

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

<Location D along the Mano River: Samples collected>

Locations	Items	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>

Locations	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)	
D-4 a		37.7308°	140.9081°	2024/6/26	08:48	09:03	19.0	19.8	Sand	10YR3/2	None	0.12	>50	

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

Locations	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)												
D-4 a		37.7308°	140.9081°	2024/6/26	08:48	7.3	0.8	3.2	7.8	17.9	0.09	0.9	5	3.1	N.D.(0.0016)	0.018	0.00071

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>

Locations	Items	Latitude and longitude of the location		Survey date and time		pH	Redox potential E _{NHE} (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°	2024/6/26	09:03	7.4	485	19.6	2.5	2.5	2.710	42.1	33.6	11.3	11.0	2.0	1.7	9.5	2.6	140	0.87	

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°	2024/6/24	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	2	0.037	Immature fish	-	-	3.5	N.D.(1.7)	3.5	-	
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Pale chub	38	0.56	Immature fish, Mature fish	-	-	3.7	N.D.(0.49)	3.7	-	
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	73	1.5	Immature fish, Mature fish	-	-	6.3	N.D.(1.3)	6.3	0.066	
D-4 b	The main stream of the Mano River	37.7312°	140.9096°	2024/6/23	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.015	-	-	-	14	N.D.(2.5)	14	-	
					Algae/plant	Zygnematomyxaceae	Zygnematales	Zygnemataceae	<i>Spirogyra</i> sp.	Spirogyra	-	0.27	-	-	-	2.2	N.D.(0.25)	2.2	-	
					Arthropoda	Insecta	Ephemeroptera	Ephemeridae	<i>Ephemera orientalis</i>	<i>Ephemera orientalis</i>	330	0.023	Larva	-	-	-	8.7	N.D.(1.3)	8.7	-
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	<i>Stenopsyche marmorata</i>	222	0.054	Larva	-	-	-	14	N.D.(1.3)	14	-
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	<i>Macromia amphigena</i>	226	0.049	Larva (Dragonfly larva)	-	-	3.4	N.D.(0.93)	3.4	-	
					Arthropoda	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	<i>Anotogaster sieboldii</i>										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>	<i>Nihonogomphus viridis</i>										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sylogomphus suzukii</i>	<i>Sylogomphus suzukii</i>										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Melligomphus viridicostus</i>	<i>Melligomphus viridicostus</i>										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	<i>Sieboldius albardae</i>										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius</i> sp.	<i>Davidius</i>										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Anisogomphus maacki</i>	<i>Anisogomphus maacki</i>										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaenops</i>	<i>Asiagomphus melaenops</i>										
					Arthropoda	Insecta	Odonata	Libellulidae	<i>Sympetrum</i> sp.	<i>Sympetrum</i>										
					Arthropoda	Insecta	Odonata	Libellulidae	<i>Orthetrum albistylum speciosum</i>	Common skimmer										
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	<i>Protohermes grandis</i>	38	0.033	Larva	-	-	-	N.D.	N.D.(1.5)	N.D.(1.2)	-
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Common prawn	65	0.084	Imago	-	-	-	2.6	N.D.(0.73)	2.6	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	241	0.10	Juvenile, Imago	-	-	-	3.9	N.D.(0.56)	3.9	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	4	0.094	Juvenile	-	-	-	5.3	N.D.(0.57)	5.3	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	4	0.055	Immature fish	-	-	-	3.5	N.D.(0.86)	3.5	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Pale chub	30	0.059	Immature fish	-	-	-	3.3	N.D.(0.68)	3.3	-
Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Gnathopogon elongatus elongatus</i>	<i>Gnathopogon elongatus elongatus</i>	23	0.11	Immature fish, Mature fish	-	-	-	2.8	N.D.(0.47)	2.8	-					
Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Cobitis biwae</i>	<i>Cobitis biwae</i>	5	0.019	Mature fish	-	-	-	2.6	N.D.(2.3)	2.6	-					
Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	14	0.48	Immature fish, Mature fish	-	-	-	5.6	N.D.(1.3)	5.6	-					
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius fluviatilis</i>	<i>Rhinogobius fluviatilis</i>	21	0.051	Immature fish, Mature fish	-	-	2.9	N.D.(0.83)	2.9	-						
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	<i>Rhinogobius nagoyae</i>															
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius kurodai</i>	<i>Rhinogobius kurodai</i>															
	Coarse Particulate Organic Matter	-	-	-	-	-	-	-	Bottom fallen leaves	-	-	0.28	-	-	-	29	N.D.(1.2)	29	-	

*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.