

OResults of Radioactive Material Monitoring of Aquatic Organisms (Location N along the Ukedo River)

<Location N along the Ukedo River: Samples collected>

Locations	General items		Radioactive materials			
	Water	Sediment	Water (Cs)	Water (Sr)	Sediment (Cs)	Sediment (Sr)
N-1	○	○	○	○	○	○
N-2	○	○	○	-	○	-
N-3	○	○	○	-	○	-

<Location N along the Ukedo 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)
N-1	37.4998°	140.9835°	2023/6/11	14:30	14:33	18.8	17.9	Sand	7.5Y5/2	None	0.20	>100
N-2	37.5070°	140.9456°		15:00	15:05	18.8	18.8	Sand	7.5Y5/2	Plant pieces	0.40	>100
N-3	37.4754°	140.9598°		15:20	15:22	18.3	18.8	Sand	7.5Y5/2	None	0.30	>100

<Location N along the Ukedo 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)												
N-1	37.4998°	140.9835°	2023/6/11	14:30	6.8	0.7	2.8	8.3	9.1	0.05	1.2	2	1.4	0.0017	0.071	0.0024
N-2	37.5070°	140.9456°		15:00	7.3	<0.5	2.6	9.6	7.4	0.04	1.1	1	0.8	N.D.(0.0018)	0.090	-
N-3	37.4754°	140.9598°		15:20	7.4	0.6	2.9	9.4	8.0	0.04	1.1	4	1.9	N.D.(0.0015)	0.033	-

Note) N.D. means to be below the detection limit and figures in parentheses show the detection limit.

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

Locations	Latitude and longitude of the location		Survey date and time		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)
	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)			
N-1	37.4998°	140.9835°	2023/6/11	14:33	7.2	489	20.3	1.3	1.8	2.640	4.5	21.8	59.5	10.2	0.7	3.3	0.54	9.5	48	2200	0.17
N-2	37.5070°	140.9456°		15:05	7.4	503	18.9	1.0	0.8	2.640	16.4	24.7	40.0	14.3	1.8	2.8	0.62	9.5	68	2900	-
N-3	37.4754°	140.9598°		15:22	7.4	540	22.4	1.0	1.4	2.640	5.2	30.1	51.3	7.6	2.1	3.7	0.64	4.8	21	950	-

Note) N.D. means to be below the detection limit and figures in parentheses show the detection limit.

<Location N along the Ukedo 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		
N-1	The main stream of the Ukedo River	37.4998°	140.9835°	2023/6/14	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.0058	-	-	-	200	N.D.(29)	200	-	
					Algae/plant	Monocotyledoneae	Najadales	Potamogetonaceae	<i>Potamogeton crispus</i>	Curly-leaf pondweed	-	0.26	-	-	-	81.7	1.7	80	-	
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Caddisfly	146	0.020	Larva	-	-	-	290	N.D.(9.9)	290	-
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Dragonfly	48	0.0083	Larva (Dragonfly larva)	-	-	65	N.D.(14)	65	-	
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Melligomphus viridicostus</i>	Dragonfly										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius</i> sp.	Dragonfly										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Shaogomphus postocularis</i>	Dragonfly										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Anisogomphus maacki</i>	Dragonfly										
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	Jumbo dragonfly										
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Dobsonfly	9	0.0043	Larva	-	-	-	37	N.D.(9.2)	37	-
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Lake prawn	112	0.094	Imago	-	-	-	63	N.D.(2.6)	63	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	59	0.011	Juvenile	-	-	-	110	N.D.(16)	110	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	28	0.080	Juvenile	-	-	-	100	N.D.(2.9)	100	-
					Mollusca	Bivalvia	Veneroida	Corbicula	<i>Corbicula</i> sp.	Corbicula	39	0.0044	Juvenile,Imago	-	Molluscos part	69	N.D.(18)	69	-	
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	5	0.90	Immature fish, Mature fish	Fish,Aquatic insect	Viscera removed	285.4	5.4	280	-	
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>	Sculpin	36	0.13	Immature fish	-	-	-	78	N.D.(1.9)	78	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudaspius hakonensis</i>	Japanese dace	1	0.022	Immature fish	-	-	-	88	N.D.(6.7)	88	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	2	3.0	Mature fish	Obscure digesta	Viscera removed	96.4	1.4	95	1.6	
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Acheilognathus melanogaster</i>	Acheilognathus	5	0.012	Immature fish, Mature fish	-	-	-	130	N.D.(16)	130	-
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Ayu sweetfish	282	1.7	Immature fish	-	-	-	225.2	5.2	220	0.31
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	Rhinogobius	41	0.046	Immature fish, Mature fish	-	-	96.8	4.8	92	-	
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius</i> sp.OR	Amur goby										
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius</i> sp.	Freshwater goby										
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Tridentiger brevispinis</i>	Dusky tripletooth goby	9	0.072	Immature fish, Mature fish	-	-	-	114.4	4.4	110	-
					Vertebrata	Amphibia	Anura	Lithobates	<i>Lithobates catesbeianus</i>	American bullfrog	13	0.20	Larva(Tadpole)	-	-	-	226.1	6.1	220	-
					Coarse Particulate Organic Matter	-	-	-	-	Water-bottom leaf litter	-	0.24	-	-	-	-	225.2	5.2	220	-
N-2	The main stream of the Ukedo River	37.5070°	140.9456°	2023/6/13	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.0062	-	-	-	370	N.D.(24)	370	-	
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Caddisfly	276	0.034	Larva	-	-	-	170	N.D.(5.9)	170	-
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Dragonfly	73	0.022	Larva (Dragonfly larva)	-	-	170	N.D.(7.0)	170	-	
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Melligomphus viridicostus</i>	Dragonfly										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Dragonfly										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius</i> sp.	Dragonfly										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Anisogomphus maacki</i>	Dragonfly										
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	Jumbo dragonfly										
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Dobsonfly	34	0.016	Larva	-	-	-	30	N.D.(4.8)	30	-
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Lake prawn	142	0.23	Imago	-	-	-	82	N.D.(1.6)	82	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	231	0.047	Juvenile,Imago	-	-	-	144.0	4.0	140	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	3	0.017	Juvenile	-	-	-	110	N.D.(8.9)	110	-
					Mollusca	Bivalvia	Veneroida	Corbicula	<i>Corbicula</i> sp.	Corbicula	48	0.0089	Imago	-	Molluscos part	77	N.D.(11)	77	-	
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>	Sculpin	3	0.032	Immature fish	-	-	-	110	N.D.(5.2)	110	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Rhynchocypris lagowskii steindachneri</i>	Amur minnow	3	0.010	Immature fish, Mature fish	-	-	-	92	N.D.(12)	92	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudaspius hakonensis</i>	Japanese dace	3	0.066	Immature fish, Mature fish	-	-	-	240	N.D.(3.8)	240	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsariichthys platypus</i>	Pale break	5	0.14	Mature fish	-	-	-	133.3	3.3	130	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	1	2.4	Mature fish	Obscure digesta	Viscera removed	192.9	2.9	190	1.7	
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	1	6.0	Mature fish	Obscure digesta	Viscera removed	234.4	4.4	230	3.9	
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Ayu sweetfish	183	1.5	Immature fish	-	-	-	183.2	3.2	180	0.34
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou masou</i>	Masu salmon	8	0.094	Immature fish	-	-	-	122.9	2.9	120	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	Rhinogobius	24	0.021	Immature fish, Mature fish	-	-	-	81	N.D.(6.7)	81	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Tridentiger brevispinis</i>	Dusky tripletooth goby	1	0.024	Mature fish	-	-	-	110	N.D.(7.1)	110	-
					Vertebrata	Osteichthyes	Siluriformes	Amblycipitidae	<i>Liobagrus reinii</i>	Torrent catfish	5	0.019	Immature fish, Mature fish	-	-	-	100	N.D.(9.6)	100	-
					Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	1	1.1	Mature fish	Empty stomach	Viscera removed	5210	110	5100	1.1	
					Coarse Particulate Organic Matter	-	-	-	-	Water-bottom leaf litter	-	0.24	-	-	-	-	143.0	3.0	140	-
N-3	The main stream of the Takase River	37.4754°	140.9598°	2023/6/11	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.014	-	-	-	62	N.D.(11)	62	-	
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Caddisfly	238	0.033	Larva	-	-	-	37	N.D.(6.5)	37	-
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Dobsonfly	10	0.0038	Larva	-	-	-	5.7	N.D.(6.2)	5.7	-
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Lake prawn	67	0.081	Imago	-	-	-	18	N.D.(2.7)	18	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	50	0.014	Juvenile,Imago	-	-	-	23	N.D.(2.7)	23	-
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	20	0.17	Juvenile	-	-	-	29	N.D.(1.5)	29	-
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>	Sculpin	39	0.32	Immature fish	-	-	-	15	N.D.(1.1)	15	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsariichthys platypus</i>	Pale break	1	0.016	Immature fish	-	-	-	110	N.D.(12)	110	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Candidia temminckii</i>	Dark chub	64	0.069	Immature fish	-	-	-	25	N.D.(2.6)	25	-
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Barbatula oreas</i>	Stone loach	121	1.2	Immature fish	-	-	-	13	N.D.(1.3)	13	0.25
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Ayu sweetfish	317	2.0	Immature fish	-	-	-	66.3	1.3	65	0.16
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	Rhinogobius	51	0.092	Immature fish, Mature fish	-	-	22	N.D.(2.4)	22	-	
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius</i> sp.	Freshwater goby										
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Tridentiger brevispinis</i>	Dusky tripletooth goby	1	0.014	Mature fish	-	-	-	27	N.D.(5.7)	27	-
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Sicyopterus japonicus</i>	Monk goby	9	0.084	Immature fish, Mature fish	-	-	-	53.4	2.4	51	-
					Vertebrata	Cephalaspidomorphi	Petromyzontiformes	Petromyzontidae	<i>Lethenteron</i> sp.	Lethenteron	12	0.010	Anmocoetes (larva)	-	-	-	4.8	N.D.(3.6)	4.8	-
Coarse Particulate Organic Matter	-	-	-	-	Water-bottom leaf litter	-	0.24	-	-	-	-	72.8	1.8	71	-					