



State Department of Geology and Mineral Industries  
**By 2013, the foredune at the root of the South Jetty was in danger of breaching, allowing water past the jetty and directly into Trestle Bay. Such a breach could change the hydrology around the multibillion-dollar Columbia River shipping channel.**

## Gravel: 'It's been here since 2013 doing its job'

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### Doing its job

Since construction, a half-mile section of beach around the berm has been monitored regularly by coastal geomorphologist Jonathan Allan and field geologist Laura Gabel, both with the state Department of Geology and Mineral Industries.

The two take elevations and coordinates every meter using real-time kinematic GPS. Using a GPS unit in a backpack, triangulated with satellites and a GPS base station placed on a dune above the beach, they can track the topographical changes around the berm to within centimeters of accuracy. They were on site Wednesday, covering the entire berm on foot and in an all-terrain vehicle.

"It's been here since 2013, doing its job," Allan said.

The pair recently published a study monitoring the effectiveness of the berm. While the berm eroded more than 60 feet inland near the jetty, in a sacrificial area on the northern end, the structure has withstood multiple storm events.

Allan and Gabel were on the beach during heavy storms in December, when Allan said outgoing tides lowered the beach's elevation by 2 feet, and large waves topped the dunes of Clatsop Spit.

Gabel said the berm held its ground, blunting the velocity of incoming waves. "If this structure hadn't been there, there could have been a lot more erosion," she said.

Moritz said the project has an expected life cycle of 30 to 50 years, but will need

more material added every 10 to 15 years, depending on the severity of future storms.

### Natural protection

In the mid-1990s, El Niño-induced storm erosion threatened Cape Lookout State Park and a nearby condominium development. Moritz said local cobble was mined and put on shore to prevent further erosion.

Allan said he and Paul Komer, a professor of geology and geophysics at Oregon State University, proposed a dynamic revetment, a conceptual design known since the 1970s.

"It can be as simple as placing gravel where the beach meets the dune," Allan said.

Local cobble was mined and placed along the beach at Cape Lookout State Park. "The structure there has served its purpose, protecting the state park," Allan said.

While his and Gabel's study said the berm at South Jetty has stood up to continued wave action, they cautioned that the area has experienced milder winters in the past few years, and that the berm remains to be tested by the worst storms. Monitoring at South Jetty continues through 2018.

"What we learn in monitoring the Columbia River cobble berm will help to validate proof of concept, and ultimately help guide the design of similar structures," Allan said of the study. "In the right environment, such structures could become an effective strategy for mitigating coastal erosion along the Oregon Coast, and within its estuaries."



The Astoria Bridge and Saddle Mountain as seen from Washington state earlier this year.

Joshua Bessex/The Daily Astorian

## Mountain: 'This is the best compromise'

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Craig Hurst, a ranger assistant with Oregon State Parks said that, in winter, "we get a lot of trees come down up there, so if a large tree comes down and somebody's on the other side of that tree, they're pretty much going to be stuck."

Cox planned to close the road for the entire season, but he said he did not know the Saddle Mountain trail is a popular destination in the winter, so he changed course.

"I just didn't realize the outcry this would cause," Cox said.

The department decided to revert to standard winter operations: The campground and restrooms are closed, but the road and parking lot will be open.

"This is the best compromise that we could come up with," he said.

Cox said drivers in the winter should be careful on the Saddle Mountain road, which can become icy. They should also be mindful that, "during storm activity, that road's a great candidate for trees to come down," he said.

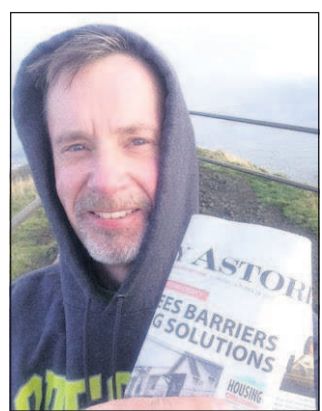
Meanwhile, because of the seasonal weather, the short-staffed Nehalem Bay Management Unit will not be working on the trail, which can get washed out and become unstable.

"It's not practical or realistic to try to do a trail repair or maintenance during the winter up there," Cox said.



Pete Gimre/Facebook

Pete Gimre's bike in the parking lot at Saddle Mountain Saturday. He said the lot is usually packed.



Pete Gimre/Facebook

Pete Gimre has hiked the Saddle Mountain trail every month since April 2003.

When he learned the road would no longer be blocked, Gimre said, "That is fantastic news."

"There's literally thousands of people I see up there over the course of time that encompasses 12 months of the year," he said.

Gimre saw many hikers this weekend who, as he did, walked the additional length to the trailhead. But he wonders how many chose to turn around instead.

### 'I just didn't realize the outcry this would cause.'

#### Ben Cox

park manager of the Nehalem Bay Management Unit

#### Elated hiker

Pete Gimre, owner of Gimre's Shoes in Astoria, has hiked the Saddle Mountain trail every month since April 2003.

On Saturday, he hiked the extra 2 miles to the park, then took the trail to the summit, keeping his streak alive: 163 straight months.

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