

**Results 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-4 a	○	○	○	○	○	○

<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-4 a	37.7308°	140.9081°	2020/7/2	09:22	09:30	20.5	21.5	Sand with gravel	10YR4/3	None	0.37	>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-4 a	37.7308°	140.9081°	2020/7/2	09:22	7.3	<0.5	2.4	10.3	11.9	0.06	1.2	2	1.2	N.D.(0.0011)	0.0090	0.00092

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	Latitude and longitude of the location		Survey date and time		pH	Redox potential E <sub>NHE</sub> (mV)	Water content (%)	IL (%)	TOC (mg/g-dry)	Soil particle density (g/cm <sup>3</sup> )	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°	2020/7/2	09:30	7.4	380	17.2	1.7	2.3	2.724	29.5	41.3	23.1	4.3	1.8	1.4	9.5	7.5	120	0.64	

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°	2020/7/1	Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.093	Immature fish	Obscure digesta	Viscera removed	8.3	N.D.(3.0)	8.3	-	
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.26	Mature fish	Japanese mitten Crab	Viscera removed	9.8	N.D.(2.7)	9.8	-	
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.55	Mature fish	Japanese mitten Crab	Viscera removed	26.7	1.7	25	0.086	
				2020/6/4	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	7	0.89	Immature fish,Mature fish	-	-	-	2.8	N.D.(1.4)	2.8	-
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	63	0.99	Immature fish,Mature fish	-	-	-	13.99	0.99	13	0.073
2020/7/1	Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	99	1.7	Immature fish,Mature fish	-	-	-	14.62	0.62	14	0.13				
	Algae/plant	-	-	-	-	-	-	-	Riverbed Deposits (Include algae)	-	-	-	-	64	N.D.(6.5)	64	-			
D-4 b	The main stream of the Mano River	37.7312°	140.9096°	2020/7/1	Arthropoda	Insecta	Ephemeroptera	Potamanthidae	<i>Potamanthus formosus</i>	Potamanthus formosus	752	0.018	Larva	-	-	-	33	N.D.(2.0)	33	-
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Meligomphus viridicostus</i>	Meligomphus viridicostus	84	0.020	Larva(Dragonfly larva)	-	-	-	6.3	N.D.(1.7)	6.3	-
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Sieboldius albardae										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	Davidius										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaenops</i>	Asiagomphus melaenops										
					Arthropoda	Insecta	Odonata	Libellulidae	<i>Sympetrum sp.</i>	Sympetrum										
					Arthropoda	Insecta	Odonata	Epiophlebiidae	<i>Epiophlebia superstes</i>	Epiophlebia superstes										
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Parachauliodes sp.</i>	Parachauliodes	67	0.037	Larva	-	-	-	3.8	N.D.(1.4)	3.8	-
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Protohermes grandis										
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Common prawn	27	0.034	Imago	-	-	-	4.3	N.D.(1.5)	4.3	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	72	0.021	Juvenile	-	-	-	6.7	N.D.(3.0)	6.7	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	5	0.11	Juvenile	-	-	-	14	N.D.(1.7)	14	-
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.082	Immature fish	Obscure digesta	Viscera removed	16	N.D.(2.0)	16	-	
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.24	Mature fish	Obscure digesta	Viscera removed	32.7	1.7	31	-	
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.37	Mature fish	Obscure digesta	Viscera removed	33.9	1.9	32	-	
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus pollux</i>	Japanese fluvial sculpin	1	0.010	Immature fish	-	-	-	8.5	N.D.(4.5)	8.5	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	2	0.061	Immature fish,Mature fish	-	-	-	11	N.D.(0.86)	11	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Gnathopogon elongatus elongatus</i>	Gnathopogon elongatus elongatus	5	0.023	Immature fish,Mature fish	-	-	-	7.5	N.D.(2.1)	7.5	-
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Cobitis biwae</i>	Cobitis biwae	4	0.013	Mature fish	-	-	-	7.9	N.D.(2.8)	7.9	-
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	73	1.4	Immature fish,Mature fish	-	-	-	13.63	0.63	13	0.19
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Gymnogobius urotaenia</i>	Goby	2	0.012	Immature fish	-	-	-	7.3	N.D.(4.3)	7.3	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius fluvialtilis</i>	Rhinogobius fluvialtilis	44	0.066	Immature fish,Mature fish	-	-	-	11	N.D.(3.4)	11	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	Rhinogobius nagoyae										
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius kurodai</i>	Rhinogobius kurodai															
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp.</i>	Rhinogobius															
Vertebrata	Cephalaspidomorphi	Petromyzontiformes	Petromyzontidae	<i>Lethenteron reissneri</i>	Far eastern brook lamprey	3	0.0086	Ammocoetes(larva)	-	-	-	N.D.	N.D.(3.8)	N.D.(3.1)	-					
Vertebrata	Amphibia	Anura	Glandirana	<i>Glandirana rugosa</i>	Wrinkled frog	2	0.019	Imago	-	-	-	15	N.D.(5.7)	15	-					
Coarse Particulate Organic Matter	-	-	-	-	-	-	-	-	Bottom fallen leaves	-	-	-	-	40.3	2.3	38	-			
D-5	The main stream of the Mano River	37.7214°	140.8889°	2020/7/1	Algae/plant	Zygnematomyceae	Zygnematales	Zygnemataceae	<i>Spirogyra sp.</i>	Spirogyra	-	0.32	-	-	-	0.88	N.D.(0.20)	0.88	-	
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.42	Mature fish	Obscure digesta	Viscera removed	33.5	1.5	32	-	
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.45	Mature fish	Residue,Pebbles	Viscera removed	41.1	2.1	39	-	
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus pollux</i>	Japanese fluvial sculpin	1	0.0099	Immature fish	-	-	-	13	N.D.(5.2)	13	-
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	51	1.6	Immature fish,Mature fish	-	-	-	19.1	1.1	18	0.13
Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	2	0.042	Immature fish	-	-	-	11	N.D.(1.4)	11	-					

\*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.