

**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°	2017/6/14	09:40	10:00	15.8	16.1	Sand	2.5Y4/3	Aquatic insect a little	0.23	>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°	2017/6/14	09:40	7.3	0.5	2.4	10.5	11.4	0.05	0.8	2	1.6	0.0021	0.012	0.0010

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>H</sub> H (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°	2017/6/14	10:00	7.5	283	19.0	1.7	3.1	2.717	26.4	35.5	33.8	3.0	0.2	1.1	1.1	9.5	41	290	0.66

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°	2017/6/14	Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	6	1.8	Immature fish, Mature fish	Crab	Viscera removed	44.2	6.2	38	0.094						
D-4b	The main stream of the Mano River	37.7312°	140.9096°	2017/6/14	Vertebrata	Osteichthyes	-	-	-	Riverbed Deposits (Include algae)	-	0.014	-	-	-	110	13	97	-						
										Algae/plant	Zygnematales	Zygnematales	Zygnematales	<i>Spirogyra sp.</i>	Spirogyra	-	0.34	-	-	-	36.5	4.5	32	-	
										Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Stenopsyche marmorata	160	0.036	Larva	-	-	-	61.3	7.3	54	-
										Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena	45	0.016	Larva (Dragonfly larva)	-	-	-	17.9	2.9	15	-
										Arthropoda	Insecta	Odonata	Cordulegastriidae	<i>Anotogaster sieboldii</i>	Anotogaster sieboldii										
										Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>	Nihonogomphus viridis										
										Arthropoda	Insecta	Odonata	Gomphidae	<i>Onychogomphus viridicostus</i>	Melligomphus viridicostus										
										Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Sieboldius albardae										
										Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	Davidius										
										Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	Boyeria maclachlani	38	0.023	Larva	-	-	-	9.7	N.D.(1.6)	9.7	-
										Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Protohermes grandis										
										Arthropoda	Malacostraca	Decapoda	Cambaridae	<i>Procambarus clarkii</i>	Red swamp crawfish	2	0.020	Imago	-	-	-	64.8	7.8	57	-
										Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Common prawn	10	0.0089	Imago	-	-	-	18.0	4.0	14	-
										Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	109	0.092	Juvenile, Imago	-	-	-	16.5	2.5	14	-
										Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	4	0.14	Juvenile	-	-	-	20.3	2.3	18	-
										Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	4	0.60	Immature fish, Mature fish	Fish	Viscera removed	58.8	6.8	52	-	
										Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus pollux</i>	Japanese fluvial sculpin	2	0.10	Immature fish	-	-	-	35.6	4.6	31	-
										Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur Minnow	45	0.082	Immature fish, Mature fish	-	-	-	14.9	1.9	13	-
										Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	14	0.11	Immature fish	-	-	-	27.9	3.9	24	-
										Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Pale chub	4	0.070	Immature fish, Mature fish	-	-	-	24.5	2.5	22	-
										Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Gnathopogon elongatus elongatus</i>	Gnathopogon elongatus elongatus	2	0.015	Immature fish, Mature fish	-	-	-	29.7	3.7	26	-
										Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Cobitis biwae</i>	Cobitis biwae	2	0.0032	Mature fish	-	-	-	N.D.	N.D.(11)	N.D.(9.1)	-
										Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis</i>	Sweetfish	27	0.25	Immature fish, Mature fish	-	-	-	40.8	5.8	35	-
										Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Lepomis macrochirus</i>	Bluegill	1	0.026	Immature fish	-	-	-	19.9	2.9	17	-
										Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius fluvialtilis</i>	Rhinogobius fluvialtilis	5	0.022	Mature fish	-	-	-	51.3	6.3	45	-
										Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp. CB</i>	Rhinogobius nagoyae	25	0.066	Mature fish	-	-	-	30.9	3.9	27	-
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Tridentiger brevispinis</i>	Dusky tripletooth goby	1	0.0091	Mature fish	-	-	-	15	N.D.(4.4)	15	-										
Vertebrata	Osteichthyes	Siluriformes	Bagridae	<i>Pseudobagrus tokiensis</i>	Cut-tailed bullhead	2	0.14	Mature fish	Stenopsyche marmorata, Terrestrial insect	Viscera removed	18.1	2.1	16	-											
Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	1	0.10	Immature fish	Obscure digesta	Viscera removed	35.9	3.9	32	-											
Vertebrata	Cephalaspidomorphi	Petromyzontiformes	Petromyzontidae	<i>Lampetra reissneri</i>	Far eastern brook lamprey	2	0.0020	Ammocoetes larva	-	-	-	24	N.D.(14)	24	-										
	Coarse Particulate Organic Matter	-	-	-	-	-	0.20	-	-	-	-	-	46.0	6.0	40	-									
D-5	The main stream of the Mano River	37.7214°	140.8889°	2017/6/14	Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	1	0.14	Mature fish	Obscure digesta	Viscera removed	28.3	3.3	25	-						
									Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus dolomieu</i>	Small mouth bass	1	0.12	Immature fish	Amur Minnow	Viscera removed	50.3	7.3	43	-		
													Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	1	0.26	Mature fish	Freshwater shrimp	Viscera removed	43.4	6.4

\*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.