognition of the variability found among marine mammal species in their hearing sensitivity. The auditory weighting functions are defined for four functional hearing groups that are present in the Project area: low-frequency (LF), mid-frequency (MF), and high-frequency (HF) cetaceans, and phocid in water (PW) pinnipeds. Additionally, the models used to derive the PTS onset acoustic thresholds incorporate a time component in the form of a cumulative sound exposure level (SELcum) for both impulsive and non-impulsive sound, and a SPL component by using peak sound level (Lpk) for impulsive sounds (NMFS 2020a).

Level B Harassment for non-explosive sources—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (e.g., frequency, predictability, duty cycle), the environment (e.g., bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall et al., 2007; Ellison et al., 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS has previously used a generalized acoustic threshold based on received level to estimate the onset of

behavioral harassment. It is predicted that marine mammals are likely to be behaviorally harassed in a manner considered Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 μPa (rms) for continuous (e.g., vibratory pile-driving) and above 160 dB re 1 μPa (rms) for non-explosive impulsive (e.g., impact pile driving) or intermittent (e.g., scientific sonar) sources. CTJV's planned activity includes the use of continuous (vibratory and DTH hammer pile driving) and impulsive (impact pile driving) sources, and therefore the 120 and 160 dB re 1 μPa (rms) thresholds are applicable. Following the 2020 NMFS guidance for DTH Pile installation, the DTH hammer pile driving is considered both impulsive and continuous components and indicated that Level A harassment is impulsive, and Level B is a continuous source level of 166 dB re 1 μPa (rms). Given that a bubble curtain will be utilized for all vibratory and impact pile driving, updated 2020 Caltrans guidance allows a 5 dB reduction, however justification for the CTJV using a 6 dB reduction is discussed in section 6.

Level A harassment for non-explosive sources—NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2020) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive).

3.2 DISTURBANCE ZONES OF INTREST FOR IN-WATER NOISE

3.2.1 Level A and B Harassment Zones for Multiple Hammers

The proposed pile installation assumes the use of more than one (up to three) vibratory, impact or down-the-hole hammer drilling to occur within a single day or simultaneously. Down-the-hole hammers have been considered by NMFS to produce impulsive noise near the pile, so decibel addition will not be used for Level A harassment zones. Each hammer scenario will implement Level A harassment zones based on whether or not there is not simultaneous use of hammers.

This measure, although conservative, would also minimize the need for onsite coordination among Project sites and components. When multiple vibratory or down-the-hole hammers are used simultaneously, the Level B harassment zone will depend on the combination of sound sources due to decibel addition of multiple hammers producing continuous noise.

Based on decibel addition for overlapping continuous sound sources, it is possible that sound will ensonify in a portion of the surrounding waters. However, pile installation is an intermittent activity with multiple stops and starts of the hammer for each pile, and decibel addition is applied only when the adjacent continuous sound sources experience overlapping sound fields, which requires proximity. It is anticipated that simultaneous use of more than one hammer making continuous sound with overlapping sound fields will be uncommon and of short duration. The Shutdown Zones as well as Level A and B harassment areas are reflected below in Table 4. Figures 1-25 reflect these zones in relation to the project location.

Table 4. In-Water Area (m) from Pile Driven to Shutdown, Level A and Level B Harassment Zones

	Shutdown Zones				Level A Harassment Zones		Level B Harassment Zones
Method and Piles/Day	Humpback Whales	Bottlenose Dolphins	Harbor Porpoise	Seals	Harbor Porpoises	Seals	For all species listed in Table 1
DTH (3/day)	1,230	200	200	150	1,460	656	7,609
DTH (6/day)	1,950	200	200	150	2,320	1,040	12,060
Impact (4/day)	1,010	200	200	150	1,200	540	136
Impact (6/day)	1,320	200	200	150	1,564	730	136
Vibratroy (4/day)	20	200	200	150	14	6	5,598
Impact + DTH	1,230	200	200	150	1,564	703	7,609
DTH + Vibratory	1,230	200	200	150	1,460	656	10,334
Impact + Vibratory	1,320	200	200	150	1,564	703	5,598
Impact + DTH + DTH	1,950	200	200	150	2,320	1,040	12,060
DTH + DTH + Vibraory	1,950	200	200	1,050	2,320	1,040	14,061
DTH + Viratory + Impact	1,320	200	200	710	1,564	703	10,344
Impact + Impact + DTH	1,950	200	200	150	2,320	1,040	7,609

1 For whales other than the Humpback, shutdwon zones will be enforced at the Level B Harassment Zones.

3.2.2 Calculation of Disturbance ZOIs for Airborne Noise

Literature estimates were used to estimate the amount of in-air sound produced from impact driving a pile above the MHW line (Laughlin 2010 a, b). Hollow steel piles that were 30 inches in diameter were used as a close proxy to the 36 & 42-inch-diameter hollow steel piles that will be driven at the PTST Project. Airborne sound produced from DTH hammer pile driving for 36-inch diameter hollow steel piles was estimated based on a 90dB threshold for simplicity, though gray seals have a 100dB threshold. This does not affect harassments due to the areas being so much smaller than the in-water harassment zones.

Given the maximum source level of 98 dBA for in-air noise during impact pile installation of 42-inch steel piles, the calculated isopleths for in-air noise can be used for all pile sizes and types associated with the Project. Installation of smaller piles is generally assumed to produce lower sound levels than installation of larger piles. Based on this model, in-air noise from impact

installation of 42-inch steel piles could extend up to 205 meters from the noise source over open water until it attenuates to a level below the NMFS threshold for harassment of phocid pinnipeds such as harbor and gray seals (Table 5).

Table 5. Radial distance (meters) from pile driven above MHW to PTS sound thresholds for Harbor Seals and Gray Seals

Impact Hammer 36-inch Pile	97 dBLMAX at 92m[a]	N/A	205
Impact Hammer 42-inch Pile	97 dBLMAX at 92m[a]	N/A	205
Vibratory Hammer 36-inch Pile	98 dB $_{LMAX}$ @15.24m[b]	N/A	40
Vibratory 42-inch Pile	98 dB LMAX @15.24m[b]	N/A	40
Down-the-hole Hammer 42-inch Pile	88 dB_{L5SEQ} at 10m[c]	N/A	7.94

[a]Laughlin 2007
[b] Laughlin 2010
[c] Mincon Group PLC. 2019.
* Using 90dB threshold

3.3 MONITORING AND SHUTDOWN OF DISTURBANCE ZONES

The following measures would apply to CTJV's mitigation requirements: Establishment of Shutdown Zone— For all pile driving and drilling activities, CTJV would establish a shutdown zone. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). These shutdown zones would be used to prevent incidental Level A harassment from pile driving. Shutdown zones for species proposed for authorization are as follows: • 200 meters for harbor porpoise and bottlenose dolphin. • 150 meters for harbor seal and gray seal. • For humpback whale, shutdown distances are shown in Table 4 under low-frequency cetaceans and are dependent on activity type.

Establishment of monitoring zones for Level A and Level B harassment zones are based on calculated Level A harassment isopleths associated with specific pile driving activities and scenarios. These are areas beyond the established shutdown zone in which animals could be exposed to sound levels that could result in Level A harassment in the form of PTS.

The Level A (Shutdown Zone) and Level B ZOI (Table 6) will be monitored during all phases of construction.

Table 6: Required Shutdown Zone Actions During Construction

Common Name	Shutdown Action During Project Activity

Fin whale	Shutdown if observed approaching or within ZOIs A or B
Humpback whale	Shutdown if observed approaching or within Level A ZOI
North Atlantic right whale	Shutdown if observed approaching or within ZOIs A or B
Bottlenose dolphin	Record takes for Level B, Shutdown if observed approaching 200 meters
Harbor porpoise	Record takes for Levels A and B. Shutdown if observed approaching 200 meters
Harbor seal	Shutdown if observed approaching 150 meters
Gray seal	Shutdown if observed approaching 150 meters

4. MARINE MAMMAL OBSERVATION AND PROTECTION

Observations shall be conducted onsite during pile driving activities. Observers will have the authority to shut down pile driving activities if marine mammals are observed entering the designated shutdown harassment zones. Monitoring shall be conducted by NMFS-approved Protected Species Observers (PSO). Trained observers shall be placed from the best vantage point(s) practicable to monitor for marine mammals and implement shutdown or delay procedures when applicable through communication with the equipment operator. For the work covered under this IHA, PSOs will be located on the end of the fishing pier and from land near Fort Story in Virginia Beach, to observe all impacted areas for pile driving on Island 1. On Portal Island 2, the PSOs will be located on the trestle and from land near Fort Story in Virginia Beach, to observe pile driving on Island 2. When there is driving occurring on both islands, there will be PSOs located on both islands, in the areas mentioned above. Figure 26 shows expected locations of the PSOs on both Portal Islands and on land near Fort Story.

Observer training must be provided prior to project start, and shall include instruction on species identification (sufficient to distinguish the species in the project area), description and categorization of observed behaviors and interpretation of behaviors that may be construed as being reactions to the specified activity, proper completion of data forms, and other basic components of biological monitoring, including tracking of observed animals or groups of animals such that repeat sound exposures may be attributed to individuals (to the extent possible).

Monitoring shall be conducted 30 minutes before, during, and 30 minutes after pile driving activities. In addition, observers shall record all incidents of marine mammal occurrence, regardless of distance from activity, and shall document any behavioral reactions in concert with distance from piles being driven. Pile driving activities include the time to install a single pile or

series of piles, if the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

CTJV shall be required to station PSOs at locations offering the best available views of the monitoring harassment zones. PSOs will be located on the end of the fishing pier and the northeast corner of Portal Island 1, to observe all monitoring zones for pile driving on Island 1. On Portal Island 2, the PSOs will be located on the trestle and the southeast corner to observe all monitoring zones for pile driving on Island 2. When there is driving occurring on both islands, there will be two PSOs located on both islands, in the areas mentioned above. For all pile driving activities, a minimum of one PSO must be assigned to each active pile driving location to monitor the shutdown zones. For activities with Level B harassment zones larger than 6000 meters, an additional PSO must be stationed at Fort Story/ First Landing to monitor as much of the Level B harassment zone as possible.

At least one PSOs must be in close proximity to each pile driving rig during active operation of single or multiple, concurrent driving devices. A minimum of one additional PSOs is required at each active driving rig if the Level B harassment zone and shutdown zones cannot reasonably be observed by one PSO.

PSOs shall scan the waters using binoculars, and/or spotting scopes, and shall use a handheld GPS or range-finder device to verify the distance to each sighting from the project site. All PSOs shall be trained in marine mammal identification and behaviors and are required to have no other project-related tasks while conducting monitoring. In addition, monitoring will be conducted by qualified observers, who will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. CTJV shall adhere to the following PSOs qualifications:

- Independent observers (*i.e.*, not construction personnel) are required.
- At least one observer must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.
- Other observers may substitute education (degree in biological science or related field) or training for experience.
- Where a team of two or more observers are required, one observer shall be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer.
- CTJV shall submit observer CVs for approval by NMFS.

Additional standard observer qualifications include**:**

- Ability to conduct field observations and collect data according to assigned protocols.
- Experience or training in the field identification of marine mammals, including the identification of behaviors.
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations.

- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

Observers will be required to use approved data forms. Among other pieces of information, CTJV shall keep recorded detailed information about any implementation of shutdowns, including the distance and direction of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. PSOs must record all observations of marine mammals, regardless of distance from the pile being driven and shall attempt to distinguish between the number of individual animals taken and the number of incidences of take. Required sighting forms shall include the following information:

- Dates and times (begin and end) of all marine mammal monitoring.

- Construction activities occurring during each daily observation period, including: The number and type of piles that were driven and the method (e.g., impact, vibratory, down-the-hole).

- Total duration of driving time for each pile (vibratory driving) and number of strikes for each pile (impact driving); and for down-the-hole drilling, duration of operation for both impulsive and non-pulse components.

- PSO locations during marine mammal monitoring.

- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort Sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.

- Upon observation of a marine mammal, the following information:

- Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting.
- Time of sighting.
- Identification of the animal(s) (e.g., genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species.
- Distance and location of each observed marine mammal relative to the pile being driven for each sighting.
- Estimated number of animals (min/max/best estimate).

- Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.).
- Animal's closest point of approach and estimated time spent within the harassment zone.
- Description of any marine mammal behavioral observations (e.g., observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching).
- Number of marine mammals detected within the harassment zones, by species; and
- Detailed information about implementation of any mitigation (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

5. REPORTING

An annual report will be prepared and distributed to NOAA Fisheries at the end of the year covered under the current Incidental Harassment Authorization. This annual report will include an executive summary, monitoring methodology, tabulation of marine mammal observations (including number, type, and location of observations), dates and times when monitoring occurred, and pile driving was completed, and dates and times when in-water construction was suspended because of marine mammals.

6. REFERENCES

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Table 5. Radial distance (meters) from pile driven above MHW to PTS sound thresholds for Harbor Seals and Gray Seals

Source	Sound Level	Level A Harassment Zone (m)	Level B Harassment Zone (m)*
			Harbor Seals/ Gray Seals
Impact Hammer 36-inch Pile	97 dBLMAX at 92m[a]	N/A	205
Impact Hammer 42-inch Pile	97 dBLMAX at 92m[a]	N/A	205
Vibratory Hammer 36-inch Pile	98 dB $_{LMAX}$ @15.24m[b]	N/A	40
Vibratory 42-inch Pile	98 dB LMAX @15.24m[b]	N/A	40
Down-the-hole Hammer 42-inch Pile	88 dB$_{L5SEQ}$ at 10m[c]	N/A	7.94

[a]Laughlin 2007
[b] Laughlin 2010
[c] Mincon Group PLC. 2019.
* Using 90dB threshold

3.3 MONITORING AND SHUTDOWN OF DISTURBANCE ZONES

The following measures would apply to CTJV's mitigation requirements: Establishment of Shutdown Zone— For all pile driving and drilling activities, CTJV would establish a shutdown zone. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). These shutdown zones would be used to prevent incidental Level A harassment from pile driving. Shutdown zones for species proposed for authorization are as follows: • 200 meters for harbor porpoise and bottlenose dolphin. • 150 meters for harbor seal and gray seal. • For humpback whale, shutdown distances are shown in Table 4 under low-frequency cetaceans and are dependent on activity type.

Establishment of monitoring zones for Level A and Level B harassment zones are based on calculated Level A harassment isopleths associated with specific pile driving activities and scenarios. These are areas beyond the established shutdown zone in which animals could be exposed to sound levels that could result in Level A harassment in the form of PTS.

The Level A (Shutdown Zone) and Level B ZOI (Table 6) will be monitored during all phases of construction.

Table 6: Required Shutdown Zone Actions During Construction

Common Name	Shutdown Action During Project Activity
Fin whale	Shutdown if observed approaching or within ZOIs A or B
Humpback whale	Shutdown if observed approaching or within Level A ZOI

Figure 1. Island 1 Level A Harassment - DTH 3 piles/day

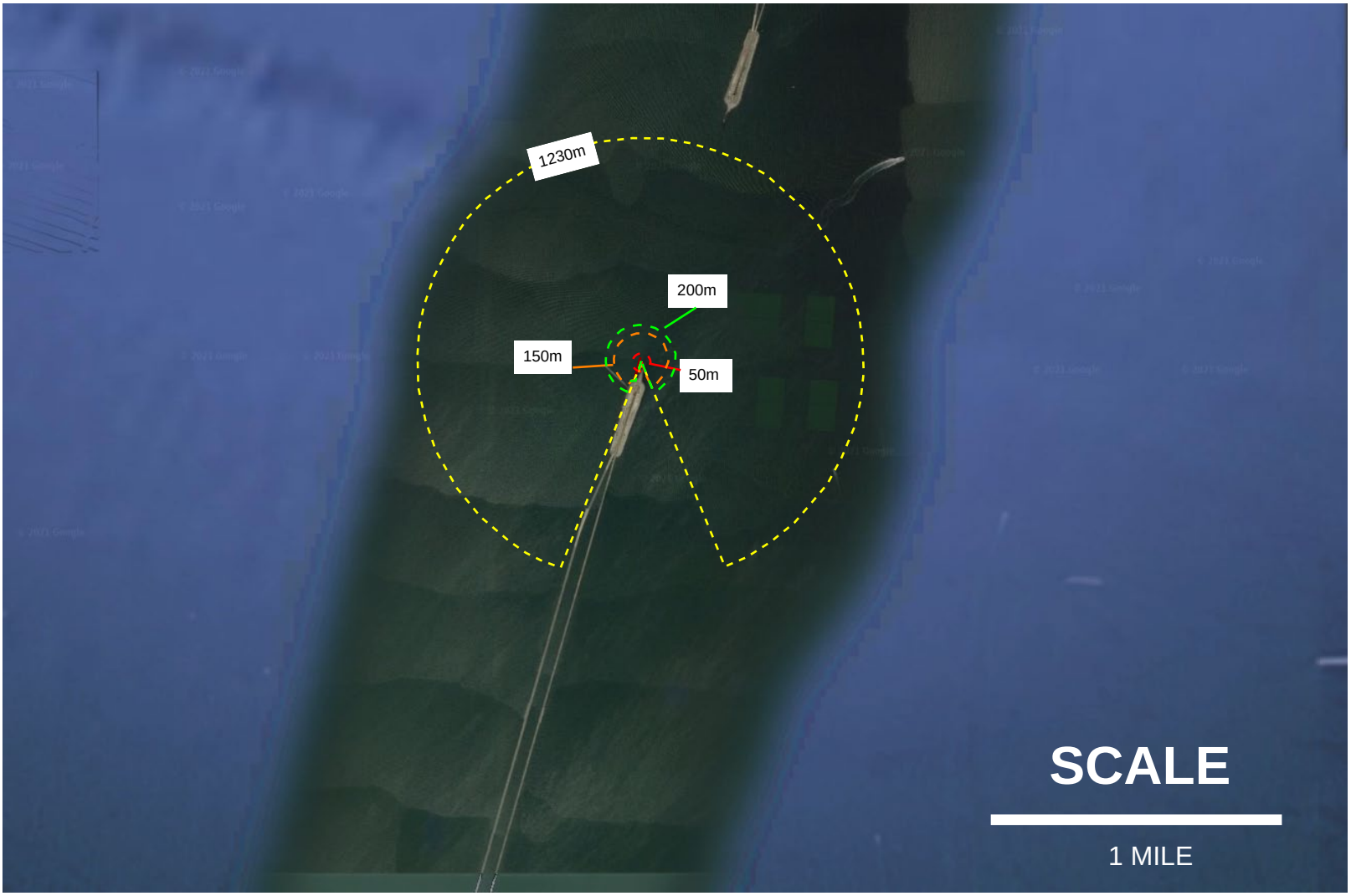


Figure 2. Island 1 Level A Harassment - DTH 6 piles/day

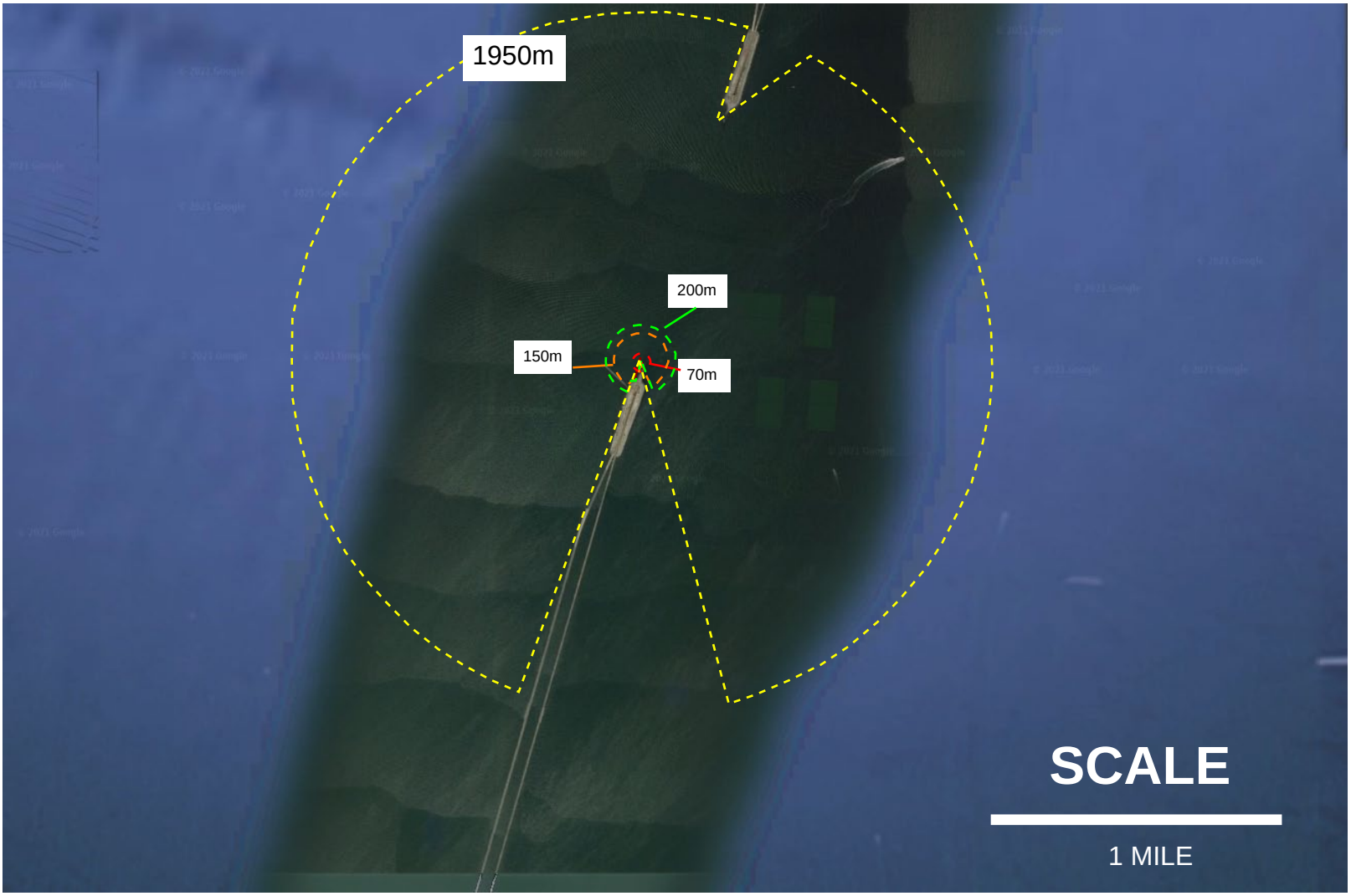


Figure 3. Island 1 Level A Harassment - Impact 4 piles/day

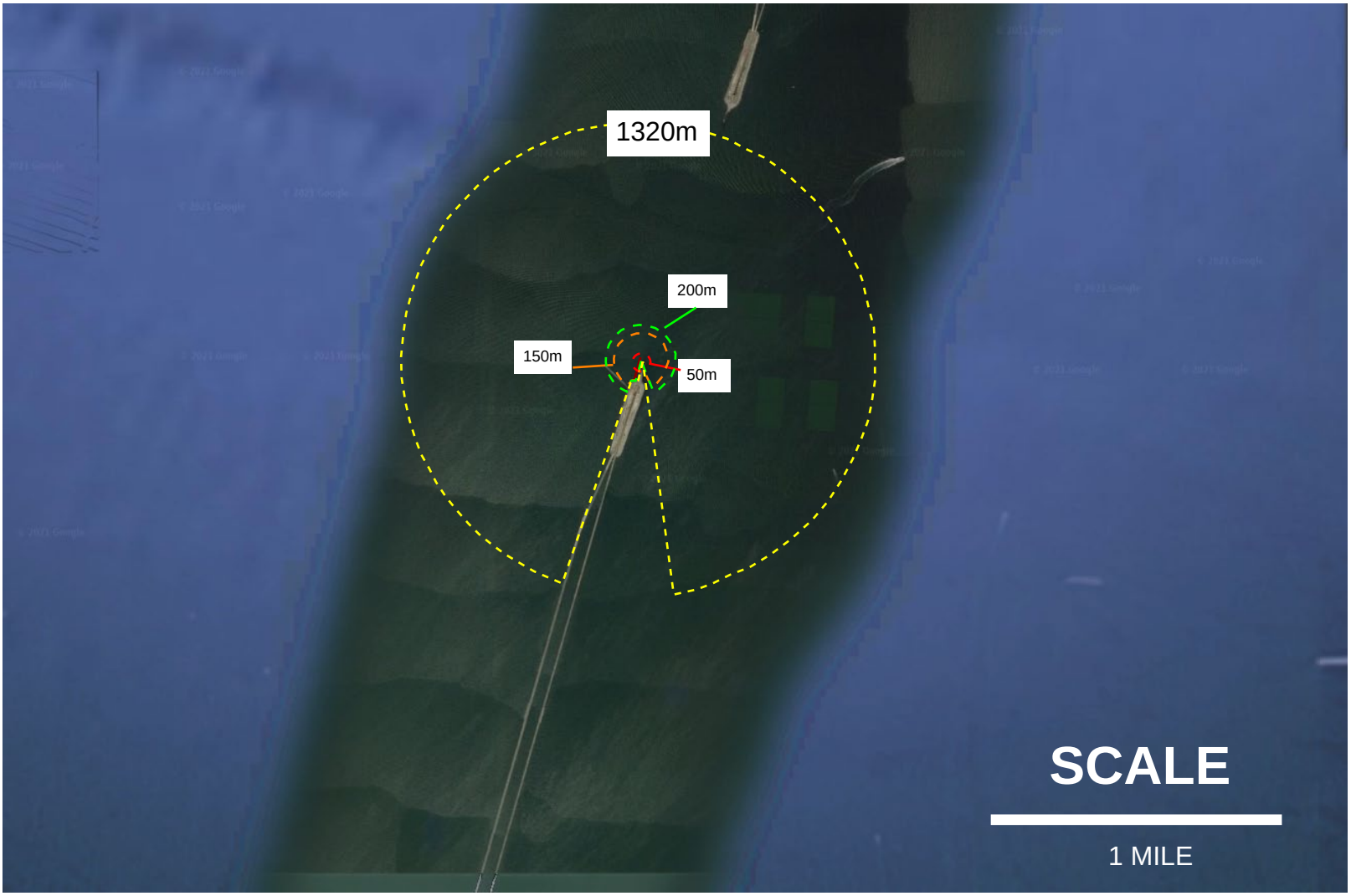
Low-Frequency Cetaceans

High-Frequency Cetaceans

Mid-Frequency Cetaceans

Phocid Pinnipeds

Figure 4. Island 1 Level A Harassment - Impact 6 piles/day



Low-Frequency Cetaceans

High-Frequency Cetaceans

Mid-Frequency Cetaceans

Phocid Pinnipeds

Figure 5. Island 2 Level A Harassment - DTH 3 piles/day

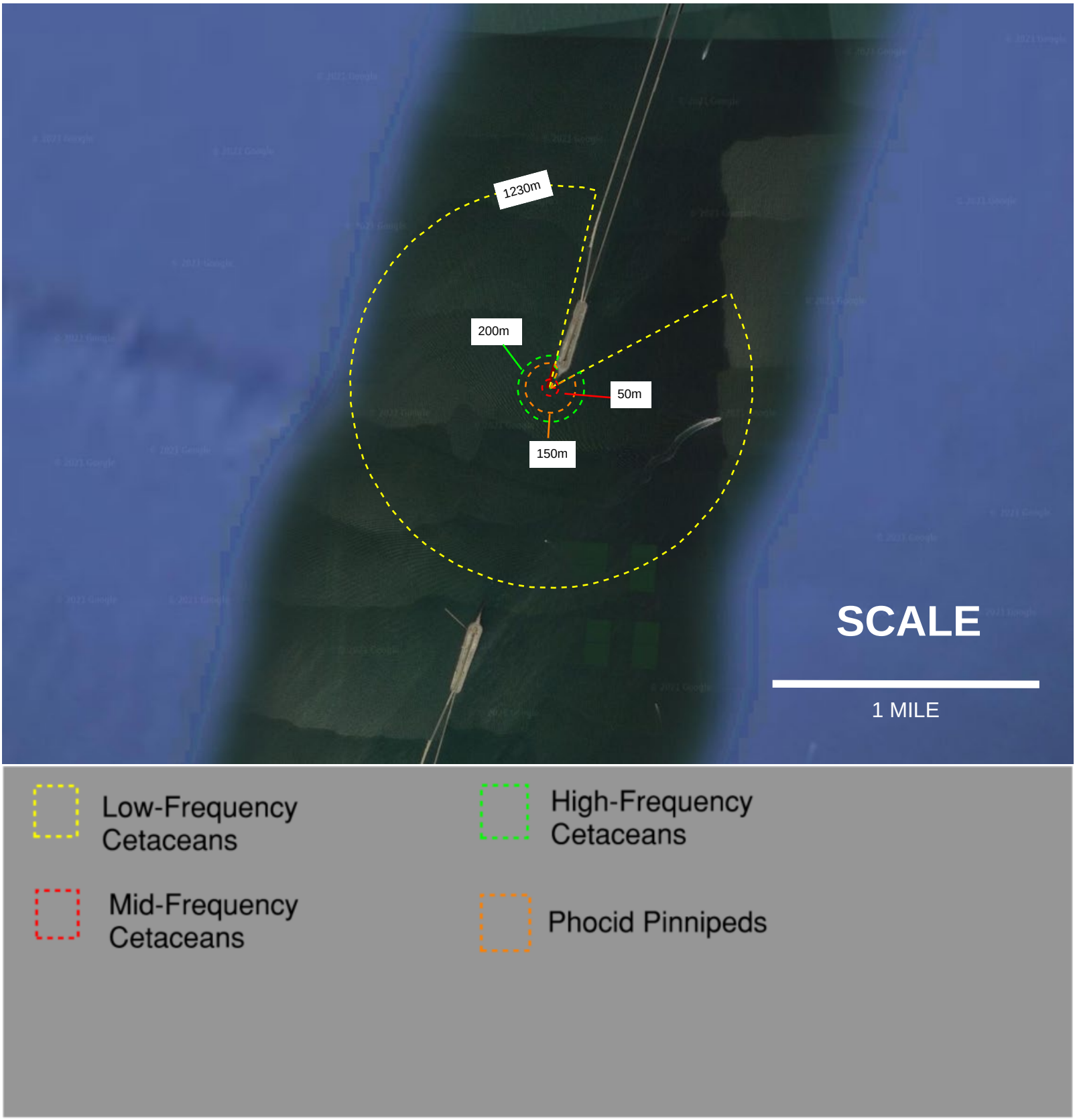


Figure 6. Island 2 Level A Harassment - DTH 6 piles/day

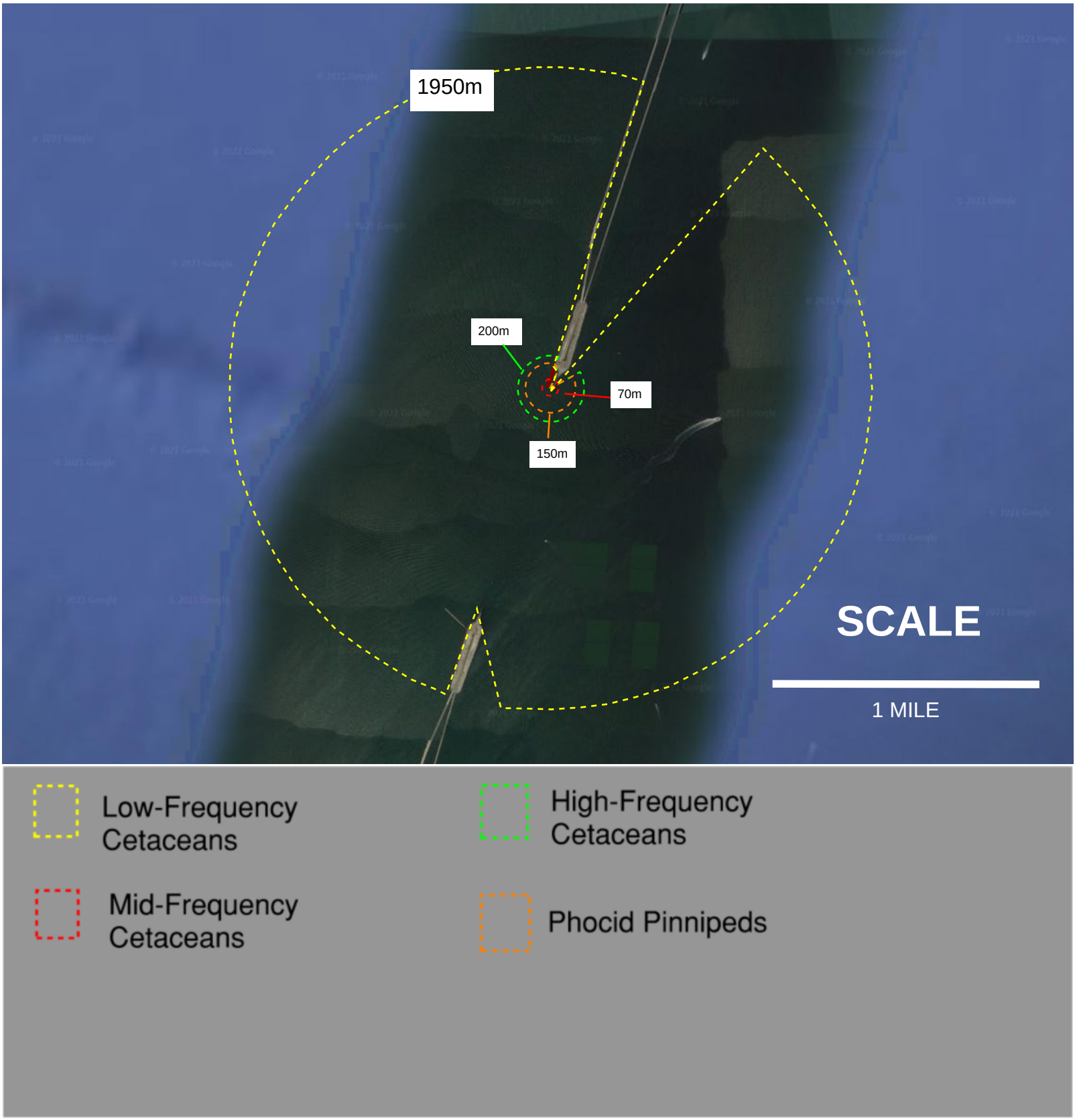


Figure 7. Island 2 Level A Harassment - Impact 4 piles/day

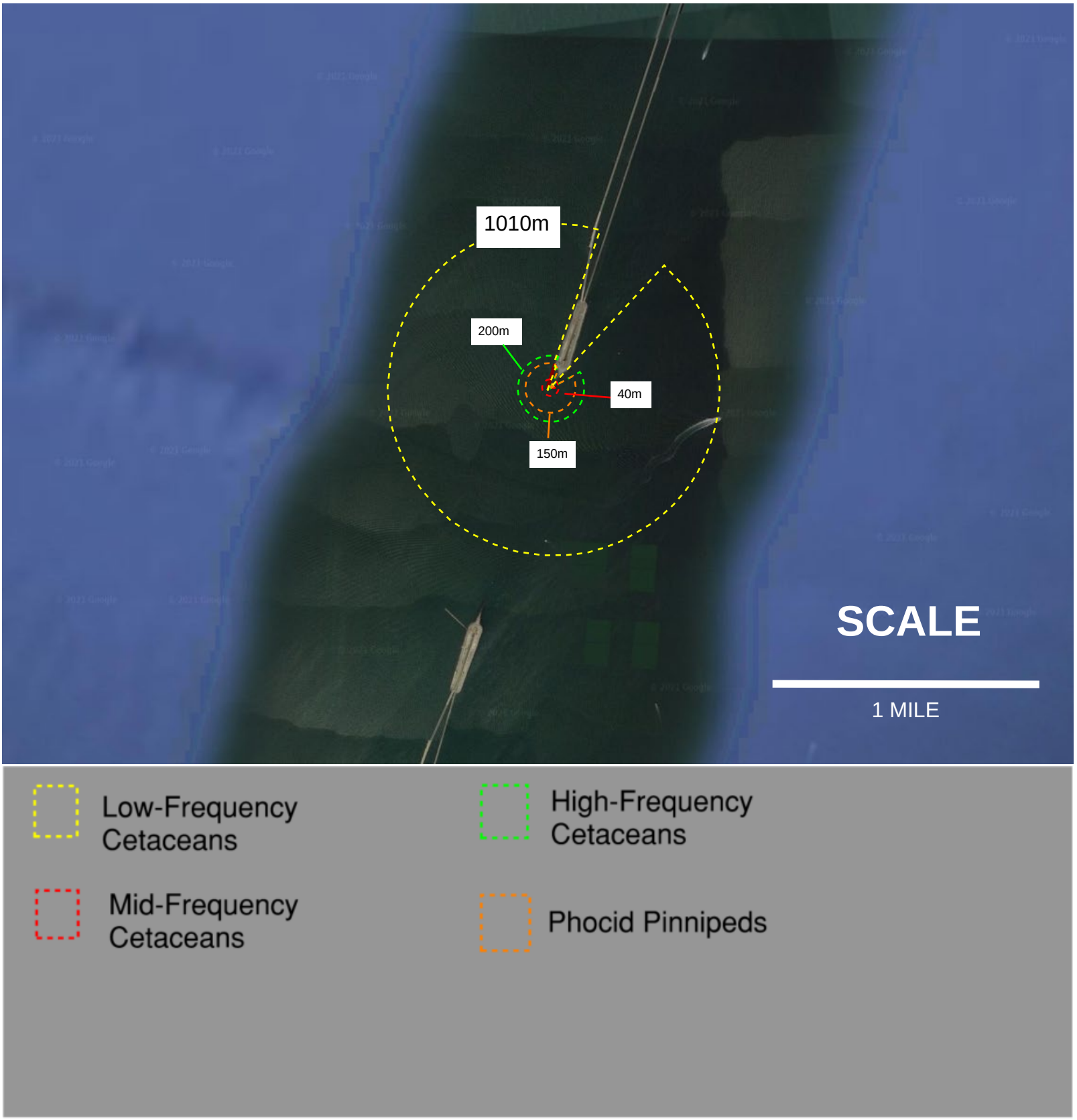


Figure 8. Island 2 Level A Harassment - Impact 6 piles/day

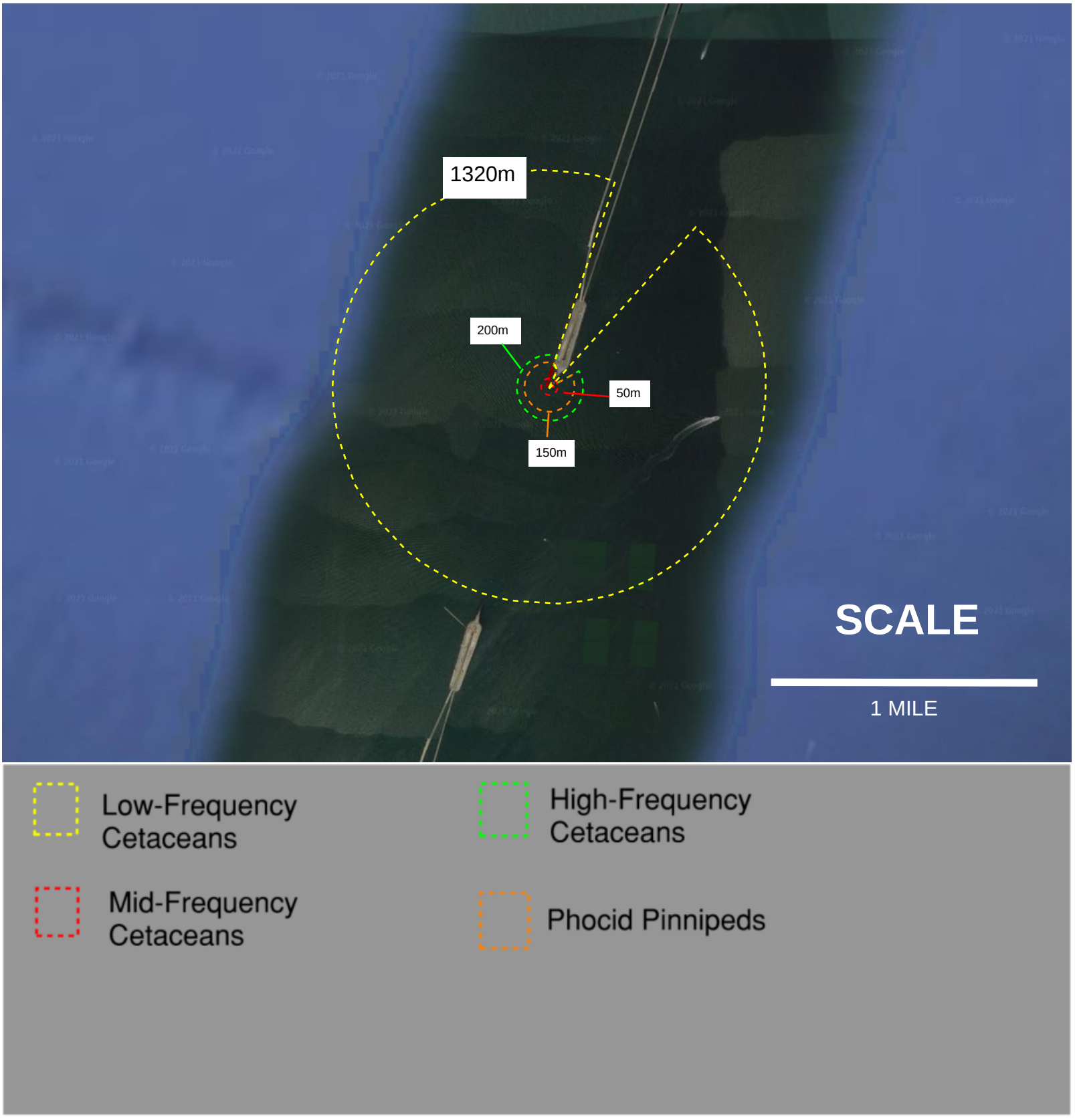


Figure 9. Island 1 Level A Harassment - DTH + Vibratory

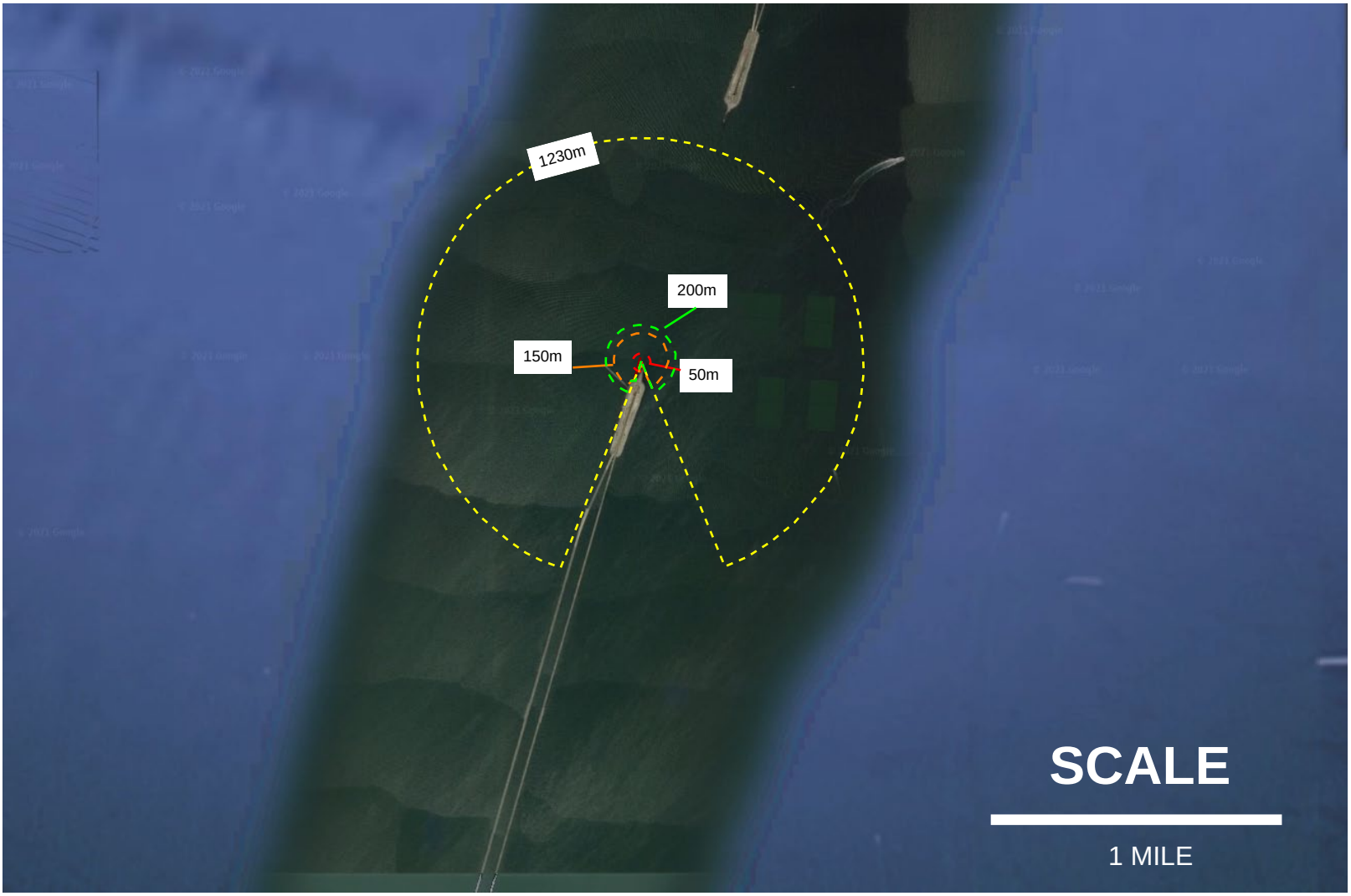
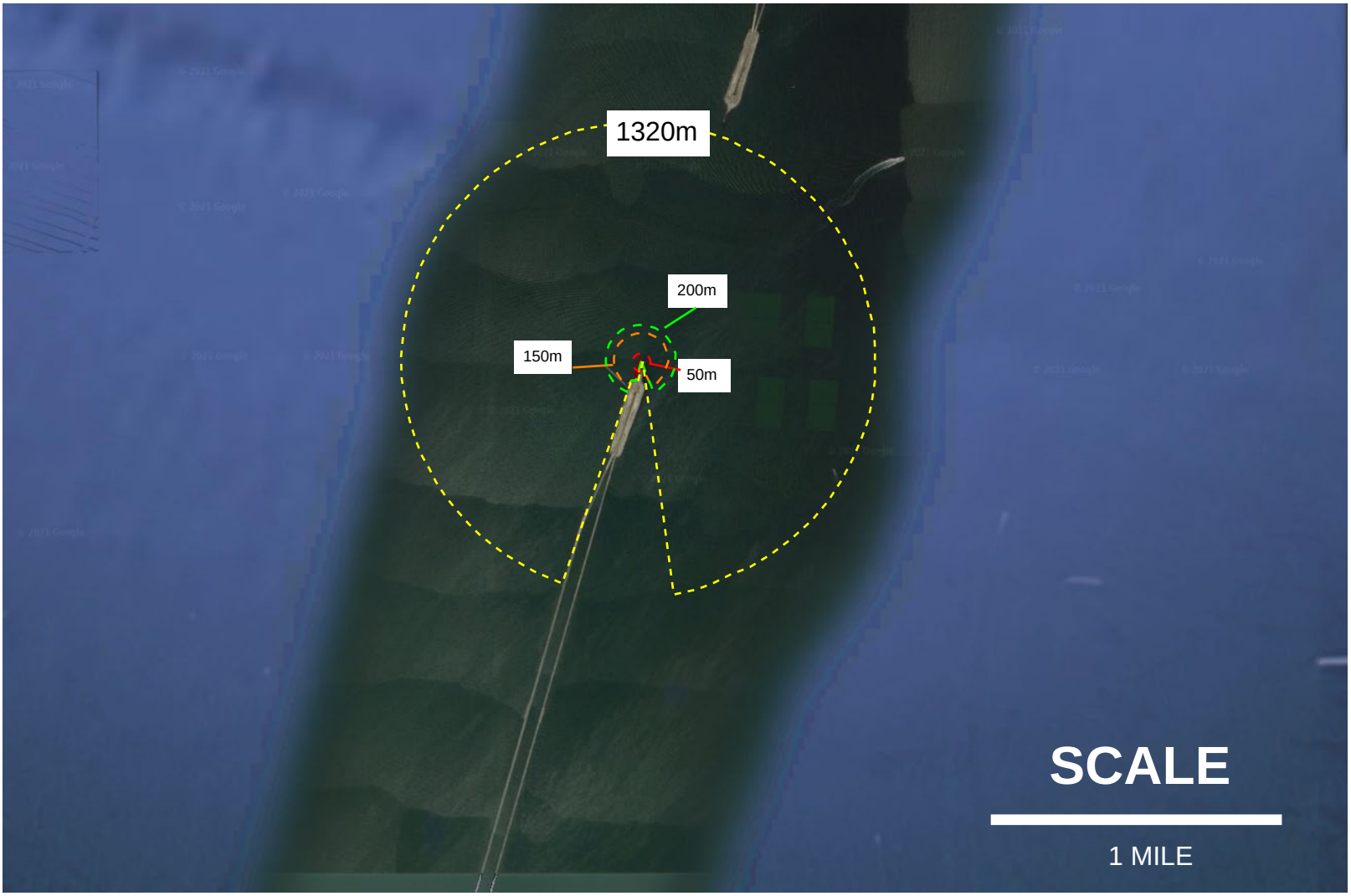


Figure 10. Island 1 Level A Harassment - Impact + Vibratory



Low-Frequency Cetaceans

High-Frequency Cetaceans

Mid-Frequency Cetaceans

Phocid Pinnipeds

Figure 11. Island 1 Level A Harassment - Impact + Dual DTH

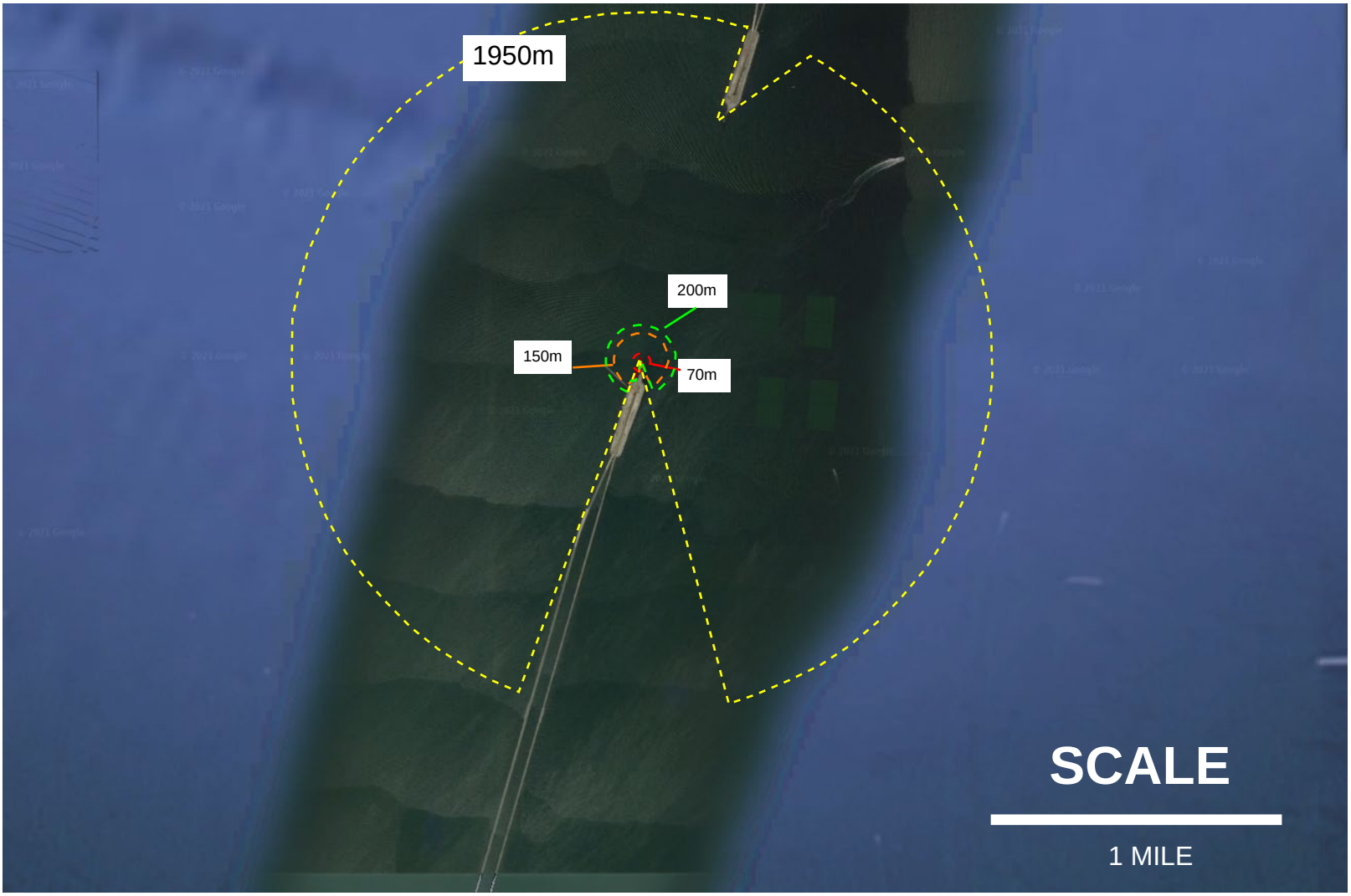


Figure 12. Island 1 Level A Harassment - Vibratory + Dual DTH

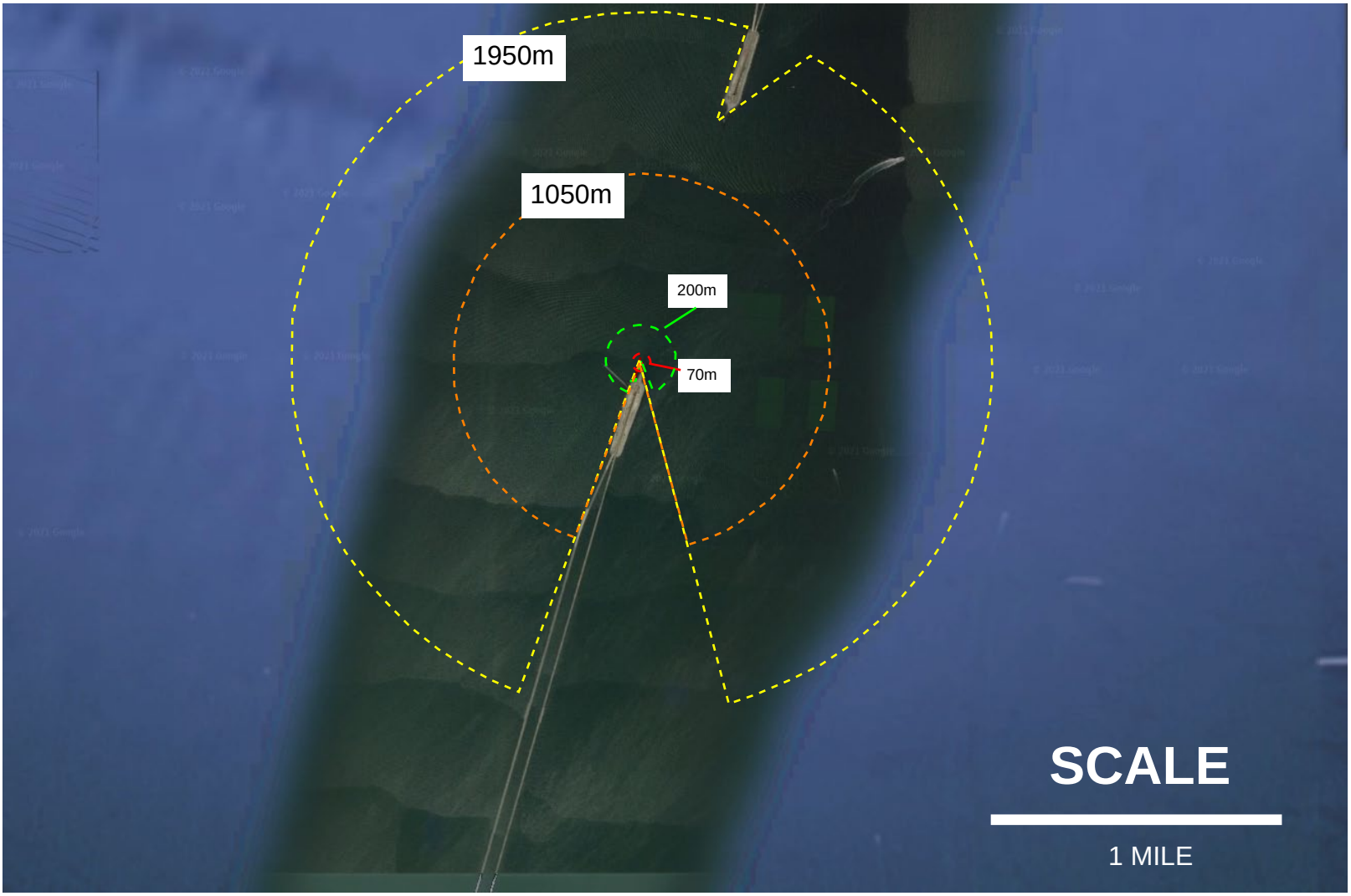


Figure 13: Island 1 Level A Harassment - DTH + Impact + Vibratory

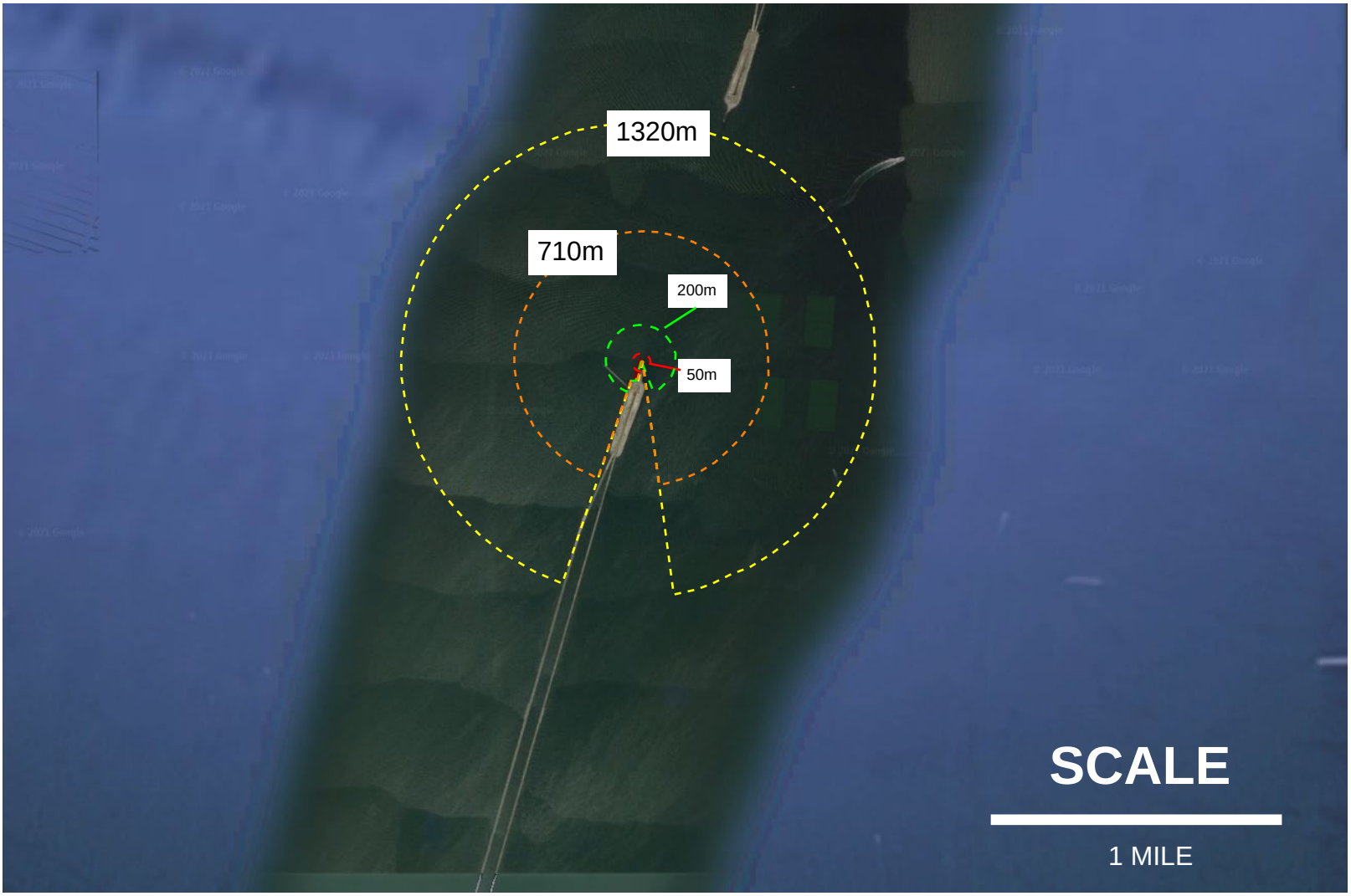


Figure 14. Island 2 Level A Harassment - DTH + Vibratory

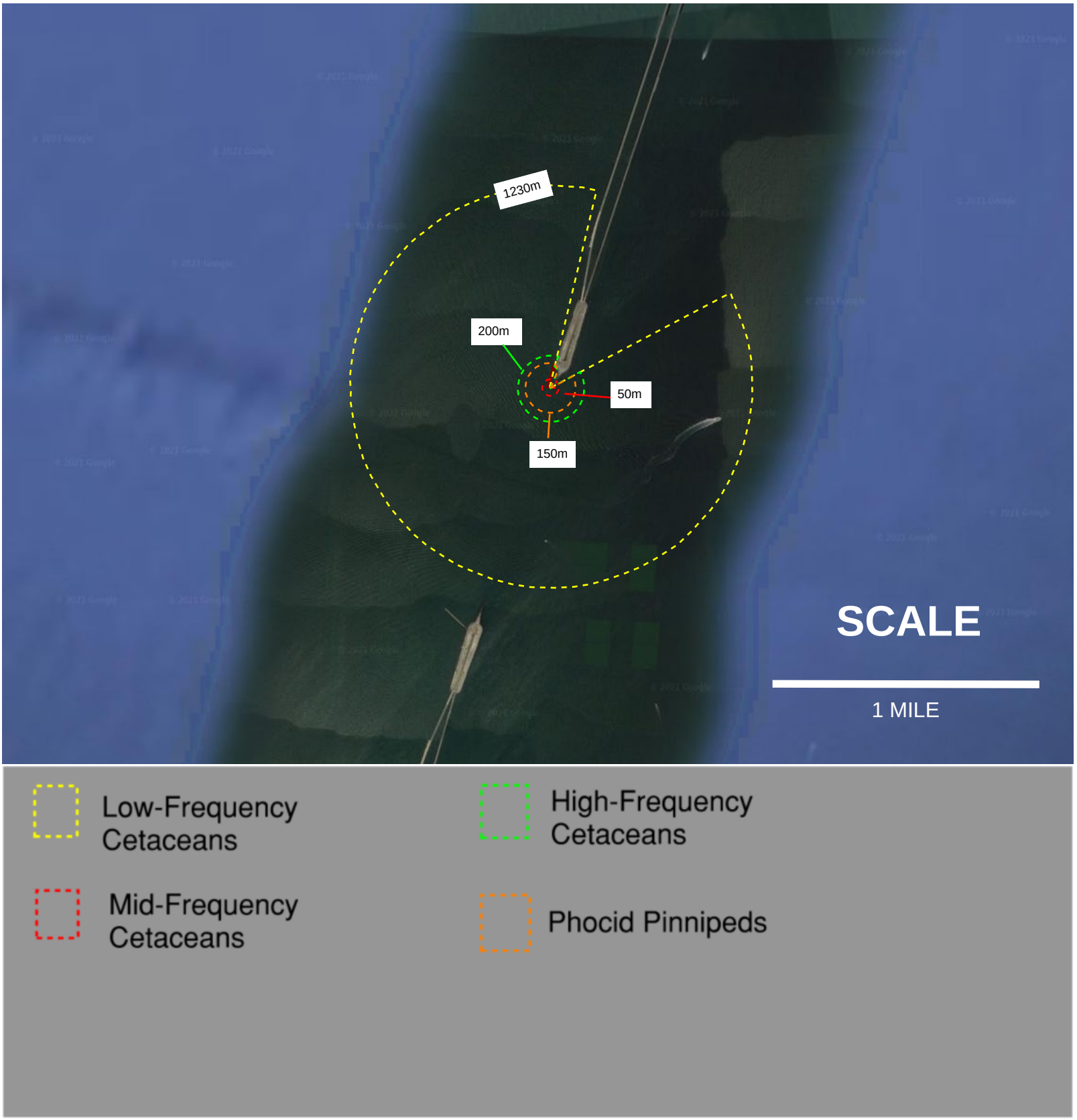


Figure 15. Island 2 Level A Harassment - Impact + Vibratory

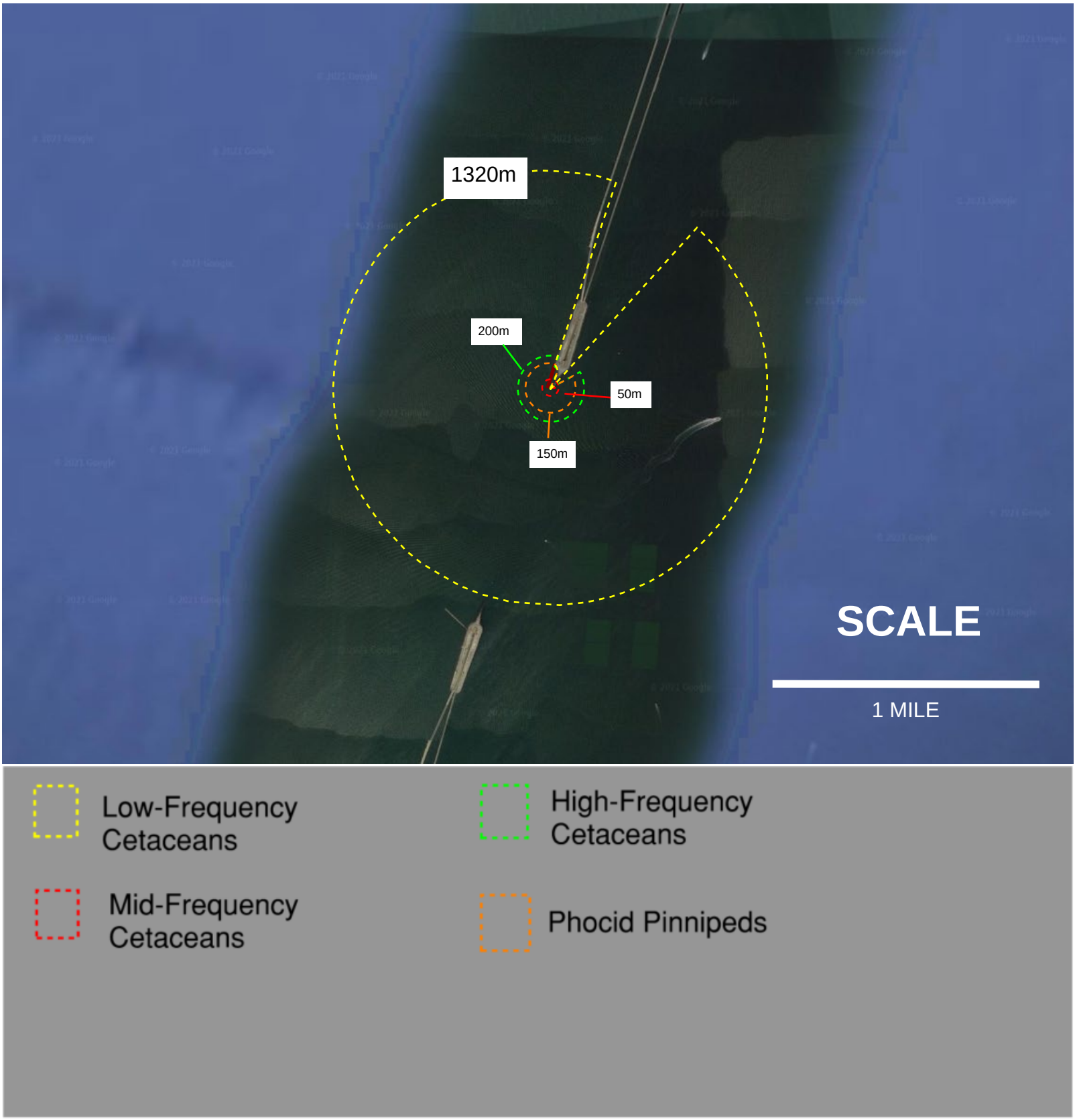


Figure 16. Island 2 Level A Harassment - Impact + Dual DTH

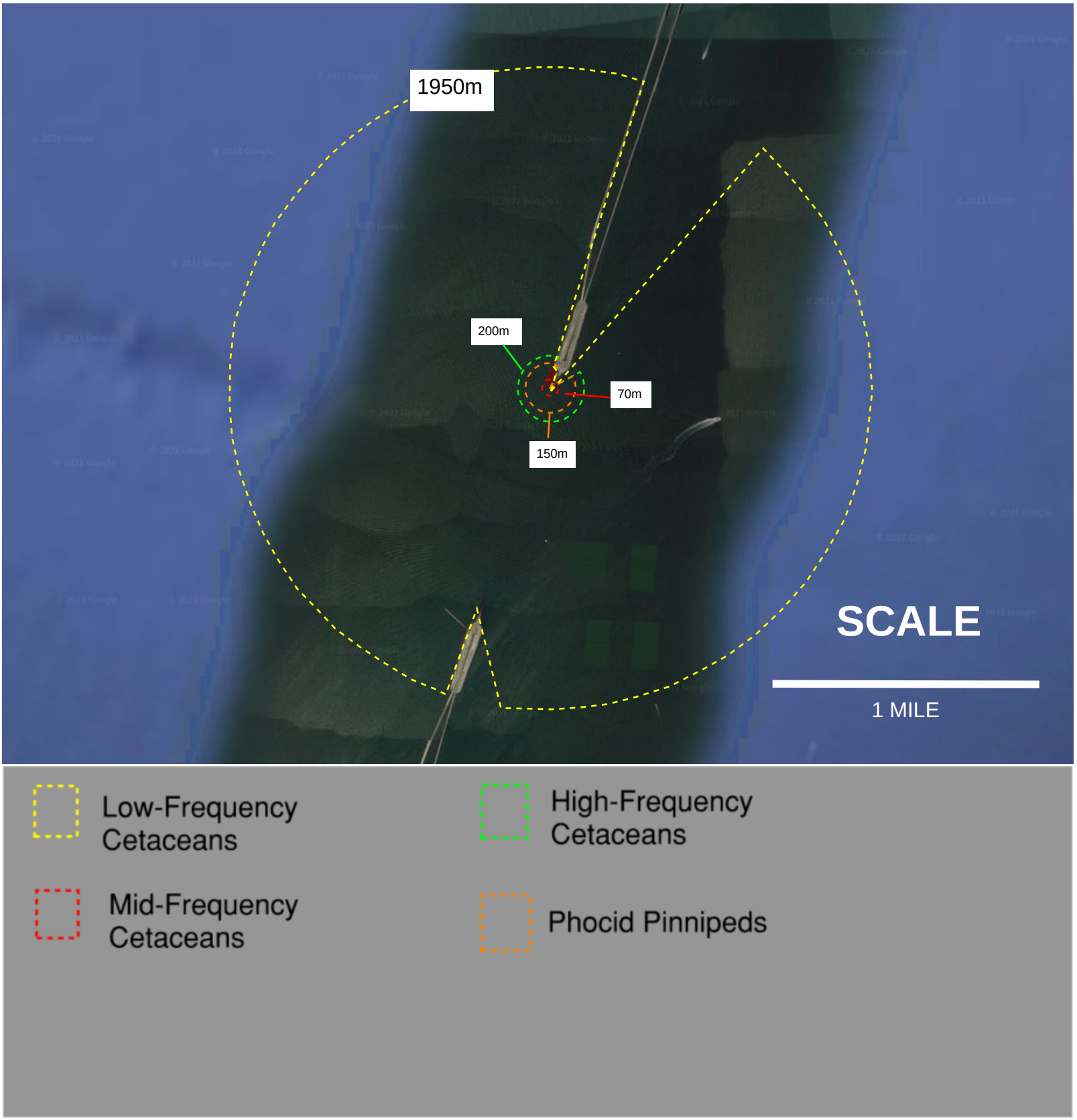


Figure 17. Island 2 Level A Harassment - Vibratory + Dual DTH

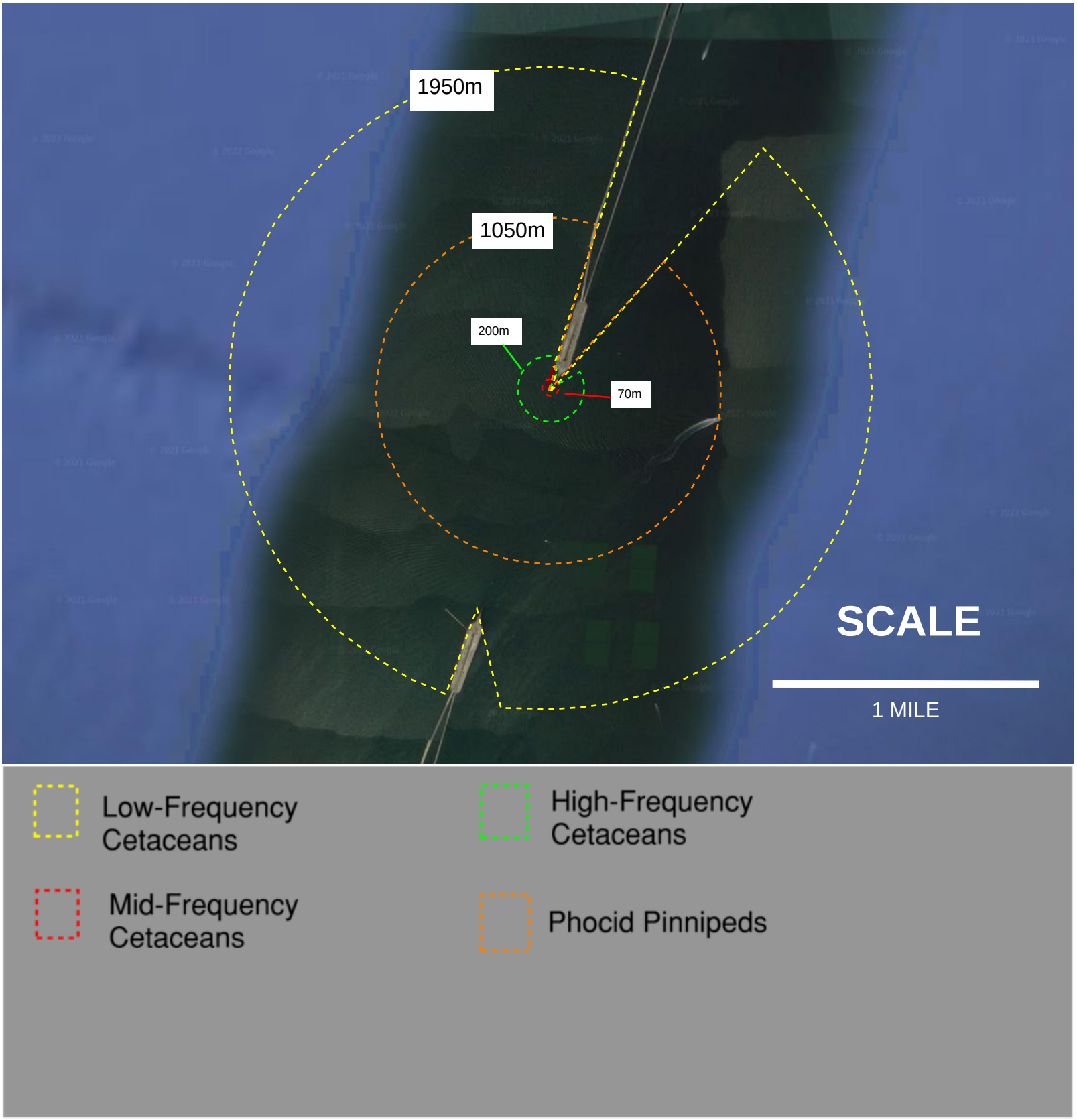


Figure 18. Island 2 Level A Harassment - DTH + Impact + Vibratory

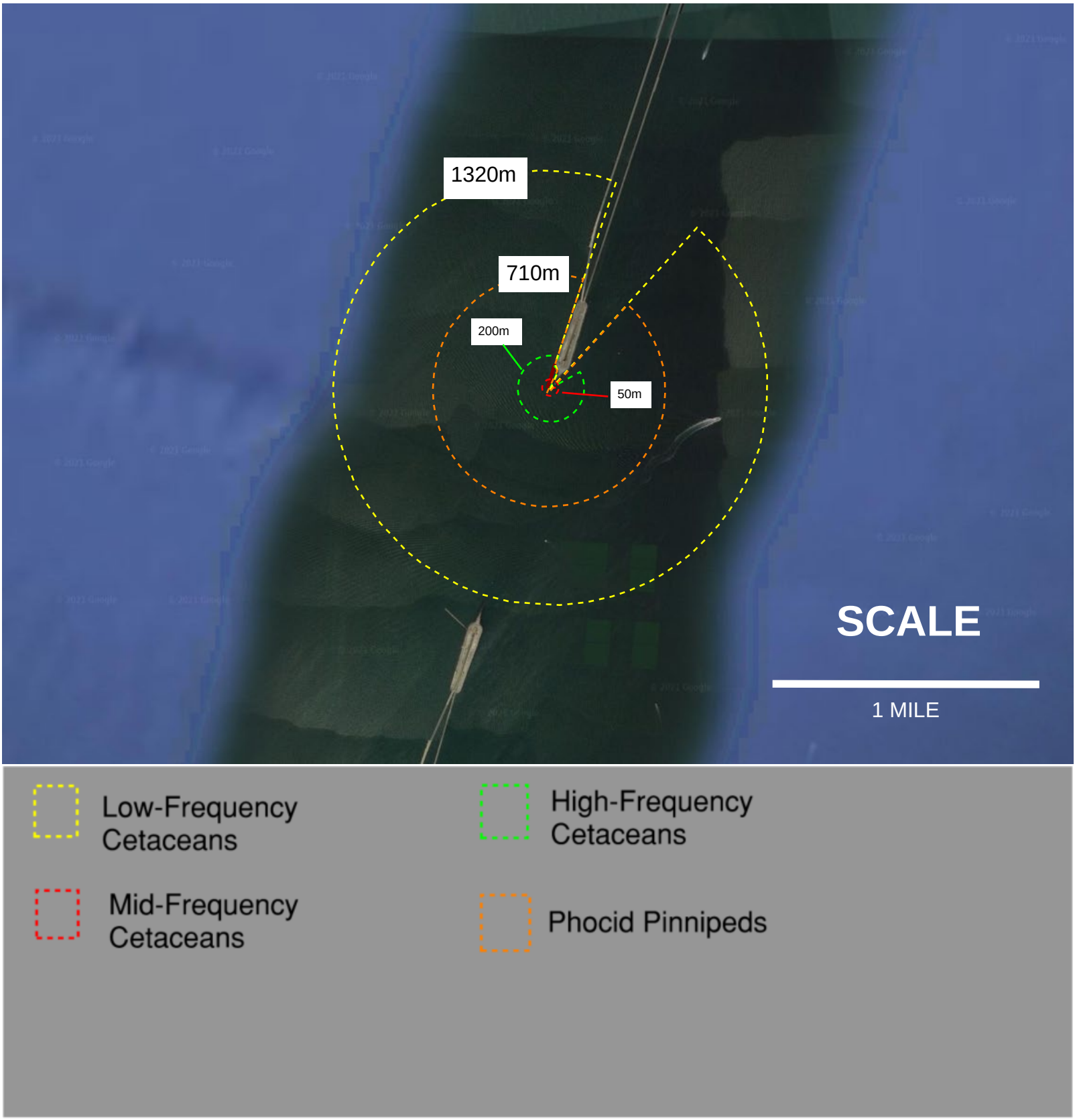
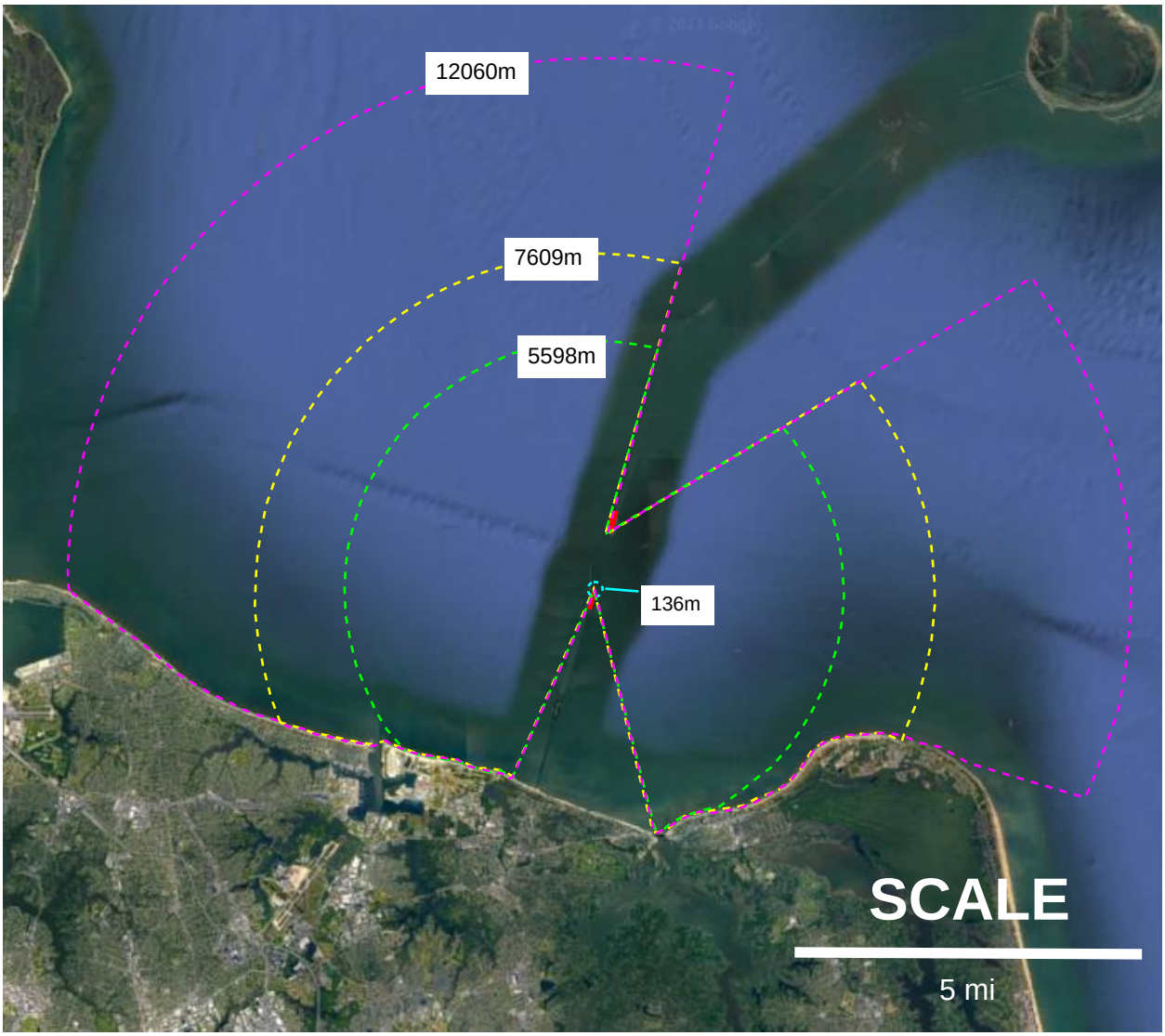


Figure 19. Island 1 Level B Harassment - Single Driving Component



DTH - 3 piles/day

DTH - 6 piles/day

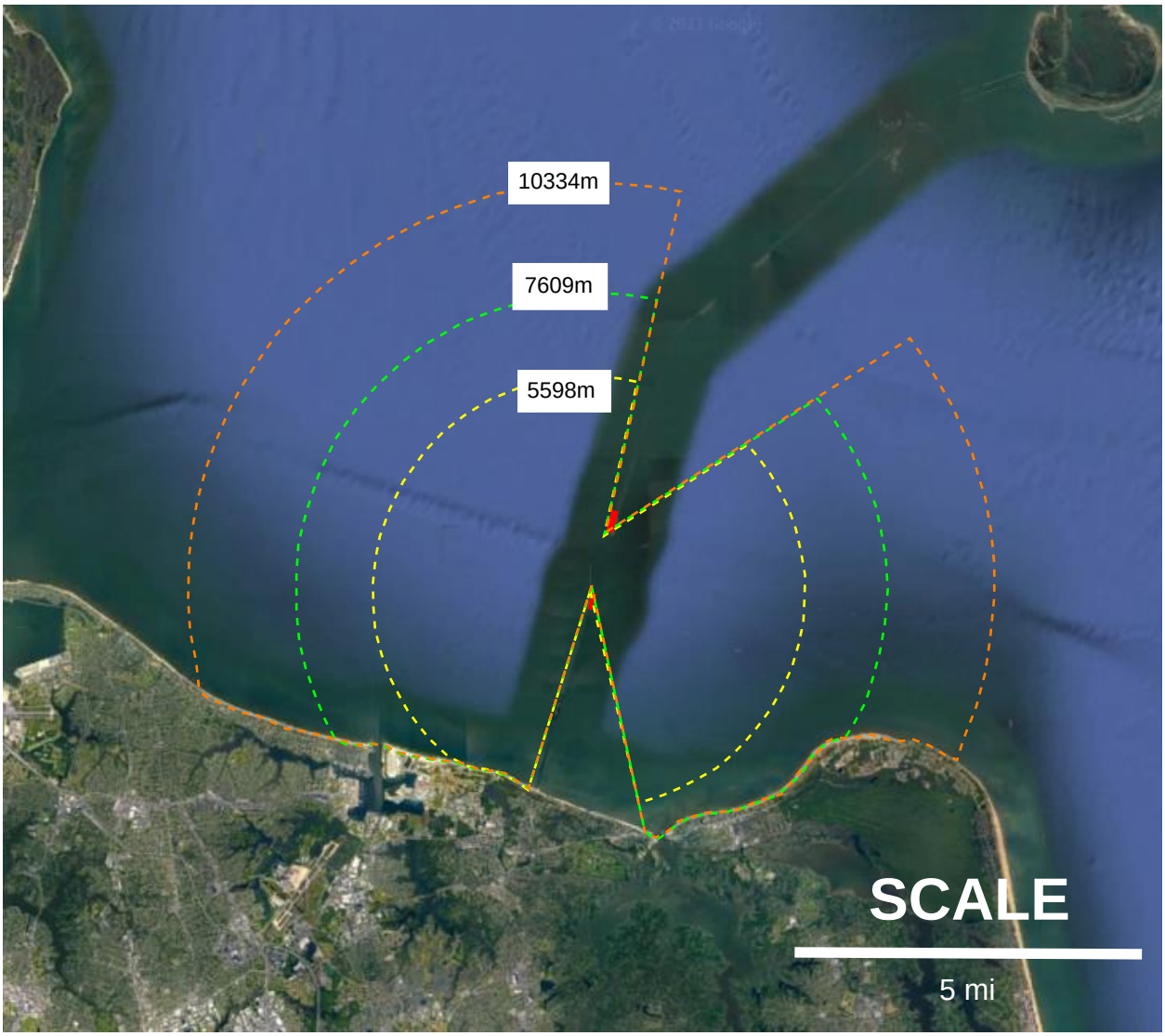
Vibratory - 4 piles/day

Impact 4 & 6 piles/day

Islands

* = use of a bubble curtain
** Total area based on isopleth of a circle minus land interference

Figure 20. Island 1 Level B Harassment Dual Driving Components



Impact * + Vibratory*

DTH + Vibratory*

Impact* + DTH Hammer

Islands

* = use of bubble curtain
** Total area based on isopleth of a circle minus land interference

Figure 21. Island 2 Level B Harassment - Single Driving Type

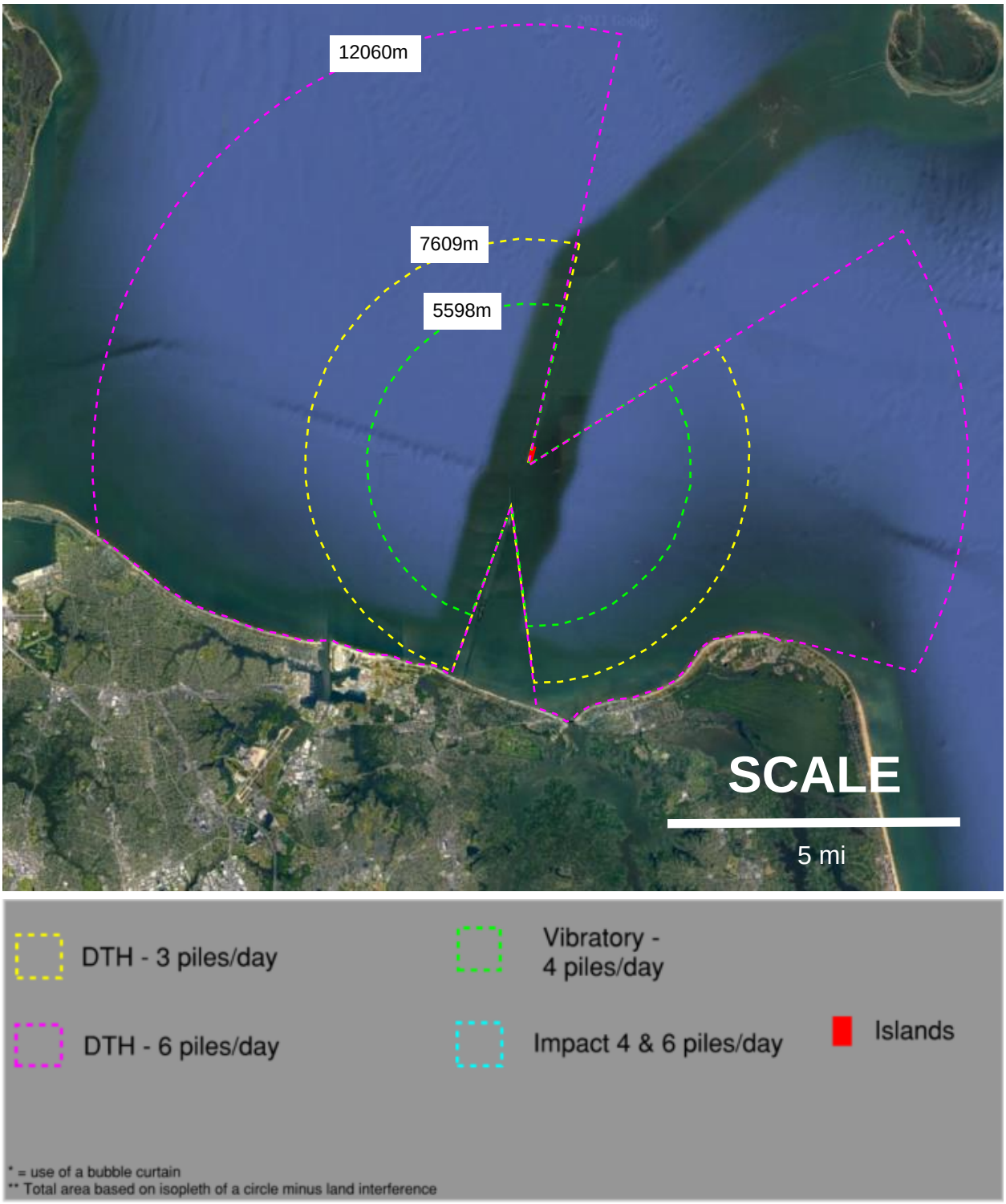


Figure 22. Island 2 Level B Harassment Dual Driving Components

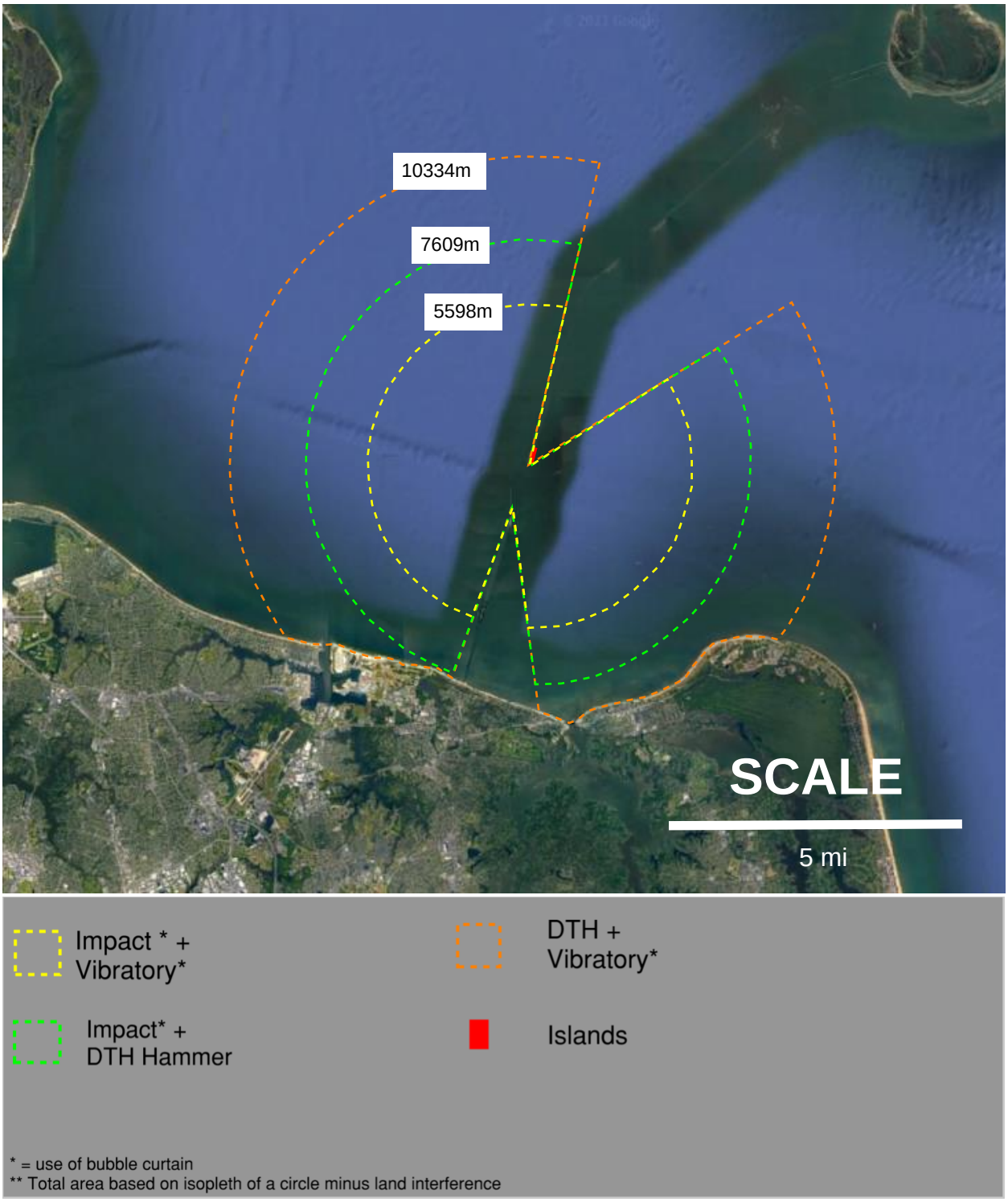
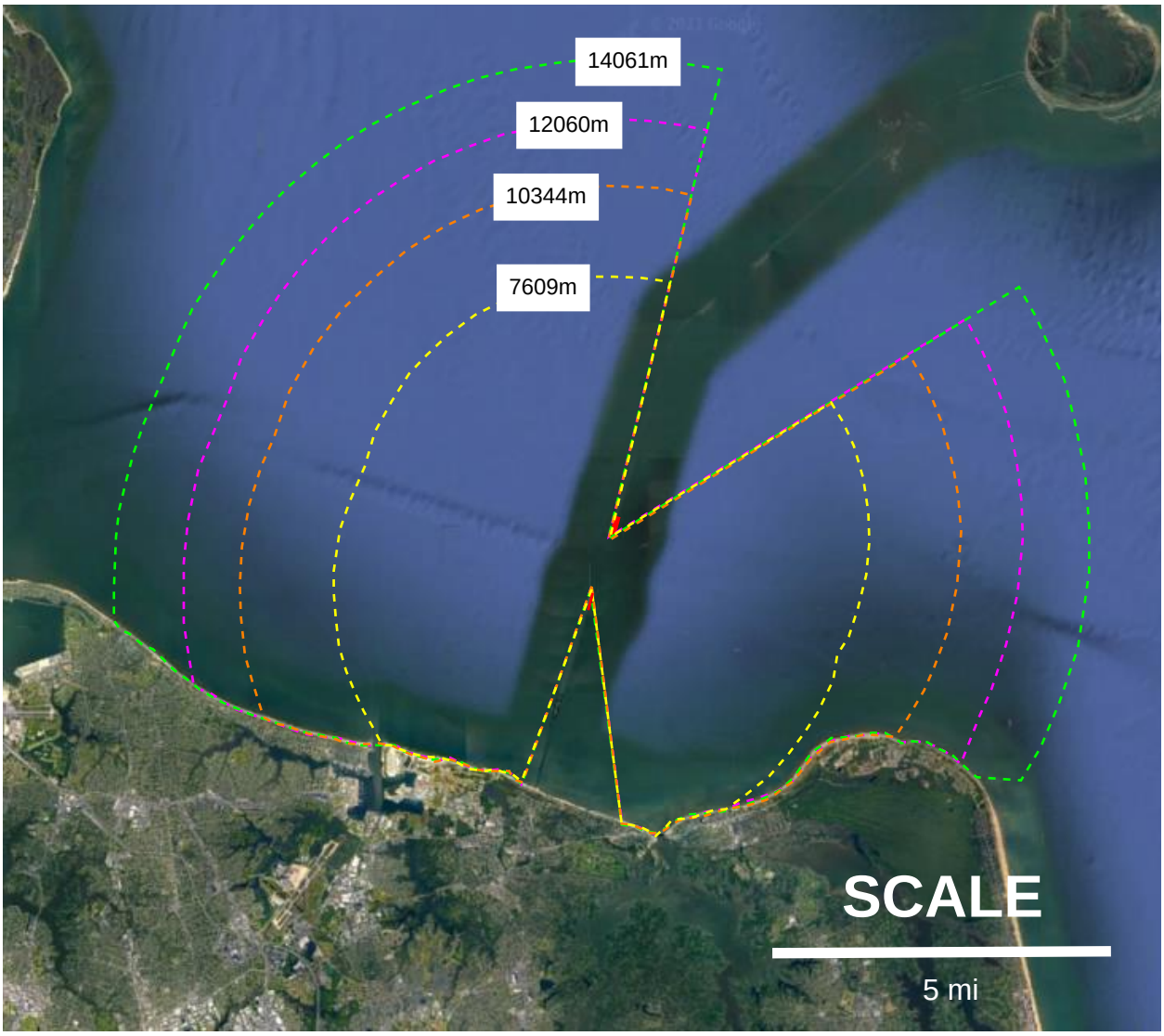


Figure 23. Island's 1 & 2 Level B Harassment - Three Driving Components



DTH + Impact* + Impact*

Dual DTH + Impact* Hammer

DTH + Vibratory* + Impact*

Dual DTH + Vibratory

* = Use of bubble curtain
** Total area based on isopleth of a circle minus land interference

Figure 24. Island 1 Shutdown Zones

Figure 25. Island 2 Shutdown Zones

Figure 26. PSO Locations

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APPENDIX B-

Master Sightings, Shutdown and Delay Table

Master Log: Sightings, Shutdown and Delay Table

Date Observed:	Time	Beaufort Sea State	Swell Height (ft.)	Swell Direction	Visibility	Percent OBS Glare	Weather conditions	Location:	Pile Driving Activity During Observation:	Construction Activity	Pile Size:	Bubble Curtain:	Species Observed:	Quatity of Mammals Observed:	No. of Calves/Juveniles	Sex Class	Mammal Behavior	Behavior Change	Mammal Distance From Driving Activity:	Level A or B Take:	Shutdown:	Reason:
12/5/2022	16:13	0	0-3	NW	Excellent	<10	Partly Cloudy	FL	Impact	Trestle Extension	42" Steel Pipe Pile	Yes	Bottlenose Dolphin	6	0	Male	Slow traveling N of FL Beach	No	7000	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
1/5/2023	14:59	1	3	SW	Excellent	10-25	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	0	Unkown	Feeding E of Rip Rap	No	350	N/A	No	No pile driving activity at the time of the sighting
1/16/2023	7:53	1	0-3	S	Excellent	10-25	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	5	0	Male	Slow Traveling S of the Trestle	No	500	N/A	No	No pile driving activity at the time of the sighting
1/31/2023	16:45	2	4-6	NE	Moderate	<10	Mostly Cloudy	PI #2	DTH	Trestle Extension	42" Steel Pipe Pile	No	Bottlenose Dolphin	4	0	Male	Slow Traveling S of the Trestle	No	1000	B	No	Level B ZOI for DTH is 7609m; 200m shutdown zone. No shutdown
2/6/2023	7:49	0	0-3	S	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Humpback Whale	1	0	Unkown	Slow Traveling N of PI #2	No	2000	N/A	No	No pile driving activity at the time of the sighting
2/7/2023	9:00	1	0-3	NE	Excellent	<10	Partly Cloudy	PI #1	None	N/A	N/A	NO	Humpback Whale	1	0	Unkown	Animal was found deceased in between the shore and PI #1	No	5000	N/A	No	Animal was deceased
2/7/2023	9:45	1	0-3	NE	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Humpback Whale	1	0	Unkown	Slow Traveling N of PI #2	No	2000	N/A	No	No pile driving activity at the time of the sighting
3/2/2023	8:07	1	0-3	SE	Moderate	<10	Light Rain	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Feeding S of PI#2	No	1000	N/A	No	No pile driving activity at the time of the sighting
3/2/2023	14:06	1	0-3	SE	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	250	N/A	No	No pile driving activity at the time of the sighting
3/6/2023	11:30	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	DTH	East IPP Wall	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	300	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
3/6/2023	13:07	1	0-3	S	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	300	N/A	No	No pile driving activity at the time of the sighting
3/6/2023	13:18	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	DTH	East IPP Wall	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	300	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
3/6/2023	13:42	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	300	N/A	No	No pile driving activity at the time of the sighting
3/6/2023	15:03	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	DTH	East IPP Wall	36" Steel Pipe Pile	NO	Harbor Seals	2	2	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	300	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
3/9/2023	11:09	3	0-3	N	Excellent	10-25	Sunny	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/9/2023	12:38	2	0-3	N	Excellent	10-25	Sunny	PI #2	DTH	East IPP Wall	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	Yes - seal was in water and returned to being hauled out	85	A	No	Level A ZOI for DTH is 150m; 150m shutdown No shutdown. Animal is reported as an A take; within the 150m but animal was hauled out duirng pile driving activities for upland piles resulting in no shutdown
3/9/2023	14:40	2	0-3	N	Excellent	<10	Sunny	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/10/2023	7:17	2	0-3	SE	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/10/2023	8:23	2	0-3	SE	Excellent	<10	Mostly Cloudy	PI #2	Vibratory	East IPP Wall	36" Steel Pipe Pile	Yes	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	B	No	Level B ZOI for Vibratory is 5,598m, Level A is 10m. 150m shutdown area. No shutdown, due to animal hauled out.
3/10/2023	8:41	2	0-3	SE	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting

Level B Take

Level A Take/Shutdown

Potential Duplicate

Date Observed:	Time	Beaufort Sea State	Swell Height (ft.)	Swell Direction	Visibility	Percent OBS Glare	Weather conditions	Location:	Pile Driving Activity During Observation:	Construction Activity	Pile Size:	Bubble Curtain:	Species Observed:	Quatity of Mammals Observed:	No. of Calves/Juveniles	Sex Class	Mammal Behavior	Behavior Change	Mammal Distance From Driving Activity:	Level A or B Take:	Shutdown:	Reason:
3/10/2023	8:41	2	0-3	SE	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/10/2023	12:08	2	0-3	SE	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/10/2023	12:26	2	0-3	SE	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/13/2023	10:37	2	0-3	N	Good	<10	Steady Rain	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	150	N/A	No	No pile driving activity at the time of the sighting
3/17/2023	11:15	3	4-6	S	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	200	N/A	No	No pile driving activity at the time of the sighting
3/17/2023	12:16	2	4-6	S	Excellent	<10	Mostly Cloudy	PI #2	Impact	East IPP Wall	36" Steel Pipe Pile	Yes	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	Yes - seal was in water and returned to being hauled out	200	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
3/17/2023	12:41	3	4-6	S	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	200	N/A	No	No pile driving activity at the time of the sighting
3/21/2023	9:03	1	0-3	S	Excellent	10-25	Partly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	2	2	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	75	N/A	Delay	No pile driving activity at the time of the sighting. Presence of seals delayed operations all day.
3/29/2023	11:28	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Harbor Seals	2	2	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/29/2023	12:11	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	Animal dove into water towards production source and returned back to same rock	85	A	No	Level B ZOI for DTH is 7609m and Level A is 150m. Animal is being recorded as a Level A take but no shutdown due to being hauled out of the water. In addition, crews were unable to enact a shut down at the time of siting.
3/30/2023	11:05	3	0-3	N	Excellent	10-25	Sunny	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/30/2023	11:55	3	0-3	N	Excellent	<10	Sunny	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
3/30/2023	13:00	2	0-3	N	Excellent	<10	Sunny	PI #2	Vibratory	East IPP Wall	36" Steel Pipe Pile	Yes	Harbor Seals	2	2	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	Both S1 and S2 seals alerted to banging during threading of WW pile and left the area.	85	B	No	Level B ZOI for Vibratory is 5,598m, Level A is 10m. 150m shutdown area. No shutdown due to animals leaving the area after construction activity began.
4/4/2023	15:40	0	0-3	SE	Good	<10	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	No	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	70	A	No	Level A ZOI for DTH is 150m; 150m shutdown No shutdown. Animal is reported as an A take; within the 150m but animal was hauled out duirng pile driving activities for upland piles resulting in no shutdown
4/5/2023	8:22	1	0-3	SE	Good	10-25	Sunny	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	85	N/A	No	No pile driving activity at the time of the sighting
4/5/2023	14:33	1	0-3	SE	Excellent	<10	Partly Cloudy	PI #2	DTH	East and West IPP Walls	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	Alerted to activity	85	A	No	Level A ZOI for DTH is 150m; 150m shutdown No shutdown. Animal is reported as an A take; within the 150m but animal was hauled out duirng pile driving activities for upland piles resulting in no shutdown
4/6/2023	10:34	2	4-6	SE	Excellent	<10	Mostly Cloudy	PI #2	DTH	East and West IPP Walls	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Milling in cove between rip rap and east ipp wall	Alerted to activity	85	A	No	Level A ZOI for DTH is 150m; 150m shutdown No shutdown. Animal is reported as an A take; within the 150m but animal was hauled out duirng pile driving activities for upland piles resulting in no shutdown

4/7/2023	7:15	3	0-3	E	Poor	<10	Steady Rain	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	40	N/A	No	No pile driving activity at the time of the sighting
4/10/2023	8:01	4	0-3	NE	Moderate	10-25	Sunny	PI #2	None	N/A	N/A	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	40	N/A	No	No pile driving activity at the time of the sighting
4/11/2023	7:59	1	03	S	Excellent	10-25	Sunny	PI #2	DTH	East and West IPP Walls	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	No	95	A	No	Level A ZOI for DTH is 150m; 150m shutdown No shutdown. Animal is reported as an A take; within the 150m but animal was hauled out duirng pile driving activities for upland piles resulting in no shutdown
4/12/2023	10:41	2	0-3	S	Excellent	10-25	Partly Cloudy	PI #2	DTH	East IPP Wall	36" Steel Pipe Pile	NO	Harbor Seals	1	1	Unkown	Resting/Hauled out on RipRap on SE corner of PI#2	Yes - Seal was captured by vets	95	A		Level A ZOI for DTH is 150m; 150m shutdown No shutdown. Animal is reported as an A take; within the 150m but animal was hauled out duirng pile driving activities for upland piles resulting in no shutdown
4/24/2023	8:11	0	0-3	E	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	6	0	Male	Feeding NE of PI #1	No	1550	N/A	No	No pile driving activity at the time of the sighting
6/27/2023	15:14	1	0-3	SE	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	8	0	Unkown	Fast Traveling SE of the island	No	750	N/A	No	No pile driving activity at the time of the sighting
7/6/2023	8:07	1	0-3	S	Excellent	<10	Mostly Cloudy	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	No	Bottlenose Dolphin	5	0	Male	Slow Traveling SE of Rip Rap	No	1000	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/10/2023	14:58	1	0-3	N	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	11	4	Female	Feeding SE of the Island	No	2500	N/A	No	No pile driving activity at the time of the sighting
7/11/2023	15:40	1	0-3	S	Excellent	<10	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	19	7	Unkown	Feeding SE of the Island	No	2000	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/11/2023	16:40	1	0-3	S	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	10	0	Unkown	Fast Traveling through channel south of island	No	2000	N/A	No	No pile driving activity at the time of the sighting
7/12/2023	9:25	1	0-3	SW	Excellent	<10	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	8	0	Unkown	Fast Traveling E of Island by Channel	No	850	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/12/2023	10:30	1	0-3	SW	Excellent	10-25	Sunny	PI #2	None	West IPP Wall	N/A	NO	Bottlenose Dolphin	11	0	Unkown	Socializing NE of Island	No	775	N/A	No	No pile driving activity at the time of the sighting
7/12/2023	12:55	1	0-3	S	Excellent	<10	Partly Cloudy	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	12	3	Female	Slow Traveling W of Visitor Center	No	7000	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/13/2023	14:43	1	0-3	S	Excellent	<10	Mostly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	9	0	Unkown	Fast Traveling W of Visitor Center	No	7000	N/A	No	No pile driving activity at the time of the sighting
7/17/2023	8:05	2	0-3	W	Excellent	<10	Partly Cloudy	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	11	0	Unkown	Feeding SE of the Island	No	1150	B	No	No pile driving activity at the time of the sighting
7/17/2023	8:21	2	0-3	W	Excellent	<10	Partly Cloudy	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	13	0	Unkown	Slow Traveling S of the Trestle	Yes - Traveling to feeding	800	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/17/2023	8:39	2	0-3	W	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	13	0	Unkown	Feeding E of PI #1	No	1350	N/A	No	No pile driving activity at the time of the sighting
7/17/2023	8:39	2	0-3	W	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	11	0	Unkown	Feeding SE of PI #2	No	1100	N/A	No	No pile driving activity at the time of the sighting
7/17/2023	18:47	1	0-3	W	Excellent	<10	Mostly Cloudy	PI #2	Impact	West IPP Wall	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	7	0	Unkown	Slow Traveling W of the Island	No	375	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
7/17/2023	19:39	2	0-3	W	Excellent	<10	Mostly Cloudy	PI #2	Impact	West IPP Wall	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	9	0	Unkown	Slow Traveling SE of the island	No	1000	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
7/25/2023	9:50	2	0-3	S	Excellent	<10	Sunny	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	8	0	Unkown	Feeding N of FL Beach	No	6300	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/25/2023	15:19	1	0-3	S	Excellent	<10	Sunny	FL	None	N/A	N/A	NO	Bottlenose Dolphin	13	0	Unkown	Resting N of FL Beach	Yes - irritated by boat activity	6525	N/A	No	No pile driving activity at the time of the sighting
7/25/2023	16:06	1	0-3	S	Excellent	<10	Sunny	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	13	0	Unkown	Slow Traveling NE of FL Beach	Yes - traveling direction changed due to boat activity	6700	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/26/2023	8:25	2	0-3	SW	Excellent	<10	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	5	0	Unkown	Slow Traveling SW of PI 2	No	950	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/26/2023	14:35	3	0-3	SE	Excellent	<10	Partly Cloudy	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	7	0	Unkown	Feeding W of PI #1	No	1500	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/26/2023	14:57	3	0-3	SE	Excellent	<10	Partly Cloudy	PI #2	DTH	N/A	N/A	NO	Bottlenose Dolphin	7	0	Unkown	Feeding W of PI #1	No	1500	N/A	No	No pile driving activity at the time of the sighting
7/26/2023	13:53	1	0-3	S	Excellent	10-25	Partly Cloudy	FL	None	West IPP Wall	N/A	NO	Bottlenose Dolphin	14	0	Unkown	Fast Traveling N of Visitor Center	No	7000	N/A	No	No pile driving activity at the time of the sighting
7/26/2023	14:34	1	0-3	SE	Excellent	<10	Partly Cloudy	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	16	7	Unkown	Faset Traveling N of FL Beach	No	7000	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
7/31/2023	9:43	1	0-3	E	Excellent	10-25	Partly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	10	0	Unkown	Fast Traveling S of Visitor Center	No	7000	N/A	No	No pile driving activity at the time of the sighting
8/1/2023	9:15	1	0-3	N	Excellent	<10	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	5	0	Unkown	Fast Traveling S of PI #2	No	375	N/A	No	No pile driving activity at the time of the sighting
8/1/2023	11:00	2	0-3	N	Excellent	<10	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	8	0	Unkown	Fast Traveling SW of PI #2	No	250	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/2/2023	13:03	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	13	4	Female	Fast Traveling SE PI #2	No	1500	N/A	No	No pile driving activity at the time of the sighting
8/2/2023	14:50	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	8	0	Male	Feeding SE of PI #2	No	850	N/A	No	No pile driving activity at the time of the sighting
8/2/2023	13:10	2	0-3	E	Excellent	<10	Sunny	FL	None	N/A	N/A	NO	Bottlenose Dolphin	11	0	Unkown	Socializing NE of of FL Beach	No	6350	N/A	No	No pile driving activity at the time of the sighting
8/2/2023	15:00	2	0-3	E	Excellent	<10	Sunny	FL	None	N/A	N/A	NO	Bottlenose Dolphin	8	0	Unkown	Resting NW of FL Beach	No	6600	N/A	No	No pile driving activity at the time of the sighting

Date Observed:	Time	Beaufort Sea State	Swell Height (ft.)	Swell Direction	Visibility	Percent OBS Glare	Weather conditions	Location:	Pile Driving Activity During Observation:	Construction Activity	Pile Size:	Bubble Curtain:	Species Observed:	Quality of Mammals Observed:	No. of Calves/Juveniles	Sex Class	Mammal Behavior	Behavior Change	Mammal Distance From Driving Activity:	Level A or B Take:	Shutdown:	Reason:
8/3/2023	11:10	2	0-3	S	Excellent	<10	Sunny	FL	None	N/A	N/A	NO	Bottlenose Dolphin	13	0	Unkown	Resting N of FL Beach	No	6500	N/A	No	No pile driving activity at the time of the sighting
8/5/2023	7:46	1	0-3	SE	Excellent	10-25	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	15	7	Female	Feeding S of PI#2	No	1000	N/A	No	No pile driving activity at the time of the sighting
8/5/2023	11:30	2	0-3	N	Excellent	<10	Mostly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	18	2	Unkown	Resting NW of FL Beach	No	6600	N/A	No	No pile driving activity at the time of the sighting
8/5/2023	12:03	2	0-3	N	Excellent	<10	Mostly Cloudy	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	18	2	Unkown	Resting NW of FL Beach	Yes - disturbed by boat traffic	6600	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/5/2023	12:43	2	0-3	N	Excellent	<10	Mostly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	18	2	Unkown	Slow traveling N of FL Beach	No	6350	N/A	No	No pile driving activity at the time of the sighting
8/5/2023	14:00	1	0-3	SE	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	6	0	Male	Feeding S of PI#2	No	1500	N/A	No	No pile driving activity at the time of the sighting
8/5/2023	16:00	2	0-3	NE	Excellent	<10	Partly Cloudy	FL	Impact	East and West IPP Walls	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	9	0	Unkown	Socializing N of FL Beach	No	6200	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
8/5/2023	17:14	2	0-3	NE	Excellent	10-25	Sunny	FL	Impact	East and West IPP Walls	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	11	0	Unkown	Resting NW of FL Beach	No	6500	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
8/7/2023	6:54	2	0-3	S	Excellent	<10	Mostly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	13	0	Unkown	Resting N of FL Beach	Yes - started to travel out of bay	6500	N/A	No	No pile driving activity at the time of the sighting
8/9/2023	12:10	2	0-3	NW	Excellent	<10	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	7	0	Unkown	Slow Traveling NE of PI #2	No	1000	N/A	No	No pile driving activity at the time of the sighting
8/9/2023	12:57	2	0-3	NW	Excellent	<10	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	5	0	Unkown	Slow Traveling E of PI #2	No	275	N/A	No	No pile driving activity at the time of the sighting
8/10/2023	6:40	2	0-3	S	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	7	0	Unkown	Slow Traveling SE of PI #2	No	175	N/A	Delay	Production delayed due to animals within Shutdown Zone
8/10/2023	11:29	1	0-3	S	Excellent	<10	Mostly Cloudy	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	11	4	Female	Slow Traveling S of Visitor Center	No	7000	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/11/2023	6:45	2	0-3	NW	Excellent	<10	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	23	3	Unkown	Feeding S of PI#2	No	850	N/A	No	No pile driving activity at the time of the sighting
8/11/2023	7:15	2	0-3	NW	Excellent	<10	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	23	3	Unkown	Feeding SE of PI #2	Yes - feeding to fast traveling back to feeding	900	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/12/203	6:42	1	0-3	N	Excellent	<10	Partly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	18	6	Unkown	Slow Traveling S of Visitor Center	No	7000	N/A	No	No pile driving activity at the time of the sighting
8/12/2023	8:10	2	0-3	SW	Excellent	<10	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	18	1	Unkown	Socializing SE of PI #2	No	800	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/15/2023	12:54	1	0-3	S	Excellent	<10	Partly Cloudy	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	9	1	Female	Fast Traveling S of Visitor Center	No	7000	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/15/2023	15:00	2	0-3	SW	Excellent	10-25	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	8	0	Unkown	Fast Traveling SE of PI #2	No	750	N/A	No	No pile driving activity at the time of the sighting
8/16/2023	9:40	2	0-3	W	Excellent	<10	Partly Cloudy	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	11	0	Unkown	Resting N of FL Beach	Yes - moved away from pedestrian interactions	6700	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/16/2023	10:17	2	0-3	W	Excellent	<10	Partly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	11	0	Unkown	Resting N of FL Beach	No	6350	N/A	No	No pile driving activity at the time of the sighting
8/16/2023	11:20	1	0-3	S	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	15	0	Unkown	Feeding SE of PI #2	No	1000	N/A	No	No pile driving activity at the time of the sighting
8/16/2023	19:08	2	0-3	E	Excellent	10-25	Sunny	FL	Impact	East and West IPP Walls	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	12	0	Unkown	Socializing NE of FL Beach	No	6500	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
8/17/2023	10:03	1	0-3	S	Excellent	10-25	Partly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	14	3	Female	Fast Traveling S of Visitor Center	No	7000	N/A	No	No pile driving activity at the time of the sighting
8/17/2023	14:10	2	0-3	S	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	8	0	Unkown	Slow Traveling E of PI #2	No	950	N/A	No	No pile driving activity at the time of the sighting
8/17/2023	17:00	2	0-3	S	Excellent	10-25	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	11	0	Unkown	Socializing E of PI #2	No	750	N/A	No	No pile driving activity at the time of the sighting
8/17/2023	18:03	1	0-3	S	Excellent	10-25	Partly Cloudy	FL	Impact	East and West IPP Walls	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	15	2	Female	Slow Traveling S of Visitor Center	No	7000	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
8/21/2023	16:45	2	0-3	E	Good	10-25	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	13	1	Unkown	Socializing E of PI #2	Yes - changed to slow traveling through channel due to boat traffic	900	N/A	No	No pile driving activity at the time of the sighting
8/21/2023	17:01	1	0-3	S	Excellent	<10	Partly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	9	1	Female	Fast Traveling S of Visitor Center	No	7000	N/A	No	No pile driving activity at the time of the sighting
8/22/2023	7:21	1	0-3	E	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	15	0	Unkown	Feeding S of PI#2	No	1000	N/A	No	No pile driving activity at the time of the sighting
8/22/2023	8:40	2	0-3	NW	Good	<10	Overcast	FL	None	N/A	N/A	NO	Bottlenose Dolphin	7	0	Unkown	Resting N of FL Beach	No	6650	N/A	No	No pile driving activity at the time of the sighting
8/23/2023	16:05	3	0-3	NE	Excellent	25-50	Sunny	PI #2	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Loggerhead Turtle	1	0	Unkown	Slow Traveling E of PI #2	No	375	N/A	N/A	Animal is not included within the monitoring requirements for the IHA
8/24/2023	11:00	1	0-3	S	Excellent	<10	Mostly Cloudy	FL	None	N/A	N/A	NO	Bottlenose Dolphin	18	0	Unkown	Socializng N of FL Beach	No	6550	N/A	N/A	No pile driving activity at the time of the sighting

Date Observed:	Time	Beaufort Sea State	Swell Height (ft.)	Swell Direction	Visibility	Percent OBS Glare	Weather conditions	Location:	Pile Driving Activity During Observation:	Construction Activity	Pile Size:	Bubble Curtain:	Species Observed:	Quatity of Mammals Observed:	No. of Calves/Juveniles	Sex Class	Mammal Behavior	Behavior Change	Mammal Distance From Driving Activity:	Level A or B Take:	Shutdown:	Reason:
8/24/2023	12:05	2	0-3	S	Excellent	<10	Mostly Cloudy	FL	DTH	West IPP Wall	36" Steel Pipe Pile	NO	Bottlenose Dolphin	18	0	Unkown	Socializng N of FL Beach	Yes - began fast traveling NW towards PI #1	6200	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/25/2023	7:15	1	0-3	S	Excellent	<10	Sunny	FL	None	N/A	N/A	NO	Bottlenose Dolphin	11	0	Unkown	Resting N of FL Beach	No	6500	N/A	N/A	No pile driving activity at the time of the sighting
8/25/2023	7:58	2	0-3	E	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	14	0	Unkown	Fast Traveling E of PI #2	No	200	N/A	N/A	No pile driving activity at the time of the sighting
8/25/2023	14:50	3	0-3	S	Excellent	<10	Sunny	FL	DTH	Mooring Piles	36" Steel Pipe Pile	NO	Bottlenose Dolphin	7	0	Unkown	Socializing N of FL Beach	No	6200	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/25/2023	15:20	3	0-3	S	Excellent	<10	Sunny	FL	DTH	Mooring Piles	36" Steel Pipe Pile	NO	Bottlenose Dolphin	13	0	Unkown	Fast Traveling N of FL Beach	Yes - joined with other group that was socializing	6300	B	No	Level B ZOI for DTH is 7609m; 150m shutdown zone/Level A take area. No shutdown
8/29/2023	7:00	1	0-3	E	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	9	2	Female	Feeding SE of PI #2	No	1250	N/A	N/A	No pile driving activity at the time of the sighting
9/5/2023	8:16	1	0-3	S	Excellent	10-25	Sunny	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	17	4	Female	Feeding E of PI #2	No	2000	N/A	N/A	No pile driving activity at the time of the sighting
9/5/2023	13:31	1	0-3	S	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	9	0	Unkown	Feeding SE of PI #2	No	1500	N/A	N/A	No pile driving activity at the time of the sighting
9/8/2023	14:58	3	0-3	S	Good	25-50	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	11	0	Unkown	Fast Traveling S of PI #2	No	550	N/A	N/A	No pile driving activity at the time of the sighting
9/9/2023	7:16	2	0-3	S	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	9	0	Unkown	Milling E of PI #2	No	675	N/A	N/A	No pile driving activity at the time of the sighting
9/9/2023	9:49	2	0-3	S	Excellent	<10	Mostly Cloudy	PI #2	Impact	West IPP Wall	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	13	0	Unkown	Fast Traveling N of PI #1	No	1300	No	No	Level B ZOI for Impacting is 136m and Level A is 150m. Animal was outside of 150m shutdown zone.
9/13/2023	8:46	1	0-3	S	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	10	0	Unkown	Feeding E of PI #2	No	1500	N/A	N/A	No pile driving activity at the time of the sighting
9/13/2023	11:30	1	0-3	S	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	6	0	Male	Feeding S of PI#2	No	1500	N/A	N/A	No pile driving activity at the time of the sighting
9/19/2023	7:36	1	0-3	SE	Excellent	10-25	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	11	3	Female	Feeding SE of PI #2	No	2000	N/A	N/A	No pile driving activity at the time of the sighting
9/19/2023	17:46	1	0-3	E	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	13	4	Female	Feeding SE of PI #2	No	1500	N/A	N/A	No pile driving activity at the time of the sighting
9/19/2023	18:25	1	0-3	N	Excellent	<10	Partly Cloudy	PI #2	Vibratory	Pile Removal	36" Steel Pipe Pile	Yes	Bottlenose Dolphin	6	0	Male	Fast Traveling S of PI #2	No	1500	B	No	Level B ZOI for Vibratory is 5,598m and Level A is 10m. Animal was outside of the 150m shutdown zone.
9/20/2023	8:09	1	0-3	S	Excellent	<10	Mostly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	13	4	Female	Feeding S of PI#2	No	1500	N/A	N/A	No pile driving activity at the time of the sighting
9/20/2023	10:51	1	0-3	NE	Excellent	<10	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	15	5	Female	Slow Traveling S of PI #2	No	1500	N/A	N/A	No pile driving activity at the time of the sighting
9/21/2023	7:43	1	0-3	NE	Excellent	10-25	Partly Cloudy	PI #2	None	N/A	N/A	NO	Bottlenose Dolphin	9	3	Female	Feeding S of PI#2	No	1500	N/A	N/A	No pile driving activity at the time of the sighting

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APPENDIX C-

Observed Species Log & Map(By Month)

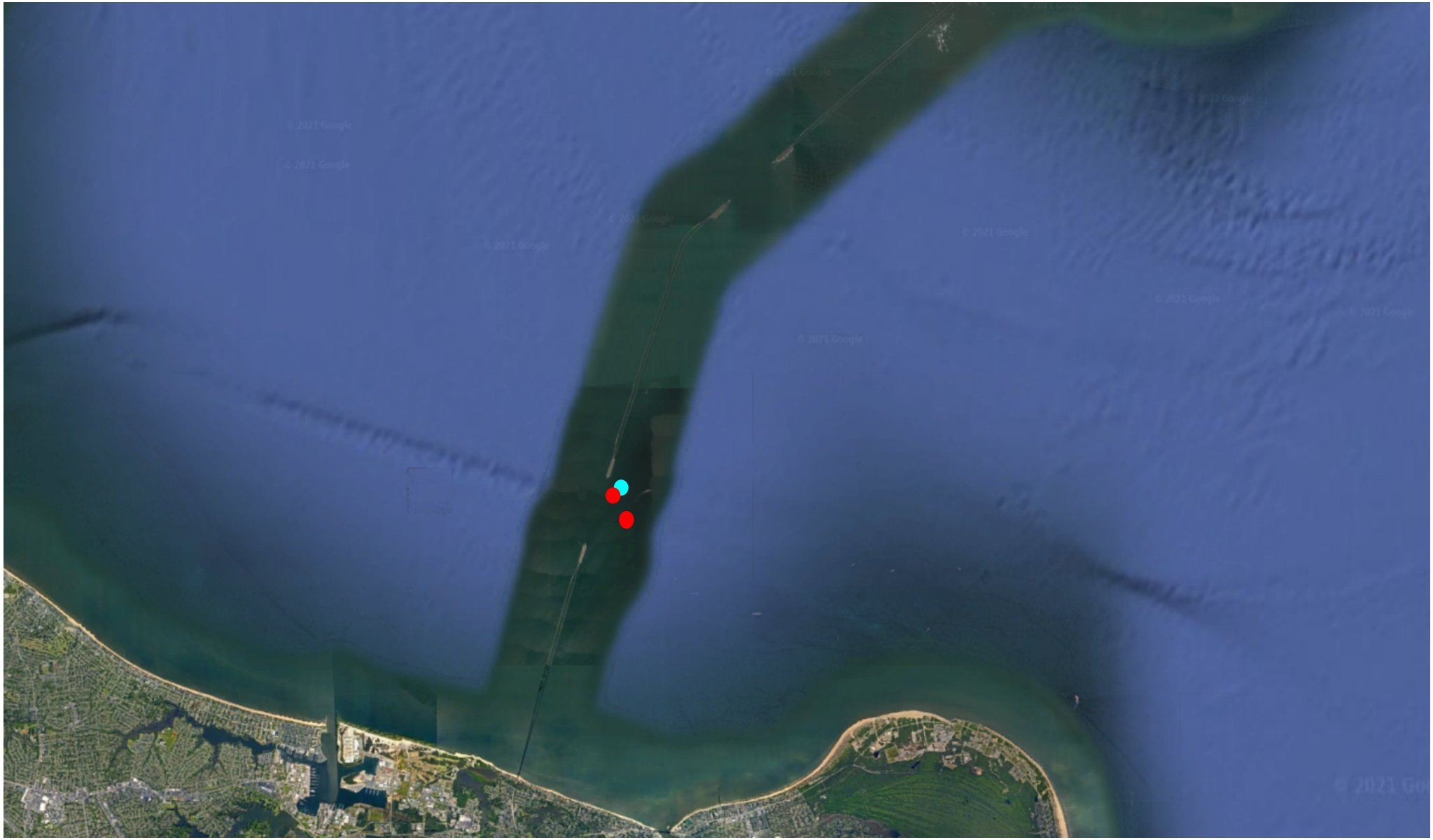
December 2022 - Marine Mammal Observation Map

Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

January 2023 - Marine Mammal Observation Map

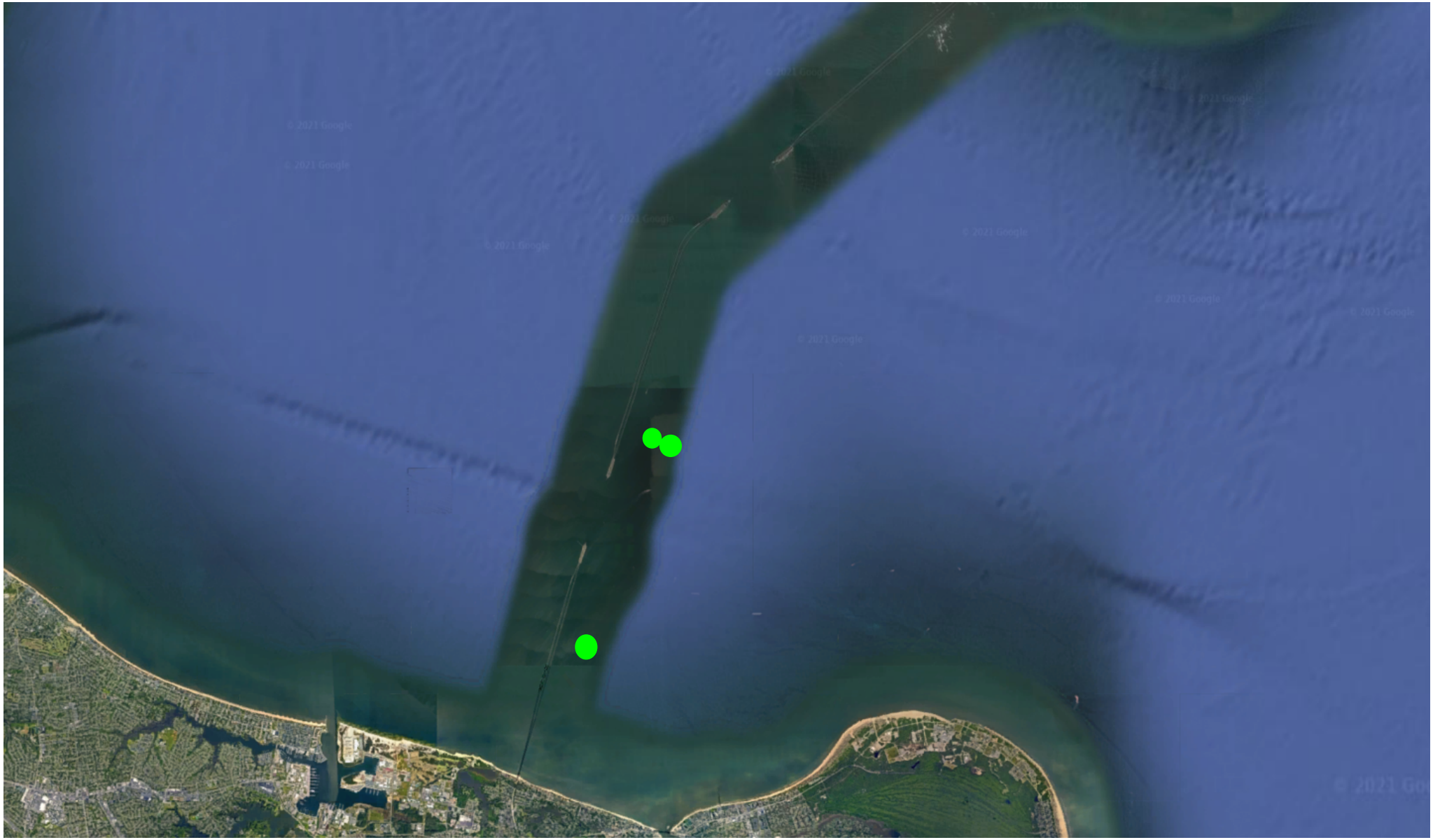


Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

February 2023 - Marine Mammal Observation Map

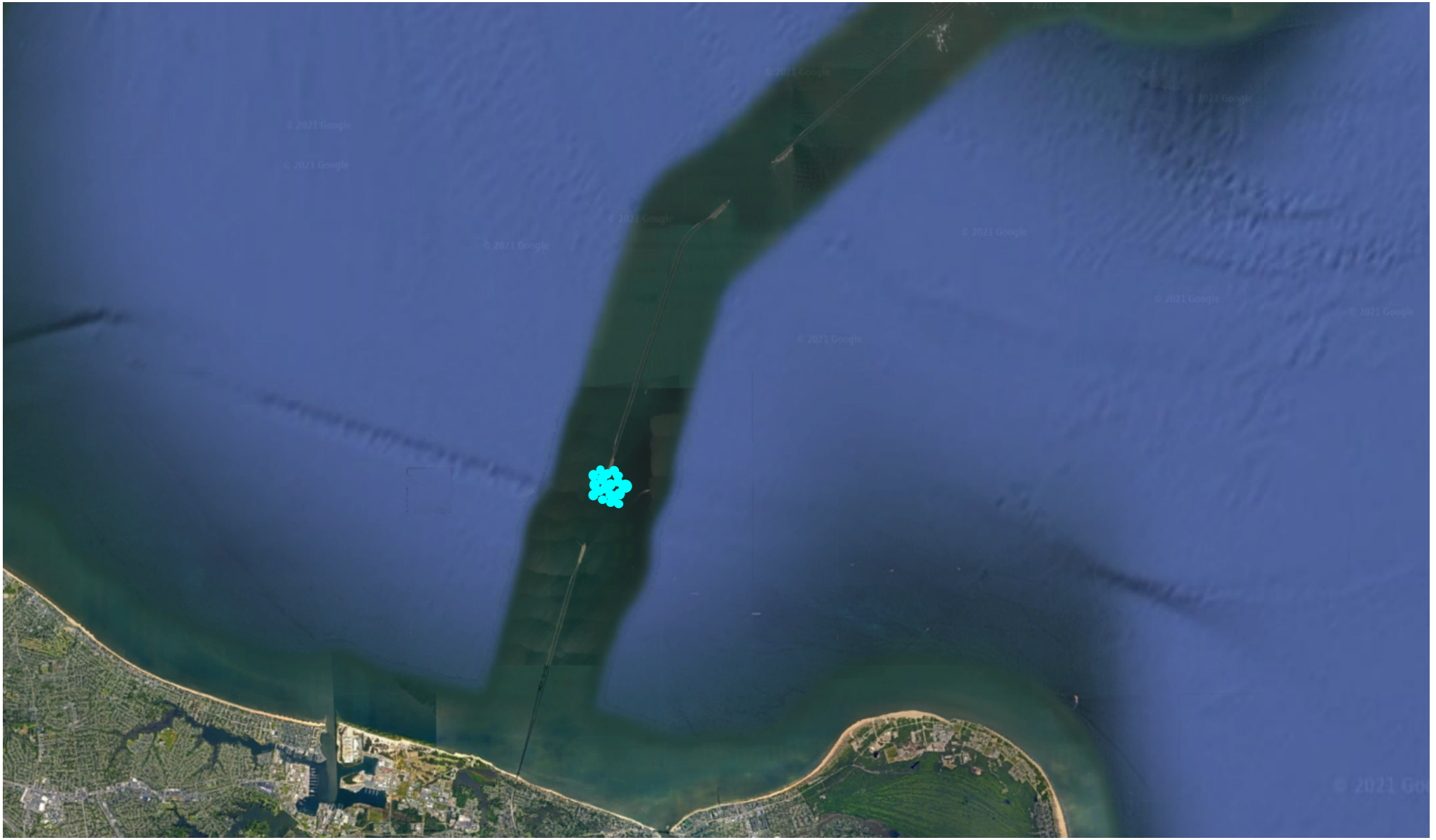


Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

March 2023 - Marine Mammal Observation Map



Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

April 2023 - Marine Mammal Observation Map

Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

May 2023 - Marine Mammal Observation Map

* Due to Minimal Work- No Observations in the Month of May

Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

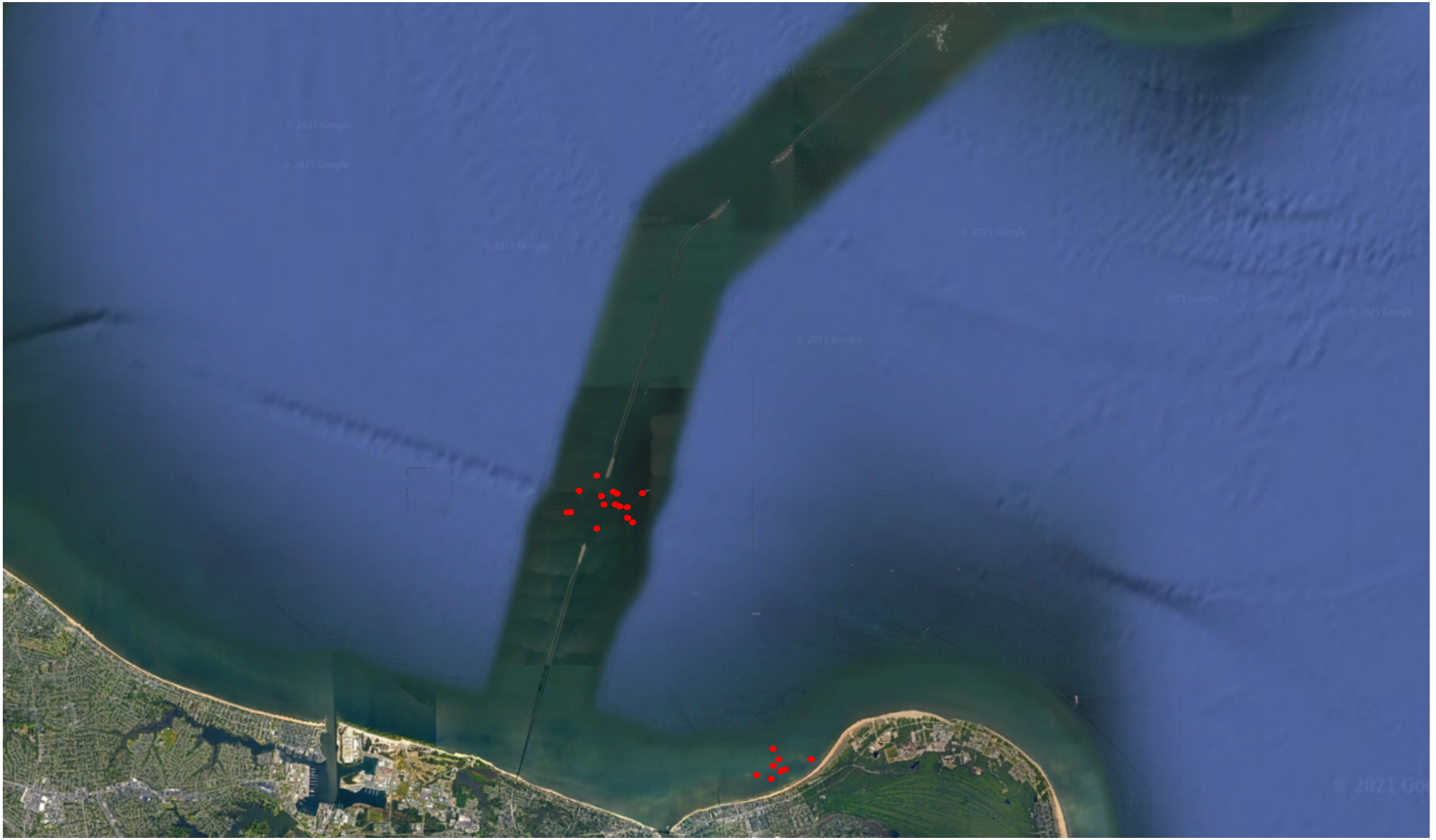
June 2023 - Marine Mammal Observation Map

Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

July 2023 - Marine Mammal Observation Map



Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

August 2023 - Marine Mammal Observation Map

Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

September 2023 - Marine Mammal Observation Map

Bottlenose Dolphin/Harbor Porpoise

Harbor Seal/Gray Seal

Whales

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APPENDIX D-

Protected Species Observer's Credentials

Kimberly Stanton

6365 Collins Ave. Apt 2410
Miami Beach, FL 33141
(571) 300-9562 ● kstanton7218@gmail.com

Career Progression

Protected Species Observer & Wildlife Project Manager: *Cayo Construction* April 2020-Present

- Developed an SOP PSO Standards and Procedures as a guideline for approved observers.
- Recruited, trained, and scheduled a pool of professional.
- Cultivated a professional relationship with the Jacksonville USACE district.
- Created pertinent daily, weekly, and incidental data sheets and the JSA for observers specific to pile driving activity for sea wall restoration. All of which were submitted and approved by USACE.
- Successfully completed both preparatory and initial inspection for the wildlife monitoring portion by USACE.
- Accurately maintained all necessary data sheets and submitted daily.
- Will write the final report for the wildlife portion of the environmental specs.

Protected Species Observer/ Marine Endangered Species Observer: *Independent Contractor* Aug 2008-Present

- Observed and mitigated for marine protected species (i.e. cetaceans, manatees, sea turtles and sturgeon) and reported any interaction.
- Spent 2 months aboard a survey vessel for a subsea cable survey which started on the coast of Massachusetts going offshore of Nova Scotia, Canada. Following BOEM/NMFS guidelines, I prepared a Protected Species Mitigation and Monitoring Program specific to survey area. Observed for large cetaceans, in particular the north Atlantic right whale, and other marine protected species. Wrote the MMO final report submitted once survey concluded.
- Observed aboard cutter head dredges, clamshell dredges, hopper dredges and mechanical dredges.
- Cetaceans, manatees, and sea turtles sighted from both boat-based and land-based observation points.
- Experienced in observations of cetaceans, manatees, and sea turtles in areas of high aggregation.
- Experienced in nighttime/low visibility observations on board dredges.
- Experienced working in rough conditions with limited supervision on hopper dredges in GOM and Atlantic Ocean.
- Accurately collected scientific data for each load on board hopper dredges.
- Followed National Marine Fisheries Service sampling protocols and carcass disposal when marine protected species "take" occurred.
- Able to work on ships at sea for a minimum of 3 weeks at a time, live in confined spaces, tolerate stress, and be physically fit.

Coastal and Marine Project Manager: *REMSA, Inc*. July 2019-Sept 2019

- Recruited, hired, trained, scheduled, and maintained a quality pool of observers.
- Maintained a professional working relationship between REMSA, USACE, construction companies and observers.
- Ensured REMSA met contractual obligations.
- Maintained observer field data and biological sampling quality control for multiple projects.
- Created relative data sheets dependent upon environmental specs per contract.
- Authored various project's final report in a timely manor

Deckhand: *Entertainment Cruises* Washington, DC Feb 2018-Nov 2018

Mad Science Enrichment Instructor: *Mad Science* Silver Spring, MD Oct 2016-Dec 2017

Hawaiian Monk Seal Rehabilitator: *The Marine Mammal Center's Ke Kai Ola Hospital* Kailua-Kona, HI 2015-2016

Large Whale Disentanglement & Cetacean (Dolphin and Whale) Stranding Response Volunteer: *West Hawaii Marine Mammal Response Network* Kailua-Kona, HI 2015-2016

Whale Watching Guide *Ocean Sports* Waikoloa, HI 2015-2016

Marine Biologist/Sea Turtle & Reef Educator: *Kahalu'u Bay Education Center* Kailua-Kona, HI 2015

- Educated public at popular snorkeling reef about various species and etiquette.

Larval Rearing Aquaculture Technician: *Shrimp Improvement Systems* Kailua-Kona, HI 2015

Veterinary Technician: *Pender Veterinary Centre* Fairfax, VA 2014

Raptor Rehabilitator Volunteer: *Raptor Conservancy of Virginia* Falls Church, VA 2013-2014

Wildlife/Pinniped Veterinary Technician Rehabilitation Intern: *Island Wildlife Natural Care Centre* Salt Spring Island, BC, Canada 2014

Veterinary Technician: *Blue Ridge Veterinary Associates and Blood Bank* Purcellville, VA 2011-2013

Dispensary Technician/Foal Watch Veterinary Assistant: *Virginia Tech's Marion DuPont Scott Equine Medical Center (Virginia- Maryland College of Veterinary Medicine)* Leesburg, VA 2011-2012

Pinniped Rehabilitator: *Seal Rescue and Research Center (Lenie'T Hart)* Pieterburen, Netherlands 2009-2010

Fisheries Observer: *AIS, Inc.* New Bedford, MA 2009

- Experienced working in rough conditions unsupervised on commercial fishing vessels from Rhode Island to Maine.
- Proficient with fish and protected species ID and at collecting biological samples such as scales, otoliths and DNA samples.
- Observed and documented marine protected species sightings/interactions.
- Followed NMFS sampling protocol when marine protected species "take" occurred.
- Independently performed pinniped necropsy after "take" occurred and transported animal back to NMFS office for further analysis.
- Assisted with various marine mammal necropsies performed at Wood's Hole Oceanographic Institute.
- Completed cold-water offshore survival skills course.
- Obtained NOAA confidential security clearance.

Manager, Zookeeper, Enrichment Coordinator: *Leesburg Animal Park* Leesburg, VA 2008

Pinniped Rehabilitator Volunteer: *North Coast Marine Mammal Center (NCMMC)* Crescent City, CA 2004-2007

- Coordinated stranding hotline.
- Responded to stranding's on beach to visually assess condition of pinniped.
- Assisted with all aspects of hospitalized pinnipeds and subsequent release.
- Developed successful fundraising events and public education activities.

Marine Mammal Education and Research Program (MMERP) Intern: *Humboldt State University* Arcata, CA 2004-2006

- Radio tagged and performed telemetry on Harbor seals.
- Completed cetacean surveys of Gray and Humpback whales.
- Assisted with necropsies including spending entire 3 days on a fin whale that washed ashore.
- Educated public when events occurred.

Veterinary/Kennel Assistant: *Nokesville Veterinary Clinic* Nokesville, VA 2005-2006

Wildlife Rehabilitator Volunteer: *Humboldt Wildlife Care Center* Arcata, CA 2001-2002

Great Ape House Zoo Keeper Aid Volunteer: *Smithsonian National Zoological Park* Washington, D.C. 1998-2001

.

Petting Zoo Staff: *Reston Animal Park* Reston, VA 1998

EDUCATION & CREDENTIALS

Humboldt State University Arcata, California August 2007

- *B.S. Marine Biology*
- *B.S. Zoology*

Northern Virginia Community College Sterling, VA May 2013

- *A.A.S. Veterinary Technology*

Veterinary Technician National Exam (VTNE) Passed

CERTIFICATIONS/WORKSHOPS

Sea Turtle Nesting Beach Survey *Florida Fish and Wildlife Conservation Commission* April 2020

CPR/First Aid *American Red Cross*

Protected Species Observer Certification *RPS* Feb 2019

TWIC

Certified Wildlife Rehabilitator *International Wildlife Rehabilitation Council*

PUBLICATIONS

Stanton, K. F. and Reis, S. 2007. "Isolation and Characterization of a Radiation Resistant Bacterium from the Manila Dunes", *Humboldt Journal of Microbiology* (HJM) 9: 139-147

K. Kalena Walker

1189 SW 6th Ave
Oak Harbor, WA 98277
k.kalena13@gmail.com
360-420-7986

EXPERIENCE

Saltwater, Inc. Washington State Ferries; Mukilteo Ferry Terminal Project **October 2020-February 2021**
Marine Mammal Observer

- Accurately identifying and reporting marine mammal sightings for conservation and protection of these species during piledriving activity
- Communicating in a timely and professional manner with lead observer and teammates

Anacortes Diving and Supply Anacortes, WA **July 2019-present**
Sales Associate

- Providing professional salesmanship and customer service to local diving community
- Making minor repairs to SCUBA equipment and inspecting cylinders to federal standards
- Maintaining sales floor and shop inventory in neat and orderly fashion

Skagit Fisheries Enhancement Group Mount Vernon, WA **September 2018-July 2019**
Community Engagement Associate

- Designing and maintaining outreach material including social media accounts and event publications
- Coordinating and communicating with volunteers and citizen scientists for various community projects
- Presenting to and engaging with members of the general public for educational and outreach purposes

Alaskan Observers, Inc. Seattle, WA/Dutch Harbor, AK **July 2015 - August 2018**
Field Observer|300+ sea days

- Planning, recording, and carrying out biological samples of target and bycatch species counts
- Collecting and recording data in neat, complete, and accurate formats and transcribing raw data into computer programs to be interpreted and used by NMFS and NOAA to aid in fisheries sustainability

Large Marine Vertebrates Project Southern Leyte, Philippines **January 2018-April 2018**
Research Assistant

- Freediving up to 15 meters deep in any weather and sea conditions to photograph whale sharks for identification purposes, recording weather GPS and behavior data
- Manually identifying individual sharks from unique patterns, processing and organizing daily survey data
- Providing interpretation and guidance to whale shark cruise tourists
- Living with limited amenities in Philippine countryside

EDUCATION and CERTIFICATIONS

Western Washington University | Huxley College of the Environment
BS in Environmental Science with Marine Ecology emphasis; graduated June 2015
MCERC Protected and Endangered Species Observer July 2020
Red Cross First Aid and CPR
OSHA HAZWOPER
SDI Specialty Diver

SKILLS

- Efficiency, organization, completeness, independence, problem-solving, leadership
- Public speaking, one-on-one interpretation
- Thoroughness and accuracy in calculations and data entry tasks
- Able to lift >50kg and comfortable being on feet for long periods
- **Computer sufficiency:** Microsoft Word, PowerPoint, Excel, and Google equivalents

COMMUNITY SERVICE and ACTIVITIES

- Washington Service Corps
- Deception Pass State Park Rosario Beach Naturalists
- Marine Science and Technology Center (Des Moines, WA)
- LAMAVE Project Philippines
- Marine Life Center (Bellingham, WA)
- The National Aquarium (Baltimore, MD)
- WWU Harbor Seal monitoring
- SDI certified specialty diver

REFERENCES

Kelley Scarzafava
Owner and Manager
Anacortes Diving & Supply
360.293.2070
info@anacortesdiving.com

Alison Studley
Executive Director
Skagit Fisheries Enhancement Group
360.336.0172
astudley@skagitfisheries.org

Kayla Ualesi
Data Management Specialist
Alaska Fisheries Science Center, FMA
206.526.4205
kayla.ualesi@noaa.gov

Alexandria (Allie) Ruby

abruby92@gmail.com
(314) 255-4444

Relevant Experience

Marine Ventures International, Stuart, FL
June-July 2019
Trained on both the Atlantic and Virginian clam-shell dredges. Learned on-site skills overnight, as well as proper data entry for sightings, operational pauses, and species identification.

Sea Turtle Preservation Society (Volunteer), Melbourne, FL
January 2017- April 2020
Three years of nesting surveys in Cocoa Beach, Florida identifying leatherback, loggerhead, and green turtles' nests, hatchlings, and tracks. Documented the GPS coordinates, marked each site, and communicated data with GEOMAR Environmental Consultants

Other Experience

The Great American Diving Company, St. Charles, MO
January 2016-March 2017 & Current
Maintained equipment for 75 full sets of gear, organized retail records, regular customer tank fills, and other shop duties. Assisting Instructor as staff DiveMaster.

Sea Shepherd Conservation Society (on-shore volunteer), Tampa FL
May 2018- April 2020
Advocated awareness about current projects during the Cocoa Beach Art Shows. Presented environmental information and details about offshore ships in

Certifications

PSO *August 2019*
PAM *August 2019*
ODESS *August 2019*
Professional Association of Diving Instructors (PADI) DiveMaster *April 2021*
PADI Fish Identification Specialist (awarded level one, qualified for level two)

Education

State Fair Community College, Osage Beach, Missouri
Graduated May 2014
Associate of Arts in General Studies

Northwest Missouri State University, Maryville, Missouri
June 2014 - December 2015
Senior standing for bachelor's in Marine Biology

Certificate of Completion

CSA Ocean Sciences Inc.

Protected Species Observer Training

This course has been reviewed and accepted by National Marine Fisheries Service Office of Protected Species and is compliant with the following training guidelines:

BOEM NTL 2016-G02
Florida Fish & Wildlife Conservation Commission Manatee Training

This certificate is awarded to

Alexandria Ruby

Given this 18th day of August of 2019

Mary Jo Barkaszi
Marine Mammal & Ocean Sound Director

Gmail

Amy Whitt <amy@azuraco.com>

Fwd: PSO Epproval Allie Ruby h

1 me age

Kim Stanton <kstanton7218@gmail.com> h T , Dec 30, 2021 at 11:22
To: my W itt <amy@a aco.com>

Kim Stanton
ine Endange ed Species Cons ltant
M
a
---------- Fo wa ded message ---------
F om: **Max Tritt - NOAA Federal** <max.t itt@noaa.gov>
Date: F i, g 27, 2021, 11:31
S bject: PSO Epp oval
To: <ab by92@gmail.com>
Cc: Kim Stanton <kstanton7218@gmail.com>

M a M F

G reetings lexand ia:

T ank yo fo y M F inte est in obtaining app oval f om NO A 's National ine Fis e ies Se vice (N S) to wo k as a P otected Species Obse ve (PSO). We ave eviewed yo c edentials and made t e following dete minations:

Yo meet t e N M F S t aining and expe ience ecommendations fo PSOs se ving at gene al nea s o e const ction p ojects s c as pile d iving, explosive demolitions, mec anical d edging, and d edged mate ial disposal; and

Yo meet t e N S "conditional" t aining and expe ience ecommendations fo PSOs se ving aboa d yd a lic oppe d edges. See o website fo additional on-t e-job t aining;

M e

Please note t at t is app oval is only valid fo activities noted above, s c as nea s o e const ction, pile d iving, demolitions, d edging, and spoils disposal in t e Weste n tlantic Ocean and G ulf of xico.

Fo mo e info mation on PSO app oval fo geop ysical s veys, s c as bottom p ofiling sing sona o ot e elect omagnetic devices o fo seismic s veys t at se ai g ns, please contact nmfs.pso eview@noaa.gov. F t e , t is app oval is not applicable to t e No t east Fis e ies Obse ve s P og am o t e Platfo m Removal Obse ve P og am. h
h

Plea e en e t at yo etain a copy of t i email app oval fo yo a eco d and t at yo ca y a copy w ile cond cting PSO d tie .
We app eciate yo effo t in t e con e vation of p otected pecie and look fo wa d to wo king wit yo in t e f t e.
h
Since ely,

Ma

H. x T itt
Fis e y Biologist
G eate M tlantic Fis e ies Office
National ine Fis e ies Se vice
17 Godf ey D ive, S ite 1
O ono, a . 04473
Tel: 207.866.3756
Fax: 207.866.7342 h

Brandon R. Paquin, 2101Pamela Dr, Holiday FL 34690 PH: (305) 3043733 – E-Mail: brpaqua73@gmail.com

OBJECTIVE:

Secure work as an endangered species/Marine mammal Observer/ DMI

PROFESSIONAL PROFILE:

A marine mammal professional with twenty-five years of experience working within the zoological industry and marine mammal research communities. Extensive experience conducting NMFS Authorized inshore and offshore photo-identification research, managing marine mammal stranding events, providing rehabilitative care, conducting necropsies, aiding interventions and coordination and deployment of six dolphin health and environmental risk assessments.

EMPLOYMENT:

RMSA, NOAA contractor, Protected species observer Tide Environmental, NOAA contractor, Protected species observer, MMPA, ESA, MFO mitigator, Boston Harbor

Marine Ventures Inc, NOAA contractor, FPL(Florida power and light), Protected species observer, MMPA, ESA Mitigator

TideEnvironmental,NOAA contractor, Protected species observer, MMPA, ESA mitigator,Hopper dredge, Jupiter, Fl

Harbor Branch Oceanographic Institution, Ft. Pierce, FL
Marine Animal Rescue Society and Florida Keys Marine Laboratories Marine Mammal Conservancy, Key Largo, FL
Sarasota Jungle Gardens, Sarasota, FL
Marine Animal Rescue Society and Florida Keys Marine Laboratories Dolphin Research Center, Grassy Key, FL
Miami Metro Zoo
Miami Seaquarium

EXPERIENCE / SKILLS:

2021-2020 2003-2006 2003-2003 2003-2003 2001-2002 2000-2000 1996-1999 1995-1996 19921995

- Animal Care and Rehabilitation Technician
- Animal Health, Husbandry and Welfare
- First Responder - Rescue and Response Coordinator
- Photo-Identification Research Associate / NMFS LOC-15631 – Mazzoil)
- Health and Environmental Risk Assessment / NMFS Permit #998-1678)
- Boat Pilot (17’ – 36’) In-Shore and Offshore Navigation
- Necropsy – Pathobiological Examinations
- Behavioral Conditioning and Enrichment
- Invasive Fish Species Removal Technician
- Marine Operations, Maintenance and Inventory
- Veterinary Treatments and Diagnostic Procedures
- Operation and Use of Digital Cameras (Photo-ID)
- Operation and Application of Telemetry Systems
- Operation of Life Support Systems / Water Quality
- Educational and Outreach
- Logistics and Deployment
- Nutrition and Diet

EXPERIENCE / HIGHLIGHTS:

Brandon R. Paquin, 2101Pamela Dr, Holiday FL 34690 PH: (305) 3043733 – E-Mail: brpaqua73@gmail.com

- Participated in (6) dolphin health and environmental risk assessments (IRL/CHS)
- Conducted (3) Years of Monthly Photo-ID Research / Indian River Lagoon
- Participated in the Response & Recovery of Hurricane Katrina Dolphins (MS)
- Participated in (11) Interventions to Recover/Evaluate Entangled Dolphins
- Served as Rehabilitation Supervisor on Numerous Stranding Events
- Release and Post-Release Monitoring of Dolphins
- Jellyfish Breeding Program Assistant
- Conditional training with harbor seals and rescue and rehabilitation
- Participated in USGS Manatee Health Assessments (Crystal River)
- Response and Care for Cold Stunned Sea Turtles and Manatee
- Participated in fisheries studies and survey studies for Florida Fish and Wildlife
- Aided in the Multi-Agency Rescue and Initial Care of “Winter”

MANAGED and WILD STOCK SPECIES:

Common Bottlenose Dolphin (*Tursiops truncatus*)
Pacific White Sided Dolphin (*Lagenorhynchus obliquidens*) Striped Dolphin (*Stenella clymeme; Stenella coeruleoalba*) Pantropical Spotted Dolphin (*Stenella frontalis*)
Pygmy Sperm Whale (*Kogia Breviceps*)
Dwarf Sperm Whale (*Kogia Sima*)
Sperm whale
Long-Finned Pilot Whale (*Globicephala melas*)
Beaked Whale (*Mesoplodon spp*)
Gervais' Beaked Whale (*Mesoplodon europaeus*)
Killer Whale (*Orcinus orca*)
Manatee (*Trichechus manatus*)
California Sea Lion (*Zalophus Californianus*)

Pacific Harbor Seal (*Phoca vitulina)*
Aquarium Fish Stock, Sharks and Rays
Reptiles (*Venomous and Non-Venomous*)
Birds of Prey
Pachyderm Primates

QULAIFICATIONS / CERTIFICATION:

- Certified open water diver (PADI)
- Certified Safe Boat Operator (FWCC)
- American Red Cross First Aid and CPR Training
- Valid Florida Drivers License **REFERENCES:** Upon Request

RPS Offshore Protected Species Observer Training

This is to verify that

Brandon Paquin

Has successfully completed a course of instruction in
Training for Seismic Mitigation
Under the BOEM NTL 2016-G02

This certificate of Completion awarded

This 15th day of December 2020

RPS
20405 Tomball Parkway, Building 2, Suite 200
Houston, TX 77070
Tel: (281) 448-6188
Fax: (281) 448-6189

Stephanie Miller / Jessica Richardson
BSEE Approved Instructor(s)

Greetings Brandon:

Thank you for your interest in obtaining approval from NOAA's National Marine Fisheries Service (NMFS) to work as a Protected Species Observer (PSO). We have reviewed your credentials and made the following determinations:

- You meet the NMFS training and experience recommendations for PSOs serving at general nearshore construction projects such as pile driving, explosive demolitions, mechanical dredging, and dredged material disposal;

- You meet the NMFS **"unconditional"** training and experience recommendations for PSOs serving aboard hydraulic hopper dredges;

Please note that this approval is only valid for activities noted above, such as nearshore construction, pile driving, demolitions, dredging, and spoils disposal in the Western Atlantic Ocean and Gulf of Mexico.

For more information on, or PSO approval for, any type of geophysical surveys, such as bottom profiling using sonar or other electromagnetic devices, or for seismic surveys that use air guns, please contact nmfs.psoreview@noaa.gov. Further, this approval is not applicable to the Northeast Fisheries Observers Program or the Platform Removal Observer Program.

Please ensure that you retain a copy of this email approval for your records and that you carry a copy while conducting PSO duties. We appreciate your efforts in the conservation of protected species and look forward to working with you in the future.

Sincerely,

H. Max Tritt
Fishery Biologist
Greater Atlantic Fisheries Office
National Marine Fisheries Service
17 Godfrey Drive, Suite 1
Orono, ME. 04473
Tel: 207.866.3756

PAUL J ORYEM

314-514-5701 | paul@innoviummarine.com

PROFESSIONAL SUMMARY

Marine environmental services assignments on decommissioned oil rigs and pipelines, clamshell dredging operations, sea wall restoration projects, hopper dredges (channel maintenance and beach nourishment) and other maritime construction activities.

Environmental Inspector role(s):

- ✦ Health and Safety Plan (HASP) adherence and daily reports of operational activities and other aspects including applicable observations regarding spills, sheens, debris overboard
- ✦ Conducted environmental orientations, tracked and updated training to third party contractors of company, state and federal statutes, regulations and guidelines
- ✦ Documented observable protected species sightings and environmental conditions on approved data forms and reported all incidents to designated personnel
- ✦ Monitored a 360° exclusion zone for protected species around maritime operations. Advised captain and crew regarding vessel speed restrictions and activities (from applicable permit referenced guidance) in the event of protected species observations

On US Army Corps of Engineers projects utilized Operations and Dredging Endangered Species System (**ODESS**) for reporting and monitoring compliance with Federal regulations: ***Endangered Species Act*** (ESA) and the ***Marine Mammal Protection Act*** (MMPA)

- ✦ Monitoring and recording marine species and behaviors during regulated construction activities
- ✦ Maintaining accurate, unbiased scientific data and following required protocols
- ✦ Identifying sea turtles, birds, and marine mammals at a species-level, both at distances and by body parts; estimating distance, quantity, and behaviors of animals during observation activities

CREDENTIALS, CERTIFICATIONS and TRAINING

US Passport & Trusted Traveler Programs: Global Entry, **NEXUS** card for Canada, Asia Pacific Economic Cooperation **(APEC) Business Travel Card**, TSA **PreCheck**

Commercial Drivers License (Class B ***CDL***) ***endorsements:*** HazMat, Tank, Airbrake, Passenger

Transportation Worker Identification Credential **TWIC card**

OGUK Medical Certificate

NSC **First Aid**, CPR and AED

IADC RigPass course including **SafeGulf** and SafeLand

Florida Boating Safety Education ID Card

Dredged Material Inspector (DMI) U.S. Army Corps of Engineers (2021)
Automated Disposal Surveillance System (ADDIS)

Florida Stormwater, Erosion & Sedimentation Control Inspector (Turbidity Monitor) Florida Department of Environmental Protection (2021)

Protected Species Observer Approval Letter Dredging, Construction National Marine Fisheries Service (NMFS) (2020)

Marine Mammal and Protected Species Training **Intelligent Ocean**(2017) King's Lynn, England
Passive Acoustic Monitoring (PAM)

Protected Species Observer (PSO) Bureau of Ocean Energy Management (BOEM)
Bureau of Safety and Environmental Enforcement (BSEE)

Marine Mammal Observer (MMO) Joint Nature Conservation Committee (JNCC)

Offshore Survival Training **Survivex**(2017) Aberdeen, Scotland

OPITO Basic Offshore Safety Induction & Emergency Training (BOSIET) with HUET, CA-EBS and EBS

Center for Environmental Education and Training **(CEET)** Saint Louis University
Occupational Safety and Health (OSHA) and environmental licenses earned through over 400+ contact hour training sessions in two modules: **Green Technology** in 2011, **Environmental Remediation** in 2015

40 Hour HAZWOPER	OSHA 7300 Permit-Required Confined Space Standard
OSHA 10 Hour Construction Safety & Health	OSHA 7405 Fall Hazard Awareness
OSHA 511 Standards for General Industry	OSHA 7410 Managing Excavation Hazards
OSHA 521 Guide to Industrial Hygiene	OSHA 7200 Bloodborne Pathogens
OSHA 7205 Health Hazard Awareness	OSHA 7105 Evacuation and Emergency Planning
OSHA 7500 Intro to Safety & Health Management	OSHA 7100 Machinery and Machine Safeguarding

Bachelor's Degree in **Biology** with minors in Chemistry and Economics Oakwood University

EXPERIENCE

Environmental Inspector (EI) August 2020 - present
On assignment as a Haley & Aldrich Field Representative providing **Federal Energy Regulatory Commission** (FERC) training and monitoring on Rigs to Reef (decommissioned oil rigs) project in the Gulf of Mexico
Tasked as a Protected Species Observer (PSO) and worked with crew to comply with Vessel Strike Avoidance protocols while in transit including 30 minute incremental reporting requirements

*Marine Endangered Species Observer (MESO) assignments as an Independent Con*tractor

Port Everglades	**Permit Number:** SAJ-1999-5545(IP-SLN)
Hopper Dredge:	Specie(s) of Concern: Marine Mammals, Turtles
Miami Beach Seawall Restoration	**Permit Number:** W912EP19C0037
Shore Based:	Specie(s) of Concern: Trichechus manatus

Fire Island, NY; Sea Bright, NJ Beach Nourishment Projects

Hopper Dredge: 5/2020-07/2020	Specie(s) of Concern: Humpback Whales
Charleston Entrance Channel Maintenance	**Permit Number:** W912hp-17-b-0004
Hopper Dredge: 12/2019-01/2020	Specie(s) of Concern: Marine mammals, sea turtles
Port of Wilmington Turning Basin Expansion	**Permit Number:**
Clam Shell Barge:	Specie(s) of Concern: Acipenser
Virginia Beach Hurricane Protection	**Permit Number:** W912-36-19C-0016
Hopper Dredge: 07/19-12/19	Specie(s) of Concern: Marine mammals, sea turtles

North Pacific Groundfish Observer *for* **Northwest Observers (NWO)** Sand Point, Akutan, Dutch Harbor 1998
Monitored vessels and shore side plants in Alaska for compliance with federal fisheries regulations including:

- Fishing effort, location, and gear type
- Composition, size, sex, and weight for catch and bycatch
- Biological samples (tissue, age structures, stomach contents)
- Fishery interactions with marine mammals and seabirds
- Incidental takes of crab, Pacific salmon, halibut, herring, & short-tailed albatross

CITIZEN SCIENCE

Sea Turtle Nest Survey Workshop/Webinar (2020) Florida Fish & Wildlife Conservation Commission (FWC)

Potomac Volunteer Water Quality Monitoring Training (2019) Potomac Riverkeeper Network

Missouri Stream Team (4564) Missouri Department of Natural Resources
Chemical monitoring and testing, biological monitoring of stream macroinvertebrates in urban watersheds, physical monitoring (i.e., visual survey). Watershed stewardship, advocacy and education including invasive species removal, stream bank stabilization and revegetation

Stream Team Academy Workshop (2018) Sedalia, MO
Watershed Connectivity, Groundwater, Rural BMPs and Urban BMPs

Water Quality Monitoring (VWQM) Workshops (2012) Cuivre River State Park, MO
Stream discharge, chemical and biological monitoring Babler State Park, MO

PROFESSIONAL AFFILIATIONS

Institute of Marine Engineering, Science and Technology (IMarEST)
Society for Marine Mammalogy (SMM)
Association of Professional Observers (APO)
Marine Mammal Observer Association (MMOA)

PROFESSIONAL EXPERIENCE

Digital Content & Creation *for* **Innovium Environmental Group** 9/2017 – Present
Provided administrative support, records management, and assisted in project creation. Templating geospatial community health GIS initiative with ESRI StoryMaps
Production coordinator: Digital Tools for Science Education, Outreach and Communication
Member of regional collaborations: *OneSTL Water and Green Infrastructure Working Group; BiodiverseCity St. Louis;* and *BiomeStl*

HazMat Compliance (TST) *for* **Clean Harbors** 3/2016 – 9/2017
Functioned as a Field Chemist within the states of Pennsylvania, Maryland, West Virginia, Virginia and the District of Columbia. Safely operated *Hazardous Materials* **(HazMat)** trucks
Responded to hazardous materials and substances at client sites. Project scope and duration adhered to the standard operating procedures of Department of Transportation (DOT), Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and the **Resource Conservation and Recovery Act** (RCRA)
Tasked as client manager for collection and transport of medical wastes at regional hospital system in compliance with Pennsylvania Department of Environmental Protection (DEP) guidelines
Functioned as a DEA representative for Clean Harbors in the destruction process of controlled substances collected from retail pharmacies and university labs

Logistics Coordinator *for* **Metropolitan Management Conference Services** 7/2014–Present
(Remote Contract) Technology support: registration database, documentation and web updates
Served in onsite logistics capacity (transportation, press room, exhibit sales, event staffing) for conferences and events

Technology Subcontractor *for* **Innovium MC** 2/2006 – 6/2014
Conducted programs in citizen science, environmental health, nature based arts programming and community engagement for volunteer community based organization: ***Digital Arts Collaborative***

TECHNICAL SKILLS

COLLABORATION:	Office 365: SharePoint, Microsoft Teams; Discord, Slack
APPLICATIONS:	G Suite, Microsoft 365: Access, Word, Excel, PowerPoint, Visio
PLATFORMS/OS:	MacOS, Windows, Apache, Ubuntu, AWS, Salesforce, Azure, Google Cloud
FRAMEWORKS:	Flutter, Ushahidi, Wordpress, HTML, CSS, Twine, Unity3D,
PRODUCTION:	Final Cut Pro, Amazon FireStick app, ROKU channels
PROGRAMMING:	Python, Dart, web scripts

ALYSSA J. MUHLENDORF

Certifications/Education History

MARINE NATURALIST TRAINING
The Whale Museum, April 2021
Intensive 40 hour overview of the natural history of the Salish Sea including an in-depth review of the ecology and conservation of local marine species.

ENVIRONMENTAL LAW COMPLIANCE COURSEWORK
The Shipley Group, March and June 2021
Overviews of the: Marine Mammal Protection Act, Endangered Species Act, and National Environmental Policy Act; Environmental Risk and Public Involvement.

PROTECTED SPECIES OBSERVER (PSO) CERTIFICATION
Marine Protected Species Consulting, February 22, 2021

CHESAPEAKE STEWARD TRAINING
Chesapeake Bay Foundation, 2014-2015
20 course and 20 hour service project about the Chesapeake Bay watershed and the challenges and opportunities in restoration.

NORFOLK STATE UNIVERSITY
Masters in Social Work, 2010

AMERICAN UNIVERSITY
Masters in International Affairs, 2001

UNIVERSITY OF PUGET SOUND
Bachelors in Politics & Government, 1999

Environmental Experience

MARINE MAMMAL OBSERVER
Azura Consulting | 2021-Present
Utilized knowledge of marine mammals in the Chesapeake Bay to monitor for marine mammals, interpret animal behavior and monitoring protocols, and select appropriate mitigation measures to ensure compliance with the Parallel Thimble Shoals Tunnel Project's monitoring plan and permits.

VOLUNTEER NATURALIST
Rudee Tours | 2021-Present
Educated guests and answered questions about Atlantic bottlenose dolphins and Virginia Beach waterways during two hour dolphin watching trips.

DIRECTOR OF DEVELOPMENT
Lynnhaven River NOW | 2019-2021
Created and implemented successful strategies to inspire giving to restore and protect Virginia Beach's waterways. Launched the organization's endowment. Managed 3 fundraisers per year and cultivated donor relationships. Connected donors with environmental stewardship activities. Managed and improved the functionality of the donor database.

OYSTER GARDENER
Chesapeake Bay Foundation (CBF) | 2014-Present
Tended 2,000 spat-on-shell per year in multiple cages off our family's dock. Returned the oysters annually to the CBF to be part of local sanctuary oyster reefs to increase the local native oyster population.

Executive Summary

- Dynamic, motivated professional with infectious enthusiasm, great organizational and interpersonal skills, and a passion for environmental stewardship and marine life.
- Excellent verbal, written, database, and social media skills.
- Lifelong passion for studying and observing marine life. Explored marine habitats on boats and land in Hawaii, Belize, Baja California, Bahamas, Florida, and throughout the Puget Sound and Virginia.
- Sailboat owner.
- Authored articles about native plants and environmental stewardship in the Jewish News of Southeastern Virginia and East Beach Penninsula Life magazine.

Other Work Experience

FUNDRAISER FOR POLITICAL CAMPAIGNS
State & Congressional Races | 2017-2019

COORDINATOR
Chesapeake Connections Foster Care | 2010-2013

CLINICIAN, GRADUATE DEGREE INTERN
Bon Secours Employee Assistance Program | 2009-2010

AGENCY DIRECTOR'S GRADUATE INTERN
Chesapeake Human Services | 2008-2009

SPECIAL NEEDS CASE MANAGER
Jewish Family Service | 2005-2008

HUMAN RIGHTS ADVOCATE
Zimbabwe Democracy Trust | 2003-2004

STAFF ASSOCIATE
Committee on International Relations, U.S. House of Representatives | 2000-2003

TECHNICAL EDITING ASSISTANT
Abt Associates | 1999-2000

Contact Details

Mobile: (757) 470-9218
Email: alyssajorgenson@gmail.com
Address: 9643 24th Bay Street, Norfolk, VA 23518

Marine Protected Species Consulting
Protected Species Observer Certification

This is to verify that

Alyssa Muhlendorf

Has successfully completed a course of training
For seismic mitigation under the
BIOLOGICAL OPINION on the Federally-Regulated Oil and Gas Program Activities in the Gulf of Mexico

Protected Species Observer

On this day the
22nd of February 2021

MPSC
Marine Protected Species Consulting 2021022006

Angela Bostwick
Angela Bostwick, NMFS/BOEM/BSEE-Approved Instructor

Gmail

Amy Whitt <amy@azuraco.com>

PSO Epproval

1 message

Alyssa Muhlendorf <alyssajorgenson@gmail.com> Wed, Jun 30, 2021 at 11:14 AM
To: Amy Whitt <amy@azuraco.com>

Good morning, Amy - I am happy to report that I have received NOAA approval to work as a PSO on the Thimble Shoals Project. Please see the below "e-pproval" letter.

All the best,
Alyssa Muhlendorf

---------- Forwarded message ---------
From: **Max Tritt - NOAA Federal** <max.tritt@noaa.gov>
Date: Mon, Jun 28, 2021 at 7:07 AM
Subject: PSO Epproval
To: <alyssajorgenson@gmail.com>
Cc: Kim Stanton <kstanton7218@gmail.com>

Greetings Alyssa:

Thank you for your interest in obtaining approval from NOAA's National Marine Fisheries Service (NMFS) to work as a Protected Species Observer (PSO). We have reviewed your credentials and made the following determinations:

You meet the NMFS training and experience recommendations for PSOs serving at general nearshore construction projects such as pile driving, explosive demolitions, mechanical dredging, and dredged material disposal;

You meet the NMFS "conditional" training and experience recommendations for PSOs serving aboard hydraulic hopper dredges. See our website for additional on-the-job training;

Please note that this approval is only valid for activities noted above, such as nearshore construction, pile driving, demolitions, dredging, and spoils disposal in the Western Atlantic Ocean and Gulf of Mexico.

For more information on PSO approval for geophysical surveys, such as bottom profiling using sonar or other electromagnetic devices or for seismic surveys that use air guns, please contact nmfs.psoreview@noaa.gov. Further, this approval is not applicable to the Northeast Fisheries Observers Program or the Platform Removal Observer Program.

Please ensure that you retain a copy of this email approval for your records and that you carry a copy while conducting PSO duties. We appreciate your efforts in the conservation of protected species and look forward to working with you in the future.

Sincerely,

H. Max Tritt
Fishery Biologist
Greater Atlantic Fisheries Office
National Marine Fisheries Service
17 Godfrey Drive, Suite 1
Orono, ME. 04473
Tel: 207.866.3756
Fax: 207.866.7342

Justin Fuller

2404 Arctic Ave
Virginia Beach, Virginia
(757) 748-6241
justingfuller@gmail.com

Summary

• Extensive knowledge of MMPA, ESA, and NOAA wildlife regulations.
• Highly organized with ability to prioritize and handle multiple tasks simultaneously.
• Comprehensive knowledge in Virginia's marine and estuarine habitats.
• Excellent oral and written communication skills, interpersonal and facilitation skills with multiple levels of external guests and internal staff.
• Efficient in all Microsoft Office Applications.
• Experience in supervising, training staff and volunteers.
• CPR/First Aid certified; AED Certified; Ladder Safety certified.

Education

University of Wisconsin
Master's of Conservation Biology
Graduated December 2019

Coastal Carolina University
Bachelor of Science in Marine Science
Graduated December 2007

Tidewater Community College
Associates of Applied Science
Graduated December 2001

Employment History

Normandeau Associates, Inc.
Marine Ornithologist
Virginia Beach, Virginia
January 2020 – Present
• Record avian species observed during the field surveys around the test turbines for the Coastal Virginia Offshore Wind Project

• Utilize software that records GPS location, as well as direction, speed, time, and date for documenting the exact tracts the avian species were observed on

Rudee Tours
Naturalist/Researcher
Virginia Beach, Virginia
May 2020 – Present
• Naturalist/researcher on wildlife excursion boat trips, and other specialty trips. Educate the public about the wildlife and habitats found off of Virginia's coast, as well as ESA and MMPA laws, and NOAA wildlife watching regulations.

• Record marine mammal, sea turtle, and avian species spotted during the boat trips, including photographing and documenting the location of threatened and endangered species.

• Assist with maintenance of the vessels between trips.

Virginia Aquarium & Marine Science Center
Exhibit Tech 1/Educator
Virginia Beach, Virginia
February 2007 – Present

• Conducted an offshore bird survey with the Center for Conservation Biology and William & Mary, under Virginia Aquarium grant for potential wind farm locations off the Virginia coast.

• Assisted with the Osprey Watch research program with the Center for Conservation Biology, banding, recording, and monitor osprey and nests.

• Interpreter on dolphin and whale watching boat trips, and other specialty trips. Educated the public about the wildlife and habitats found off of Virginia's coast, as well as ESA and MMPA laws, and NOAA wildlife watching regulations.

• Identified and documented marine species, including but not limited to: manatees, bottlenose dolphins, common dolphins, humpback whales, fin whales, minke whales, North Atlantic right whales, along with sea turtles. As well as recorded environmental data during the trips.

• Reported any violations of ESA & MMPA laws, in addition to NOAA wildlife watching regulations.

• Responsible for the daily husbandry of the harbor seals, river otters, reptiles, amphibians, birds, and quarantine animals.

• Rabies pre-exposure up to date.

• Supervised and trained animal care volunteers, and part-time employees.

Coastal Carolina University
Researcher
August 2002 – December 2007
• Assisted with a population study on indigenous shark species of Winyah Bay, SC, tagging sharks from pup size to large bull sharks.

• Drew blood samples for chemical analysis, as well as record size and body status.

• Conducted population study of bottlenose dolphin population off the South Carolina coast.

RPS Offshore Protected Species Observer Training

This is to verify that

Justin Fuller

Has successfully completed a course of instruction in
Training for Seismic Mitigation
Under the BOEM NTL 2016-G02

This certificate of Completion awarded

This 10th day of October 2021

RPS
20405 Tomball Parkway, Building 2, Suite 200
Houston, TX 77070
Tel: (281) 448-6188
Fax: (281) 448-6189

Stephanie Miller / Jessica Richardson
BSEE Approved Instructor(s)

Greetings Justin:

Thank you for your interest in obtaining approval from NOAA's National Marine Fisheries Service (NMFS) to work as a Protected Species Observer (PSO). We have reviewed your credentials and made the following determinations:

You meet the NMFS training and experience recommendations for PSOs serving at general nearshore construction projects such as pile driving, explosive demolitions, mechanical dredging, and dredged material disposal; and

You meet the NMFS "conditional" training and experience recommendations for PSOs serving aboard hydraulic hopper dredges. See our website for additional on-the-job training.

Please note that this approval is only valid for activities noted above, such as nearshore construction, pile driving, demolitions, dredging, and spoils disposal in the Western Atlantic Ocean and Gulf of Mexico.

For more information on PSO approval for geophysical surveys, such as bottom profiling using sonar or other electromagnetic devices or for seismic surveys that use air guns, please contact nmfs.psoreview@noaa.gov. Further, this approval is not applicable to the Northeast Fisheries Observers Program or the Platform Removal Observer Program.

Please ensure that you retain a copy of this approval for your records and that you carry a copy while conducting PSO duties. We appreciate your efforts in the conservation of protected species and look forward to working with you in the future.

Sincerely,

Max

TRITT.HOWARD.M.1077677387

Digitally signed by TRITT.HOWARD.M.1077677387
Date: 2021.12.27 10:43:04 -05'00'

H. Max Tritt
Fishery Biologist
Greater Atlantic Fisheries Office
National Marine Fisheries Service
17 Godfrey Drive, Suite 1
Orono, ME. 04473
Tel: 207.866.3756

ASHLEY A. STEINKRAUS

571.212.4290 · vonsteiny@gmail.com
U.S. Citizenship · Willing to travel/relocate

EDUCATION

Master of Natural Resources 19 December 2019
Virginia Polytechnic Institute and State University, Remote
Honors: Phi Kappa Phi, GPA 4.0

Graduate Certificate – Global Sustainability 17 August 2019
Virginia Polytechnic Institute and State University, Remote

Postbaccalaureate Certificate – Geographic Information Systems December 2016
Pennsylvania State University, Remote

Career Diploma – Wildlife and Forestry Conservation July 2012
Penn Foster, Remote

Bachelor of Science – Sociology December 2009
Virginia Polytechnic Institute and State University, Blacksburg, Virginia
Concentration: Crime and Deviance
Honors: Alpha Kappa Delta

CERTIFICATIONS

Virginia Master Naturalist Expected June 2021
Fairfax Chapter (VT, VCE, DGIF, DF, DCR, VMNH, VDEQ)

Wilderness Medicine/First Aid June 2019
NOLS

Passive Acoustic Monitor April 2014
Seiche Marine Solutions

Protected Species Observer (NTL No. 2012-G02) April 2014
Continental Shelf Associates

FIELD EXPERIENCE

International Field Experience – South Africa July 2019
Virginia Polytechnic Institute and State University

- Analyzed natural resource solutions in urban and informal housing communities, met with stakeholders to discuss resource conflict mitigation strategies
- Examined rural agriculture-conservation partnerships
- Reviewed endangered species conservation strategies, community education initiatives and anti-poaching programs at Kariega Game Reserve

Marine Mammal Observer & Supervisor February–May 2015
Gray Whales Count, Goleta, California

- Collected population and behavioral data on north-bound gray whales from coastal point count site
- Recorded sightings of other local California species, e.g. pinnipeds, sea birds and other cetaceans
- Supervised interns and trained volunteers on survey protocols and species identification

Marine Mammal Observer February–April 2013
Murdoch University, Keauhou, Hawai'i

- Collected data daily on abundance, distribution and behavior of local spinner dolphin populations
- Hiked in/out with gear pack over rugged terrain to remote field site overlooking dolphin resting bay
- Conducted boat-based photo-identification surveys; operated, trailered and cleaned 7m research vessel
- Analyzed images, matched individuals using IMatch, performed data entry and management, QA/QC

PROFESSIONAL EXPERIENCE

Biodiversity Annotation Technician – Weecology Lab February 2021–Present
University of Florida, Remote

- Identifies wading bird species and behaviors from camera trap/drone images around Everglades, FL
- Annotates tree-crowns in aerial imagery of NEON sites across the U.S. and Puerto Rico

Executive Assistant and Client Services Coordinator January 2016–November 2017
Lightning Launch, Amesbury, Massachusetts

- Recorded meeting minutes and managed C-level calendars, travel and correspondence
- Primary contact for over 70 clients, maintained client database, drafted and executed contracts
- Developed workflows, oversaw banking activities and collected payments
- Prepared monthly project progress reports for clients, composed newsletters and blog posts

Research Specialist – Encyclopedia of Life March 2016–January 2017
Harvard University, Cambridge, Massachusetts

- Researched, developed and standardized datasets of Floridian flora and fauna
- Created biodiversity cards, games and lesson plans for students and educators
- Designed educational materials for and participated in Gulf Islands National Seashore bioblitz event

Conservation Associate October 2014–January 2015
Terwilliger Consulting, Remote

- Proofread and edited comprehensive conservation plans (CCPs) and state wildlife action plans (SWAPs) for Alabama, Connecticut, Delaware and Rhode Island
- Evaluated and organized datasets in Species of Greatest Conservation Need (SGCN) databases, QA/QC
- Acted as liaison between regulatory agencies, State representatives, contractors and field teams

Conservation Intern August–September 2014
Society for Conservation Biology, Washington, D.C.

- Proofread and edited Director of Wildlife Conservation's recovery plans and recommendations
- Analyzed and synthesized federal, state, tribal and international environmental acts and agreements
- Represented SCB in meetings and briefings around Washington, D.C.

Undergraduate Research Assistant – Ix Jaguar Project August–December 2009
Virginia Polytechnic Institute and State University, Blacksburg, Virginia

- Analyzed digital/print images from camera traps deployed in Belize, data entry and management
- Identified Belizean species with target species at individual level (spot ID): jaguars and ocelots

SKILLS

Field
30+ lb. pack, acoustic hydrophones, DSLR cameras, camera traps, distance sampling, hand/power tools, GPS/EPIRB, point counts, reticle rangefinders, scope, taxonomic/dichotomous keys, theodolite, topographic maps

Tech
Adobe Pro, ArcGIS/ArcMap, Bit.ly, Canva, Dropbox, G Suite/Google Analytics, IMatch, iNaturalist, Miradi, MS Suite, Photo-ID, Pythagoras, QA/QC, QGIS, R, SEO, SPSS, Squarespace, WordPress, Wrike

VOLUNTEER

Zooniverse: Colorado Corridors Project, Beluga Bits, Dolphin Chat, Earthquake Detective, Manatee Chat, Notes from Nature, Whale Chat – Ongoing

DC Coyote Project – 2020

EXTRACURRICULAR

Backpacking, bouldering, clean-ups, hiking, free-diving, wilderness/wildlife photography

Mark Watson

P.O. Box 3355 ◆Eureka, CA 95502 ◆ (559) 776-1841

E-mail: mwatson196801@gmail.com

Objective

Managing or assisting in a position where I can effectively utilize my experience and expertise in the biological/zoological field to help manage and oversee the care and maintenance of the environment.

Education

HUMBOLDT STATE UNIVERSITY – Arcata, CA
B.S. Degree in Biology (emphasis in marine biology) and Zoology (double major) - 2006
SHASTA COMMUNITY COLLEGE – Redding, CA
A.A. Degree in General Education – 2003

Relevant Employment

PROTECTED SPECIES OBSERVER/MARINE ENDANGERED SPECIES OBSERVER: 12/2020 – PRESENT

- *Tide Environmental – Savannah, Georgia*

Experienced working with limited supervision on hopper dredges in the Atlantic Ocean. Accurately collected scientific data for each load using the ODESS program. Followed National Marine Fisheries Service protocols and carcass disposal when marine protected species, "take," occurred.

OYSTER TECHNICIAN: 06/2016 – 06/2020

- *Coast Seafood's Co. – Eureka, CA*

Maintaining and overseeing the progress and abundance of Pacific and Kumomoto oysters in Humboldt Bay, using boats, rafts, floating upwelling systems, graders, and computer data bases. Processing and shipping orders in a timely manner with a high survival rate.

BIOLOGIST (MARINE/FISHERIES): 02/2008 – 09/2009

- *California Department of Fish & Game – Fresno, CA*

As the central regions' foremost expert, developed and implemented studies to slow the spread of invasive quagga and zebra mussels in the central regions of California using public outreach, education, and monitoring techniques. Worked closely with local water agencies, Bureau of Reclamation, and other government agencies.

CLAM NURSERY TECHNICIAN: 04/2007 – 02/2008

- *Coast Seafood's Co. – Eureka, CA*

Helped maintain and oversee the progress and abundance of Asari (manila) clams in Humboldt Bay, using boats, rafts, floating upwelling systems, graders, and computer data bases. Processed and shipped orders in a timely manner with a high survival rate.

MARINE MAMMAL INTERN: 09/2003 – 05/2006

- *Marine Mammal Education and Research Program (MMERP) – Arcata, CA*

Observed and collected data on harbor seals, stellar sea lions, and grey whales off the coast of Northern California. Trained in radio telemetry and identification of marine mammals.

Special Qualifications

- **Computer Skills**- Macintosh and PC, MS Office (Word, Excel, Access, PowerPoint); Arc GIS, GroupWise 7.0, Number Cruncher Statistical Systems (NCSS).
- **Equipment/Techniques-** Biological assessments, electro-fishing (backpack/boat), environmental law, environmental water quality sondes, radio telemetry, scientific method, taxonomic keys for the identification of fish, invertebrates, and algae. Use of plankton tow, bottom grab, secchi disc, taking wind and swell readings. Operation of backhoe, forklift, and small boats.
- **Certifications-** Offshore protected species observer training, RPS consultants, July 25, 2020.

Mark Watson
PO Box 3355
Eureka, CA 95502

July 27, 2020

Greetings Mark:

Thank you for your interest in obtaining approval from NOAA's National Marine Fisheries Service (NMFS) to work as a Protected Species Observer. We have reviewed your credentials and made the following determinations:

- You meet the NMFS training and experience recommendations for PSOs serving at general nearshore construction projects such as pile driving, explosive demolitions, mechanical dredging; and dredged material disposal;

- You meet the "conditional" NMFS training and experience recommendations for PSOs serving aboard hydraulic hopper dredges. See our website for any additional on-the-job training;

- You meet the NMFS training and experience recommendations for PSOs serving on high resolution geophysical surveys; and

- You meet the NMFS training and experience recommendations for conditional PSOs (<90 sea-days) during shallow penetration or low energy seismic surveys.

Please note that this approval is only valid for activities noted above, such as nearshore activities permitted by the USACE and/or activities related to renewable energy development regulated by BOEM in the Atlantic Ocean and Gulf of Mexico. This approval is not applicable to geophysical surveys related to oil & gas activities. Please contact nmfs.psoreview@noaa.gov for more information on, or PSO approval for, any other type of geophysical surveys in the Atlantic or Gulf of Mexico. Further, this approval is not applicable to the Northeast Fisheries Observers Program or the Platform Removal Observer Program. Please ensure that you retain a copy of this email approval for your records and that you carry a copy while conducting PSO duties. We appreciate your efforts in the conservation of threatened and endangered species and look forward to working with you in the future.

Sincerely,

H. Max Tritt
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