

**OResults 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-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)	37.6210°	140.5218°	2024/9/17	08:42	09:01	23.1	23.6	Silt with sand	5Y3/2	None	4.50	25 (0.7m)*		
A-1(Bottom layer)				08:30		23.0								
A-2	37.5673°	140.3946°		10:33	10:40	23.2	23.4	Sand	10YR3/4	None	0.33	>50		
B-2	37.8121°	140.5058°		13:55	14:15	25.4	25.6	Sand	10YR4/2	None	0.65	30		
B-3	37.8182°	140.4679°		12:58	13:09	21.5	22.1	Sand	10YR3/4	None	0.50	>50		

\* The number in parentheses indicates Secchi disk depth.

<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)	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)												
A-1(Surface layer)	37.6210°	140.5218°	2024/9/17	08:42	7.3	1.8	7.4	8.0	14.0	0.07	3.0	27	11.0	N.D.(0.0015)	0.029	0.0012
A-1(Bottom layer)				08:30	7.3	1.7	7.7	8.3	14.2	0.08	3.0	30	11.2	N.D.(0.0014)	0.039	-
A-2	37.5673°	140.3946°		10:33	7.5	0.8	3.5	9.7	12.1	0.06	1.3	4	1.3	N.D.(0.0013)	0.013	-
B-2	37.8121°	140.5058°		13:55	7.5	1.1	6.1	9.2	14.9	0.08	2.6	18	9.5	N.D.(0.0015)	0.028	-
B-3	37.8182°	140.4679°		12:58	7.8	1.0	3.4	10.3	9.0	0.05	1.5	2	1.1	N.D.(0.0014)	0.0091	-

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: General survey items/Analysis of radioactive materials Sediment>

Locations	Latitude and longitude of the location		Survey date and time		pH	Redox potential E <sub>NHE</sub> (mV)	Water content (%)	IL (%)	TOC (mg/g-dry)	Soil particle density (g/cm <sup>3</sup> )	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)			
											0.0	0.1	35.1	30.7	17.6	16.5	0.18	2.0			
A-1	37.6210°	140.5218°	2024/9/17	09:01	7.1	97	48.1	6.2	14.0	2.660	0.0	0.1	35.1	30.7	17.6	16.5	0.18	2.0	3.6	360	0.22
A-2	37.5673°	140.3946°		10:40	7.2	450	25.8	2.7	3.0	2.650	17.5	63.2	15.5	0.9	2.9	1.3	4.8	2.3	150	-	
B-2	37.8121°	140.5058°		14:15	7.1	416	23.3	2.3	1.3	2.720	0.0	4.3	62.4	27.3	3.0	3.0	0.35	2.0	0.97	81	-
B-3	37.8182°	140.4679°		13:09	7.4	466	19.4	1.4	1.1	2.620	39.5	46.8	10.4	2.3	1.0	1.7	4.8	0.61	37	-	

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: 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										
A-1	The main stream of the Abukuma River	37.6210°	140.5218°	2024/8/20	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.0032	-	-	-	51	N.D.(9.7)	51	-									
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	<i>Macromia amphigena</i>	54	0.024	Larva (Dragonfly larva)	-	-	3.1	N.D.(1.8)	3.1	-									
					Arthropoda	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	<i>Anotogaster sieboldii</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>	<i>Nihonogomphus viridis</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Melligomphus viridicostus</i>	<i>Melligomphus viridicostus</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	<i>Sieboldius albardae</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	<i>Davidius</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Shaogomphus postocularis</i>	<i>Shaogomphus postocularis</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaenops</i>	<i>Asiagomphus melaenops</i>																		
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria maclachlani</i>	<i>Boyeria maclachlani</i>																		
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Neocaridina sp.</i>	<i>Neocaridina</i>																		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	270	0.034	Juvenile, Imago	-	-	2.1	N.D.(1.5)	2.1	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Pale chub	19	0.39	Immature fish, Mature fish	-	-	6.0	N.D.(1.4)	6.0	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudogobio esocinus esocinus</i>	<i>Pseudogobio esocinus esocinus</i>	83	0.44	Immature fish, Mature fish	-	-	2.6	N.D.(0.29)	2.6	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudogobio esocinus esocinus</i>	<i>Pseudogobio esocinus esocinus</i>	1	0.018	Mature fish	-	-	N.D.	N.D.(2.1)	N.D.(1.8)	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius auratus</i>	<i>Carassius auratus langsdorffii</i>	2	0.73	Mature fish	Obscure digesta	Viscera removed	2.6	N.D.(0.49)	2.6	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius cuvieri</i>	Japanese crucian carp	2	0.43	Immature fish	Obscure digesta	Viscera removed	2.1	N.D.(0.30)	2.1	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Gnathopogon elongatus elongatus</i>	<i>Gnathopogon elongatus elongatus</i>	4	0.027	Immature fish, Mature fish	-	-	2.3	N.D.(1.6)	2.3	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	3	0.022	Mature fish	-	-	1.6	N.D.(1.5)	1.6	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Nemacheilus toni</i>	Stone loach	10	0.063	Immature fish	-	-	N.D.	N.D.(0.88)	N.D.(0.84)	-									
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus salmoides</i>	Largemouth bass	8	0.14	Immature fish	Empty stomach	Viscera removed	5.6	N.D.(0.68)	5.6	-									
Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus dolomieu</i>	Small mouth bass	5	0.059	Immature fish	Neocaridina	Viscera removed	1.9	N.D.(1.1)	1.9	-														
Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Lepomis macrochirus</i>	Bluegill	1	0.042	Immature fish	Obscure digesta	Viscera removed	16	N.D.(3.7)	16	-														
Vertebrata	Osteichthyes	Siluriformes	Ictaluridae	<i>Ictalurus punctatus</i>	Channel catfish	3	4.0	Immature fish, Mature fish	Empty stomach	Viscera removed	22	N.D.(1.1)	22	0.21														
Vertebrata	Osteichthyes	Siluriformes	Siluridae	<i>Silurus asotus</i>	Amur catfish	2	0.059	Immature fish	Stone loach	Viscera removed	1.5	N.D.(1.2)	1.5	-														
Coarse Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	0.23	-	-	-	16	N.D.(1.5)	16	-														
A-2	Harase River	37.5673°	140.3946°	2024/8/20	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.017	-	-	-	79	N.D.(11)	79	-									
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	<i>Macromia amphigena</i>	47	0.018	Larva (Dragonfly larva)	-	-	3.3	N.D.(2.1)	3.3	-									
					Arthropoda	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	<i>Anotogaster sieboldii</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Nihonogomphus viridis</i>	<i>Nihonogomphus viridis</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	<i>Sieboldius albardae</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Davidius sp.</i>	<i>Davidius</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Shaogomphus postocularis</i>	<i>Shaogomphus postocularis</i>																		
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaenops</i>	<i>Asiagomphus melaenops</i>																		
					Arthropoda	Malacostraca	Decapoda	Cambaridae	<i>Procambarus clarkii</i>	Red swamp crawfish										3	0.068	Imago	-	-	8.2	N.D.(1.2)	8.2	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Neocaridina sp.</i>	<i>Neocaridina</i>										276	0.060	Juvenile, Imago	-	-	5.8	N.D.(0.76)	5.8	-
					Mollusca	Gastropoda	Discopoda	Pleuroceridae	<i>Semisulcospira libertina</i>	<i>Semisulcospira libertina</i>										30	0.020	Imago	-	Molluscos part	7.0	N.D.(2.0)	7.0	-
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus pollux</i>	Japanese fluvial sculpin	1	0.026	Immature fish	-	-	8.3	N.D.(1.6)	8.3	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur minnow	13	0.018	Immature fish	-	-	5.5	N.D.(1.8)	5.5	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Pale chub	341	1.5	Immature fish, Mature fish	-	-	10	N.D.(1.3)	10	0.26									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Pseudogobio esocinus esocinus</i>	<i>Pseudogobio esocinus esocinus</i>	7	0.054	Immature fish, Mature fish	-	-	3.9	N.D.(0.87)	3.9	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Candidia temminckii</i>	Dark chub	76	0.64	Immature fish, Mature fish	-	-	7.2	N.D.(1.1)	7.2	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	10	0.022	Immature fish, Mature fish	-	-	5.6	N.D.(1.6)	5.6	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Nemacheilus toni</i>	Stone loach	277	0.58	Immature fish	-	-	2.3	N.D.(0.33)	2.3	-									
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus salmoides</i>	Largemouth bass	2	0.058	Immature fish	-	-	8.3	N.D.(1.3)	8.3	-									
					Vertebrata	Amphibia	Anura	-	-	Frog	91	0.049	Larva (Tadpole)	-	-	88	N.D.(3.9)	88	-									
					Coarse Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	0.22	-	-	-	44	N.D.(1.5)	44	-									
B-3	Surikami River	37.8182°	140.4679°	2024/8/20	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.019	-	-	-	12	N.D.(2.8)	12	-									
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	<i>Stenopsyche marmorata</i>	<i>Stenopsyche marmorata</i>	212	0.051	Larva	-	-	6.6	N.D.(1.2)	6.6	-									
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	<i>Macromia amphigena</i>	37	0.028	Larva (Dragonfly larva)	-	-	N.D.	N.D.(1.6)	N.D.(1.4)	-									
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	<i>Sieboldius albardae</i>																		
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	<i>Protohermes grandis</i>	27	0.020	Larva	-	-	N.D.	N.D.(2.0)	N.D.(1.6)	-									
					Arthropoda	Malacostraca	Decapoda	Cambaridae	<i>Procambarus clarkii</i>	Red swamp crawfish	2	0.054	Imago	-	-	2.9	N.D.(0.89)	2.9	-									
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	<i>Cottus pollux</i>	Japanese fluvial sculpin	60	0.55	Immature fish	-	-	2.0	N.D.(0.22)	2.0	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur minnow	32	0.18	Immature fish, Mature fish	-	-	1.5	N.D.(0.28)	1.5	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	1	0.012	Immature fish	-	-	N.D.	N.D.(3.1)	N.D.(2.6)	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsarichthys platypus</i>	Pale chub	140	0.82	Immature fish	-	-	4.1	N.D.(0.56)	4.1	-									
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	<i>Nemacheilus toni</i>	Stone loach	36	0.47	Immature fish	-	-	1.7	N.D.(0.21)	1.7	-									
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	<i>Plecoglossus altivelis altivelis</i>	Sweetfish	74	1.4	Immature fish, Mature fish	-	-	8.7	N.D.(0.83)	8.7	0.28									
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	<i>Oncorhynchus masou</i>	Yamame trout	2	0.029	Immature fish	-	-	2.6	N.D.(1.3)	2.6	-									
					Coarse Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	0.21	-	-	-	9.4	N.D.(0.50)	9.4	-									

\*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.