

# Mystery Bay State Park Pier Repair Project

## Project Description

August 20, 2024

### 1 SITE AND PROJECT BACKGROUND

Washington State Parks and Recreation Commission (WSPRC) is proposing to repair five piles, up to nine pile caps, and replace fourteen cross braces (seven sets) at the Mystery Bay State Park Pier. Mystery Bay State Park is located in Nordland, Washington on Marrowstone Island (Figure 1). Amenities at Mystery Bay State Park include a parking lot, restrooms, access pier, floating dock, and boat ramp (Figure 2). The access pier is approximately 270-foot-long and is supported by sixteen pile bents (M&N 2021). Each bent is constructed of two, approximately 12-inch-diameter, creosote-treated timber piles and two creosote-treated timber cross braces. An aluminum pedestrian gangway provides access from the pier to the floating dock. The floating dock is constructed of timber structural members with polystyrene floatation billets and measures approximately 325 feet long by 12 feet wide. The floating dock is held in place by eight timber-pile dolphins. The boat ramp consists of reinforced concrete and measures approximately 180 feet long by 12 feet wide.

The shoreline at Mystery Bay State Park adjacent to the pier and boat ramp is characterized by a three to five-foot vegetated bluff (M&N 2022). The shoreline consists of native vegetation, maintained grassy areas near the shoreward portion of the boat ramp, and a small area of riprap around the pier abutment (Figure 3). Substrate along the shoreline consists of sand with shall fragments including an oyster bed adjacent to the pier (Figure 3).



Figure 1. Project Location



Figure 2. Project Aerial



Figure 3. Mystery Bay Shoreline Conditions

## 1.1 Purpose

M&N conducted an above-water and underwater investigation of the pier on November 17, 2020 (M&N 2021). Follow-up investigations were performed on October 6, 2023. The findings of the M&N investigation concluded that several piles, pile caps, and cross braces are exhibiting major to severe damage. The remaining structure (i.e. stringers, decking, and handrails) exhibits minor to moderate damage. Due to the severity of the damage to structural elements, the pier has been temporarily closed to protect public safety. The pile at bent 7 appears to have been previously encased with concrete, however the concrete encasement has failed and exposed the deteriorated timber pile (Figure 4). The timber pile exhibits section loss of up to 90%, several of the pile caps exhibit up to 50% section loss (Figure 5), and eight cross braces exhibit up to 75% section loss (Figure 6). Six additional cross braces require replacement due to the installation of pile posts at those locations. Additionally, four other piles exhibit section loss of greater than 50% section loss and require repair.

The purpose of the Mystery Bay State Park Pier Repair Project is to restore the structural integrity of the pier by repairing piles, pile caps, and cross braces. The proposed repairs will allow for the pier to re-open to the public. Other structural members such as the stringers and decking also exhibit varying levels of damage, but do not pose an immediate threat to public safety. Any future repairs to these elements would be planned for and permitted separately.



Figure 4. Visual Pile Inspection with Hammer to Detect Voids



*Figure 5. Pile Cap with Major Split and Rot*



*Figure 6. Cross Brace with Section Loss*

## 1.2 Project Description

Five existing creosote-treated piles at Bents 2, 4, 5, 7, and 9 will be repaired by cutting the existing pile, approximately two feet below the mudline, and installing a steel pile post on top of the existing pile. The steel pile post will be connected to the pile stub through the placement of concrete and a steel drift pin. A stay-in-place form/sleeve will be placed around the interface between the existing pile and the steel pile post to confine the concrete. Construction will be completed at low tide in the dry using a mini excavator and hand tools.

Nine pile caps at bents 1, 2, 3, 5, 6, 7, 12, 13, and 14 will be replaced using hand tools. The existing pile caps are creosote-treated and will be replaced with ACZA-treated timber pile caps of similar dimension. The exposed ends of the proposed pile caps will be covered with roofing felt (wood cellulose based material often used to protect exposed timber members in waterfront structures) to prevent leaching from direct contact with precipitation. Seven sets of cross braces at bents 2, 4, 5, 7, 9, 12, and 13 will be replaced using hand tools. The existing creosote-treated cross braces will be replaced with steel cross braces.

The project will comply with all conditions of the Salish Sea Nearshore Programmatic (SSNP) (see Section 3 of this document). The proposed repairs will be completed in the dry and at low tide. Work will begin once all

necessary local, state, and federal permits and/or approvals are obtained. Project duration including mobilization and demobilization is anticipated to take up to two months. The project will comply with the in-water work window for the project area (anticipated to be July 16 through February 15). Forage fish work windows may also apply and compliance with these windows will be determined during the permitting process.

## **2 AVOIDANCE AND MINIMIZATION MEASURES**

### **2.1 General Best Management Practices (BMPs)**

- The Project will comply with all applicable SSNP Project Design Criteria (PDC), General Construction Measures (GCMs), and Essential Fish Habitat (EFH) conservation recommendations (see attached SSNP list of requirements).
- The Project will obtain and comply with applicable permits/approvals.
- The Project will avoid key migration periods for protected aquatic species. A general in-water work window of July 16 to February 15 for any given year is anticipated. Forage fish work windows may also be applicable and final forage fish work window will be defined in project permits and adhered to.
- All removed construction debris will be collected, transported to, and disposed of at an appropriate upland facility.

## 2.2 Water Quality BMPs

- Project construction will be completed in compliance with Washington State Water Quality Standards (WAC 173-201A).
- The contractor will prepare a Spill Prevention, Control, and Countermeasure (SPCC) plan. A copy of the plan will be maintained at the work site.
  - The SPCC plan will outline BMPs, responsive actions, and notification and reporting procedures in the event of a spill or release. The plan will also outline management elements, such as personnel responsibilities, Project site security, site inspections, and training.
  - The SPCC plan will outline the measures to prevent the release or spread of hazardous materials found on site (if any) and encountered during demolition but not identified in contract documents, including any hazardous materials that are stored, used, or generated at the site during demolition.
  - Applicable spill response equipment and material designated in the SPCC plan will be maintained at the job site.
- All construction materials will be properly stored and contained so that these products will not spill or otherwise enter the coastal environment.
- Equipment washing, servicing, and refueling will only be allowed at designated upland locations. Appropriate best management practices will be used to ensure no spills of petroleum products or other hazardous substances take place during these activities.
- Equipment will be checked for leaks and other problems that could result in the discharge of petroleum-based products or other hazardous material into waterways.
- No debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete, or washings thereof, or other construction-related materials or wastes, oil, or petroleum products will be allowed to enter jurisdictional waters, or placed where it will be subject to erosion by rain, wind, or waves and enter into jurisdictional waters.
- Oil-absorbent materials will be present on site for use in the event of a spill or if any oil product is observed in the water.
- Protective measures will be used to prevent accidental discharges to waters during fueling, cleaning, and maintenance.
- Proper BMPs such as temporary erosion and sediment controls will be used to prevent sediment deposition in the riparian area, wetlands, or water body.

- Waddles and/or silt fencing will be properly installed adjacent to work zones to protect existing nearshore vegetation and prevent any excessive siltation runoff from entering intertidal critical areas.
- A stay-in-place form/sleeve will be placed around the interface between the existing pile and the steel pile post to confine the concrete.
- ACZA-treated replacement pile caps will be covered with roofing felt to prevent leaching from precipitation.

### 2.3 Nearshore Habitat

- Machinery or construction materials not essential for project improvements shall not be allowed at any time in the intertidal zone. The construction contractor shall be responsible for checking daily tide and current reports.
- Materials will not be stockpiled on the beach.
- Pile posts will be installed during low tide periods to the extent feasible.

## 3 CONSISTENCY WITH THE SALISH SEA NEARSHORE PROGRAMMATIC

The proposed Project is anticipated to be covered by *SSNP PDC 6 - Repair or Replace an Existing Structure*. To obtain coverage under the SSNP, a project must comply with the PDC, Notification Requirements, GCMs, and EFH Conservation Recommendations. The proposed Project will comply with all SSNP requirements. Compliance with SSNP requirements is described in additional detail in Section 3.1 through 3.3 and the attached SSNP list of Requirements.

### 3.1 Project Design Criteria

The PDCs were reviewed for PDC 6. The Project conforms with all PDCs (see attached SSNP list of requirements).

### 3.2 Notification Requirements

The proposed Project complies with the notification requirements of PDC 6, which are summarized below.

#### 3.2.1 Conservation Offsets

*Conservation offsets are required for certain activities authorized under the NOAA National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) Programmatic Endangered Species Act Consultation (also known as the SSNP).*

The NMFS Puget Sound Nearshore Habitat Conservation Calculator (Conservation Calculator) was used to calculate the required conservation offsets for the Project (see attached Mystery Bay Pier Conservation



Calculator). The removal of creosote-treated wood as part of this Project will offset the debits accrued for the repair of existing structures.

### 3.2.2 *Project Dimensions in Shore Zones*

*The Project description shall include, when applicable, dimensions of the proposed work in the upper shore zone, lower shore zone, and/or deep shore zone; percent grating; material, length, and diameter of the pilings.*

The Project dimensions in each shore zone are identified in the "Project D' tab of the attached Mystery Bay Pier Conservation Calculator. Construction materials are discussed in this Mystery Bay State Park Pier Repair Project Description (see Section 1.2).

### 3.2.3 *Alteration to PDC*

*If a minor alteration from the PDC is requested, documentation must be provided.*

No alterations to the PDCs are requested.

## **3.3 General Construction Measures and Essential Fish Habitat Conservation Recommendations**

The Project will conform with all GCMs and EFH Conservation Recommendations and the associated notification requirements. The GCMs require that pesticide and preservative-treated wood can only be used for substructures that are not in direct exposure to leaching by precipitation, overtopping waves, or submersion. Pursuant of an early coordination meeting with NMFS and subsequent email coordination (Personal communications Oconnor 2023), pile caps may be ACZA-treated if the exposed ends are covered or painted to avoid leaching from direct contact with precipitation. Therefore, the exposed ends of the proposed ACZA-treated pile caps will be covered with roofing felt to prevent leaching.

A full list of GCMs and EFH recommendations are included in the attached SSNP List of Requirements. The notification requirements are summarized below.

### 3.3.1 *Notification Requirements*

#### 3.3.1.1 *Concrete Curing*

*If concrete will dry quicker than the 7-day curing rate, information must be provided as part of the Project submittal.*

All concrete will be contained within the sleeve formwork and therefore, fast curing concrete is not required.

#### 3.3.1.2 *Marbled Murrelet Monitoring Plan*

*If in-water impact pile driving more than two piles greater than 12 inches per day, a Marbled Murrelet Monitoring Plan must be submitted. Pile driving or activities that could result in substantial in-water or in-air noise are not proposed and therefore a marbled murrelet monitoring plan is not required.*

3.3.1.3 *Impervious Surface*

*If impervious surface is installed or replaced as part of the proposed work or resulting from the proposed work, a Post-Construction Stormwater Management Plan (PCSMP) must be submitted. Impervious surface will not be installed or replaced as part of the proposed work and therefore a PCSMP is not required.*

3.3.1.4 *Fish Salvage Report*

*If the work area may be isolated, applicant must confirm after construction a Fish Salvage Report will be submitted within 60 days to NMFS and the Corps. The work area for the proposed Project will not be isolated and therefore a Fish Salvage Report is not required.*

3.3.1.5 *Marine Mammal Monitoring Plan*

*If in-water construction activities cause underwater noise greater than 120 dBrms and Southern Resident Killer whales have been documented in the action area more than four times during the proposed work window and/or four or more humpback whale sightings have been documented in the past two years during the proposed work month, a Marine Mammal Monitoring Plan must be submitted. Construction activities will not cause underwater noise greater than 120 dBrms. Therefore, a Marine Mammal Monitoring Plan is not required.*

3.3.1.6 *Removal of Creosote-treated Wood*

*If removing creosote piling for conservation offset credits: applicants must confirm after creosote removal and upland disposal they will submit the disposal receipts and a picture of the dump truck on the scale to the Services. Creosote-treated wood will be removed for conservation offsets. Disposal receipts and a picture of the dump truck scale will be submitted.*

### **3.4 References**

Moffatt & Nichol. 2021. Mystery Bay State Park Facility Condition Assessment Report

Moffatt & Nichol. 2022. Mystery Bay State Park High Tide Line Delineation

Oconnor, M, NMFS. 2023. Personal Communications Regarding Use of ACZA-treated Wood.