

The Results of Radioactive Material Monitoring of the Surface Water Bodies within Iwate Prefecture

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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 Iwate Prefecture during the period of December 21-January 6 have been measured as part of MOE's efforts to monitor radioactive materials; the results have recently been compiled and are released here. (The results of Fukushima Prefecture's second survey (November 15-30 samples) are simultaneously released)

*The following monitoring results have already been released:

Fukushima Prefecture's 1st Survey (September 15-October 14 samples) : Released November 15)
Ibaraki Prefecture (August 30-October 8 samples): Released December 2
Miyagi Prefecture (October 3-November 7 samples): Released December 16
Tochigi Prefecture (October 5-24 samples): Released December 16
Yamagata Prefecture (October 24-27 samples): Released December 22
Chiba Prefecture (October 31-November 4 samples): Released December 22
Gunma Prefecture (November 23-December 16 samples): Released January 13

1. Survey Overview

(1) Survey Locations

21 environmental reference points, etc. in the surface water bodies within Iwate Prefecture
(Rivers: 18 locations, Sea areas and bathing areas: 3 locations)

(2) Survey Method

- Measurement of concentrations of radioactive materials (radioactive iodine (I-131), radioactive cesium (Cs-134 and Cs-137)) 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

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

- Radioactive iodine (I-131) Not detectable (ND) at any location
- Radioactive cesium (Cs-134, Cs-137) ND at any location

*“Regulatory Guide: Emergency Preparedness for Nuclear Facilities (Nuclear Safety Commission)”
Standards for Restrictions on the Intake of Food and Drink (Drinking Water)

Radioactive iodine (I-131): 300Bq/kg or more

Radioactive cesium (total for Cs-134 + Cs-137): 200Bq/kg or more

(2) Sediment

- Radioactive iodine (I-131) ND at any location (Lower detection limit: 30Bq/kg (dried mud))
- Radioactive cesium
(Rivers)
 - Cs-134: 27-440Bq/kg (dried mud) (Lower detection limit: 10Bq/kg (dried mud))
 - Cs-137: 32-550Bq/kg (dried mud) (Lower detection limit: 10Bq/kg (dried mud))

(Sea areas and bathing areas)

Radioactive cesium (Cs-134, Cs-137) ND at any location

(3) Surrounding Environment

- Radioactive iodine (I-131) ND at any location (Lower detection limit: 30Bq/kg (dry))
- Radioactive cesium
(Rivers)
 - Cs-134: 45-1,500Bq/kg (dry) (Lower detection limit: 10Bq/kg (dried mud))
 - Cs-137: 71-1,900Bq/kg (dry) (Lower detection limit: 10Bq/kg (dried mud))

(Sea areas and bathing areas)

Radioactive cesium (Cs-134, Cs-137) ND at any location

- Spatial dose
 - (Rivers) 0.07-0.32 μ Sv/h
 - (Sea areas and bathing areas) 0.07 μ Sv/h

(Annex for details)
(Map attached)

Future Plans

In coordination with relevant organizations, MOE intends to continue to measure radioactive materials in water, sediment, etc. in rivers, lakes, etc. in Fukushima Prefecture, its neighboring prefectures, etc.

○River (Iwate Prefecture): Water Quality Monitoring Results

(Annex)

No.	Sampling point			Sampling date	Weather	Air temperature °C	Full depth m	General items					Concentration of radioactive material Bq			Remarks		
	Water body	Point	Municipality					Water temperature °C	Sampling depth m	Transparency cm	Electrical conductivity mS/m	SS mg/L	Turbidity	Radioactive iodine I-131	Radioactive cesium Cs-134 Cs-137			
1	Sakarigawa River Lower Reaches	Sanobashi Bridge	Ofunatoshi City	2011/12/21	Cloudy	4.2	1.39	7.7	0.0	100 or more	1201.0	3	2.1	<1	<1	<1		
2	Yahagigawa River	Yahagibashi Bridge	Rikuzentakadashi City	2011/12/21	Cloudy	2.7	0.20	8.3	0.0	100 or more	10.1	<1	<0.1	<1	<1	<1		
3	Kesengawa River	Anehabashi Bridge	Rikuzentakadashi City	2011/12/21	Cloudy	5.2	0.20	6.4	0.0	100 or more	1436.0	2	1.3	<1	<1	<1	Water and mud sampling directly from the river due to collapse of the Anehabashi Bridge	
4	Okawa River	Miyagi Prefecture Border	Ichinosekishi City	2011/12/22	Cloudy	1.0	0.50	3.8	0.0	100 or more	24.9	3	2.7	<1	<1	<1		
5	Tsuyagawa River	Chiyogaharabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.2	0.50	3.8	0.0	100 or more	11.4	<1	1.1	<1	<1	<1		
6	R K i v t e a r k a S m y i s g t a w e m a	Kitakamigawa River	Fujibashi Bridge	Oshushi City	2011/12/23	Sunny	0.6	3.10	3.1	0.0	100 or more	15.0	3	4.6	<1	<1	<1	
7		Shiratorigawa River	Shiratoribashi Bridge	Oshushi City	2011/12/23	Sunny	1.8	0.50	2.1	0.0	58	21.0	8	7.6	<1	<1	<1	
8		Koromogawa River	Koromogawabashi Bridge	Oshushi City	2011/12/23	Sunny	2.0	0.80	3.2	0.0	100 or more	12.6	1	1.9	<1	<1	<1	
9		Otagawa River	Hitosujibashi Bridge	Hirazumicho Town	2011/12/23	Sunny	1.0	0.80	2.5	0.0	67	26.8	7	9.0	<1	<1	<1	
10		Iwaigawa River Middle Reaches	Kaminohashi Bridge	Ichinosekishi City	2011/12/23	Sunny	1.3	0.40	3.0	0.0	100 or more	37.3	3	4.1	<1	<1	<1	
11		Kitakamigawa River	Chitosebashi Bridge (Kozenji)	Ichinosekishi City	2011/12/23	Sunny	3.0	2.20	4.5	0.0	100 or more	14.9	3	4.5	<1	<1	<1	
12		Satetsugawa River	Unadabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	4.3	0.50	6.4	0.0	100 or more	18.1	4	6.0	<1	<1	<1	
13			Kannonbashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	4.0	0.50	6.2	0.0	73	32.6	2	5.5	<1	<1	<1	
14			Kanzakibashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.2	0.80	5.1	0.0	100 or more	17.8	1	1.3	<1	<1	<1	
15		Senmayagawa River Upper Reache	Miyatabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.0	0.80	4.4	0.0	100 or more	17.3	2	3.5	<1	<1	<1	
16	Kitakamigawa River	Kitakamigawabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	2.6	0.40	3.1	0.0	100 or more	14.2	2	2.8	<1	<1	<1		
17	Kinomigawa River	Higuchibashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	1.4	0.30	3.0	0.0	100 or more	26.8	1	2.0	<1	<1	<1		
18	Kinryugawa River	Tenjinbashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	2.6	0.50	2.7	0.0	100 or more	20.2	1	3.7	<1	<1	<1		

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

○Sea and Bathing Area (Iwate Prefecture): Water Quality Monitoring Results

No.	Sampling point			Sampling date	Weather	Air temperature °C	Full depth m	General items					Concentration of radioactive material Bq			Remarks	
	Water body	Point						Water temperature °C	Sampling depth m	Secchi disk depth m	Salinity	SS mg/L	Turbidity	Radioactive iodine I-131	Radioactive cesium Cs-134 Cs-137		
1	Sea area	Ofunatowan Bay (A)	S-31	2012/1/6	Sunny	0.8	16.6	8.2	0.5	6.5	33.4	1	1.2	<1	<1	<1	
			1 m from the bottom	-	-	-	-	8.6	15.6	-	33.4	1	0.8	<1	<1	<1	
2	Sea area	Hirotawan Bay	S-34	2012/1/6	Sunny	1.2	11.0	8.2	0.5	6.9	30.8	<1	0.9	<1	<1	<1	
			1 m from the bottom	-	-	-	-	9.1	10.0	-	33.5	1	0.9	<1	<1	<1	
3	Bathing area	Onowan Bay	Hirota	2011/12/21	Cloudy	4.0	0.8	10.4	0.0	-	-	<1	0.3	<1	<1	<1	

• Sampling points are listed from north to south.

○River (Iwate Prefecture): Sediment Monitoring Results

Sampling point				Sampling date	Weather	Air temperature °C	Full depth m	General items				Concentration of radioactive material (Bq)			Remarks	
No.	Water body	Point	Municipality					Mud temperature °C	Mud sampling depth cm	Mud content %	Property	Radioactive iodine I-131	Radioactive cesium Cs-134 Cs-137			
1	Sakarigawa River Lower Reaches	Sanobashi Bridge	Ofunatoshi City	2011/12/21	Cloudy	4.2	1.39	7.4	5	51.1	Silt with sand	<30	36	62		
2	Yahagigawa River	Yahagibashi Bridge	Rikuzentakadashi City	2011/12/21	Cloudy	2.7	0.20	8.2	3	90.2	Sand with gravel	<30	30	32		
3	Kesengawa River	Anehabashi Bridge	Rikuzentakadashi City	2011/12/21	Cloudy	5.2	0.20	7.6	5	77.1	Sand	<30	61	82	Water and mud sampling directly from the river due to collapse of the Anehabashi Bridge	
4	Okawa River	Miyagi Prefecture Border	Ichinosekishi City	2011/12/22	Cloudy	1.0	0.50	3.8	5	76.9	Sand	<30	440	550		
5	Tsuyagawa River	Chiyogaharabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.2	0.50	3.2	3	77.5	Sand with gravel	<30	220	300		
6	R K i i v t e a r k a S m y i s g t a e w m a	Kitakamigawa River	Fujibashi Bridge	Oshushi City	2011/12/23	Sunny	0.6	3.10	2.0	3	40.8	Silt	<30	110	100	
7		Shiratorigawa River	Shiratoribashi Bridge	Oshushi City	2011/12/23	Sunny	1.8	0.50	1.2	3	73.8	Sand with gravel	<30	95	120	
8		Koromogawa River	Koromogawabashi Bridge	Oshushi City	2011/12/23	Sunny	2.0	0.80	3.2	3	71.5	Sand	<30	260	310	
9		Otagawa River	Hitosujibashi Bridge	Hiraizumicho Town	2011/12/23	Sunny	1.0	0.80	2.8	3	82.2	Sand with gravel	<30	42	55	
10		Iwaigawa River Middle Reaches	Kaminohashi Bridge	Ichinosekishi City	2011/12/23	Sunny	1.3	0.40	3.4	3	70.3	Sand with gravel	<30	160	210	
11		Kitakamigawa River	Chitosebashi Bridge (Kozenji)	Ichinosekishi City	2011/12/23	Sunny	3.0	2.20	8.2	3	63.4	Sand	<30	86	84	
12		Satetsugawa River	Unadabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	4.3	0.50	8.4	3	46.6	Sand with silt	<30	180	240	
13			Kannonbashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	4.0	0.50	3.8	3	77.9	Sand with gravel	<30	140	190	
14			Kanzakibashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.2	0.80	3.2	3	72.1	Sand	<30	130	200	
15	Senmayagawa River Upper Reaches	Miyatabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.0	0.80	2.4	3	76.4	Sand	<30	130	160		
16	Kitakamigawa River	Kitakamigawabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	2.6	0.40	2.4	3	75.9	Sand with gravel	<30	27	46		
17	Kinomigawa River	Higuchibashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	1.4	0.30	3.6	5	73.4	Sand	<30	140	170		
18	Kinryugawa River	Tenjinbashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	2.6	0.50	3.2	5	80.7	Sand	<30	140	180		

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

○Sea and Bathing Area (Iwate Prefecture): Sediment Monitoring Results

Sampling point				Sampling date	Weather	Air temperature °C	Full depth m	General items				Concentration of radioactive material (Bq)			Remarks
No.	Water body	Point	Municipality					Mud temperature °C	Mud sampling depth cm	Mud content %	Property	Radioactive iodine I-131	Radioactive cesium Cs-134 Cs-137		
1	Sea area	Ofunatowan Bay (A)	S-31	2012/1/6	Sunny	0.8	16.6	8.8	10	43.5	Silt	<30	<10	<13	
2		Hiroatowan Bay	S-34	2012/1/6	Sunny	1.2	11.0	8.4	10	81.5	Sand	<30	<10	<10	
3	Bathing area	Onowan Bay	Hirota	2011/12/21	Cloudy	4.0	0.8	9.0	3	75.9	Sand	<30	<10	<10	

* Sampling points are listed from north to south.

○River (Iwate Prefecture): Surrounding Environment (River Terrace) Monitoring Results

Sampling point				Sampling date	Weather	Air temperature °C	Left bank					Right bank					Remarks	
No.	Water body	Point	Municipality				Soil			Air dose (μSv/h)	Soil			Air dose (μSv/h)				
							Property	Concentration of radioactive material (Bq/kg)			Property	Concentration of radioactive material (Bq/kg)						
						Radioactive iodine I-131	Radioactive cesium Cs-134 Cs-137				Radioactive iodine I-131	Radioactive cesium Cs-134 Cs-137						
1	Sakarigawa River Lower Reaches	Sanobashi Bridge	Ofunatoshi City	2011/12/21	Cloudy	4.2	Loamy	<30	110	130	0.11	Loamy	<30	480	630	0.10		
2	Yahagigawa River	Yahagibashi Bridge	Rikuzentakadashi City	2011/12/21	Cloudy	2.7	Loamy	<30	250	340	0.14	Loamy	<30	91	120	0.08		
3	Kesengawa River	Anehabashi Bridge	Rikuzentakadashi City	2011/12/21	Cloudy	5.2	Sandy	<30	45	71	0.09	-	-	-	-	0.07	Right bank: unable to collect soil due to bottom being concrete bank	
4	Okawa River	Miyagi Prefecture Border	Ichinosekishi City	2011/12/22	Cloudy	1.0	-	-	-	-	-	Loamy	<30	480	630	0.15	Left bank: soil sampling and monitoring impossible due to the retaining wall	
5	Tsuyagawa River	Chiyogaharabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.2	Loamy	<30	230	300	0.16	Loamy	<30	1,000	1,400	0.17		
6	R K i i v t e a r k a S m y i s g t a w e m a	Kitakamigawa River	Fujibashi Bridge	Oshushi City	2011/12/23	Sunny	0.6	Loamy	<30	140	170	0.12	Clay-loamy	<30	350	500	0.18	
7		Shiratorigawa River	Shiratoribashi Bridge	Oshushi City	2011/12/23	Sunny	1.8	Loamy	<30	620	870	0.27	Loamy	<30	1,200	1,600	0.24	
8		Koromogawa River	Koromogawabashi Bridge	Oshushi City	2011/12/23	Sunny	2.0	Clay-loamy	<30	770	1,000	0.20	Clay-loamy	<30	180	250	0.15	
9		Otagawa River	Hitosujibashi Bridge	Hiraizumicho Town	2011/12/23	Sunny	1.0	Clay-loamy	<30	1,300	1,800	0.22	Clay-loamy	<30	1,000	1,300	0.19	
10		Iwaigawa River Middle Reaches	Kaminohashi Bridge	Ichinosekishi City	2011/12/23	Sunny	1.3	Loamy	<30	1,500	1,900	0.23	Loamy	<30	330	440	0.18	
11		Kitakamigawa River	Chitosebashi Bridge (Kozenji)	Ichinosekishi City	2011/12/23	Sunny	3.0	Clay-loamy	<30	1,000	1,300	0.13	Loamy	<30	900	1,200	0.16	
12		Satetsugawa River	Unadabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	4.3	Loamy	<30	100	130	0.13	Loamy	<30	160	190	0.15	
13			Kannonbashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	4.0	Loamy	<30	150	180	0.16	Loamy	<30	990	1,200	0.19	
14			Kanzakibashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.2	Clay-loamy	<30	910	1,200	0.28	Loamy	<30	760	1,000	0.24	
15		Senmayagawa River Upper Reaches	Miyatabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	3.0	Loamy	<30	660	840	0.21	Loamy	<30	370	460	0.22	
16		Kitakamigawa River	Kitakamigawabashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	2.6	Loamy	<30	630	830	0.19	Loamy	<30	1,500	1,900	0.24	
17		Kinomigawa River	Higuchibashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	1.4	Loamy	<30	650	820	0.11	Loamy	<30	130	210	0.09	
18		Kinryugawa River	Tenjinbashi Bridge	Ichinosekishi City	2011/12/22	Cloudy	2.6	Loamy	<30	560	700	0.29	Loamy	<30	570	720	0.32	

• 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-172 or TCS-161 of Hitachi-Aloka Medical, Ltd.

○Bathing Area (Iwate Prefecture): Surrounding Environment Monitoring Results

Sampling point				Sampling date	Weather	Air temperature °C	Soil					Air dose (μSv/h)	Remarks	
No.	Water body	Point	Concentration of radioactive material (Bq/kg)				Property	Concentration of radioactive material (Bq/kg)						
			Property					Radioactive iodine I-131	Radioactive cesium Cs-134 Cs-137		Property			Radioactive iodine I-131
3	Bathing area Onowan Bay	Hirota		2011/12/21	Cloudy	4.0	Sandy	<30	<10	<10	0.07			

