



# NOAA FISHERIES

## Alaska Region

We did not detect radiation levels that would pose a risk to human health from consumption of northern fur seals by Alaska Natives.

We didn't find any detectable radiation in marine debris.

### Findings:

- The amount of radiation Pribilofians are exposed to as a result of eating fur seals from the area is very, very small, even compared to the small amount of radiation you are exposed to naturally living on St. Paul Island.
- The amounts of radioactive material found within the seal tissues are not enough to cause negative consequences for the seals themselves.

# Results of testing for Fukushima Radiation in northern fur seals on St. Paul Island, AK



Northern fur seals on the Pribilof Islands

### What we tested

In summer 2014, NOAA Fisheries in partnership with Colorado State University collected tissue from northern fur seals harvested from St. Paul Island for lab testing of the radiation levels. We also field-tested marine debris that might have come from Japan.

We detected very small amounts of Fukushima-derived radioactive material in the seal tissue. We didn't find any detectable radiation in the marine debris. The two peaks (green arrows) in the Figure 1 show radiation energy for two isotopes of Cesium; <sup>134</sup>Cs and <sup>137</sup>Cs detected in fur seal muscle along with the remaining naturally occurring peaks for other sources of radiation like Lead-214 and Bismuth-214 (yellow arrows).

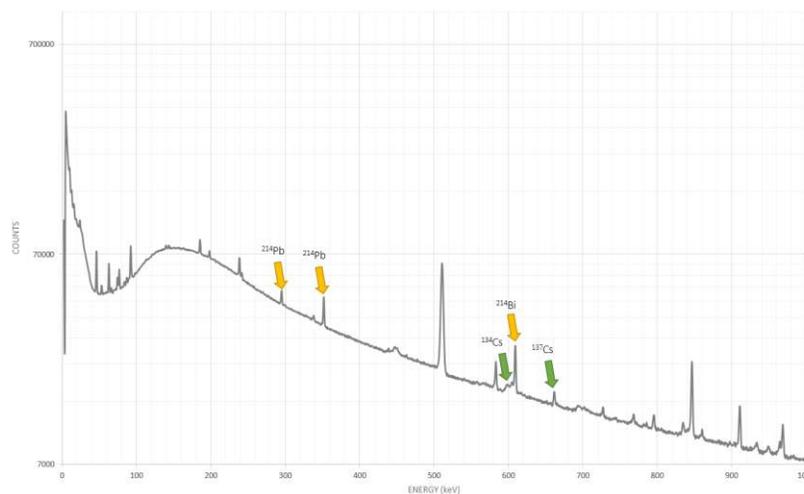


Figure 1. Spectrum of energy levels detected from northern fur seal muscle collected during the subsistence harvest on St. Paul Island, AK, showing Cesium-134 and Cesium-137 Fukushima peaks (green arrows) and select naturally occurring peaks (yellow arrows).

## Research

- NOAA Fisheries partnered with Colorado State University's Department of Environmental and Radiological Health Sciences to conduct this analysis
- Results of this study were published in the Journal of Environmental Radioactivity, Volume 152, lead author E. Ruedig. It included details of previously reported levels of radiation in seals around the world.

## Contacts:

Michael Williams  
907-271-5117 or  
[michael.williams@noaa.gov](mailto:michael.williams@noaa.gov)

Thomas Gelatt  
206-526-4040 or  
[tom.gelatt@noaa.gov](mailto:tom.gelatt@noaa.gov)

Or visit the web for more details about northern fur seals:

<http://alaskafisheries.noaa.gov/protectedresources/seals/fur.htm>

## What does this mean for me?

The amount of radiation you are exposed to as a result of eating fur seals from the area is very, very small compared to the amount of radiation you are exposed to naturally from the sun or x-rays for health diagnosis. You won't be hurt or experience negative consequences as a result of this small amount of radiation exposure.

Additionally, the amounts of radioactive material found within the seal tissues are not enough to cause negative consequences for the seals themselves. At these levels the radiation poses no risk to human health from consumption of northern fur seals by Alaska Natives.

Radiation levels have been quite low in every study conducted to date. Using level of radiation measured in albacore tuna, NOAA calculated that a person would have to eat more than 4,000 pounds of tuna at the highest radiation level measured to increase their radiation level by just 1 percent. The EPA and NOAA concluded the normal or even the most extreme exposure for someone who consumes tuna migrating from Japan presents a minimal health risk. If someone were to swim for 6 hours a day every day of the year in water that contained levels of cesium twice as high as the British Columbia seawater sample, the radiation dose they would receive would still be more than one thousand times less than that of a single dental x-ray. While fur seals and tuna spend their lives in seawater they still do not show exposure levels that pose a risk to their health or the health of consumers.

Table 1. Species and substances tested by NOAA and others for radiation exposure related to the Fukushima accident in Japan.

Area	Species/ Substances	Cesium 134	Minimum Detection Limit	Cesium 137	Minimum Detection Limit
British Columbia	Water	1.4 Bq/m3	Not reported	5.8 Bq/m3	Not reported
East Pacific Ocean	Albacore tuna	0.356 Bq/kg*	Not reported	0.550 Bq/kg*	Not reported
Aleutian Islands/Bering Sea	Pollock**	Not detected	2.12 Bq/kg	Not detected	2.06 Bq/kg
Aleutian Islands/Bering Sea	Halibut	Not detected	1.93 Bq/kg	Not detected	1.82 Bq/kg
Aleutian Islands/Bering Sea	Pacific Cod	Not detected	2.42 Bq/kg	Not detected	1.98 Bq/kg
Bristol Bay	Sockeye Salmon	Not detected	1.92 Bq/kg	Not detected	1.64 Bq/kg
St. Paul Island	Northern fur seal	0.037 Bq/kg	0.026 Bq/kg	0.141 Bq/kg	0.023 Bq/kg
St. Paul Island	Marine Debris***	Not detected	Not reported	Not detected	Not reported

\* These were the highest reported levels in the study of tuna, see Neville, D.R., A.J. Phillips, R.D. Brodeur, and K.A. Higley. 2014. Trace levels of Fukushima Radionuclides in East Pacific Albacore. Environmental Science and Technology 48(9), 4739-4743.

\*\* Three other pollock were sampled and tested with similar results, see <http://dec.alaska.gov/eh/radiation/Docs/May%202015%20Radiation%20Not%20Detected%20in%20Fish%20Charts.pdf>

\*\*\* Marine debris was tested in the field, but not in the lab, and field results would not distinguish Cesium 134 from Cesium 137.