

○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>

Items 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>

Items 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)
A-1(Surface layer)	37.6210°	140.5218°	2021/6/24	11:15	11:30	22.0	21.1	Silt	5Y3/2	None	7.00	25 (0.5m)*
A-1(Bottom layer)				11:20								
A-2	37.5673°	140.3946°		13:30	13:40	19.6	19.9	Sand with gravel	10YR4/4	None	0.35	>50
B-2	37.8121°	140.5058°		16:40	16:50	21.8	21.3	Sand	10YR3/4	None	0.60	45
B-3	37.8182°	140.4679°		15:30	15:40	18.9	19.0	Sand	10YR3/4	None	0.45	>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>

Items Locations	Latitude and longitude of the location		Survey date and time		pH	BOD	COD	DO	Electric conductivity (mS/m)	Salinity	TOC	SS (mg/L)	Turbidity (FNU)	Cs-134 (Bq/L)	Cs-137 (Bq/L)	Sr-90 (Bq/L)
	Latitude	Longitude	Date	Time (water)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mS/m)	(mg/L)	(mg/L)	(mg/L)	(FNU)	(Bq/L)	(Bq/L)	(Bq/L)
A-1(Surface layer)	37.6210°	140.5218°	2021/6/24	11:15	7.3	2.8	7.2	8.3	18.3	0.09	2.8	37	17.6	N.D.(0.0016)	0.048	0.0012
A-1(Bottom layer)				11:20	7.3	2.8	7.7	8.6	18.7	0.09	2.8	44	19.8	0.0022	0.066	-
A-2	37.5673°	140.3946°		13:30	7.4	1.5	5.7	9.6	12.1	0.06	2.0	13	6.7	N.D.(0.0015)	0.029	-
B-2	37.8121°	140.5058°		16:40	7.4	2.0	5.6	9.1	16.4	0.08	2.2	25	10.7	0.0041	0.11	-
B-3	37.8182°	140.4679°		15:30	8.0	1.1	3.3	10.5	10.0	0.05	1.3	5	2.2	N.D.(0.0012)	0.0038	-

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>

Items Locations	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)			
A-1	37.6210°	140.5218°	2021/6/24	11:30	7.3	41	42.1	8.2	20.8	2.590	0.0	0.2	1.6	23.9	52.0	22.3	0.029	2.0	19	490	0.33
A-2	37.5673°	140.3946°		13:40	6.8	310	20.5	1.5	1.5	2.735	10.5	35.4	42.6	5.4	1.2	4.9	0.78	19	4.2	100	-
B-2	37.8121°	140.5058°		16:50	7.3	196	26.4	1.9	2.3	2.683	0.0	0.8	44.5	43.0	5.2	6.5	0.23	2.0	2.9	100	-
B-3	37.8182°	140.4679°		15:40	7.4	346	15.7	1.1	1.2	2.634	32.1	32.9	23.0	6.7	2.0	3.3	1.3	9.5	2.1	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°	2021/6/13	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.0075	-	-	-	-	110	N.D.(12)	110	-	
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena											
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaelops</i>	Asiagomphus melaelops											
					Arthropoda	Insecta	Odonata	Libellulidae	<i>Sympetrum sp.</i>	Sympetrum											
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria macalachlani</i>	Boyeria macalachlani											
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Protohermes grandis		18	0.0097	Larva	-	-	3.7	N.D.(3.1)	3.7	-	
					Arthropoda	Malacostraca	Decapoda	Cambaridae	<i>Procambarus clarkii</i>	Red swamp crawfish	2	0.026	Imago	-	-	7.5	N.D.(1.3)	7.5	-		
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Neocaridina sp.</i>	Neocaridina	153	0.032	Juvenile,Imago	-	-	4.8	N.D.(1.3)	4.8	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	15	0.17	Immature fish	-	-	3.0	N.D.(1.1)	3.0	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsariichthys platypus</i>	Pale chub	41	0.57	Immature fish,Mature fish	-	-	3.5	N.D.(0.76)	3.5	-		
				2021/6/14	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Carassius auratus</i>	Carassius auratus langsdorffii	4	2.9	Mature fish	Obscure digesta	Viscera removed	2.9	N.D.(0.76)	2.9	0.32		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Common carp	2	0.54	Immature fish	Obscure digesta	Viscera removed	1.8	N.D.(0.63)	1.8	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Gnathopogon elongatus elongatus</i>	Gnathopogon elongatus elongatus	25	0.072	Immature fish	-	-	1.5	N.D.(0.68)	1.5	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Hemibarbus barbus</i>	Hemibarbus barbus	3	1.6	Mature fish	Obscure digesta	Viscera removed	1.6	N.D.(0.76)	1.6	0.28		
				2021/6/13	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Misgurnus anguillicaudatus</i>	Oriental weatherfish	6	0.034	Immature fish,Mature fish	-	-	1.2	N.D.(0.83)	1.2	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Nemacheilus toni</i>	Stone loach	256	1.0	Immature fish	-	-	1.7	N.D.(0.65)	1.7	0.079		
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	<i>Micropterus dolomieu</i>	Small mouth bass	2	1.2	Mature fish	Fish	Viscera removed	5.4	N.D.(1.1)	5.4	0.24		
				2021/6/14	Vertebrata	Osteichthyes	Siluriformes	Ictaluridae	<i>Ictalurus punctatus</i>	Channel catfish	11	4.0	Immature fish	Midge,Bryophyte,Red swamp crawfish,Waterweed,Plant piece,Terrestrial insect	Viscera removed	4.0	N.D.(0.73)	4.0	0.16		
					Vertebrata	Amphibia	Anura	-	-	Frog	29	0.011	Larva(Tadpole)	-	-	47	N.D.(2.9)	47	-		
				2021/6/13	Vertebrata	Amphibia	Anura	Ranidae	<i>Rana japonica</i>	Japanese brown frog	4	0.054	Imago	-	-	11	N.D.(1.2)	11	-		
					Vertebrata	Amphibia	Anura	Lithobates	<i>Lithobates catesbeianus</i>	American bullfrog	-	0.22	-	-	-	18	N.D.(0.81)	18	-		
					Coarse Particulate Organic Matter	-	-	-	-	Bottom fallen leaves	-	-	-	-	-	93.2	6.2	87	-		
A-2	Harase River	37.5673°	140.3946°	2021/6/13	Algae/plant	-	-	-	-	Riverbed Deposits (Include algae)	-	0.0097	-	-	-	-	93.2	6.2	87	-	
					Arthropoda	Insecta	Odonata	Corduliidae	<i>Macromia amphigena amphigena</i>	Macromia amphigena											
					Arthropoda	Insecta	Odonata	Cordulegastridae	<i>Anotogaster sieboldii</i>	Anotogaster sieboldii											
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Melligomphus viridicostus</i>	Melligomphus viridicostus											
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Sieboldius albardae</i>	Sieboldius albardae											
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Anisogomphus maacki</i>	Anisogomphus maacki											
					Arthropoda	Insecta	Odonata	Gomphidae	<i>Asiagomphus melaelops</i>	Asiagomphus melaelops											
					Arthropoda	Insecta	Odonata	Libellulidae	<i>Sympetrum sp.</i>	Sympetrum											
					Arthropoda	Insecta	Odonata	Aeshnidae	<i>Boyeria macalachlani</i>	Boyeria macalachlani											
					Arthropoda	Insecta	Megaloptera	Corydalidae	<i>Protohermes grandis</i>	Protohermes grandis		25	0.012	Larva	-	-	N.D.	N.D.(3.7)	N.D.(2.8)	-	
				2021/6/14	Arthropoda	Malacostraca	Decapoda	Cambaridae	<i>Procambarus clarkii</i>	Red swamp crawfish	3	0.034	Juvenile,Imago	-	-	7.3	N.D.(1.5)	7.3	-		
					Arthropoda	Malacostraca	Decapoda	Potamidae	<i>Geothelphusa dehaani</i>	Japanese freshwater crab	13	0.013	Juvenile	-	-	6.1	N.D.(2.3)	6.1	-		
					Arthropoda	Malacostraca	Decapoda	Atyidae	<i>Neocaridina sp.</i>	Neocaridina	197	0.069	Juvenile	-	-	5.7	N.D.(0.87)	5.7	-		
					Mollusca	Gastropoda	Discopoda	Pleuroceridae	<i>Semisulcospira libertina</i>	Semisulcospira libertina	30	0.026	Amur minnow	Immature fish,Mature fish	Molluscous part	7.4	N.D.(1.5)	7.4	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Phoxinus lagowskii steindachneri</i>	Amur minnow	74	0.27	Immature fish,Mature fish	-	-	5.2	N.D.(0.76)	5.2	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Tribolodon hakonensis</i>	Japanese dace	2	0.018	Immature fish	-	-	12	N.D.(2.1)	12	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	<i>Opsariichthys platypus</i>	Pale chub	2	0.025	Immature fish	-	-	8.5	N.D.(1.9)	8.5	-		
					Vertebrata	Osteichthyes	Cypriniformes	Cy													