

## (News Release)

# The Results of Radioactive Material Monitoring of the Surface Water Bodies within Miyagi Prefecture (October-December Samples)

Thursday, February 7, 2013  
Water Environment Division,  
Environment Management Bureau,  
Ministry of the Environment  
Direct line: 03-5521-8316  
Switchboard: 03-3581-3351  
Director: Tadashi Kitamura (ext. 6610)  
Deputy Director: Tetsuo Furuta (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 to monitor radioactive materials in water environments (surface water bodies (rivers, lakes and headwaters, and coasts), etc.).

Samples taken from the surface water bodies of Miyagi Prefecture during the period of October 3-December 20, 2012 have been measured as part of MOE's efforts to monitor radioactive materials; the results have recently 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

76 environmental reference points, etc. in the surface water bodies within Miyagi Prefecture  
(Rivers: 43 locations, Lakes: 21 locations, Coasts: 12 locations)

#### (2) Survey Method

- Measurement of concentrations of radioactive materials (radioactive cesium (Cs-134 and Cs-137), etc.) in water and sediment
- Measurement of concentrations of radioactive materials and spatial dose-rate in soil in the surrounding environment of water and sediment sample collection points (river terraces, etc.)

### 2. Outline of Results

(\* and \*\* denote the results of the previous surveys: \*July-October 2012, \*\*January-February 2012)

#### (1) Water Quality (Lower detection limit: 1Bq/L)

Cs-134 + Cs-137: Not detectable (ND) at any location (\* ND at any location)

#### <Reference>

Specification and Standards for Food, Food Additives, etc. in accordance with the Food Sanitation Act (Drinking Water) (Ministry of Health, Labour and Welfare Public Notice No.130, March 15, 2012)  
Radioactive cesium (total for Cs-134+Cs-137): 10Bq/kg

Target value for radioactive materials in tap water (management target for water supply facilities) (March 5, 2012; 0305 Notice No.1 from the Director of the Water Supply Division, Health Service Bureau, Ministry of Health, Labour and Welfare)

Radioactive cesium (total for Cs-134+Cs-137): 10Bq/kg

(2) Sediment (Lower detection limit: 10Bq/kg (dried mud))

Overall, the levels of both the rivers and lakes/headwaters measured were around 1,000Bq/kg or below at most of the locations (coasts: 500Bq/kg or below), and have generally remained constant or had a declining tendency.

(Rivers)

Cs-134 + Cs-137: ND-3,400Bq/kg (dried mud) (\*ND-3,700Bq/kg (dried mud))

(Lakes and headwaters)

Cs-134 + Cs-137: 44-9,700Bq/kg (dried mud) (\*ND-1,940Bq/kg (dried mud))

(Coasts)

Cs-134 + Cs-137: ND-1,530Bq/kg (dried mud) (\*\*ND-830Bq/kg (dried mud))

<Reference> Number of locations by radioactive cesium concentration (500Bq/kg)

Numbers in ( ) denote results measured on the previous occasion.

	500 or below	501 -1,000	1,001 -1,500	1,501 -2,000	2,001 -2,500	2,501 -3,000	3,001 or more	Total
Rivers	39 (42)	8 (8)	2 (0)	0 (0)	1 (1)	0 (0)	1 (1)	51 (52)
Lakes and headwaters	11 (10)	3 (4)	1 (3)	1 (4)	0 (0)	1 (0)	2 (0)	19 (21)
Coasts	17 (10)	0 (2)	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	19 (12)

(3) Surrounding Environment (Lower detection limit: 10Bq/kg (dry))

(Rivers)

Cs-134 + Cs-137: 35-4,300Bq/kg (dry) (\*ND-4,100Bq/kg (dry))

Spatial dose: 0.02-0.35 $\mu$ Sv/h

(Lakes and headwaters)

Cs-134 + Cs-137: 47-4,100Bq/kg (dry) (\*43-5,000Bq/kg (dry))

Spatial dose: 0.04-0.31 $\mu$ Sv/h

(Annex for details)  
(Map attached)

Future Plans

MOE intends to continue to measure radioactive materials in water, sediment, etc. in rivers, lakes, etc., since concentrations of radioactive materials seem to show fluctuations, depending on locations, due to minor differences in sampling points or properties of samples of each survey.

## ○River: Water Quality Monitoring Results

No.	Water body	Point	Municipality	Sampling date	Weather	Full depth m	General items					Concentration of radioactive material Bq/L			Remarks
							Sampling depth m	Transparency cm	Electrical conductivity mS/m	SS mg/L	Turbidity	Radioactive iodine I-131	Radioactive cesium Cs-134	Cs-137	
1	Shishigawa River	Kinzanbashi Bridge	Kesennumashi City	2012/11/27	Snow	0.3	0.0	>100	15	<1	0	<1	<1	<1	<1
2		Namihashi Bridge		2012/11/27	Sunny	2.0	0.0	>100	4,750	4	1	<1	<1	<1	<1
3		Tateyamabashi Bridge		2012/11/27	Snow	0.8	0.0	>100	24	<1	1	<1	<1	<1	<1
4	Okawa River	Kamiyamabashi Bridge		2012/11/27	Snow	0.8	0.0	>100	2,780	2	1	<1	<1	<1	<1
5		Okawa River Estuary		2012/11/27	Snow	1.5	0.0	>100	5,270	10	2	<1	<1	<1	<1
6	Omosegawa River	Ozakibashi Bridge		2012/11/27	Snow	1.1	0.0	94	4,380	5	2	<1	<1	<1	<1
7		Arimagawa River	Kuriharashi City	2012/11/29	Cloudy	0.2	0.0	>100	19	<1	1	<1	<1	<1	<1
8	R K	Unandabashi Bridge		2012/11/29	Cloudy	0.2	0.0	>100	19	<1	1	<1	<1	<1	<1
9	i i	Kimiyagawa River		2012/11/29	Cloudy	0.2	0.0	>100	19	<1	1	<1	<1	<1	<1
10	v t	Obatahashi Bridge		2012/11/28	Cloudy	0.4	0.0	85	14	3	2	<1	<1	<1	<1
11	e a	Tomechashi Bridge (Tome)		2012/11/26	Cloudy, then light rain	0.5	0.0	>100	15	3	3	<1	<1	<1	<1
12	r k	Sanhasamagawa River		2012/11/26	Cloudy	0.2	0.0	>100	18	<1	2	<1	<1	<1	<1
13	a a	Nihasamagawa River	Kuriharashi City	2012/11/26	Rain	0.2	0.0	23	17	9	29	<1	<1	<1	<1
14	s m	Kaiyabashi Bridge		2012/11/26	Cloudy	0.5	0.0	87	11	1	2	<1	<1	<1	<1
15	y i	Hasamagawa River		2012/11/28	Sunny	0.7	0.0	28	20	9	16	<1	<1	<1	<1
16	s g	Hasamagawa River		2012/11/28	Sunny	1.0	0.0	>100	17	<1	0	<1	<1	<1	<1
17	t a	Eaigawa River		2012/11/28	Cloudy	0.4	0.0	>100	20	2	2	<1	<1	<1	<1
18	e w	In Furukawa District, Otsukishi City		2012/11/29	Cloudy	2.0	0.0	95	21	2	3	<1	<1	<1	<1
19	m a	Shimizukomon Weir	Osaki City	2012/11/29	Cloudy	0.4	0.0	55	25	3	5	<1	<1	<1	<1
20		Dekigawa River		2012/11/29	Cloudy	0.5	0.0	58	20	5	5	<1	<1	<1	<1
21		Oikawabashi Bridge (Tanda)		2012/11/28	Cloudy	0.2	0.0	40	790	16	11	<1	<1	<1	<1
22		Eaigawa River		2012/11/28	Cloudy	0.2	0.0	48	54	200	92	<1	<1	<1	<1
23		Shimizukomon Weir		2012/11/28	Sunny	2.0	0.0	47	757	9	7	<1	<1	<1	<1
24		Shinbezuhon, entrance		2012/11/29	Cloudy	0.4	0.0	70	4	6	4	<1	<1	<1	<1
25		Shiojiri City	Misato-nakishi City	2012/11/29	Cloudy	2.0	0.0	80	4	7	6	<1	<1	<1	<1
26		Wakayacho Town/Ishinomakishi City		2012/11/28	Cloudy	0.4	0.0	55	25	3	5	<1	<1	<1	<1
27		Ishinomakishi City		2012/11/28	Cloudy	0.2	0.0	40	790	16	11	<1	<1	<1	<1
28		Onobashi Bridge (Oto)		2012/11/28	Cloudy	0.2	0.0	48	54	200	92	<1	<1	<1	<1
29		Tagajozeki Weir		2012/11/14	Cloudy	2.0	0.0	47	757	9	7	<1	<1	<1	<1
30		Tagajozeki City		2012/11/14	Cloudy	2.0	0.0	70	4	6	4	<1	<1	<1	<1
31		Teizan-tinga Canal (Kyusunaoshigawa River)	Sendai City	2012/11/14	Cloudy	2.0	0.0	80	4	7	6	<1	<1	<1	<1
32		Teizanbashi Bridge		2012/11/25	Sunny	0.4	0.0	>100	35	<1	1	<1	<1	<1	<1
33	A b	Nanakitagawa River		2012/11/25	Sunny	0.3	0.0	26	264	8	5	<1	<1	<1	<1
34	u k u u	Nanakitagawa River		2012/11/25	Sunny	1.0	0.0	20	755	20	12	<1	<1	<1	<1
35	s a m	Fukudobashi Bridge		2012/11/25	Sunny	0.3	0.0	68	3,530	3	3	<1	<1	<1	<1
36	y g s a	Yuriageobashi Bridge		2012/11/27	Sunny	2.5	0.0	36	11	22	9	<1	<1	<1	<1
37	t w c w	Yakushibashi Bridge	Natori City	2012/11/27	Sunny	0.2	0.0	>100	28	10	5	<1	<1	<1	<1
38	m a	Koyanabashi Bridge		2012/11/27	Sunny	0.2	0.0	>100	10	2	2	<1	<1	<1	<1
39		Bishamonbashi Bridge		2012/11/27	Sunny	0.5	0.0	51	2	7	6	<1	<1	<1	<1
40		Hadeniwabashi Bridge		2012/10/3	Rain	0.3	0.0	19	18	14	5	<1	<1	<1	<1
41		Marumorimachi Bridge		2012/10/31	Sunny	0.5	0.0	49	17	6	4	<1	<1	<1	<1
42	i v e r	Ejiribashi Bridge		2012/11/21	Cloudy	0.2	0.0	50	38	7	6	<1	<1	<1	<1
43		Shiroishigawa River	Iwanuma	2012/12/13	Sunny	0.4	0.0	>100	43	8	4	<1	<1	<1	<1
		Saikawa River		2012/10/31	Sunny	1.0	0.0	72	18	6	4	<1	<1	<1	<1
		Matsukawa River		2012/11/15	Cloudy	0.6	0.0	19	17	14	5	<1	<1	<1	<1
		Myoabashi Bridge		2012/11/15	Cloudy	1.0	0.0	86	21	3	3	<1	<1	<1	<1
		Arakawa River		2012/11/27	Sunny	0.2	0.0	86	21	3	3	<1	<1	<1	<1
		Niragamabashi Bridge		2012/11/27	Sunny	0.3	0.0	80	20	<1	1	<1	<1	<1	<1
		Shiroshigawa River	Iwanuma	2012/10/30	Sunny	0.5	0.0	84	16	4	2	<1	<1	<1	<1
		Shirahatabashi Bridge		2012/10/30	Cloudy	0.4	0.0	30	16	8	3	<1	<1	<1	<1
		Tsukinokiohashi Bridge		2012/10/30	Sunny	2.5	0.0	49	18	9	4	<1	<1	<1	<1
		Abukumagawa Bridge (Iwanuma)		2012/10/30	Sunny	2.5	0.0	>100	19	3	2	<1	<1	<1	<1
		Iwanumashi City/Wataricho Town		2012/11/21	Sunny	0.3	0.0	22	24	20	9	<1	<1	<1	<1
		Iwanumashi City/Wataricho Town		2012/12/13	Sunny	0.6	0.0	>100	57	3	3	<1	<1	<1	<1
		Abukumagawa River Estuary (Watariohashi Bridge)	Iwanuma	2012/10/30	Sunny	0.7	0.0	>100	173	2	2	<1	<1	<1	<1

\*Sampling points for rivers are listed from north to south, and for different points along the river, from upstream to downstream.

## ○ River: Sediment Monitoring Results

No.	Water body	Point	Municipality	Sampling date	Weather	Full depth m	General items			Concentration of radioactive material Bq/kg (dried mud)					Remarks
							Mud sampling depth cm	Mud content %	Property	Radioactive iodine I-131	Cs-134	Radioactive cesium Cs-137	Total		
1	Shishiorigawa River	Kinzanbashi Bridge	Kesennuma City	2012/11/27	Snow	0.3	2	88	Gravel	<30	41	87	128		
2		Naminabashi Bridge		2012/11/27	Sunny	2.0	5	51	Silt	<30	140	230	370		
3		Tateyamabashi Bridge		2012/11/27	Snow	0.8	3	85	Sand	<30	44	77	121		
4		Kaniyamabashi Bridge		2012/11/27	Snow	0.8	6	74	Sand/silt	<30	91	180	271		
5		Okawa River Estuary		2012/11/27	Snow	1.5	4	91	Sand	<30	<10	<10	-		
6		Ozakibashi Bridge		2012/11/27	Snow	1.1	8	63	Sand/silt	<30	190	320	510		
7	Arimagawa River	Unundabashi Bridge	Kuriharashi City	2012/11/29	Cloudy	0.2	2	92	Sand/gravel	<30	150	270	420		
8		Kiryugawa River		2012/11/29	Cloudy	0.2	5	90	Sand	<30	120	220	340		
9		Obatahashi Bridge		2012/11/29	Cloudy	0.4	4	53	Clay/mud	<30	69	130	199		
10		Kitakamigawa River		2012/11/29	Cloudy	0.4	4	53	Clay/mud	<30	69	130	199		
11		Tomechashi Bridge (Tome)		2012/11/26	Cloudy, then light rain	0.5	6	78	Mud	<30	<10	24	24		
12		Sanbasamagawa River		2012/11/26	Cloudy	0.2	5	90	Sand	<30	50	81	131		
13	Hasamagawa River	Nihasamagawa River	Kuriharashi City	2012/11/28	Cloudy	0.5	3	88	Gravel/sand	<30	<10	<10	-		
14		Kaiyabashi Bridge		2012/11/26	Rain	0.2	6	84	Gravel/sand	<30	36	68	104		
15		Hayanuma Dam, inflow area		2012/11/28	Sunny	0.7	8	58	Silt	<30	190	340	530		
16		Wakayangai		2012/11/26	Rain	0.2	6	84	Gravel/sand	<30	36	68	104		
17		Yamayoshidabashi Bridge		2012/11/28	Sunny	0.7	8	58	Silt	<30	190	340	530		
18		Eaignawa River		2012/11/28	Sunny	1.0	3	84	Sand/silt	<30	32	57	89		
19	Eaignawa River	Todorokibashi Bridge (Todoroiki)	Osakishi City	2012/11/29	Cloudy	0.4	2	94	Gravel/sand	<30	<10	18	18		
20		Shimizukomon Weir		2012/11/29	Cloudy	0.4	2	94	Gravel/sand	<30	270	440	710		
21		In Furukawa District, Osakishi City		2012/11/29	Cloudy	2.0	2	75	Sand	<30	270	440	710		
22		Shinborisuisho, entrance		2012/11/29	Cloudy	0.4	3	87	Sand	<30	65	130	195		
23		Dekigawa River		2012/11/29	Cloudy	0.4	3	87	Sand	<30	65	130	195		
24		Eaignawa River		2012/11/28	Cloudy	0.5	2	91	Gravel/sand	<30	13	24	37		
25	Kyukitakamigawa River	Kadonowaki	Ishinomakishi City	2012/11/28	Cloudy	0.2	3	91	Sand/clay	<30	<10	<10	-		
26		Ishinomakishi City		2012/11/28	Cloudy	0.2	3	76	Sand	<30	24	41	65		
27		Onobashi Bridge (Ono)		2012/11/28	Cloudy	0.2	3	76	Sand	<30	24	41	65		
28		Tagajiozeki Weir		2012/11/14	Cloudy	2.0	3	57	Silt	<30	240	410	650		
29		Nenbutsubashi Bridge		2012/11/14	Cloudy	2.0	5	52	Silt	<30	360	600	960		
30		Teizan-unga Canal (Kyusunaoshigawa River)		2012/11/14	Cloudy	2.0	5	67	Silt	<30	140	240	380		
31	Nanakitagawa River	Nanakitabashi Bridge	Sendaishi City	2012/11/25	Sunny	0.4	3	90	Sand	<30	25	46	71		
32		Fukudabashi Bridge		2012/11/25	Sunny	0.5	5	86	Sand	<30	<10	17	17		
33		Umedagawa River		2012/11/14	Cloudy	1.0	3	77	Silt	<30	110	190	300		
34		Nanakitagawa River		2012/11/25	Sunny	0.3	3	87	Sand	<30	17	25	42		
35		Natorigawa River		2012/11/27	Sunny	2.5	-	-	-	-	-	-	-	Unable to collect samples due to strong wind and increased water level	
36	Abukunagawa River	Yakuishibashi Bridge	Natori City	2012/11/27	Sunny	0.2	3	69	Sand	<30	25	48	73		
37		Koyamabashi Bridge		2012/11/27	Sunny	0.2	3	87	Sand	<30	81	140	221		
38		Bishamonbashi Bridge		2012/11/27	Sunny	0.5	5	55	Silt	<30	720	1,300	2,020		
39		Hadeniwabashi Bridge	Marumorimachi Town	2012/10/31	Rain	0.3	10	87	Sand	<30	190	330	520		
40		Marumoribashi Bridge		2012/10/31	Sunny	0.5	3	86	Sand	<30	120	210	330		
41		Ejiribashi Bridge		2012/10/31	Sunny	0.5	3	86	Sand	<30	130	220	350		
42	Abukunagawa River	Shiroishigawa River	Kakudashi City	2012/11/15	Cloudy	0.2	3	89	Sand	<30	130	220	350		
43		Saikawa River		2012/11/15	Cloudy	0.5	3	88	Sand	<30	130	220	350		
44		Matsukawa River		2012/11/15	Cloudy	1.0	3	81	Sand	<30	19	35	54		
45		Arakawa River		2012/11/15	Sunny	1.0	3	95	Sand	<30	36	54	98		
46		Shiroishigawa River		2012/11/15	Sunny	0.2	8	90	Sand	<30	500	860	1,360		
47		Shirahatabashi Bridge		2012/11/15	Sunny	0.3	6	90	Sand	<30	250	460	710		
48	Abukunagawa River	Tsukinokohashi Bridge	Iwanumashi City/Wataricho Town	2012/10/30	Sunny	0.5	7	95	Sand	<30	29	52	81		
49		Before the confluence with Kanagawa River (Samachibashi Bridge)		2012/11/27	Sunny	1.0	6	82	Sand	<30	70	120	190		
50		Saikawa River		2012/10/30	Sunny	2.5	2	86	Sand	<30	100	170	270		
51		Miyaohashi Bridge		2012/11/15	Sunny	0.5	3	81	Sand	<30	19	35	54		
52		Muratamachi Town/Ogawaramachi Town		2012/11/27	Sunny	0.2	8	90	Sand	<30	11	21	32		
53		Niragamabashi Bridge		2012/11/27	Sunny	0.3	6	90	Sand	<30	11	20	31		
54	Abukunagawa River	Shiroishigawa River	Iwanumashi City/Wataricho Town	2012/11/27	Sunny	0.3	6	90	Sand	<30	83	160	243		
55		Shirahatabashi Bridge		2012/11/27	Sunny	0.5	3	89	Sand	<30	36	100	190		
56		Abukumasho Bridge (Iwanuma)		2012/11/21	Sunny	0.5	3	69	Sand	<30	520	890	1,410		
57		Abukumasho Bridge (Iwanuma)		2012/12/13	Sunny	0.6	3	85	Sand	<30	83	160	243		
58		Abukunagawa River Estuary (Watarohashi Bridge)		2012/10/30	Sunny	0.7	4	89	Sand	<30	36	55	91		

\*Sampling points for rivers are listed from north to south, and for different points along the river, from upstream to downstream.

○ River: Surrounding Environment Monitoring Results

No.	Water body	Point	Municipality	Sampling date	Weather	Property	Left bank			Air dose μSv/h	Right bank						
							Concentration of radioactive material Bq/kg (dry)				Concentration of radioactive material Bq/kg (dry)						
							Radioactive iodine I-131	Cs-134	Cs-137		Radioactive iodine I-131	Cs-134	Cs-137				
1	Kishioigawa River	Kizanabashi Bridge	Kesennumashi City	2012/11/27	Loamy/skeletal	<30	120	220	340	0.12	Loamy/skeletal	<30	380	650	1,030 0.11		
2		Namitabashi Bridge		2013/1/27	Sunny	<30	29	47	76	0.07	Loamy/skeletal	<30	70	130	200 0.09		
3		Lateramabashi Bridge		2013/1/27	Loamy/skeletal	<30	300	510	810	0.11	Loamy	<30	160	270	430 0.12		
4	Okawa River	Kamimiyabashi Bridge		2013/1/27	Snow	Loamy/sandy	<30	170	280	450	0.08	Sandy	<30	70	120	190 0.08	
5		Okawa River Estuary		2013/1/27	Snow	Sandy/skeletal	<30	14	21	35	0.06	Loamy/clayish	<30	90	150	240 0.08	
6	Omusegawa River	Ozakabashi Bridge		2013/1/27	Snow	Loamy/clayish	<30	30	56	86	0.06	Loamy	<30	120	210	330 0.07	
7	Arinagawa River	Unanabashi Bridge		2012/11/29	Cloudy	Sandy	<30	1,000	1,800	2,800	0.22	Loamy/sandy	<30	280	480	760 0.18	
8	Kiryugawa River	Obatabashi Bridge	Kuriharashi City	2012/11/29	Cloudy	Loamy	<30	780	1,300	2,080	0.26	Sandy	<30	360	610	970 0.24	
9	i	Katakamigawa River	Lemoshabashi Bridge (Tome)	Tomeshi City	2012/11/28	Cloudy	Loamy	<30	160	280	448	0.09	Loamy	<30	240	420	640 0.09
10	t		Sanhasamagawa River	Domenabashi Bridge (Kirikoma Dam)	2012/11/26	Cloudy, then light rain	Loamy	<30	400	680	1,080	0.15	Loamy	<30	120	210	330 0.17
11	S	Hasamagawa River	Kajiyabashi Bridge	Kuriharashi City	2012/11/26	Cloudy	Loamy	<30	190	380	578	0.20	Loamy/sandy	<30	340	590	920 0.19
12	y	R k	Hasamagawa River	Itazuyama Dam, inflow area	2012/11/28	Cloudy	Loamy	<30	550	910	1,466	0.18	Loamy/sandy	<30	160	290	450 0.13
13	s v m		Wakayamagawa	Wakayamagawa	2012/11/26	Cloudy	Rain	<30	320	550	878	0.12	Sandy	<30	160	280	440 0.10
14	t e i		Yamashidabashi Bridge	Tomeshi City	2012/11/28	Sunny	Loamy	<30	67	110	173	0.03	Loamy	<30	41	70	110 0.08
15	m g	Eaigawa River	Todorokibashi Bridge (Todoroki)	2012/11/28	Sunny	Loamy	<30	110	210	328	0.07	Loamy/leaf mold	<30	510	900	1,410 0.08	
16	a	Eaigawa River	Shimizukizumon Weir	Osakishi City	2012/11/29	Cloudy	Loamy/kaf mold	<30	360	660	1,028	0.09	Loamy	<30	170	290	460 0.10
17	R i a	In Furukawa District, Osakishi City	Shimizukizumon, entrance	2012/11/29	Cloudy	Loamy	<30	190	360	556	0.16	Loamy	<30	130	230	360 0.07	
18	w a	Dekigawa River	Kogunabashi Bridge	Misatomachi Town	2012/11/29	Cloudy	Loamy/kaf mold	<30	410	710	1,120	0.16	Loamy/sandy	<30	140	250	390 0.08
19	a	Eaigawa River	Okawabashi Bridge (Tandai)	Wakuyacho Town Ishinomakuchi City	2012/11/28	Cloudy	Loamy	<30	97	150	247	0.07	Loamy	<30	27	52	79 0.07
20		Kyukitakamigawa River	Okawabashi Bridge	Ishinomakuchi City	2012/11/28	Cloudy	Loamy	<30	76	130	206	0.12	Loamy	<30	230	430	660 0.08
21	Narusegawa River	Onobashi Bridge (Ono)	Higashimutsusamashi City	2012/11/28	Cloudy	Sandy	<30	99	160	259	0.06	Loamy	<30	27	46	73 0.08	
22	Sunaoshigawa River	Tajigaozeki Ver	Tagajoshi City	2012/11/14	Cloudy	Loamy	<30	64	110	174	0.11	Loamy	<30	110	200	310 0.11	
23		Nenbutsubashi Bridge	Nenbutsubashi Canal (Kyusunaoshigawa River)	2012/11/14	Cloudy	Loamy	<30	280	510	790	0.06	-	-	-	-	Unable to collect samples due to construction	
24		Tenzan-tinga Canal		2012/11/14	Cloudy	Sandy	<30	43	68	111	0.08	Sandy	<30	56	94	150 0.07	
25		Nanakigawa River		2012/11/25	Sunny	Loamy	<30	82	140	222	0.07	Loamy	<30	140	270	410 0.07	
26		Nanakigawa River	Fukukabashi Bridge	Sendaishi City	2012/11/25	Sunny	Loamy	<30	160	280	440	0.08	Loamy	<30	160	270	430 0.09
27	River	Umedagawa River	Fukukabashi Bridge	2012/11/14	Cloudy	Loamy	<30	100	190	290	0.02	Loamy	<30	120	210	330 0.05	
28	System	Nanakigawa River	Takasagabashi Bridge	2012/11/25	Sunny	Loamy	<30	390	680	1,070	0.10	Loamy	<30	50	86	136 0.07	
29		Nanorigawa River	Yuriaigehabashi Bridge	Sendaishi City/Natoriishi City	2012/11/27	Sunny	Loamy	<30	120	200	320	0.11	Loamy	<30	230	400	630 0.08
30	Natoriishi River	Yakuishibashi Bridge	Masudagawa River	2012/11/27	Sunny	Loamy	<30	75	150	223	0.22	Loamy	<30	300	520	820 0.22	
31	River	Koyanabashi Bridge		2012/11/27	Sunny	Loamy	<30	180	300	480	0.17	Loamy	<30	340	600	940 0.18	
32	System	Bishamonbashi Bridge		2012/11/27	Sunny	Loamy	<30	65	99	164	0.08	Loamy	<30	500	840	1,340 0.12	
33	A b		Hadeniwabashi Bridge	Abukumagawa River	2012/10/3	Rain	Sandy	<30	310	560	870	0.26	Sandy	<30	840	1,400	2,240 0.30
34	u k u		2012/10/31	Sunny	Loamy	<30	880	1,500	2,380	0.34	Loamy	<30	710	1,300	2,010 0.32		
35	S a y g		2012/11/21	Cloudy	Loamy	<30	1,100	2,000	3,100	0.30	Loamy	<30	180	300	480 0.30		
36	s s a		2012/12/13	Sunny	Loamy	<30	790	1,400	2,190	0.31	-	-	-	-	Unable to collect samples due to snow on the ground		
37	t w e		2012/10/31	Sunny	Sandy	<30	520	890	1,410	0.16	Sandy	<30	180	310	490 0.15		
38	e a	Shiroishi River	Matsukawa River	Zaomachi Town	2012/11/15	Cloudy	Loamy	<30	20	44	64	0.15	Loamy	<30	93	160	253 0.18
39	m a	Atakawa River	Niragambashi Bridge	Muratamachi Town/Ogawaramachi Town	2012/11/27	Sunny	Loamy	<30	41	74	115	0.19	Loamy	<30	110	190	300 0.09
40	R i	Shiroishi River	Shirahatabashi Bridge	Shibatamachi Town	2012/11/27	Sunny	Loamy	<30	270	470	740	0.14	Loamy	<30	89	180	269 0.16
41	v e r		Tsukinokiohashi Bridge	Kakudashi City	2012/10/30	Sunny	Loamy	<30	790	1,300	2,090	0.20	Loamy/skeletal	<30	320	540	860 0.21
42		Abukumagawa River	Abukumabashi Bridge (Iwanuma)	Iwanuma City/Wataricho Town	2012/10/30	Sunny	Loamy/sandy	<30	590	970	1,560	0.27	Loamy	<30	300	510	810 0.20
43			Abukumagawa River Estuary (Wataricho Bridge)	Iwanuma City/Wataricho Town	2012/10/30	Sunny	Loamy	<30	420	740	1,160	0.20	Loamy	<30	590	980	1,570 0.18
								200	380	580	0.12	Loamy	<30	420	730	1,150 0.18	
								700	1,200	1,900	0.15	Loamy	<30	600	980	1,580 0.15	

\* Sampling points for rivers are listed from north to south, and for different points along the river, from upstream to downstream.

\* Air dose was measured with a survey meter, TCS-171 or TCS-172 of Hitachi-Aloka Medical, Ltd.

## O Lake and Headwater: Water Quality Monitoring Results

No.	Sampling point			Sampling date	Weather	Full depth m	General items				Concentration of radioactive material Bq/L			Remarks		
							Sampling depth m	Secchi disk depth m	Electrical conductivity mS/m	SS mg/L	Turbidity	Radioactive iodine I-131	Radioactive cesium Cs-134	Cs-137		
1 K i t S y R s s v e e m i m g	Kurikoma Dam Hanayama Dam Narugo Dam Izunuma Lake Naganuma Lake Shukunosawatameke Pond	Dam site	Surface layer Lower layer	2012/11/26	Cloudy	12.0	0.5 11.0	1.7	15 15 11	4 12 34	8 <1 49	<1 <1 <1	<1 <1 <1			
2		Dam site	Surface layer Lower layer	2012/11/27	Snow	20.6	0.5 19.6	0.4	11 11	18 3	45 4	<1 <1	<1 <1	<1 <1		
3		Dam site	Surface layer Lower layer	2012/11/28	Cloudy	30.4	0.5 29.1	1.6	11 11	3 4	<1 21	<1 <1	<1 <1	<1 <1		
4		Lake exit	Surface layer Lower layer	2012/11/28	Cloudy	0.8	0.0	0.4	19	38	40	<1	<1	<1	Collected only from the surface layer due to shallow water	
5		Lake exit	Surface layer Lower layer	2012/11/28	Sunny	1.1	0.0 +	1.1	20 -	2 -	2 -	<1 -	<1 -	<1 -	Collected only from the surface layer due to shallow water	
6		Pond exit	Surface layer Lower layer	2012/11/29	Cloudy	0.8	0.0 +	0.5	19 -	18 -	14 1	<1 -	<1 -	<1 -	Collected only from the surface layer due to shallow water	
7	Narusegawa River System	Dam site	Surface layer Lower layer	2012/11/26	Cloudy	24.0	0.5 23.0	2.6	9 10	11 1	<1 21	<1 -	<1 -	<1 -		
8		Dam site	Surface layer Lower layer	2012/11/26	Cloudy	14.8	0.5 13.8	1.2	7 7	3 22	51	<1 20	<1 -	<1 -		
9		Dam site	Surface layer Lower layer	2012/11/26	Cloudy	19.6	0.5 18.6	0.9	13 14	6 10	9 11	<1 -	<1 -	<1 -		
10		Dam site	Surface layer Lower layer	2012/11/26	Rain	0.5	0.0 -	0.5	11	8	4	<1	<1	<1		
11		Sonoseki Dam	Surface layer Lower layer	2012/11/27	Cloudy	7.6	0.5 6.6	1.2	22 22	6 6	6	<1 -	<1 -	<1 -		
12		Nanakita Dam	Dam site	Surface layer Lower layer	2012/11/27	Sunny	2.5	0.5 1.5	2.5	9 10	11 31	<1 -	<1 -	<1 -		
13	Natorigawa River System	Pond exit	Surface layer Lower layer	2012/11/28	Sunny	0.2	0.0 +	0.2	31	13	12	<1	<1	<1	Collected only from the surface layer due to shallow water	
14		Okura Dam	Dam site	Surface layer Lower layer	2012/11/29	Rain	18.2	0.5 17.2	1.2	9 9	3 3	3	<1	<1	<1	
15		Amanuwa Lake	Lake exit	Surface layer Lower layer	2012/11/28	Sunny	0.5	0.0 +	0.5	24	4	3	<1	<1	<1	Collected only from the surface layer due to shallow water
16		Kamafusa Dam	Dam site	Surface layer Lower layer	2012/11/28	Cloudy	9.1	0.5 8.1	1.2	12 12	5 37	4 16	<1 -	<1 -	<1 -	
17		Tarumizu Dam	Dam site	Surface layer Lower layer	2012/11/29	Cloudy	0.6	0.0 -	0.6	10	2	2	<1	<1	<1	Collected only from the surface layer due to shallow water
18		Murata Dam	Dam site	Surface layer Lower layer	2012/11/26	Sunny	0.4	0.0 -	0.4	10	3	4	<1	<1	<1	
19	Abukumagawa River System	Kawarago Dam	Dam site	Surface layer Lower layer	2012/11/28	Sunny	0.7	0.0 -	0.7	9	3	31	<1	<1	<1	Collected only from the surface layer due to shallow water
20		Shichikashuku Dam	Dam site	Surface layer Lower layer	2012/11/29	Cloudy	21.0	0.5 20.0	2.0	9 9	1 2	2 3	<1	<1	<1	
21		Bagyumuna Lake	Lake exit	Surface layer Lower layer	2012/11/29	Cloudy	-	-	-	-	-	-	-	-	-	Unable to collect samples due to construction

\*Sampling points are listed from north to south.

## O Lake and Headwater: Sediment and Surrounding Environment (Lake Shore) Monitoring Results

No.	Sampling point			Sampling date	Weather	Full depth m	Sediment				Surrounding environment (lake shore)				Remarks				
							General items		Concentration of radioactive material Bq/kg (dried mud)		Soil								
No.	Point			Sampling date	Weather	Full depth m	Mud sampling depth cm	Mud content %	Property	Radioactive iodine I-131	Cs-134	Radioactive cesium Cs-137	Total	Property	Radioactive iodine I-131	Cs-134	Radioactive cesium Cs-137	Total	Air dose $\mu\text{Sv}/\text{h}$
1							<30	82	160	242	Loamy	<30	680	1,100	1,780	0.19			
2	Kitakamigawa River System	Hanayama Dam	Dam site	2012/11/27	Snow	20.6	15	48	Silt	<30	110	190	300	Loamy	<30	560	970	1,530	0.19
3		Narugo Dam	Dam site	2012/11/28	Cloudy	30.4	3	45	Silt	<30	240	420	660	Loamy	<30	79	160	239	0.10
4		Izunuma Lake	Lake exit	2012/11/28	Cloudy	0.8	8	44	Silt	<30	90	180	270	Loamy	<30	75	130	205	0.06
5		Naganuma Lake	Lake exit	2012/11/28	Sunny	1.1	10	34	Mud	<30	260	520	780	Loamy	<30	46	93	139	0.06
6		Shukunosawatameke Pond	Pond exit	2012/11/29	Cloudy	0.8	4	73	Sand	<30	63	120	183	Loamy	<30	100	190	290	0.09
7		Futatsushishi Dam	Dam site	2012/11/26	Cloudy	24.0	4	37	Silt	<30	190	360	550	Sandy	<30	130	250	380	0.07
8	Narusegawa River System	Urushizawa Dam	Dam site	2012/11/26	Cloudy	14.8	8	56	Silt	<30	43	72	115	Loamy	<30	120	230	350	0.07
9		Minamikawa Dam	Dam site	2012/11/26	Cloudy	19.6	10	32	Silt	<30	470	860	1,330	Loamy	<30	92	160	252	0.07
10		Miyatoko Dam	Dam site	2012/11/26	Rain	0.5	5	68	Sand	<30	53	110	163	Clayish	<30	72	120	192	0.07
11		Sonoseki Dam	Dam site	2012/11/27	Cloudy	7.6	10	38	Sludge	<30	940	1,700	2,640	Loamy	<30	150	260	410	0.08
12		Nanakita Dam	Dam site	2012/11/27	Sunny	2.5	10	73	Sand	<30	16	28	44	Loamy	<30	58	120	178	0.07
13		Maruzawatameke Pond	Pond exit	2012/11/28	Sunny	0.2	2	71	Clay	<30	24	45	69	Clayish	<30	16	31	47	0.08
14	Natorigawa River System	Okura Dam	Dam site	2012/11/29	Rain	18.2	-	-	-	-	-	-	-	Loamy	<30	66	130	196	0.04
15	Amanuwa Lake	Lake exit	2012/11/28	Sunny	0.5	2	41	Silt	<69	3,500	6,200	9,700	Sandy	<30	110	180	290	0.11	
16	Natorigawa River System	Kamafusa Dam	Dam site	2012/11/28	Cloudy	9.1	9	51	Mud	<30	74	130	204	Loamy	<30	83	160	243	0.06
17	Abukumagawa River System	Tarumizu Dam	Dam site	2012/11/29	Cloudy	0.6	5	70	Sand	<30	170	290	460	Loamy	<30	160	300	460	0.11
18		Murata Dam	Dam site	2012/11/26	Sunny	0.4	2	79	Sand/gravel	<30	42	73	115	Loamy	<30	280	500	780	0.08
19		Kawarago Dam	Dam site	2012/11/28	Sunny	0.7	10	36	Mud	<33	2,100	3,600	5,700	Loamy	<30	170	290	460	0.11
20		Shichikashuku Dam	Dam site	2012/11/29	Cloudy	21.0	7	50	Mud	<30	690	1,200	1,890	Loamy	<30	170	300	470	0.24
21		Bagyumuna Lake	Lake exit	2012/11/29	Cloudy	-	-	-	-	-	-	-	-	Loamy	<30	1,500	2,600	4,100	0.31

\*Sampling points are listed from north to south.

\*Air dose was measured with a survey meter, TCS-171 or TCS-172 of Hitachi-Aloka Medical, Ltd.

## OCoast: Water Quality Monitoring Results

No.	Sampling point	Water body	Sampling date	Weather	Full depth	General items					Concentration of radioactive material Bq/L			Remarks
						Sampling depth m	Secchi disk depth m	Salinity %	SS mg/L	Turbidity	Radioactive iodine I-131	Radioactive cesium Cs-134	Radioactive cesium Cs-137	
Kitakami-gawa	Kesenumawan Bay (B)	Offshore of Hachigasaki	2012/12/14	Cloudy	16.3	0.5 15.3	6.0	37	4	<1	<1	<1	<1	
2	Kesenumawan Bay (C)	Offshore of Oshimakita	2012/12/14	Cloudy	41.0	0.5 40.0	8.0	37	3	<1	<1	<1	<1	
3	Offshore of Tsuyagawa River Estuary		2012/12/15	Rain	11.8	0.5 10.8	4.0	36	9	2	<1	<1	<1	
4	All other neighboring sea areas	Oppowan Bay (Iyusuhama Beach)	2012/12/18	Cloudy	19.5	0.5 18.5	4.7	32	2	2	<1	<1	<1	
5	Neighboring sea area of Ishinomaki (C)	Mangokura Lake, M-6 (center)	2012/12/14	Sunny	3.5	0.5 2.5	3.5	37	5	2	<1	<1	<1	
6	Neighboring sea area of Ishinomaki (B-3)	Offshore of Kitakamigawa River Estuary	2012/11/9	Cloudy	7.7	0.5 6.7	0.5	20	17	16	<1	<1	<1	
7	Neighboring sea area of Ishinomaki (C)	Offshore of Naruse	2012/12/17	Sunny	14.5	0.5 13.5	2.8	35	11	3	<1	<1	<1	
8	Matsushima Bay (B)	Nishihama Beach	2012/11/14	Sunny	12.4	0.5 11.4	3.0	31	7	3	<1	<1	<1	
9	Neighboring sea area of Sendai Port (A)	Naiko Inner Port, 4-Nai	2012/11/2	Cloudy	19.5	0.5 18.5	4.2	33	6	2	<1	<1	<1	
10	Neighboring sea area of Sendai Port (B)	Gamo-3	2012/12/19	Cloudy	15.5	0.5 14.5	1.5	37	11	5	<1	<1	<1	
11	All other neighboring sea areas	Ido-5	2012/11/15	Sunny	4.7	0.5 3.7	5.0	29	6	3	<1	<1	<1	
12	Offshore of Abukumagawa River Estuary		2012/12/20	Sunny	9.3	0.5 8.3	1.9	38	9	2	<1	<1	<1	

\*Sampling points are listed from north to south.

## OCoast: Sediment Monitoring Results

No.	Sampling point	Water body	Sampling date	Weather	Full depth	General items			Concentration of radioactive material Bq/kg (dried mud)				Remarks
						Mud sampling depth cm	Mud content %	Property	Radioactive iodine I-131	Cs-134	Radioactive cesium Cs-137	Total	
1	Kesenumawan Bay (B)	Offshore of Hachigasaki	2012/12/14	Cloudy	16.3	3	73	Silt	<30	23	31	54	
2	Kesenumawan Bay (C)	Offshore of Oshimakita	2012/12/14	Cloudy	41.0	5	47	Silt	<30	17	27	44	
3	Offshore of Tsuyagawa River Estuary		2012/12/15	Rain	11.8	3	89	Sand	<30	<10	<10	-	
4	All other neighboring sea areas	Oppowan Bay (Iyusuhama Beach)	2012/12/18	Cloudy	19.5	14	62	Silt	<30	76	140	216	
5	Neighboring sea area of Ishinomaki (C)	Mangokura Lake, M-6 (center)	2012/12/14	Sunny	3.5	10	59	Sludge	<30	38	71	109	
6	Neighboring sea area of Ishinomaki (B-3)	Offshore of Kitakamigawa River Estuary	2012/11/9	Cloudy	7.7	3	88	Sand	<30	<10	<10	-	
7	Neighboring sea area of Ishinomaki (C)	Offshore of Naruse	2012/12/17	Sunny	14.5	3	84	Sand	<30	<10	<10	-	
8	Matsushima Bay (B)	Nishihama Beach	2012/11/14	Sunny	12.4	5	42	Silt	<30	160	250	410	
9	Neighboring sea area of Sendai Port (A)	Naiko Inner Port, 4-Nai	2012/11/2	Cloudy	19.5	5	39	Sludge	<30	560	970	1,530	
10	Neighboring sea area of Sendai Port (B)	Gamo-3	2012/12/19	Cloudy	18.5	10	41	Silt	<30	530	970	1,500	
11	All other neighboring sea areas	Ido-5	2012/12/14	Sunny	11.5	5	92	Sand	<30	<10	<10	-	
12	Offshore of Abukumagawa River Estuary		2012/12/20	Sunny	9.3	3	82	Sand	<30	55	87	142	

\*Sampling points are listed from north to south.

