

## New Tide Gate Designs Enhance Fish and Water Passage

by Bend Weekly News Sources

A fixture of Oregon coastal farming, so-called "tide gates" are coming under new scrutiny because of their environmental effects.

Essentially hinged metal doors at the ends of culverts, tide gates have been used for centuries to prevent flooding and help drain low-lying coastal lands, making it possible for people to farm and build on land that would otherwise be under water. But in many cases the devices have also compromised or destroyed critical fish and wildlife habitat.

"Tide gates tend to be effective at maintaining low water levels on the upland side of dikes," said Guillermo Giannico, Extension fisheries specialist with Oregon State University. "Unfortunately, by altering water flow they also have some undesirable side effects."

Among those side effects, Giannico said, are elimination of upland tidal marshes and changes in water temperatures, sediment transport, nutrient concentration and fish passage.

The effects of tide gates on estuaries and wildlife were the focus of a symposium held earlier this fall at the South Slough National Estuarine Research Reserve in Charleston, Ore. Sponsored by the Coos Watershed Association, OSU Extension Service, Oregon Sea Grant and others, the three-day symposium presented introductory information on tide gates and their effects on estuarine habitats and fish passage and provided a forum for coastal managers, biologists, engineers and others to exchange information.

Also discussed were the potential benefits and problems associated with removing or replacing existing tide gates to help restore habitat and encourage fish passage. OSU's Giannico organized the symposium.

Jon Souder of the Coos Watershed Association, a co-organizer of the event, noted that significant concern

with tide gates is that flooding can be exacerbated rather than mitigated by tide gates, both above and below the gates.

But both regulatory agencies and private industry are looking to engineering solutions that can allow landowners to continue using tide gates. Symposium presenter Larry Swenson of NOAA Fisheries outlined his agency's criteria for improving the performance of tide gates, including a requirement that the gates allow fish passage 90 percent of the time the gate is open.

Tide gate designer and builder Leo Kuntz of Nehalem Marine demonstrated several different new tide gate designs and discussed their respective features and effectiveness. One of his designs, he said, allowed for a 30 percent increase in water flow in both directions, enhancing the exchange of saltwater and freshwater and thus improving the natural marshland conditions.

OSU's Giannico was encouraged by the symposium's attendance and what he sees as a general increase in awareness among both professionals and the public. "The importance of protecting and restoring these ecosystems has finally appeared on the radar screen," he said.

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