

OResults of Radioactive Material Monitoring of Aquatic Organisms (Location G in Lake Hayama)

<Location G in Lake Hayama: Samples collected>

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

<Location G in Lake Hayama: 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)
G-1(Surface layer)	37.7313°	140.8132°	2023/6/8	11:03	11:29	23.3	15.0	Sediment	5Y5/1	None	9.3	1.6
G-1(Bottom layer)				11:08		15.3						
G-2(Surface layer)	37.7267°	140.8223°		10:08	10:27	23.9	19.7	Silt	7.5Y5/1	Plant pieces,Fallen leaves	3.0	2.0
G-2(Bottom layer)				10:12		20.9						
G-4	37.7382°	140.8035°			13:30	13:45	20.3	20.3	Sand gravel	7.5Y5/3	None	0.1

<Location G in Lake Hayama: 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)												
G-1(Surface layer)	37.7313°	140.8132°	2023/6/8	11:03	7.4	1.7	4.4	9.9	9.4	0.06	2.0	6	6.2	N.D.(0.0015)	0.043	-
G-1(Bottom layer)				11:08	6.9	1.5	5.8	6.6	12.5	0.06	2.0	40	18.0	0.0019	0.099	0.0010
G-2(Surface layer)	37.7267°	140.8223°		10:08	7.6	1.3	3.7	9.4	9.2	0.05	1.9	4	3.9	N.D.(0.0013)	0.026	-
G-2(Bottom layer)				10:12	7.2	1.0	3.0	7.0	8.7	0.05	1.6	4	3.3	0.0031	0.15	-
G-4	37.7382°	140.8035°		13:30	7.6	1.4	3.3	8.8	10.1	0.06	1.7	2	1.7	N.D.(0.0015)	0.0070	-

Note1) N.D. means to be below the detection limit and figures in parentheses show the detection limit.

Note2) The survey site at Lake Hayama (Mano Dam) G-1 was moved 500 m downstream due to drought.

<Location G in Lake Hayama: 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)			
G-1	37.7313°	140.8132°	2023/6/8	11:29	7.4	130	49.5	10.3	21.0	2.560	0.0	0.0	0.1	3.1	38.0	58.8	0.0022	2.0	41	1800	2.4
G-2	37.7267°	140.8223°		10:27	7.2	222	48.0	11.5	24.0	2.520	0.6	1.7	2.7	32.1	48.8	14.1	0.059	9.5	29	1200	-
G-4	37.7382°	140.8035°		13:45	7.6	447	21.2	2.2	1.8	2.650	40.0	30.0	18.8	4.8	3.8	2.6	1.5	38	2.3	150	-

Note1) N.D. means to be below the detection limit and figures in parentheses show the detection limit.

Note2) The survey site at Lake Hayama (Mano Dam) G-1 was moved 500 m downstream due to drought.

<Location G in Lake Hayama: 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	
G-1 G-2 G-3	In the lake	37.7313° 37.7267° 37.7302°	140.8132° 140.8223° 140.8307°	2023/6/8	Algae/plant	-	-	-	-	Plankton (Planktonic algae)	-	0.028	-	-	-	2.6	N.D.(1.5)	2.6	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius</i> sp.	Silver crucian carp	1	0.63	Mature fish	Obscure digesta	Viscera removed	27	N.D.(1.5)	27	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	2	1.8	Mature fish	Obscure digesta	Viscera removed	16	N.D.(1.5)	16	0.41
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	1	1.7	Mature fish	Obscure digesta	Viscera removed	13	N.D.(1.2)	13	0.39
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Lepomis macrochirus macrochirus</i>	Bluegill	1	0.015	Immature fish	Terrestrial insect	Viscera removed	22	N.D.(3.1)	22	-
G-4	Inflowing rivers	37.7382°	140.8035°	2023/6/8	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.0037	-	-	-	78	N.D.(16)	78	-
					Arthropoda	Insecta	Ephemeroptera	Isonychiidae	<i>Isonychia valida</i>	Mayfly	107	0.0082	Larva	-	-	19	N.D.(3.6)	19	-
					Arthropoda	Insecta	Ephemeroptera	Ephemeridae	<i>Ephemeria japonica</i>	Mont mayfly									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Paragnetina tinctipennis</i>	Stonefly									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Kamimuria quadrata</i>	Stonefly	62	0.011	Larva	-	-	2.7	N.D.(2.2)	2.7	-
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Paragnetina suzukii</i>	Stonefly									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Neoperla</i> sp.	Stonefly									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Niponiella limbatella</i>	Stonefly									
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Caddisfly	51	0.015	Larva	-	-	24	N.D.(4.5)	24	-
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Dragonfly	23	0.0066	Larva (Dragonfly larva)	-	-	15	N.D.(5.8)	15	-
					Arthropoda	Insecta	Odonata	Cordulegastriidae	<i>Anotogaster sieboldii</i>	Jumbo dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Melligomphus viridicostus</i>	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius</i> sp.	Dragonfly									
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Dobsonfly	50	0.046	Larva	-	-	2.2	N.D.(0.88)	2.2	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudaspius hakonensis</i>	Japanese dace	72	0.94	Immature fish, Mature fish	-	-	30	N.D.(2.2)	30	0.21
				2023/6/16	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudaspius hakonensis</i>	Japanese dace	1	0.025	Immature fish	-	-	11	N.D.(1.6)	11	-
				2023/6/8	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsariichthys platypus</i>	Pale break	33	0.59	Immature fish, Mature fish	-	-	90.6	1.6	89	-
				2023/6/16	Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou masou</i>	Masu salmon	214	1.3	Immature fish, Mature fish	Glossosomatidae, <i>Oncorhynchus masou masou</i> ,Ladybug,Ground beetle, <i>Stenopsyche marmorata</i>	Viscera removed	13	N.D.(1.3)	13	0.12
				2023/6/8	Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou masou</i>	Masu salmon	7	0.47	Immature fish, Mature fish	-	-	21	N.D.(1.2)	21	-
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus dolomieu dolomieu</i>	Smallmouth bass	3	0.040	Immature fish	<i>Rhinogobius flumineus</i> , <i>Stenopsyche marmorata</i>	Viscera removed	12	N.D.(1.3)	12	-
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Lepomis macrochirus macrochirus</i>	Bluegill	2	0.011	Immature fish	-	-	15	N.D.(3.3)	15	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius flumineus</i>	Rhinogobius	28	0.028	Immature fish	-	-	9.1	N.D.(1.4)	9.1	-
					Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	1	0.54	Mature fish	Fish	Viscera removed	36	N.D.(1.4)	36	-
					Coarse Particulate Organic Matter	-	-	-	-	Water-bottom leaf litter	-	0.24	-	-	-	74.7	1.7	73	-

*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.