February 21, 2024

Results of ALPS Treated Water Marine Monitoring:
Marine biota survey (carbon-14 in fish) (August, 2023)

1. Outline of survey

(1) Date of sampling

August 23, 2023

(2) Sampling points

3 sampling points on coastal waters in the Fukushima Prefecture

(3) Detail of the survey

・The measurements of radioactive material concentration (carbon-14) in marine biota (fish)

Analysis with target lower limit of detection of 2 Bq/kg-fresh.

*A target lower limit of detection means a value that is set for quality control to assure at least the detection up to the value when analysis is conducted. Each actual lower limit of detection differs according to samples, and is equal to or lower than a target lower limit of detection.

2. Outline of results

(1) Marine biota survey (3 sampling points (9 samples))

Concentrations of carbon-14 in the marine biota (fish) range from 18 Bq/kg-fresh to 25 Bq/kg-fresh.

These results were approximately equal to results of carbon-14 analysis in seawater conducted in past surveys.

The range of carbon-14 specific radioactivity of marine biota in this survey.

230 Bq/kg-carbon to 240 Bq/kg-carbon (18 Bq/kg-fresh to 25 Bq/kg-fresh)

The range of carbon-14 specific radioactivity of seawater in past surveys.

240 Bq/kg-carbon to 250 Bq/kg-carbon (0.0047 Bq/L to 0.0061 Bq/L)

* In this survey, some of the samples collected in small quantities were mixed with multiple fish species (usually one fish species per sample).

* A specific radioactivity means the radioactivity per unit mass of a substance containing radioactive isotopes. In the case of Bq/kg-carbon above, it represents the radioactivity per 1 kg of carbon in the sample. Since the units of measurement for marine biota and seawater are different and it is difficult to compare radioactivity concentrations due to differences in the carbon content rate in samples of marine biota, specific radioactivity is also shown as reference information.

(Detailed are attached)

(Maps attached)

Attachment

Analysis results for carbon-14 in marine biota (fish)

Sampling point	Sampling date (yyyy/mm/dd)	Species	Sampling depth (m)	Nuclide	Radioactivity concentration※1,※2			Unit
E-SF1	2023/08/23	*Myliobatis tobijei*	-	C-14	23	±	0.35	Bq/kg-fresh
E-SF1	2023/08/23	*Hemitrygon akajei*	-	C-14	22	±	0.34	Bq/kg-fresh
E-SF1	2023/08/23	Mixed fishes	-	C-14	25	±	0.38	Bq/kg-fresh
E-SF2	2023/08/23	*Paralichthys olivaceus*	-	C-14	25	±	0.38	Bq/kg-fresh
E-SF2	2023/08/23	*Okamejei schmidti*	-	C-14	21	±	0.32	Bq/kg-fresh
E-SF2	2023/08/23	*Squatina japonica*	-	C-14	24	±	0.36	Bq/kg-fresh
E-SF3	2023/08/23	*Paralichthys olivaceus*	-	C-14	25	±	0.37	Bq/kg-fresh
E-SF3	2023/08/23	*Okamejei schmidti*	-	C-14	18	±	0.28	Bq/kg-fresh
E-SF3	2023/08/23	*Myliobatis tobijei*	-	C-14	23	±	0.36	Bq/kg-fresh

*1 Radioactivity concentrations are presented as radioactivity concentration ± combined standard uncertainty.

*2 Values below detection limit are shown by lower limit of detection (e.g., “<10 Bq/ kg-fresh” indicates a value lower than 10 Bq/ kg-fresh).

(Attachment)

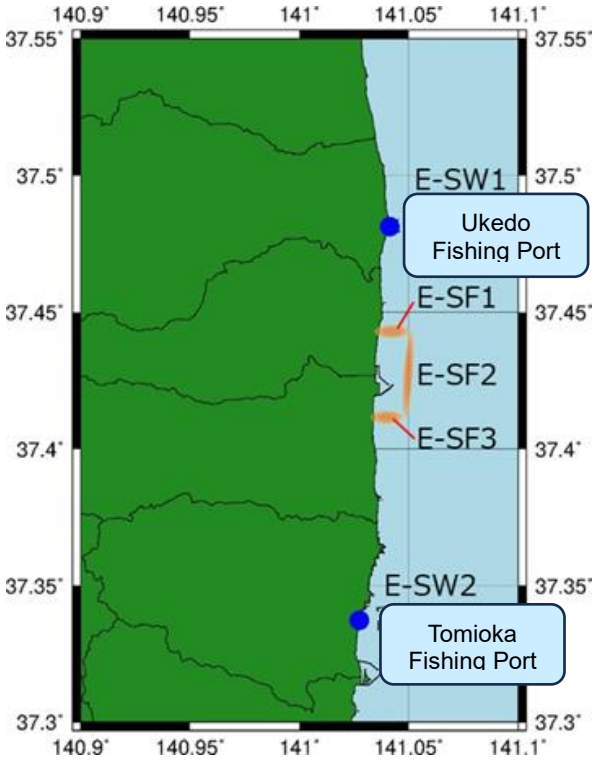

Fig. 1 Sampling points of marine biota (fish and seaweed)