

# New study explores impacts of coastal erosion, increased storms

By Brenna Visser  
Seaside Signal

Coastal erosion and more intense winter storms may require policymakers to take another look at how they plan for future development.

A new Oregon State University study, based in Tillamook County, examined how beach access and property would be impacted by sea level rise and coastal erosion if planning policies stayed the same.

Researchers then looked at the costs, impacts and implications if the region changed policies, such as providing incentives to move houses out of vulnerable areas or loosening regulation on breakwater infrastructure.

One approach may protect more homes from danger, but comes with a hefty price tag. Another may be the best at preventing erosion, but impacts beach access. The point of the study is not to tell lawmakers what to do, said Patrick Corcoran, a coastal hazards specialist with Oregon State University's Sea Grant program and co-author of the paper, but to give informed direction about the consequences of their choices.

"We can't control climate change, at least not directly," Corcoran said. "The one thing we can control is management. We need to align our behavior with what we see happening."

## Different approaches

Roughly a quarter of Tillamook County's population lives within a half mile from the Pacific Ocean, with 40 percent of the coastline eroding at rates of more than 3 feet a year.

According to the study, coastal hazards are growing, and can be attributed to three main drivers: sea level rise, increases in wave heights from winter storms and the frequency of El Nino weather patterns.

Researchers designed five different policy scenarios to address what people in Tillamook County consider priorities: the ability to use the beach and property protection.

They predicted what would happen if policies stayed the same, as well as what would happen with certain changes, such as constructing new buildings on lots that allowed protective measures like riprap, removing buildings repetitively impacted by coastal hazards and having no development restrictions at all through 99 different climate scenarios over the course of 30 to 90 years.

Overall, the study shows that if policies in Tillamook County don't change, more than 2,000 buildings will remain in the hazard zone, and that damages associated with coastal flooding will cost more than \$150 million over the next century.

Different approaches solved different problems. Policies that include "strategic retreat" — intentionally moving buildings out of a dangerous area — would see up to 1,800 buildings relocated and preserve the most beach access. But it comes at a price: moving buildings could cost \$300 million after accounting for the money it would take to renourish the beach and create new environmental easements.

The "laissez-faire" approach, where restrictions about where to build and whether riprap is allowed are stripped, actually resulted in almost no buildings being impacted by erosion in comparison to the status quo. Predictions show there would be a spike in homeowners fortifying properties that they currently cannot do under state law. Current planning policies would see about 20 buildings a year be affected by erosion by 2100.

But it, too, was costly, incurring about \$2.5 mil-



People walk near the surf at Cannon Beach.

Colin Murphey/The Daily Astorian

lion a year regionally for costs associated with fortifying coastal properties. The policy also massively impacts beach accessibility by interfering with sand production, which would also increase total water levels and lead to more flooding hazards. Currently, about 80 percent of the coastline is walkable. In the worst climate scenario, that would drop to about 40 percent by 2100 under this approach.

Though the study doesn't offer a definitive solution, Corcoran said he hopes the information can be used to make long-term decisions.

"We're so used to shoot-

ing down ideas," he said. "I find it useful for electeds and others to play through alternative policies through the end."

## Local impact

While the study focused on challenges unique to Tillamook County, the broader lesson of considering development hazards is something that can be applied across the North Coast.

Studies like this could be a model for cities to rethink the development process in the tsunami inundation zone.

"(Planning is) project driven and opportunity driven," Corcoran said. "There's no sense of

altering development for hazards"

Such policies could force

planners to "tick some kind of box" about whether vulnerable populations should

be put in areas known to be historically inundated after a tsunami, Corcoran said.

Think of the Shooting Stars Child Development Center in Astoria as an example, he said, which moved into a building the Oregon State Police left in Uniontown because of tsunami danger. It falls into the 3 percent of land considered to be at most risk for a tsunami in Astoria, and has been inundated 17 out of the last 19 major historical events.

"If that kind of thinking went through the Planning Commission as a factor, there might have been an incentive to find another location," he said.

No decision will be perfect, but it should at least be informed.

"Can we, through strategic decision, at least make the project less bad?" Corcoran said.

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