○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)	Transparency (cm)
A-1(Surface layer)	37.6210°	140.5218°	2023/8/29	09:10	09:40	28.1	27.5	Silt with sand	5Y3/2	None	6.50	38 (1.5m)*
A-1(Bottom layer)				08:58		27.7						
A-2	37.5673°	140.3946°		11:45	11:56	26.6	27.4	Sand	10YR3/4	None	0.72	>50
B-2	37.8121°	140.5058°		15:35	15:45	29.6	28.8	Sand	10YR4/2	None	0.61	>50
B-3	37.8182°	140.4679°		14:20	14:25	24.9	24.6	Sand	10YR4/4	None	0.52	>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	Salinity	TOC	SS	Turbidity	Cs-134	Cs-137	Sr-90
	Latitude	Longitude	Date	Time (water)		(mg/L)	(mg/L)	(mg/L)	(mS/m)		(mg/L)	(mg/L)	(FNU)	(Bq/L)	(Bq/L)	(Bq/L)
A-1(Surface layer)	37.6210°	140.5218°	2023/8/29	09:10	7.4	1.4	4.6	7.5	18.7	0.10	2.1	9	4.5	N.D.(0.0014)	0.011	0.0011
A-1(Bottom layer)				08:58	7.4	1.6	5.0	7.6	19.2	0.10	2.2	13	4.7	N.D.(0.0015)	0.017	-
A-2	37.5673°	140.3946°		11:45	7.4	0.8	3.8	9.3	13.3	0.07	1.4	10	2.3	N.D.(0.0013)	0.011	-
B-2	37.8121°	140.5058°		15:35	7.8	1.1	4.3	9.7	19.8	0.10	2.0	10	4.5	N.D.(0.0016)	0.029	-
B-3	37.8182°	140.4679°		14:20	7.7	0.7	3.5	10.1	8.0	0.04	1.5	4	1.5	N.D.(0.0014)	0.0031	-

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 $E_{N.H.E}$ (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)
											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)			
	Latitude	Longitude	Date	Time (sediment)																	
A-1	37.6210°	140.5218°	2023/8/29	09:40	7.5	82	25.4	2.5	6.4	2.740	0.2	3.2	45.9	31.3	10.7	8.7	0.24	4.8	3.7	140	N.D.(0.12)
A-2	37.5673°	140.3946°		11:56	7.3	493	19.7	1.8	3.5	2.680	28.1	47.7	15.7	2.4	2.8	3.3	1.4	9.5	1.8	73	-
B-2	37.8121°	140.5058°		15:45	7.3	392	25.0	2.3	2.5	2.710	0.2	2.2	59.6	27.8	4.4	5.8	0.31	4.8	2.3	100	-
B-3	37.8182°	140.4679°		14:25	7.5	493	20.7	1.3	1.5	2.640	14.1	40.9	37.3	3.8	0.1	3.8	0.93	9.5	0.65	43	-

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
		Latitude	Longitude										Growth stage	Stomach contents	Measurement site	Total	Cs-134	Cs-137	(Bq/kg-wet)
A-1	The main stream of the Abukuma River	37.6210°	140.5218°	2023/8/21	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Pseudaspius hakonensis*	Japanese dace	21	0.083	Immature fish, Mature fish	-	-	4.1	N.D.(0.57)	4.1	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Opsariichthys platypus*	Pale break	81	0.47	Immature fish, Mature fish	-	-	5.8	N.D.(0.56)	5.8	-
				2023/8/22	Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Carassius* sp.	Silver crucian carp	2	0.76	Mature fish	Obscure digesta	Viscera removed	2.1	N.D.(0.25)	2.1	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Carassius cuvieri*	Japanese white crucian carp	1	1.7	Mature fish	Obscure digesta	Viscera removed	2.1	N.D.(0.24)	2.1	0.41
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Cyprinus carpio*	Common carp	2	6.0	Mature fish	Obscure digesta	Viscera removed	2.6	N.D.(0.45)	2.6	0.11
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Hemibarbus barbus*	Barbel steed	2	1.9	Mature fish	Obscure digesta	Viscera removed	2.8	N.D.(0.26)	2.8	0.28
				2023/8/21	Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	*Barbatula oreas*	Stone loach	8	0.030	Immature fish	-	-	N.D.	N.D.(1.3)	N.D.(1.2)	-
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	*Micropterus nigricans*	Largemouth bass	4	0.033	Immature fish	-	-	2.7	N.D.(1.3)	2.7	-
					Vertebrata	Osteichthyes	Perciformes	Centrarchidae	*Micropterus dolomieu dolomieu*	Smallmouth bass	2	0.018	Immature fish	-	-	3.2	N.D.(2.7)	3.2	-
				2023/8/22	Vertebrata	Osteichthyes	Siluriformes	Ictaluridae	*Ictalurus punctatus*	American catfish	2	4.8	Mature fish	Empty stomach	Viscera removed	18	N.D.(1.4)	18	0.28
				2023/8/21	Vertebrata	Amphibia	Anura	Pelophylax	*Pelophylax porosus porosus*	Tokyo daruma pond frog	1	0.026	Imago	-	-	7.5	N.D.(1.7)	7.5	-
A-2	Harase River	37.5673°	140.3946°	2023/8/22	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.0096	-	-	-	110	N.D.(17)	110	-
					Arthropoda	Insecta	Odonata	Corduliidae	*Macromia amphigena amphigena*	Dragonfly	132	0.035	Larva (Dragonfly larva)	-	-	3.8	N.D.(1.0)	3.8	-
					Arthropoda	Insecta	Odonata	Cordulegastridae	*Anotogaster sieboldii*	Jumbo dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Melligomphus viridicostus*	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Sieboldius albardae*	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Davidius* sp.	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Shaogomphus postocularis*	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Asiagomphus melaenops*	Dragonfly									
					Arthropoda	Insecta	Odonata	Libellulidae	*Sympetrum* sp.	Dragonfly									
					Arthropoda	Insecta	Odonata	Libellulidae	*Orthetrum albistylum speciosum*	Common skimmer									
					Arthropoda	Insecta	Megaloptera	Corydalidae	*Protohermes grandis*	Dobsonfly	30	0.017	Larva	-	-	4.4	N.D.(1.9)	4.4	-
					Arthropoda	Malacostraca	Decapoda	Cambaridae	*Procambarus clarkii*	Red swamp crawfish	2	0.031	Imago	-	-	6.1	N.D.(1.2)	6.1	-
					Arthropoda	Malacostraca	Decapoda	Potamidae	*Geothelphusa dehaani*	Japanese freshwater crab	5	0.018	Juvenile	-	-	4.9	N.D.(2.0)	4.9	-
					Arthropoda	Malacostraca	Decapoda	Atyidae	*Neocaridina* sp.	Neocaridina	107	0.077	Juvenile,Imago	-	-	5.6	N.D.(0.64)	5.6	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Rhynchocypris lagowskii steindachneri*	Amur minnow	19	0.078	Immature fish, Mature fish	-	-	4.7	N.D.(0.82)	4.7	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Pseudaspius hakonensis*	Japanese dace	2	0.041	Immature fish	-	-	15	N.D.(1.3)	15	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Opsariichthys platypus*	Pale break	14	0.10	Immature fish	-	-	11	N.D.(1.2)	11	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Pseudogobio esocinus*	Pseudogobio	2	0.024	Immature fish, Mature fish	-	-	6.8	N.D.(2.1)	6.8	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Candidia temminckii*	Dark chub	20	0.18	Immature fish, Mature fish	-	-	8.1	N.D.(0.99)	8.1	-
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	*Misgurnus anguillicaudatus*	Oriental weatherfish	14	0.028	Immature fish, Mature fish	-	-	2.9	N.D.(1.3)	2.9	-
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	*Barbatula oreas*	Stone loach	231	0.95	Immature fish	-	-	3.3	N.D.(0.42)	3.3	0.18
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	*Oncorhynchus masou masou*	Masu salmon	1	0.015	Immature fish	-	-	5.4	N.D.(2.3)	5.4	-
					Vertebrata	Amphibia	Anura	Hylidae	*Dryophytes japonica*	Japanese tree flog	7	0.010	Imago	-	-	N.D.	N.D.(2.8)	N.D.(2.6)	-
					Vertebrata	Amphibia	Anura	Pelophylax	*Pelophylax porosus porosus*	Tokyo daruma pond frog									
					Coarse Particulate Organic Matter	-	-	-	-	Water-bottom leaf litter	-	0.27	-	-	-	39.4	1.4	38	-
B-3	Surikami River	37.8182°	140.4679°	2023/8/25	Algae/plant	-	-	-	-	Sediment deposited on riverbed (Including algae)	-	0.011	-	-	-	28	N.D.(4.0)	28	-
					Arthropoda	Insecta	Trichoptera	Stenopsychidae	*Stenopsyche marmorata*	Caddisfly	322	0.091	Larva	-	-	11	N.D.(0.82)	11	-
					Arthropoda	Insecta	Odonata	Corduliidae	*Macromia amphigena amphigena*	Dragonfly	60	0.030	Larva (Dragonfly larva)	-	-	1.1	N.D.(1.2)	1.1	-
					Arthropoda	Insecta	Odonata	Cordulegastridae	*Anotogaster sieboldii*	Jumbo dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Melligomphus viridicostus*	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Sieboldius albardae*	Dragonfly									
					Arthropoda	Insecta	Odonata	Gomphidae	*Davidius* sp.	Dragonfly									
					Arthropoda	Insecta	Megaloptera	Corydalidae	*Protohermes grandis*	Dobsonfly	32	0.022	Larva	-	-	3.5	N.D.(1.5)	3.5	-
					Vertebrata	Osteichthyes	Scorpaeniformes	Cottidae	*Cottus pollux*	Japanese fluvial sculpin	46	0.21	Immature fish	-	-	2.1	N.D.(0.29)	2.1	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Rhynchocypris lagowskii steindachneri*	Amur minnow	50	0.19	Immature fish, Mature fish	-	-	2.3	N.D.(0.33)	2.3	-
					Vertebrata	Osteichthyes	Cypriniformes	Cyprinidae	*Opsariichthys platypus*	Pale break	25	0.23	Immature fish, Mature fish	-	-	3.0	N.D.(0.34)	3.0	-
					Vertebrata	Osteichthyes	Cypriniformes	Cobitidae	*Barbatula oreas*	Stone loach	34	0.41	Immature fish	-	-	2.7	N.D.(0.22)	2.7	-
					Vertebrata	Osteichthyes	Salmoniformes	Osmeridae	*Plecoglossus altivelis altivelis*	Ayu sweetfish	69	1.8	Immature fish, Mature fish	-	-	9.3	N.D.(1.2)	9.3	0.31
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	*Oncorhynchus masou masou*	Cherry salmon	1	1.0	Mature fish	Empty stomach	Viscera removed	0.33	N.D.(0.32)	0.33	0.048
					Vertebrata	Osteichthyes	Salmoniformes	Salmonidae	*Oncorhynchus masou masou*	Masu salmon	4	0.053	Immature fish	-	-	1.6	N.D.(0.90)	1.6	-
					Coarse Particulate Organic Matter	-	-	-	-	Water-bottom leaf litter	-	0.26	-	-	-	15	N.D.(1.6)	15	-

*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.