

Not My Fault: What you need to know in tsunami country

Lori Dengler/For the Times-Standard
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I recently had a query from a couple in Oregon. They asked about the best type of building for tsunami evacuation. I was surprised by where they found me. They had stumbled upon my “Ask an Expert” link (<https://www.pbs.org/wgbh/nova/tsunami/ask.html>) from a NOVA documentary on the 2004 over 14 years ago. I didn’t realize it was still posted.

It’s good question that brings up a number of issues that are worth discussing. Since 2004 and the Indian Ocean disaster, tsunami awareness has increased, particularly in the Pacific Northwest where we are at risk of a similar type of tsunami. Back in 1993 when we did our first survey of awareness and preparedness, only 16% had ever heard of the Cascadia subduction zone, the fault system beneath our feet that is most likely to produce a great tsunami here.

Five tsunamis have caused damage on the North Coast since the 1950s. All of them came from far away – the Aleutian Islands, Chile, Southern Alaska, and the Northwestern Pacific including Japan and the Kuril Islands north of Japan. All of them took at least four hours to travel from the source area to us and the earthquakes that caused them were all very large but too far away to be felt locally.

These are the “distant” or “far-field” tsunamis that emergency managers worry about and the U.S. tsunami warning centers are designed to alert you about. If any of these earthquakes happened today, the National Tsunami Warning Center in Alaska would issue an initial alert within about ten minutes and our local Office of Emergency Services would send out notifications about what happened and whether you need to evacuate. TIME is the big difference between these distant tsunamis and the ones coming from nearby. Officials have time to coordinate and organized evacuation and everyone should have sufficient time to get out of areas at risk. What you need to do is make sure you are able to receive emergency alerts (see note at bottom), and leave if you are in an area where evacuations have been ordered.

We have had no major “near-source” tsunamis since the era of written records began on the North Coast in the mid-1800s. But there is ample evidence of very large tsunamis generated by the Cascadia subduction zone in the geologic record and in the oral history of the Wiyot, Yurok, Tolowa and other indigenous peoples of the Pacific Northwest. There are three really big differences between these tsunamis and the ones that come from far away.

- 1) You will feel the earthquake and it will last a very long time. It will last longer than any earthquake you have ever felt unless you happened to be in Japan in 2011 or Alaska in 1964. I don’t know how strong the shaking will be. It could be strong enough to knock you off your feet or it could be more moderate, but there should be no question in your mind about it lasting a LONG time.
- 2) The earthquake is likely to cause damage. It will certainly disrupt communications. This means it is very unlikely that you will receive any official notification from either the tsunami warning centers or county alert systems. You need to interpret the very long shaking as the signal to evacuate if you are in a tsunami zone.
- 3) There will be as little as ten minutes between feeling the shaking and the arrival of the first tsunami surges. This means no time for a coordinated, organized evacuation by official responders. No one is going to knock on your door, telephone you or tell you what to do. This puts the responsibility for getting to a safe area on your shoulders. You need to recognize the long shaking as the warning, and as soon as the shaking lessons so that you can safely move, GO TO HIGH GROUND or inland.

So back to the question, where to go? First, find out if you are in a tsunami zone. Most of us live/work out of the zone. You can find out by looking for the Entering and Leaving Tsunami Zone signs on most streets and highways, or check our the tsunami hazard maps online at <https://rctwg.humboldt.edu/>. Out of the zone means no need to evacuate.

In the zone means get out of the zone if at all possible. Practice your route with all family members. Walk or ride a bicycle. Roads are likely to be damaged from the shaking. It is always best to get out of the tsunami zone if you can. Vertical evacuation in buildings or climbing a tree is a method of last resort. Wood frame buildings are very vulnerable to collapse from tsunami and debris impact – even those with sturdy foundations. So, back to the Oregon couple, if there is absolutely no alternative, the third floor or higher of a reinforced concrete building may provide refuge.

Note: Sign up now for Humboldt County emergency notifications at

<https://humboldt.gov/2014/Emergency-Notifications>

or call (707) 268-2500. It will be tested on October 19th during the Great ShakeOut. For other counties, contact your OES office.

Lori Dengler is an emeritus professor of geology at Humboldt State University, an expert in tsunami and earthquake hazards. Questions or comments about this column, or want a free copy of the preparedness magazine "Living on Shaky Ground"? Leave a message at (707) 826-6019 or email Kamome@humboldt.edu

<https://www.times-standard.com/2019/09/26/lori-dengler-what-you-need-to-know-in-tsunami-country/>