

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

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

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>

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	37.1734°	141.0785°	2014/10/29	—	8:25	—	16.6	Fine sand	10Y3/2	Shell fragments	—	—
M-2	37.1992°	141.0863°		9:20	9:32	16.6	16.6	Fine sand	10Y3/2	Shell fragments	42.0	6.5
M-3	37.2321°	141.0939°		—	9:58	—	16.7	Fine sand	10Y3/2	Shell fragments	—	—
M-4	37.1547°	141.0016°		—	—	—	—	—	—	—	—	—

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

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												
M2 (Surface layer)	37.1992°	141.0863°	2014/10/29	9:20	8.1	<0.5	1.4	8.2	5,080	33.02	0.9	5	1.0	0.0037	0.012	—
M2 (Deep layer)				8:50	8.0	<0.5	1.2	7.7	5,240	33.60	0.8	6	0.9	0.0041	0.014	0.00088

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

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	37.1734°	141.0785°	2014/10/29	8:25	8.0	276	27.8	1.8	1.8	2,755	0.0	0.2	1.3	91.0	4.3	3.2	0.16	2	9.1	35	—	
M-2	37.1992°	141.0863°		9:32	8.3	269	25.6	1.8	2.1	2,811	1.9	1.0	2.5	89.1	3.2	1.9	3.2	0.16	9.5	10	50	N.D.(0.16)
M-3	37.2321°	141.0939°		9:58	8.2	267	24.0	1.8	2.9	2,784	1.1	3.0	91.4	3.0	1.5	1.5	0.16	2	16	48	—	

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>

Locations	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	37.1734°	141.0785°	2014/10/29	Phaeophyta	Phaeophyceae	Laminariales	Alariaceae	<i>Undaria undarioides</i>	Undaria undarioides (Yendo)	considerable number	1.1	—	—	—	0.47	1.7	—		
	Hisanohama Coastal areas				Echinoderm	Echinoidea	Echinoidea	Strongylocentrotidae	<i>Strongylocentrotus nudus</i>	Northern sea urchin	35	3.1	Imago	—	—	—	0.92	2.5	4.4	
	Offshore of Hisanohama				Echinodermata	Asteroida	Forcipulatida	Asteriidae	<i>Distolasterias nipon</i>	Japan starfish	4	1.6	Imago	—	—	—	N.D.(0.29)	N.D.(0.27)	—	
	Offshore of Hisanohama				Arthropod	Malacostraca	Decapoda	Portunidae	<i>Portunus trituberculatus</i>	Japanese blue crab	3	1.1	Imago	—	—	—	0.56	1.1	—	
	Hisanohama Coastal areas				Mollusca	Gastropoda	Archaeogastropoda	Haliotis asinina	<i>Haliotis discus</i>	Abalone	6	1.5	Imago	—	—	—	Molluscan body	N.D.(0.40)	0.53	—
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Scorpaeniformes	Triglidae	<i>Lepidotrigla microptera</i>	Gurnard	12	1.5	Mature fish (3-year-old)	Shrimps, crabs, immature octopus	Viscera removed	0.49	1.2	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Scorpaeniformes	Triglidae	<i>Chelidonichthys spinosus</i>	Gurnard (small)	3	0.44	Mature fish (2-year-old)	Shrimps, amphipod	Viscera removed	0.44	1.4	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Scorpaeniformes	Triglidae	<i>Chelidonichthys spinosus</i>	Gurnard (large)	5	2.0	Mature fish (4-year-old)	Shrimps	Viscera removed	0.73	1.8	N.D.(0.018)		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Kareius bicoloratus</i>	Stone flounder	2	0.82	Mature fish (5-year-old)	Isopoda	Viscera removed	0.64	2.2	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectidae	<i>Pleuronichthys</i> sp.	Finespotted flounder	5	0.47	Mature fish	Sandworms, crustaceans	Viscera removed	0.62	1.8	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Pleuronectes yokohamae</i>	Marbled sole	5	3.2	Mature fish (4-year-old)	Sandworms, amphipod	Viscera removed	1.7	5.7	0.049		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Pleuronectiformes	Paralichthyidae	<i>Paralichthys olivaceus</i>	Bastard halibut	3	3.8	Mature fish (5-year-old)	Many unknown content	Viscera removed	0.55	1.7	N.D.(0.019)		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Perciformes	Sparidae	<i>Eynniss japonica</i>	Crimson sea-bream	8	0.48	Mature fish (2-year-old)	Gammaridea	Viscera removed	1.1	3.7	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Perciformes	Sparidae	<i>Eynniss japonica</i>	Crimson sea-bream	3	1.1	Mature fish (4-year-old)	Clams, crabs	Viscera removed	0.52	1.7	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Perciformes	Sparidae	<i>Pagrus major</i>	Red seabream	1	1.3	Mature fish (4-year-old)	Clams, snails	Viscera removed	0.65	2.2	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Perciformes	Sciaenidae	<i>Pennahia argentea</i>	White croaker	11	1.6	Mature fish (3-year-old)	Fish	Viscera removed	N.D.(0.30)	1.1	—		
	Offshore of Hisanohama				Vertebrata	Osteichthyes	Zeiformes	Zeidae	<i>Zeus faber</i>	John dory	5	3.0	Mature fish (4-year-old)	Fish, shrimps	Viscera removed	N.D.(0.39)	0.65	N.D.(0.018)		
	Offshore of Hisanohama				Vertebrata	Chondrichthyes	Squatiniiformes	Squatiniidae	<i>Squatina japonica</i>	Japanese angelshark	1	2.3	Mature fish	Some (details unknown)	Viscera removed	2.2	6.7	0.027		
	Offshore of Hisanohama				Vertebrata	Chondrichthyes	Rajiformes	Rajidae	<i>Okamejei kenjei</i>	Skate	6	3.5	Mature fish	Shrimps, fish	Viscera removed	3.1	9.3	0.16		
	Offshore of Hisanohama				Vertebrata	Chondrichthyes	Carcharhiniformes	Triakidae	<i>Mustelus manazo</i>	Starspotted smooth-hound	3	2.9	Mature fish	Crabs, echinurod, squillas	Viscera removed	0.83	1.8	N.D.(0.017)		

*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.