

Nuclide Analysis Results of Fish and Shellfish
<Ocean Area Within 20km Radius of Fukushima Daiichi Nuclear Power Station>
 Samples collected in the fourth quarter of FY2016

[Measurement results of Sr-90 (half-life approx. 29 years) in fish]

(Data summarized on July 13)

Name of Sample (Region)	Place of Sampling (Place No.)	Date of Sampling	Radioactivity Concentration [Bq/kg(Raw)] (Half-life)	
			Sr-90 *1 (Approx. 29 years)	Reference*1 (Sum of Cs-134 and Cs-137)
Black seabream *2 (whole)	Around 2km Offshore of Kido River (T-S5)	Jan.28, 2017	(1st time) 27	50.2
			(2nd time) 30	
Fox jacopever (whole) *3	Around 2km Offshore of Fukushima Daini (T-S7)	Jan.28, 2017	0.37	28.3
White rockfish (whole) *2	Around 2km Offshore of Fukushima Daini (T-S7)	Jan.28, 2017	0.26	47.6
Japanese angel shark (whole) *2	Around 4km Offshore of Kumagawa (T-S8)	Jan.16, 2017	0.06	69.7
Japanese angel shark (whole) *3	Around 3km Offshore of Ukedo River (T-S3)	Jan.28, 2017	0.026	40.2

*1 The sum of Cs-134 and Cs-137 radioactivity concentrations as a standard value (since April 1, 2012) is 100Bq per kg.

*The Sr-90 analysis was conducted by *2KANSO CO., LTD. and by *3Kyushu Environmental Evaluation Association.

*4The Highest Dose to date which was measured by TEPCO. Second measurement was carried out by using a same sample as first measurement.

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[Measurement results of Tritium (half-life approx. 12 years) in fish]

Place of Sampling(Place No.): Around 4km Offshore of Kumagawa (T-S8)

(Data summarized on July 13)

Name of Sample (Region)	Date of Sampling	Tritium concentration (Bq/L)		Tritium concentration (Bq/kg (Raw))		Reference (Sum of Cs-134 and Cs-137) (Bq/kg (Raw))
		Free Water Tritium	Organically Bound Tritium	Free Water Tritium	Organically Bound Tritium	
Flatfish(muscle)	Jan. 16, 2017	0.057	ND(0.23)	0.045	ND(0.032)	ND
Flatfish(muscle)	Mar. 7, 2017	0.069	ND(0.23)	0.053	ND(0.034)	ND
/	/	/	/	/	/	/

Reference

	Date of Sampling	Tritium concentration (Bq/L)
Around 4km Offshore of Kumagawa (T-S8) Seawater	Jan. 15, 2017	0.072
	Feb. 27, 2017	0.043
	Mar. 6, 2017	0.073

*The sum of Cs-134 and Cs-137 radioactivity concentrations as a standard value (since April 1, 2012) is 100Bq per kg.

*The tritium analysis was conducted by Kyushu Environmental Evaluation Association.

*Edible parts of fish were used for the measurement.

*Free Water Tritium means tritium which is contained in the moisture of fish muscles and the values are compared with tritium concentrations in seawater where fish lives.

Organically Bound Tritium means tritium which is contained in dried fish muscles and the values show tritium concentrations in the vapor generated when dried fish is burned.

*The measurement results are calculated to two significant figures.

*ND, not detected, indicates that a value is less than the detection limit of a radioactive concentration. The detection limit is provided in parenthesis.

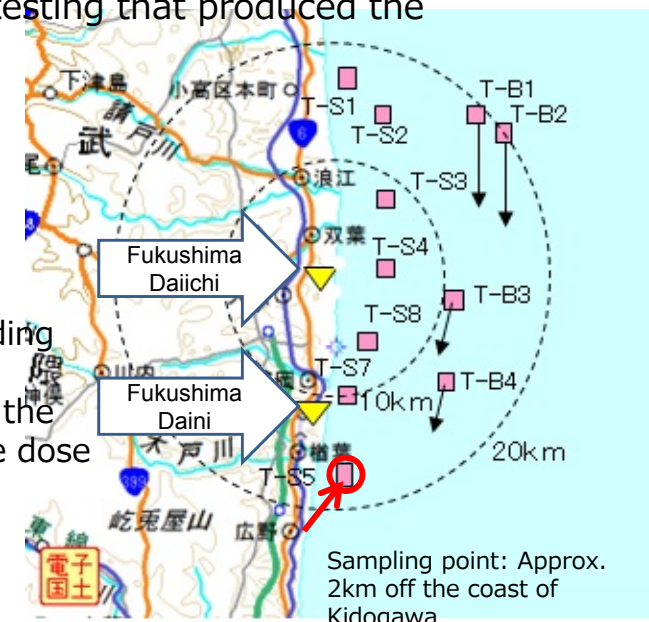
* On February 2017, sampling could not be conducted.

Results of radionuclide tests on black seabream taken from within a 20km radius of Fukushima Daiichi

- At current time black seabream are one of the types of fish prohibited from being brought to market from off the coast of Fukushima Prefecture
- In accordance with the comprehensive monitoring plan, a black seabream taken on January 28, 2017 from within a 20km radius of Fukushima Daiichi was subjected to radionuclide testing that produced the following results.

(Bq/kg raw fish)

Cesium 134	Cesium 137	Cesium total	Strontium 90 (1 st test) (2 nd test)	
7.2	43	50.2	27	30



- ✓ Only the edible parts of the fish were checked for Cesium while the entire fish, including bones, was checked for Strontium (excluding the organs)
- ✓ If 200g* of black seabream (including bones but excluding organs) were consumed, the consumer would get a dose of approximately 0.00031mSv, which is about 1/160 the dose received when getting a chest x-ray (approx. 0.05mSv).
 - ※ Defined based on the average dietary intake of seafood
- Since the black seabream sampled was 50.6cm in total length and weighed 2.24kg it is assumed that it was alive prior to the disaster
- The low concentration of Strontium in the seawater infers that the concentration of Strontium in newly born fish should not be higher than it was in this black seabream.
- Since February 2013 countermeasures have been implemented at the Fukushima Daiichi Nuclear Power Station to prevent fish from entering and leaving the port, such as erecting a gillnet at the port entrance
- Black seabream sampled in the future from within a 20km radius of Fukushima Daiichi will all be tested, regardless of the current Cesium concentrations, and we will continue to notify you of the results of radionuclide testing from within the 20km radius and inside the port.

(Reference) Strontium tests on fish taken from within a 20km radius of Fukushima Daiichi

- Each quarter five specimens with the highest Cesium concentration levels are tested for Strontium
- As of the end of FY2016, 99 specimens had been tested including those mentioned in this report
- This is the first time that black seabream were tested