

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

< Location D along the Mano River: Samples collected >

Items Locations	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 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	Odor	Contaminants	Water depth (m)	Transparency (cm)
D-1	37.733217°	140.925267°	2013/8/22	14:03	14:25	25.7	25.1	Sand	2.5Y4/4	None	pebble	0.28	>50
D-2	37.709500°	140.956550°	2013/8/23	7:22	7:36	22.5	23.0	Sand	2.5Y4/2	None	pebble	0.31	>50
D-3	37.704983°	140.962117°		8:23	8:38	21.1	20.9	Sand	2.5Y4/6	Sediment smell	pebble/root	0.33	>50
D-4a	37.730867°	140.907883°	2013/8/22	12:40	12:50	22.9	23.4	Sand	2.5Y4/3	None	pebble	0.35	>50
D-4b	37.731167°	140.909483°		13:25	—	23.7	—	—	—	—	—	0.21	>50
D-5	37.721600°	140.889583°	2013/8/22	11:16	11:26	21.8	22.2	Sand	2.5Y4/4	None	pebble	0.42	>50

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

Items Locations	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°	140.925267°	2013/8/22	14:03	7.8	0.6	3.1	9.9	11.1	0.06	1.5	1	1.0	0.035	0.075	0.0019
D-2	37.709500°	140.956550°	2013/8/23	7:22	7.2	0.7	3.5	8.2	12.9	0.07	1.5	3	1.8	0.037	0.076	—
D-3	37.704983°	140.962117°		8:23	7.1	0.6	3.2	8.7	13.3	0.07	1.4	3	1.3	0.022	0.047	—
D-4a	37.730867°	140.907883°	2013/8/22	12:40	7.5	0.5	3.1	10.0	10.8	0.06	1.5	1	0.9	0.040	0.084	—
D-4b	37.731167°	140.909483°		13:25	7.6	<0.5	2.9	10.3	10.7	0.06	1.5	2	1.0	0.047	0.100	—
D-5	37.721600°	140.889583°	2013/8/22	11:16	7.6	0.5	3.5	9.4	9.4	0.05	1.6	1	0.9	0.045	0.095	—

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

Items Locations	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/cm3)	Grain size distribution					Median grain diameter (mm)	vixmm-grain diameter (mm)	Cs-134 (Bq/kg-dry)	Cs-137 (Bq/kg-dry)	Sr-90 (Bq/kg-dry)	
	Latitude	Longitude	Date	Time							Gravel	Coarse sand	Medium sand	Fine sand	Silt						Clay
											(2-75mm) (%)	(0.85-2mm) (%)	(0.25-0.85mm) (%)	(0.075-0.25mm) (%)	(0.005-0.075mm) (%)						(Less than 0.005mm) (%)
D-1	37.733217°	140.925267°	2013/8/22	14:25	7.1	203	17.7	2.1	1	2.725	39.3	39.2	17.6	2.6	0.2	1.1	1.6	19	450	960	0.98
D-2	37.709500°	140.956550°	2013/8/23	7:36	7.0	224	16.0	1.7	1	2.711	48.6	29.9	17.2	2.9	0.4	1.0	1.9	26.5	170	360	—
D-3	37.704983°	140.962117°		8:38	7.1	251	27.1	2.7	3	2.672	23.3	10.8	35.5	19.6	4.8	6.0	0.41	26.5	170	360	—
D-4a	37.730867°	140.907883°	2013/8/22	12:50	7.3	239	18.8	3.1	1	2.720	48.3	26.9	17.8	4.8	0.8	1.4	1.9	19	530	1,200	—
D-5	37.721600°	140.889583°		11:26	7.1	264	20.8	2.7	1	2.718	24.6	28.3	37.1	7.3	1.0	1.7	0.91	19	560	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-1 D-2	37.733217° 37.709500°	140.925267° 140.956550°	2013/8/11	Arthropod	Malacostraca	Decapoda	Grapsidae	<i>Eriocheir japonica</i>	Japanese mitten crab	13	1.2	Imago	—	51	110	—
			2013/8/27	Vertebrata	Osteichthyes	Osmeriformes	Osmeridae	<i>Plecoglossus altivelis</i>	Sweetfish (stock)	31	1.1	Yearling fish	—	32	70	—
			2013/8/28	Vertebrata	Osteichthyes	Osmeriformes	Osmeridae	<i>Plecoglossus altivelis</i>	Sweetfish (natural upstream)	22	0.49	Yearling fish	Some (details unknown)	20	43	—
				Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Zacco platypus	13	0.077	1-year-old fish	—	25	54	—
D-4a D-4b	37.730867° 37.731167°	140.907883° 140.909483°	2013/8/28	Algae/plant	—	—	—	—	Attached algae	—	0.043	—	—	130.0	270	—
				Angiospermae	Monocotyledoneae	Najadales	Potamogetonaceae	<i>Potamogeton pusillus</i>	Small pondweed	—	0.13	—	—	N.D.(<4.1)	9.9	—
				Bryopsida	Sphagnopsida	Sphagnales	Sphagnaceae	<i>Sphagnum sp.</i>	Sphagnum	—	0.040	—	—	86	170	—
				Chlorophyta	Ulvophyceae	Cladophorales	Cladophoraceae	<i>Cladophora sp.</i>	Cladophora	—	0.016	—	—	6.9	17	—
				Arthropod	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	<u>Stenopsyche marmorata</u>	291	0.066	Larva	—	49	110	—
				Arthropod	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche sauteri</i>	Parastenopsyche sauteri							
				Arthropod	Insecta	Megaloptera	Corydalidae	<i>Parachauliodes continentalis</i>	Parachauliodes continentalis Weele	160	0.094	Larva	—	20	43	—
				Arthropod	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	<u>Protohermes grandis</u>							
				Arthropod	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena	56	0.014	Larva	—	20	47	—
				Arthropod	Insecta	Odonata	Gomphidae	<i>Davidius nanus</i>	Davidius nanus							
				Arthropod	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	Davidius							
				Arthropod	Insecta	Odonata	Gomphidae	<i>Onychogomphus viridicostus</i>	Onychogomphus viridicostus							
				Arthropod	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	<u>Sieboldius albardae</u>							
				Arthropod	Insecta	Odonata	Gomphidae	<i>Sinogomphus flavolimbatu</i>	Sinogomphus flavolimbatu							
				Arthropod	Insecta	Odonata	Gomphidae	<i>Stylogomphus suzukii</i>	Stylogomphus suzukii							
				Arthropod	Malacostraca	Decapoda	Procambarus	<i>Procambarus clarkii</i>	Red swamp crawfish	5	0.11	Imago	—	140	310	—
				Arthropod	Malacostraca	Decapoda	Atyidae	<i>Atyidae</i>	Freshwater shrimp	238	0.031	Imago	—	68	150	—
				Mollusca	Gastropoda	Sorbeoconcha	Pleuroceridae	<i>Semisulcospira libertina</i>	Semisulcospira libertina	74	0.080	Imago	—	13	29	—
				Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp.</i>	R. sp. CB	23	0.059	More than 1 year old	—	61	130	—
Amphibia	Amphibia	Anura	Ranidae	<i>Rana catesbeiana</i>	American Bullfrog (tadpole)	8	0.011	Larva	—	180	390	—				

- 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.