

◦Results of Radioactive Material Monitoring of Aquatic Organisms (Locations A and B along the Abukuma River)

< Locations A and B along the Abukuma River: Samples collected->

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

<Locations A and B along the Abukuma 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)	
A-1 (Surface layer)	37.6209°	140.5220°	2014/10/21	8:48	9:09	15.1	15.3	Sediment with sand	2.5Y4/1	Leaves/pebbles	8.4	>50.0 (1.5m)*	
A-1 (Deep layer)				8:38		15.3							
A-2	37.5655°	140.3943°		11:15	11:25	15.2	15.7	Sand	10YR4/4	None	0.71	>50.0	
B-1	37.7847°	140.4921°		15:30	15:23	15.9	16.1	Sand	2.5Y4/2	None	0.52	>50.0	
B-2	37.8120°	140.5058°		14:20	14:26	14.3	14.5	Sand	2.5Y4/4	None	0.68	>50.0	
B-3	37.8164°	140.4719°		13:27	13:36	11.2	12.2	Sand	2.5Y3/1	Pebbles	0.61	>50.0	

* The numbers in () indicates the degree of transparency

<Locations A and B along the Abukuma 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)	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)
	Latitude	Longitude	Date	Time												
A-1 (Surface layer)	37.6209°	140.5220°	2014/10/21	8:48	7.6	0.7	2.9	10.4	15.5	0.08	1.2	5	3.5	0.0050	0.014	0.0012
A-1 (Deep layer)				8:38	7.7	0.8	2.5	10.1	15.9	0.08	1.3	6	3.5	0.0050	0.017	—
A-2	37.5655°	140.3943°		11:15	7.5	<0.5	1.9	10.2	10.6	0.05	1.0	1	1.6	0.0090	0.026	—
B-1	37.7847°	140.4921°		15:30	7.7	0.7	2.4	10.0	15.8	0.08	1.2	6	3.7	0.0072	0.020	—
B-2	37.8120°	140.5058°		14:20	7.6	0.6	2.1	10.1	13.5	0.07	1.1	3	3.2	0.0040	0.016	—
B-3	37.8164°	140.4719°		13:27	7.5	<0.5	2.1	11.0	9.0	0.05	1.1	2	1.6	0.0063	0.017	—

<Locations A and B along the Abukuma River: General survey items/Analysis of radioactive materials Sediment->

Locations	Latitude and longitude of the location		Survey date and time		pH	Redox potential E _{N,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)	
	Latitude	Longitude	Date	Time							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)
A-1	37.6209°	140.5220°	2014/10/21	9:09	7.0	233	38.4	4.0	9.1	2.779	0.3	0.6	24.9	46.4	11.7	16.1	0.17	4.75	730	2,400	0.36
A-2				37.5655°	140.3943°	11:25	7.1	369	24.3	2.1	2.1	2.725	8.6	56.1	30.5	3.0	0.8	1.0	1.1	4.75	43
B-1	37.7847°	140.4921°		15:23	7.1	281	21.5	1.5	1.7	2.756	16.1	17.1	35.4	27.5	2.0	1.9	0.36	9.5	44	150	—
B-2	37.8120°	140.5058°		14:26	7.1	366	27.1	1.7	1.2	2.735	0.0	0.6	54.9	42.1	1.1	1.3	0.27	2	57	190	—
B-3	37.8164°	140.4719°		13:36	7.2	362	19.0	1.3	1.4	2.695	27.1	40.2	30.4	1.5	0.4	0.4	1.2	19	40	120	—

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

<Locations A and B along the Abukuma River: Survey items: Aquatic organisms>

Location		Latitude and longitude of the location		Sampling Date	Division	Class	Order	Family	Species name	English name	Population	Sample weight(kg-wet)	Note			Cs-134 (Bq/kg-wet)	Cs-137 (Bq/kg-wet)	Sr-90 (Bq/kg-wet)
		Latitude	Longitude										Growth stage	Stomach contents	Measurement site			
A-2	Harase River	37.5655°	140.3943°	2014/10/23	Algae/plant	—	—	—	—	River bottom materials (incl. algae)	Considerable number	0.076	—	—	—	42	130	—
					Arthropod	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	Anotogaster sieboldii	54	0.062	Larva (dragonfly larva)	—	—	19	56	—
					Arthropoda	Malacostraca	Decapoda	Potamidae	<i>Geothelphusa dehaani</i>	Japanese Freshwater Crab	20	0.013	Imago	—	—	6.8	21	—
					Arthropod	Malacostraca	Decapoda	Atyidae	<i>Neocaridina</i> sp.	Neocaridina sp.	1,527	0.17	Imago	—	—	8.0	22	—
					Mollusca	Gastropoda	Sorbeoconcha	Pleuroceridae	<i>Semisulcospira libertina</i>	Semisulcospira libertina	52	0.055	Imago	—	Molluscan body	7.1	16	—
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur Minnow	28	0.078	Mature fish	—	—	4.0	13	—
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Pale chub	53	0.35	Mature fish	—	—	5.4	18	—
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Nipponocypris temminckii</i>	Dark chub	7	0.065	Mature fish	—	—	5.2	16	—
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	43	0.075	Mature fish	—	—	4.1	13	—
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	3	0.035	Immature fish	—	—	6.5	19	—
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	10	0.38	Immature fish	Aquatic insects	Viscera removed	11	34	—
					Vertebrata	Amphibia	Anura	—	—	Frogs	20	0.016	Larva (tadpoles)	—	—	46	120	—
					Vertebrata	Amphibia	Anura	Ranidae	<i>Rana rugosa</i>	Wrinkled Frog	7	0.048	Imago	—	—	5.7	15	—
					Vertebrata	Amphibia	Caudata	Salamandridae	<i>Cynops pyrrhogaster</i>	Cynops pyrrhogaster	16	0.13	Imago	—	—	2.9	9.2	—
					coarse particulate organic matters (CPOMs)	—	—	—	fallen leaves	Considerable number	0.28	—	—	57	180	—		
B-3	Surikami River	37.8164°	140.4719°	2014/11/1	Algae/plant	—	—	—	—	River bottom materials (incl. algae)	Considerable number	0.076	—	—	27	92	—	
					Arthropoda	Insecta	Ephemeroptera	Ephemeridae	<i>Ephemera strigata</i>	Mont mayfly	1,080	0.035	Larva	—	—	29	79	—
					Arthropod	Insecta	Plecoptera	Perlidae	<i>Paragnetina tinctipennis</i>	Paragnetina tinctipennis	376	0.018	Larva	—	—	N.D.(4.1)	N.D.(3.5)	—
					Arthropoda	Insecta	Plecoptera	Ephemeropteroidae	<i>Kaminuria tibialis</i>	<u>Kaminuria tibialis</u>								
					Arthropod	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	Stenopsyche marmorata	952	0.13	Larva	—	—	14	45	—
					Arthropod	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena	271	0.066	Larva (dragonfly larva)	—	—	3.3	9.9	—
					Arthropod	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	Anotogaster sieboldii								
					Arthropod	Insecta	Odonata	Gomphidae	<i>Onychogomphus viridicostus</i>	Onychogomphus viridicostus								
					Arthropod	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	albardae								
					Arthropod	Insecta	Odonata	Gomphidae	<i>Davidius nanus</i>	Davidius nanus								
					Arthropod	Insecta	Odonata	Gomphidae	<i>Davidius</i> sp.	<u>Davidius</u>								
					Arthropod	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Protohermes grandis	57	0.043	Larva	—	—	2.7	8.1	—
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus pollux</i>	Japanese fluvial sculpin	3	0.061	Mature fish	—	—	2.6	6.6	—
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur Minnow	6	0.094	Mature fish (2-year-old)	—	—	6.8	18	—
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	3	0.073	Mature fish (2-year-old)	—	—	5.5	19	—
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Zacco platypus</i>	Pale chub	6	0.042	Immature fish/mature fish	—	—	3.8	13	—
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Nipponocypris temminckii</i>	Dark chub	7	0.14	Mature fish (2-year-old)	—	—	4.3	15	—
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	38	0.039	Immature fish/mature fish	—	—	4.6	12	—
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	11	0.31	Mature fish (1-year-old)	—	—	3.1	11	—
					Vertebrata	Amphibia	Anura	—	—	Frogs	22	0.015	Larva (tadpoles)	—	—	43	120	—
					coarse particulate organic matters (CPOMs)	—	—	—	fallen leaves	Considerable number	0.57	—	—	18	60	—		

*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.