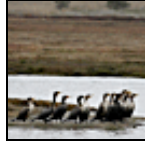


Elkhorn Slough dam project will slow erosion

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(12-11) 04:00 PST Moss Landing - --

The boat containing a passel of biologists and other folks motored out of Moss Landing Harbor this week past sea otters, brown pelicans, snowy egrets and sea lions as it toured the largest tidal salt marsh in California outside of San Francisco Bay.

The lush refuge known as Elkhorn Slough is where a curious underwater dam is being built that scientists hope will save the slough from its own rushing water.

"The project is to keep Elkhorn Slough a muddy place," said Bryan Largay, the tidal wetland project director for the Elkhorn Slough National Estuarine Research Reserve, as a dozen sea otters frolicked next to the boat and sea lions barked from the nearby banks.

Recent studies have shown that the slough, which is home to the largest population of sea otters on the West Coast, is eroding away because of unnaturally strong currents. The water flows fast because part of the channel was once drained and used for cattle grazing, and it subsided, creating a deep pool that flows out en masse with the tide, Largay said.

Slowing down the tide

The experimental dam, or sill, is an attempt by federal, state and local experts to slow down the outgoing tide and allow the mud to build up. The \$4.5 million project began this month at a place called Parsons Slough, the sunken channel halfway up the 7-mile-long estuary where 40 percent of the water in the marsh system collects.

Scientists believe the large volume of water that rushes out of Parsons sweeps away nutrient-rich sediments that provide food and habitat for shorebirds and other creatures. The pickleweed-covered estuary has lost 150 acres of marshland over the past 50 years and is projected to lose 500 more acres in the next half-century, according to the Elkhorn Slough Tidal Wetland Project science panel.

"What this project does is put a speed bump in the channel to slow down that water as it leaves Parsons Slough," Largay said.

The submerged dam will be made of 3 million pounds of steel, rock fill and riprap. It is the result of four years and \$1.5 million worth of studies by biologists, geologists and engineers led by the estuarine research reserve, a state and federal scientific partnership.

The project is important, Largay said, because the slough is a breeding ground for a wide variety of wildlife, including sea otters, leopard sharks and rays. The more mud there is in the estuary, he said, the more eelgrass and pickleweed grows and the more invertebrates and nutrients there are for the animals in the tidal creeks and channels.

"This is the nursery for Monterey Bay and the ocean," Largay said. "But the tides are higher than they used to be, and the deeper water drowns out the vegetation."

Elkhorn Slough meanders from the headwaters in San Benito County through Moss Landing and flows out into Monterey Bay. The watershed was essentially pristine until the late 1800s, when Southern Pacific built railroad tracks over the marsh, separating Parsons Slough from the rest of the estuary.

The Salinas River at that time flowed northward along the coast and drained into Monterey Bay using the same sandbar-laden mouth, but the river was diverted 8 miles away in 1908 to make room for agriculture.

Levees and cattle

The 450 acres that now make up Parsons Slough were privately owned going back to Spanish land grant days, but the landowners did not begin draining away the saltwater until the railroad was built. By the 1940s, dairymen had built levees and drained almost all the water. It apparently took them 15 years to get all the salt out of the ground and begin grazing their cattle. By the 1950s, seven dairies were operating around Elkhorn Slough, two of which were on Parsons property, Largay said.

Meanwhile, development on and around the estuary was accelerating. The mouth of Elkhorn was diverted, widened and deepened in 1947 when Moss Landing Harbor was built. The Moss Landing Power Plant was built next to the estuary in 1949 and subsequently expanded.

In 1980, the California Department of Fish and Game acquired the 450 acres of former wetlands. By 1982, the levees were breached. More than 1 1/2 square miles of the estuary is now part of the Elkhorn Slough State Marine Reserve and the Elkhorn Slough State Marine Conservation Area, which were established in 2007.

But the draining of water and years of cattle grazing caused the ground to sink. The Parsons channel is now 5 feet below its historic elevation, and the water rushes out five times as fast, according to studies.

"The tidal scouring is the single most vexing issue that Elkhorn Slough has faced," said Mark Silberstein, the executive director of the Elkhorn Slough Foundation, a community trust. "The effort it took to understand this was really extraordinary."

Letting creatures pass

The sill, which will be adjacent to the railroad trestle that is now part of Union Pacific's main line from Seattle to San Diego, will be about 7 feet underwater at high tide and a foot or two under at low tide. The work, by the construction company Cooper Crane of Vallejo, is being funded largely by a grant from the National Oceanic and Atmospheric Administration, through the American Reinvestment and Recovery Act.

The unusual structure, which is designed to allow marine mammals, fish and other critters to pass through, is expected to be completed by March.

If all goes well, Silberstein said, the project will help improve biodiversity by "keeping the world safe for mud."

-- For more information about Elkhorn Slough, go to www.elkhornslough.org.

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<http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/12/11/MN9H1GL1K5.DTL>

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