The Results of Radioactive Material Monitoring of the Surface Water Bodies within Yamagata 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 Yamagata Prefecture during the period of October 24-27 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 for Chiba Prefecture (October 31-November 4 samples) are simultaneously released.)

*The following monitoring results have already been released: Fukushima Prefecture (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), and Tochigi Prefecture (October 5-24 samples: Released December 16).

1. Survey Overview

(1) Survey Locations

12 environmental reference points in the surface water bodies within Yamagata Prefecture
(Rivers: 10 locations, Lakes and headwaters: 2 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: ND-67Bq/kg (dried mud)（Lower detection limit: 10Bq/kg (dried mud)）

Cs-137: ND-65Bq/kg (dried mud)（Lower detection limit: 10Bq/kg (dried mud)）

（Lakes and headwaters）

Cs-134: ND, 190Bq/kg (dried mud) (Lower detection limit: 10Bq/kg (dried mud)）
Cs-137: 34, 280Bq/kg (dried mud)

(3) Surrounding Environment

- Radioactive iodine (I-131) : ND at any location（Lower detection limit：30Bq/kg (dry)）
- Radioactive cesium

（Rivers）

Cs-134: ND-300Bq/kg (dry) (Lower detection limit: 10Bq/kg (dry))
Cs-137: ND-370Bq/kg (dry) (Lower detection limit: 10Bq/kg (dry))

（Lakes and headwaters）

Cs-134: 84, 180Bq/kg (dry)
Cs-137: 100, 260Bq/kg (dry)

- Spatial dose

（Rivers） 0.11-0.24μSv/h

（Lakes and headwaters） 0.14, 0.17μSv/h

(Annex for details)
(Map attached)

○ Future Plans

In coordination with relevant organizations, MOE intends to continue to measure radioactive materials in water and sediment in rivers, lakes, etc. in the following prefectures: Fukushima, Miyagi、Yamagata (some parts), Iwate (some parts), Ibaraki, Tochigi, Gunma, and Chiba (some parts).

○River (Yamagata Prefecture): Water Quality Monitoring Results （Annex）

Sampling point					Sampling date	Weather	Air temperature ℃	Full depth m	General items						Concentration of radioactive material Bq/L			Remarks
No.	Water body		Point	Municipality					Water temperature ℃	Sampling depth m	Transparency cm	Electrical conductivity mS/m	SS mg/L	Turbidity	Radioactive iodine I-131	Radioactive cesium Cs-134	Cs-137	
1	Mogamigawa River System	Hagurogawa River	Hagurogawabashi Bridge	Yonezawashi City	2011/10/26	Sunny	10.9	0.35	14.8	0.0	100 or more	4.5	3	2.1	<1	<1	<1	
2		Hottategawa River	Yoshitsukebashi Bridge	Yonezawashi City	2011/10/26	Cloudy	11.4	0.25	12.2	0.0	100 or more	11.5	6	5.0	<1	<1	<1	
3		Mogamigawa River	Niidabashi Bridge (Kaminiida)	Yonezawashi City	2011/10/26	Cloudy	10.7	0.50	12.3	0.0	100 or more	11.6	5	4.5	<1	<1	<1	
4		Tennogawa River	Tennogawabashi Bridge	Yonezawashi City	2011/10/26	Cloudy	9.1	0.90	12.5	0.0	100 or more	7.8	5	5.0	<1	<1	<1	
5		Mogamigawa River	Nukanomebashi Bridge (Nukanome)	Takahatamachi Town	2011/10/25	Cloudy	14.5	0.45	16.3	0.0	100 or more	12.6	5	3.9	<1	<1	<1	
6		Omonogawa River	Yoshijimabashi Bridge	Kawanishimachi Town	2011/10/25	Cloudy	16.9	0.80	16.1	0.0	100 or more	9.3	2	1.8	<1	<1	<1	
7		Yashirogawa River	Yashirobashi Bridge	Takahatamachi Town	2011/10/25	Rain	17.5	0.15	17.0	0.0	100 or more	7.1	3	1.9	<1	<1	<1	
8		Yoshinogawa River	Yanababashi Bridge	Takahatamachi Town	2011/10/24	Cloudy	17.8	0.50	16.9	0.0	72	10.6	8	8.0	<1	<1	<1	
9		Mamigasakigawa River	Ryokenji	Yamagatashi City	2011/10/24	Cloudy	18.9	0.30	16.0	0.0	100 or more	7.9	1	0.5	<1	<1	<1	
10			Shirakawabashi Bridge	Yamagatashi City	2011/10/24	Cloudy	15.1	0.30	15.0	0.0	100 or more	11.3	8	5.3	<1	<1	<1	

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

○Lake and Headwater (Yamagata Prefecture): Water Quality Monitoring Results

Sampling point				Sampling date	Weather	Air temperature ℃	Full depth m	General items						Concentration of radioactive material Bq/L			Remarks
No.	Water body	Point	Municipality					Water temperature ℃	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	
11	Mizukubo Dam Reservoir	Dam site	Yonezawashi City	2011/10/27	Sunny	10.2	12.1	13.6	0.5	0.9	5.4	8	14	<1	<1	<1	
		1 m from the bottom		-	-	-	-	10.6	11.1	-	5.7	73	82	<1	<1	<1	
12	Zao Dam Reservoir	Dam site	Yamagatashi City	2011/10/25	Cloudy	16.9	32.1	13.4	0.5	2.5	3.5	1	2.5	<1	<1	<1	
		1 m from the bottom		-	-	-	-	11.8	31.1	-	4.5	10	11	<1	<1	<1	

・Sampling points are listed from south to north.

○River (Yamagata Prefecture): Sediment Monitoring Results

Sampling point					Sampling date	Weather	Air temperature ℃	Full depth m	General items				Concentration of radioactive material Bq/kg (dried mud			Remarks
No.	Water body		Point	Municipality					Mud temperature ℃	Mud sampling depth cm	Mud content %	Property	Radioactive iodine I-131	Radioactive cesium Cs-134	Cs-137	
1	Mogami River System	Hagurogawa River	Hagurogawabashi Bridge	Yonezawashi City	2011/10/26	Sunny	10.9	0.35	14.7	5	81.4	Sand with gravel	<30	<10	<10	
2		Hottategawa River	Yoshitsukebashi Bridge	Yonezawashi City	2011/10/26	Cloudy	11.4	0.25	12.3	3	82.8	Sand with gravel	<30	15	24	
3		Mogamigawa River	Niidabashi Bridge (Kaminiida)	Yonezawashi City	2011/10/26	Cloudy	10.7	0.50	12.8	5	80.8	Sand	<30	18	23	
4		Tennogawa River	Tennogawabashi Bridge	Yonezawashi City	2011/10/26	Cloudy	9.1	0.90	12.8	5	79.4	Sand	<30	28	31	
5		Mogamigawa River	Nukanomebashi Bridge (Nukanome)	Takahatamachi Town	2011/10/25	Cloudy	14.5	0.45	16.2	5	82.7	Sand with gravel	<30	<10	<10	
6		Omonogawa River	Yoshijimabashi Bridge	Kawanishimachi Tow	2011/10/25	Cloudy	16.9	0.80	15.9	5	85.1	Sand	<30	<10	<10	
7		Yashirogawa River	Yashirobashi Bridge	Takahatamachi Town	2011/10/25	Rain	17.5	0.15	17.0	5	83.9	Sand with gravel	<30	<10	10	
8		Yoshinogawa River	Yanababashi Bridge	Takahatamachi Town	2011/10/24	Cloudy	17.8	0.50	17.0	10	84.1	Sand with gravel	<30	67	65	
9		Mamigasakigawa River	Ryokenji	Yamagatashi City	2011/10/24	Cloudy	18.9	0.30	16.1	5	82.8	Sand	<30	34	43	
10			Shirakawabashi Bridge	Yamagatashi City	2011/10/24	Cloudy	15.1	0.30	15.2	5	85.7	Sand with gravel	<30	41	55	

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

○Lake and Headwater (Yamagata Prefecture): Sediment Monitoring Results

Sampling point				Sampling date	Weather	Air temperature ℃	Full depth m	General items				Concentration of radioactive material Bq/kg (dried mud			Remarks
No.	Water body	Point	Municipality					Mud temperature ℃	Mud sampling depth cm	Mud content %	Property	Radioactive iodine I-131	Radioactive cesium Cs-134	Cs-137	
11	Mizukubo Dam Reservoir	Dam site	Yonezawashi City	2011/10/27	Sunny	10.2	12.1	9.0	15	35.9	Silt with sand	<30	<10	34	
12	Zao Dam Reservoir	Dam site	Yamagatashi City	2011/10/25	Cloudy	16.9	32.1	11.6	10	42.2	Silt with sand	<30	190	280	

・Sampling points are listed from south to north.

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

Sampling point					Sampling date	Weather	Air temperature ℃	Left bank					Right bank					Remarks
								Soil				Air dose	Soil				Air dose	
									Concentration of radioactive material Bq/kg (dry)					Concentration of radioactive material Bq/kg (dry)				
No.	Water body		Point	Municipality				Property	Radioactive iodine	Radioactive cesium		μSv/h	Property	Radioactive iodine	Radioactive cesium		μSv/h	
									I-131	Cs-134	Cs-137			I-131	Cs-134	Cs-137		
1	Mogamigawa River System	Hagurogawa River	Hagurogawabashi Bridge	Yonezawashi City	2011/10/26	Sunny	10.9	Loamy	<30	42	58	0.13	Loamy	<30	150	190	0.13	
2		Hottategawa River	Yoshitsukebashi Bridge	Yonezawashi City	2011/10/26	Cloudy	11.4	Loamy	<30	77	99	0.13	Loamy	<30	32	40	0.13	
3		Mogamigawa River	Niidabashi Bridge (Kaminiida)	Yonezawashi City	2011/10/26	Cloudy	10.7	Clay-loamy	<30	30	30	0.15	Loamy	<30	71	110	0.13	
4		Tennogawa River	Tennogawabashi Bridge	Yonezawashi City	2011/10/26	Cloudy	9.1	Clay-loamy	<30	43	61	0.15	Clay-loamy	<30	120	160	0.14	
5		Mogamigawa River	Nukanomebashi Bridge (Nukanome)	Takahatamachi Town	2011/10/25	Cloudy	14.5	Loamy	<30	150	190	0.13	Loamy	<30	44	58	0.14	
6		Omonogawa River	Yoshijimabashi Bridge	Kawanishimachi Town	2011/10/25	Cloudy	16.9	Loamy	<30	130	200	0.16	Clay-loamy	<30	120	170	0.15	
7		Yashirogawa River	Yashirobashi Bridge	Takahatamachi Town	2011/10/25	Rain	17.5	Loamy	<30	24	54	0.15	Loamy	<30	110	140	0.16	
8		Yoshinogawa River	Yanababashi Bridge	Takahatamachi Town	2011/10/24	Cloudy	17.8	Loamy	<30	46	65	0.16	Loamy	<30	190	260	0.17	
9		Mamigasakigawa River	Ryokenji	Yamagatashi City	2011/10/24	Cloudy	18.9	Loamy	<30	300	370	0.24	Loamy	<30	260	330	0.23	
10			Shirakawabashi Bridge	Yamagatashi City	2011/10/24	Cloudy	15.1	Sandy	<30	<10	<10	0.11	Loamy	<30	270	370	0.16	

・Air dose was measured with a survey meter, Model 5000 of Health Physics Instruments.

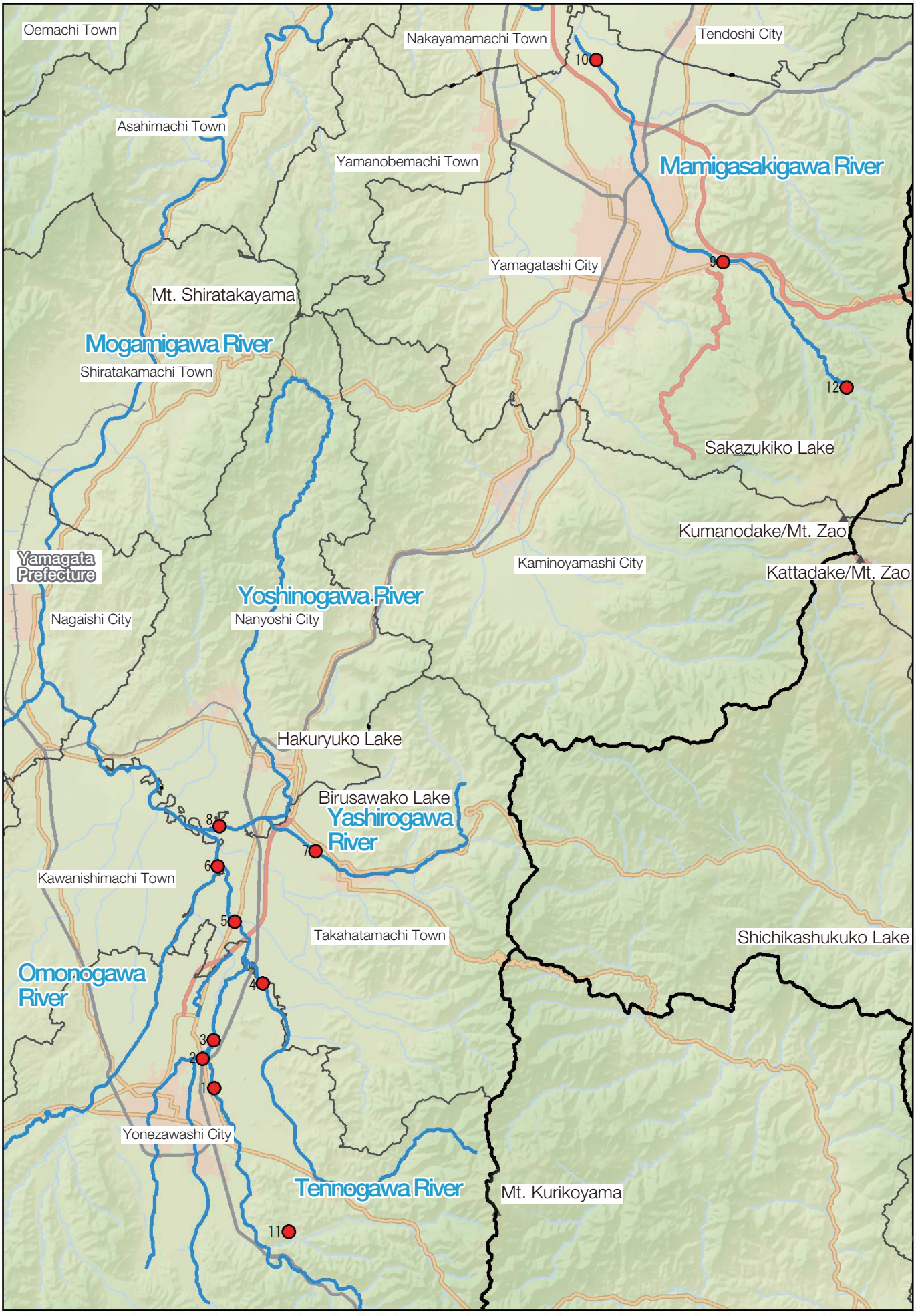
・Sampling points for rivers are listed from south to north, and for different points along the river, from upstream to downstream.

○Lake and Headwater (Yamagata Prefecture): Surrounding Environment (Lake Shore) Monitoring Results

Sampling point				Sampling date	Weather	Air temperature ℃	Soil				Air dose μSv/h	Remarks
								Concentration of radioactive material Bq/kg (dry)				
No.	Water body	Point	Municipality				Property	Radioactive iodine	Radioactive cesium			
								I-131	Cs-134	Cs-137		
11	Mizukubo Dam Reservoir	Dam site	Yonezawashi City	2011/10/27	Sunny	10.2	Loamy	<30	84	100	0.17	
12	Zao Dam Reservoir	Dam site	Yamagatashi City	2011/10/25	Cloudy	16.9	Loamy	<30	180	260	0.14	

・Air dose was measured with a survey meter, Model 5000 of Health Physics Instruments.

・Sampling points are listed from south to north.


Oemachi Town
Nakayamamachi Town
Tendoshi City
10
Asahimachi Town
Yamanobemachi Town
Mamigasakigawa River
Yamagatashi City
9
Mt. Shiratakayama
Mogamigawa River
Shiratakamachi Town
12
Sakazukiko Lake
Kumanodake/Mt. Zao
Yamagata Prefecture
Kaminoyamashi City
Kattadake/Mt. Zao
Yoshinogawa River
Nagaishi City
Nanyoshi City
Hakuryuko Lake
Birusawako Lake
Yashirogawa River
8
7
6
Kawanishimachi Town
5
Takahatamachi Town
Shichikashukuko Lake
Omonogawa River
4
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Yonezawashi City
Tennogawa River
Mt. Kurikoyama
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