

# Bridges: Years ago ‘the tsunami was not even considered’

Continued from Page A1

The finding is important, said Pedro Lomonaco and Solomon Yim, Oregon State researchers who contributed to the study, because it can help engineers understand why bridges fail and lead to more tsunami-resistant bridges along the Oregon Coast.

“The breaking of the bearing connections was the main type of bridge damage seen in recent tsunamis, showing that it’s critical to quantify what the tsunami is doing to these components and decipher the underlying physics,” Yim said.

## Deadly examples

The need to better understand wave impacts on coastal bridges was largely

motivated by seeing bridges destroyed during tsunamis off Japan and Indonesia. Over the past 15 years, big earthquakes have caused tsunamis that killed more than 250,000 people and caused more than \$200 billion in damage, the study estimates, washing away or dislodging hundreds of bridges.

The research could help coastal cities like Seaside, which has several aging bridges that are expected to fail in a tsunami.

The topic has been raised recently by City Councilor Tom Horning, a geologist who has long advocated retrofitting bridges as a top priority for the city.

With two major rivers to cross before getting to higher ground, having

bridges that can last will be crucial to maintaining evacuation routes.

“Bridges are one of the easiest, fastest connection points to help people after an emergency,” Lomonaco said. “If you don’t have the bridges, there is nothing you can do.”

To find answers, researchers simulated a tsunami on a model bridge at the O.H. Hinsdale Wave Research Laboratory’s Large Wave Flume in Corvallis.

Part of what researchers found was that most bridges are built too rigidly, Yim and Lomonaco said.

Instead of seeing the concrete columns under a bridge as inflexible blocks, imagine them like springs. When the tsunami hits the deck of a bridge it will bend, making

it vibrate both back and forth and up and down.

The bridge deck and pilings not only feel the static forces coming from the earthquake and tsunami, but the additional pressure from these vibrations.

“We are changing the paradigm ... to the concept of thinking about how a bridge is moving, changing,” Yim said.

The irregular shape of traditional trusses and girders also creates unaccounted-for turbulence, they said. In general, the wall of water should be moving in one direction, but when it has to go through trusses, the water weaves in and out, adding different hydrodynamic forces that can compromise the bridge’s stability.

“The high pressure that

developed under the bridge played a significant role on the stability of the bridge, and different mitigation measures were tested, from closing the gaps between girders to incorporating venting on the concrete deck,” Lomonaco said.

## More research

Given how young the area of study is, more research is needed to understand why certain bridges survive and

why others do not, the team says.

But researchers hope the study gives engineers a better understanding of the physics of what happens when a tsunami slams into a bridge and opens the door to designing coastal spans that are better able to withstand giant waves.

“Think back 10, 15 years ago, the tsunami was not even considered,” Yim said. “We’ve come a long ways.”



Colin Murphy/The Daily Astorian

Several bridges in Seaside have been determined to be insufficient in an earthquake or tsunami.

# Parks: ‘You’re looking at Yosemite Falls and in front of you is plastic bottles and trash bags’

Continued from Page A1

Also closed was the Grant Tree Trail, a popular hiking spot, because the government shutdown halted maintenance and left the path dangerously slick from ice and snow, with at least one injury reported, the park service said.

Campers at Joshua Tree National Park in Southern California’s deserts were reporting squabbles as different families laid claims to sites, with no rangers on hand to adjudicate, said Ethan Feltges, who operates the Coyote Corner gift shop outside Joshua Tree.

Feltges and other business owners around Joshua Tree had stepped into the gap as much as possible, hauling trailers into the park to empty overflowing trash bins and sweeping and stocking restrooms that were still open, Feltges said.

Feltges himself had set up a portable toilet at his store to help the visitors still streaming in and out of the park. He was spending his days standing outside his store, offering tips about the park in place of the rangers who normally would be present.

“The whole community has come together,” Feltges said. “Everyone loves



Dakota Snider

A road lined with trash in Yosemite National Park in California.

the park. And there’s a lot of businesses that actually need the park.”

Some visitors have strung Christmas lights in the twisting Joshua trees, many of which are hundreds of years old, the Los Angeles Times reported.

Most visitors were being respectful of the desert wilderness and park facilities, Joshua Tree’s superintendent, David Smith, said in a statement.

But some are seizing on the shortage of park staffers to off-road illegally and otherwise damage the park, as well as relieving themselves in the open, a park statement said. Joshua Tree said it would begin closing some campgrounds for all but day

use.

At Yosemite, Snider, the local resident, said crowds of visitors were driving into the park to take advantage of free admission, with only a few park rangers working and a limited number of restrooms open.

Visitors were allowing their dogs to run off-leash in an area rich with bears and other wildlife, and scattering bags of garbage along the roads, Snider said.

“You’re looking at Yosemite Falls and in front of you is plastic bottles and trash bags,” he said.

Officials at Rocky Mountain National Park in Colorado said Monday they were closing restrooms and locking up trash bins in

many locations.

In Yellowstone National Park, private companies have picked up some of the maintenance normally done by federal workers. The contractors that operate park tours by snowmobile, buses and vans are grooming trails, hauling trash and replacing toilet paper at pit toilets and restrooms along their routes.

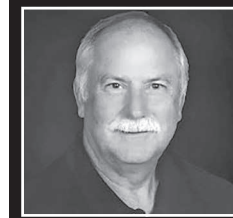
Nearly all roads inside Yellowstone are normally closed for winter, meaning most visitors at this time of the year access park attractions like Old Faithful or the Grand Canyon of the Yellowstone through guides. Those guides are splitting the cost of grooming the trails used by their vehicles to keep their operations going, said Travis Watt, general manager of See Yellowstone Alpen Guides based in West Yellowstone, Montana.

The tour companies can likely keep this system going through the entire winter season if they need to, Watt said.

“It’s definitely not our preference — the park service does a good job doing their thing and we hate to see them out of work,” Watt said. “But it’s something we can handle.”

*Gecker reported from San Francisco. Matt Volz contributed from Helena, Montana.*

## Consult a PROFESSIONAL



Steve Putman

Medicare Products

503-440-1076

Licensed in Oregon and Washington

putmanagency@gmail.com

**Q: My spouse is still working and I am covered under their employer coverage. Do I have to pay for Part B and Part D coverage now that I am Medicare eligible to avoid a penalty?**

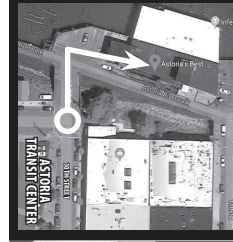
**A:** Great question! I get this one all the time. In general, if you are covered by your spouse’s employer plan, you do not have to activate and pay your Medicare Part B or have a Part D prescription plan. It is a good precaution to check with your spouse’s employer to make sure you have what is called “Credible Coverage”. They will know what that is. When you are ready to move to Medicare make sure well in advance to begin the process of activating your Part B Coverage. You can call me and I will assist you in planning your transition to Medicare.



LEO FINZI

Astoria’s Best.com

Microsoft REGISTERED Refurbisher We stock 1000’s of parts, cables, accessories, etc. for phones, TVs, computers, and tablets. Mon-Fri 10-6, Sat 11-4 Astoria, OR 503-325-2300



**Q: How do your prices compare to the Big Box Stores?**

**A:** Our prices for units we have on display are comparable to what you find at the Big Box stores. If you find an advertised item at one of their stores you would like buy, we can match their price. In addition, you get local service, a suite of programs that includes an Office Suite, Anti-Virus program, several tune up utilities and our promise of Satisfaction Guaranteed. We also include remote assistance, where we can connect to your computer over the internet and help you out. Astoria’s Best, Your best value.



ASTORIA CHIROPRACTIC

Barry Sears, D.C.

503-325-3311

2935 Marine Drive Astoria, Oregon

**Q: Muscle spasms can be a thing of the past.**

**A:** Charlie horses in the leg, facial tics and back spasms are all deficiency symptoms — muscles are irritated and working too hard — they don’t have the nutrients they need. Muscles need calcium, magnesium and Vitamin D taken together. Seventy-six percent of Americans are deficient in those nutrients. People may be OK until an injury when the increased activity in the hurt area causes the deficiency symptoms. It is easy and quick to correct. Time of day and dosage are important and need to be adjusted until the spasms stop. If you need help figuring this out, call Dr. Sears.



JEFFREY M. LEINASSAR DMD, FAGD



503/325-0310 1414 MARINE DRIVE, ASTORIA www.smileastoria.com

**Q: My child’s baby teeth have cavities. Why should they be filled if they are just going to fall out in a few years?**

**A:** Children’s teeth are very important to the health of the child and the development of the dental jaw and forming permanent teeth. Baby teeth not only give the child chewing function, cute esthetics, but also serve an important role in the jaw formation. Premature loss of primary teeth can adversely affect the jaw growth, position and timing of the eruption of permanent teeth, and if badly decayed or infected be a source of pain, sickness, and risk to other teeth. Please have your dentist evaluate your child’s “baby teeth”.

# Tram: ‘By making it legal, I’ve put myself in a corner’

Continued from Page A1

Daly estimates he’s shuttled hundreds of people in the tram between their hotels and Fort George Brewery’s Festival of the Dark Arts each February, helping to free up parking and potentially keeping impaired drivers off the road.

Daly had insurance on the Glam Tram through Berkshire Hathaway. After his friend Robert “Jake” Jacob died last year, he received a

call from an insurance agent, who informed him the vehicle had been running without insurance for the past two months.

Daly reached out to numerous brokers around the country, but he said he couldn’t find any takers aside from one offer to insure the Glam Tram and the Joy Train for around \$10,000 a year, far above the \$1,850 he had been paying.

“There are all these new requirements,” Daly said of

getting the tram registered with the DMV. “I am now on a do-not-insure list. By making it legal, I’ve put myself in a corner.”

Daly has received multiple calls from people wanting to charter the Glam Tram for private events. But the vehicle has to stay in storage until it is sold or scrapped. Because of the steep price of insurance, he has also stopped shuttling people around in the Joy Train.

“The chartering, the fun

stuff, that’s all gone,” he said. “People are mortified by it.”

He has reached out to the city about employing the tram to take people along the Astoria Riverwalk while the Astoria Riverfront Trolley is out of service during waterfront bridge repairs, but he said he doubts the city will bite.

Daly still plans to use the Joy Train in a partnership with 1859 magazine to deliver copies of the statewide lifestyle publication to far-flung areas of Oregon.



John R. Alcantara - Funeral Director



Hughes-Ransom Mortuary Astoria: 576 12th St. 503.325.2535 Seaside: 220 N. Holladay 503.738.6622 www.hughes-ransom.com

**Q: Is it possible for someone to change your final disposition arrangements if they are prepaid?**

**A:** It is extremely difficult for someone to arbitrarily make changes to a prepaid prearrangement in the State if Oregon because the law is written in favor of the on the responsible party who made prepaid their final expenses. Ergo, someone cannot change the wishes of individual who prepaid for full casket burial to cremation or vice versa. The only time I have seen this happen is when there is a legitimate risk to public health (if the person died from an exotic strain of disease and/or virulent pathogen)