Northwest Straits FOUNDATION

partners in marine conservation

Maylor Point Feeder Bluff Restoration

Northwest Straits Foundation, Island County Marine Resources Committee, and the US Navy collaborated to restore 1,500 linear feet of shoreline and feeder bluff between Maylor Point and Forbes Point in Oak Harbor, Whidbey Island.

The armor was placed by the US Army Corps in 1978 as a "Low Cost Shore Protection" experiment. Four different treatments were used to supplement 600 linear feet of existing armor stone revetment. Treated timber posts with tires, gabion baskets, concrete bags, and an untreated timber bulkhead were all attempted. Only the treated timber posts with tires remain relatively in-tact. All other treatments failed by 1979 leaving debris scattered across the intertidal area.

Nearshore Processes

Like other shoreline armoring in Puget Sound, the armor here caused a coarsening of beach sediment in front of the bulkhead by increasing turbulence and mobilizing and washing away sand and gravels. This decreases the total volume of beach sediment and creates a mixture of fine and coarse sediments unsuitable for forage fish spawning.

Shore armor traps sediment from feeder bluffs and prevents the sediment from maintaining beaches within the drift cell (a length of shoreline designated by the predominant direction of long term sediment transport).

Restoration Benefits

1. Improved exchange of terrestrial and aquatic nutrients, insects, invertebrates, and organic material due to restored cross shore connectivity.

2. Increased availability of spawning habitat for surf smelt and sand lance to benefit those fish and the animals that prey on them (salmon, shorebirds, etc.) along the restored shoreline and downdrift in two drift cells.

3. Reduction of toxic leachate from treated wood material and dispersed tires.

4. Restored sediment transport throughout two drift cells and along the 1,500 project shoreline.

Project Profile

Partners	Northwest Straits Foundation Island County Marine Resources Committee US Navy WDFW (Monitoring)
Goals & Objectives	Remove 1,500 linear feet of shore armor and uncover 38,000 SF of beach and backshore habitat. Remove: 1,300 tires // 185 creosote-treated posts // 165 treated timbers // 5,600 concrete 'pillows' 1,100 CY of large armor stone & boulders 225 CY of small angular rock
Cost	$304,000
Funders	Habitat Strategic Initiative / Marine & Nearshore Grant Program (EPA/WDFW/DNR) US Fish & Wildlife Service Puget Sound Acquisition & Restoration Fund Estuary Salmon Restoration Program
Engineering Design // Construction Contractors	Coastal Geologic Services // Neptune Marine

Tire Wall Before and After Removal

Restoration Project Monitoring

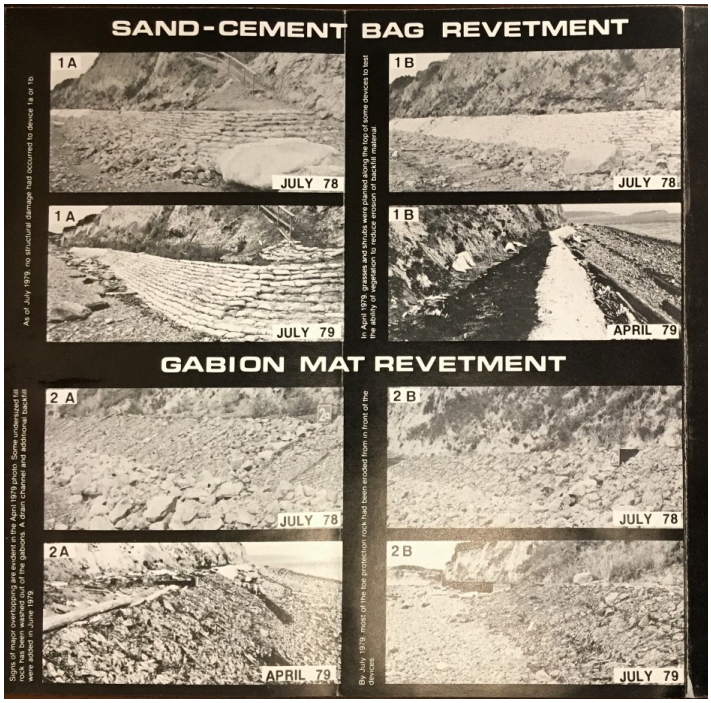
Washington Department of Fish & Wildlife completed pre-construction biological and physical process monitoring in 2016 & 2017 as a part of their Puget Sound-wide study to assess the effects of shoreline restoration projects and armor removal in particular. The protocols include collecting data on site as well as at adjacent armored and unarmored sites where feasible.

Assessments include:

Beach profiles, sediment composition, log line and wrack line composition, riparian cover, and forage fish spawning surveys.

As funding allows, post-construction monitoring will be completed in summer 2019 and subsequent years by WDFW and trained citizen-science volunteers.

Results will be included in a Sound-wide data set.



Page from USACE brochure after original installation

Concrete pillows before, during and after construction

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