

Bremerton Ferry Terminal Dolphin Replacement Project Marine Mammal Monitoring Report

Washington State Department of Transportation
Ferries Division

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National Marine Fisheries Service
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1.0 Description of the Activity

1.1 Project Description

The WSDOT/WSF has completed the replacement of one dolphin to improve safety at the Bremerton ferry terminal. The Olympic Class ferries have an atypical shape, which at some terminals causes the vessel to make contact with the inner dolphin prior to the stern reaching the intermediate or outer dolphin. This causes rotation of the vessel away from the wingwalls and presents a safety issue. The project reduced the risk of landing issues for Olympic Class ferries at the Bremerton ferry terminal.

1.2 Project Status

The Edmonds dolphin relocation project was completed as planned in the 2018/19 in-water work window. The Bremerton project was delayed until the 2019/2020 in-water work window. A renewed IHA for Bremerton was issued on August 8, 2019. This report addresses the monitoring results of the Bremerton project. The locations of the Bremerton Ferry Terminal project elements are shown in Figure 1-1.

1.3 Project Setting and Land Use

The Bremerton Ferry Terminal is located in the city of Bremerton, along the downtown waterfront. Bremerton is in Kitsap County, approximately 14 miles SW of Seattle. The terminal is located in Section 24, Township 24 North, Range 1 East (Figure 1-2).



Figure 1-1. Bremerton project elements.

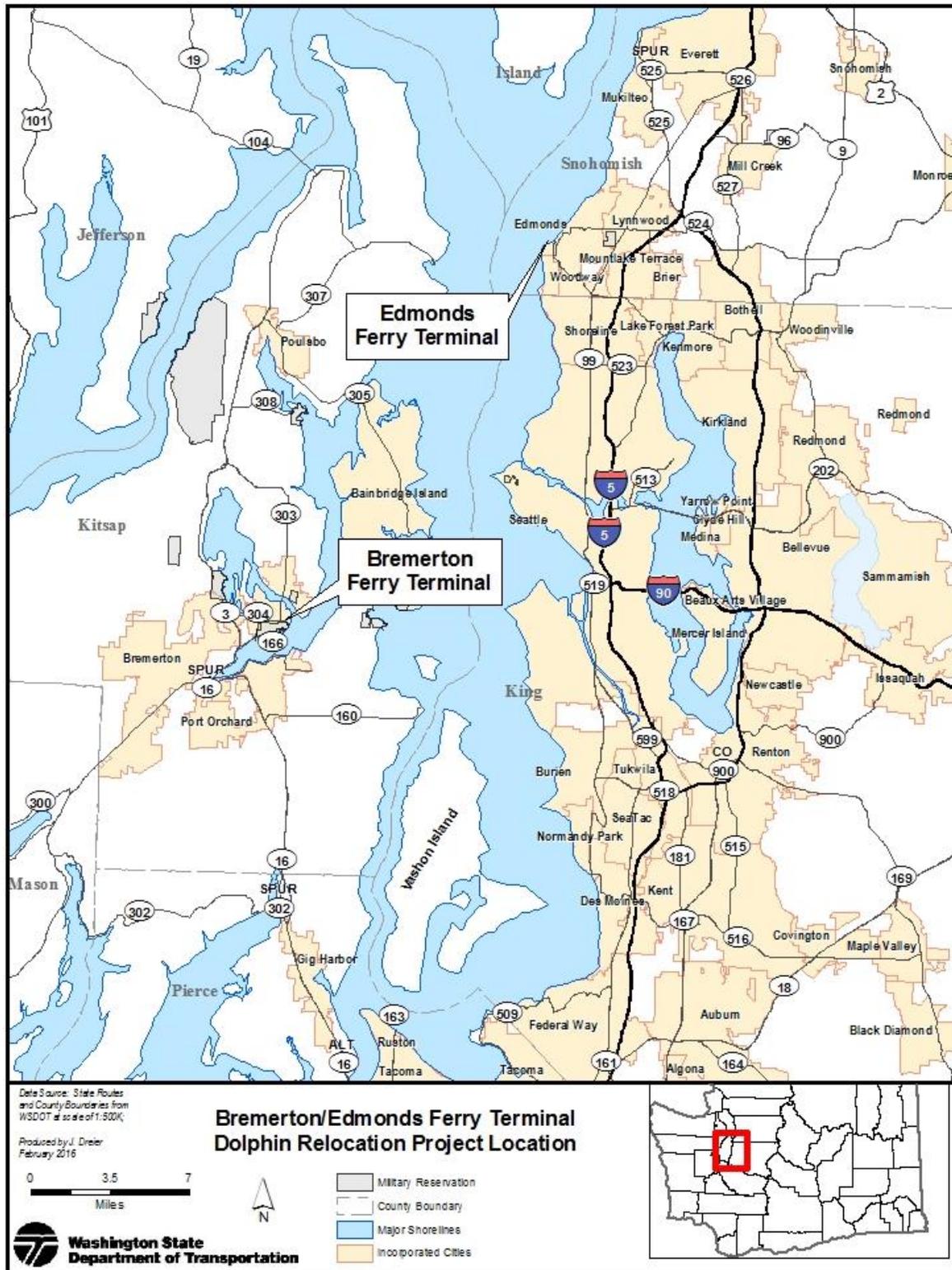


Figure 1-2. Location of Bremerton and Edmonds ferry terminals and nearby features.

1.4 Construction Completed

Tables 1-1 summarize the project's pile removal and installation.

Table 1-1. Bremerton pile removal and installation.

Project Element	Diameter	Pile Type	Install or Remove	Method	Number of Piles
Indicator Pile	36-in	Steel	Install	Vibratory	1
		Steel	Remove	Vibratory	1
Existing Dolphin Removal	36-in	Steel	Remove	Vibratory	6
Relocated Dolphin Installation	36-in	Steel	Install	Vibratory	4
	30-in	Steel	Install	Vibratory	7

2.0 Monitoring

2.1 Monitoring and Take Results

Marine mammal monitoring was implemented for all pile driving and removal in the 2019/20 in-water work window (August 1 to February 15). Monitoring took place over 17 days between August 6 and September 20, 2019. Permitted take, individuals observed, recorded take, estimated take and total take used are provided below in Table 2-1. No Southern Resident killer whale was observed or taken during this project.

Estimated take estimated was calculated based on best professional judgement. For this project, based on monitoring zone size and PSO positions, it was assumed that 25% of species were observed during active pile driving/removal. Therefore, estimated take = recorded take X 3, and total take = recorded take + estimated take.

Table 2-1. Permitted and Recorded Take

Species	Permitted Level B Take	Individuals Observed	Level B Take Recorded	Level B Take Estimated	Total Level B Take
Harbor Seal	465	70	5	15	20
Elephant Seal	9	0	0	0	0
California Sea Lion	621	75	2	6	8
Steller Sea Lion	6	0	0	0	0
Transient Killer Whale	12	0	0	0	0
Gray Whale	5	0	0	0	0
Minke Whale	5	0	0	0	0
Harbor Porpoise	69	16	3	9	12
Dall's Porpoise	15	0	0	0	0
Long Beaked Common Dolphin	7	0	0	0	0
Unidentified Pinniped		1	1	3	4
Unidentified Large Whale		0	0	0	0
Unidentified Porpoise/Dolphin		0	0	0	0

2.2 Data Collection

All data was collected in ArcGIS Survey 123. Data fields collected are listed below. All monitoring data is provided in Appendix A as an electronic Excel spreadsheet. The marine mammal monitoring plan is attached as Appendix B.

Table 2-2. Data Fields

Protected Species Observer Data Fields
PSO Monitor Name
Project
PSO Monitoring Station ID
Construction Activity
Weather Conditions
Specify other. (Weather)
Observation Date & Time
Species Observed
Specify other. (Species)
Duplicate Sighting
Number of Individuals Observed
Direction of Sighting from the PSO
Distance from the PSO
Compass Bearing towards Animal from PSO (optional data)
Distance from PSO to Animal (Meters) (optional data)
Compass Bearing to Noise Source from PSO (optional data)
Distance from PSO to Noise Source (Meters) (optional data)
Calculated Angle between the Bearings (optional data)
Distance of Animal from Noise Source (Meters) (optional data)
Observed Behavior
Direction of Travel
Comments about the Sighting
Zone Selection
Number of Individuals in Shutdown Zone
Number of Individuals in Harassment Zone
Harassment/Shutdown Comments

Appendix A
Monitoring Data
Excel Spreadsheet Provided Electronically

Appendix B
Marine Mammal Monitoring Plan

Bremerton and Edmonds Ferry Terminals Dolphin Relocation Project
Marine Mammal Monitoring Plan

March 2018

In accordance with the March 2018, Washington State Ferries Bremerton-Edmonds Ferry Terminal Dolphin Relocation Project Incidental Harassment Authorization Request, marine mammal monitoring will be implemented during this project.

Qualified Protected Species Observers (PSOs) will be present on site at all times during pile removal and driving. Marine mammal behavior, overall numbers of individuals observed, frequency of observation, and the time corresponding to the daily tidal cycle will be recorded.

The project includes vibratory removal and/or driving of 30-inch and 36-inch diameter hollow steel piles. Summaries of distances to injury (Table 1) and harassment (Table 2) thresholds are provided below:

Table 1. ZOI/ZOE (Shutdown) Zones

Zone	Project Area	Species	Threshold	Distance to Threshold	ZOI Area (km²)
ZOI-1	Bremerton	All*	Level B	39.8 km	13.2 km ²
ZOI-2	Edmonds	All*	Level B	63.1 km	351 km ²
ZOE-1	Both	Pinnipeds	Level A	10 m	314 m ²
ZOE-2	Both	Cetaceans	Level A	35 m	3,849 m ²

**All species, except Southern Resident Killer Whale = shutdown zones*

ZOI Sound Source Verification (SSV) During Construction (Edmonds)

In-water noise measurements of vibratory pile driving and removal will be taken during the Edmonds project to determine if the ZOI needs to be modified. The Bremerton project is land-constrained, and measurements are unlikely to significantly change the modeled ZOI. If the Edmonds ZOI is modified, the marine mammal monitoring plan will be adjusted to ensure that harassment take is adequately monitored. If the Edmonds SSV verifies that the actual vs. modeled ZOI is 15 km or less, then the Marrowstone Island and the Mukilteo Ferry positions will be eliminated.

Monitoring to Estimate Level B Take Levels and Prevent Level A Take

WSF proposes the following Marine Mammal Monitoring Plan in order to prevent Level A injury take in the ZOE, and to estimate Level B harassment take in the ZOIs:

- During all vibratory driving/removal at the Bremerton terminal, two land-based PSOs, and one monitoring boat with one PSO and boat operator will monitor the ZOI.
- During all vibratory driving/removal at the Edmonds terminal, five land-based PSOs, and two ferry-based PSOs will monitor the ZOI.
- If weather prevents safe use of the boat in the Edmonds portion of the ZOI, a boat will be used in other areas of the ZOI that are safe, such as areas where lack of public access prevents stationing a land-based PSO.
- To verify the required monitoring distance, the ZOI will be determined by using a range finder or hand-held global positioning system device.
- The ZOI will be monitored for the presence of marine mammals 30 minutes before, during, and 30 minutes after any pile removal activity.
- Monitoring will be continuous unless the contractor takes a significant break, in which case, monitoring will be required 30 minutes prior to restarting pile removal.

Monitoring to Prevent Killer Whale Take

WSF proposes the following measures to prevent SRKW Level B acoustical harassment take:

- If SRKW (as identified by Orca Network, NMFS or another qualified source) approaches the relevant ZOI during pile removal or driving, work will be paused until the SRKW exit the ZOI to avoid harassment take.
- If killer whales approach the ZOI during pile removal or driving, and it is unknown whether they are SRKW or transient, it shall be assumed they are SRKW in order to prevent SRKW harassment take.

Minimum Qualifications for Protected Species Observers

Qualifications for PSOs include:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars may be necessary to correctly identify the target.
- Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).
- 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).
- Writing skills sufficient to prepare a report of observations that would include such information as the number and type of marine mammals observed; the behavior of marine mammals in the project area during construction, dates and times when observations were conducted; dates and times when in water construction activities were conducted; dates and times when marine mammals were present at or within the Level B acoustical harassment ZOI; dates and times when pile removal was paused due to the presence of marine mammals.

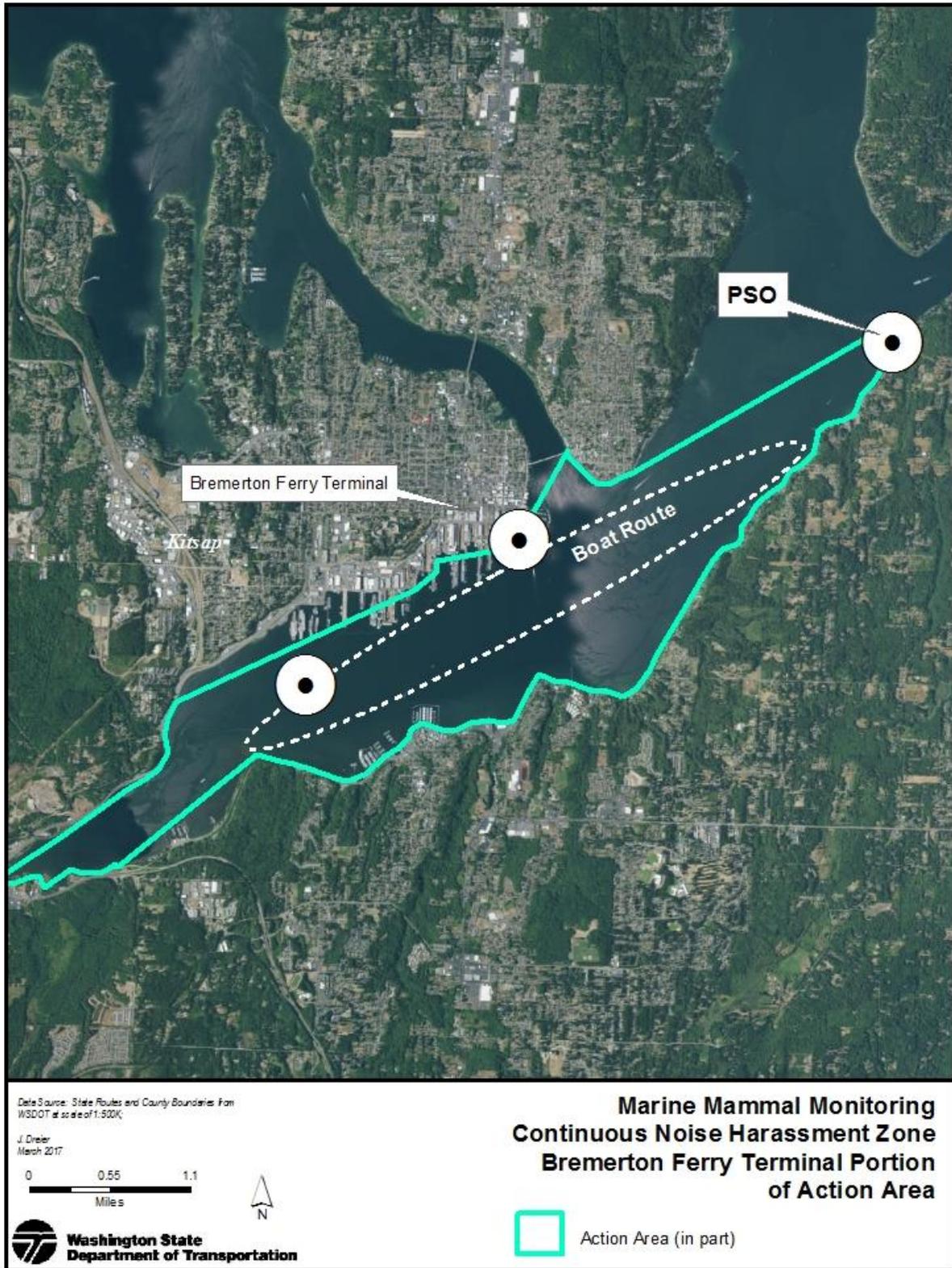


Figure 1. Bremerton monitoring locations during vibratory driving/removal of 30- and 36-inch diameter steel piles (ZOI-1).

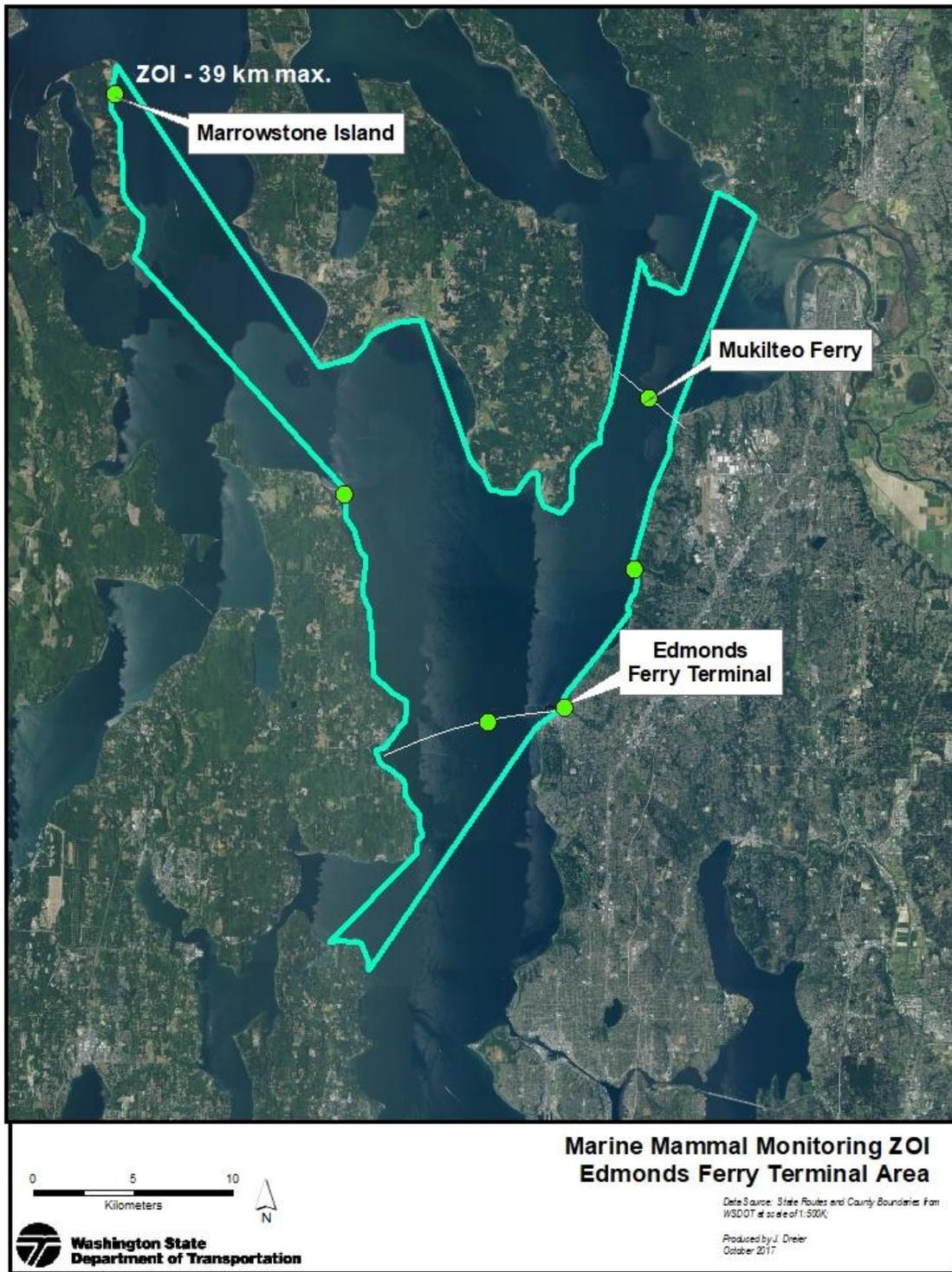


Figure 2. Edmonds monitoring locations during vibratory driving/removal of 30- and 36-inch diameter steel piles (ZOI-2).



Figure 3. ZOE monitoring locations during vibratory driving/removal of 30- and 36-inch diameter steel piles (Bremerton).

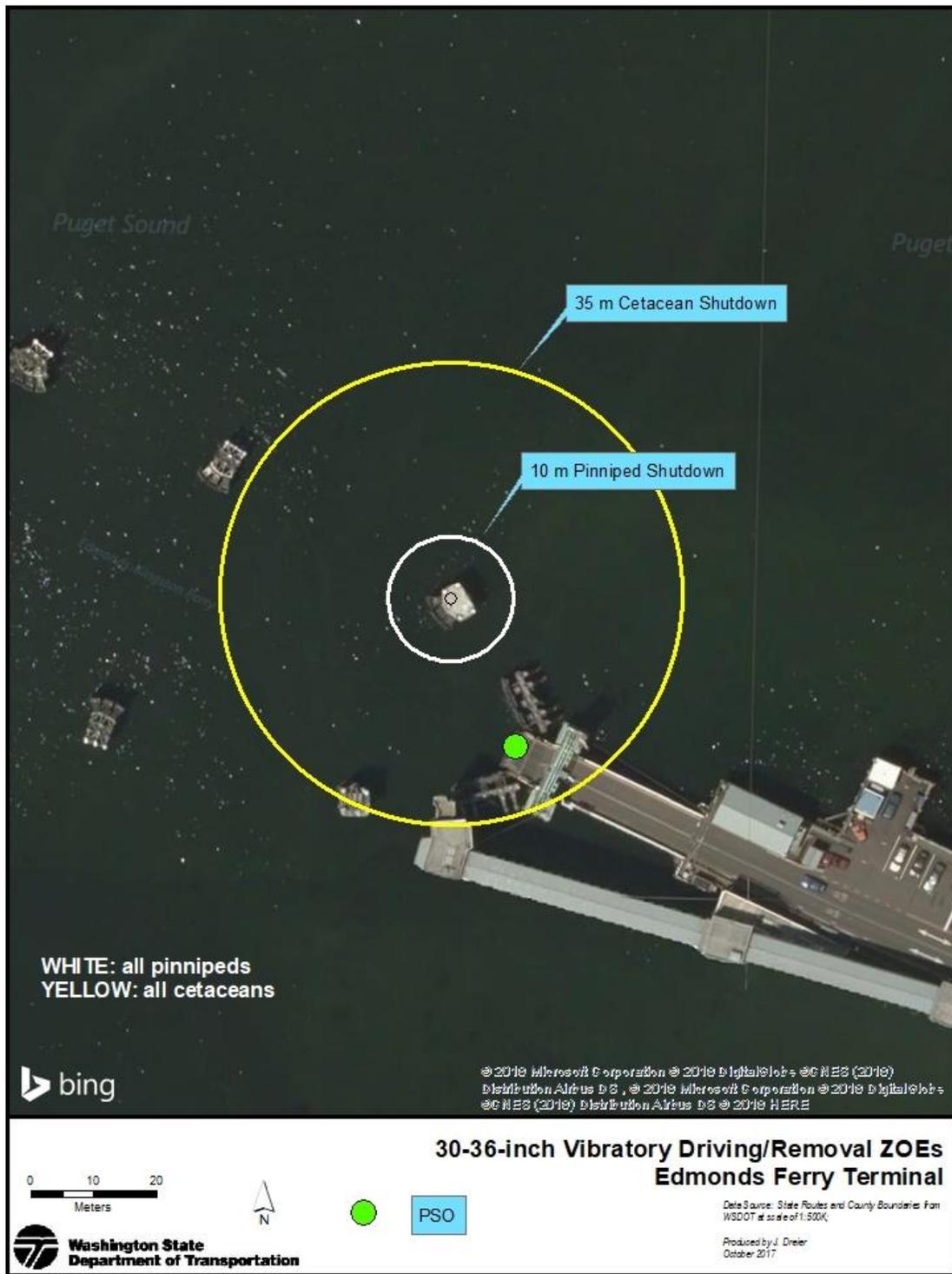


Figure 4. ZOE monitoring locations during vibratory driving/removal of 30- and 36-inch diameter steel piles (Edmonds).