

Scientists expect traces of ocean radiation soon

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This Aug. 20, 2013 file photo shows the Fukushima Dai-Ichi nuclear plant at Okuma in Fukushima prefecture, northern Japan. Scientists have crowd-sourced a volunteer network to monitor radiation moving across the Pacific Ocean since the 2011 earthquake and tsunami damaged the plant. (AP Photo/Kyodo News)

Scientists have crowdsourced a network of volunteers taking water samples at beaches along the U.S. West Coast in hopes of capturing a detailed look at low levels of radiation drifting across the ocean since the 2011 tsunami that devastated a nuclear power plant in Japan.

With the risk to public health extremely low, the effort is more about perfecting computer models that will better predict chemical and radiation spills in the future than bracing for a threat, researchers say.

Federal agencies are not sampling at the beach. The state of Oregon is sampling, but looking for higher radiation levels closer to [federal health standards](#), said state health physicist Daryl Leon. Washington stopped looking after early testing turned up nothing, said Washington Department of Health spokesman Donn Moyer.

The March 2011 tsunami off Japan flooded the Fukushima Dai-Ichi nuclear plant, causing radiation-contaminated water to spill into the Pacific. Airborne radiation was detected in milk and rainwater in the U.S. soon afterward. But things move much more slowly in the ocean.

"We know there's contaminated water coming out of there, even today," Ken Buesseler, a senior scientist at the Woods Hole Oceanographic Institution in Massachusetts, said in a video appealing for volunteers and contributions.

In fact, it is the biggest pulse of radioactive liquid dropped in the ocean ever, he said.

"What we don't really know is how fast and how much is being transported across the Pacific," he added. "Yes, the models tell us it will be safe. Yes, the levels we expect off the coast of the U.S. and Canada are expected to be low. But we need measurements, especially now as the plume begins to arrive along the West Coast."

In an email from Japan, Buesseler said he hopes the sampling will go on every two or three months for the next two to three years.

Two different models have been published in peer-reviewed scientific

journals predicting the spread of radioactive isotopes of cesium and iodine from Fukushima. One, known as Rossi et al, shows the leading edge of the plume hitting the West Coast from southeast Alaska to Southern California by April. The other, known as Behrens et al, shows the plume hitting Southeast Alaska, British Columbia and Washington by March 2016.

The isotopes have been detected at very low levels at a Canadian sampling point far out to sea earlier than the models predicted, but not yet reported at the beach, said Kathryn A. Higley, head of the Department of Nuclear Engineering and Radiation Health Physics at Oregon State University. The Rossi model predicts levels a little higher than the fallout from nuclear weapons testing in the 1960s. The Behrens model predicts lower levels like those seen in the ocean in the 1990s, after the radiation had decayed and dissipated.

The models predict levels of Cesium 137 between 30 and 2 Becquerels per cubic meter of seawater by the time the plume reaches the West Coast, Higley said.

The federal drinking water health standard is 7,400 Becquerels per cubic meter, Leon said.

Becquerels are a measure of radioactivity.

The crowdsourcing raised \$29,945 from 225 people, enough to establish about 30 sampling sites in Alaska, British Columbia, Washington and California, according to Woods Hole. The website so far has not reported any radiation.

Sara Gamble of Washington state, the mother of a young child, raised \$500 because she thinks it is important to know what is really going on. Woods Hole sent her a bucket, a funnel, a clipboard, a UPS shipping

label, instructions and a big red plastic container for her sample. She went to Ocean Shores, Washington, a couple of weeks ago, collected her sample and shipped it off. No results have come back yet. To do another sample, she will have to raise another \$500.

"I got lots of strange looks at the beach and the UPS Store, because it's labeled 'Center for Marine and Environmental Radioactivity,' and it's a big red bin," she said. "But it's funny; nobody would ask me anything out on the beach. I was like, 'Aren't you curious? Don't you want to ask?'"

Taking the sample has allayed her initial fears, but she still thinks it is important to know "because it affects our ecosystems, kids love to play in the water at the beach, and I want to know what's there."

More information: On the Web: Details on radiation project:
www.ourradioactiveocean.org

Woods Hole Oceanographic Institution FAQ on Fukushima radiation:
bit.ly/KoFvKk

Video of crowdsource appeal: bit.ly/1krSzLH

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