Radioactive fallout from Fukushima almost non-existent along B.C. coast

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The first traces of radioactive fallout from the Fukushima nuclear plant disaster in Japan four years ago have been detected along the B.C. coast, but the amounts are so tiny they pose no danger to human health or marine ecosystems.

A contaminated sample was collected at a dock in Ucluelet on Feb. 19 and found to contain 1.5 becquerels per cubic metre of cesium-134, the isotope being used as a marker for radioactivity from the Fukushima Daiichi nuclear power plant meltdown in 2011.

"Those units don't mean very much to most people, but for comparison, the maximum allowable concentration that we have in Canadian drinking water, that's set by Health Canada, is 10,000 becquerels per metre cubed," said Jay Cullen, a chemical oceanographer at the University of Victoria and a partner in the research.

The contamination in the samples are "very tiny. … By any international standard or any Canadian standard, the amount of radioactivity that we're seeing is essentially safe."

The amount is so small, in fact, that if someone decided to swim for six hours every day for a year in water that contained twice the level of cesium-134 as found in this sample, that person would receive a radioactive dose more than a thousand times smaller than what is typical from a single dental X-ray.

The Ucluelet sample was collected as part of a crowd-funded program called Our Radioactive Ocean, which was set up by the Woods Hole Oceanographic Institution in the U.S. to monitor the radioactive plume spreading eastward from Japan following the 2011 disaster.

Canadian scientists first detected Fukushima radioactivity 1,500 kilometres west of B.C. in June 2012, more than a year after a huge earthquake triggered the tsunami that flooded the Fukushima Daiichi plant. Since then, a team led by oceanographer John Smith at

Fisheries and Oceans Canada has been monitoring isotope levels and creating models to predict the amounts expected to hit the coast. So far, the news is not troubling.

“The prediction is that we will not approach levels that will present a danger to anybody’s health,” Cullen said, adding that it is also unlikely that marine organisms will be at risk.

“To give some perspective, the levels that we’re measuring now are more than a factor of 10 below what the maximum levels were in the Pacific last century from atmospheric weapons testing. The Northeast Pacific had more radioactive cesium in the ’50s and ’ 60s than we expect to see from Fukushima.”

But scientists studying the spread of radioactive isotopes from Fukushima do have work ahead of them in convincing the public that B.C. waters are safe.

“I do get contacted by lots of individuals who have been exposed to information that’s not scientifically grounded — let’s put it that way. I would say that there’s a small proportion of the public who hold the belief that the Pacific Ocean and our coasts are void of life because of radiation from Fukushima,” Cullen said.

“When we look at the levels that we’re detecting both offshore and now inshore, they simply aren’t high enough to affect marine organisms or human beings in such a negative way.”

The next few months will be crucial for researchers. While predictions about the movement of Fukushima radioactivity have been accurate so far, ocean circulation patterns close to shore make it more difficult to forecast exactly when and where contaminated water will reach land. Cullen’s network of citizen scientist volunteers, Fukushima InFORM, is collecting samples at 14 coastal locations every month, and will be posting results on fukushimainform.ca as soon as they are available.