

○ 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	Survey date and time			Latitude and longitude of the location		Water		Sediment				Other	
	Date	Time(Water)	Time(Sediment)	Latitude	Longitude	Water temperature (degrees C)	Sediment temperature (degrees C)	Property	Color	Odor	Contaminants	Water depth (m)	Transparency (cm)
D-1	2012/12/5	10:45	10:55	37.733100°	140.925400°	8.6	8.7	Sand	2.5Y-3/1	None	Lampetra reissneri	0.3	>50
D-2	2012/12/5	11:57	12:10	37.709450°	140.956583°	8.8	8.8	Sand gravel	2.5Y-4/3	None	Pebbles	0.3	>50
D-3	2012/12/5	12:40	12:54	37.705100°	140.962250°	9.3	9.4	Sand/sediment	2.5Y-4/3	None	Pebbles	0.5	>50
D-4a	2012/12/5	9:22	9:28	37.730833°	140.908050°	6.3	6.5	Sand	2.5Y-3/1	None	Pebbles	0.4	>50
D-4b	2012/12/5	10:05	—	37.731217°	140.909633°	10.4	—	—	—	—	—	0.3	>50
D-5	2012/12/5	8:36	8:45	37.721383°	140.888883°	6.2	6.7	Sand	2.5Y-3/3	None	Lampetra reissneri	0.5	>50

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

Items Locations	Survey date and time		Latitude and longitude of the location		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)
	Date	Time	Latitude	Longitude												
D-1	2012/12/5	10:45	37.733100°	140.925400°	7.5	<0.5	2.7	12.3	9.8	0.05	1.0	<1	0.7	0.041	0.066	0.0014
D-2	2012/12/5	11:57	37.709450°	140.956583°	7.2	<0.5	2.6	12.0	11.6	0.06	1.0	1	0.8	0.022	0.040	—
D-3	2012/12/5	12:40	37.705100°	140.962250°	7.1	<0.5	2.8	11.9	12.3	0.06	0.9	2	1.4	0.027	0.045	—
D-4a	2012/12/5	9:22	37.730833°	140.908050°	7.4	0.6	2.8	10.6	9.8	0.05	0.9	<1	0.8	0.050	0.080	—
D-4b	2012/12/5	10:05	37.731217°	140.909633°	7.4	<0.5	2.6	11.2	9.8	0.05	0.9	<1	0.8	0.050	0.086	—
D-5	2012/12/5	8:36	37.721383°	140.888883°	7.5	<0.5	3.1	11.8	8.8	0.04	1.1	<1	0.8	0.078	0.13	—

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

Items Locations	Survey date and time		Latitude and longitude of the location		pH	Redox potential E _{NHLE} (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)		
	Date	Time	Latitude	Longitude							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-1	2012/12/5	10:55	37.733100°	140.925400°	7.3	328	26.4	2.4	2	2.703	14.2	12.1	60.1	8.9	0.5	4.2	0.510	19.00	770	1,300	2.1
D-2	2012/12/5	12:10	37.709450°	140.956583°	7.2	306	16.8	1.4	1	2.698	49.3	29.0	17.5	2.9	0.4	0.9	2.000	26.50	490	810	—
D-3	2012/12/5	12:54	37.705100°	140.962250°	7.1	326	15.7	1.6	1	2.679	44.8	14.0	30.9	7.3	0.5	2.5	1.300	19.00	140	230	—
D-4a	2012/12/5	9:28	37.730833°	140.908050°	7.2	352	20.4	2.1	1	2.701	38.6	25.8	24.9	5.4	1.0	4.3	1.400	19.00	810	1,400	—
D-5	2012/12/5	8:45	37.721383°	140.888883°	7.4	324	29.5	2.2	1	2.689	0.8	6.9	71.8	9.4	4.8	6.3	0.440	4.75	700	1,200	—

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

Location	Sampling Date	Latitude and longitude of the location		Division	Class	Order	Family	Species name	English name	Population	Sample weight (kg-wet)	Cs-134 (Bq/kg-wet)	Cs-137 (Bq/kg-wet)	Sr-90 (Bq/kg-wet)	Note				
		Latitude	Longitude												Growth stage	Stomach contents			
D-1	2012/12/12	37.733100°	140.925400°	Vertebrata	Osteichthyes	Osmeriformes	Osmeriformes	<i>Plecoglossus altivelis</i>	Sweetfish (natural upstream)	80	1.4	73	120	0.54	Mature fish	—			
D-2	2013/1/18	37.709450°	140.956583°	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon sp.</i>	Tribolodon	21	0.18	29	48	—	Immature fish	—			
D-3		37.705100°	140.962250°	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Zacco platypus	27	0.20	18	33	—	Mature fish	—			
D-4a D-4b	2012/12/13	37.730833° 37.731217°	140.908050° 140.909633°	Streptophyta	Zygnematales	Zygnematales	Zygnematales	<i>Spirogyra sp.</i>	Spirogyra	—	0.079	N.D. (<0.95)	0.97	—	—	—			
				Arthropoda	Insecta	Plecoptera	Plecoptera	<i>Kamimuria tibialis</i>	<u>Kamimuria tibialis</u>	—	—	—	—	—	—	—	—		
				Arthropod	Insecta	Plecoptera	Plecoptera	<i>Kamimuria uenoi</i>	<u>Kamimuria uenoi</u> Kohno	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Plecoptera	Plecoptera	<i>Neoperla sp.</i>	<u>Neoperla geniculata</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Plecoptera	Plecoptera	<i>Oyamia sp.</i>	<u>Oyamia sp.</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Trichoptera	Trichoptera	<i>Stenopsyche marmorata</i>	<u>Stenopsyche marmorata</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Trichoptera	Trichoptera	<i>Stenopsyche sauteri</i>	<u>Parastenopsyche sauteri</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Macromia amphigena amphigena</i>	<u>Macromia amphigena</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Calopteryx atrata</i>	<u>Calopteryx atrata</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Calopteryx cornelia</i>	<u>Calopteryx cornelia</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Davidius nanus</i>	<u>Davidius nanus</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Davidius sp.</i>	<u>Davidius</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Onychogomphus viridicostus</i>	<u>Onychogomphus viridicostus</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Sieboldius albardae</i>	<u>Sieboldius albardae</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Sinogomphus flavolimbatus</i>	<u>Sinogomphus flavolimbatus</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Stylogomphus suzukii</i>	<u>Stylogomphus suzukii</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Boyeria maclachlani</i>	<u>Boyeria maclachlani</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Odonata	Odonata	<i>Planaeschna milnei</i>	<u>Planaeschna milnei</u>	—	—	—	—	—	—	—	—	—	
				Arthropod	Insecta	Megaloptera	Megaloptera	<i>Parachauliodes continentalis</i>	<u>Parachauliodes continentalis</u> Weele	—	—	—	—	—	—	—	—	—	—
				Arthropod	Insecta	Megaloptera	Megaloptera	<i>Protohermes grandis</i>	<u>Protohermes grandis</u>	—	—	—	—	—	—	—	—	—	—
Vertebrata	Osteichthyes	Perciformes	Perciformes	<i>Rhinogobius sp.</i>	<u>Rhinogobius</u>	—	—	—	—	—	—	—	—	—	—				
Vertebrata	Amphibia	Anura	Anura	—	<u>Tadpole</u>	—	—	—	—	—	—	—	—	—	—				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
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Note) Underlined names in the English name column indicate species largest in number in the respective samples.