Estuarine Restoration

LEWIS AND CLARK NATIONAL HISTORICAL PARK

Importance

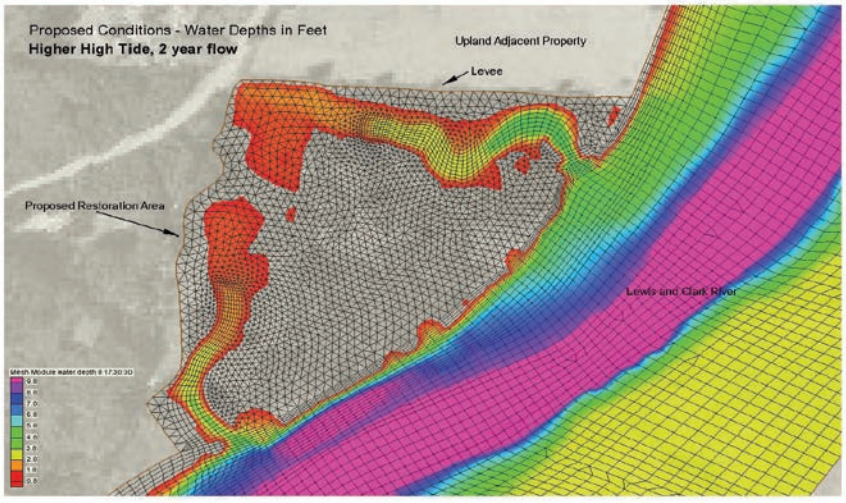
In selecting a site for the 1805-06 winter encampment, William Clark wrote that the Corps of Discovery decided on "a rise about 30 feet higher than the high tides." With extensive marshes along the river, this higher elevation made the site a prime choice for Fort Clatsop. Over time, the look of the cultural landscape has been largely lost due to diking, draining, and filling of the adjacent wetlands, including Otter Point.

An estimated 95% of former wetlands in the Youngs Bay watershed have been similarly drained. These estuarine areas form important habitat for numerous species, including threatened and endangered salmon that rear and seek refuge on their migration out to sea. Re-establishing a tidal connection between the 34 acres of Otter Point and the Lewis and Clark River is part of an effort to restore 16,000 acres of wetland habitat throughout the watershed and a broader Recovery Plan for federally listed Columbia River salmon species.

Otter Point Restoration

LIDAR data and ground surveys revealed two channels that had existed prior to being filled by dredge material in the 1960's. Starting in the fall of 2010 and continuing in the summer of 2011, heavy equipment recreated these channels by excavating 5,000 linear feet out of the dredge material. An additional five acres also were excavated down to marsh elevations.

Restoration crews set large woody debris and willows into the banks of the channel to increase habitat complexity, to provide cover for juvenile salmon,



ANCHOR ENVIRONMENTAL, L.L.C.

Figure A-19
Proposed Conditions, Water Depths, 2 year flow, Higher High Tide (t=17:30:00)
Otter Point Restoration Project

and to enhance macroinvertebrate recruitment. In the fall of 2011, park staff, contractors, and volunteers planted 45,000 plugs of native wetland emergent species into the tidal zone, planted 3,400 shrubs in the upland areas, and sowed the entire area with native seed harvested from the park and neighboring lands.

In 2012, construction will finish on a new 1,400 foot long cross-levee to protect adjacent property owners from floods. Once the new levee is in place, the existing levee will be breached in several locations to allow full tidal connectivity to the channels and floodplain.

This restoration project was accomplished through partnerships with the Columbia River Estuary Study Taskforce, Bonneville Power Administration, Lower Columbia River Estuary Partnership, and Oregon Watershed Enhancement Board.

Opposite Left Large woody debris is placed into the newly excavated south channel. NPS/LEWI
Opposite Right Hydrologic modeling predicts the extent of high tides after the existing levee is breached.

Above A former tidal wetland, Otter Point has been diked, drained, and filled over the past 100 years. Reed canary grass dominated the site before restoration. NPS/LEWI

Monitoring the South Clatsop Slough

One-half mile upstream of Otter Point, the park and its partners replaced a tide gate with a 46 foot bridge span, allowing tidal inundation to former pasture land at the South Clatsop Slough. Since the bridge was installed in 2007, scientists have been monitoring changes in vegetation communities, fish assemblages, water quality, and macro-invertebrate abundance and diversity. In 2011, they found a total of 736 juvenile salmon – including coho, Chinook, chum, and cutthroat – during bi-monthly sampling.

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