

Maine Sea-vegetable isotope report

Five samples of edible seaweeds were provided for assessment of radionuclide content, with particular attention given to looking for evidence of contamination from the recent events in Japan. The samples were shown to contain radioisotopes common to the marine environment and to all terrestrial vegetation. In particular K-40, the naturally occurring radioisotope of potassium accounted for nearly all of the activity of these samples. Other radioisotopes measured were Bi-214 and Pb-214, these naturally occurring isotopes are found in many varieties of plant material. Values given for shorter lived isotopes, Cs-134 and I-131 represent our efforts to identify possible activity even though no corresponding gamma emission lines are present for these isotopes, see plots. None of the five samples tested were shown to contain evidence of recent contamination.

The activities of the samples ranged from 480 Bq/kg to 3200 Bq/kg, and this is well within the range expected for seaweed. For comparison, bananas contain about 150 Bq/kg, spinach is about 250 Bq/kg and again this is almost entirely due to high potassium content and does not represent any risk or potential hazard.

Sample-Isotope	K-40 +/- 10%	Pb-214 +/- 18%	Bi-214 +/- 16%	Cs-137 +/- 25%	Cs-134 +/- 99%	I-131 +/- 99%
#1 Rockweed powder lot #28112092	430.0	1.21	1.39	.183	<.0135	<.100
#2 Kelp leaf lot #61052512	3061	6.14	5.64	.566	<.808	<.725
#3 Kelp powder lot #68110151	1086	1.30	.678	<.204	<.270	<.249
#4 Irish moss powder lot #26001997	466	1.33	.711	<.172	<.0317	<.0905
#5 Dulse flakes lot 46070812	1521	.430	.362	<.114	<.0787	<.122

The samples of whole kelp leaf have shown some elevated activity in the channels associated with Cs-134 at 604KeV, however no secondary lines have been found and this should not be cause for concern. In an effort to confirm or deny the presence of Cs-134, the whole leaf kelp sample has been set aside and will be re-counted in several months to allow for confirmation via the half-life of the isotope in question. Previous samples of whole kelp measure over the summer will also be examined. If you have any questions or would like copies of the spectra, please don't hesitate to contact the lab.