

(News Release)
The Results of Radioactive Material Monitoring Surveys of Aquatic Organisms
(2013 July Samples)

<Simultaneously released to the Fukushima Prefecture Press Club>

Tuesday, December 10, 2013
 Water Environment Division,
 Environment Management Bureau,
 Ministry of the Environment
 Direct line: 03-5521-8316
 Switchboard: 03-3581-3351
 Director: Masanobu Miyazaki (ext. 6610)
 Deputy Director: Saori Nagasawa (ext. 6614)
 Coordinator: Katsuhiko Sato (ext. 6628)

In accordance with the Comprehensive Radiation Monitoring Plan determined by the Monitoring Coordination Meeting, the Ministry of the Environment (MOE) is continuing radioactive materials monitoring in surface water and its sediment (rivers, lakes and headwaters, and coasts).

Samples of aquatic organisms taken mainly in Fukushima Prefecture (sampling period: July 9-31, 2013) have been measured as part of MOE's efforts to monitor radioactive materials; the results have been compiled and are released here.

The monitoring results of radioactive materials in surface water bodies carried out to date can be found at the following web page: <http://www.env.go.jp/jishin/rmp.html#monitoring>

1. Survey Overview

(1) Survey Locations

Type	Surveyed Areas		Survey Locations, etc.	Survey Date
Rivers	A	Abukumagawa River	Harasegawa River (Tributary)	July 10, 2013
	B		Surikamigawa River(Tributary), Taishobashi Bridge	July 9, 11, 14, 20, 2013
	C	Udagawa River		July 14, 2013
	D	Manogawa River		July 13, 16, 2013
	E	Niidagawa River		July 18, 2013
	F	Otagawa River		July 15, 2013
Lakes	G	Hayamako Lake (Mano Dam)		July 17, 2013
	H	Akimotoko Lake		July 12, 2013
	I	Inawashiroko Lake	North Shore	July 11, 31, 2013
	J		South Shore	July 10-13, 2013
Sea areas	K	Offshore of Abukumagawa River Estuary		July 18, 2013
	L	Offshore of Somashi City (Matsukawaura Lake)		July 31, 2013
	M	Offshore of Iwakishi City (Hisanohama Beach Offshore)		July 30, 2013

(Map attached)

(2) Survey Method

Samples of aquatic organisms (aquatic insects, algae, crustaceans, shellfish, fishes, etc.) were collected and the concentration of radioactive materials (radioactive cesium (Cs-134 and Cs-137)) in each type of organisms was measured.

2. Survey Results Summary (See Annex for details)

(1) Rivers and Lakes (upper row in each case shows the results of surveys conducted during the same period of the previous year)

There are variations between each body of water and the types of organism collected, but in general, a decline in the concentrations of radioactive cesium can be seen compared to the survey conducted during the same period of the previous year. Furthermore, just as in previous surveys, the concentration of radioactive cesium in rivers and lakes is higher than in sea areas.

Unit: Bq/kg-wet

			Plants (algae)	Aquatic insects	Crustacean	Shellfish	Fishes	Amphibians	CPOM (dry leaves, etc.)
Abukumagawa River System	Abukumagawa River A	June-July 2012	740	52 (4 species)	181	170	50-167 (7 species)	290-420 (5 species)	-
		July 2013	730	39, 202 (2 species)	76	28	16-274 (7 species)	49-330 (3 species)	830
	Abukumagawa River B	June-July 2012	550	-	-	-	76-650 (10 species)	280, 370 (2 species)	-
		July 2013	ND, 450 (2 species)	15-198 (4 species)	62	120	14-46 (6 species)	49, 550 (2 species)	165
Udagawa River C		June-July 2012	-	-	-	-	-	-	-
		July 2013	520	21-283 (3 species)	29-55 (3 species)	-	45-141 (3 species)	12, 16 (2 species)	205
Manogawa River System	Hayamako Lake G (Mano Dam)	June-July 2012	1,870	510 (7 species)	-	-	280-4,400 (4 species)	-	3,200
		July 2013	10-3,400 (4 species)	89, 340 (2 species)	-	-	225-2,650 (6 species)	-	560
	Manogawa River D	June-July 2012	260	198 (14 species)	223	182	202-970 (4 species)	-	1,410
		July 2013	14-,610 (3 species)	59-22 (3 species)	180, 350 (2 species)	99	6-254 (7 species)	420, 1,100 (2 species)	670
Niidagawa River E		June-July 2012	-	-	-	-	440-11,400 (5 species)	-	-
		July 2013	9.3, 4,000 (2 species)	270, 1,500 (2 species)	400, 740 (2 species)	-	198-460 (7 species)	-	870
Otagawa River F		June-July 2012	-	-	-	-	-	-	-
		July 2013	70-8,000 (4 species)	150-840 (3 species)	970, 1,390 (2 species)	-	920-2,950 (6 species)	-	4,300
Akimotoko Lake H		June-July 2012	46	-	183	-	88-470 (7 species)	540	250
		July 2013	1.3, 7.3 (2 species)	ND	77	60	16-264 (11 species)	24, 55 (2 species)	250
Inawashiroko Lake	Inawashiroko Lake I (North Shore)	June-July 2012	500	-	-	-	77-380 (6 species)	-	-
		July 2013	-	-	-	-	55-165 (6 species)	-	162
	Inawashiroko Lake J (South Shore)	June-July 2012	9	-	-	-	46-430 (6 species)	-	-
		July 2013	ND-2.9 (3 species)	-	29	7.3	ND-158 (9 species)	2.8, 120 (2 species)	-

*As for monitored specimen, including fish, the entire organism is used.

Starting with the 2013 July Survey, the following 4 species (categorized by feeding habit and type) of aquatic insects have been sampled and analyzed.

- Odonata (Dragonfly larva, carnivore)
- Corydalidae (carnivore)
- Perlidae (carnivore)
- Stenopsyche (omnivorous, detritivorous)

(2) Sea Areas (upper row in each case shows results of surveys conducted during the same period of the previous year)

There are variations between each body of water and the type of organism collected, but in general, a decline in the concentration of radioactive cesium can be seen compared to the survey conducted during the same period of the previous year. Furthermore, just as in previous surveys, the concentrations of radioactive cesium in sea areas are lower than in rivers and lakes.

Unit: Bq/kg-wet

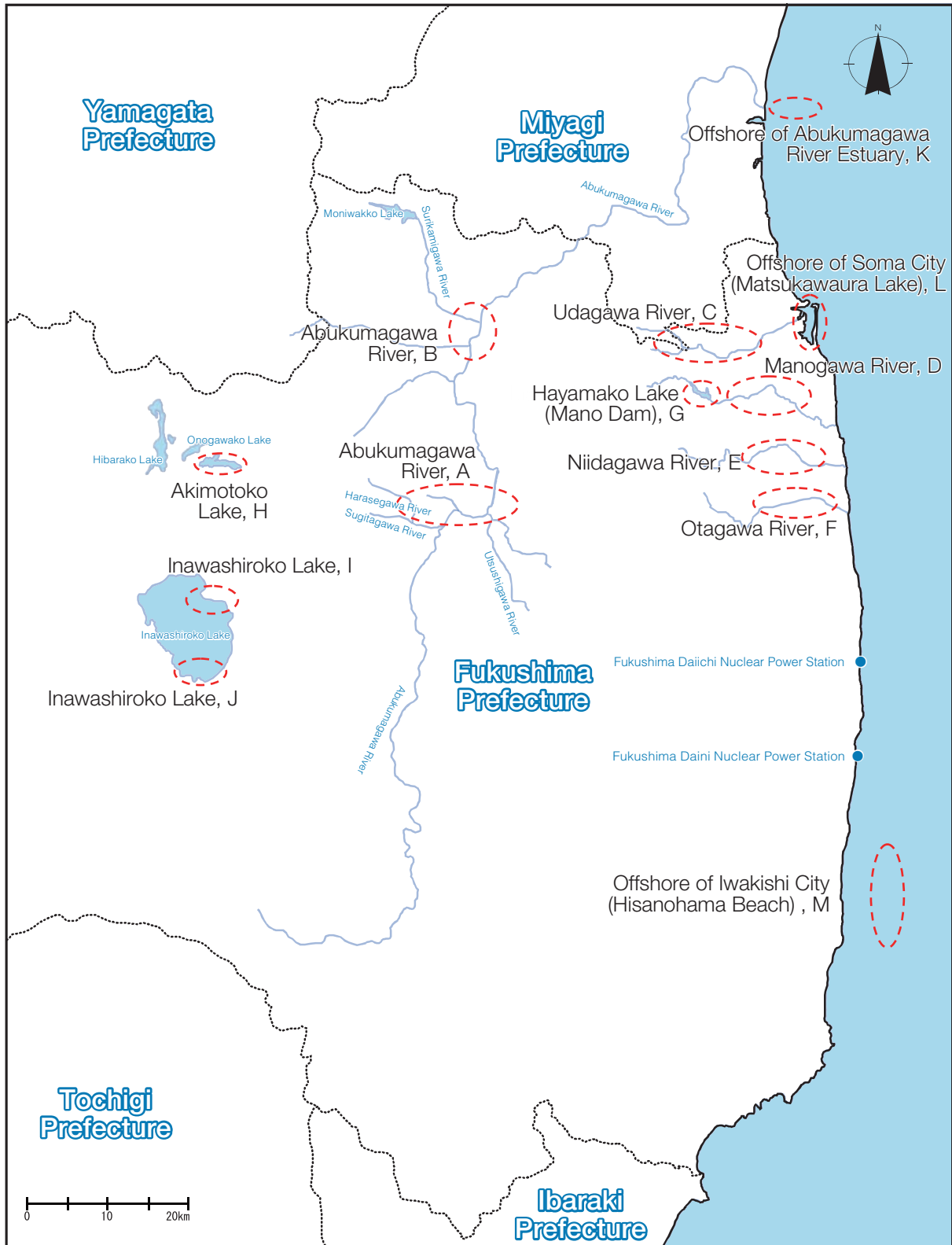
		Plants (algae)	Sea urchin, starfish, sea cucumber	Crustacean	Ragworms	Shellfish		Squid, octopus	Fishes
						Without shell	Shell		
Offshore of Abukumagawa River Estuary K	June-July 2012	-	-	8.4, 21 (2 species)	-	-	-	-	11-42 (5 species)
	July 2013	-	-	0.5	-	-	-	-	1.4-13 (6 species)
Somashi City Offshore L (Matsukawaura Lake)	June-July 2012	13-102 (3 species)	-	12-87 (4 species)	-	4.1, 5.7 (2 species)	9, 56 (2species)	-	11-166 (5 species.)
	July 2013	0.7-21 (3 species.)	-	2.6-20 (5 species)	10	2.2, 4.0 (2 species)	3.0, 15 (2 species)	-	3.8-6.4 (3 species)
Iwakishi City Offshore M (Hisanohama Beach)	June-July 2012	22, 33 (2 species)	21, 97 (2 species)	-	-	13	24	-	7.6-290 (8 species)
	July 2013	ND	5.0, 31 (2 species)	-	-	1.7	13	-	4.3-106 (8 species)

*As for monitored specimen, including fish, the entire organism is used.

3. Future Plans

MOE will continue to measure the concentration of radioactive materials in aquatic organisms (organisms collection conducted 3-4 times each year).

Radioactive Material Monitoring Survey Locations of Aquatic Organisms



Results of Aquatic Organisms Radionuclides Survey (Rivers 1/5)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks	
					Total	Cs-134	Cs-137		
A b u k u m a g a w a R i v e r A	Alga/plant	Attached alga and others	0.044	-	730	230	500	-	
	(Trichoptera)	Stenopsyche marmorata	0.029	103	202	62	140	Larva	
	A q u a t i c (Odonata)	i n s e c t	Asiagomphus melaenops	0.12	244	39	13	26	Larva
			Davidius sp.						
			Nihonogomphus viridis Oguma						
			Club-tailed dragonfly						
			Clubtail dragonfly (Sieboldius albardae)						
			Golden-ringed dragonfly						
			Macromia amphigena amphigena						
	Common skimmer								
	Sympetrum sp.								
	Crustacean	Neocaridina sp.	0.15	998	76	24	52	Adult	
	Shellfish	Japanese freshwater snail	0.056	39	28	8.5	19	Adult	
	F i s h	Oriental weather loach	0.076	63	32	11	21	One year old or more	
		Amur minnow	0.46	101	37	13	24	One year old or more	
		Japanese dace	0.13	11	42	14	28	Adult	
		Channel catfish	0.28	4	16	5.3	11	Young fish	
		Channel catfish	4.1	2	108	33	75	Adult	
		Amur catfish	1.1	1	274	84	190	Yearling	
		Ayu (run-up)	1.1	33	53	18	35	Adult	
A m p h i b i a n	Frogs and toad (tadpole)	0.15	156	330	110	220	Larva		
	Tokyo daruma pond frog	0.11	19	49	16	33	Adult		
	Japanese fire belly newt	0.035	4	67	22	45	Adult		
CPOM	CPOM (Fallen leaves in river)	0.73	-	830	270	560	-		
A b u k u m a g a w a R i v e r B	Alga/plant	Attached alga and others	0.059	-	450	140	310	-	
		Spirogyra sp.	0.029	-	N.D.	N.D.(1.5)	N.D.(1.2)	-	
	(Trichoptera)	Stenopsyche marmorata	0.21	621	132	44	88	Last instar larvae	
	(Megaloptera)	Stenopsyche marmorata	0.095	295	198	68	130	Young larvae	
		Dobsonfly	0.068	95	15	4.4	11	Larva	
	Parachauliodes continentalis								
	(Odonata)	i n s e c t	Anisogomphus maacki	0.037	77	23	7.8	15	Larva
			Davidius sp.						
			Club-tailed dragonfly						
			Clubtail dragonfly (Sieboldius albardae)						
			Golden-ringed dragonfly						
			Macromia amphigena amphigena						
	Common skimmer								
	Crustacean	Red (swamp) crayfish	0.37	21	62	20	42	Adult	
	Shellfish	Japanese freshwater snail	0.058	142	120	39	81	Adult	
	F i s h	Oriental weather loach	0.07	14	46	15	31	One year old or more	
		Japanese dace	0.22	25	43	14	29	One year old or more	
		Masu salmon	0.94	3	18	5.5	12	Adult	
		Cherry salmon	0.16	12	16	5.3	11	Yearling	
		Cherry salmon	0.072	2	14	4.4	9.9	One year old or more	
Ayu (run-up)		0.14	7	38	12	26	Yearling		
A m p h i b i a n	Frogs and toad (tadpole)	0.011	7	550	180	370	Larva		
	Wrinkled frog	0.035	12	49	16	33	Adult		
CPOM	CPOM (Fallen leaves in river)	0.26	-	165	55	110	-		

Results of Aquatic Organisms Radionuclides Survey (Rivers 2/5)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
					Total	Cs-134	Cs-137	
U d a g a w a R i v e r C	Alga/plant	Attached alga and others	0.077	-	520	170	350	-
	(Trichoptera)	Stenopsyche marmorata	0.051	217	283	67	150	Larva
		Stenopsyche sauteri						
	(Megaloptera)	Dobsonfly	0.024	99	59	18	40	Larva
		Parachauliodes continentalis						
	(Odonata)	Asiagomphus melaenops	0.0592	231	21	7.2	14	Larva
		Davidius nanus						
		Davidius sp.						
		Nihonogomphus viridis Oguma						
		Club-tailed dragonfly						
		Clubtail dragonfly (Sieboldius albardae)						
		Stylogomphus suzukii						
		Golden-ringed dragonfly						
	Macromia amphigena amphigena							
	Crustacean	Atyidae	0.049	233	43	14	29	Adult
		Red (swamp) crayfish	0.11	8	29	9.0	20	Adult
		Japanese mitten crab	0.22	7	55	16	39	Adult
	Fishes	Rhinogobius sp.LD	0.098	24	141	42	99	One year old or more
		Dark chub	0.13	12	45	15	30	One year old or more
		Japanese dace	0.078	3	86	30	56	One year old or more
Amphibian	Japanese tree frog	0.021	42	16	4.5	11	Adult	
	Japanese brown frog	0.031	20	12	3.3	8.4	Adult	
CPOM	CPOM (Fallen leaves in river)	0.91	-	205	65	140	-	

Results of Aquatic Organisms Radionuclides Survey (Rivers 3/5)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
					Total	Cs-134	Cs-137	
M a n o g a w a R i v e r D	Alga/plant	Attached alga and others	0.095	-	1,610	510	1,100	-
		Spirogyra sp.	0.39	-	14	4.4	9.1	-
		Sphagnum sp.	0.42	-	350	110	240	-
	(Trichoptera)	Stenopsyche marmorata	0.11	432	222	72	150	Larva
		Stenopsyche sauteri						
	(Megaloptera)	Dobsonfly	0.087	150	150	15	29	Larva
		Parachauliodes continentalis						
	(Odonata)	Boyeria maclachlani	0.11	104	59	20	39	Larva
		Planaeschna milnei						
		Davidius nanus						
		Davidius sp.						
		Nihonogomphus viridis Oguma						
		Club-tailed dragonfly						
		Clubtail dragonfly (Sieboldius albardae)						
		Macromia amphigena amphigena						
	Sympetrum sp.							
	Crustacean	Atyidae	0.079	414	180	60	120	Adult
		Red (swamp) crayfish	0.64	17	350	110	240	Adult
	Shellfish	Japanese freshwater snail	0.087	51	99	32	67	Adult
	Fish	Common freshwater goby	0.13	55	254	84	170	One year old or more
Pale chub		0.053	3	30	9.6	20	Adult	
Japanese dace		0.026	1	37	13	24	Adult	
Common carp		1.1	1	30	9.3	21	Adult	
Cherry salmon		0.013	1	99	35	64	Yearling	
Ayu (Before release)		1.5	42	6	1.4	4.5	Yearling	
Ayu (Run-up)		1.1	106	77	26	51	Yearling	
Amphibian	American bullfrog (Tadpole)	0.072	5	420	140	280	Larva	
	Frog and toad (Tadpole)	0.0087	25	1,100	370	730	Larva	
CPOM	CPOM (Fallen leaves in river)	0.26	-	670	220	450	-	

Results of Aquatic Organisms Radionuclides Survey (Rivers 4/5)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
					Total	Cs-134	Cs-137	
N i d e r R i v e r E	Alga/plant	Attached alga and others	0.037	-	4,000	1,300	2,700	-
		Spirogyra sp.	0.15	-	9.3	3.5	5.8	-
	(Trichoptera)	Stenopsyche marmorata	0.045	232	1,500	500	1,000	Larva
		Stenopsyche sauteri						
	(Odonata)	Asiagomphus melanocephalus	0.023	69	270	90	180	Larva
		Davidius sp.						
		Gomphus postocularis Selys						
		Club-tailed dragonfly						
		Clubtail dragonfly (Sieboldius albardae)						
		Sinogomphus flavolimbatulus						
		Golden-ringed dragonfly						
		Macromia amphigena amphigena						
	Sympetrum sp.							
	Crustacean	Atyidae	0.012	48	740	240	500	Adult
		Japanese mitten crab	1.9	36	400	130	270	Adult
	Fish	Common freshwater goby	0.026	10	460	150	310	One year old or more
Pale chub		0.043	5	303	93	210	One year old or more	
Goby minnow		0.027	6	270	90	180	One year old	
Japanese dace		0.088	7	266	86	180	One year old or more	
Barbel steed		0.007	15	198	68	130	Yearling	
Amur catfish		0.012	3	420	120	300	Yearling	
Ayu (run-up)		0.096	3	266	86	180	Yearling	
CPOM	CPOM (Fallen leaves in river)	0.48	-	870	280	590	-	

Results of Aquatic Organisms Radionuclides Survey (Rivers 5/5)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
					Total	Cs-134	Cs-137	
O t a g a w a R i v e r F	Alga/plant	Attached alga and others	0.090	-	8,000	2,500	5,500	-
		Spirogyra sp.	0.030	-	159	49	110	-
		Sphagnum sp.	0.074	-	390	130	260	-
		Small pondweed	0.13	-	70	21	49	-
	(Trichoptera)	Stenopsyche marmorata	0.04	232	840	280	560	Larva
		Stenopsyche sauteri						
	(Megaloptera)	Dobsonfly	0.030	54	150	100	210.0	Larva
		Parachauliodes continentalis						
	(Odonata)	Boyeria maclachlani	0.046	199	550	180	370	Larva
		Anisogomphus maacki						
		Asiagomphus melaenops						
		Davidius nanus						
		Davidius sp.						
		Nihonogomphus viridis Oguma						
		Club-tailed dragonfly						
		Clubtail dragonfly (Sieboldius albardae)						
		Stylogomphus suzukii						
		Golden-ringed dragonfly						
	Macromia amphigena amphigena							
	Sympetrum sp.							
Crustacean	Atyidae	0.035	119	1,390	460	930	Adult	
	Red (swamp) crayfish	0.050	2	970	310	660	Adult	
Fish	Rhinogobius sp.LD	0.10	28	2,950	950	2,000	Adult	
	Japanese striped loach	0.064	37	1,360	440	920	Yearling	
	Pale chub	0.045	7	1,070	360	710	One year old or more	
	Japanese dace	0.091	18	1,290	410	880	One year old or more	
	Gin-buna	0.26	4	1,750	550	1,200	One year old or more	
	Cherry salmon	0.026	2	920	290	630	Yearling	
CPOM	CPOM (Fallen leaves in river)	0.48	-	4,300	1,400	2,900	-	

*Aquatic organisms were sampled in multiple numbers, and all of them (entirely) were used for analysis with stomach contents removed where possible.

*Attached algae and others were sampled using brushes to scrape them off from biofilm on the riverbed. Those free-floating algae were sampled using 10µm net to filter the environmental water, so samples include suspended solids (SS).

*Radionuclides concentration may include some errors, but are not reported here.

Results of Aquatic Organisms Radionuclides Survey (Lakes 1/2)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
					Total	Cs-134	Cs-137	
H a y a m a k o L a k e (M a n o D a m) G	Alga/plant	Attached alga and others	0.089	-	3,400	1,100	2,300	-
		Free-floating alga and others	0.051	-	17	4.9	12	-
		Spirogyra sp.	0.47	-	620	200	420	-
		Small pondweed	0.46	-	10	3.1	6.7	-
	a t t i c (Trichoptera)	Stenopsyche marmorata	0.057	257	340	110	230	Larva
		Stenopsyche sauteri						
	i n s (Megaloptera)	Dobsonfly	0.033	83	89	31	58	Larva
		Parachauliodes continentalis						
	F i s h	Lizard goby	0.048	42	287	97	190	One year old or more
		Japanese dace	0.041	4	255	85	170	Adult
		Gin-buna	2.6	2	710	230	480	Adult
		Cherry salmon	0.055	8	225	75	150	Yearling
		Cherry salmon	0.067	2	310	100	210	One year old or more
		Smallmouth bass	1.9	3	2,650	850	1,800	Adult
CPOM	CPOM (Fallen leaves in river)	0.44	-	560	180	380	-	
A k i m o t o k o L a k e H	Alga/plant	Free-floating alga and others	0.049	-	1.3	N.D.(0.96)	1.3	-
		Nuttall's waterweed	0.34	-	7.3	2.4	4.9	-
	Insect	Japanese firefly	0.0012	23	N.D.	N.D.(22)	N.D.(21)	Adult
	Crustacean	Signal crayfish	2.2	57	77	24	53	Adult
	Shellfish	Japanese freshwater snail	140	157	60	19	41	Adult
	F i s h	Amur minnow	0.13	29	16	5.2	11	One year old or more
		Pale chub	1.0	35	56	17	39	Adult
		Japanese dace	3.6	35	102	31	71	Adult
		Carassius sp.	2.6	12	136	42	94	Adult
		Barbel steed	6.1	12	116	36	80	Adult
		Common carp	1.8	1	51	16	35	Adult
		Cherry salmon (Sampled at Nakatsugawa River)	0.048	1	40	13	27	Adult
		Cherry salmon (Sampled at Akimoto Lake)	0.16	1	92	31	61	Adult
		Char	0.45	2	113	38	75	Adult
		Smallmouth bass	5.0	11	264	84	180	Adult
	Japanese smelt	0.49	111	25	8.2	17	Adult	
	A m p h i b i a n (Frog/toad)	Forest green tree frog	0.047	6	55	18	37	Adult
		Schlegel's green tree frog						
		Eastern-Japanese common toad						
Wrinkled frog								
Montane brown frog								
Japanese fire belly newt	0.093	18	24	7.5	16	Adult		
CPOM	CPOM (Fallen leaves in river)	2.0	-	250	80	170	-	

Results of Aquatic Organisms Radionuclides Survey (Lakes 2/2)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
					Total	Cs-134	Cs-137	
k o L a k e (N o r t h L a k e (S o u t h S h o r e)	Fish	Japanese dace	0.38	2	165	55	110	Adult
		Carassius sp.	3.0	9	55	18	37	Adult
		Masu salmon	0.23	2	85	25	60	Adult
		Char	0.18	1	157	47	110	Adult
		Smallmouth bass	0.59	2	108	34	74	Adult
		Amur catfish	1.4	1	141	43	98	Adult
	CPOM	CPOM (Fallen leaves in river)	1.1	-	162	52	110	-
n a w a s h i r o k o L a k e (S o u t h S h o r e)	Alga/plant	Free-floating alga and others	0.050	-	1.7	N.D.(0.99)	1.7	-
		Nuttall's waterweed	0.014	-	N.D.	N.D.(3.5)	N.D.(3.5)	-
		Japanese spatterdock	2.673	-	2.9	1.3	1.6	-
	Crustacean	Freshwater prawn	0.151	165	29	9.5	19	Adult
	Shellfish	Japanese mystery snail	0.130	7	7.3	2.5	4.8	Adult
	Fish	Oriental weather loach	0.046	10	N.D.	N.D.(0.96)	N.D.(0.95)	One year old or more
		Goby minnow	0.707	48	44	16	28	Adult
		Japanese dace (Small)	1.162	39	124	37	87	Young fish
		Japanese dace (Large)	1.175	8	109	32	77	Adult
		Carassius sp.	1.227	16	76	23	53	Adult
		Barbel steed (Small)	0.846	5	100	31	69	Young fish
		Barbel steed (Large)	0.921	1	81	26	55	Adult
		Smallmouth bass	1.349	2	158	48	110	Adult
	Amphibian	Japanese smelt	0.057	32	81	25	56	Adult
Frog and toad (tadpole)		0.086	162	120	39	81	Larva	
	Wrinkled frog	0.094	32	2.8	1.1	1.7	Adult	

*Aquatic organisms were sampled in multiple numbers, and all of them (entirely) were used for analysis with stomach contents removed where possible.

*Attached algae and others were sampled using brushes to scrape them off from biofilm on the riverbed. Those free-floating algae were sampled using 10µm net to filter the environmental water, so samples include suspended solids (SS).

*Radionuclides concentration may include some errors, but are not reported here.

Results of Aquatic Organisms Radionuclides Survey (Sea areas 1/1)

Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
					Total	Cs-134	Cs-137	
R i A v b e u r k u E m s a t g u a w r a y	Crustacean	Swimming crab	0.96	5	0.5	N.D.(0.43)	0.5	Adult
	Fish	Japanese sea bass	5.5	3	13	4.4	9.0	Adult
		Fat greenling	3.7	17	1.7	0.49	1.2	Adult
		Bastard halibut	4.1	7	11	3.4	7.3	Adult
		Brown sole	2.6	8	2.3	0.88	1.4	Adult
		Stone flounder	3.9	8	1.4	0.45	0.97	Adult
		Bluefin searobin	3.8	12	4.9	1.6	3.3	Adult
(S M o a m t s s u h k i a w C a i u r y O L f a k s h e h o r L e	Alga/seaweed	Free-floating alga and others	0.049	-	21	6.4	15	-
		Ulva pertusa Kjellman	0.22	-	2.6	0.72	1.9	-
	Plant (seaweed)	Eelgrass	0.54	-	0.7	0.28	0.37	-
	Crustacean	Mysidae	0.19	Large numbers	2.6	1.1	1.5	Adult
		Alpheus sp.	0.069	37	6.0	2.3	3.7	Adult
		Japanese mitten crab	0.45	3	20	6.2	14	Adult
		Charybdis japonica	0.37	10	7.9	2.4	5.5	Adult
		Hemigrapsus sp.	0.11	60	5.0	1.6	3.4	Adult
	Ragworm	Polychaeta	0.021	221	10	3.6	6.8	Adult
	Shellfish	Pacific oyster (shell)	0.94	148	15	4.6	10	Adult
		Pacific oyster (Without shell)	3.1		2.2	0.79	1.4	
		Manila clam (shell)	1.6	Large numbers	3.0	0.85	2.1	Adult
		Manila clam (Without shell)	0.94		4.0	1.1	2.9	
	Fish	Sharp-nosed sand goby	0.047	38	4.3	1.4	2.9	Young fish
		Dotted gizzard shad	0.22	1	6.4	1.9	4.5	Adult
Pleuronectidae		0.05	11	3.8	1.3	2.5	Yearling	
(I w H i k s i s a n h o i h a C m i t a y B e O a f c h s h o M r e	Alga	Sea oak	2.3	-	N.D.	N.D.(0.63)	N.D.(0.57)	-
	Urchin	Sea urchin	1.4	38	31	9.8	21	Adult
		Northern sea urchin	2.3	24	5.0	1.7	3.3	Adult
	Shellfish	Abalone (shell)	0.55	10	13	4.2	8.7	Adult
		Abalone (without shell)	1.4		1.7	0.73	0.95	
	Fish	Crimson sea bream	0.78	3	10	3.2	7.1	Adult
		John dory	2.9	2	4.3	1.5	2.8	Adult
		Fat greenling	0.59	2	5.9	2.0	3.9	Adult
		Bastard halibut	5.0	4	5.3	1.8	3.5	Adult
		Marbled sole	2.7	5	40	13	27	Adult
Redwing searobin		1.4	17	5.7	1.6	4.1	Adult	
Ocellate spot skate		4.0	5	106	34	72	Adult	
Starspotted smooth-hound	2.6	2	37	12	25	Adult		

*Aquatic organisms were sampled in multiple numbers, and all of them (entirely) were used for analysis with stomach contents removed where possible.

*Attached algae and others were sampled using brushes to scrape them off from biofilm on the riverbed. Those free-floating algae were sampled using 10µm net to filter the environmental water, so samples include suspended solids (SS).

*Radionuclides concentration may include some errors, but are not reported here.