(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

Туре		Surveyed Areas	Survey Locations, etc.	Survey Date
	А		Harasegawa River (Tributary)	July 10, 2013
	р	Abukumagawa River	Surikamigawa River(Tributary),	July 9, 11, 14,
	Б		Taishobashi Bridge	20, 2013
Rivers	С	Udagawa River		July 14, 2013
	D	Manogawa River		July 13, 16, 2013
	Е	Niidagawa River		July 18, 2013
	F	Otagawa River		July 15, 2013
	G	Hayamako Lake (Mano Dam)		July 17, 2013
Lakes	Η	Akimotoko Lake		July 12, 2013
	Ι	In a washing to Lake	North Shore	July 11, 31, 2013
	J	mawashiroko Lake	South Shore	July 10-13, 2013
	Κ	Offshore of Abukumagawa Rive	er Estuary	July 18, 2013
Sea areas	L	Offshore of Somashi City (Mats	ukawaura Lake)	July 31, 2013
	М	Offshore of Iwakishi City (Hisa	nohama 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.

(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	June-July 2012	740	52 (4 species)	181	170	50-167 (7 species)	290-420 (5 species)	-
Abukumagawa	River A	July 2013	730	39, 202 (2 species)	76	28	16-274 (7 species)	49-330 (3 species)	830
River System	Abukumagawa	June-July 2012	550	-	-	-	76-650 (10 species)	280, 370 (2 species)	-
	River B	July 2013	ND, 450 (2 species)	15-198 (4 species)	62	120	14-46 (6 species)	49, 550 (2 species)	165
Lidogowy	n Divor C	June-July 2012	-	-	-	-	-	-	-
Udagawa River C		July 2013	520	21-283 (3 species)	29-55 (3 species)	-	45-141 (3 species)	12, 16 (2 species)	205
	Hayamako Laka G	June-July 2012	1,870	510 (7 species)	-	-	280-4,400 (4 species)	-	3,200
Manogawa River System	Lake G (Mano Dam)	July 2013	10-3,400 (4 species)	89, 340 (2 species)	-	-	225-2,650 (6 species)	-	560
	Manogawa	June-July 2012	260	198 (14 species)	223	182	202-970 (4 species)	-	1,410
	River D	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
NT'' 1		June-July 2012	-	-	-	-	440-11,400 (5 species)	-	-
Niidagaw	a River E	July 2013	9.3, 4,000 (2 species)	270, 1,500 (2 species)	400, 740 (2 species)	-	198 -460 (7 species)	-	870
Otogowy	Pivor E	June-July 2012	-	-	-	-	-	-	-
Otagawa		July 2013	70-8,000 (4 species)	150-840 (3 species)	970, 1,390 (2 species)	-	920-2,950 (6 species)	-	4,300
Akimotol	zo I aka H	June-July 2012	46	-	183	-	88-470 (7 species)	540	250
Akinotoi		July 2013	1.3, 7.3 (2 species)	ND	77	60	16-264 (11 species)	24, 55 (2 species)	250
	Inawashiroko	June-July 2012	500	-	-	-	77-380 (6 species)	-	-
Inawashiroko	(North Shore)	July 2013	-	-	-	-	55-165 (6 species)	-	162
Lake	Inawashiroko	June-July 2012	9	-	-	-	46-430 (6 species)	-	-
	(South Shore)	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, detrivorous)

(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: E	3q/kg-wet
		Plants (algae)	Sea urchin, starfish, sea cucumber	Crustacean	Ragworms	Shel Without shell	lfish Shell	Squid, octopus	Fishes
Offshore of	June-July 2012	-	-	8.4, 21 (2 species)	-	-	-		11-42 (5 species)
Estuary K	July 2013	-	-	0.5	-	-	-	-	1.4-13 (6 species)
Somoshi City Offshore	June-July 2012	13-102 (3 species)	-	12-87 (4 species)	-	4.1, 5.7 (2 species)	9, 56 (2species)	-	11-166 (5 species.)
L (Matsukawaura Lake)	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	June-July 2012	22, 33 (2 species)	21, 97 (2 species)	-	-	13	24	-	7.6-290 (8 species)
M (Hisanohama Beach)	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

Stn No.	Aaua	tic organisms, etc.	Sample weight	Sample number	Radioactive cesium (Bq/kg-wet)			Remarks
	1	- /	(kg-wet)		Total	Cs-134	Cs-137	
	Alga/plant	Attached alga and others	0.044	-	730	230	500	-
	(Trichoptera)	Stenopsyche marmorata	0.029	103	202	62	140	Larva
	А	Asiagomphus melaenops						
	q u	Davidius sp.						
	a t	Nihonogomphus viridis Oguma						
	i c	Club-tailed dragonfly						
	i (Odonata)	Clubtail dragonfly (Sieboldius albardae)	0.12	244	39	13	26	Larva
A b	n s	Golden-ringed dragonfly						
u k	c	Macromia amphigena amphigena						
u m	t	Common skimmer						
a g		Sympetrum sp.						
a w	Crustacean	Neocaridina sp.	0.15	998	76	24	52	Adult
а	Shellfish	Japanese freshwater snail	0.056	39	28	8.5	19	Adult
R i		Oriental weather loach	0.076	63	32	11	21	One year old or more
v e		Amur minnow	0.46	101	37	13	24	One year old or more
r		Japanese dace	0.13	11	42	14	28	Adult
Α	Fish	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
		Frogs and toad (tadpole)	0.15	156	330	110	220	Larva
	Amphibian	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	-
		attoopod olgo opd otporg	0.059		450	140		
	Alga/plant		0.020	-	ND	ND (15)	>10	-
	Alga/plant	Spirogyra sp.	0.029	-	N.D.	N.D.(1.5)	N.D.(1.2)	- -
	Alga/plant (Trichoptera)	Spirogyra sp. Stenopsyche marmorata	0.029	- 621	N.D. 132	N.D.(1.5)	N.D.(1.2)	
	Alga/plant (Trichoptera) A	Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata DokemBri	0.029	- 621 295	N.D. 132	N.D.(1.5) 44 68	N.D.(1.2) 88 130	- Last instar larvae Young larvae
	Alga/plant (Trichoptera) A q u (Megaloptera)	Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly	0.029 0.21 0.095 0.068	- 621 295 95	N.D. 132 198	N.D.(1.5) 44 68 4.4	N.D.(1.2) 88 130	- Last instar larvae Young larvae Larva
	Alga/plant (Trichoptera) A q u (Megaloptera) a t	Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Assistance accelia	0.029 0.21 0.095 0.068	- 621 295 95	N.D. 132 198 15	N.D.(1.5) 44 68 4.4	N.D.(1.2) 88 130	- Last instar larvae Young larvae Larva
А	Alga/plant (Trichoptera) A (Megaloptera) a t c	Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Docidina m	0.029 0.21 0.095 0.068	- 621 295 95	N.D. 132 198 15	N.D.(1.5) 44 68 4.4	N.D.(1.2) 88 130	- Last instar larvae Young larvae Larva
A b u	Alga/plant (Trichoptera) A (Megaloptera) a t i c i	Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club wild dependent	0.029 0.21 0.095 0.068	- 621 295 95	N.D. 132 198 15	N.D.(1.5) 44 68 4.4	N.D.(1.2) 88 130	- Last instar larvae Young larvae Larva
A b u k	Alga/plant (Trichoptera)	Autocheck ange and onlers Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly	0.029 0.21 0.095 0.068	- 621 295 95	N.D. 132 198 15	N.D.(1.5) 44 68 4.4	N.D.(1.2) 88 130 11	- Last instar larvae Young larvae Larva
A b u k u m a	Alga/plant (Trichoptera)	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Clubtail dragonfly (Sieboldius albardae)	0.029 0.21 0.095 0.068 0.037	- 621 295 95 77	N.D. 132 198 15	N.D.(1.5) 44 68 4.4	N.D.(1.2) 88 130 11	- Last instar larvae Young larvae Larva
A b u k u m a g a	Alga/plant (Trichoptera) A (Megaloptera) a (Megaloptera) a t i c i s (Odonata) c t	Auteched arga and onlers Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Clubtail dragonfly (Sieboldius albardae) Golden-ringed dragonfly	0.029 0.21 0.095 0.068	- 621 295 95 77	N.D. 132 198 15 23	N.D.(1.5) 44 68 4.4 7.8	N.D.(1.2) 88 130 11	- Last instar larvae Young larvae Larva Larva
A b u k u m a g a w a	Alga/plant (Trichoptera) A q (Megaloptera) a t i c i n s e (Odonata) c t	Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Clubtail dragonfly (Sieboldius albardae) Golden-ringed dragonfly Macromia amphigena amphigena	0.029 0.21 0.095 0.068 0.037	- 621 295 95 77	N.D. 132 198 15 23	N.D.(1.5) 44 68 4.4	N.D.(1.2) 88 130 11 15	- Last instar larvae Young larvae Larva Larva
A b u k u m a g a w a R	Alga/plant (Trichoptera) A (Megaloptera) a (Megaloptera) a t i c i n s (Odonata) c t	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Clubtail dragonfly (Sieboldius albardae) Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer	0.029 0.21 0.095 0.068 0.037	- 621 295 95 77	N.D. 132 198 15 23	N.D.(1.5) 44 68 4.4 7.8	N.D.(1.2) 88 130 11 15	- Last instar larvae Young larvae Larva Larva
A b u k u m a g a w a R i v	Alga/plant A (Trichoptera) A (Megaloptera) a t i c i n s c (Odonata) c t Crustacean n v v v v v v v v	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish	0.029 0.21 0.095 0.068 0.037	- 621 295 95 77 77	N.D. 132 198 15 23 62	N.D.(1.5) 44 68 4.4 7.8 7.8	N.D.(1.2) 88 130 11 15 42	- Last instar larvae Young larvae Larva Larva Larva Adult
Abukum agawa River	Alga/plant (Trichoptera) A (Megaloptera) a t c i c i c t Crustacean Shellfish	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tail dragonfly (Sieboldius albardae) Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail	0.029 0.21 0.095 0.068 0.037 0.037	- 621 295 95 77 77 21 142	N.D. 132 198 15 23 62 120	N.D.(1.5) 44 68 4.4 7.8 7.8 20 39	N.D.(1.2)	- Last instar larvae Young larvae Larva Larva Larva Adult Adult
Abukum agawa River R	Alga/plant (Trichoptera) A (Megaloptera) a (Megaloptera) a (Megaloptera) b Crustacean Crustacean Shellfish	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach	0.029 0.21 0.095 0.068 0.037 0.037 0.037 0.058 0.07	- 621 295 95 77 77 21 142 14	N.D. 132 198 15 23 62 120 46	N.D.(1.5) 44 68 4.4 7.8 20 39 15	N.D.(1.2)	- Last instar larvae Young larvae Larva Larva Larva Adult Adult One year old or more
A b u k u m a g a w a R i v c r B	Alga/plant (Trichoptera) A (Megaloptera) a t c i c i c i Crustacean Shellfish	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach Japanese dace	0.029 0.21 0.095 0.068 0.068 0.037 0.037 0.037 0.058 0.07 0.022	- 621 295 95 77 77 21 142 14 25	N.D. 132 198 15 23 62 120 46 43	N.D.(1.5) 44 68 4.4 7.8 20 39 15 14	N.D.(1.2)	- Last instar larvae Voung larvae Larva Larva Larva Larva Adult Adult One year old or more One year old or more
A b u k u m a g a w a R i v e r B	Alga/plant (Trichoptera) A (Megaloptera) a (Megaloptera) a t c i n s (Odonata) c t Crustacean Shellfish Fish	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach Japanese dace Masu salmon	0.029 0.21 0.095 0.068 0.068 0.037 0.037 0.037 0.037 0.058 0.07 0.022	- 621 295 95 95 77 77 21 142 14 25 3	N.D. 132 198 15 23 23 62 120 46 43 18	N.D.(1.5) 44 68 4.4 7.8 20 39 15 14 5.5	N.D.(1.2)	- Last instar larvae Jung larvae Larva Larva Larva Larva Adult Adult One year old or more One year old or more Adult
A b u k u m a g a w a R i v e r B	Alga/plant (Trichoptera) A q (Megaloptera) a t i c i n s e (Odonata) c t Crustacean Shellfish Fish	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach Japanese dace Masu salmon Cherry salmon	0.029 0.21 0.095 0.068 0.068 0.037 0.037 0.037 0.037 0.058 0.07 0.022 0.04 0.04 0.04	- 621 295 95 95 77 77 21 142 14 25 3 3 12	N.D. 132 198 15 23 62 120 46 43 18 16	N.D.(1.5) 44 68 4.4 7.8 20 39 15 14 5.5 5.3	N.D.(1.2) N.D.(1.2)	- Last instar larvae Junce Last Larva Larva Larva Larva Larva Adult Adult One year old or more One year old or more Adult Yearling
Abukumagawa River B	Alga/plant (Trichoptera) A (Megaloptera) a t i c i n s (Odonata) c t Crustacean Shellfish Fish	Attached arga and onless Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach Japanese dace Masu salmon Cherry salmon	0.029 0.21 0.095 0.068 0.068 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037	- 621 295 95 95 77 77 21 142 14 25 3 3 12 2	N.D. 132 198 15 23 62 120 46 43 18 16 14	N.D.(1.5) 44 68 4.4 7.8 20 39 15 14 5.5 5.3 4.4	N.D.(1.2) N.D.(1.2)	- Last instar larvae Voung larvae Larva Larva Larva Larva Adult Adult One year old or more Adult Yearing One year old or more
A b u k u m a g a w a R i v e r B	Alga/plant (Trichoptera) A (Megaloptera) a (Megaloptera) a (Megaloptera) b (Odonata) c t Crustacean Shellfish Fish	Attached arga and onlers Spirogyra sp. Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Club-tailed dragonfly Clubtail dragonfly (Sieboldius albardae) Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach Japanese dace Masu salmon Cherry salmon Cherry salmon Ayu (run-up)	0.029 0.21 0.095 0.068 0.068 0.037 0.037 0.037 0.037 0.037 0.058 0.071 0.22 0.94 0.16 0.072 0.14	- 621 295 95 95 77 77 21 142 14 25 3 12 2 3	N.D. 132 198 15 23 23 23 23 23 23 23 23 23 23	N.D.(1.5) 44 68 4.4 7.8 20 39 15 14 5.5 5.3 4.4 12	N.D.(1.2) N.D.(1.2)	- Last instar larvae Voung larvae Larva Larva Larva Larva Larva Adult Adult Adult One year old or more One year old or more Adult Yearling One year old or more Yearling
A b u k u m a g a w a R i v e r B	Alga/plant Aga/plant (Trichoptera) A Q (Megaloptera) a t i c i n S (Odonata) c t Crustacean Shellfish Fish Fish Amphibian	Attached arga and onlers Spirogyra sp. Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach Japanese daee Masu salmon Cherry salmon Ayu (run-up) Frogs and toad (tadpole)	0.029 0.21 0.095 0.068 0.068 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037 0.037	- 621 295 95 95 77 77 21 142 14 25 3 3 12 2 5 3 12 7 7	N.D. 132 198 15 23 23 23 23 23 23 23 23 23 23	N.D.(1.5) 44 68 4.4 68 7.8 7.8 7.8 20 20 39 15 14 5.5 5.3 4.4 12 180	N.D.(1.2) N.D.(1.2)	- Last instar larvae Last instar larvae Larva Larva Larva Larva Larva Adult Adult Adult One year old or more One year old or more Adult Yearling One year old or more Adult Larva Adult Ad
A b u k u m a g a w a R i v e r B	Alga/plant (Trichoptera) A q (Megaloptera) a t i c i c i n s c (Odonata) c t Fish Fish Fish	Attached arga and onlers Spirogyra sp. Stenopsyche marmorata Stenopsyche marmorata Dobsonfly Parachauliodes continentalis Anisogomphus maacki Davidius sp. Club-tailed dragonfly Club-tailed dragonfly Club-tailed dragonfly Golden-ringed dragonfly Macromia amphigena amphigena Common skimmer Red (swamp) crayfish Japanese freshwater snail Oriental weather loach Japanese dace Masu salmon Cherry salmon Cherry salmon Cherry salmon Ayu (run-up) Frogs and toad (tadpole) Wrinkled frog	0.029 0.21 0.095 0.068 0.068 0.037 0.037 0.037 0.037 0.058 0.07 0.22 0.94 0.16 0.072 0.94 0.14 0.011	- 621 295 95 95 77 77 21 142 21 142 25 3 3 12 2 7 7 7 7	N.D. N.D. 132 198 15 23 23 23 23 23 23 23 23 23 2	N.D.(1.5) 44 68 4.4 7.8 20 39 115 14 5.5 5.3 4.4 12 180 16	N.D.(1.2) N.D.(1.2)	- Last instar larvae Voung larvae Larva Larva Larva Larva Larva Adult Adult Adult One year old or more One year old or more Adult Cone year old or more Adult Larva Adult Adul

Results o	of Aquatic	Organisms	Radionuclides	Survey (Rivers 2/5
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	Results of Aquatic Organisms Radionuclides Survey (Rivers 2/5)								
74 N	A		Sample weight	Samula much m	Ra	dioactive cesium (Bq/kg-v	/et)	Damarka	
stn No.	Aqua	tic organisms, etc.	(kg-wet)	Sample number	Total	Cs-134	Cs-137	Kemarks	
	Alga/plant	Attached alga and others	0.077	-	520	170	350	-	
	(Trichontera)	Stenopsyche marmorata	0.051	217	283	67	150	Larva	
	(Thenopicia)	Stenopsyche sauteri	0.051	217	205	07	150	Laiva	
	(Megalontera)	Dobsonfly	0.024	99	50	18	40	Larva	
	A (Wegalopera)	Parachauliodes continentalis	0.024	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	57	10	40	Laiva	
	u a	Asiagomphus melaenops							
	t i	Davidius nanus							
П	c	Davidius sp.					14		
d	i n	Nihonogomphus viridis Oguma							
g	s (Odonata) e	Club-tailed dragonfly	0.0592	231	21	7.2		Larva	
w	c t	Clubtail dragonfly (Sieboldius albardae)							
R		Stylogomphus suzukii							
i v		Golden-ringed dragonfly							
e r		Macromia amphigena amphigena							
с		Atyidae	0.049	233	43	14	29	Adult	
	Crustacean	Red (swamp) crayfish	0.11	8	29	9.0	20	Adult	
		Japanese mitten crab	0.22	7	55	16	39	Adult	
		Rhinogobius sp.LD	0.098	24	141	42	99	One year old or more	
	Fishes	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	
	СРОМ	CPOM (Fallen leaves in river)	0.91	-	205	65	140	-	

Results of Ad	matic Organisms	Radionuclides	Survey	Rivers 3/5
Results of Ac	qualic Organishis	Raulonuchues	Survey	KIVEIS J/J

	Results of Aquatic Organisms Radionuclides Survey (Rivers 3/5)							
Ster No.	A	4°	Sample weight	Course and a	Rac	lioactive cesium (Bq/kg-w	et)	Dementer
Sin No.	Aqua	tic organisms, etc.	(kg-wet)	Sample number	Total	Cs-134	Cs-137	Remarks
		Attached alga and others	0.095	-	1,610	510	1,100	-
	Alga/plant	Spirogyra sp.	0.39	-	14	4.4	9.1	-
		Sphagnum sp.	0.42	-	350	110	240	-
	(Trishontara)	Stenopsyche marmorata	0.11	422	222	70	150	Larra
	(Thenoptera)	Stenopsyche sauteri	0.11	432	222	12	150	Laiva
	(Magaloptara)	Dobsonfly	0.087	150	150	15	20	Lanva
	A (Wegaloptera)	Parachauliodes continentalis	0.087	150	150	15	29	Laiva
	u a	Boyeria maclachlani						
	t i	Planaeschna milnei						
	с	Davidius nanus					39	Larva
М	i n	Davidius sp.						
a n	s (Odonata) c t	Nihonogomphus viridis Oguma	0.11	104	59	20		
o g		Club-tailed dragonfly						
a w		Clubtail dragonfly (Sieboldius albardae)						
а		Macromia amphigena amphigena						
R i		Sympetrum sp.						
v e	Crustacean	Atyidae	0.079	414	180	60	120	Adult
r	Clustaccan	Red (swamp) crayfish	0.64	17	350	110	240	Adult
D	Shellfish	Japanese freshwater snail	0.087	51	99	32	67	Adult
		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
	Fish	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
	Impinoian	Frog and toad (Tadpole)	0.0087	25	1,100	370	730	Larva
	СРОМ	CPOM (Fallen leaves in river)	0.26	-	670	220	450	-

Results o	of Aquatic	Organisms	Radionuclides	Survey (Rivers 4/5
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	Results of Aquatic Org							
Dan Ma	A	·	Sample weight	Course and the	Rad	dioactive cesium (Bq/kg-w	et)	Damarka
Sin No.	Aqua	ic organisms, etc.	(kg-wet)	Sample number	Total	Cs-134	Cs-137	Kemarks
	Alex (plant	Attached alga and others	0.037	-	4,000	1,300	2,700	-
	Aiga/plant	Spirogyra sp.	0.15	-	9.3	3.5	5.8	-
	(Trichontera)	Stenopsyche marmorata	0.045	222	1 500	500	1.000	Larva
	(Trichoptera)	Stenopsyche sauteri	0.045	232	1,500	500	1,000	Laiva
	A q	Asiagomphus melaenops						
	u a	Davidius sp.						
	t i	Gomphus postocularis Selys			270	90	180	
N	с	Club-tailed dragonfly		69				Larva
i	i (Odonata) s c t	Clubtail dragonfly (Sieboldius albardae)	0.023					
a		Sinogomphus flavolimbatus						
a w		Golden-ringed dragonfly						
a		Macromia amphigena amphigena						
R		Sympetrum sp.						
v	Crustacean	Atyidae	0.012	48	740	240	500	Adult
r	Crustacean	Japanese mitten crab	1.9	36	400	130	270	Adult
Е		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
	Fish	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
	СРОМ	CPOM (Fallen leaves in river)	0.48	-	870	280	590	-

Stn No		Aquatic organisms, etc.		Sample weight Sample num		Rac	lioactive cesium (Bq/kg-w	ret)	Remarks	
500 140.		Aquai	ie organisiis, etc.	(kg-wet)	Sample number	Total	Cs-134	Cs-137	Kennarks	
			Attached alga and others	0.090	-	8,000	2,500	5,500	-	
	A 1 /-	lant	Spirogyra sp.	0.030	-	159	49	110	-	
	Alga/p	nant	Sphagnum sp.	0.074	-	390	130	260	-	
			Small pondweed	0.13	-	70	21	49	-	
		(Triahantara)	Stenopsyche marmorata	0.04	222	840	280	560	Lanua	
		(Thenoptera)	Stenopsyche sauteri	0.04	232	840	280	500	Laiva	
			Dobsonfly	0.020	54	150	100	210.0	Lanua	
		(Megaloptera)	Parachauliodes continentalis	0.030	54	150	100	210.0	Laiva	
	А		Boyeria maclachlani							
	q u		Anisogomphus maacki							
	a t		Asiagomphus melaenops							
O t	i c		Davidius nanus							
a g	i n s (Odonata) c t		Davidius sp.							
a w		(Odanata)	Nihonogomphus viridis Oguma	0.046	100	550	180	270	Lanua	
а		(Outriand)	Club-tailed dragonfly	0.040	199	550	100	570	Laiva	
R i			Clubtail dragonfly (Sieboldius albardae)							
v e			Stylogomphus suzukii							
r F			Golden-ringed dragonfly							
			Macromia amphigena amphigena							
			Sympetrum sp.							
	Crusta	cean	Atyidae	0.035	119	1,390	460	930	Adult	
	Crusta	locali	Red (swamp) crayfish	0.050	2	970	310	660	Adult	
			Rhinogobius sp.LD	0.10	28	2,950	950	2,000	Adult	
			Japanese striped loach	0.064	37	1,360	440	920	Yearling	
	Fish		Pale chub	0.045	7	1,070	360	710	One year old or more	
	. 1311		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	
	CPON	1	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.

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

Stn No.	Aquat	ic organisms ato	Sample weight	Sampla numbar	Rad	lioactive cesium (Bq/kg-w	et)	Remarks	
Sui NO.	Aqua	ie organisiis, etc.	(kg-wet)	Sample number	Total	Cs-134	Cs-137	Remarks	
		Attached alga and others	0.089	-	3,400	1,100	2,300	-	
H a	A log /plont	Free-floating alga and others	0.051	-	17	4.9	12	-	
y a	Aiga/piant	Spirogyra sp.	0.47	-	620	200	420	-	
m a		Small pondweed	0.46	-	10	3.1	6.7	-	
k o	a t (Trishontory)	Stenopsyche marmorata	0.057	257	240	110	220	Lanza	
L	i c	Stenopsyche sauteri	0.037	251	540	110	230	Laiva	
a k e	i (Magalantara)	Dobsonfly	0.022	02	80	21	50	Lanza	
	n s	Parachauliodes continentalis	0.033	83	89	51	20	Laiva	
\widehat{M}		Lizard goby	0.048	42	287	97	190	One year old or more	
a n		Japanese dace	0.041	4	255	85	170	Adult	
0	Eich	Gin-buna	2.6	2	710	230	480	Adult	
D a	risn	Cherry salmon	0.055	8	225	75	150	Yearling	
m)		Cherry salmon	0.067	2	310	100	210	One year old or more	
G		Smallmouth bass	1.9	3	2,650	850	1,800	Adult	
	СРОМ	CPOM (Fallen leaves in river)	0.44	-	560	180	380	-	
	A log /plont	Free-floating alga and others	0.049	-	1.3	N.D.(0.96)	1.3	-	
	Aiga/plain	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	
		Amur minnow	0.13	29	16	5.2	11	One year old or more	
		Pale chub	1.0	35	56	17	39	Adult	
А		Japanese dace	3.6	35	102	31	71	Adult	
k i		Carassius sp.	2.6	12	136	42	94	Adult	
m o		Barbel steed	6.1	12	116	36	80	Adult	
t o	Fish	Common carp	1.8	1	51	16	35	Adult	
k o		Cherry salmon (Sampled at Nakatsugawa River)	0.048	1	40	13	27	Adult	
L		Cherry salmon (Sampled at Akimotoko Lake)	0.16	1	92	31	61	Adult	
a k		Char	0.45	2	113	38	75	Adult	
e		Smallmouth bass	5.0	11	264	84	180	Adult	
Н		Japanese smelt	0.49	111	25	8.2	17	Adult	
		Forest green tree frog							
	m n	Schlegel's green tree frog							
	h (Frog/toad)	Eastern-Japanese common toad	0.047	6	55	18	37	Adult	
	b	Wrinkled frog							
	a	Montane brown frog							
		Japanese fire belly newt	0.093	18	24	7.5	16	Adult	
	СРОМ	CPOM (Fallen leaves in river)	2.0	-	250	80	170	-	

Ster No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			
Sin No.					Total	Cs-134	Cs-137	ĸemarks
k o L a k 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
o		Amur catfish	1.4	1	141	43	98	Adult
t	СРОМ	CPOM (Fallen leaves in river)	1.1	-	162	52	110	-
n a w a s h i r o k	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 prawm	0.151	165	29	9.5	19	Adult
	Shellfish	Japanese mystery snail	0.130	7	7.3	2.5	4.8	Adult
0	Fish	Oriental weather loach	0.046	10	N.D.	N.D.(0.96)	N.D.(0.95)	One year old or more
L		Goby minnow	0.707	48	44	16	28	Adult
k e		Japanese dace (Small)	1.162	39	124	37	87	Young fish
		Japanese dace (Large)	1.175	8	109	32	77	Adult
s		Carassius sp.	1.227	16	76	23	53	Adult
u t h s h o r e)		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
		Japanese smelt	0.057	32	81	25	56	Adult
	Amphibian	Frog and toad (tadpole)	0.086	162	120	39	81	Larva
		Wrinkled frog	0.094	32	2.8	1.1	1.7	Adult

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Stn No.	Aquatic organisms, etc.		Sample weight (kg-wet)	Sample number	Radioactive cesium (Bq/kg-wet)			
					Total	Cs-134	Cs-137	INCHIIdFKS
R i A v b e u r k	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
Em		Bastard halibut	4.1	7	11	3.4	7.3	Adult
t g		Brown sole	2.6	8	2.3	0.88	1.4	Adult
a w		Stone flounder	3.9	8	1.4	0.45	0.97	Adult
у		Bluefin searobin	3.8	12	4.9	1.6	3.3	Adult
	Alga/seaweed	Free-floating alga and others	0.049	-	21	6.4	15	-
		Ulva pertusa Kjellman	0.22	-	2.6	0.72	1.9	-
- 5	Plant (seaweed)	Eelgrass	0.54	-	0.7	0.28	0.37	-
Mo		Mysidae	0.19	Large numbers	2.6	1.1	1.5	Adult
t a	Crustacean	Alpheus sp.	0.069	37	6.0	2.3	3.7	Adult
uh ki		Japanese mitten crab	0.45	3	20	6.2	14	Adult
a w C		Charybdis japonica	0.37	10	7.9	2.4	5.5	Adult
a i		Hemigrapsus sp.	0.11	60	5.0	1.6	3.4	Adult
r y	Ragworm	Polychaeta	0.021	221	10	3.6	6.8	Adult
a O I f	Shellfish	Pacific oyster (shell)	0.94	149	15	4.6	10	Adult
a f		Pacific oyster (Without shell)	3.1	148	2.2	0.79	1.4	
e h		Manila clam (shell)	1.6	Larga numbers	3.0	0.85	2.1	Adult
U O		Manila clam (Without shell)	0.94	Large numbers	4.0	1.1	2.9	
LU	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
	Alga	Sea oak	2.3	-	N.D.	N.D.(0.63)	N.D.(0.57)	-
I ~ w	Urchin	Sea urchin	1.4	38	31	9.8	21	Adult
H a i k		Northern sea urchin	2.3	24	5.0	1.7	3.3	Adult
si as	Shellfish	Abalone (shell)	0.55	10	13	4.2	8.7	- Adult
nh oi		Abalone (without shell)	1.4		1.7	0.73	0.95	
h a C	Fish	Crimson sea bream	0.78	3	10	3.2	7.1	Adult
mi at		John dory	2.9	2	4.3	1.5	2.8	Adult
у В		Fat greenling	0.59	2	5.9	2.0	3.9	Adult
e O a f c f h s) h o		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
M r e		Ocellate spot skate	4.0	5	106	34	72	Adult
		Starspotted smooth-hound	2.6	2	37	12	25	Adult

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