

OResults of Radioactive Material Monitoring of Aquatic Organisms (Location D along the Mano River)

<Location D along the Mano River: Samples collected>

Items Locations	General items		Radioactive materials			
	Water	Sediment	Water (Cs)	Water (Sr)	Sediment (Cs)	Sediment (Sr)
D-4 a	○	○	○	○	○	○

<Location D along the Mano River: Site measurement item>

Items 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)	Transparency (cm)
D-4 a	37.7308°	140.9081°	2018/10/23	09:02	09:23	13.5	14.5	Sand	2.5Y4/3	None	0.46	>50

<Location D along the Mano River: General survey items/Analysis of radioactive materials Water>

Items Locations	Latitude and longitude of the location		Survey date and time		pH	BOD	COD	DO	Electric conductivity	Salinity	TOC	SS	Turbidity	Cs-134	Cs-137	Sr-90
	Latitude	Longitude	Date	Time (water)		(mg/L)	(mg/L)	(mg/L)	(mS/m)		(mg/L)	(mg/L)	(FNU)	(Bq/L)	(Bq/L)	(Bq/L)
D-4 a	37.7308°	140.9081°	2018/10/23	09:02	7.2	0.7	2.4	11.1	9.8	0.06	1.1	<1	0.7	N.D.(0.0015)	0.012	0.0012

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

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

Items Locations	Latitude and longitude of the location		Survey date and time		pH	Redox potential E _h (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)			
D-4 a	37.7308°	140.9081°	2018/10/23	09:23	7.5	320	18.9	1.6	1.9	2.697	27.2	38.4	29.4	4.3	0.7		1.2	9.5	26	310	1.1

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

<Location D along the Mano 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	
D-3	The main stream of the Mano River	37.7051°	140.9623°	2018/10/23	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	1	3.8	Mature fish	Obscure digesta	Viscera removed	8.9	N.D.(1.4)	8.9	0.81
				2018/10/31	Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Salvelinus leucomaenis</i>	Char	1	0.63	Mature fish	Fish	Viscera removed	3.6	N.D.(1.6)	3.6	-
				2018/10/23	Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus keta</i>	Salmon	1	1.7	Mature fish	Sweetfish	Viscera removed	N.D.	N.D.(0.33)	N.D.(0.36)	0.052
D-4 b	The main stream of the Mano River	37.7312°	140.9096°	2018/10/23	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.010	-	-	-	98	18	80	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	2	0.067	Juvenile	-	-	25	N.D.(3.5)	25	-
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus pollux</i>	Japanese fluvial sculpin	1	0.035	Immature fish	-	-	23	N.D.(4.1)	23	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	5	0.39	Mature fish	-	-	23.0	2.0	21	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudogobio esocinus esocinus</i>	Pseudogobio esocinus esocinus	2	0.026	Immature fish	-	-	13	N.D.(4.9)	13	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius auratus</i>	Carassius auratus langsdorfii	1	0.018	Immature fish	-	-	11	N.D.(6.6)	11	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudorasbora parva</i>	Stone moroko	5	0.014	Immature fish,Mature fish	-	-	10	N.D.(8.4)	10	-
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	12	0.29	Immature fish,Mature fish	-	-	37.7	2.7	35	-
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus dolomieu</i>	Small mouth bass	2	0.80	Immature fish	Sieboldius albardae,Fish	Viscera removed	41.5	2.5	39	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Gymnogobius urotaenia</i>	Goby	1	0.019	Immature fish	-	-	43	N.D.(7.1)	43	-
					Vertebrata	Cephalaspidomorpha	Petromyzontiformes	Petromyzontidae	<i>Lethenteron reissneri</i>	Far eastern brook lamprey	6	0.014	Ammocoetes(larva)	-	-	21	N.D.(9.7)	21	-
					Vertebrata	Amphibia	Anura	Ranidae	<i>Rana japonica</i>	Japanese Brown Frog	-	0.070	Imago	-	-	8.3	N.D.(3.9)	8.3	-
					Vertebrata	Amphibia	Anura	Lithobates	<i>Lithobates catesbeianus</i>	American Bullfrog	-								
					Vertebrata	Amphibia	Anura	Lithobates	<i>Lithobates catesbeianus</i>	American Bullfrog	12	0.13	Larva(Tadpole)	-	-	96.3	9.3	87	-
D-5	The main stream of the Mano River	37.7214°	140.8889°	2018/10/23	Coarse Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	0.24	-	-	-	68.9	4.9	64	-
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	5	0.17	Immature fish,Mature fish	-	-	44.3	4.3	40	-
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou masou</i>	Seema	1	0.41	Immature fish	Empty stomach	Viscera removed	3.8	N.D.(1.6)	3.8	-
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	1	0.024	Immature fish	-	-	16	N.D.(5.9)	16	-
				2018/10/31	Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	11	0.71	Immature fish,Mature fish	Grasshopper,Frog,Fish,Worm,Bee	Viscera removed	131	11	120	-

*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.