

OResults 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	-	○	-	-	○	-

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

Locations	Latitude and longitude of the location		Survey date and time		Water		Sediment				Other	
	Scheduled latitude	Scheduled longitude	Date	Time (water)	Time (sediment)	Water temperature (degrees C)	Sediment temperature (degrees C)	Property	Color	Contaminants	Water depth (m)	Transparency (m)
M-1	37.1736°	141.0788°	2015/12/6	-	07:50	-	15.4	Fine sand	10Y3/2	Shell fragment	-	-
M-2(Surface layer)	37.1996°	141.0853°		08:28	08:35	15.3	15.4	Fine sand	10Y3/2	Shell fragment	43.5	8.5
M-2(Deep layer)	37.1996°	141.0853°		08:10	-	15.3	-	-	-	-	-	-
M-3	37.2324°	141.0935°	-	-	09:00	-	15.4	Fine sand	10Y3/2	Shell fragment	-	-

< 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)
	Scheduled latitude	Scheduled longitude	Date	Time (water)												
M-2(Surface layer)	37.1996°	141.0853°	2015/12/6	8:28	8.0	<0.5	0.8	7.9	5190	34.01	0.7	<1	0.4	0.0015	0.0062	-
M-2(Deep layer)	37.1996°	141.0853°		8:10	8.0	<0.5	0.8	7.7	5270	34.12	0.7	<1	0.3	N.D.(0.0011)	0.0063	0.0011

< 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 EN.H.E (mV)	Water content (%)	IL (%)	TOC (mg/g-dry)	Soil particle density (g/cm3)	Grain size distribution						Cs-134 (Bq/kg-dry)	Cs-137 (Bq/kg-dry)	Sr-90 (Bq/kg-dry)		
	Scheduled latitude	Scheduled 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	Maximum grain diameter
M-1	37.1736°	141.0788°	2015/12/6	7:50	7.6	134	27.1	1.9	1.9	2.737	0.0	0.4	2.1	91.2	3.2	3.1	0.15	2.0	16	71	-
M-2	37.1996°	141.0853°		8:35	7.6	231	26.4	1.4	1.8	2.765	0.0	0.4	2.2	90.4	3.7	3.3	0.15	2.0	20	74	N.D.(0.16)
M-3	37.2324°	141.0935°		9:00	7.7	241	24.9	1.5	2.4	2.772	0.0	0.7	2.3	91.8	2.3	2.9	0.15	2.0	17	71	-

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

Location	Sampling point	Latitude and longitude of the location		Sampling Date	Division	Class	Order	Family	Species 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	Cs-134	Cs-137								
M-1 M-2 M-3	Offshore of Hisanohama	37.1736°	141.0788°	2015/12/6	Mollusca	Cephalopoda	Decapodiformes	Sepiidae	<i>Sepia andrea</i>	Ezohariika	7	0.24	Imago	-	-	-	N.D.(0.29)	N.D.(0.33)	-						
											Mollusca	Cephalopoda	Octopoda	Octopodidae	<i>Octopus vulgaris</i>	Common octopus	2	5.0	Imago	-	-	N.D.(0.31)	0.28	-	
											Echinodermata	Asteroida	Forcipulatida	Asteriidae	<i>Asterias amurensis</i>	Northern Pacific seastar	4	0.95	Imago	-	-	N.D.(0.37)	0.55	-	
											Echinodermata	Holothuroidea	Aspidochirotda	Stichopodidae	<i>Apostichopus japonicus</i>	Japanese common sea cucumber	2	0.15	Imago	-	-	-	1.4	7.1	-
											Vertebrata	Osteichthyes	Scorpaeniformes	Triglidae	<i>Chelidonichthys spinosus</i>	Gurnard	3	0.48	Mature fish (2-year-old)	Shrimp	Viscera removed	N.D.(0.55)	1.1	-	
											Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Pleuronichthys japonicus</i>	Finespotted flounder	4	0.70	Mature fish (5-year-old)	Ragworm	Viscera removed	N.D.(0.39)	1.5	-	
											Vertebrata	Osteichthyes	Pleuronectiformes	Paralichthyidae	<i>Paralichthys olivaceus</i>	Bastard halibut	4	5.7	Mature fish (4-year-old)	Amorphous residue	Viscera removed	0.49	1.6	-	
											Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Pleuronectes herzensteini</i>	Yellow striped flounder	13	5.2	Mature fish (5-year-old)	Ragworm, Gammarus, Asteroida	Viscera removed	0.89	2.5	-	
											Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Pleuronectes yokohamae</i>	Marbled sole	3	1.1	Mature fish (3-year-old)	Empty stomach	Viscera removed	0.43	1.0	-	
											Vertebrata	Osteichthyes	Pleuronectiformes	Pleuronectiformes	<i>Eopsetta grigorjevi</i>	Shotted halibut	9	2.8	Mature fish (5-year-old)	Crabs	Viscera removed	0.45	1.9	-	
											Vertebrata	Osteichthyes	Perciformes	Triglidae	<i>Lepidotrigla microptera</i>	Scarabin	5	1.2	Mature fish (3-year-old)	Gammarus	Viscera removed	0.85	2.7	-	
											Vertebrata	Osteichthyes	Perciformes	Lateolabracidae	<i>Lateolabrax japonicus</i>	Japanese sea bass	4	3.3	Mature fish (3-year-old)	Fish	Viscera removed	0.47	2.1	-	
											Vertebrata	Osteichthyes	Tetraodontiformes	Tetraodontidae	<i>Takifugu poecilonotus</i>	Pufferfish	5	1.2	Mature fish	Shellfish	Viscera removed	0.58	2.1	-	
											Vertebrata	Chondrichthyes	Rajiformes	Rajidae	<i>Okamejei konojei</i>	Skate	5	3.7	Mature fish	Shrimp, Shellfish, Crabs	Viscera removed	3.1	13	-	
											Vertebrata	Chondrichthyes	Carcharhiniformes	Triakidae	<i>Mustelus manazo</i>	Star-spotted smooth-hound	1	1.3	Mature fish	Crabs	Viscera removed	0.53	2.8	-	
M-4	Hisanohama Coastal areas	-	-	2015/12/3	Brown algae	Phaeophyceae	Laminariales	Lessoniaceae	<i>Eisenia bicyclis</i>	Eisenia	-	0.32	-	-	-	0.74	2.7	-							
											Mollusca	Gastropoda	Archaeogastropoda	Haliotis asinina	-	4	0.54	Imago	-	-	Molluscan body	N.D.(0.52)	1.0	-	
											Echinoderm	Echinoidea	Echinoidea	<i>Strongylocentrotus nudus</i>	Northern sea urchin	6	0.63	Imago	-	-	N.D.(0.30)	1.3	-		
											Vertebrata	Osteichthyes	Scorpaeniformes	Hexagrammidae	<i>Hexagrammos otakii</i>	Fat greenling	2	0.12	Mature fish (1-year-old)	Shrimp	Viscera removed	0.59	2.9	-	

*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.