

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

<Location N along the Ukedo River: Samples collected>

Items	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>

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	Contaminants	Water depth (m)	Transparency (cm)
N-1	37.4998°	140.9835°	2023/8/27	08:13	08:17	25.1	23.4	Sand	7.5Y4/2	Plant pieces	0.30	>100
N-2	37.5070°	140.9456°		10:07	10:12	25.0	24.6	Sand	7.5Y6/3	Plant pieces	0.10	>100
N-3	37.4754°	140.9598°		12:41	12:45	26.2	26.2	Sand	7.5Y5/3	Plant pieces	0.20	>100

<Location N along the Ukedo 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)	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°	2023/8/27	08:13	6.8	0.6	3.0	6.7	10.3	0.06	1.1	2	1.8	0.0017	0.12	0.0014
N-2	37.5070°	140.9456°		10:07	7.2	0.8	4.3	7.6	7.6	0.04	1.5	5	2.3	0.0055	0.26	-
N-3	37.4754°	140.9598°		12:41	7.6	0.5	2.7	8.5	8.2	0.05	1.1	4	1.4	N.D.(0.0015)	0.049	-

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>

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								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°	2023/8/27	08:17	7.1	396	21.4	1.0	0.9	2.640	5.1	26.1	54.9	9.2	1.2	3.5	0.61	9.5	37	1800	N.D.(0.12)
N-2	37.5070°	140.9456°		10:12	7.6	469	21.2	0.9	1.1	2.640	14.2	41.5	35.5	4.1	1.3	3.4	0.94	9.5	42	2200	-
N-3	37.4754°	140.9598°		12:45	7.3	463	24.4	1.7	3.7	2.640	5.5	15.4	53.0	18.4	2.9	4.8	0.45	9.5	25	1400	-

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°	2023/8/27	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.0097	-	-	-	350	N.D.(21)	350	-					
					Algae/plant	Monocotyledoneae	Najadales	Potamogetonaceae	<i>Potamogeton crispus</i>	Curly-leaf pondweed	-	0.24	-	-	-	203.1	3.1	200	-					
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Dragonfly	75	0.011	Larva (Dragonfly larva)	-	-	74	N.D.(18)	74	-					
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>	Dragonfly														
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Stylogomphus suzukii</i>	Dragonfly														
					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>Shaogomphus postocularis</i>	Dragonfly														
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Anisogomphus maacki</i>	Dragonfly														
					Arthropoda	Insecta	Odonata	Libellulidae	<i>Sympetrum</i> sp.	Dragonfly														
					Arthropoda	Insecta	Odonata	Libellulidae	<i>Orthetrum</i> sp.	Common skimmer														
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Lake prawn	48	0.057	Imago	-	-	80	N.D.(3.9)	80	-					
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	11	0.019	Juvenile	-	-	100	N.D.(5.5)	100	-					
					Vertebrata	Osteichthyes	Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	Japanese eel	4	1.1	Mature fish	Empty stomach	Viscera removed	244.0	4.0	240	0.36					
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>	Sculpin	49	0.058	Immature fish	-	-	42	N.D.(4.2)	42	-					
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudaspius hakonensis</i>	Japanese dace	5	0.21	Immature fish, Mature fish	Obscure digesta	Viscera removed	122.3	2.3	120	-					
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsariichthys platypus</i>	Pale break	88	0.28	Immature fish, Mature fish	-	-	95	N.D.(1.4)	95	-					
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Candidia temminckii</i>	Dark chub	3	0.011	Immature fish	-	-	50	N.D.(13)	50	-					
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius</i> sp.	Silver crucian carp	1	0.0064	Immature fish	-	-	100	N.D.(23)	100	-					
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	1	6.0	Mature fish	Obscure digesta	Viscera removed	141.9	1.9	140	3.0					
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Cobitis</i> sp.	Japanese striped loach	4	0.0080	Mature fish	-	-	74	N.D.(17)	74	-					
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	4	0.0069	Immature fish	-	-	8.3	N.D.(4.1)	8.3	-					
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Ayu sweetfish	305	1.8	Immature fish	-	-	234.8	4.8	230	0.53					
					Vertebrata	Osteichthyes	Perciformes	Lateolabracidae	<i>Lateolabrax japonicus</i>	Japanese sea bass	1	0.039	Immature fish	-	-	120	N.D.(5.8)	120	-					
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	Rhinogobius	115	0.10	Immature fish, Mature fish	-	-	51	N.D.(2.3)	51	-					
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius</i> sp.	Freshwater goby														
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Tridentiger brevispinis</i>	Dusky tripletooth goby	9	0.030	Immature fish, Mature fish	-	-	120	N.D.(7.4)	120	-					
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Sicyopterus japonicus</i>	Monk goby	3	0.0057	Immature fish	-	-	84	N.D.(18)	84	-					
					Coarse Particulate Organic Matter	-	-	-	-	-	-	0.26	-	-	-	264.5	4.5	260	-					
N-2	The main stream of the Ukedo River	37.5070°	140.9456°	2023/8/27	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.021	-	-	-	180	N.D.(7.9)	180	-					
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Dragonfly	104	0.028	Larva (Dragonfly larva)	-	-	81	N.D.(6,8)	81	-					
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</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>Asiogomphus melaenops</i>	Dragonfly														
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Dobsonfly	17	0.0087	Larva	-	-	42	N.D.(9,1)	42	-					
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Lake prawn	105	0.079	Imago	-	-	124.1	4.1	120	-					
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	488	0.049	Juvenile	-	-	140	N.D.(4.8)	140	-					
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	7	0.059	Juvenile	-	-	164.8	4.8	160	-					
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>	Sculpin	5	0.060	Immature fish	-	-	170	N.D.(4.0)	170	-					
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsariichthys platypus</i>	Pale break	10	0.044	Immature fish	-	-	81	N.D.(4.8)	81	-					
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Ayu sweetfish	84	0.77	Immature fish, Mature fish	-	-	376.9	6.9	370	-					
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>	Rhinogobius	38	0.072	Immature fish, Mature fish	-	-	110	N.D.(3.4)	110	-					
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius</i> sp.	Freshwater goby														
					Vertebrata	Osteichthyes	Siluriformes	Amblycipitidae	<i>Liobagrus reinii</i>	Torrent catfish	7	0.028	Immature fish, Mature fish	-	-	72	N.D.(6,1)	72	-					
					Coarse Particulate Organic Matter	-	-	-	-	-	0.20	-	-	-	91.0	2.0	89	-						
					N-3	The main stream of the Takase River	37.4754°	140.9598°	2023/8/27	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.0075	-	-	-	78	N.D.(20)	78	-
										Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Caddisfly	112	0.019	Larva	-	-	90	N.D.(11)	90	-
Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>						Dragonfly	72	0.010	Larva (Dragonfly larva)	-	-	9.6	N.D.(3,3)	9.6	-					
Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>						Dragonfly														
Arthropoda	Insecta	Odonata	Gomphidae	<i>Stylogomphus suzukii</i>						Dragonfly														
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	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>						Lake prawn	25	0.030	Imago	-	-	20	N.D.(3,5)	20	-					
Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>						Freshwater shrimp	345	0.050	Juvenile, Imago	-	-	27	N.D.(4,0)	27	-					
Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>						Japanese mitten crab	8	0.080	Juvenile	-	-	28	N.D.(2,8)	28	-					
Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus reinii</i>						Sculpin	29	0.11	Immature fish	-	-	13	N.D.(2,1)	13	-					
Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Candidia temminckii</i>						Dark chub	6	0.032	Immature fish, Mature fish	-	-	48	N.D.(5,8)	48	-					
Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Barbatula oreas</i>						Stone loach	47	0.34	Immature fish	-	-	11	N.D.(0,99)	11	-					
Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>						Ayu sweetfish	151	1.1	Immature fish, Mature fish	-	-	98.4	2.4	96	0.25					
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius nagoyae</i>						Rhinogobius	37	0.047	Immature fish, Mature fish	-	-	18	N.D.(3,6)	18	-					
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius</i> sp.						Freshwater goby														
Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Sicyopterus japonicus</i>						Monk goby	25	0.085	Immature fish	-	-	37	N.D.(2,2)	37	-					
Coarse Particulate Organic Matter	-	-	-	-						-	0.21	-	-	-	204.2	4.2	200	-						

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