

Not My Fault: What if a big quake occurs during a government shutdown?

Lori Dengler/For the Times-Standard

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Over the weekend I pondered what would happen if a tsunami happened during a government shutdown. I figured it was an academic question – we haven't had a tsunami alert issued for California since 2012. Monday came and the shutdown looked to be resolved, for at least a few weeks.

A little past 1:40 am Tuesday morning my cell started beeping. I ignored it. Then a call on our home phone. A message from Troy Nicolini of the National Weather Service Eureka Forecast Office, "magnitude 8 earthquake in Alaska." The NWS has the responsibility for disseminating tsunami alert bulletins in the US. When Troy calls, I respond, so reluctantly, I got up to check it out.

I don't have an official role in the tsunami alert process but I understand a bit about earthquake and tsunami threats and can help the folks with official responsibilities in interpreting the information that is coming in. At the back of my foggy brain in those early morning Tuesday hours, is that Alaska can be a big problem. Alaska sent us our worst historic tsunami – in 1964 when so much of Crescent City was destroyed. Alaska also poses a thorny problem for emergency response. It only takes four to five hours for the first tsunami waves to get to us from Alaska and decisions must be made quickly. Evacuations take time to organize and conduct in an efficient and safe way. Public safety officials need to be deployed, roadblocks established and people informed in a clear and efficient way. An unnecessary evacuation can be costly, cause injuries and erode credibility. When the need is real and people aren't reached, the result can be deadly.

It took me awhile to catch up out what was happening. First, look at the tsunami bulletins and see what they say. I get feeds directly from the National Tsunami Warning Center on my phone. The US has two tsunami warning centers – the Pacific Tsunami Warning Center in Hawaii and the National Tsunami Warning Center in Alaska. California gets its guidance from the National Center in Palmer, Alaska and it's important to not get confused by what Hawaii is saying. Each has different areas of

responsibility, operating under different guidelines with their own messaging format.

Bulletin one came in at 1:35 am PST (only 3 minutes after the earthquake) giving a preliminary magnitude (M 8.0), time of the earthquake and location – 175 miles SE of Kodiak City. It also issued a Tsunami Warning for British Columbia, Alaska, and the Aleutian Islands and a Tsunami Watch for California, Oregon and Washington. Warning is the highest level of alert and means the danger is imminent and could be significant. Warning means getting out of vulnerable areas and local authorities are recommended to order evacuations.

Tsunami Warnings differ in an important way from hazardous weather warnings. Potential weather problems can usually be detected days in advance. By the time a gale warning or flood warning is issued, official agencies have high confidence that the danger is real and we will be affected. Tsunamis have such a short time fuse and it is so important to get information to nearby coasts quickly, that the first bulletins are based only on the earthquake parameters – the size and location – and an understanding that such an event could be problematic. There is no confirmation that an actual tsunami really was generated.

That first bulletin placed California in a Tsunami Watch, the lowest alert level. It means wait and see. The first waves, if generated, are still several hours away from our coast and there is time for more analysis. But it also means there is a good chance that an Advisory or Warning could be issued and you need be on alert to move into full evacuation mode. If data shows little threat, the Watch would be cancelled. The EAS system and county emergency notifications aren't activated for Watches, but would be as soon as the alert is upgraded.

Bulletin #2 arrived a half hour later with one additional piece of information, the magnitude upgraded to 8.2. This was an ominous sign. It takes time and analysis to determine the true size of great quakes. In 2011, the Japan earthquake was first a 7.8, then an 8, an 8.5 and finally after many months of analysis, a 9.1. Seeing the magnitude "grow" in a tsunami-warning situation is cause for concern.

I look at recordings of the undersea sensor (DART) just south of Kodiak Island. Fortunately that web site is working. It shows a modest tsunami – only a few inches high. That puts this event in the tsunami gray area – there is a tsunami but the signal is small and I don't know what it means for our coast. I email a tsunami modeler at

NOAA. He got back to me right away with the terse reply, "Our servers are still shutdown... from the shutdown. Relying on Warning Centers — they should have our models running." The tsunami warning centers are considered essential services and were operational, but the researchers in the tsunami program were not and had no access to their computers. Even though the shutdown had ended, they wouldn't regain access until later in the day.

Fortunately, this tsunami ended up not being a problem. The magnitude demoted to 7.9 and the fault slip is horizontal and not up or down. Strike-slip quakes rarely produce significant tsunamis. I get emails from colleagues in Hawaii and New Zealand who confirm that the threat is very low. But still the Watch drags on. At half hour intervals we get bulletins 3 and 4. It's not until 4:12 am, barely an hour before the expected first wave arrival in California, that the Watch is cancelled.

Lucky this time, but perhaps next time will be different. One of the lessons from early Tuesday morning — shutdowns do hurt in ways you might not think about. I want the backing of all the brain power from NOAA, the USGS or other scientific agencies in early morning hours when life and death decisions are being made.

Note: I receive text and twitter feeds of all Tsunami Warning Center bulletins directly from the Tsunami Warning Centers. You can get them as quickly as I do by going to <http://wcatwc.arh.noaa.gov/?page=productRetrieval> and following the signup instructions.

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