

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

<Location G in Lake Hayama: Samples collected>

Locations	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>

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)
G-1(Surface layer)	37.7348°	140.8102°	2020/7/2	12:15	12:40	24.8	22.0	Sand	7.5Y 4/2	Plant pieces	2.1	2.0
G-1(Bottom layer)						22.7						
G-2(Surface layer)	37.7267°	140.8223°		10:43	10:45	24.3	15.6	Sand sediment	7.5Y 3/2	Plant pieces,Pebbles	13.1	3.5
G-2(Bottom layer)						8.5						
G-4	37.7382°	140.8035°		08:35	08:40	20.0	21.9	Sand gravel	7.5Y 4/2	None	0.2	>0.5

<Location G in Lake Hayama: 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)	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)	37.7348°	140.8102°	2020/7/2	12:15	7.5	0.6	3.6	8.9	7.2	0.04	1.7	3	2.9	N.D.(0.0014)	0.011	-
G-1(Bottom layer)					7.4	0.6	3.9	8.3	7.8	0.04	1.8	4	4.4	0.0023	0.039	0.00073
G-2(Surface layer)	37.7267°	140.8223°		10:43	7.5	<0.5	3.3	8.9	7.1	0.04	1.7	2	2.2	N.D.(0.0014)	0.0079	-
G-2(Bottom layer)					7.0	<0.5	3.1	8.4	6.4	0.06	1.7	2	1.8	N.D.(0.0014)	0.026	-
G-4	37.7382°	140.8035°		08:35	7.4	<0.5	3.6	8.8	8.2	0.04	1.8	2	1.8	0.0015	0.022	-

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

<Location G in Lake Hayama: General survey items/Analysis of radioactive materials Sediment>

Locations	Latitude and longitude of the location		Survey date and time		pH	Redox potential E _{NH/E} (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	37.7348°	140.8102°	2020/7/2	12:40	7.5	424	28.5	2.7	3.0	2.739	0.9	3.7	68.4	19.9	2.8	4.3	0.35	4.8	28	510	1.7
G-2	37.7267°	140.8223°		10:45	7.1	54	43.3	11.0	25.9	2.582	9.5	1.9	5.0	23.6	33.5	26.5	0.043	19	150	2700	-
G-4	37.7382°	140.8035°		08:40	7.6	419	18.3	2.2	3.7	2.706	24.4	29.9	34.6	6.6	2.2	2.3	0.95	19	18	310	-

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

<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	37.7348° 37.7267° 37.7302°	140.8102° 140.8223° 140.8307°	2020/7/2	Algae/plant	-	-	-	-	Plankton (Planktonic algae)	-	0.012	-	-	-	16	N.D.(3.1)	16	-			
				2020/6/7	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	1	0.60	Mature fish	Obscure digesta	Viscera removed	127.4	7.4	120	-			
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius auratus</i>	Carassius auratus langsdorffii	1	1.6	Mature fish	Obscure digesta	Viscera removed	28.6	1.6	27	0.84			
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus salmoides</i>	Largemouth bass	1	0.086	Immature fish	Fish	Viscera removed	36.2	3.2	33	-			
				2020/7/2	Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus dolomieu</i>	Small mouth bass	4	2.6	Mature fish	Fish	Viscera removed	116.0	6.0	110	0.81			
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Lepomis macrochirus</i>	Bluegill	5	0.21	Immature fish, Mature fish	Plant piece, Common prawn, Water strider, Ant	Viscera removed	23.3	1.3	22	-			
				2020/6/7	Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	1	1.3	Mature fish	Bluegill	Viscera removed	146.4	6.4	140	0.68			
2020/7/2	Vertebrata	Amphibia	Anura	Lithobates	<i>Lithobates catesbeianus</i>	American bullfrog	1	0.0064	Imago	-	-	85.6	5.6	80	-							
G-4	Inflowing rivers	37.7382°	140.8035°	2020/7/1	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.0024	-	-	-	348	18	330	-			
					Arthropoda	Insecta	Ephemeroptera	Isonychiidae	<i>Isonychia valida</i>	<u>Isonychia valida</u>	275	0.0092	Larva	-	-	68	N.D.(4.2)	68	-			
					Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Ecdyonurus viridis</i>	<u>Ecdyonurus viridis</u>												
					Arthropoda	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	<u>Anotogaster sieboldii</u>	51	0.0046	Larva(Dragonfly larva)	-	-	9.1	N.D.(6.6)	9.1	-			
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Meligomphus viridicostus</i>	<u>Meligomphus viridicostus</u>												
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	<u>Davidius</u>												
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	<u>Boyeria maclachlani</u>												
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur minnow	9	0.038	Immature fish, Mature fish	-	-	6.6	N.D.(4.8)	6.6	-			
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	56	0.33	Immature fish	-	-	16.77	0.77	16	-			
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Pale chub	2	0.020	Immature fish	-	-	45.8	2.8	43	-			
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	4	0.043	Immature fish	-	-	18	N.D.(1.5)	18	-			
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Lepomis macrochirus</i>	Bluegill	13	0.061	Immature fish	-	-	11	N.D.(3.2)	11	-			
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius flumineus</i>	Rhinogobius flumineus	11	0.014	Immature fish, Mature fish	-	-	11	N.D.(8.6)	11	-			
					Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	2	1.4	Immature fish, Mature fish	Worm	Viscera removed	201	11	190	0.50			
					Vertebrata	Amphibia	Anura	-	-	-	-	-	Frog	12	0.0047	Larva(Tadpole)	-	-	110	N.D.(23)	110	-
									Coarse Particulate Organic Matter	-	-	-	-	-	-	0.19	-	-	-	49.1	2.1	47
						-	-	-	-	-	-	-	-	-	-	-	-	-				

*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.