



Description

The Yaquina Bay estuary is located on the Oregon coast at Newport, approximately 113 miles south of the Mouth of the Columbia River. Yaquina Bay is one of the Portland Districts' oldest navigation projects on Oregon's coast, and includes two jetties, several channels, turning and boat basins, and a breakwater. The authorized entrance channel is - 40 feet plus 5 feet of advanced maintenance, the channel has never been maintained past - 41 feet due to large amounts of shoaling between the jetties and on the outer ebb shoal.



Issue/Challenges

In recent years, shoaling has become increasingly severe, while sand accumulation on the south jetty has increased substantially. Dredging needs at the entrance have increased approximately 30 % at the entrance since 2011. The Portland district speculates that sand is trapped in a circular pattern of accreting on the south jetty, drifting into the channel and moving south out of the channel back onto the south jetty. Additionally, the Oregon State Parks Department utilizes an access road along a portion of the south jetty root. This access has become unusable due to the accumulating sand dunes. These sand dunes are highly unstable and migrate across the jetty and back into the channel.

Successes Lessons Learned

The Washington State Department of Ecology, Coastal Monitoring & Analysis Program, with the manpower of the Washington Conservation Corps and funding from the US Army Corps of Engineers – Portland District, installed 2300 ft of sand fence on Benson Beach, located north of the Mouth of Columbia River, during 16 September to 8 October 2008. Installing the sand fence was the most cost-effective method for retaining sand on the North Jetty Berm. Not only was sand retained, but it actually accreted. Topographic surveys show that by 15 March 2009, the berm had gained 2,151 cubic yards of sand, despite initially losing sand due to an extreme storm event. Additionally, the sand buried a large portion of the fencing; with the fence mostly buried in large areas, sand is being retained on the top of the berm. Otherwise, aeolian processes or littoral transport would most likely have

transported the sand off the berm. In other words, the fence has been a great success in berm nourishment, trapping many cubic yards of sand, and we hope for similar results at Yaquina Bay.

Expected Products

- Sand Fence Implementation Plan
- Sand Fence Construction
- Hydrosurvey Charts
- Photo Journal
- Technical Report

The implementation plan will guide the Port of Newport in their construction of sand fences. Surveys and a photo journal will capture the before and after results of the fencing, these products will be incorporated into a final report.

Potential Users

USACE Portland District, Port of Newport, Oregon State Parks and Recreation Department, and other low use coastal ports

Projected Benefits

This project will provide an improved definition of littoral sediment transport pathways that affect shoaling at the Yaquina Bay. Based on a fully informed assessment of shoaling pathways, USACE and the Port of Newport will utilize the least cost method for preventing sediment from entering the channel. The Corps will target limited dredging funds as efficiently as possible to meet user needs. Results from this RSM study could be applied to small harbors and navigation projects facing both short and long term funding limitations.

Leveraging Opportunities

This RSM proposal leverages additional non-federal funds, as the Port of Newport is willing to fund the construction costs. Successfully trapping sediment before it migrates into the navigation channel will reduce dredging needs at the project, and lower the cost at the project.

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Participating Partners

Portland District, ERDC, Port of Newport, Oregon State University and Oregon State Parks and Recreation Department.