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## NEW MAPS CHART POSSIBLE COURSE FOR ESTUARY RESTORATION

### A startling loss of habitat

By KATIE FRANKOWICZ  
*The Astorian*

**A** new survey reveals the West Coast has lost about 85% of its historical estuary habitat, but the mapping could also help identify restoration opportunities and provide a baseline for predicting future changes.

Though large estuaries like the Columbia River have been mapped and surveyed extensively, the recent survey is the first time researchers have applied consistent mapping methods for estuaries along the contiguous West Coast.

Marshlands and tidal wetlands that form where rivers transition to the ocean provide rich, dynamic habitat for plants and wildlife, and serve as crucial nurseries for young salmon and steelhead.

Research in the lower Columbia River shows some salmon species linger in the estuary even longer than scientists had realized, putting on the size and weight that will help them thrive in the ocean.

“Given how valuable estuaries are to so many different species, it’s important to understand how much they have changed and what that means for fish and wildlife that depend



Photos by Hailey Hoffman/The Astorian

**TOP: The lower Columbia River estuary outside of Brownsmead. ABOVE: The fertile estuary of the Columbia River is an important habitat for many native plants and wildlife.**

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on them,” Correigh Greene, a co-author of the new study and a research biologist at the National Oceanic and Atmospheric Administration, said in a statement.

The new information accomplishes two goals, said Laura Brophy, lead author of the study and director of the Estuary Technical Group at the Institute for Applied Ecology in Corvallis.

By combining past research with elevation mapping called LIDAR and water level modeling available from NOAA, they establish the extent of estuary habitat and uncover the reach of the historic habitat.

Brophy and the other researchers estimate West Coast estuaries once covered nearly 2 million acres — about three times the size of Rhode Island. Now, following European settlement and development, only a fraction remain. The Columbia River has lost about 74% of its estuary.

In the past, wetland mapping relied heavily on the interpretation of aerial photos and data like soil surveys. Researchers would work with landowners to understand changes in the habitat because of past and current development.

More often than not, they spent a lot of time peering through blackberry bushes trying to find out why some areas that had likely once been wetlands might be disconnected from the estuary.

“We still need people to go peer through blackberries,” Brophy said.

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## Research studies tsunami impact on infrastructure

Delving into the soil

By NICOLE BALES  
*The Astorian*

New research from Oregon State University takes steps toward understanding how tsunamis destabilize soil, which is key to building and retrofitting infrastructure that can withstand a disaster.

“Traditionally, in the past, the structural engineers have only thought about what happens at the soil level and above, and the soil engineers have thought about what happens at the surface and below,” said Ben Mason, an associate professor at Oregon State’s College of Engineering.

The project combines what scientists know about how the soil will affect the structure, and how the structure will affect the soil. The findings could help communities on the North Coast prepare for a Cascadia Subduction Zone earthquake and tsunami.

“Ultimately you have to understand the marriage between the two during both the earthquake and the tsunami to be able to develop reasonable designs,” Mason said. “It’s a symphony — it really is.”

The research was conducted in collaboration with the University of California,

Davis and published in July.

Up until now, scientists have been speculating about how water pressure changes the soil, but now they have experimental data they can use to improve their computer models and run simulations to see how infrastructure in different coastal towns will be affected based on their soil density and existing structures.

Building sustainable infrastructure depends on the soil of a given location. How engineers build a bridge should depend on the soil, and how soil moves depends on how engineers build the bridge, Mason said.

“The perfect example of that is the 1986 Mexico City earthquake,” Mason said. “The city is built on an ancient lake bed and there’s buildings that got absolutely demolished there due to a relatively modest earthquake.”

“And then if you go just barely up the mountain to where it’s rock, none of the buildings saw any damage. So, the soil is extremely important to how the bridges and buildings and infrastructure is going to fare during an earthquake and a tsunami.”

Mason plans to continue having conversations with local governments on the North Coast to help educate people on what they should expect to see happen in a large earthquake and tsunami.

“In terms of actual communities and engineers or city managers, they’re largely

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Laura Lattig, center, coordinates children’s programs at Warrenton Community Library.

## A life of service

A rich perspective on education

By KATIE FRANKOWICZ  
*The Astorian*

**T**here are no straight lines when it comes to the many careers Laura Lattig has held over the years, but there is a common thread: service.

“I really believe that’s why I’m here,” she said. “To love people and give them more.”

As the volunteer coordinator at Columbia Memorial Hospital in Astoria, Lattig helped create the No One Dies Alone program, where volunteers provide comfort and companionship to dying patients. Before

that, she was the director of adult education programs at Clatsop Community College and developed a tutoring center — and then there was everything else before, after and in-between that took her deep into education and program building.

Now, retired from the hospital, she coordinates children and family programs at the Warrenton Community Library, a job she took on in October.

The small library is in a period of growth and transition. A move to a new location in

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