

○Results of Radioactive Material Monitoring of Aquatic Organisms (Locations M off the mouth of the Iwaki City)

< Location M off Iwaki City (Hisanohama): Samples collected >

Items Locations	General items		Radioactive materials			
	Water	Sediment	Water (Cs)	Water (Sr)	Sediment (Cs)	Sediment (Sr)
M-1	○	○	○	○	○	○
M-2	○	○	○	○	○	○
M-3	○	○	○	○	○	○
M-4	○	○	○	○	○	○

< Location M off Iwaki City (Hisanohama): Site measurement item >

Items Locations	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-1	37.173617°	141.078800°	2014/7/18	—	8:41	—	13.4	Sand	10Y4/1	Shell fragments	—	—		
M-2	37.199600°	141.085300°		9:06	9:46	18.2	13.6	Fine sand	10Y5/1	Shell fragments	41.0	15.2		
M-3	37.232417°	141.093517°		—	10:17	—	13.6	Fine sand	10Y5/1	Shell fragments	—	—		
M-4	37.154650°	141.001550°		—	—	—	—	—	—	—	—	—		

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

Items Locations	Latitude and longitude of the location		Survey date and time		pH	BOD (mg/L)	COD (mg/L)	DO (mg/L)	Electrical 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												
M-2 (Surface layer)	37.199600°	141.085300°	2014/7/18	9:06	8.1	<0.5	1.4	8.9	4.250	32.96	1.0	<1	<0.2	N.D.(0.0016)	0.0049	—
M-2 (Deep layer)	—	—		—	—	8.0	<0.5	1.4	9.0	4.320	33.61	0.9	<1	<0.2	0.0028	0.0076

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

Items Locations	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							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-1	37.173617°	141.078800°	2014/7/18	8:41	8.0	102	30.3	2.0	1.2	2.761	0.0	0.5	2.0	88.9	1.8	6.8	0.15	2	19	51	—
M-2	37.199600°	141.085300°		9:46	8.0	124	26.7	2.0	1.1	2.792	0.0	0.9	2.2	92.2	0.3	4.4	0.16	2	16	45	N.D.(0.16)
M-3	37.232417°	141.093517°		10:17	7.9	115	28.4	2.1	1.6	2.779	0.6	1.1	3.8	87.6	1.9	5.0	0.16	4.75	37	94	—

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

< Location M off Iwaki City (Hisanohama): Survey items Aquatic organisms >

Location	Latitude and longitude of the location		Sampling Date	Division	Class	Order	Family	Species name	English name	Population	Sample weight (kg-wet)	Note			Cs-134 (Bq/kg-wet)	Cs-137 (Bq/kg-wet)	Sr-90 (Bq/kg-wet)			
	Latitude	Longitude										Growth stage	Stomach contents	Measurement site						
M-1 M-2 M-3 M-4	Hisanohama Coastal areas	37.173617° 141.078800°	2014/7/18	Phaeophyta	Phaeophyceae	Fucales	Sargassaceae	<i>Sargassum horneri</i>	Sargassum horneri	Considerable number	4.2	—	—	—	2.1	6.1	—			
				Heterokontophyta	Phaeophyceae	Laminariales	Laminariaceae	<i>Laminaria sp.</i>	Laminaria sp.	Considerable number	9.8	—	—	—	0.17	0.54	—			
				Echinoderm	Echinozoa	Echinozoa	Strongylocentrotidae	<i>Strongylocentrotus nudus</i>	Northern sea urchin	22	2.2	Imago	—	—	—	0.75	2.4	4.4		
				Offshore of Hisanohama	Echinoderm	Echinozoa	Echinozoa	Phymosomatidae	<i>Glyptocidaris crenularis</i>	Sea urchin	15	0.92	Imago	—	—	—	2.7	7.4	—	
				Offshore of Hisanohama	Echinodermata	Holothuroidea	Aspidochirotdia	Stichopodidae	<i>Apostichopus japonicus</i>	Japanese common sea cucumber	3	0.35	Imago	—	—	—	0.86	1.6	—	
				Offshore of Hisanohama	Echinodermata	Asteroidea	Forcipulatida	Asteriidae	<i>Distolasterias nipon</i>	Distolasterias nipon	3	1.7	Imago	—	—	—	N.D.(0.31)	N.D.(0.28)	—	
				Hisanohama Coastal areas	Mollusca	Gastropoda	Archaeogastropoda	Halotiina	<i>Halotis discus</i>	Abalone	8	1.4	Imago	—	—	—	Molluscan body	0.78	2.2	—
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Lophiiformes	Lophiidae	<i>Lophiomus setigerus</i>	Monkfish	1	1.4	Mature fish (7-year-old)	Empty stomach	Viscera removed	0.28	0.64	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Pseudopleuronectes herzensteini</i>	Yellow striped flounder	7	2.5	Mature fish (2,3,4-year-old)	Shellfish	Viscera removed	1.9	5.0	0.064		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Righteye flounder</i>	Shotted halibut	7	2.5	Mature fish (2,3,4-year-old)	Crustaceans	Viscera removed	0.49	2.1	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Pleuronectes yokohamae</i>	Marbled sole	8	5.6	Mature fish (3,4-year-old)	Polychaeta	Viscera removed	2.2	6.0	0.062		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Pleuronectiformes	Paralichthyidae	<i>Paralichthys olivaceus</i>	Bastard halibut	3	6.7	Mature fish (3,4,5-year-old)	Fish	Viscera removed	1.3	3.5	N.D.(0.019)		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Scorpaeniformes	Hexagrammidae	<i>Hexagrammos otakii</i>	Fat greenling	2	1.3	Mature fish (4,6-year-old)	Crustaceans	Viscera removed	5.2	14	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Scorpaeniformes	Triglididae	<i>Lepidotrigla microptera</i>	Scarabin	12	1.9	Mature fish (3-year-old)	Crustaceans, Polychaeta	Viscera removed	0.40	1.8	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Perciformes	Polypriodontidae	<i>Sterolepis doederleini</i>	Striped jewfish	1	1.1	Mature fish (3-year-old)	Empty stomach	Viscera removed	0.62	1.8	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Perciformes	Carangidae	<i>Trachurus japonicus</i>	Japanese jack mackerel	1	0.52	Mature fish (4-year-old)	Fish	Viscera removed	0.53	1.2	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Perciformes	Sparidae	<i>Eynniss japonica</i>	Crimson sea-bream	4	1.0	Mature fish (4-year-old)	Crustaceans	Viscera removed	0.72	1.9	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Tetraodontiformes	Tetraodontidae	<i>Takifugu porphyreus</i>	Purple puffer	1	0.67	Mature fish	Empty stomach	Viscera removed	0.47	1.1	—		
				Offshore of Hisanohama	Vertebrata	Osteichthyes	Zeiformes	Zeidae	<i>Zenopsis nebulosa</i>	Dory	5	0.23	Mature fish	Some (details unknown)	Viscera removed	0.41	0.57	—		
				Offshore of Hisanohama	Vertebrata	Chondrichthyes	Carcharhiniformes	Triakidae	<i>Mustelus manazo</i>	Star-spotted smooth-hound	3	4.7	Mature fish	Crustaceans	Viscera removed	4.8	14	0.037		
Offshore of Hisanohama	Vertebrata	Chondrichthyes	Rajiformes	Rajidae	<i>Okamejei konojei</i>	Skate	5	4.1	Mature fish	Crustaceans	Viscera removed	14	41	0.26						

*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 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: A statement in red in the "Growth stage" column shows the age assessed based on squama or otolith

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

*7: 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.

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

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