

# Water gate investigation underway on Oregon Coast

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## Environmental groups plan to get to the bottom of a legacy problem in the Columbia River Estuary. Next step ... get everyone else on board



Rise and fall: Aging tide gates, like this top-hinged version in a slough connected to the Columbia River, are causing problems in estuaries across Oregon. The system needs a new look. *Courtesy of CREST*

*By Chuck Thompson. September 3, 2020. Water gate inquiry. Water gate leaks. Water gate breakin'.*

There are dozens of ways to describe the Oregon Coast's latest old problem and all of them are bad. But how else are you supposed to get people to pay attention to an issue many don't even know exists?

Technically, the problem—no joking matter—is with an often overlooked piece of environmental engineering called tide gates.

From the California border to Astoria, there are an estimated 3,000 tide gates in estuaries along the Oregon Coast and in waterways connecting to the Columbia River. Tide gates began being installed in Oregon in large numbers in the middle of the 20<sup>th</sup> century. Their age is showing.

“Most are likely failing due to age and outdated technology, at least partially blocking fish passage and negatively impacting the health of other fish and wildlife that rely on critical estuary habitat,” according to [The Nature Conservancy](#).

Tide gates and associated infrastructure control tidal river flow to allow for land uses, such as farming, ranching, grazing and roads. In recent years, a broad understanding has developed that much of Oregon’s ad hoc network has fallen into disrepair.

To extend the “water gate” gambit one (last) step further, it’s a corrupted system that could actually use the intervention of some crafty plumbers. But first they need to get a handle on the lie of the land.

For the past several years, a group of stakeholders called the [Oregon Tide Gate Partnership](#), which includes state and federal regulatory agencies, has been using public records to gather data on tide gates and compiling an inventory. It’s been a desk job.

This month, the Astoria-based Columbia River Estuary Study Taskforce ([CREST](#)) will begin the final step in that effort, evaluating the accuracy of this data through fieldwork. The current project—similar work has already been carried out in points south—extends from Gearhart to the mouth of the Columbia River, then along the Columbia River Estuary (on the Oregon side) and its tributaries up to Portland. Work is expected to be completed by October 31.

Sponsored by The Nature Conservancy, the studies will establish a ground-truth on the number of tide gates statewide, their locations and condition.

## What are tide gates?

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Located at the mouth of streams or small rivers where estuaries or wetlands begin, tide gates are essentially top- or side-hinged doors that close during incoming tides to prevent tidal waters from moving upland (preventing flooding in some cases), and open during outgoing tides to allow upland waters to flow through culverts and other infrastructure.

Typically made of concrete, iron and other heavy metals, they’re often found where tidal non-riverine channels drain marshes, tributary streams or field drainage ditches. Don’t think of them like garden “gates.” More like industrial installations.

| Deteriorating tide gates have exposed farmers’ and property owners’ worst fears.

“Tide gates allow freshwater to flow into the estuaries but prevent the upstream movement of brackish estuarine waters,” according to an Oregon Sea Grant [report](#). “The use of dikes and tide gates has enabled farmers and coastal communities to convert coastal wetlands into agricultural and grazing fields, and flood-prone lands into urban zones.”

This short Oregon Sea Grant [video](#) shows how tide gates work.

This [time-lapse video](#) shows the removal of a tide gate in Tillamook County.

## How fish are affected

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Tide gates work by altering the pattern of freshwater flow and discharge in estuaries.

“In turn, these changes in the circulation of water between both sides of a dike cause alterations in water temperatures, soil moisture content, sediment transport and channel morphology,” according to an Oregon State University [study](#).

Tide gates can affect salmon migration.

“In a juvenile salmon’s world—where everything and everyone wants to eat you—the bigger you are, the more likely you are to survive,” says The Nature Conservancy. “How big you are depends entirely on how long you get to eat, rest and fatten up in your estuary before swimming into the open ocean.

“If access to your estuary is blocked by failing tide gates meant to keep agricultural land dry, you will be forced to head out into the ocean long before you’re ready. And chances are, you won’t make it back.”



Resource extraction: Repairing failing infrastructure can be costly, complicated and controversial. *Courtesy of CREST*

## Farmers’ fears

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The degraded system has also become a point of alarm for farmers, ranchers and other landowners whose livelihoods depend in part on tide gates.

Starting in 2017, a series of public meetings convened along the Oregon Coast to address the issue raised the specter of what the [Tillamook Headlight Herald](#) described as “the farmers’ and property owners’ worst fears.”

Concerns brought up at the meetings included the high cost of replacing or repairing tide gates, hassles with byzantine regulatory processes and suspicions about the intentions of conservation groups and government agencies examining the problem.

“Some of the worst fears for the property owners and farmers was the ‘my way or the highway’ attitude from some agencies in addition to a bias against them,” reported the *Tillamook Headlight Herald* after a meeting in Tillamook County attended by more than 70 people. Some feared losing ownership or control of their properties.

Denise Lofman, CREST executive director, says the database project is meant to facilitate cooperation between all stakeholders.

“The State of Oregon has recognized a lot of tide gates are older and could probably stand to be replaced,” she says. “Tide gate replacement or repair is expensive and the regulatory process has become incredibly difficult for landowners to navigate if they need to replace a tide gate.

“For us the goal is to be able to increase juvenile salmonid habitat and make sure landowners are able to get updated infrastructure that helps their land do what they want it to do.”

The study being undertaken by CREST this month is a major step toward understanding the extent of the problem.

Confirming the inventory comes first. Solutions, which may require compromises, come next.

*Chuck Thompson is the editor of Columbia Insight.*