

2013

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Port of Friday Harbor
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MARINE MAMMAL MONITORING PLAN

This report, as an appendix to the Port of Friday Harbor Biological Evaluation USACE Permit No. NWS-2012-468 contains noise impact assessment for marine mammals that may be found within the project area while pile driving using a vibratory hammer.

1.0 INTRODUCTION

The purpose of this monitoring plan is to provide a protocol for marine mammal monitoring during proposed pile driving activities for the dock reconstruction project at the Friday Harbor Marina (Port of Friday Harbor) located in Friday Harbor, San Juan Island, WA. This plan was developed to support the Biological Evaluation (BE) (USACE Reference No. NWS-2012-468) document prepared by Moffat & Nichol for ESA permitting and is specific to project scope and location. Additionally, this monitoring plan has been developed in consultation with National Marine Fisheries Services (NMFS) North West Region.

Marine mammal monitoring will be conducted before, during, and after vibratory pile driving activities, within areas estimated to be encompassed by underwater injury or behavioral disturbance thresholds. The proposed project will repair and replace portions of floats, piles and walkways which will include the use of vibratory hammer equipment. A total of 52 steel pile (20 pile @ 16" and 32 pile @ 24") will be installed. Pile driving activities are estimated to take place in one season for an estimated 25 days.

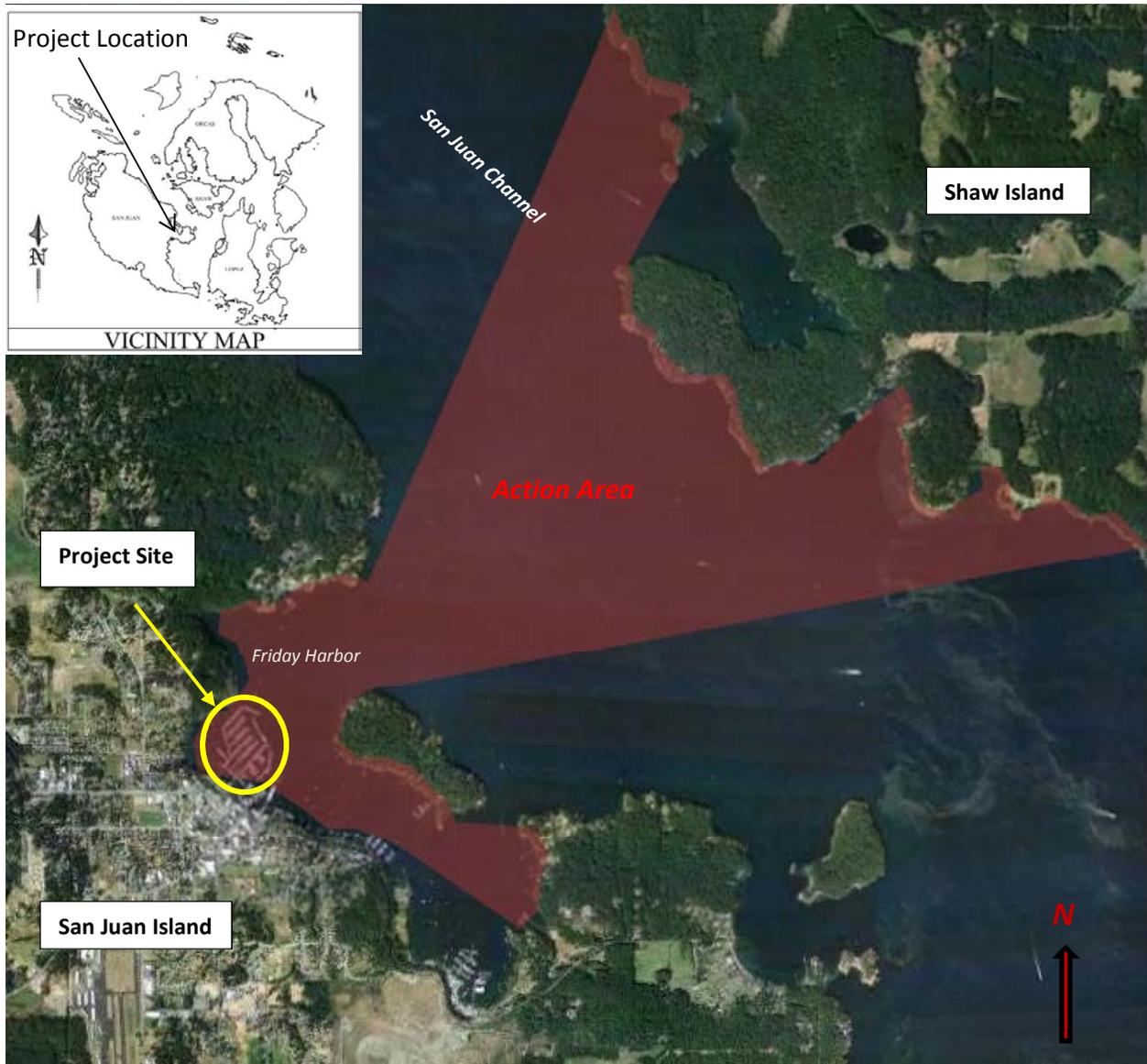
This plan addresses potential sound disturbances caused to listed ESA marine mammals that may occur within the project action area; specifically Cetacean and Pinniped species including Humpback Whale (*Megaptera novaeangliae*), Southern Resident Killer Whale (*Orcas Ornica*), and Stellar Sea Lion (*Eumetopias jubatus*). If marine mammals are preying on fishes in the area, they may change their feeding pattern temporarily during construction activities and are expected to return to normal use patterns after pile driving activities cease.

2.0 ACTION AREA

The action area includes "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR§402.02). The action area is defined by the outermost extent of all of the zones of effect combined. The outer limits of the action area may be defined by the zone of effect identified for on type of project effect that extends farther than any other, or the limits of the action area may be defined by a combination of multiple zones of effect (WSDOT, 2012).

Construction at the Friday Harbor Marina will generate both airborne and underwater sound from vibratory pile driving. As mentioned in the BE, the action area includes both the near shore area in Friday Harbor for in-air noise and a radius up to three miles for in-water noise effects. It was determined that underwater sound from vibratory pile driving was the stressor identified to have the furthest geographic distribution to be distinguishable above ambient conditions. The theoretical distance over which attenuation of in-water noise from vibratory pile driving for Cetacean and Pinniped species disturbance threshold of 120 dB_{rms} is reached in approximately 25 miles using a practical spreading model (as noted in the BE). Sound generated from vibratory pile driving would intersect land masses (e.g., Shaw Island) prior to attenuating to measured background levels, within three miles. The proximity of adjacent shorelines around Friday Harbor and along Brown Island limits the distance over which most of the noise may be transmitted. As such, the geographic boundary of the Action Area was defined by the line-of-sight intersection of land and water as shown in Figure 1. Marine Mammals will be monitored within the project action area.

See Figure 1. Project Action Area



3.0 MONITORING TECHNIQUES

The Port of Friday Harbor is proposing to utilize employees to serve as marine mammal observers (MMOs). This plan proposes a training session prior to implementing monitoring for all Port of Friday Harbor employees that will be monitoring for the estimated 25 days of pile driving to take place. The training session will be provided by a NMFS approved biologist or NMFS staff.

Bases on the project scope, this plan proposes having a monitor coordinator that is responsible for but not limited to: coordinating and scheduling with the different parties involved including; the Port of Friday Harbor, qualified observers, subcontractors, and NMFS contact. Additionally, the monitoring

coordinator will provide data sheets, communicate with the pile driver contractor directly or through a land-based monitor that is in direct communication with pile driver contractor.

3.1 OBSERVER QUALIFICATIONS

This plan proposes having primary and secondary MMOs. The primary MMO will meet the minimum requirements set by NMFS which include the following:

- Visual acuity in both eyes (correction is permissible) sufficient to discern moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars or spotting scope may be necessary to correctly identify the target.
- Advanced education in biological science, wildlife management, mammalogy or related fields (Bachelor's degree or higher is preferred).
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).
- Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).
- Sufficient training, orientation or experience with vessel operation and pile driving operations to provide for personal safety during observations.
- Writing skills sufficient to prepare a report of observations. Reports should include such information as the number, type, and location of marine mammals observed; the behavior of marine mammals in the area of potential sound effects during construction; dates and times when observations and in-water construction activities were conducted; dates and times when in-water construction activities were suspended because of marine mammals, etc.
- 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 needed.

Secondary MMOs will have attended a training session prior to implementing the monitoring plan. One primary MMO will be based at monitoring locations either on land or vessel. Primary MMOs will assist secondary MMOs in confirming mammal sightings and ensuring protocol is properly implemented. Primary and Secondary MMOs will be positioned at the best vantage point(s) practicable (e.g. from a small vessel, or any other suitable location) to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the construction contractor. Observers will have no other construction related tasks and will not act as boat operator.

3.2 DATA COLLECTION

Observers will use a Marine Mammal Sighting Form (Sheet 1) which will be completed by each observer for each survey day. This form will include the following information.

- Date and time that pile driving starts and ends
- Weather and water conditions
- Marine Mammal Species
- Marine Mammal behavior patterns observed
- Estimated distances of marine mammals
 - From observer location
 - From pile driving activity location
- Locations of all marine mammal observations

3.3 EQUIPMENT

The following equipment will be required to conduct marine mammal monitoring:

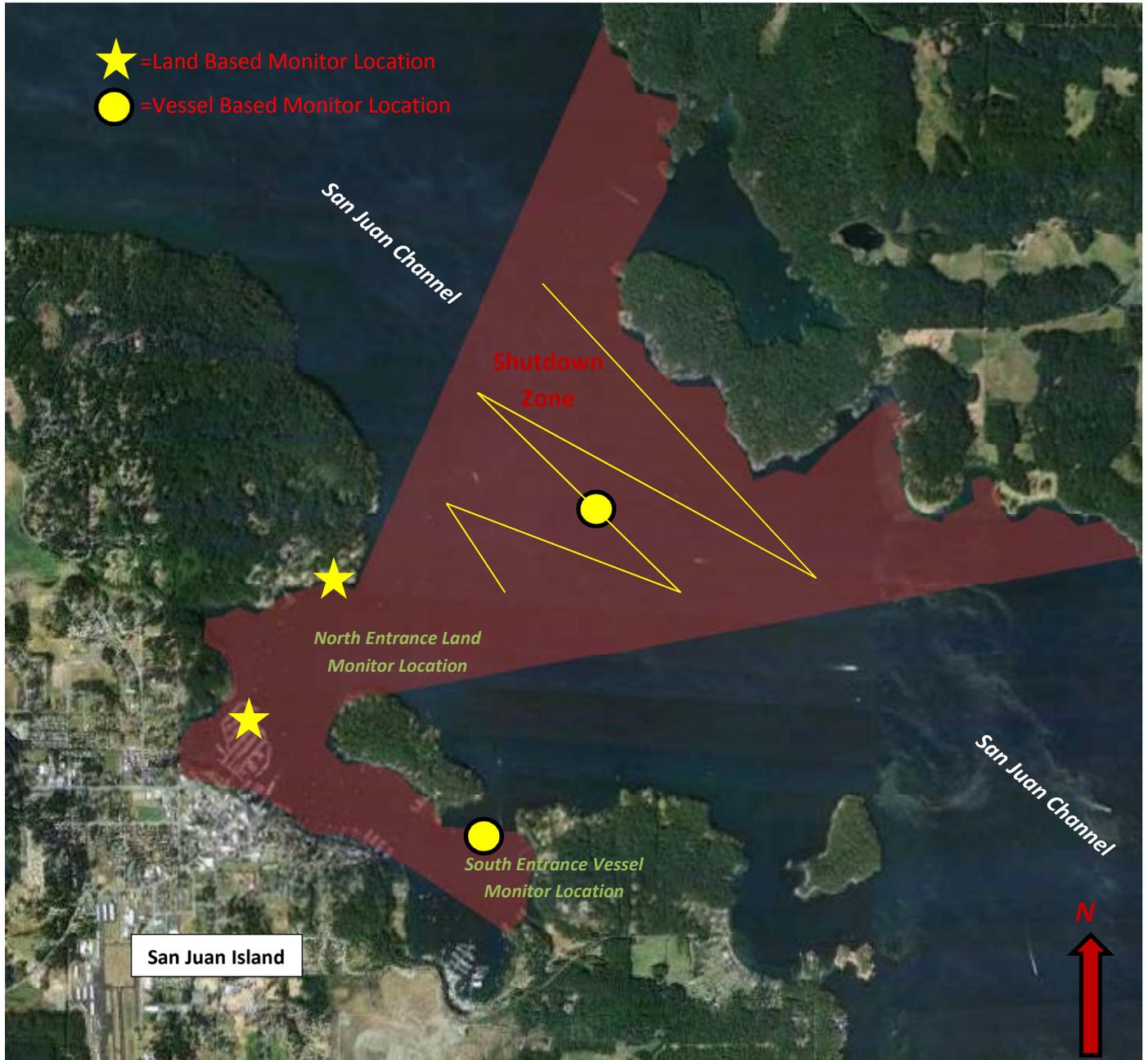
- Communications: Portable Radios, cell phones, and/or VHF radio.
- Watch
- Binoculars
- Monitoring Plan
- Notebook with pre-standardized monitoring Marine Mammal Observation Record forms
- Marine Mammal Identification guides
- Clipboard
- Pen/Pencil

3.4 OBSERVER MONITORING LOCATIONS AND TECHNIQUES

Location Description

In order to effectively monitor the action area, marine mammal observers will be positioned at the best practicable vantage point(s), taking into consideration security, safety, and spatial constraints from near shore Friday Harbor waterfront activity (i.e. state ferry terminal, multiple public/private marinas and associated vessel traffic). Marine Mammals are able to enter into Friday Harbor from two locations; the north location-northeast of the project site and the south location-south east of the project site. The north location entrance into Friday Harbor is ± 600 meter across, between the north end of Brown Island and San Juan Island. The south location entrance is ± 200 meters across, between the south end of Brown Island and San Juan Island. The shutdown zone for marine mammals will include both the inner and outer harbor, and the three mile area extending into the San Juan Channel; with the furthest distance being three miles before intersecting landmass (Shaw Island).

Figure 2. Marine Mammal Monitor Locations



Visual Survey Protocol- Pre-Activity Monitoring

Prior to starting vibratory pile driving activities, monitoring of the shutdown zone will occur for 20 minutes or until clear of marine mammals from monitoring locations (land/vessels) to ensure no marine mammals are present. The following survey methods will be implemented prior to commencing pile driving in-water activity.

- Observers will survey the shutdown zone by visually scanning from vessels and sweeping through the shutdown zone area.
- If marine mammal(s) are present within or approaching the shutdown zone prior to pile driving activity, monitoring will continue and in-water pile driving activities will be delayed until the animal(s) leave the shutdown zone voluntarily and have been visually confirmed traveling away from and beyond the shutdown zone.
- If marine mammal(s) are not detected within the shutdown zone (i.e., the area is determined clear of marine mammals), the observers will notify the construction contractor that pile driving activities may begin.
- Land and Vessels will be in position at entrance locations and in the channel, as indicated in Figure 2, prior to commencing pile driving activity.
- Marine Mammal Observation Record forms (Sheet 1) will be used to document observations.
- Vessels engaged in monitoring will maintain speeds equal to or less than 10 knots.
- Observers will have experience in marine mammal identification; and will visually scan with binoculars and the naked eye to search continuously for marine mammals.
- In situations of reduced visibility due to weather conditions such as fog, heavy chop, heavy wind/rain or a combination thereof, which may impair observer's abilities to monitor effectively; pile driving activity will not be initiated until visibility improves.

Visual Survey Protocol- During Activity Monitoring

During vibratory pile driving activity, the shutdown zone will be monitored the entire time pile driving equipment is in use. The following survey methods will be implemented during pile driving in-water activity.

- Observers will be stationed in vessels and on land; as indicated in Figure 2. A minimum of two observers per vessel (one primary MMO/plus one or more secondary MMO) will visually scan from opposite sides of the vessel. The vessel operator does not monitor.
- The vessel will continuously transect the entrance location, at a steady speed, not exceeding 10 knots, while safely operating around other potential vessel traffic.
- If marine mammal(s) are present within and approaching the shutdown zone during pile driving activity, the construction contractor will be notified to halt pile driving activities.
- Once pile driving activities have been shut down; pile activity will be delayed until animal(s) voluntarily leave the shutdown zone voluntarily and have been visually confirmed traveling away from and beyond the shutdown zone.

- When the shutdown zone is determined to be clear of marine mammal(s), observers will notify the construction contractor pile driving activity can re-commence;
- Marine Mammal Observation Record forms (Sheet 1) will be used to document observations.
- In situations of reduced visibility due to weather conditions such as fog, heavy chop, heavy wind/rain or a combination thereof, which may impair observer's abilities to monitor effectively; pile driving activity will not be initiated until visibility improves.

Visual Survey Protocol- Post-Activity Monitoring

Monitoring of the shutdown zone will continue for 20 minutes after in-water pile driving activities have been completed or until area is clear of marine mammals. Observers will record marine mammal observations, reporting any unusual behavior of marine mammals.

4.0 Monitoring Reports and Communication

The assigned monitoring coordinator will be responsible in keeping NMFS informed of monitoring activities and notifying for necessary modifications to the monitoring protocol.

Monitoring reports will be submitted to NMFS within 90 calendar days of project completion. Reports will include marine mammal observations pre-activity, during-activity, and post-activity from vibratory pile driving construction. A comprehensive report will include information from completed Sheet 1: Marine Mammal Observation Record Forms.

Primary point of contact at the NMFS:

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REFERENCES

Biological Assessment Preparation for Transportation Projects - Advanced Training Manual - Version 02-2011. [http://www.wsdot.wa.gov/NR/rdonlyres/3531970F-2F38-4819-AFDB-AD7FBBE15A53/0/BA_ManualChapter8.pdf], accessed August 2012.

National Marine Fisheries Northwest Region Office Marine Mammal ESA Section 7 Consultation Tools. [http://www.nwr.noaa.gov/protected_species/marine_mammals/cetaceans_whales_dolphins_porpoise/toothed_whales/killer_whales/southern_resident_killer_whale/section_7_consultations/marine_mammal_esa_section_7_consultation_tools.html] , accessed March 2013.

