

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-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°	2017/12/5	09:56	10:03	8.5	8.3	Sand	2.5Y4/2	Plant pieces a little	0.35	>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°	2017/12/5	09:56	7.1	0.5	2.1	11.9	9.1	0.05	1.0	<1	0.6	N.D.(0.0012)	0.0096	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>

Locations	Latitude and longitude of the location		Survey date and time		pH	Redox potential E _H (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°	2017/12/5	10:03	7.6	338	19.8	1.4	1.7	2.728	20.0	38.9	35.6	3.6	1.9		1.0	9.5	38	330	0.69

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°	2017/12/6	Arthropoda	Malacostraca	Decapoda	Cambaridae	<i>Procambarus clarkii</i>	Red swamp crawfish	1	0.022	Imago	-	-	13	N.D.(2.6)	13	-
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.033	Immature fish	Obscure digesta	Viscera removed	15.8	1.8	14	-
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>	Sculpin	5	0.073	Immature fish	Freshwater shrimp	Viscera removed	9.7	1.7	8.0	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius auratus</i>	Carassius auratus langsdorfii	1	0.010	Immature fish	-	-	11	N.D.(4.8)	11	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	7	0.14	Immature fish	Freshwater shrimp,Algae	Viscera removed	7.57	0.77	6.8	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudorasbora parva</i>	Stone moroko	5	0.013	Mature fish	-	-	8.1	N.D.(2.6)	8.1	-
					Vertebrata	Amphibia	Anura	Ranidae	<i>Rana catesbeiana</i>	American Bullfrog	60	0.38	Larva (Tadpole)	-	-	112	12	100	-
D-4b	The main stream of the Mano River	37.7312°	140.9096°	2017/12/5	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.018	-	-	-	147	17	130	-
				2017/12/6	Algae/plant	Monocotyledoneae	Poales	Poaceae	<i>Phragmites australis</i>	Common reed	-	0.11	-	-	-	16.8	1.8	15	-
				2017/12/5	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	<i>Isonychia japonica</i>	Isonychia japonica	282	0.012	Larva	-	-	81.3	7.3	74	-
					Arthropoda	Insecta	Ephemeroptera	Ephemeridae	<i>Ephemera japonica</i>	Ephemera japonica									
					Arthropoda	Insecta	Ephemeroptera	Ephemeridae	<i>Ephemera strigata</i>	Mont mayfly									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Kamimuria uenoi</i>	Kamimuria uenoi Kohno									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Oyamia lugubris</i>	Oyamia lugubris	179	0.011	Larva	-	-	3.6	N.D.(4.1)	3.6	-
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Kamimuria tibialis</i>	Kamimura tibialis									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Neoperla sp.</i>	Neoperla									
					Arthropoda	Insecta	Plecoptera	Perlidae	<i>Niponiella limbatella Klapalek</i>	Niponiella limbatella Klapalek									
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Stenopsyche marmorata	163	0.045	Larva	-	-	50.9	5.9	45	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	4	0.12	Juvenile	-	-	36.5	3.5	33	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonenis</i>	Japanese dace	14	0.16	Immature fish	-	-	14.2	2.2	12	-
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	1	0.037	Immature fish	Stenopsyche marmorata	Viscera removed	8.0	1.2	6.8	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp. CB</i>	Rhinogobius nagoyae	30	0.027	Immature fish,Mature fish	-	-	15.0	2.0	13	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius kurodai</i>	Rhinogobius kurodai									

*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.