

Results of Radioactive Material Monitoring of Aquatic Organisms (Location O along the Tomioka River)

<Location O along the Tomioka River: Samples collected>

Items	General items		Radioactive materials			
	Water	Sediment	Water (Cs)	Water (Sr)	Sediment (Cs)	Sediment (Sr)
O-1	○	○	○	○	○	○
O-2	○	○	○	-	○	-

<Location O along the Tomioka River: 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)	Transparency (cm)
O-1	37.3547°	140.9780°	2021/12/9	13:30	13:30	13.5	13.5	Sand gravel	7.5Y5/3	Plant pieces	0.30	>50
O-2	37.3624°	140.9612°	2021/12/9	14:00	14:00	13.1	12.9	Sand	7.5Y6/3	Plant pieces	0.30	>50

<Location O along the Tomioka River: 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)												
O-1	37.3547°	140.9780°	2021/12/9	13:30	7.4	<0.5	2.2	11.3	8.5	0.05	0.9	8	7.5	N.D.(0.0016)	0.027	0.00082
O-2	37.3624°	140.9612°		14:00	7.5	0.6	2.1	11.6	7.7	0.04	0.9	9	8.8	0.0017	0.042	-

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

<Location O along the Tomioka River: General survey items/Analysis of radioactive materials Sediment>

Items	Latitude and longitude of the location		Survey date and time		pH	Redox potential E _{NHLE} (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)			
O-1	37.3547°	140.9780°	2021/12/9	13:30	7.4	408	24.9	1.9	7.9	2.670	12.7	13.0	38.4	20.0	10.2	5.7	0.39	19	17	560	0.35
O-2	37.3624°	140.9612°		14:00	7.7	418	29.5	2.5	2.8	2.680	0.1	1.0	44.0	43.8	5.5	5.6	0.23	4.8	24	740	-

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

<Location O along the Tomioka River: 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		
O-1	The main stream of the Tomioka River	37.3547°	140.9780°	2021/12/6	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.0041	-	-	-	240	N.D.(1.7)	240	-	
					Arthropoda	Insecta	Ephemeroptera	Isonychiidae	<i>Isonychia valida</i>	Isonychia valida	602	0.022	Larva	-	-	-	48	N.D.(5.3)	48	-
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena	20	0.010	Larva(Dragonfly larva)	-	-	-	9.7	N.D.(3.5)	9.7	-
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Stylogomphus suzukii</i>	Stylogomphus suzukii										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Sieboldius albardae										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	Davidius										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sinogomphus flavolimbatus</i>	Sinogomphus flavolimbatus										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaenops</i>	Asiagomphus melaenops										
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	Boyeria maclachlani										
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Protohermes grandis	33	0.017	Larva	-	-	-	5.5	N.D.(4.8)	5.5	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	53	0.013	Juvenile, Imago	-	-	-	25	N.D.(6.1)	25	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	18	0.18	Juvenile	-	-	-	22	N.D.(1.8)	22	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	17	0.12	Immature fish	-	-	-	26	N.D.(2.4)	26	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Candidia temminckii</i>	Dark chub	6	0.051	Immature fish, Mature fish	-	-	-	57	N.D.(3.4)	57	-
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Cobitis biwae</i>	Cobitis biwae	4	0.016	Immature fish, Mature fish	-	-	-	11	N.D.(4.6)	11	-
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	9	0.29	Immature fish	Empty stomach	Viscera removed	37.3	1.3	36	-	
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius fluvialis</i>	Rhinogobius fluvialis	2	0.012	Mature fish	-	-	-	21	N.D.(4.1)	21	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	Rhinogobius nagoyae										
										Course Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	0.24	-	-	-
O-1 b	The main stream of the Tomioka River	37.3417°	141.0050°	2021/12/6	Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	2	0.31	Immature fish, Mature fish	Empty stomach	Viscera removed	67.6	3.6	64	-	
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	142	1.2	Immature fish, Mature fish	-	-	30	N.D.(1.6)	30	0.32	
O-2	The main stream of the Tomioka River	37.3624°	140.9612°	2021/12/6	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.0041	-	-	-	452	22	430	-	
					Arthropoda	Insecta	Ephemeroptera	Isonychiidae	<i>Isonychia valida</i>	Isonychia valida	247	0.012	Larva	-	-	-	25	N.D.(4.3)	25	-
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Kamimuria uenoi</i>	Kamimuria uenoi Kohno	246	0.024	Larva	-	-	-	2.5	N.D.(2.0)	2.5	-
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Oyamia lugubris</i>	Oyamia lugubris										
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Kamimuria tibialis</i>	Kamimuria tibialis										
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Kamimuria quadrata</i>	Kamimuria quadrata	55	0.038	Larva	-	-	-	10	N.D.(3.1)	10	-
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Protohermes grandis										
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Common prawn	8	0.012	Imago	-	-	-	11	N.D.(5.8)	11	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	70	0.17	Immature fish	-	-	-	21	N.D.(1.8)	21	-
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Cobitis biwae</i>	Cobitis biwae	3	0.016	Mature fish	-	-	-	11	N.D.(4.6)	11	-
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	9	0.21	Immature fish	Empty stomach	Viscera removed	25	N.D.(1.2)	25	-	
					Vertebrata	Amphibia	Anura	Ranidae	<i>Rana japonica</i>	Japanese brown frog	2	0.020	Imago	-	-	-	299.4	9.4	290	-
										Course Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	0.22	-	-	-

*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.