

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

<Location D along the Mano River: Samples collected>

Locations	General items		Radioactive materials			
	Water	Sediment	Water (Cs)	Water (Sr)	Sediment (Cs)	Sediment (Sr)
D-1	o	o	o	o	o	o
D-2	o	o	o	-	o	-
D-3	o	o	o	-	o	-
D-4 a	o	o	o	-	o	-
D-4 b	o	-	o	-	-	-
D-5	o	o	o	-	o	-

<Location D along the Mano River: 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)	Transparency (cm)	
D-1	37.7331°	140.9254°	2016/10/20	10:00	10:10	18.0	17.6	Gravel with sand	2.5Y3/2	None	0.21	>50	
D-2	37.7095°	140.9566°		11:18	11:25	18.1	18.3	Gravel with sand	2.5Y4/3	None	0.41	>50	
D-3	37.7051°	140.9623°		13:03	13:18	18.5	19.3	Gravel with sand	2.5Y3/3	None	0.52	>50	
D-4 a	37.7308°	140.9081°		08:35	08:46	15.5	15.4	Gravel with sand	2.5Y4/2	None	0.34	>50	
D-4 b	37.7312°	140.9096°		09:20	-	15.4	-	-	-	-	0.36	>50	
D-5	37.7214°	140.8889°		07:50	08:00	14.6	14.8	Sand	2.5Y4/3	None	0.50	>50	

<Location D along the Mano River: 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)												
D-1	37.7331°	140.9254°	2016/10/20	10:00	7.7	<0.5	2.4	11.7	9.3	0.05	1.2	<1	0.8	0.0020	0.012	0.0010
D-2	37.7095°	140.9566°		11:18	7.5	0.5	2.8	10.2	11.3	0.06	1.3	1	1.6	0.0018	0.010	-
D-3	37.7051°	140.9623°		13:03	7.3	0.5	2.5	11.0	11.9	0.06	1.1	2	1.4	0.0019	0.011	-
D-4 a	37.7308°	140.9081°		08:35	7.5	<0.5	2.3	10.2	9.2	0.05	1.0	<1	0.9	0.0025	0.014	-
D-4 b	37.7312°	140.9096°		09:20	7.6	<0.5	2.4	10.7	9.1	0.05	1.0	<1	0.9	0.0025	0.014	-
D-5	37.7214°	140.8889°		07:50	7.6	<0.5	2.6	10.5	8.2	0.05	1.2	<1	1.2	0.0050	0.026	-

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

Locations	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)
D-1	37.7331°	140.9254°	2016/10/20	10:10	7.1	353	18.2	2.1	2.719	20.2	20.3	45.8	10.7	0.4	2.6	0.66	9.5	63	350	1.0	
D-2	37.7095°	140.9566°		11:25	7.1	350	16.5	1.4	2.719	43.7	26.6	23.8	3.9	0.1	1.9	1.7	19	29	150	-	
D-3	37.7051°	140.9623°		13:18	7.1	351	14.0	1.4	2.712	53.0	26.8	15.8	3.0	0.3	1.1	2.2	9.5	32	220	-	
D-4 a	37.7308°	140.9081°		08:46	7.1	343	15.7	1.8	2.2	41.2	35.0	21.4	1.5	0.2	0.7	1.6	9.5	52	330	-	
D-5	37.7214°	140.8889°		08:00	7.2	343	17.2	1.8	1.9	2.753	30.9	29.7	35.5	2.7	0.1	1.1	1.1	9.5	54	380	-

<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	-	37.7051°	140.9623°	2016/9/30	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	2	0.089	Immature fish,Mature fish	Obscure digesta	Viscera removed	34.6	4.6	30	-				
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Pale chub	8	0.087	Immature fish,Mature fish	-	-	14.4	2.4	12	-				
D-4b	-	37.7312°	140.9096°	2016/10/20	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.013	-	-	-	282	42	240	-				
					Algae/plant	Monocotyledoneae	Najadales	Potamogetonaceae	<i>Potamogeton berchtoldii</i>	Small pondweed	-	0.21	-	-	-	-	-	153	23	130	-		
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Common prawn	63	0.075	Imago	-	-	22.4	3.4	19	-				
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	238	0.047	Imago	-	-	33.1	4.1	29	-				
					Mollusca	Bivalvia	Unionoida	Unionidae	<i>Inversunio yokohamensis</i>	Inversunio yokohamensis	11	0.047	Imago	-	-	Molluscos part	94	14	80	-			
					Mollusca	Gastropoda	Discopoda	Pleuroceridae	<i>Semisulcospira libertina</i>	Semisulcospira libertina	30	0.030	Imago	-	-	Molluscos part	364	54	310	-			
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	3	0.14	Immature fish,Mature fish	Amorphous Residue	Viscera removed	30.3	4.3	26	-				
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Pale chub	5	0.064	Immature fish,Mature fish	-	-	26.1	4.1	22	-				
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis</i>	Sweetfish	2	0.11	Immature fish,Mature fish	-	-	49.9	5.9	44	-				
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius fluviatilis</i>	Rhinogobius fluviatilis	18	0.057	Immature fish,Mature fish	-	-	54.4	9.4	45	-				
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp. CB</i>	Rhinogobius nagoyae													
					Particulate Organic Matter	-	-	-	-	-	-	-	-	Bottom fallen leaves	-	0.24	-	-	-	21.4	3.4	18	-

*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.