

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

< Location D along the Mano River: Samples collected >

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

< Location D along the Mano River: Site measurement item >

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	Odor	Contaminants	Water depth (m)	Transparency (cm)
D-1	37.733217°	140.925233°	2013/12/9	9:44	10:02	6.6	6.8	Sand	2.5Y4/2	None	Pebbles	0.38	>50
D-2	37.709450°	140.944783°		10:50	10:56	7.7	7.9	Sand	2.5Y4/3	None	Pebbles	0.55	>50
D-3	37.704950°	140.962083°		11:27	11:33	8.9	8.9	Sand	2.5Y4/4	None	Pebbles	0.47	>50
D-4a	37.730883°	140.907717°		8:27	8:33	6.5	6.6	Sand	2.5Y3/2	None	Pebbles	0.54	>50
D-4b	37.731133°	140.909500°		9:07	9:07	6.6	6.6	—	—	—	—	0.18	>50
D-5	37.721733°	140.889850°		7:39	7:48	6.1	6.1	Sand	2.5Y4/4	None	Some leaves	0.59	>50

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

Items	Latitude and longitude of the location		Survey date and time		pH	BOD (mg/L)	COD (mg/L)	DO (mg/L)	Electrical 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												
D-1	37.733217°	140.925233°	2013/12/9	9:44	7.7	1.0	2.3	14.0	10.1	0.05	1.2	<1	0.6	0.017	0.041	0.0014
D-2	37.709450°	140.944783°		10:50	7.4	0.8	2.2	13.9	11.7	0.06	1.2	<1	0.9	0.022	0.047	—
D-3	37.704950°	140.962083°		11:27	7.2	0.8	2.2	13.6	12.4	0.06	1.1	<1	0.9	0.0073	0.018	—
D-4a	37.730883°	140.907717°		8:27	7.4	0.6	2.3	11.9	10.2	0.05	1.1	<1	0.5	0.041	0.092	—
D-4b	37.731133°	140.909500°		9:07	7.5	0.6	2.5	12.4	10.0	0.05	1.1	<1	1.1	0.031	0.076	—
D-5	37.721733°	140.889850°		7:39	7.5	0.8	2.6	12.8	9.0	0.05	1.3	<1	0.7	0.032	0.072	—

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

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						Median grain diameter (mm)	Maximum grain diameter (mm)	Cs-134 (Bq/kg-dry)	Cs-137 (Bq/kg-dry)	Sr-90 (Bq/kg-dry)
	Latitude	Longitude	Date	Time							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) (%)					
D-1	37.733217°	140.925233°	2013/12/9	10:02	7.0	137	18.2	1.4	<1	2.726	24.1	41.6	28.8	4.2	0.4	0.9	1.2	19	400	1,000	1.2
D-2	37.709450°	140.944783°		10:56	7.2	142	21.8	1.2	<1	2.714	15.9	47.0	35.2	1.2	0.2	0.5	1.1	9.5	250	580	—
D-3	37.704950°	140.962083°		11:33	7.1	144	20.2	1.2	<1	2.706	41.5	39.7	18.0	0.4	0.2	0.2	1.7	19	54	130	—
D-4a	37.730883°	140.907717°		8:33	7.3	145	25.9	2.0	1	2.734	12.9	27.4	51.5	6.5	0.7	1.0	0.71	19	460	1,200	—
D-5	37.721733°	140.889850°			7:48	7.3	148	26.9	2.4	1	2.715	2.9	13.9	67.7	10.7	1.4	3.4	0.52	9.5	490	1,200

Note) N.D. means to be below the detection limit.

< Location D along the Mano River: Analysis items Aquatic organisms >

Location	Latitude and longitude of the location		Sampling Date	Division	Class	Order	Family	Species name	English name	Population	Sample weight (kg-wet)	Note		Cs-134 (Bq/kg-wet)	Cs-137 (Bq/kg-wet)	Sr-90 (Bq/kg-wet)	
	Latitude	Longitude										Growth stage	Stomach contents				
D-4a D-4b	37.730883° 37.731133°	140.907717° 140.909500°	2013/12/11	Algae/plant	—	—	—	—	Attached algae	—	0.079	—	—	250	660	—	
				Streptophyta	Zygnematophyceae	Zygnematales	Zygnemataceae	<i>Spirogyra sp.</i>	Spirogyra	—	0.023	—	—	—	N.D. (<1.6)	N.D. (<1.4)	—
				Angiospermae	Monocotyledoneae	Poales	Poaceae	<i>Phragmites australis</i>	Common reed	—	1.3	—	—	—	19	45	—
				Arthropod	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	<u>Stenopsyche marmorata</u>	473	0.039	Larva	—	—	120	320	—
				Arthropod	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche sauteri</i>	Parastenopsyche sauteri	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Megaloptera	Corydalidae	<i>Parachauliodes continentalis</i>	Parachauliodes continentalis Weele	103	0.065	Larva	—	—	12	32	—
				Arthropod	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	<u>Protohermes grandis</u>	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	<u>Macromia amphigena</u>	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	Anotogaster sieboldii	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Anisogomphus maacki</i>	Anisogomphus maacki	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Asiagomphus melanops</i>	Asiagomphus melanops	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Davidius nanus</i>	Davidius nanus	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	Davidius	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>	Nihonogomphus viridis	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Onychogomphus viridicostus</i>	Onychogomphus viridicostus	159	0.049	Larva	—	—	32	76	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Sieboldius albardae	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Sinogomphus flavolimbatus</i>	Sinogomphus flavolimbatus	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Stylogomphus suzuki</i>	Stylogomphus suzuki	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Libellulidae	<i>Crocothemis servilia mariannae</i>	Scarlet Skimmer	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Libellulidae	<i>Orthetrum albistylum speciosum</i>	Common skimmer	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Aeshnidae	<i>Anax parthenope julius</i>	Anax parthenope	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	Boyeria maclachlani	—	—	—	—	—	—	—	—
				Arthropod	Malacostraca	Decapoda	Atyidae	<i>Atyidae</i>	Freshwater shrimp	304	0.036	Imago	—	—	51	110	—
				Mollusca	Gastropoda	Sorbococoncha	Pleuroceridae	<i>Semisulcospira libertina</i>	Semisulcospira libertina	15	0.029	Imago	—	—	8.8	19	—
				Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Zacco platypus	20	0.12	2-year-old fish	Some (details unknown)	—	27	63	—
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp.</i>	R. sp. CB	19	0.042	Mature fish	—	—	65	140	—				
Amphibia	Amphibia	Anura	Ranidae	<i>Rana catesbetana</i>	American Bullfrog (tadpole)	10	0.032	Larva	—	—	190	420	—				
Coarse particulate organic matters (CPOMs)				—	—	—	—	—	CPOMs (fallen leaves)	—	0.76	—	—	58	130	—	

Note 1) When multiple types of aquatic organisms were collected, a sample was prepared by mixing them.

Note 2) For species with stomach contents as indicated in the note column, all stomach contents were removed for conducting the analysis.

Note 3) Underlined names in the English name column indicate species largest in number in the respective samples.

Note 4) A statement in red in the "Growth stage" column shows the age assessed based on squama or otolith.

Note 5) N.D. means to be below the detection limit.