

Results of Radioactive Material Monitoring of Aquatic Organisms (Location E along the Niida River)

<Location E along the Niida River: Samples collected>

Locations	General items		Radioactive materials			
	Water	Sediment	Water (Cs)	Water (Sr)	Sediment (Cs)	Sediment (Sr)
E-1	○	○	○	○	○	○
E-2 a	○	○	○	-	○	-
E-2 b	○	-	○	-	-	-
E-3	○	○	○	-	○	-
E-4	○	○	○	-	○	-
E-5	○	○	○	-	○	-

<Location E along the Niida 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)		
E-1	37.6609°	140.9115°	2016/9/5	08:40	08:15	19.7	20.1	Sand	2.5Y5/3	None	0.40	>50		
E-2 a	37.6640°	140.9447°		11:45	11:40	21.9	24.7	Sand	2.5Y4/2	None	0.76	26		
E-2 b	37.6635°	140.9452°		11:15	-	23.6	-	-	-	-	0.49	28		
E-3	37.6444°	141.0018°		15:44	15:50	23.9	23.1	Fine sand	2.5Y4/2	None	0.45	39		
E-4	37.6485°	140.9630°		14:50	14:50	24.3	24.2	Sand	2.5Y5/6	None	0.53	41		
E-5	37.6652°	140.9169°		13:45	13:50	21.3	21.5	Sand	2.5Y4/4	None	0.40	>50		

<Location E along the Niida 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)												
E-1	37.6609°	140.9115°	2016/9/5	08:40	7.3	0.9	3.0	9.8	11.0	0.06	1.2	6	3.4	0.012	0.066	0.0022
E-2 a	37.6640°	140.9447°		11:45	7.4	0.7	4.7	9.6	6.9	0.04	1.3	27	17.1	0.093	0.50	-
E-2 b	37.6635°	140.9452°		11:15	7.3	0.7	5.7	9.2	6.7	0.04	1.3	38	19.8	0.11	0.59	-
E-3	37.6444°	141.0018°		15:44	7.3	0.8	3.5	8.8	8.0	0.04	1.2	14	8.6	0.031	0.17	-
E-4	37.6485°	140.9630°		14:50	7.4	0.9	3.7	8.6	8.0	0.04	1.2	15	7.8	0.031	0.16	-
E-5	37.6652°	140.9169°		13:45	7.3	0.7	2.8	9.1	6.7	0.04	1.0	7	3.4	0.014	0.070	-

<Location E along the Niida 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)			
											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)			
E-1	37.6609°	140.9115°	2016/9/5	08:15	7.5	301	15.0	0.7	1.5	2.691	29.8	45.8	23.5	0.5	0.0	0.4	1.4	9.5	83	480	0.24
E-2 a	37.6640°	140.9447°		11:40	7.5	325	15.7	0.9	1.5	2.687	32.0	29.0	37.7	0.9	0.1	0.3	1.1	9.5	48	250	-
E-3	37.6444°	141.0018°		15:50	7.4	334	18.8	1.0	1.6	2.703	15.5	7.6	68.0	7.6	0.5	0.8	0.48	9.5	83	510	-
E-4	37.6485°	140.9630°		14:50	7.4	339	16.3	1.0	1.9	2.703	19.2	26.0	47.0	6.5	0.4	0.9	0.78	9.5	75	460	-
E-5	37.6652°	140.9169°		13:50	7.5	347	16.1	0.9	1.5	2.700	33.1	42.7	23.3	0.8	0.0	0.1	1.4	9.5	30	180	-

<Location E along the Niida 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		
E-2b	-	37.6635°	140.9452°	2016/8/24	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.0036	-	-	-	194	34	160	-	
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena	19	0.0062	Larva (Dragonfly larva)	-	-	-	108	16	92	-
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Sieboldius albardae										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	Davidius										
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaenops</i>	Asiagomphus melaenops										
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Anax parthenope</i>	Anax parthenope										
					Arthropoda	Malacostraca	Decapoda	Cambaridae	<i>Procambarus clarkii</i>	Red swamp crawfish	5	0.046	Imago	-	-	66.9	9.9	57	-	
					Arthropoda	Malacostraca	Decapoda	Palaemonidae	<i>Palaemon paucidens</i>	Common prawn	47	0.046	Imago	-	-	49.8	6.8	43	-	
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Paratya improvisa</i>	Freshwater shrimp	199	0.031	Imago	-	-	49.1	7.1	42	-	
					Arthropoda	Malacostraca	Decapoda	Varunidae	<i>Eriocheir japonica</i>	Japanese mitten crab	5	0.21	Imago	-	-	72	11	61	-	
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	11	0.21	Immature fish	Obscure digesta	Viscera removed	43.8	5.8	38	-	
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Pale chub	12	0.051	Immature fish	-	-	36.5	5.5	31	-	
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Hemibarbus barbus</i>	Hemibarbus barbus	14	0.045	Immature fish	-	-	27.1	4.1	23	-	
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	15	0.050	Immature fish, Mature fish	-	-	34.6	5.6	29	-	
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis</i>	Sweetfish	19	0.42	Immature fish, Mature fish	-	-	71	11	60	-	
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius fluviatilis</i>	Rhinogobius fluviatilis	32	0.072	Immature fish, Mature fish	-	-	54.1	9.1	45	-	
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp. CB</i>	Rhinogobius nagoyae										
					Vertebrata	Osteichthyes	Perciformes	Gobiidae	<i>Rhinogobius sp.</i>	Rhinogobius										
					Vertebrata	Amphibia	Anura	Ranidae	<i>Rana porosa porosa</i>	Tokyo Daruma pond frog	8	0.051	Imago	-	-	37.3	5.3	32	-	
					Vertebrata	Amphibia	Anura	Hylidae	<i>Hyla japonica</i>	Japanese tree frog	7	0.0026	Larva (Tadpole)	-	-	507	77	430	-	
Vertebrata	Amphibia	Anura	-	-	Frog															
E-4	-	37.6485°	140.9630°	2016/8/4	Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	0.21	-	-	-	295	45	250	-	
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis</i>	Sweetfish	77	2.6	Mature fish	-	-	89	13	76	0.46	
					Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	1	1.5	Mature fish	Empty stomach	Viscera removed	426	66	360	1.3	

*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).

*6: 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.

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

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