

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

< Location D along the Manogawa 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	
	Scheduled latitude	Scheduled longitude	Date	Time (water)	Time (sediment)	Water temperature (degrees C)	Sediment temperature (degrees C)	Property	Color	Contaminants	Water depth (m)	Transparency (cm)
D-1	37.7331°	140.9254°	2015/6/19	10:04	10:27	18.3	18.6	Sand	2.5Y3/3	Plant pieces a little/pebbles	0.21	>50
D-2	37.7095°	140.9566°		11:15	11:29	19.1	19.3	Sand	2.5Y4/3	Plant pieces, roots a little	0.31	>50
D-3	37.7051°	140.9623°		11:56	12:08	19.3	19.3	Sand	2.5Y4/4	Plant pieces a little	0.45	>50
D-4a	37.7308°	140.9081°		8:39	8:47	17.1	17.3	Sand	2.5Y4/2	Pebbles	0.35	>50
D-4b	37.7312°	140.9096°		9:22	—	17.1	—	—	—	—	0.27	>50
D-5	37.7214°	140.8889°		7:57	8:10	16.7	16.8	Sand	2.5Y3/3	Pebbles	0.51	>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	Salinity	TOC (mg/L)	SS (mg/L)	Turbidity (FNU)	Cs-134 (Bq/L)	Cs-137 (Bq/L)	Sr-90 (Bq/L)
	Scheduled latitude	Scheduled longitude	Date	Time (water)												
D-1	37.7331°	140.9254°	2015/6/19	10:04	7.5	<0.5	2.6	10.7	11	0.06	1.2	6	1.4	0.019	0.068	0.0012
D-2	37.7095°	140.9566°		11:15	7.3	<0.5	3.3	9.5	12.4	0.07	1.5	7	2.5	0.0098	0.032	—
D-3	37.7051°	140.9623°		11:56	7.3	<0.5	3.6	9.7	13.3	0.07	1.7	6	2.6	0.011	0.039	—
D-4a	37.7308°	140.9081°		8:39	7.4	<0.5	2.8	9.7	10.6	0.06	1.3	2	1.4	0.011	0.043	—
D-4b	37.7312°	140.9096°		9:22	7.5	<0.5	2.7	9.6	10.6	0.06	1.1	4	1.2	0.012	0.043	—
D-5	37.7214°	140.8889°		7:57	7.5	<0.5	3.1	9.8	8.9	0.05	1.4	6	1.2	0.012	0.045	—

< 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 EN.H.E (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)	
	Scheduled latitude	Scheduled 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 (0.005-0.0075mm) (%)	Clay (Less than 0.005mm)	Median grain diameter				Maximum grain diameter
D-1	37.7331°	140.9254°	2015/6/19	10:27	7.2	479	17.2	1.8	2.3	2.655	29.3	38.2	25.3	5.1	0.3	1.8	1.3	19	200	790	0.58
D-2	37.7095°	140.9566°		11:29	7.2	474	19.6	1.6	2.2	2.67	12.5	39.5	42.3	3.3	0.2	2.2	0.88	9.5	140	520	—
D-3	37.7051°	140.9623°		12:08	7.2	470	18.2	1.5	2.3	2.67	22.6	28.4	41.9	4.3	0.6	2.2	0.87	9.5	33	120	—
D-4a	37.7308°	140.9081°		8:47	7.3	472	18.5	1.8	1.5	2.691	19.4	42.2	33.9	3.1	0.1	1.3	1.1	9.5	270	1100	—
D-4b	37.7312°	140.9096°		9:22	7.4	474	18.5	1.7	1.4	2.666	35.7	30.9	25.6	5.3	0.7	1.8	1.4	4.75	150	570	—
D-5	37.7214°	140.8889°		8:10	7.4	474	18.5	1.7	1.4	2.666	35.7	30.9	25.6	5.3	0.7	1.8	1.4	4.75	150	570	—

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

Location	Sampling point	Latitude and longitude of the location		Sampling Date	Division	Class	Order	Family	Species 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	Cs-134	Cs-137														
D-2	—	37.7095°	140.9566°	2015/7/15	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Zacco platypus	12	0.18		Mature fish (2-year-old)	—	—	3.6	14	—												
									<i>Tribolodon hakonensis</i>	Japanese dace	40	0.55		Mature fish (1-year-old)	—	—	5.7	21	—												
									<i>Plecoglossus altivelis altivelis</i>	Sweetfish	24	0.53		Mature fish	—	—	13	49	—												
									Phycophyta	—	—	—	Riverbed Deposits (include algae)	—	—	—	—	—	—												
D-4b	—	37.7312°	140.9096°	2015/6/20	Vertebrata	Osteichthyes	Trichoptera	Stenopochridae	<i>Stenopysche marmorata</i>	Stenopysche marmorata	149	0.011	Larva	—	—	40	150	—													
									Arthropod	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena																	
									Arthropod	Insecta	Odonata	Gomphidae	<i>Meligomphus viridicostus</i>	Onychogomphus viridicostus																	
									Arthropod	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Sieboldius albardae																	
									Arthropod	Insecta	Odonata	Gomphidae	<i>Asiagomphus melanocephalus</i>	Asiagomphus melanocephalus	14	0.0053	Larva (dragonfly larva)	—	—	12	28	—	—	—							
									Arthropoda	Insecta	Odonata	Libellulidae	<i>Orthetrum albistylum spectiosum</i>	Common skimmer																	
									Arthropod	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	Boyeria maclachlani																	
									Arthropod	Insecta	Megaloptera	Corduliidae	<i>Protothermes grandis</i>	Protothermes grandis	76	0.032	Larva	—	—	—	—	—	4.4	15	—						
									Arthropod	Malacostraca	Decapoda	Procambarus	<i>Procambarus clarkei</i>	Red swamp crayfish	4	0.097	Imago	—	—	34	130	—	—	—	—						
									Arthropod	Malacostraca	Decapoda	Grapsidae	<i>Eriocheir japonica</i>	Japanese mitten crab	1	0.036	Imago	—	—	17	65	—	—	—	—						
									Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	36	0.0061	Imago	—	—	14	61	—	—	—	—						
									Arthropod	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Common prawn	4	0.0031	Imago	—	—	29	69	—	—	—	—						
									Mollusca	Gastropoda	Sorbococoncha	Pleuroceridae	<i>Semisulcospira libertina</i>	Semisulcospira libertina	16	0.011	Imago	—	—	23	77	—	—	—	—						
									2015/6/21	Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	eel	1	0.46	Mature fish (11-year-old)	Zacco platypus	—	—	—	—	—	40	160	—				
														Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>	Sculpin	2	0.029	Mature fish	Trichoptera	—	—	19	67	—			
														Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Zacco platypus	5	0.032	Mature fish (1.2-year-old)	—	—	17	61	—				
														Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Gnathopogon elongatus elongatus</i>	Tamoroko	5	0.21	Mature fish (2-year-old)	—	—	21	74	—				
														Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur Minnow	3	0.0058	Mature fish (1-year-old)	—	—	11	32	—				
														Vertebrata	Osteichthyes	Cypriniformes	Cobitiidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	3	0.026	Mature fish	—	—	3.4	11	—				
														Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Zacco platypus	49	0.016	Immature fish (0-year-old)	—	—	21	80	—				
														Vertebrata	Osteichthyes	Osmeriformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	1	0.0055	Mature fish	—	—	27	75	—				
														Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou masou</i>	Yamame trout	4	0.036	Immature fish (1-year-old)	Stenopysche marmorata	—	—	10	41	—			
														Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius flaviatilis</i>	R. fluviatilis	5	0.024	Mature fish	—	—	43	160	—				
														Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	R. sp. CB	11	0.027	Mature fish	—	—	19	76	—				
														Particulate Organic Matter	—	—	—	—	Bottom fallen leaves	—	—	0.16	—	—	—	—	—	—	46	190	—

*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 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: A statement in red in the "Growth stage" column shows the age assessed based on squama or otolith.

*6: Plankton (suspended algae) is the residue remaining after the filtration of lake water or seawater with a plankton net (40µm-mesh).

*7: 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.

*8: N.D. means to be below the detection limit and figures in parentheses show the detection limit.

*9: Activity concentrations include counting errors, but the details are omitted here.