

(Announcement)
The Results of Radioactive Material Monitoring Surveys of Aquatic Organisms
(2013 August-September Samples)

1. Survey Overview
 (1) Survey Locations

Type	Surveyed Areas		Survey Locations, etc.	Survey Date
Rivers	A	Abukumagawa River	Harasegawa River (Tributary) Shinfunabashi Bridge	Aug. 24, Sept. 17, 2013
	B		Surikamigawa River (Tributary), Taishobashi Bridge	Aug. 10, 11, 20, 27, 29, 30, 2013
	C	Udagawa River		Aug. 25, 2013
	D	Manogawa River		Aug. 11, 27, 28, 2013
	E	Niidagawa River		Aug. 26, 29, Sept. 5, 2013
	F	Otagawa River		Aug. 26, Sept. 4, 7, 2013
Lakes	G	Hayamako Lake (Mano Dam)		Aug. 27, 30, 31, Sept. 4, 2013
	H	Akimotoko Lake		Aug. 22, 23, Sept. 20, 2013
	I	Inawashiroko Lake	North Shore	Sept. 20, 2013
	J		South Shore	Aug. 21, 25, 26, 28, 29, Sept. 18, 2013
Sea areas	K	Offshore of Abukumagawa River Estuary		Aug. 29, 2013
	L	Offshore of Somashi City (Matsukawaura Lake)		Sept. 4, 2013
	M	Offshore of Iwakishi City (Hisanohama Beach Offshore)		Sept. 5, 11, 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) etc.) 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 in most types of organisms 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.

(Radioactive cesium (total of Cs-134 and Cs-137) Unit: Bq/kg-wet)

			Plants (algae)	Aquatic insects	Araneae	Crustacean	Shellfish	Fishes	Amphibians	CPOM (dry leaves, etc.)
Abukumagawa River System	Abukumagawa River A	August 2012	94	199 (8 species mixed)	-	107, 156 (2 species)	39	34-70 (3 species)	104 (3 species mixed)	1,330
		Aug. Sept. 2013	460	44, 131 (2 species)	-	40	16	14-69 (7 species)	22-299 (3 species)	-
	Abukumagawa River B	August 2012	360	139 (8 species mixed)	-	-	-	56-600 (13 species)	87, 750 (2 species)	270
		August 2013	171	11-124 (3 species)	-	64	-	16-162 (15 species)	68, 296 (2 species)	204
Udagawa River C		-	-	-	-	-	-	-	-	-
		August 2013	54, 520 (2 species)	20-180 (3 species)	-	29-44 (3 species)	-	19-140 (5 species)	33	147
Manogawa River System	Hayamako Lake G (Mano Dam)	August 2012	132	450 (10 species mixed)	-	-	-	232-4,300 (9 species)	-	740
		Aug. Sept. 2013	22-1,470 (3 species)	97-1,430 (3 species)	-	307	-	204-770 (7 species)	-	590
	Manogawa River D	August 2012	23-570 (3 species)	460 (10 species mixed)	-	147-660 (3 species)	480	111-760 (7 species)	-	420
		August 2013	9.9-400 (4 species)	63-159 (3 species)	-	161-450 (3 species)	42	46-191 (5 species)	570	-
Niidagawa River E		Sept. 2012	-	-	-	-	-	199-1,620 (6 species)	-	-
		Aug. Sept. 2013	269, 3,200 (2 species)	221, 1,290 (2 species)	222	319	-	116-500 (9 species)	4,100	500
Otagawa River F		-	-	-	-	-	-	-	-	-
		Aug. Sept. 2013	278-7,400 (3 species)	390-660 (3 species)	-	730-1,420 (3 species)	-	42-4,100 (8 species)	-	-
Akimotoko Lake H		August 2012	7.1-44 (3 species)	-	-	156	-	63-310 (12 species)	71-136 (4 species)	156
		Aug. Sept. 2013	19-78 (3 species)	-	-	91	163	10-187 (13 species)	19-340 (3 species)	37
Inawashiroko Lake	Inawashiroko Lake I (North Shore)	August 2012	42	-	-	-	-	9.1-330 (7 species)	-	172
		Sept. 2013	-	-	-	12	-	12-158 (11 species)	-	-
	Inawashiroko Lake J (South Shore)	August 2012	4.8-12 (3 species)	-	-	-	62	11-178 (9 species)	68	-
		Aug. Sept. 2013	ND-4.4 (3 species)	-	-	8.7	9.8	1.8-173 (11 species)	6.4	-

*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)
- Megaloptera (carnivore)
- Plecoptera (carnivore)
- Trichoptera (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	August 2012	-	-	0.95	-	-	-	-	ND-19 (7 species)
	August 2013	-	-	0.39, 1.8 (2 species)	-	-	-	-	1.6-7.0 (5 species)
Somashi City Offshore L (Matsukawaura Lake)	August 2012	2.9, 3.0 (2 species)	-	3.0-300 (4 species)	107	5.3, 8.9 (2 species)	4.7, 29 (2 species)	-	5.9-36 (7 species)
	September 2-13	ND, 0.53 (2 species)	-	4.6-6.7 (3 species)	6.9	2.3, 2.4 (2 species)	1.6, 6.0 (2 species)	-	4.6-5.3 (3 species)
Iwakishi City Offshore M (Hisanohama Beach)	August 2012	25	26, 50 (2 species)	-	-	6.1	49	7.4	14-126 (10 species)
	September 2013	1.6	4.8-23 (2 species)	-	-	1.9	16	-	4.1-84 (7 species)

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

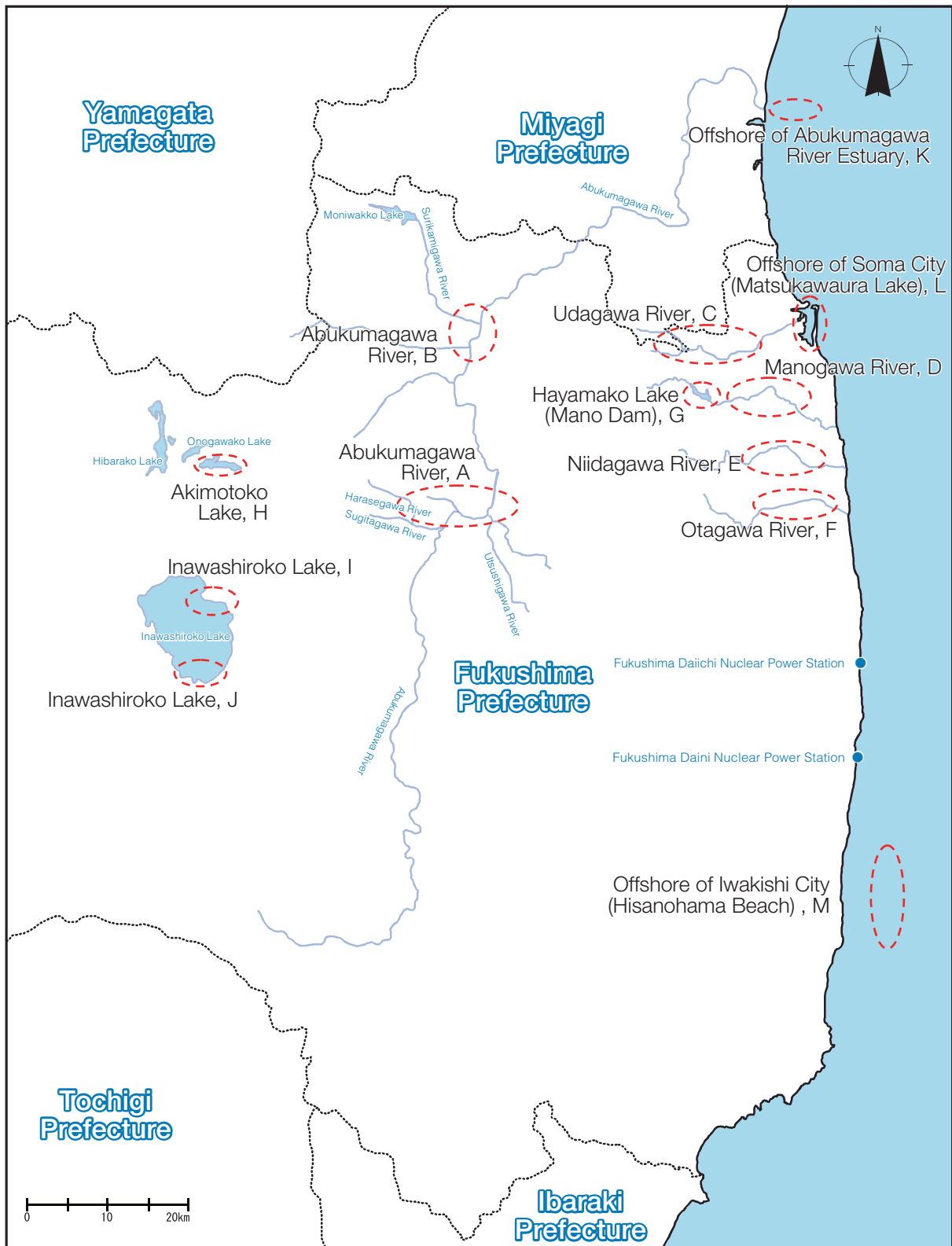
3. Future Plans

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

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Radioactive Material Monitoring Survey Locations of Aquatic Organisms



Results of Aquatic Organisms Radionuclides Survey (Rivers 1/3)

Stn No.	Aquatic organism and others		Sample weight (kg-wet)	Sample number	Total			Sr-90 (Bq/kg-wet)	Remarks
	Species					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	0.033	—	460	140	320	—	—
	(Trichoptera)	Stenopsyche marmorata	0.013	46	131	42	89	—	—
		Leptocerus sp.							
	A q u a t i c i n s e c t (Odonata)	Anax nigrofasciatus	0.030	76	44	15	29	—	Larva
		Anax parthenope							
		Boyeria maclachlani							
		Planaeschna milnei							
		Asiagomphus melaenops							
		Davidius nanus							
		Davidius sp.							
		Club-tailed dragonfly							
		Clubtail dragonfly (Sieboldius albardae)							
		Golden-ringed dragonfly							
	Macromia amphigena amphigena								
	Sympetrum sp.								
	Crustacean	Neocaridina sp.	0.094	73	40	13	27	—	Adult
	Shellfish	Japanese freshwater snail	0.043	26	16	4.6	11	—	Adult
	F i s h	Oriental weather loach	0.069	94	19	5.7	13	—	Yearling
		Amur minnow	0.046	15	19	5.8	13	—	One year old or older
		Pale chub	0.057	5	16	5.1	11	—	Adult
Japanese dace		0.29	15	69	21	48	—	One year old or older	
Barbel steed		0.46	3	14	4.1	10	—	Adult	
Cherry salmon		0.10	3	41	13	28	—	One year old or older	
Smallmouth bass		0.492	1	38	12	26	—	Adult	
A m p h i b i a n	Frogs and toad (Tadpole)	0.023	27	299	99	200	—	larva	
	Tokyo daruma pond frog	0.12	23	69	22	47	—	Adult	
	Japanese fire belly newt	0.027	4	22	6.7	15	—	Adult	
A b u k u m a g a w a R i v e r B	Alga/plant	Attached alga and others	0.044	—	171	51	120	—	—
	i n q u i t a n t (Trichoptera)	Stenopsyche marmorata	0.14	613	124	39	85	—	—
		Leptocerus sp.							
	e t (Megaloptera)	Dobsonfly	0.092	132	11	3.7	6.8	—	Larva
		c i c (Odonata)	Clubtail dragonfly (Sieboldius albardae)	0.047	113	20	6.4	14	—
	Crustacean		Red (swamp) crayfish	0.037	2	64	20	44	—
	F i s h	Oriental weather loach	0.061	14	39	13	26	—	One year old or older
		Pale chub	0.079	5	32	11	21	—	Adult
		Japanese dace (Small)	0.16	14	25	8.1	17	—	One year old or older
		Japanese dace (Medium)	0.50	2	56	18	38	—	Adult
		Barbel steed	2.6	2	104	33	71	0.43	Adult
		Common carp	1.5	1	72	24	48	0.44	Adult
		Cherry salmon (Small)	0.17	9	16	4.7	11	—	Yearling
		Cherry salmon (Medium)	0.14	3	18	5.9	12	—	One year old or older
		Smallmouth bass (Small)	0.25	2	46	14	32	—	Young fish
		Smallmouth bass (Medium)	0.52	1	89	28	61	—	Adult
		Smallmouth bass (Large)	1.9	1	144	46	98	0.22	Adult
		Amur catfish	1.2	1	162	52	110	—	Adult
		Channel catfish	3.4	3	87	27	60	0.17	Adult
		Ayu (Run-up)	1.1	21	31	9.8	21	—	Yearling (Sampled in Surikamigawa River)
Ayu (Run-up)		1.4	30	36	11	25	—	Yearling (Sampled near Taishobashi Bridge)	
A m p h i b i a n	Frogs and toad (Tadpole)	0.017	21	296	96	200	—	larva	
	Wrinkled frog	0.019	5	68.0	22	46	—	Adult	
CPOM	CPOM (Fallen leaves in river)	0.14	—	204	64	140	—	—	

Results of Aquatic Organisms Radionuclides Survey (Rivers 2/3)

Stn No.	Aquatic organism and others		Sample weight (kg-wet)	Sample number	Total	Sr-90 (Bq/kg-wet)		Remarks	
	Species					Cs-134	Cs-137		
U d a g a w a R i v e r C	Alga/plant	Attached alga and others	0.019	—	520	160	360	—	—
		Oedogonium	0.020	—	54	18	36	—	—
	(Trichoptera)	Stenopsyche marmorata	0.016	93	180	60	120	—	Larva
		Stenopsyche sauteri							
	(Megaloptera)	Dobsonfly	0.0073	17	54	17	37	—	Larva
	i n s e c t (Odonata)	Epiophlebia superstes	0.016	70	20	7.1	13	—	Larva
		Boyeria maclachlani							
		Asiagomphus melaenops							
		Davidius nanus							
		Davidius sp.							
		Club-tailed dragonfly							
		Clubtail dragonfly (Sieboldius albardae)							
		Stylogomphus suzukii							
	Macromia amphigena amphigena								
	Crustacean	Atyidae	0.029	307	38	11	27	—	Adult
		Red (swamp) crayfish	0.041	2	29	11	18	—	Adult
		Japanese mitten crab	0.13	7	44	15	29	—	Adult
	Fish	Common freshwater goby	0.057	32	68	23	45	—	One year old or older
		Rhinogobius sp.LD	0.11	19	140	43	97	—	Adult
		Goby minnow	0.052	10	19	5.6	13	—	One year old or older
Dark chub		0.16	15	24	8.3	16	—	One year old or older	
Pale chub		0.10	20	22	7.2	15	—	One year old or older	
Amphibian	Montane brown frog	0.055	16	33	11	22	—	Adult	
CPOM	CPOM (Fallen leaves in river)	0.20	—	147	47	100	—	—	
M a n o g a w a R i v e r D	Alga/plant	Attached alga and others	0.043	—	400	130	270	—	—
		Cladophora sp.	0.016	—	24	6.9	17	—	—
		Sphagnum sp.	0.074	—	256	86	170	—	—
		Small pondweed	0.13	—	9.9	N.D.(4.1)	9.9	—	—
	(Trichoptera)	Stenopsyche marmorata	0.066	291	159	49	110	—	Larva
		Leptocerus sp.							
	(Megaloptera)	Dobsonfly	0.094	160	63	20	43	—	Larva
		Parachauliodes continentalis							
	(Odonata)	Davidius nanus	0.014	56	67	20	47	—	Larva
		Davidius sp.							
		Club-tailed dragonfly							
		Clubtail dragonfly (Sieboldius albardae)							
		Sinogomphus flavolimbatus							
		Stylogomphus suzukii							
		Macromia amphigena amphigena							
	Crustacean	Atyidae	0.031	238	218	68	150	—	Adult
		Red (swamp) crayfish	0.11	5	450	140	310	—	Adult
		Japanese mitten crab	1.2	13	161	51	110	—	Adult
	Shellfish	Japanese freshwater snail	0.080	74	42	13	29	—	Adult
	Fish	Common freshwater goby	0.059	23	191	61	130	—	One year old or older
Pale chub		0.077	13	79	25	54	—	One year old or older	
Ayu (Released)		1.1	31	102	32	70	—	Yearling	
Ayu (Run-up)		0.49	22	63	20	43.0	—	Yearling	
Cherry salmon		0.034	2	46	15	31.0	—	Yearling	
Amphibian	American bullfrog (Tadpole)	0.011	8	570	180	390	—	larva	

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

Stn No.	Aquatic organism and others		Sample weight (kg-wet)	Sample number	Total	Sr-90 (Bq/kg-wet)		Remarks	
	Species					Cs-134	Cs-137		
N i i d a g a w a R i v e r E	Alga/plant	Attached alga and others	0.048	—	3,200	1,000	2,200	—	—
		Oedogonium	0.019	—	269	89	180	—	—
	(Trichoptera)	Stenopsyche marmorata	0.028	147	1,290	410	880	—	Larva
		Leptocerus sp.							
	A q u a t i c i n s e c t (Odonata)	Boyeria maclachlani	0.029	88	221	71	150	—	Larva
		Asiagomphus melaenops							
		Davidius nanus							
		Davidius sp.							
		Club-tailed dragonfly							
		Clubtail dragonfly (Sieboldius albardae)							
		Stylogomphus suzukii							
		Macromia amphigena amphigena							
	Spider	Araneidae	0.017	69	222	72	150	—	Adult
	Crustacean	Japanese mitten crab	0.19	22	319	99	220	—	Adult
	F i s h	Rhinogobius sp.	0.031	9	500	160	340	—	One year old or older
		Japanese dace	0.12	9	320	100	220	—	One year old or older
		Gin-buna	0.045	5	221	71	150	—	Young fish
		Barbel steed (Small)	0.13	65	116	36	80	—	Yearling
		Barbel steed (Large)	3.0	2	350	140	210	1.1	Adult
Common carp		0.30	11	171	51	120	—	One year old or older	
Cherry salmon		0.090	1	280	90	190	—	One year old or older	
Japanese eel		1.6	3	400	130	270	0.32	Adult	
Ayu (Run-up)		0.089	2	340	110	230	—	Yearling	
Amphibian	American bullfrog (tadpole)	0.13	22	4,100	1,300	2,800	—	larva	
CPOM	CPOM (Fallen leaves in river)	0.29	—	500	160	340	—	—	
O t a g a w a R i v e r F	Alga/plant	Attached alga and others	0.070	—	7,400	2,300	5,100	—	—
		Spirogyra sp.	0.0096	—	278	88	190	—	—
		Sphagnum sp.	0.074	—	510	160	350	—	—
	(Trichoptera)	Stenopsyche marmorata	0.0074	33	660	220	440	—	Larva
	(Megaloptera)	Dobsonfly	0.031	67	390	120	270	—	Larva
		Parachauliodes continentalis							
	A q u a t i c i n s e c t (Odonata)	Boyeria maclachlani	0.031	128	460	150	310	—	Larva
		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	0.027	205	730	230	500	—	Adult
		Red (swamp) crayfish	0.0085	3	940	300	640	—	Young
Japanese mitten crab		0.12	6	1,420	440	980	—	Adult	
F i s h	Japanese striped loach	0.017	10	251	81	170	—	One year old or older	
	Rhinogobius sp.LD	0.10	28	4,100	1,300	2,800	—	One year old or older	
	Japanese dace (Medium)	0.19	78	770	250	520	—	One year old or older	
	Japanese dace (Large)	0.41	10	42	13	29	—	Adult	
	Tribolodon sp. (Tribolodon brandti)	0.54	2	52	16	36	—	Adult	
	Gin-buna	0.055	1	1,300	420	880	—	One year old or older	
	Common carp	1.5	1	880	280	600	2.8	Adult	
	Japanese eel	3.2	3	510	160	350	0.29	Adult	

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

Stn No.	Aquatic organism and others		Sample weight (kg-wet)	Sample number	Total	Sr-90 (Bq/kg-wet)		Remarks		
	Species					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	0.033	—	1,470	470	1,000	—	—	
		Free-floating alga and others	0.029	—	26	7.9	18	—	—	
		Small pondweed	0.076	—	22	7.1	15	—	—	
	A q (M e g a l o p t e r a)	(Trichoptera)	Stenopsyche marmorata	0.015	115	1,430	460	970	—	Larva
			Stenopsyche sauteri							
		(Megaloptera)	Dobsonfly	0.019	35	97	31	66	—	Larva
	i n s (O d o n a t a)	i n s (O d o n a t a)	Anax nigrofasciatus	0.019	85	104	34	70	—	Larva
			Davidius nanus							
			Davidius sp.							
			Nihonogomphus viridis Oguma							
			Clubtail dragonfly (Sieboldius albardae)							
			Stylogomphus suzukii							
			Macromia amphigena amphigena							
	Crustacean	Atyidae	0.027	129	307	97	210	—	Adult	
	F i s h	F i s h	Lizard goby	0.023	20	206	66	140	—	Adult
			Japanese dace	0.16	14	278	88	190	—	One year old or older
			Gin-buna	2.3	2	530	170	360	1.1	Adult
			Cherry salmon	0.042	7	204	64	140	—	Yearling
			Rainbow trout	1.1	1	264	84	180	—	Adult
			Smallmouth bass (Small)	0.20	2	430	130	300	—	One year old or older
Smallmouth bass (Large)			1.0	2	770	240	530	—	Adult	
CPOM	CPOM (Fallen leaves in river)	0.36	—	590	190	400	—	—		
A k i m o t o k o L a k e H	Alga/plant	Free-floating alga and others	0.046	—	36	11	25	—	—	
		Spirogyra sp.	0.030	—	78	24	54	—	—	
		Nuttall's waterweed	0.13	—	19	5.9	13	—	—	
	Crustacean	Signal crayfish	1.8	25	91	29	62	11	Adult	
	Shellfish	Japanese freshwater snail	0.035	44	163	53	110	—	Adult	
	F i s h	F i s h	Lefua echigonia	24	45	10	2.9	6.8	—	Adult
			Japanese sculpin	147.8	22	45	15	30	—	One year old or older
			Japanese dace (Small)	0.92	16	187	57	130	—	Young fish
			Japanese dace (Large)	0.23	1	123	37	86	—	Adult
			Gin-buna	2.3	16	96	28	68	—	Adult
			Barbel steed	0.42	10	68	20	48	—	Adult
			Common carp	3.0	1	47	14	33	0.99	Adult
			Cherry salmon (Sampled at Akimotoko Lake)	0.36	1	72	21	51	—	Adult
			Char (Small)	0.091	1	83	27	56	—	Young fish
			Char (Large)	0.60	2	125	39	86	—	Adult
			Smallmouth bass (Small)	0.32	6	106	33	73	—	Young fish
			Smallmouth bass (Large)	1.6	4	147	47	100	1.0	Adult
	Japanese smelt	0.70	173	29	9.0	20	—	Adult		
	A m p h i b i a n	A m p h i b i a n	Frogs and toad (Tadpole)	0.033	42	340	110	230	—	larva
			Eastern-Japanese common toad	0.087	1	32	11	21	—	Adult
Japanese fire belly newt			0.056	9	19	5.9	13	—	Adult	
CPOM	CPOM (Fallen leaves in river)	2.9	—	37	12	25	—	—		

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

Stn No.	Aquatic organism and others		Sample weight (kg-wet)	Sample number	Total			Sr-90 (Bq/kg-wet)	Remarks
	Species					Cs-134	Cs-137		
I (N a o w r a t s h h i s r h o k o r o e) L a k e	Crustacean	Freshwater prawn	0.23	322	12	3.8	8.3	—	Adult
	Fish	Oriental weather loach	1.0	439	13	3.9	8.6	—	Adult
		Japanese dace	1.7	47	61	20	41	—	Adult
		Carassius sp.(Small)	0.26	40	12	3.3	8.6	—	Young fish
		Carassius sp.(Large)	2.1	5	40	11	29	0.46	Adult
		Barbel steed (Small)	0.69	9	24	7.3	17	—	Young fish
		Barbel steed (Large)	1.6	2	65	20	45	—	Adult
		Masu salmon	1.1	3	52	17	35	—	Adult
		Char (Small)	0.32	1	122	38	84	—	Young fish
		Char (Large)	0.95	1	158	48	110	—	Adult
		Smallmouth bass (Small)	0.67	3	74	22	52	—	Young fish
		Smallmouth bass (Large)	1.8	4	90	27	63	0.30	Adult
		I 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) J	Alga/plant	Free-floating alga and others	0.048	—	1.1	N.D.(0.95)	1.1
Nuttall's waterweed	0.15			—	N.D.	N.D.(0.81)	N.D.(0.67)	—	—
Japanese spatterdock	0.27			—	4.4	1.7	2.7	—	—
Crustacean	Freshwater prawn		0.049	120	8.7	2.6	6.1	—	Adult
Shellfish	Japanese mystery snail		0.089	6	9.8	3.4	6.4	—	Adult
Fish	Oriental weather loach (Small)		0.25	165	1.8	N.D(1.7)	1.8	—	Yearling
	Oriental weather loach (Large)		0.029	5	1.8	N.D(1.8)	1.8	—	One year old or older
	Goby minnow		0.18	11	29	8.5	20	—	Adult
	Japanese dace		0.25	3	82	26	56	—	Adult
	Carassius sp (Small)		0.12	18	19	6.4	13	—	Young fish
	Carassius sp. (Large)		1.6	2	19	6.1	13	—	Adult
	Barbel steed (Small)		1.0	10	27	8.4	19	—	Young fish
	Barbel steed (Large)		0.93	1	43	14	29	—	Adult
	Char	0.75	1	173	53	120	—	Adult	
	Smallmouth bass (Small)	0.13	13	36	12	24	—	Young fish	
Smallmouth bass (Large)	0.17	1	90	28	62	—	Adult		
Amphibian	Wrinkled frog	0.035	5	6.4	2.0	4.4	—	Adult	

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

Stn No.	Aquatic organism and others		Sample weight (kg-wet)	Sample number	Total	Cs-134		Cs-137	Sr-90 (Bq/kg-wet)	Remarks
	Species									
R i A C r u s t a c e a n K E m o s a r t g e F i s h u a w o r a f y	Crustacean	Swimming crab	1.7	6	1.8	0.63	1.2	—	Adult	
		Swimming crab	0.70	5	0.39	0.39	N.D.(0.85)	—	Adult	
	Fish	Crimson sea bream	1.7	8	2.2	0.73	1.5	—	Adult	
		Sebastes sp.	1.1	5	7.0	2.1	4.9	—	Adult	
		Fat greenling	2.4	8	1.6	0.46	1.1	0.019	Adult	
		Bastard halibut	2.5	6	1.7	0.51	1.2	0.015	Adult	
		Bluefin searobin	2.7	11	2.5	0.78	1.7	0.024	Adult	
(S M o a m t a s s u h k i a w C a i u t r y a O L f a k s e h o r L e	Alga/seaweed	Ulva pertusa Kjellman	0.51	—	0.53	N.D.(0.32)	0.53	—	—	
	Plant (Seaweed)	Eelgrass	0.31	—	N.D.	N.D.(0.29)	N.D.	—	—	
	Polychaete	Polychaeta	0.020	241	6.9	N.D.(3.1)	6.9	—	Adult	
	Crustacean	Palaemon sp.	0.068	97	4.6	1.5	3.1	—	Adult	
		Alpheus sp.	0.10	60	6.7	2.1	4.6	—	Adult	
		Charybdis japonica	0.88	20	5.2	1.6	3.6	—	Adult	
	Shellfish	Pacific oyster (Shell)	2.63	43	6.0	1.9	4.1	—	Adult	
		Pacific oyster (Without shell)	0.80		2.3	0.71	1.6	—		
		Manila clam (Shell)	1.0	64	1.6	0.46	1.1	—	Adult	
		Manila clam (Without shell)	0.48		2.4	0.77	1.6	—		
	Fish	Gobiidae	0.16	43	5.3	1.7	3.6	—	Young fish	
		Pleuronectidae	0.026	9	4.6	1.4	3.2	—	Young fish	
		Redlip mullet	0.40	1	4.7	1.4	3	—	Adult	
I w a k i s h i C i t y O f f s h o r e M	Alga	Sea oak	1.2	—	1.6	0.50	1.1	—	—	
	Urchin	Northern sea urchin	3.1	30	4.8	1.5	3.3	—	Adult	
		Sea urchin	1.3	35	23	6.9	16	6.0	Adult	
	Shellfish	Abalone (Shell)	0.60	12	16	5.0	11	—	Adult	
		Abalone (Without shell)	1.8		1.9	0.75	1.1	—		
	Fish	John dory	3.0	3	5.3	1.6	3.7	N.D.(0.019)	Adult	
		Fat greenling	4.7	8	29	8.9	20	0.16	Adult	
		Bastard halibut	4.7	5	4.1	1.5	2.6	0.040	Adult	
		Marbled sole	4.8	8	19	6.1	13	0.11	Adult	
		Bluefin searobin	1.3	6	7.1	2.2	4.9	—	Adult	
Ocellate spot skate		2.6	5	84	26	58	0.24	Adult		
Starspotted smooth-hound		3.9	4	8.8	2.8	6.0	0.029	Adult		

*Aquatic organisms were sampled in multiple numbers in principle, and all of them (entirely) were used for analysis. Where possible, stomach contents were removed before analysis, and all remaining parts were used for analysis.

*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.