

OResults of Radioactive Material Monitoring of Aquatic Organisms (Location M off Iwaki City)

<Location M off Iwaki City: Samples collected>

Items	General items		Radioactive materials			
	Water	Sediment	Water (Cs)	Water (Sr)	Sediment (Cs)	Sediment (Sr)
M-2	○	○	○	○	○	○

<Location M off Iwaki City: Site measurement item>

Items	Latitude and longitude of the location		Survey date and time			Water	Sediment				Other	
	Latitude	Longitude	Date	Time (water)	Time (sediment)	Water temperature (degrees C)	Sediment temperature (degrees C)	Property	Color	Contaminants	Water depth (m)	Secchi disk depth (m)
M-2(Surface layer)	37.1996°	141.0853°	2021/8/24	08:18	08:27	23.4	19.0	Sand	5Y3/2	Shell fragments	42.5	7.0
M-2(Bottom layer)				07:51		15.7						

<Location M off Iwaki City: General survey items/Analysis of radioactive materials Water>

Items	Latitude and longitude of the location		Survey date and time		pH	BOD (mg/L)	COD (mg/L)	DO (mg/L)	Electric conductivity (mS/m)	Salinity	TOC (mg/L)	SS (mg/L)	Turbidity (FNU)	Cs-134 (Bq/L)	Cs-137 (Bq/L)	Sr-90 (Bq/L)
	Latitude	Longitude	Date	Time (water)												
M-2(Surface layer)	37.1996°	141.0853°	2021/8/24	08:18	8.2	0.7	1.7	7.8	4800	32.56	1.1	<1	0.9	N.D.(0.0014)	0.0039	-
M-2(Bottom layer)				07:51	8.0	0.8	1.6	7.3	5010	34.23	1.0	<1	0.4	N.D.(0.0015)	0.0023	0.0011

(Note) N.D. means to be below the detection limit and figures in parentheses show the detection limit.

<Location M off Iwaki City: General survey items/Analysis of radioactive materials Sediment>

Items	Latitude and longitude of the location		Survey date and time		pH	Redox potential E _{NHE} (mV)	Water content (%)	IL (%)	TOC (mg/g-dry)	Soil particle density (g/cm ³)	Grain size distribution								Cs-134 (Bq/kg-dry)	Cs-137 (Bq/kg-dry)	Sr-90 (Bq/kg-dry)
	Latitude	Longitude	Date	Time (sediment)							Gravel (2-75mm) (%)	Coarse sand (0.85-2mm) (%)	Medium sand (0.25-0.85mm) (%)	Fine sand (0.075-0.25mm) (%)	Silt (0.005-0.075mm) (%)	Clay (Less than 0.005mm) (%)	Median grain diameter (mm)	Maximum grain diameter (mm)			
											M-2	37.1996°	141.0853°	2021/8/24	08:27	7.7	270	22.8			

(Note) N.D. means to be below the detection limit and figures in parentheses show the detection limit.

<Location M off Iwaki City: Analysis items Aquatic organisms>

Locations	Sampling point	Latitude and longitude of the location		Sampling date	Division	Class	Order	Family	Scientific name	English name	Population	Sample weight (kg-wet)	Note			Radioactive cesium (Bq/kg-wet)			Sr-90 (Bq/kg-wet)
		Latitude	Longitude										Growth stage	Stomach contents	Measurement site	Total	Cs-134	Cs-137	
M-1 M-2 M-3	Offshore of Hisanohama	37.1736° 37.1996° 37.2324°	141.0788° 141.0853° 141.0935°	2021/8/24	Mollusca	Cephalopoda	Decapodiformes	Ommastrephidae	<i>Japanese flying squid</i>	Japanese flying squid	2	0.20	Juvenile	-	-	0.97	N.D.(0.69)	0.97	-
					Mollusca	Cephalopoda	Decapodiformes	Sepiidae	<i>Sepia andreana</i>	Sepia andreana	9	0.13	Juvenile	-	-	N.D.	N.D.(0.48)	N.D.(0.48)	-
					Mollusca	Cephalopoda	Decapodiformes	Loliginidae	<i>Lololus japonica</i>	Japanese squid	97	0.44	Juvenile	-	-	N.D.	N.D.(0.27)	N.D.(0.28)	-
					Mollusca	Cephalopoda	Octopoda	Octopodidae	<i>Octopus vulgaris</i>	Common octopus	1	0.048	Juvenile	-	-	N.D.	N.D.(0.83)	N.D.(0.75)	-
					Echinodermata	Asteroidea	Forcipulata	Asteriidae	<i>Asterias amurensis</i>	Northern pacific seastar	3	0.75	Imago	-	-	0.42	N.D.(0.25)	0.42	-
					Vertebrata	Osteichthyes	Scorpaeniformes	Triglidae	<i>Lepidotrigla microptera</i>	Searobin	6	1.2	Immature fish, Mature fish	Shrimp, Crab, Ragworm	Viscera removed	1.3	N.D.(0.82)	1.3	0.027
					Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectidae	<i>Pleuronichthys japonicus</i>	Finespotted flounder	4	0.48	Immature fish, Mature fish	Ragworm	Viscera removed	0.68	N.D.(0.58)	0.68	-
					Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectidae	<i>Pleuronectes herzensteini</i>	Yellow striped flounder	3	0.47	Immature fish	Empty stomach	Viscera removed	0.78	N.D.(0.55)	0.78	-
					Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectidae	<i>Pleuronectes yokohamae</i>	Marbled sole	3	0.49	Immature fish	Shrimp, Ragworm	Viscera removed	0.82	N.D.(0.34)	0.82	-
					Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectidae	<i>Eopsetta grigorjewi</i>	Shotted halibut	1	0.14	Immature fish	Empty stomach	Viscera removed	0.73	N.D.(0.40)	0.73	-
					Vertebrata	Osteichthyes	Perciformes	Carangidae	<i>Whitefin trevally</i>	Whitefin trevally	3	0.13	Immature fish	Shrimp	Viscera removed	1.0	N.D.(0.77)	1.0	-
					Vertebrata	Osteichthyes	Perciformes	Sparidae	<i>Eynniss japonica</i>	Crimson sea-bream	3	0.94	Immature fish, Mature fish	Shrimp	Viscera removed	0.41	N.D.(0.28)	0.41	-
					Vertebrata	Osteichthyes	Perciformes	Sparidae	<i>Pagrus major</i>	Red seabream	1	0.83	Immature fish	Empty stomach	Viscera removed	0.43	N.D.(0.37)	0.43	-
					Vertebrata	Osteichthyes	Zeiformes	Zeidae	<i>Zenopsis nebulosa</i>	Dory	5	0.29	Immature fish	Empty stomach	Viscera removed	0.36	N.D.(0.24)	0.36	-
Vertebrata	Chondrichthyes	Rajiformes	Rajidae	<i>Okamejet kenajei</i>	Common skete	3	2.4	Immature fish	Shrimp, Crab	Viscera removed	1.0	N.D.(0.75)	1.0	0.016					
M-4	Hisanohama Coastal areas	-	-	2021/8/24	Algae/plant	Phaeophyceae	Laminariales	Laminariaceae	<i>Eisenia bicyclis</i>	Eisenia bicyclis	-	0.30	-	-	0.25	N.D.(0.25)	0.25	-	
					Mollusca	Gastropoda	Archaeogastropoda	Haliotidae	<i>Haliotis sp.</i>	Abalone	3	0.29	Imago	-	Molluscos part	N.D.	N.D.(0.30)	N.D.(0.31)	-
					Echinodermata	Echinoidea	Echinoida	Strongylocentrotidae	<i>Strongylocentrotus nudus</i>	Northern sea urchin	7	0.65	Imago	-	-	N.D.	N.D.(0.32)	N.D.(0.34)	-

*1: Organisms were collected in or around the targeted water areas.

*2: When multiple types of aquatic organisms were collected, a sample was prepared by mixing them.

*3: For a sample made of multiple types of aquatic organisms, the English name of the dominant one largest in number is underlined.

*4: Basically, measurement was conducted for all organism samples. Viscera (stomach and bowels) were removed for the measurement when possible so that undigested food and sediments, etc. in the digestive system would be excluded.

*5: Plankton (suspended algae) is the residue remaining after the filtration of lake water or seawater with a plankton net (40µm-mesh).

*6: River bottom materials (incl. algae) are algae, etc. that were scratched off stones with a brush, etc. and may include very fine particles such as inorganic silt and clay.

*7: N.D. means to be below the detection limit and figures in parentheses show the detection limit.

*8: Activity concentrations include counting errors, but the details are omitted here.