Water samples detect low levels of Fukushima-related contamination

March 28 2019

Credit: CC0 Public Domain

A slightly elevated level of radioactive contamination connected to the Fukushima nuclear disaster has been detected in the northern Bering Sea. The level of cesium-137, a radioactive isotope, is extremely low and

not considered a health concern, according to state epidemiologists.

The sampling, conducted by residents of St. Lawrence Island, documents the Fukushima plume's northern edge arriving in the Bering Sea for the first time, and shows levels of cesium-137 higher than they were before the 2011 nuclear power plant accident in Japan, Alaska Sea Grant agent Gay Sheffield said.

Cesium-137 is one of the byproducts of nuclear fission and is traceable in the environment. Measurable amounts of radioactive substances have been present in the ocean, including the Bering Sea, for a long time. These come from both naturally occurring and man-made sources, such as nuclear weapons tests and accidental releases from nuclear reactors.

In March 2011, a tsunami damaged Japan's Fukushima Dai-ichi nuclear power plant, sending unprecedented levels of radioactive materials into the Pacific Ocean. St. Lawrence Island residents anticipated that Fukushima-related contamination would eventually reach the Bering Sea based on their knowledge of ocean currents.

"I knew that those Japanese currents would come to our waters and so that's why I volunteered to do the testing," said Eddie Ungott, a resident of Gambell.

Ungott has been collecting seawater samples for several years off the coast of Gambell. He sends them to Sheffield in Nome who then ships them to the Woods Hole Oceanographic Institution in Massachusetts for analysis. During 2014, 2015 and 2017, the lab found very low levels of cesium-137, similar to those prior to the Fukushima nuclear accident. No testing was done in 2016 due to lack of funding.

The 2018 results, however, showed the presence of cesium-137 at levels slightly higher than before accident.

"It's a small uptick but it's enough to confirm it is Fukushima-related, and what the island residents have anticipated since 2011," said Sheffield.

The level of cesium-137 measured in the 2018 seawater sample was found to be 2.4 becquerels per cubic meter (Bq/m3). That's above pre-accident levels, but still thousands of times lower than what the EPA considers unsafe for drinking.

Historically, cesium-137 levels in the Pacific Ocean were below 2.0 Bq/m3. The EPA considers drinking water containing levels of cesium-137 up to 7,400 Bq/m3 to be safe for human consumption.

While the Bering Sea test results are not indicating a health concern, Ungott said he hopes more testing will be carried out.

"We need to know if our marine mammals that we hunt are catching some of this stuff or not," he said.

Provided by Alaska Sea Grant

Citation: Water samples detect low levels of Fukushima-related contamination (2019, March 28) retrieved 28 April 2024 from https://phys.org/news/2019-03-samples-fukushima-related-contamination.html