# Part 2: Radioactive Material Monitoring in the Water Environment in and around Fukushima Prefecture (FY2015)

# 1. Objective and Details

## 1.1 Objective

This monitoring was conducted in response to the Fukushima NPS Accident for the purpose of clarifying the distribution of the accident-derived radioactive materials in the water environment.

# 1.2 Details

# (1) Locations

The survey was conducted mainly in the Tohoku and Kanto districts at around 600 locations for public water areas and at around 400 locations for groundwater. Specific locations are as shown in Figure 1.2-1.

# (2) Targets

For public water areas (rivers, lakes, and coastal areas), water and sediments were surveyed. Additionally, radioactive concentrations in soil were measured in the surrounding environment (river beds, etc.) near the sampling locations as reference.

Radioactive concentrations in groundwater were also measured.

## (3) Frequencies and periods

The monitoring for public water areas was conducted 2 to 10 times a year (varying by location). The monitoring for groundwater was conducted 1 to 4 times a year (varying by location).

## (4) Conducted analyses

Primarily, analyses targeting Cs-134 and Cs-137 were conducted.

Additionally, analyses on Sr-89, Sr-90 and other artificial radionuclides were also conducted for some of the collected samples.

## (5) Compilation and evaluation of results

The results of the measurement are compiled and released sequentially as preliminary reports on the website of Ministry of the Environment.

This report is the compilation of the overall monitoring results, and the details of individual monitoring surveys are available on the following website.

http://www.env.go.jp/en/water/rmms/surveys.html



Figure 1.2-1 Map showing locations for the Post-Earthquake Monitoring

#### 2. Survey Methods and Analysis Methods

### 2.1 Survey methods

Samples were collected at predetermined locations (for public water areas and groundwater) and the following analyses of radioactive materials were conducted.

Samples were collected based on the following guidelines in principle, as outlined below.

- Water Quality Survey Method (September 30, 1971; Notice Kansuikan No. 30 issued by the Director General of the Water Quality Preservation Bureau, Ministry of the Environment)
- Sediment Survey Method (August 8, 2012; Notice Kansuitaisuihatsu No. 120725002 issued by the Director General of the Environmental Management Bureau, Ministry of the Environment)
- Groundwater Quality Survey Method (September 14, 1989; Notice Kansuikan No. 189 issued by the Director General of the Water Quality Preservation Bureau, Ministry of the Environment)
- Environmental Sample Collection Method (1983, MEXT's Radioactivity Measurement Method Series)
- Sample Pretreatment for Instrumental Analysis Using Germanium Semiconductor Detectors (1982, MEXT's Radioactivity Measurement Method Series)

#### 2.2 Analysis methods

The  $\gamma$ -ray spectrometry measurement using a germanium semiconductor detector was conducted for water samples and sediment samples from public water areas and for groundwater samples, primarily targeting Cs-134 and Cs-137.

Additionally, analyses on Sr-89, Sr-90 and other artificial radionuclides were also conducted for some of the collected samples. Detected values were indicated with two significant digits in the unit of "Bq/L" in the case of water samples from public water areas and groundwater samples, and in the unit of "Bq/kg (dry)" in the case of sediment samples from public water areas. The measurement results were corrected for attenuation, and reported figures were activity concentrations as of the time of completing sampling.

Adopted analysis methods were basically in line with the MEXT's Radioactivity Measurement Method Series, and detection limit targets were as shown in the table below.

Radionucl	ide	Public water areas (water)	Public water areas (sediments)	Groundwater
Radioactive c (Cs-134 and C	cesium Cs-137)	Approx. 1 Bq/L	Approx. 10 Bq/kg (dry)	Approx. 1 Bq/L
Radioactive	Sr-90	1	Approx. 1 Bq/kg (dry) (0.16 to 2.9 Bq/kg (dry))	Approx. 1 Bq/L
strontium	Sr-89	-	_	Approx. 1 Bq/L
Other artifi radionuclide	cial s (*1)	_	Ag-110m: 7 to 180 Bq/kg (dry) Sb-125: 130 to 330 Bq/kg (dry)	_

Table 2.2-1 Detection limit targets for radionuclides for the Post-Earthquake Monitoring

\*1: Vary by type of radionuclides; The above table shows detection limit targets for Ag-110m and Sb-125, which were detected in the monitoring (see Chapter 5.2 of the main text).

## 3. Outline of the Results

The results of the Post-Earthquake Monitoring conducted in Tokyo Metropolis and other nine prefectures of FY2015 were as outlined below.

## 3.1 Detection of radioactive cesium

Radioactive cesium (total of Cs-134 and Cs-137) was detected as follows.

#### (1) Public water areas (water)

In FY2015, radioactive cesium activity concentrations ranged from not detectable to 1.3 Bq/L and had a detection rate of 0.1% in river water samples; from not detectable to 52 Bq/L and with a detection rate of 2.1% in lake water samples; and were not detectable in any coastal area water samples.

Judging from the changes over time since FY2011, all prefectures have shown decreasing trends in the detection rate for river water specimens (9,000 or more in total number of samples) and lake water specimens (5,400 or more in total number of samples). In prefectures other than Fukushima Prefecture, radioactive cesium has not been detected since FY2013 (see Figure 3.1-1). In addition, no survey detected radioactive cesium in coastal area water specimens (2,300 or more in total number of samples).





# Figure 3.1-1 Changes in detection rates of radioactive cesium in water samples from public water areas (left: rivers; right: lakes)

## (2) Groundwater

Radioactive cesium was not detectable in any of the groundwater samples in FY2015.

Judging from the changes over time since FY2011, radioactive cesium has not been detected in groundwater specimens (4,700 or more in total number of samples) since FY2012, except when it was detected in two specimens from Fukushima Prefecture in FY2011 (detected values were 2 Bq/L and 1 Bq/L).

### (3) Public water areas (sediments)

#### 1) Overall trends

In FY2015, radioactive cesium activity concentrations ranged from not detectable to 20,100 Bq/kg and were detected with a detection rate of 88.1% in river sediment samples, from not detectable to 920,000 Bq/kg and with a detection rate of 99.1% in lake sediment samples, and from not detectable to 2,950 Bq/kg and at a detection rate of 82.0% in coastal area sediment samples.

### 2) Situation by location

As radioactive cesium was detected at many locations, the situations in respective locations were compared. Detected concentration levels and their changes were statistically compiled as shown in "4.3 Detection of radioactive materials in sediments by location."

Detected concentration levels were compiled as shown in Table 3.1-1.

Locations belonging to Categories A and B (top 10 percentile of the whole) were in Hamadori District, Fukushima Prefecture as well as in Nakadori District, Fukushima Prefecture, Ibaraki, Gunma, Chiba, and Miyagi Prefectures.

# Table 3.1-1 Categorization of detected concentration levels for sediment samples from public water areas(FY2015) (rivers, lakes, and coastal areas)

								Nur	nber of loc	ations					
Category	(see Figure 4 3-1)	[River sediments] Range	Iwata	Miyagi	1	Fukushima		Ibaraki	Tochigi	Gunma	Chiba	Saitama	Tokyo	Total	
	(see Figure 4.5 T)	[Bq/kg (ury)]	Iwate	wiiyagi	Hamadori	Nakadori	Aizu	IDalaki	Tochigi	Guillia	Chiba	Saltania	TOKYO	Number of locations	Percentage
А	Upper 5 percentile	1,077 or more	0	0	11	0	0	2	0	1	5	0	0	19	4.8
В	Upper 5 to 10 percentile	529 ~ 1,077	0	0	9	1	0	2	0	0	8	0	0	20	5.1
С	Upper 10 to 25 percentile	182 ~ 529	0	8	6	14	1	11	1	0	18	0	1	60	15.2
D	percentile         50           Upper 25 to 50         59         ~ 182           percentile         59         ~ 182		2	14	19	9	7	21	5	9	12	1	1	100	25.3
Е	Lower 50 percentile	59 or less	20	21	8	20	18	17	50	38	4	1	0	197	49.7
	Tota	1	22	43	53	44	26	53	56	48	47	2	2	396	100.0

# <Rivers>

#### <Lakes>

		Range					Number o	f locations				
Category	Percentile (see Figure 4 3-1)	[Lake sediments]	Miyogi	]	Fukushima		Iboroki	Tochigi	Gunma	Chibo	Total	
	(see 1 igure 4.5-1)	[Bq/kg (dry)]	wiiyagi	Hamadori	Nakadori	Aizu	IDaraki	Tochigi	Guiina	Chiba	Number of locations	Percentage
А	Upper 5 percentile	23,760 or more	0	8	0	0	0	0	0	0	8	4.9
В	Upper 5 to 10 percentile	12,306 ~ 23,760	0	8	0	0	0	0	0	0	8	4.9
С	Upper 10 to 25 percentile	1,969 ~ 12,306	1	11	4	6	1	0	1	1	25	15.2
D	Upper 25 to 50 percentile	624 ~ 1,969	3	10	6	3	4	4	10	1	41	25.0
Е	Lower 50 percentile	624 or less	17	4	2	22	14	4	13	6	82	50.0
	Total	l	21	41	12	31	19	8	24	8	164	100.0

### <Coastal areas>

	<b>D</b>	Range				Number	of location	ns		
Category	(see Figure 4 3-1)	[coastal area sediments]	Iwate	Miyani	Fukushima	Ibaraki	Chiba	Tokyo	Total	
	(500 1 igure 115 1)	[Bq/kg (dry)]	Iwate	wiiyagi	1 ukusiiiina	Ibaraki	Cinida	Токуо	Number of location	Percentage
А	Upper 5 percentile	580 or more	0	1	1	0	0	0	2	4.8
В	Upper 5 to 10 percentile	400 ~ 580	0	1	1	0	0	0	2	4.8
С	Upper 10 to 25 percentile	248 ~ 400	0	1	4	0	0	1	6	14.3
D	Upper 25 to 50 percentile	65 ~ 248	0	5	3	0	1	2	11	26.2
Е	Lower 50 percentile	65 or less	2	4	6	5	4	0	21	50.0
	Tota	1	2	12	15	5	5	3	42	100.0

Changes in detected concentration levels were compiled as shown in Figure 3.1-2, which shows Table 4.3-45 graphically.

At most monitoring locations for rivers, a decreasing trend was observed. For lakes, a decreasing or unchanged trend was generally observed with some locations showing fluctuations. For coastal areas, a decreasing trend was observed at most locations with some locations showing fluctuations.



Figure 3.1-2 Changes in detected concentration levels of radioactive materials in sediment samples from public water areas (rivers, lakes, and coastal areas)

## 3.2 Detection of radionuclides other than radioactive cesium

#### (1) Sr-89 and Sr-90

As shown by the results, including the past fiscal years, Sr-90 was included in the monitoring surveys conducted from FY2011 to FY2015 for sediment samples (approximately 500 samples in total) from public water areas (rivers, lakes, and coastal areas) and for groundwater samples (approximately 240 specimens in total) (see Figure 3.2-1).

In FY2015, Sr-90 ranged in concentration from not detectable to 1.9 Bq/kg and was detected with a detection rate of 40.9% in river sedmiment samples, from not detectable to 150 Bq/kg and with a detection rate of 97.1% in lake sediment samples, and from not detectable to 0.78 Bq/kg and with a detection rate of 9.4% in coastal area sediment samples.

Sr-89 was not detectable in any of the monitoring surveys conducted for sediment samples from public water areas (a total of 22 samples collected from rivers and lakes in FY2011) and for groundwater samples (a total of approx. 240 samples surveyed from FY2011 to FY2015) (detection limit: 1 Bq/L for water and approximate 2 Bq/kg for sediments).



Figure 3.2-1 Detection of Sr-90 in sediment samples from public water areas (left: rivers; right:

lakes)

### (2) Other artificial radionuclides

None have been detected since FY 2013.

#### 4. Results (Radioactive cesium (Cs-134 and Cs-137))

# 4.1 Water

#### (1) Public water areas

## 1) Rivers

Detection of radioactive cesium (Cs-134 and Cs-137) in river water samples is as shown in Table 4.1-1 and Figure 4.1-1.

According to the results, including the past fiscal years, most prefectures, have shown decreasing trends in the detection rate since FY2011. In FY2015, radioactive cesium has not been detected in any location other than the Hamadori and Nakadori Districts, Fukushima Prefecture.

Detected values (the total of Cs-134 and Cs-137) have been decreasing since FY2011. The measured values from FY2015 ranged from not detectable to 1.3 Bq/L (detection limit: 1 Bq/L for both Cs-134 and Cs-137).

#### 2) Lakes

Detection of radioactive cesium (Cs-134 and Cs-137) in lake water samples is as shown in Table 4.1-2 and Figure 4.1-2.

According to the results, including the past fiscal years, most prefectures have shown decreasing trends in the detection rate since FY2012. Radioactive cesium has not been detected in any location other than Hamadori District, Fukushima Prefecture since FY2013.

Detected values (the total of Cs-134 and Cs-137) have been decreasing since FY2012. The measured values in FY2015 ranged from not detectable to 52 Bq/L (detection limit: 1 Bq/L for both Cs-134 and Cs-137).

#### 3) Coastal areas

Detection of radioactive cesium (Cs-134 and Cs-137) in coastal area water samples is as shown in Table 4.1-3. According to the results, including the past fiscal years, radioactive cesium has not been detected at any site (detection limit: 1 Bq/L for both Cs-134 and Cs-137).

### (2) Groundwater

Detection of radioactive cesium (Cs-134 and Cs-137) in groundwater samples is as shown in Table 4.1-4. According to the results, including the past fiscal years, approximately 4,700 specimens from eight prefectures were surveyed. In FY2011, radioactive cesium was detected at concentrations of 2 Bq/L and 1 Bq/L at two locations (both in Fukushima Prefecture) only, and has not been detected at any location since FY2012.

#### <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 (the total of Cs-134 and Cs-137): 10 Bq/kg
- Reference Values 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 (the total of Cs-134 and Cs-137): 10 Bq/kg

		F	Y2011			F	Y2012			F	Y2013			F	Y2014			F	Y2015			Total	
Prefecture	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Range of measured value (Bq/L)
Iwate	18	0	0.0	-	64	0	0.0	-	80	0	0.0	-	80	0	0.0	-	80	0	0.0	-	322	0	-
Yamagata	10	0	0.0	-	0	0	-	-	0	0	-	-	0	0	-	-	0	0	-	-	10	0	-
Miyagi	114	0	0.0	-	204	3	1.5	ND - 6.3	193	0	0.0	-	196	0	0.0	-	196	0	0.0	-	903	3	ND - 6.3
Fukushima	452	28	6.2	ND - 20	854	18	2.1	ND - 4.6	801	7	0.9	ND - 5.5	770	3	0.4	ND - 1.6	819	2	0.2	ND - 1.3	3,696	58	ND - 20
Hamadori	192	23	12.0	ND - 20	342	12	3.5	ND - 4.6	325	7	2.2	ND - 5.5	326	3	0.9	ND - 1.6	330	1	0.3	ND - 1.3	1,515	46	ND - 20
Nakadori	176	5	2.8	ND - 8.0	355	6	1.7	ND - 1.9	322	0	0.0	-	324	0	0.0	-	324	1	0.3	ND - 1.1	1,501	12	ND - 8.0
Aizu	84	0	0.0	-	157	0	0.0	-	154	0	0.0	-	120	0	0.0	-	165	0	0.0	-	680	0	-
Ibaraki	128	0	0.0	-	214	0	0.0	-	212	0	0.0	-	212	0	0.0	-	212	0	0.0	-	978	0	-
Tochigi	161	1	0.6	ND - 1.0	277	0	0.0	-	276	0	0.0	-	274	0	0.0	-	278	0	0.0	-	1,266	1	ND - 1.0
Gunma	90	0	0.0	-	216	0	0.0	-	214	0	0.0	-	210	0	0.0	-	214	0	0.0	-	944	0	-
Saitama	2	0	0.0	-	8	0	0.0	-	8	0	0.0	-	8	0	0.0	-	8	0	0.0	-	34	0	-
Chiba	82	0	0.0	-	202	2	1.0	ND - 1.3	200	0	0.0	-	200	0	0.0	-	200	0	0.0	-	884	2	ND - 1.3
Tokyo	3	0	0.0	-	12	0	0.0	-	8	0	0.0	-	8	0	0.0	-	8	0	0.0	-	39	0	-
Total	1,060	29	2.7	ND - 20	2,051	23	1.1	ND - 6.3	1,992	7	0.4	ND - 5.5	1,958	3	0.2	ND - 1.6	2,015	2	0.1	ND - 1.3	9,076	122	ND - 20

Table 4.1-1 Detection of radioactive cesium in river water samples (by fiscal year)

ND: Not detectable



Figure 4.1-1 Detection rates of radioactive cesium in river water samples (left) and changes in detected values (center and right)

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		F	FY2011				FY2012			1	FY2013				FY2014			F	FY2015			Total	
Prefecture	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Range of measured values (Bq/L)
Yamagata	4	0	0.0	-	0	0	-	-	0	0	-	-	0	0	-	-	0	0	-	-	4	0	-
Miyagi	34	1	2.9	ND - 3.0	90	0	0.0	-	118	0	0.0	-	114	0	0.0	-	118	0	0.0	-	474	1	ND - 3.0
Fukushima	211	11	5.2	ND - 27	581	72	12.4	ND - 100	761	36	4.7	ND - 47	799	29	3.6	ND - 34	807	29	3.6	ND - 52	3,159	177	ND - 100
Hamadori	76	9	11.8	ND - 27	272	65	23.9	ND - 100	321	36	11.2	ND - 47	342	29	8.5	ND - 34	350	29	8.3	ND - 52	1,361	168	ND - 100
Nakadori	56	2	3.6	ND - 5.0	83	3	3.6	ND - 1.2	109	0	0.0	-	113	0	0.0	-	115	0	0.0	-	476	5	ND - 5.0
Aizu	79	0	0.0	-	226	4	1.8	ND - 5.1	331	0	0.0	-	344	0	0.0	-	342	0	0.0	-	1,322	4	ND - 5.1
Ibaraki	48	0	0.0	-	93	0	0.0	-	152	0	0.0	-	152	0	0.0	-	149	0	0.0	-	594	0	-
Tochigi	24	0	0.0	-	54	0	0.0	-	62	0	0.0	-	64	0	0.0	-	64	0	0.0	-	268	0	-
Gunma	51	0	0.0	-	144	1	0.7	ND - 1.0	188	0	0.0	-	187	0	0.0	-	192	0	0.0	-	762	1	ND - 1.0
Chiba	32	0	0.0	-	50	0	0.0	-	53	0	0.0	-	50	0	0.0	-	37	0	0.0	-	222	0	-
Total	404	12	3.0	ND - 27	1,012	73	7.2	ND - 100	1,334	36	2.7	ND - 47	1,366	29	2.1	ND - 34	1,367	29	2.1	ND - 52	5,483	179	ND - 100

# Table 4.1-2 Detection of radioactive cesium in lake water samples (by fiscal year)

ND: Not detectable



Figure 4.1-2 Detection rates of radioactive cesium in lake water samples (left) and changes in detected values (center and right)

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		F	Y2011			F	Y2012			F	Y2013			F	Y2014			F	Y2015			Toal	
Prefecture	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Range of measured values (Bq/L)
Iwate	5	0	0.0	-	8	0	0.0	-	8	0	0.0	-	8	0	0.0	-	8	0	0.0	-	37	0	-
Miyagi	94	0	0.0	-	96	0	0.0	-	102	0	0.0	-	104	0	0.0	-	104	0	0.0	-	500	0	-
Fukushima	116	0	0.0	-	189	0	0.0	-	300	0	0.0	-	300	0	0.0	-	300	0	0.0	-	1,205	0	-
Ibaraki	45	0	0.0	-	62	0	0.0	-	40	0	0.0	-	40	0	0.0	-	40	0	0.0	-	227	0	-
Chiba	0	0	-	-	62	0	0.0	-	46	0	0.0	-	46	0	0.0	-	46	0	0.0	-	200	0	-
Tokyo	0	0	-	-	38	0	0.0	-	36	0	0.0	-	36	0	0.0	-	36	0	0.0	-	146	0	-
Total	260	0	0.0	-	455	0	0.0	-	532	0	0.0	-	534	0	0.0	-	534	0	0.0	-	2,315	0	-

## Table 4.1-3 Detection of radioactive cesium in coastal area water samples (by fiscal year)

ND: Not detectable

Table 4.1-4 Detection of radioactive c	cesium in groundwater	samples (by fiscal year)
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		FY	2011			F	r2012			FY	2013			FY	2014			FY	2015			Total	
Prefecture	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/L)	Number of samples	Number of detections	Range of measured values (Bq/L)
Iwate	42	0	0.0	-	44	0	0.0	-	44	0	0.0	-	22	0	0.0	-	22	0	0.0	-	174	0	-
Miyagi	79	0	0.0	-	44	0	0.0	-	48	0	0.0	-	24	0	0.0	-	24	0	0.0	-	219	0	-
Yamagata	79	0	0.0	-	0	0	-	-	0	0	-	-	0	0	-	-		0	-	-	79	0	-
Fukushima	540	2	0.4	ND - 2.0	543	0	0.0	-	766	0	0.0	-	771	0	0.0	-	767	0	0.0	-	3,387	2	ND - 2.0
Ibaraki	89	0	0.0	-	54	0	0.0	-	54	0	0.0	-	27	0	0.0	-	27	0	0.0	-	251	0	-
Tochigi	76	0	0.0	-	54	0	0.0	-	54	0	0.0	-	27	0	0.0	-	27	0	0.0	-	238	0	-
Gunma	40	0	0.0	-	40	0	0.0	-	42	0	0.0	-	21	0	0.0	-	21	0	0.0	-	164	0	-
Chiba	54	0	0.0	-	46	0	0.0	-	46	0	0.0	-	23	0	0.0	-	23	0	0.0	-	192	0	-
Total	999	2	0.2	ND - 2.0	825	0	0.0	-	1,054	0	0.0	-	915	0	0.0	-	911	0	0.0	-	4,704	2	ND - 2.0

ND: Not detectable

(\*) Detected in FY2011. Both Cs-134 and Cs-137 were detected at one site, and only Cs-137 was detected at another site, at a level of 1 Bq/L (detection limit: 1 Bq/L) (see the main text).

## 4.2 Sediments

Detection of radioactive cesium in sediment samples from public water areas (rivers, lakes, and coastal areas) were as outlined below.

#### (1) Public water areas (rivers)

Radioactive cesium (Cs-134 and Cs-137) detected in river sediment samples was as shown in Table 4.2-1 and Figure 4.2-1.

According to the results, including the past fiscal years, the detection rate ranged between 50 and 100%, and has been slightly decreasing over time in many prefectures.

As shown in Figure 4.2-1, more locations are showing lower concentration levels (the total of Cs-134 and Cs-137) and fewer locations are showing higher concentration levels.

#### (2) Public water areas (lakes)

Detection of radioactive cesium (Cs-134 and Cs-137) in lake sediment samples is as shown in Table 4.2-2 and Figure 4.2-2.

According to the results, including the past fiscal years, the detection rate ranged between 83 and 100%. In FY2015, detection rates of 90% or more were observed in all prefectures.

Detected values (the total of Cs-134 and Cs-137) were generally decreasing or unchanged though some locations exhibited fluctuations. In Hamadori District, Fukushima Prefecture, however, radioactive cesium was still detected at concentrations of 100,000 Bq/kg or more in FY2015.

#### (3) Public water areas (coastal areas)

Detection of radioactive cesium (Cs-134 and Cs-137) in coastal area sediment samples is as shown in Table 4.2-3 and Figure 4.2-3.

According to the results, including the past fiscal years, the detection rate ranged between 40 and 100% and slightly decreased in FY2015, except for Iwate Prefecture with a small number of specimens.

Coastal area locations showed lower detected values (the total of Cs-134 and Cs-137) than those in rivers or lakes. In Fukushima Prefecture, however, radioactive cesium was still detected at concentrations of 1,000 Bq/kg or more in FY2015.

		F	Y2011			I	Y2012			F	Y2013			I	Y2014			F	Y2015			Total	
Prefecture	Number of samples	Number of detections	Detection rate (%)	Range of measured value (Bq/kg)	s Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate (%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Range of measured values (Bq/kg)
Iwate	18	18	100.0	62 - 99	0 64	63	98.4	ND - 1,040	80	71	88.8	ND - 340	80	68	85.0	ND - 301	80	60	75.0	ND - 121	322	280	ND - 1,040
Yamagata	10	6	60.0	ND - 13	2 0	0	-	-	0	0	-	-	0	0	-	-	0	0	-	-	10	6	ND - 132
Miyagi	113	111	98.2	ND - 11,10	D 199	191	96.0	ND - 3,700	192	182	94.8	ND - 2,450	196	187	95.4	ND - 1,620	196	176	89.8	ND - 1,860	896	847	ND - 11,100
Fukushima	441	421	95.5	ND - 92,00	0 847	808	95.4	ND - 165,000	795	750	94.3	ND - 45,000	770	724	94.0	ND - 24,700	845	776	91.8	ND - 20,100	3,698	3,479	ND - 165,000
Hamadori	192	191	99.5	ND - 92,00	0 336	329	97.9	ND - 165,000	325	321	98.8	ND - 45,000	326	318	97.5	ND - 24,700	358	354	98.9	ND - 20,100	1,537	1,513	ND - 165,000
Nakadori	176	174	98.9	ND - 30,00	0 354	353	99.7	ND - 20,000	316	316	100.0	10 - 8,300	324	317	97.8	ND - 3,060	324	316	97.5	ND - 3,270	1,494	1,476	ND - 30,000
Aizu	73	56	76.7	ND - 25,00	0 157	126	80.3	ND – 2,590	154	113	73.4	ND - 1,410	120	89	74.2	ND – 720	163	106	65.0	ND - 810	667	490	ND - 25,000
Ibaraki	128	125	97.7	ND - 5,80	0 214	208	97.2	ND - 4,800	212	209	98.6	ND - 4,200	212	208	98.1	ND - 1,640	212	203	95.8	ND - 2,160	978	953	ND - 5,800
Tochigi	159	150	94.3	ND - 4,90	0 275	267	97.1	ND - 1,780	276	245	88.8	ND - 1,540	274	231	84.3	ND - 820	278	212	76.3	ND - 1,010	1,262	1,105	ND - 4,900
Gunma	88	74	84.1	ND - 41	0 211	184	87.2	ND - 1,560	214	179	83.6	ND - 1,560	210	177	84.3	ND - 2,160	214	161	75.2	ND - 1,510	937	775	ND - 2,160
Saitama	2	2	100.0	35 - 53	0 8	8	100.0	12 - 540	8	8	100.0	10 - 67	8	7	87.5	ND - 68	8	4	50.0	ND - 291	34	29	ND - 540
Chiba	83	83	100.0	50 - 9,70	0 199	199	100.0	17 - 20,200	200	199	99.5	ND - 7,900	200	200	100.0	11 - 5,200	200	199	99.5	ND - 4,100	882	880	ND - 20,200
Tokyo	2	2	100.0	580 - 70	0 12	12	100.0	131 - 670	8	8	100.0	75 - 460	8	8	100.0	96 - 430	8	8	100.0	86 - 404	38	38	75 - 700
Total	1,044	992	95.0	ND - 92,00	0 2,029	1,940	95.6	ND - 165,000	1,985	1,851	93.2	ND - 45,000	1,958	1,810	92.4	ND - 24,700	2,041	1,799	88.1	ND - 20,100	9,057	8,392	ND - 165,000

Table 4.2-1 Detection of radioactive cesium in river sediment samples (by fiscal year)





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Figure 4.2-1 Detection of radioactive cesium in river sediment samples (changes) (Prefectures where only a small number of samples were collected are

		1	FY2011			1	FY2012				FY2013				FY2014				FY2015			Total	
Prefecture	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Range of measured values (Bq/kg)
Yamagata	2	2	100.0	34 - 470	0	0	-	-	0	0	-	-	0	0	-	-	0	0	-	-	2	2	34 - 470
Miyagi	24	24	100.0	31 - 3,000	58	57	98.3	ND - 9,700	76	76	100.0	18 - 4,200	75	74	98.7	ND - 2,220	76	74	97.4	ND - 4,490	309	305	ND - 9,700
Fukushima	147	141	95.9	ND - 260,000	389	386	99.2	ND - 780,000	501	499	99.6	ND - 460,000	501	496	99.0	ND - 297,000	541	535	98.9	ND - 920,000	2,079	2,057	ND - 920,000
Hamadori	62	62	100.0	45 - 260,000	201	201	100.0	42 - 780,000	239	239	100.0	68 - 460,000	243	243	100.0	18 - 297,000	278	278	100.0	16 - 920,000	1,023	1,023	16 - 920,000
Nakadori	42	41	97.6	ND - 35,000	58	58	100.0	63 - 24,900	77	77	100.0	68 - 11,100	76	74	97.4	ND - 10,900	78	78	100.0	44 - 6,200	331	328	ND - 35,000
Aizu	43	38	88.4	ND - 2,020	130	127	97.7	ND - 10,200	185	183	98.9	ND - 13,400	182	179	98.4	ND - 7,800	185	179	96.8	ND - 12,300	725	706	ND - 13,400
Ibaraki	24	24	100.0	37 - 1,840	48	48	100.0	93 - 1,300	76	75	98.7	ND - 5,400	76	75	98.7	ND - 3,170	73	73	100.0	61 - 3,070	297	295	ND - 5,400
Tochigi	12	10	83.3	ND - 6,700	27	27	100.0	11 - 4,100	31	31	100.0	106 - 5,100	32	32	100.0	134 - 8,700	32	32	100.0	103 - 1,760	134	132	ND - 8,700
Gunma	26	22	84.6	ND - 4,600	72	72	100.0	16 - 4,100	95	95	100.0	21 - 4,300	94	94	100.0	38 - 5,100	96	96	100.0	47 - 4,570	383	379	ND - 5,100
Chiba	16	16	100.0	440 - 7,400	32	32	100.0	460 - 8,200	32	32	100.0	151 - 5,700	32	32	100.0	121 - 5,700	32	32	100.0	187 - 4,240	144	144	121 - 8,200
Total	251	239	95.2	ND - 260,000	626	622	99.4	ND - 780,000	811	808	99.6	ND - 460,000	810	803	99.1	ND - 297,000	850	842	99.1	ND - 920,000	3,348	3,314	ND - 920,000

ND: Not detectable



Figure 4.2-2 Detection of radioactive cesium in lake sediment samples (changes) (Yamagata Prefecture where only a small number of samples were collected was omitted.)

																-		-					
		F	Y2011			F	Y2012			F	Y2013			F	Y2014			FY	Y2015			Total	
Prefecture	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Detection rate(%)	Range of measured values (Bq/kg)	Number of samples	Number of detections	Range of measured values (Bq/kg)
Iwate	3	0	0.0	ND - 0	4	2	50.0	ND - 39	4	2	50.0	ND - 46	4	2	50.0	ND - 16	4	1	25.0	ND - 10	19	7	ND - 46
Miyagi	52	34	65.4	ND - 830	48	38	79.2	ND - 1,530	51	47	92.2	ND - 2,040	52	42	80.8	ND - 1,090	52	41	78.8	ND - 910	255	202	ND - 2,040
Fukushima	80	77	96.3	ND - 1,240	97	93	95.9	ND - 1,110	150	145	96.7	ND - 1,600	150	139	92.7	ND - 830	150	140	93.3	ND - 2,950	627	594	ND - 2,950
Ibaraki	28	27	96.4	ND - 230	31	17	54.8	ND - 69	20	11	55.0	ND - 67	20	11	55.0	ND - 67	20	8	40.0	ND - 178	119	74	ND - 230
Chiba	0	0	-	-	31	20	64.5	ND - 134	23	14	60.9	ND - 54	23	14	60.9	ND - 21	23	11	47.8	ND - 315	100	59	ND - 315
Tokyo	0	0	-	-	19	17	89.5	ND - 780	18	18	100.0	12 - 780	18	17	94.4	ND - 630	18	18	100.0	83 - 410	73	70	ND - 780
Total	163	138	84.7	ND - 1,240	230	187	81.3	ND - 1,530	266	237	89.1	ND - 2,040	267	225	84.3	ND - 1,090	267	219	82.0	ND - 2,950	1,193	1,006	ND - 2,950

Table 4.2-3 Detection of radioactive cesium in coastal area sediment samples (by fiscal year)

ND: Not detectable



Figure 4.2-3 Detection of radioactive cesium in coastal area sediment samples (changes)

### 4.3 Detection of radioactive materials in sediments by location

#### (1) Evaluation policy

Circumstances where radioactive materials were detected were compiled more in detail by sampling location, while separately considering the property such as rivers, lakes and coastal areas.

Circumstances for each location were statistically analyzed from the following two perspectives by using all available data for each location. The evaluation excluded if no longer required after surveyed and Yamagata prefecture, where surveys have not been conducted since FY2012.

## 1) Detected concentration levels

- i. Obtain the average for each location for FY2015 by using all survey results concerning concentrations of radioactive cesium (the total of Cs-134 and Cs-137) (arithmetic average calculated by assuming not detectable to be zero; hereinafter referred to as the "average for each location").
- ii. Arrange all such averages (separately for samples from rivers, lakes, and coastal areas) in descending order and set the following five categories depending on upper percentile ranges (see Figure 4.3-1).
  - Category A: Upper 5 percentile of the entirety
  - Category B: Upper 5 to 10 percentile of the entirety
  - · Category C: Upper 10 to 25 percentile of the entirety
  - · Category D: Upper 25 to 50 percentile of the entirety
  - Category E: Upper 50 to 100 percentile of the entirety (lower 50 percentile)

(Incidentally, a comparison between the average and the maximum value for each location for FY2015 revealed a good correlation (see right below of Figure 4.3-1). Therefore, considering that the evaluation of the average for each location covers that of large detected values (maximum values) that emerge occasionally, the evaluation was conducted by using only the average for each location.)

#### 2) Changes in detected values

- i. Changes in detected values were categorized based on the following thinking in order to evaluate their changes over the years.
  - Based on visual judgment of graphs that show changes in detected values over the years for each location, those negatively sloped are judged as "decreasing" and those positively sloped are judged as "increasing."
  - (ii) When visual judgment is difficult, a regression analysis is conducted to check the trend. Specifically, when the lower and upper 95% of the slope are both negative, it is judged as "decreasing," and when the lower and upper 95% of the slope are both positive, it is judged as "increasing."
  - (iii) When neither a decreasing nor an increasing trend is clear (either the lower or upper 95% of the slope is negative and the other is positive), coefficient of variation of 0.5 was used as a reference. When a coefficient of variation is less than 0.5, it is judged as "unchanged," and when a coefficient of variation is 0.5 or higher, it is judged as "varying."
- ii. However, data may show fluctuations, depending on minor differences in sampling points or properties of

samples, and it is considered to be too early to make judgments on changes in detected values at this point in time. Even if a certain location is judged to show an increasing trend based on the abovementioned thinking, it is necessary to accumulate further data and conduct careful examination for making a judgment on whether the increasing trend will be continuously observed in the relevant location.



# Figure 4.3-1 Categories based on the average for each location (left: picture showing means of categorization; upper right: results of categorization<sup>11</sup>; lower right correlation between average and maximum value for each location)

\*1: locations with values exceeding the maximum one of the horizontal axis are not shown.

<sup>&</sup>lt;sup>11</sup>How to set categorization boundary value: The boundary value of the categorization to be in contact is the average value of the minimum value of the upper categorization and the maximum value of the lower categorization.

- (2) Concentration levels in sediment samples from rivers, lakes, and coastal areas and their changes by prefecture
- (2)-1 Rivers
  - 1) Iwate Prefecture

In Iwate Prefecture, surveys were conducted 9 to 17 times from December 2011 to February 2016 for river sediment samples collected at 22 locations (this analysis excludes the survey results at one location where the survey was conducted only in 2011).

Regarding concentration levels of detected values, two locations were categorized into Category D and 20 locations were categorized into Category E (see Table 4.3-1 and Table 4.3-2).

Concentration levels were generally decreasing at 19 locations and were varying at three locations.

Table 4.3-1 Categorization of detected values at respective locations (lwate Prefecture: river sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	2	No.4, No.19
Е	Upper 50 to 100 percentile(lower 50%)	20	No.1、No.2、No.3、No.5、No.6、No.7、No.8、No.9、No.10、No.11、No.12、 No.13、No.14、No.15、No.16、No.17、No.18、No.20、No.21、No.22



Figure 4.3-2 Changes in concentration levels over the years at respective locations (Iwate Prefecture: river sediments)

		Location											R	iver se	diment	s/Radio	oactive	Cesiu	m (Cs-	134+0	Cs-137)	/Conce	ntratio	n(Bq/k	g)(*1)										
No	Water area	Location	Municipality				FY20	011									FY2	012											FY2	2013					-
110.	whice area	Locuton	Municipanty	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Sakari River Lower Reaches	Sano Bridge	Ofunato City					98						176						0					51						63				
2	Kesen River	Aneha Bridge	Rikuzentakada City					143						18						15					11						20				
3	Okawa River	Prefectural border with Miyagi	Ichinoseki City					990						300			152			87		281			340			101			80			117	
4	Tsuyagawa River	Chiyogahara Bridge	Ichinoseki City					520						116						158					122						85				1
5	Kurosawa River	Kawarada Bridge	Kanegasaki Town											97			76			54		99			54						53				1
6		Oago Bridge	Oshu City																						11			0			27			0	
7	Isawa Kiver	Saijin Bridge	Oshu City																						0			0			0			0	
8	Kitakami River	Fuji Bridge	Oshu City					210						77			40			50		80				18		12			0			13	
9	Shiratori River	Shiratori Bridge	Oshu City					215						134			111			90		171				98		61			59			66	
10	Koromo River	Koromogawa Bridge	Hiraizumi Town					570						360			156			107		189			117			79			66			57	
11	Ota River	Hitosuji Bridge	Hiraizumi Town					97						770						410					179			76			46			107	
12 Kita	Iwai River Middle Reaches	Kamino Bridge	Ichinoseki City					370						195			141			87		93			75			67			63			55	
13 E	Iwai River Lower Reaches	Kozenji Bridge	Ichinoseki City																						96			80			326			122	
14 IVER S	Kitakami River	Chitose Bridge(Kozenji)	Ichinoseki City					170						158			54			106		19			101			29			294			177	
15 ystem	Sokei River	Unada Bridge	Ichinoseki City					420						151			150			640		150				166		32			54			52	
16	Sarusawa River	Kannon Bridge	Ichinoseki City					330						230			310			1,040		530			160			48			45			48	
17		Oide Bridge	Ichinoseki City																							149		19			25			45	
18	Satetsu River	Kanzaki Bridge	Ichinoseki City					330						137			147			189		116			68			0			0			10	
19	Senmaya River Upper Reaches	Miyata Bridge	Ichinoseki City					290						380			360			203		201			172			57			67			129	1
20	Kitakami River	Kitakamigawa Bridge	Ichinoseki City					73						51			65			85		28			30			13			59			12	
21	Kinomi River	Higuchi Bridge	Ichinoseki City					310						270			138			980		123			64			23			30			16	
22	Kinryu River	Tenjin Bridge	Ichinoseki City					320						214			400			169		370			237			72			90			94	
				Total r of sa	umber mples	321	Dete	ction les	279																										
				°1: Blar	ik cells a	are loca	tions wl	nere sar	nples w	ere not	collect	ted. Th	e result	"Not d	etectabl	e" is inc	lic ated	as "0."																	

# Table 4.3-2 Detection of radioactive cesium at respective locations (lwate Prefecture: river sediments)

		Location									River	sedime	ents/R:	ndioact	ive Ces	ium (O	Cs-134	+ Cs-1.	37)/Co	ncentra	ation(B	q/kg)(	P1)						Average of		Coefficient	
No	Water area	Location	Municipality						FY2	2014											FY.	2015						Changes	FY2015	No.	of	(*3)
				4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		(+2)		variation	
1	Sakari River Lower Reaches	Sano Bridge	Ofunato City		19						0						11						0					$\sim$	5.5	1	1.28	>
2	Kesen River	Aneha Bridge	Rikuzentakada City		24						15						0						35					$\sim$	18	2	1.38	$\searrow$
3	Okawa River	Prefectural border with Miyagi	Ichinoseki City		120			133			83			55			32			47			32			37		$\sim$	37	3	1.31	$\searrow$
4	Tsuyagawa River	Chiyogahara Bridge	Ichinoseki City		105						100						79						121					$\sim$	100	4	0.89	$\searrow$
5	Kurosawa River	Kawarada Bridge	Kanegasaki Town		55						35						23						18					~	21	5	0.49	$\searrow$
6	Isawa River	Oago Bridge	Oshu City		11			0			0			0			0			0			0			0		- M	0	6	2.05	$\mathbb{N}$
7	isawa raver	Saijin Bridge	Oshu City		14			0			0			0			0			0			0			0			0	7	3.46	$\mathbb{N}$
8	Kitakami River	Fuji Bridge	Oshu City		75			0			21			13			10			0			11			13		ha	8.5	8	1.38	$\searrow$
9	Shiratori River	Shiratori Bridge	Oshu City		138			46			45			46			31			32			37			59		$\sim$	40	9	0.63	$\searrow$
10	Koromo River	Koromogawa Bridge	Hiraizumi Town		83			78			79			70			48			39			34			36		5	39	10	1.09	$\swarrow$
11	Ota River	Hitosuji Bridge	Hiraizumi Town		93			57			48			36			49			89			30			30		$\leq$	50	11	1.41	Ĺ
12 Kitak	Iwai River Middle Reaches	Kamino Bridge	Ichinoseki City		48			26			27			63			36			29			32			20		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	29	12	1.03	$\searrow$
13 ani R	Iwai River Lower Reaches	Kozenji Bridge	Ichinoseki City		301			45			48			46			37			30			24			21		_M	28	13	1.07	$\mathbb{M}$
14 IVer S	Kitakami River	Chitose Bridge(Kozenji)	Ichinoseki City		108			47			93			28			19			0			14			0		-m	8.3	14	0.96	$\swarrow$
15 /stem	Sokei River	Unada Bridge	Ichinoseki City		35			20			26			19			18			18			21			15		5	18	15	1.45	$\swarrow$
16	Sarusawa River	Kannon Bridge	Ichinoseki City		54			49			39			38			55			37			34			34		~	40	16	1.45	$\searrow$
17	Sateten River	Oide Bridge	Ichinoseki City		19			36			27			16			16			34			14			0		L	16	17	1.15	$\searrow$
18	Saletsu River	Kanzaki Bridge	Ichinoseki City		0			0			0			0			0			0			0			0		5	0	18	1.62	$\searrow$
19	Senmaya River Upper Reaches	Miyata Bridge	Ichinoseki City		100			112			87			76			72			54			33			78		$\sim \sim$	59	19	0.74	$\searrow$
20	Kitakami River	Kitakamigawa Bridge	Ichinoseki City		54			71			20			16			10			0			13			0		~m_	5.8	20	0.79	$\searrow$
21	Kinomi River	Higuchi Bridge	Ichinoseki City		95			18			16			13			12			17			14			12		-1.	14	21	1.88	1
22	Kinryu River	Tenjin Bridge	Ichinoseki City		98			107			61			54			50			61			40			85		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	59	22	0.79	$\searrow$
				*1: Bla	ink cells	s are k	oc ations	where	samples	were	not coll	ected. T	he rest	ılt "Not	detec ta	able" is	indic at	ed as "O	)."				А	в	с	D	Е		27	Average		
				*2: Ar	ithmetic	Avera	age; cak	ulated I	by assu	ming N	D=0; C	olor co	des sho	w cate	gories (	see the	right).											•				
				*3: Re	sults of	the an	nalysis o	f trends	at resp	ective	locatior	is using	the me	thod ex	plained	on 4.3	(1) 2)	$\searrow$	Dec	reasing		≯ In	reasing	~	→ U	nchange	ed.	Varying				

## 2) Miyagi Prefecture

In Miyagi Prefecture, surveys were conducted 16 to 43 times from October 2011 to February 2016 for river sediment samples collected at 43 locations (this analysis excludes the survey results at 37 locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, eight locations ware categorized into Category C, 14 locations into Category D, 21 locations into Category E (see Table 4.3-3 and Table 4.3-4).

Concentration levels were generally decreasing at 35 locations and were varying at eight locations.

# Table 4.3-3 Categorization of detected values at respective locations (Miyagi Prefecture: river sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	8	No.6, No.14, No.23, No.24, No.32, No.33, No.42, No.43
D	Upper 25 to 50 percentile	14	No.1, No.2, No.7, No.8, No.17, No.18, No.22, No.27, No.31, No.34, No.35, No.36, No.37, No.41
Е	Upper 50 to 100 percentile(lower 50%)	21	No.3, No.4, No.5, No.9, No.10, No.11, No.12, No.13, No.15, No.16, No.19, No.20, No.21, No.25, No.26, No.28, No.29, No.30, No.38, No.39, No.40



(\*) Scales of the vertical axes differ in the left and right figures.

# Figure 4.3-3 Changes in concentration levels over the years at respective locations (Miyagi Prefecture: river sediments)

# Table 4.3-4 Detection of radioactive cesium at respective locations

				Location											F	tiver (	edimer	nte/Re	dioeot	ive Ceelum (	Ce-134	+0.	137)/0	oncen	ration()	Bq/kg	)(#1)									-
No.		Water	area	Location	Municipality				FY2011										FY2	012	-									F	Y2013					_
				Viene Deiden		8	9	10	11	2	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1 2	3
		Shishio	ri River	Kinzin Bringe				210	_	+	-	211	_	-		100			124		120		00	_		-	139			83	_	-	99 101	-	90	-
-				Namua Brage				1,220		-	_	810	_	-		189			100		310		202	_	_	-	243			28	-		180	-	208	_
3		0	Disco	rateyania-onasin Brage	Kesennuma City			730	_	+	-	115	_	-		50			91		121		30	_		-	37			43	_	_	51	-	33	-
4		Okawi	I KNG	Kamiyama Bridge				890		-		990		_		59			222		2/1		190			_	99			60	_		460	_	180	_
2		0		Okawa River Estuary				23		- '	1,660		_	_		0			0		0		0	_	_	_	0			0	_	_	0	-	0	_
6		Omose	Kwer	Ozaki Bridge				2,200		+	2	,500	_	_		159			400		510		670	_	_	_	730			64	_		194	-	63	_
7			Arima River	Unanda Bridge				1,000		-		800		_		146			570		420		440			_	420			173		-	229	_	210	_
8			Kinryu River	Obata Bridge				770		-	-	530		_		1,190			380		340		570			_	289			165	_	-	196	_	221	_
9			Kitakami River	Tome-ohashi Bridge (Tome)				113		+		98				74			118		199		71		_		115			22	_	_	63	_	133	_
10			Sanhasama River	Doman Bridge (Kurikoma Dam)	Kurihara City			85		-		137		_		55			260		24		20			_	25			13	_	_	38	_	45	_
11		Hasama	Nihasama River	Kajiya Bridge				750		+		490	_	_		480			450		131					_	153			123	_	-	161	_	167	_
12		River Area		Hanayama Dam, inflow area				44		+		60	_	+		135			56		0		14	_	_		17		$\square$	0	_	_	0	+	0	+
13	Kitakami River		Hasama River	Wakayanagi		<u> </u>		400		+		670		+		84			340		104		65			_	90			71			33	_	52	+
14	System			Yamayoshida Bridge	Tome City			1,730		_	1	,340		_		370			69		530		600				150			327	_		68		197	_
15			Eai River	Todoroki Bridge (Todoroki)				260		_		77	_			470			970		89			66	_		67			85		_	66			
16				Shinborisaihon, entrance	Osaki City			141		_		330				63			104		18		0				59			37			17		17	
17		Area	In Furukawa District,Osaki City	Shinborisaihon, entrance				1,190		_	2	,700				980			800		710		690				1,310			490			450		560	
18			Dekigawa River	Kogota Bridge	Misato Town			360		_		590				470			930		195		233				305			510			134		133	
19			Eai River	Oikawa Bridge (Tandai)	Wakuya Town /Ishinomaki Town			260				172				79			66		37		73				56			41			21		79	
20		Кут	a-Kitakami River	Kadonowaki	Ishinomaki City			240				175				36			49		0		10				0			27			18		26	
21		Naruse	2 River	Onobashi Bridge (Ono)	Higashi-Matsushima City			0				74				28			41		65		17				19			19			82		44	
22		Sunaosi	hi River	Tagajozeki Weir	Tagaio City			1,530				62				1,230			560		650		1,180				61			215			302		202	
23				Nenbutsu Bridge				2,900			129					340			710		960		490				380			340			17		255	
24		Teizan-un (Kyu-sunao	ga Canal shi River)	Teizan Bridge	Shiogama City/Shichigahama Town/Tagajo City			1,410				95				141			2,280		380		101				218			980			820		500	
25			Norshite Diver	Nanakita Bridge				109				157				450			350		71			43			238			215			230		226	
26	Nanakita		Natakia River	Fukuda-ohashi Bridge				10				60				14			60		17			17			13			12			16		13	
27	System		Umeda River	Fukuda Bridge	Sendai City			1,350				300				600			53		300			820			390			186			233		47	
28			Nanakita River	Takasago Bridge				11,100				220				630			0		42		450				291			610			430		225	
29			Natori River	Yuriage-ohashi Bridge	Sendai City /Natori City			610			108					470			14								0			52			11		47	
30	Natori			Yakushi Bridge				56				47				68			220		73						35		23				17		20	
31	System		Masuda River	Koyama Bridge	Natori City			5,200				116				124			202		221		236				450			1,010			81		168	
32				Bishamon Bridge				1,140			1	,390				1,590			3,700		2,020		2,270				1,750			1,680		1	,190		910	
33				Hadeniwa Bridge	Marumori Town								1	,120	690	580	380	430	530	520 330	350	350	370	330		320	3	10 500	500	196		203		236	247 25	9
34			Abukuma River	Marumori Bridge	Marumori Town			220			1	,470	:	570	101	560	610	280	162	3,400 90	1,360	710	580	1,230		530	7	00 253	390	320		312		660	59 75	5
35				Higashine Bridge	Kakuda City																					283		301		161		96	:	212	138	-
36			Shiroishi River	Before the confluence with Kawaragosawa Pixer (Sunaochi Bridga)	Shiroishi City			1,730				191				116			123		190					218			302				286		165	-
37			Saikawa River	Etsubo Bridge	Shiroishi City			430								590			350		270					234			360				206		146	
38	Abukuma River	Shiroishi River Avres	Matsukawa River	Miya-ohashi Bridge	Zao Town			119								19			47		54		66			31			58				39		10	
39	System	Perfer Pares	Arakawa River	Niragami Bridge	Murata Town/Ogawara Town			33				36				68			38		32		101				47			222			0		27	_
40			Shiroishi River	Shirahata Bridge	Shibata Town			32				61				60			32		31		68				52			12			31		12	-
41				- Tsukinoki-ohashi Bridge	Kakuda City/Shibata Town					+				2	2,470 540		88		340	63		-	154	152		166		24		74	-	88	-	94	84	
42			Abukuma River	Abukuma-ohashi Bridge(Iwanuma)	Iwanuma City/Watari Town	-		91		+	760			410	380	1,410	136	196	143	730 300	1,410	243	247	500	+	750	2	31 650	181	490		270	+	91	338 31	8
42				Abukuma River Estuary (Watariohashi	Iwanuma City/Watari Tow-	-				+		-		+	102 249		104		102	91			197	49		95		41		2.450		209	+	15	590	+
4.3				Bridge)	wananii City watari 10wfi	Total	number		Detectic	_	_				103 249		104		102				187	47		ω				2,430		±-37		~	~~~	
						of sa	mples	852	times		804																									
						*1: Bla	nk cells a	ire locat	ions when	samp	oles wer	e not co	lected	. The re	esult "Not det	ectabl	e" is ind	licated	as "0."																	
1																																				

# (Miyagi Prefecture: river sediments) (No.1)

# Table 4.3-4 Detection of radioactive cesium at respective locations (Miyagi Prefecture: river sediments) (No.2)

				Location									R	iver sed	liment	s/Radio	ective (	Cesium	(Cs-134+Cs	-137)/	Concentr	ntion(B	q/kg)(	1)							Average of			
No.		Water	r area	Location	Municipality						FY2	014			. 1	- 1		. 1				P	Y2015				. 1			Changes	FY2015 (*2)	No.	of variation	Trends(*3)
				FF		4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	<b>N</b>			0.40	/
-		Shishic	ori River	Kinzan Bridge			103			71			93	_	85				61			68		_	62		13				00		0.42	/
2				Namiita Bridge			300			150			231	_	265				164			178		_	138		127	_	-	~~~	152	2	0.96	/
3				Tateyama-ohashi Bridge	Kesennuma City		33			54			60		61				27			30			22		46				31	3	1.77	1
4		Okaw	/a River	Kamiyama Bridge			269				460		288		76				34			62			38		35			m	42	4	1.02	1
5				Okawa River Estuary			0			0			0		0				0			0			0		0			<u>^</u>	0	5	4.18	/
6		Omose	e River	Ozaki Bridge			158			158			185		182				242			273			266		111			h	223	6	1.39	/
7			Arima River	Unanda Bridge			225			152			145		131				156			146			149		45			~	124	7	0.83	1
8			Kinryu River	Obata Bridge			271			250			304		184				188			119			125		103			~~ <u>~</u>	134	8	0.80	1
9			Kitakami River	Tome-ohashi Bridge (Tome)			119			106			158		139				60			27			31		33			m	38	9	0.53	$\sim$
10			Sanhasama River	Doman Bridge (Kurikoma Dam)	Kurihara City		40			33			26		22				20			27			19		22			~	22	10	1.19	/
11			Nihasama River	Kajiya Bridge			124			54			98		91				71			44			38		26			2	45	11	1.02	/
12		Hasama River Area		Hanayama Dam, inflow area			0			0			0		10					0		0			15		0			A	3.8	12	1.80	1
13	Kitakami		Hasama River	Wakayanagi			62			55			61		72				59			36			36		26			<b>W</b>	39	13	1.32	/
14	River System			Yamayoshida Bridge	Tome City		225			258			339		337				165			89			191		288			10000	183	14	1.09	/
15				Todoroki Bridge (Todoroki)			80			67			49		46				37			21			26		0			<u>л</u>	21	15	1.65	/
16			Eai River	Shinborisaihon, entrance	Osaki City		16			18			11		0				13			0			0		12			À.	6.3	16	1.69	/
17		Eai River	In Furukawa	Shinborisaihon entrance			324			398			229		265				88			271			138		191	-		A	172	17	0.94	<u>`</u>
18		Area	District, Osaki City Dekirawa River	Koenta Bridge	Misato Town		153			232			95	_	101		_		153			157			336		78	-		1	181	18	0.77	<u>`</u>
19			Fai River	Oikawa Bridge (Tandai)	Wakuya Town /Ishinomaki Town	_	20			19			13		18				33			17			16		13	-		~~~~	20	19	1.12	/
20		Ku.	m Kitakami Pinar	Kadamandai	Ishinomahi Cito	-	221			121		-	184		313					21		10			20			_		m		20	0.04	
20		N	- Disse	Kalouowaki	IS IN A STREET		221		_	1/1		_	104	_	212				122	21		30	_	_	10		74	_		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		20	0.90	/ V V •
21		Natus	se Rivel	Onobusini Bridge (Ono)	Higashi-Matsushima City		40			153			53	_	54				122			17		_	13		/4			~~~~~	57	21	0.78	/\\\
22		Sunaos	shi River	Tagajozeki Weir	Tagajo City	_	122			123			132	-	156					82		110		_	100		42	_		V°L-	84	22	1.22	/
23		Teizan-ur	nga Canal	Nenbutsu Bridge	Shiomma City/Shivhimhama		225			500			307		87					145		264			71		267			h	187	23	1.40	~
24		(Kyu-sunad	oshi River)	Teizan Bridge	Town/Tagajo City		620			690			470		570					403		319			384		283			чv	347	24	0.90	////*
25			Nanakita River	Nanakita Bridge			264			173			20		18					26		63			13		14			M	29	25	0.86	1
26	Nanakita River			Fukuda-ohashi Bridge	Sendai City		18			22			16		0					0		0			0		0			M	0	26	1.10	1
27	System		Umeda River	Fukuda Bridge	-		76			71			84		124					69		113			64		76			w_	81	27	1.24	1
28			Nanakita River	Takasago Bridge			114			293			185		124					21		30			0		0			h	13	28	3.14	1
29			Natori River	Yuriage-ohashi Bridge	Sendai City /Natori City		61			26			23		18					17		14			11		0			И	- 11	29	1.93	1
30	Natori			Yakushi Bridge			28			52			27		43					26		35			29		21			A	28	30	0.98	1
31	System		Masuda River	Koyama Bridge	Natori City		208			21			112		74					123		0			215		125			$\square$	116	31	2.48	/
32				Bishamon Bridge			1,170			1,080			630		650					710		608			381		300				500	32	0.64	1
33				Hadeniwa Bridge	Marumori Town	153	236	312	280	363	272	157		165	251	155		176	144	199	137	238	660	113		294	177	143		hand	228	33	0.59	>
34			Abukuma River	Marumori Bridge	Marumori Town	380	420	930	520	470	890	262		364	373	318		800	130	384	27	84	42	69		87	113	73		America	181	34	1.16	NW4
35				Higashine Bridge	Kakuda City	122		91		98		46		98	108			83		146		60		55		87	58			Vin	82	35	0.59	
36			Shiroishi River	Before the confluence with Kawaragosawa Piyar (Sunaochi Bridga)	Shiroishi City	212				45			46		71			61			97				67		198			\	106	36	1.62	/
37			Saikawa River	Etsubo Bridge	Shiroishi City	225				188			137		153			136			80				89		102			~~~	102	37	0.61	/
38	Abukuma River	Shiroishi	Matsukawa River	Miva-ohashi Bridge	Zao Town	39				13			15		14			28			19				15		11			m.	18	38	0.80	<u> </u>
39	System	anei Aarei	Arakawa River	- Niragami Bridge	Murata Town/Ogawara Town		178			26			26		14				16			12			15		17			AA.	15	39	1.18	
40			Shiroishi River	Shirahata Bridge	Shibata Town		19			20			16		37				48			31			0		14			~~~~	23	40	0.60	· • • •
41				Tsukinoki-obashi Bridae	Kakada City/Shibata Town	123		810		463		137		145	143				214	105	+	149		261		273	76	-		1 ~~ 1	180	41	1.68	1
42				Abukuma obachi Bridga(Jacanam-)	Iwanuma City/Watari Tow-	240	101	1.620	87	107	200	22		122	111	27			0 1 840		151	52	10	54		17	64	124			242	42	1.00	<u> </u>
42			Abukuma River	Abukuma River Estuary (Watariohachi	wanana city/watari 10wh	240	101	1,020	04	197	200		_	123		31	_		3 1,800	6.5	131	55	10	34	-	17	04	134	$\vdash$	mould	243	44	1.23	/ V V ¶
43				Bridge)	Iwanuma City/Watari Town	237		60		70		1,440		65	98				75	71		60		103		980	424			_hL	286	43	1.73	////*
						*1: Bla	nk cells	are loca	ations w	here sa	mples w	ere not	collecte	d. The r	esult "I	Not dete	ctable"	is indica	ated as "0."						А	в	с	D	Е		104	Average		
						*2: Ari	thmetic	Average	e; calcul	ated by	assumir	ig ND=4	); Color	r codes :	show c	ategorie	s (see t	he right)	).															
						*3: Res	ults of	the anal	ysis of t	rends a	t respect	tive loca	tions us	sing the	method	l explain	ed on 4	.3(1) 2)		1	Decreasi	ıg -	<i>&gt;</i> 1	ocreasi	s ^	~ <b>~</b> (	inchang	jed	~~*	Varying				

#### 3) Fukushima Prefecture

## (i) Hamadori

In Hamadori, Fukushima Prefecture, surveys were conducted 23 to 45 times from September 2011 to February 2016 for river sediment samples collected at 53 locations.

Regarding concentration levels of detected values, 11 locations were categorized into Category A, nine locations into Category B, six locations into Category C, 19 locations into Category D, and eight locations into Category E (see Table 4.3-5 and Table 4.3-6).

Concentration levels were generally decreasing at 47 locations, were unchanged at two locations, and varying at four locations.

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	11	No.12, No.13, No.14, No.20, No.21, No.23, No.24, No.25, No.27, No.30, No.31
В	Upper 5 to 10 percentile	9	No.3, No.7, No.8, No.9, No.10, No.11, No.17, No.26, No.29
С	Upper 10 to 25 percentile	6	No.2, No.4, No.6, No.15, No.32, No.36
D	Upper 25 to 50 percentile	19	No.1, No.5, No.18, No.19, No.22, No.28, No.33, No.35, No.37, No.38, No.39, No.41, No.44, No.45, No.47, No.48, No.50, No.52, No.53
Е	Upper 50 to 100 percentile(lower 50%)	8	No.16, No.34, No.40, No.42, No.43, No.46, No.49, No.51

Table 4.3-5 Categorization of detected values at respective locations (Hamadori, Fukushima Prefecture: river sediments)



(\*) Scales of the vertical axes differ in the left and right figures.

Figure 4.3-4 Changes in concentration levels over the years at respective locations (Hamadori, Fukushima Prefecture: river sediments)

# Table 4.3-6 Detection of radioactive cesium at respective locations (Hamadori, Fukushima Prefecture: river sediments) (No.1)

		Location													River sedime	ıts/Ra	lioactiv	e Cesit	ım (Cs-	134+Cs-137)	/Conce	ntration	(Ba/kg	)(*1)									-
No	Water area	Location	Municipality				FY20	11									FY2	012											FY2013				_
				8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9 10	11	12 1	2	3
1	Jizogawa River	Hamahata Bridge	Shinchi Town		2,600		4,400		1,790		18		980		54	940			320	0	0				620	95		151	0		1,100	24	_
2	Koizumi River	Koizumi Bridge			5,300		1,060		580		740		231		460	142			470	680	480				235	540		1,400	1,460		261	273	
3		Hyakken Bridge	Soma City		2,900		1,880		1,280		1,700		1,570		240	920			1,350	1,070	1,330				1,490	1,200		1,040	510		750	840	
4	I Idaman a Pinar	Horisaka Bridge			1,300		2,300		820		1,660		970		800	710			760	530	560				550	370		165	650		390	820	
5	compare rever	Hyakken Bridge			240		490		155	155			109		55	143			84	23	290	0			100	70		84	60		64	65	
6		Ochiai Bridge			4,000		660		710		180		390		310	460			450	430	440				224	380		250	236		490	225	
7	Manogawa River	Maiima Bridze	Minamisoma City		28.000		3,400		5,800		3,400			1.820	15,900	280			500	750	4,400				6,400	161		6,800	3,500		5,100	6.200	_
8		Kusano			3.200		1.290		1.800		3,700			1.090	4,800	770			1.580	2.670		5,700			630	1.870		1.010	960		510	400	-
0		Vanie	litate Village		4 000		4.400		2,800		4 700			2 200	7 900	£ 400			4 200	2,900		4 800			2.400	1 270		2 200	2,280		1 810	2.050	-
,	Niida River	Romya			4,900		4,400		2,800		4,700	_		3,300	7,700	3,400			4,300	2,700		4,800			3,400	1,370		3,300	2,280	_	1,810	2,050	
10		Kidouchi Bridge			11,200		2,600		1,570		4,200			3,800	2,250 2,600	2,800			2,520	2,800	1,850				3,500	2,500		3,040	760		1,560	3,600	_
11		Sakekawa Bridge			13,000		610		1,140		1,230			1,530	3,300 3,400	6,300			5,300	3,700	1,070				4,900	4,700		9,500	4,100		8,400	1,420	_
12		Ishiwatado Bridge			9,700		14,400		17,600		19,100			14,700	61,000 14,100	11,900			8,700	9,300	15,600				9,500	13,400		10,300	11,300		8,300	15,500	
13		Kaminouchi Bridge			33,000		22,000		16,000		17,200			11,300	8,000 8,600	8,700			5,200	18,400	7,700				10,900	8,400		14,300	7,400		5,500	12,300	
14	Ota River	Masuda Bridge			60,000		2,900		2,900		9,700			18,300	3,800 22,800	29,000			12,500	23,400	1,270				2,090	2,520		4,500	2,400		19,800	21,900	
15		JR Tetsudo Bridge	Minamisoma City		2,600		3,000		1,510		2,400			1,280	1,750 1,210	1,460			1,750	1,470	510				630	1,460		2,790	1,110		1,110	327	_
16		Maniyama Bridee			230		71		48		72			121	180 123	92			48	53	45				53	60		84	50		16	36	-
10		The share of the state of the s		<u> </u>							-			1.045	1.050				1.000	1.030					1.000	000		1.010	2.0		0.40		-
17		Shimokawara Bridge												1,940	1,950	1,430			1,080	1,020	1,140				1,270	890		1,310	3,800		940	860	_
18	Odaka River	Zencho Bridge			310		720		470		1,250			700	1,090	3,600			360	620	690				307	460		430	359		325	840	
19		Hatsukara Bridge			173		1,500		260		44			108	410 54	78			18	42	17				48	19		0	71		52	20	
20		Murohara Bridge			43,000		87,000		52,000		92,000			165,000	13,400 17,800	12,800	15,600	14,600	13,400	11,600 14,200	11,000	9,500			15,100	14,800	13,900	11,900	8,300 14,500	17,000	17,000 15,700	18,000	
21	Ukedo River	Ukedo Bridge	Namie Town		3,300		37,000		5,000		41,000			12,400	5,600 3,700	5,200	1,370		5,600	23,700 8,400	1,870	5,200			10,700	33,000	14,700	14,000	37,000 45,000	4,700	12,100 18,000	1,510	
22	Furumichi Rivar	Before the confluence with Takasegawa	Tamura City											950	162 1.410		80		165	176	640				231	220		182	171		316		_
		River(Kodoshimohira,Miyakoji Town)										_																		_			_
23	Takase River	Keso Bridge	Namie Town		24,000		1,650		1,460		2,400			5,000	15,800 15,400			17,400	1,370	1,830		8,100			770	860		1,140	1,370		510	520	
24	Maeda River	National Route 6, west	Futaba Town		12,800		18,300		7,400		17,600			5,300	5,800			4,800	3,700	3,600	4,200				2,500	2,510		4,500	3,600		4,100	5,200	
25		Nakahama Bridge	Namie Town		3,900		2,900		2,700		7,000			6,700	2,900 1,310	23,900	13,100		6,800	2,260	2,310				9,900	2,040		6,000	2,740		2,380	2,060	
26		National Route 6, west			5,300		7,100		5,200		6,600			3,200	3,800			1,610	1,070	1,200	1,380				1,070	2,640		1,740	2,280		830	1,780	
27	Kumagawa River	Mikuma Bridge	Okuma Town		9,600		10,800		4,500		10,200			41,000	26,000			2.900	3,500	2,460	3,700				2.850	5,300		3,700	5,300		1.870	4,000	-
28		Nabekura Bridge								-	-		-			330		310	270	470		570	242		350	235		239	276		144	205	-
20		n da cita de la cita de	Kawauchi Village			-			-			_				100		510	210	710 500		400	242		550	200		400	210		500	430	_
29	Tomioka River	Sakaigawa innoge														490			440	/10 500		400			550	090		400	340		580	430	_
30	, I	National Route 6, west	Tomioka Town		930		2,800		3,200		2,400			3,600	2,150		2,530		1,300	2,330		1,540			1,780	2,580		2,170	1,150		1,540	1,400	
31		Kobama Bridge			40,000		17,600		9,500		9,400			1,940	2,470		2,530		3,600	10,700		4,300			1,970	2,460		2,730	1,720		2,390	1,390	
32	Idegawa River	Motogama Bridge	Naraha Town		530		3,500		2,400		990			780	320	460			310	340		410			310	370		640	590		470	560	
33	Kawauchi River	Before the confluence with Kidogawa Biogrammeter Bridge)														181	290	83	194	142		149			177	224		154	217		170	148	
34		Nichiyama Bridan	Kawauchi Village				690		130		00			198	81		86		137	130		271			16	38		108	111		67	49	-
25	Videosus Diver	Nanatana Bridan			400		620		070		670			220	121	179	00		226	280		217			250	200		100			117	92	-
35	Kuogawa Kivei	Nagatoro Briage	Naraha Town		400		330		970	-	010		-	320	700	178			230	280		217			2.39	390		110	58			74	_
36		Kadokawa Bridge			200		2,500		780		680			1,060	/80	1,270			320	154		192			1,100	218		226	1/4		210	230	_
37	Asami River	Boda Bridge	Hirono Town		710		830		1,260	1,370			450		240	230			153	200		183				93	380	128	187		138	169	
38	Ohisa River	Kageiso Bridge			3,100		1,820		2,100	450	<u> </u>		1,620		710		430		560		1,570	1,270				610	260	235	370		360	273	
39	Kohisa River	Rengo Bridge	Iwaki City		380		184		350	240			290		202		149		127		400	460				380	204	243	262		191	96	
40	Nida Pisar	Kasumida Bridge	,		460		148		250	123			156		52		68		75	92		85				14	57	41	100		17	47	
41	Ivada Rivei	Matsuba Bridge			580		610		1,200	910			460		161		181		151	122		250				195	228	211	430		80	224	
42		Kitanouchi Bridge	Ono Town	1	66		76		206	61			29		155	280			172		0	400				31	219	12	42		21	0	
43	Natsui River	Kyudayu Bridge			80		440		117	400			0		159		116		149		22	14				42	13	0	14		36	10	_
44				<u> </u>	43		58		210	96	-		66		350		47		72		63	72				99	94	65	Q1		59	45	-
44		Inconstanti Initas			40		280		450	420			450		200		270		206		220	276	_	_		70	164	47	175		80	45 95	_
43	Yoshima River	r waaaaa Sui i Driuge			020	-	380		4.10	UC#	-		4.JU		290		3/0		200		330	<i>21</i> 0		_		19	104	+/	1/5		au	0.0	_
46		Before the confluence with Natsui River			182		440		480	237			69		63		246		191	34	48					157	63	163	37		17	38	
47	Englished B.	Shima Bridge			64		157		630	610			102		126		55	13			46				38		96	144	1,280		100	78	
48	r ujtwara River	Minato-ohashi Bridge	Iwaki City		530		239		520	450			1,000		214		1,480	580	910		630	2,220		T		790	139	770	369		730	1,200	
49		Idosawa Bridge		-	0		30		161	36			238		134										68		278	41	148		48	45	-
50	Samegawa River	-p- Samegawa Bridge		<u> </u>	78		440		91	157	-		136		p		0		106		16	33			64		100	46	50		58	65	-
		Name of the second seco		<u> </u>	70	-	++0		-1		-		1.30		102		3	70	200	49	10						109	0	37		40		_
51	Snnoki River	Nomuro inidge			74	-	121		122	.900	-		149		105		265	/8	208	48		96			40		59	52	41		48	41	_
52	Binda River	Kobana Bridge		L	237	<u> </u>	300		310	226			270		198		259		420	137		330			134		113	450	132		83	161	_
53		Binda Bridge			570	<u> </u>	1,350		66	260	I		1,980		420		960		540	1,540		156			1,180		620	1,210	2,020		349	117	
				Total of sa	number	1,537	Detec	tion es	1,513																								
				*1: Bla	nk cells :	are loca	ions wh	ere sam	ples we	re not o	collecte	d. The r	esult "N	iot dete	ctable" is indica	ted as '	0."																

# Table 4.3-6 Detection of radioactive cesium at respective locations

(Hamadori,	Fukushima	Prefecture:	river	sediments	) (	(No.2	2)
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		Location									River se	diments	/Radioact	ive Cesi	ium (C	s-134-	-Cs-13	7)/Con	centrati	ion(Bq/l	(*1)								Average of		Coefficient of	
No.	Water area	Location	Munic ipality						FY20	014			1.	. 1						FY2	015	- 1			. 1			Changes	FY2015	No.	variation	Trends(*3)
	r n:	H 1. B.1	a	4	5	0	7	8	9	10	11 12	1 2	3	4	3	6	7	8	9		10	-	11	12		2	3	λ	(12)		1.77	~
1	Jizogawa River	Faimanata israge	Sninchi 10wh		13	301		224		170	980	24.	,		/5	70		181			20	_		20	_	0		har	02		1.77	>
2	Koizumi River	Koizumi Bridge			333	114		181		158	247	21	1		184	509		620			212			221		202		~~~~~	325	2	1.57	/
3		Hyakken Bridge	Soma City		970	500		560		209	206	19	1		237	301		189			77			,840		684		~~~~	555	3	0.73	/
4		Horisaka Bridge	comin City		308	390		590		382	344	47	)		364	374		480			357			385		185		hann	358	4	0.72	$\searrow$
5	Udagawa River	Hyakken Bridge			83	46		149		24	28	60			77	116		64			47			72		141		Julian	86	5	0.91	/
6		Ochiai Bridge			560	360		500		183	309	30	)		123	251		268		227	223	155	197	143	113	138			184	6	1.54	1
7	Manogawa River	Maiima Baidan	Minamisoma City		2.140	740		2 650	_	4.400	1.040	2.2			2.560	2.010		1.840		96	62	67	102	140	67	9.4		·	205	7	1.62	~ >
/		мајша вкоде			2,140	740		3,000		4,400	1,940	3,24	0		2,300	2,010		1,040		80	03	0/	105	109	07	04		um-	105	'	1.52	~
8	1	Kusano	litate Village		530	420		1,260		1,130	1,230	98	)		580	600		1,170		940	1,010	720		810	_	467		wh	787	8	0.89	>
9	Niida Pinar	Komiya	_		1,270	1,620		3,070		3,680	2,050	99	)		2,010	1,760		2,610		430	266	368		362		750		m	1,070	9	0.66	/
10		Kidouchi Bridge			1,320	1,270		4,800		2,240	3,360	3,35	0		1,900	1,530		580		440	299	297		585		1,100		human	841	10	0.82	$\searrow$
11		Sakekawa Bridge			5,200	10,100		13,100		5,300	1,080	4,48	0		296	820		1,610		790	800	640		790		1,320		L.M.	883	11	0.94	$\Lambda\Lambda\Lambda$
12		Ishiwatado Bridge			9,300	7,700		4,300		4,600	4,600	5,50	0		7,900	4,280		4,230		1,080	890 1	,360		,450		1,450		1	2,830	12	1.03	/
12					\$ 100	7.400		6.000		2.160	2.860	5.50			4 200	4.170		2 220		1.280	2 500 1	860		820		1.920			2.621	12	0.80	/
15	ł	Kanninoue in Bridge			8,400	7,400		3,900		3,150	2,800	5,50	0		4,200	4,170		3,220		1,200	2,390	,850		,030	_	1,830		www	2,021	15	0.80	~
14	Ota River	Masuda Bridge	Minamisoma City		16,500	15,000		8,700		7,800	7,300	2,59	0		760	1,190		20,100		1,630	2,950	620		2,560		980		mm	3,849	14	1.18	/
15		JR Tetsudo Bridge			480	368		620		381	630	57	)		307	455		167		254	170	218		314		312		m	275	15	0.81	/
16		Maruyama Bridge			27	68		46		53	21	16			29	23		0		75	107	63		39		12		un	44	16	0.77	$\searrow$
17		Shimokawara Bridge			900	1,020		760		830	790	97	)		580	990			503	540	436	511		740		750		A.,.	631	17	0.63	/
10	Odaka River	-		<u> </u>	070			220		200	220	-	1		1.00	105	-	-	201	1/2	144	1.00	-	100		1.07	<u> </u>	1	174	10	116	~
18		zencno isnage		⊢	970	510	_	529		358	220	36	<u>}</u>		135	185		-	286	167	100	108	_	1.58	_	169	L	~~~	176	18	1.16	>
19		Hatsukara Bridge			65	443		289		133	21	0			31	307		0		23	36	31		13		33		h	59	19	2.00	>
20	Ukedo River	Murohara Bridge	Namie Town		14,900	20,300	6,000	8,800	6,000	11,300 2	0,800 13,000 24	,700 16,5	30		9,900	11,000	7,300	15,000	5,400		6,300		3,910	,100	1,220	4,530		A	7,466	20	1.35	/
21	CREUG RIVEI	Ukedo Bridge	The second		9,400	7,300	4,900	7,900	3,190	3,690 3	,020 8,800 8,6	500 2,81	0		3,030	2,660	1,520	730	1,570		2,230		2,210	,160	2,660	2,530		Muhm_	2,330	21	1.17	$\searrow$
22	Furumichi River	Before the confluence with Takasegawa	Tamura City		111	175		95		54	80	10	3		317	169		199			123			32		69		1.	152	22	1.22	/
23	Takara Pisar	River(Kodosnimonira, Miyakoji 1 own) Kain Bridga	Namia Town		1 370	1.100		800	-	660	1.110	1.1/	0		7.000	1.100		790			1.260		-	550	-	800		10	1.917	23	1.52	/
2.5	Tukuse reiter	new trange	Thanke Town		1,570	1,100	-	000		000	1,110	1,1-			7,000	1,100		170			1,200	_		550	_	000			1,010	2.5	1.04	/
24	Maeda River	National Route 6, west	Futaba Town		3,690	3,350		3,860		2,510	3,210	2,50	0		2,880	3,380		2,890			3,900			2,320		1,460		~	2,805	24	0.83	1
25		Nakahama Bridge	Namie Town		1,360	3,770		1,560		1,830	1,110	69	)		2,430	5,000		3,540			2,550			,750		3,140		Ann	3,068	25	1.07	/
26		National Route 6, west			3,010	1,880		1,970		2,360	3,120	1,23	0		780	580		1,000			740			960		910		n_m_	828	26	0.77	$\searrow$
27	Kumagawa Kwer	Mikuma Bridge	Okuma 10wn		7,400	4,400		2,400		2,340	2,690	1,90	0		4,480	3,200			2,230		1,150			,470		2,600		Α	2,522	27	1.35	ļ
28		Nabekura Bridge			230	339		172		100	196	15	5		198	217		184			102			117		107		Ann	154	28	0.48	1
20		Sakainawa Bridan	Kawauchi Village		600	500		570		430	610	36			/100	462		303			700			618		690		Mmr	560	20	0.22	>
	Tomioka River	onengava nange			0.00	500		510		4.0	010	50	, 		477	402		373			100	-		010		0.00		Martin	500	27	0.22	$\sim \sim $
30		National Route 6, west	Tomioka Town		2,450	970		990		1,020	1,430	98	)		870	600			660		2,200	_		471	_	3,370		1 word	1,362	30	0.50	/\/
31		Kobama Bridge			2,020	3,870		1,220		3,660	1,180	3,52	0		1,880	760			1,190		830			,330		1,350		~~~~	1,223	31	1.60	/
32	Idegawa River	Motogama Bridge	Naraha Town		460	168		228		244	297	19	7		169	188		94			218			222		204			183	32	1.29	/
33	Kawauchi River	Before the confluence with Kalogawa Pixer(Entamota Briden)			182	137		208		126	171	23	5		162	212		231			39			68		59		have	129	33	0.37	~~*
34		Nishiyama Bridge	Kawauchi Village		113	78		82		100	64	62			25	42		60			50			24		57		1	43	34	1.14	/
25	Videora Direct				c700					240	252										100	-		100		100		Λ	100	25	0.74	/
35	idaogawa idici	Nagatoro Bridge	Naraha Town		310	410		400		249	2.52	20	'		90	04		37			107	_		150	_	155		1	109	35	0.70	/
36		Kidokawa Bridge			810	74		740		150	167	83			68	190		132			327	_		317		259		min	216	36	1.10	/
37	Asami River	Boda Bridge	Hirono Town		77	124		87		95	93	93			191	279		139			119			134		109		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	162	37	1.15	1
38	Ohisa River	Kageiso Bridge			321	229		286		159	92	18	2		194	257		84			93			62		58		m	125	38	1.19	~
39	Kohisa River	Rengo Bridge			112	98		113		130	144	19			92	210		112			126			183		158		m	147	39	0.50	/
40		Kasumida Bridge	rwaki City		0	0		12		29	71	56			16	20		26			28			24		19		hanne	22	40	1.26	/
41	Niida River	- Matsuba Bridee		<u> </u>	61	54		71		58	41	66	1		61	117		72		1	56	+		82		46		λ	72	41	1.16	/
12		Kitanus-hi Bridas	One Tew-	-	10	-	-	16	-	20			-		21	12	-		-		22	+	-	17		17	-	. ch	16	42	1.10	/
42		Received in a Rige	Ono TOWII	-	10		_			29			-		21	12	-		-		22	+	_	**	_	17	<u> </u>	A/ WL	15	42	1.47	/
43	natsui River	Nyucayu Bridge		L	12	11		23		12	42	20	+		15	14	-	17	<u> </u>	I	21	$\rightarrow$		14		20	<u> </u>	~~	17	43	1.67	$\rightarrow$
44		Rokujumai Bridge			21	26		17		56	182	10	)		108	154		63			152			223		235		Mark	156	44	0.75	NN
45		Iwaanatsuri Bridge			254	53		63		59	34	49			84	66		28			69			75		78		man	67	45	0.86	/
46	roshima River	Before the confluence with Natsui River			0	50		15		20	16	18	Γ		27	26		21			25	Т		26		113		Ana .	40	46	1.23	/
47		Shima Bridee			37	22		97	-	102	187	97			22	47		24			46			148		106			66	47	1.62	$\Lambda\Lambda\Lambda$
	Fujiwara River		Invaki Cite	-					-			- É	-					1.00			142	-		~~		100	-	<u></u>	10.5		1.00	<u></u>
48		Minato-ohashi Bridge	iwaki City		41	159		54		83	20	53		L l	96	151		137		L	142			219		188		WWW	156	48	1.04	1
49	Samegawa River	Idosawa Bridge			19	0		26		18	70	36			12	11		24			13			11		12		Mh	14	49	1.22	/
50		Samegawa Bridge			48	71		48		68	55	91			78	58		97			42			87		40		hum	67	50	0.99	~
51	Shitoki River	Komuro Bridge			14	11		12		25	21	20			25	106		36			65			22		75		Marin	55	51	0.93	/
52		Kobana Bridge			98	81		77		99	100	60			29	29		57			85			79		98		mh	63	52	0.70	/
53	Binda River	Binda Bridge	t		201	246		162		174	63	64	1		112	85		120		1	105			45		145		MM	102	53	1.13	<u> </u>
			L	+1. pt.	nk call-	are locat	ione m	here cor	nolar	ere not -	ollected. The	uk "Net -	latac tab!-*	ie india	ated re-		·	·	·				4	R	C	D	E		807	Average		*
				*2 * *	and cells	Aug		used 1			Column 1 inc fes		and the second	and the second								L			~	5			007	. men age		
				+3- D	anneuc	Average;	calcul is of t	men by i		ina kara	, cour codes shi	w catego wheed	nics (SCC) hinad	are right) 4 3(252)	,.		~	Derrer	sing	~	ncreasia	~	-+ 1	nchane	d	~~~	Varvine					
				5. KC	anits of	use analy	Of 1	actitus at	respect	ave nu ati	none using the mi	mon ext	amicu off -	3(1)2)			-		p			·		B			, B					

#### (ii) Nakadori

In Nakadori, Fukushima Prefecture, surveys were conducted 27 to 47 times from September 2011 to February 2016 for river sediment samples collected at 44 locations.

Regarding concentration levels of detected values, one location was categorized into Category B, 14 locations into Category C, nine locations into Category D, and 20 locations into Category E (see Table 4.3-7 and Table 4.3-8).

Concentration levels were generally decreasing at 41 locations and were vary at three locations.

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	1	No.93
С	Upper 10 to 25 percentile	14	No.56、No.68、No.70、No.71、No.76、No.77、No.79、No.80、No.81、No.82、 No.86、No.87、No.88、No.94
D	Upper 25 to 50 percentile	9	No.59, No.65, No.72, No.74, No.78, No.90, No.91, No.92, No.95
Е	Upper 50 to 100 percentile(lower 50%)	20	No.54、No.55、No.57、No.58、No.60、No.61、No.62、No.63、No.64、No.66、 No.67、No.69、No.73、No.75、No.83、No.84、No.85、No.89、No.96、No.97





(\*) Scales of the vertical axes differ in the left and right figures

Figure 4.3-5 Changes in concentration levels over the years at respective locations (Nakadori, Fukushima Prefecture: river sediments)

# Table 4.3-8 Detection of radioactive cesium at respective locations (Nakadori, Fukushima Prefecture: river sediments) (No.1)

		Location													River :	edime	nts/R	adioactive Co	esium (	Cs-134+Cs-	137)/Concent	ration(Bq/kg)	(*1)												
		<b>x</b>					FY2011											FY2012											F	Y2013					-
No.	Water area	Location	Municipality	8	9	10	11 12	1	2	3	4	5	6	7	8		9	10	11	12	1	2	3	4	5	6		7	8	9	10	11 1	2	1	2 3
54		Habuto Bridge	Nishigo Village		66		81	155		96		262		44				31	49	144	89				51	135			80		14	5	3		25
	Abukuma River				200		220	270		200		1.010 44	220	104		107	-	60	0.0	560	125	180	202	22		112		~ .	10	60	20				22
22		Tamacni-onasni Bridge Before the confluence	Shirakawa City		200		228	270		280		1,010 46	550	184	50	107	_	00	85	500	125	130	203			115	5/ 3	51	40	39	39	3	3 3		22
56	Yanta River	with Abukuma River			290		330	530		490		4,300		1,050				8,100	1,720	2,010	860				2,230	1,630	)		43		380	2	2	2	234
57	Yashiro River	Yashirogawa Bridge	Tanagura Town		77		108	218	150			870		290				129	300	246					170	132			159		135	6	δ	1	71
58	Kitasu River	Yanagi Bridge	Hirata Village		27		165	66		70		64		65				14	57	19	72				37	40			29		40	1	1		21
59	Imade River	Nekonaki Bridee			45		47	0		55		680		610				105	1 4 5 0	1.150	1.180				116	248			42		179	1	5		120
		011 P 11	Ishikawa Town													_	_		.,	.,	.,										100		-		
60	Yashiro River	Oji Bridge	T		35		36	51		52		145		50				55	98	100	98				/1	80	_		46		127	6	+	-	54
61	Abakama Diver	Kawanome Bridge	Village		71		34	37		77		330 105	213	84	53	73		180	450	49	120 130	138		108		57	63 4	40	31	38	50	7	2 6	19	69
62		Emochi Bridge			0		124	390		24		380		193	330	)			350	72	48				68	19			13		35	1	3		17
63		Sukagawa City water	Sukagawa City		72		97	138		126		182		77				83	168	94	108				109	175			113		47	6	3		51
	Shakado River	Before the confluence			***		80	124		120		c (0) (1)	c00	2 (00	02	oro	-	117	800	440	05 05	75		202		107		0.0	~	<i>c</i> 0	e 0				0
04		with Abukuma River			550		89	124		129		540 41	000	3,000	95	1,050	_	117	890	440	90 83	15		282		107	80 1	88	51	39	28		5 /	3	B7
65	Sasahara River	Shinbashi Bridge	Korivama City		1,240		260	2,60	0 480			380		1,470			237		200	1,540	1,300				240	730			102		106	1	4	1	.99
66	Yatagawa River	Yatagawa Bridge			137		79	184	160			236		140			99		81	400	340				85	57			49		66	3	9		61
67		Funehiki Bridge	Tamura City		27	ΙT	119	87	173			270		52		T	96		133	120	239				132	98	Γ	Τ	35	T	69	1	:0		75
68	Otakine River	Before the confluence			750		270	134		360		6,400		215			89	108		1,340	242				213	49			370		73	6	.6		64
69		Before the confluence			700		960	1.29	0 1 1 97	-		183		164		-		110 370		199	700		-		106	96	+		60		50	<	6		87
	0 P	with Babagawa River			100					-	$\vdash$	100				_		200		120	- C10		-			70	-		~~						
70	Ouse River	Makunouchi Bridge	Koriyama City		1,060		330	360	310			165		240			440	209		420	010				450	000			241		298	1	4		.78
71		with Abukuma River			13,500		690	860	1,540			2,020 640	690	610	290	189		820 330		360	290 420	550		800		241 3	90 2	32	224	295	129	1	4 23	33 1	187
72	Abukuma River	Akutsu Bridge			7,800		116	350	350			6,000 148	169	1,410	269	3,400		610	400	4,700	740	2,880 520		220		197 2	80 4	00	233	251	113	1	4 9	0 1	103
73		After the confluence with Ichimure Birner			1,210		184	99	122			96		74				50 116		158	63				83	85			42		21	4	0		39
74	Gohvaku River	Kamisekishita Bridge			22.000		700	590	230			590		450				1.780 1.730		590	2.330				67	130			222		810	1	34	1	(16
75		Before the confluence	Motomiya City		560		450	1 22	720			060 201	590	80		470	_	220 114		167	137	150	00	00		157 3	10 1	70	50	101	40			•	07
15		with Abukuma River			300		4.50	1,32	0 730			900 201	580	07		470	_	330 114		107	1.57	150	<b>77</b>	00		157 .	10 1	.17	37	101	47	-		0	91
76	Abukuma River	Takada Bridge			30,000		610	600	440			3,200 1,840	2,160	1,280	720	,260		490	268	770	250	268 970		1,570		540 2	85 3	60 1	,020	256	380	4	10 73	30	_
77	River	Kuchibutogawa Bridge	Nihonmatsu City		1,880		1,440	990		950		1,160		1,570				1,620 920			790	780			1,210	900			570		900	8	<del>)</del> 0		
78	Utsushi River	Osegawa Bridge			1,780		550	330		670	610	860	640	580	234	530		610	1,260	750	250	1,130 720		2,380		191 1	44 3	60	154	212	229	2	i4 35	50	
79	Mizuhara River	Getouchi Bridge			6,400		570	460		1,410		520		410				980	800	450		620			930	430			229		302	3	21		
80	Megami River	Tsurumaki Bridge			1,870		1,570	950		1,340		880		550				1,010	900	650		690			680	540			330		410	4	40	5	510
01	Ahukuma Riyar	Hossi Bridaa			6 500		176	171		460	270	660	200	\$00	242	255	-	340	440	530	370	220 440		220		225	50 2	150	242	440	219	2		20 4	100
		Before the confluence			0,000				-	400	510		2.70	500	242	200	_		440			550 440		520		200					510	3,	0 5.		.,
82	Nigori Kiver	with Omori River			1,160		650	530		1,090		980		590		_		610	410	300		1,180			650	1,0.90	,	2	,880		740	6	0	_	
83	Arakawa River	Hinokura Bridge			1,160		270	167		114		139		77	79				45	42		22			61	77			72		22	2	,	-	38
84	Sukawa River	Sukawa Bridge	Fukushima City		790		137	173		199		216		125				82	74	132		84			87	119			87		44	9	9		
85	Arakawa River	Before the confluence			1,290	ΙT	460	750		1,380	990	142	760	119	280	237		161	145	117	119 220	9,500		340		500 1	35 1	85	200	380	122	1	i3 1	12	
86	Matsukawa	with Abukuma River			15,200		400	280		690	4,000	144	330	175	920	3,900		145	173	1,560	3,500	1,070 4,300		149		119 1	52 1	37 1	,100	277	129	1	37 1,5	580 1	105
87	Hattanda River	Hattanda Bridee			3.000		2,700	1.10	0	1.090		620		520	!			4,300 610		750		2,010			1.260	1,220	,		470		570	1 4	60	2	.480
80		Totsuna Bridaa			1.040	ŀ	186	147	260	.,				620		-	400	170		420		630			300	610	+		300	-	176	2.		-,	250
00	Surikami River	Before the confluence		$\vdash$	1,040	$\vdash$	.30	10/	200	-				000		_	+00	170		430		020	-		300	510	-		,		.70	3,2	~	1,	~~~~
89		with Abukuma River			2,150		630	310	830		410	250	640	92	50	86		140	330	96	110 163	131		154		108 1	57 1	79	300	124	76	6	5 5	0	63
90	Abukuma River	Taisho Bridge	Date City		14,200		2,700	153		1,160	3,800	410	3,700	73	172	219		770	1,280	1,740 1,130	780	850		1,460		750 2	185	93	297	1,000	280	9	8 12	23 1	:52
91	Hirose Piver	Tatenokoshi Bridge	Kawamata Town		440		1,030	590		770		490		530				410	590	480		390			350	319			390		370	3	J0		
92		Jizogawara Bridge			1,340		870	2,30	D	780		760		890				330 580		480	410	390			257	370			296		289	1	17	1	193
93	Oguni River	Before the confluence with Hirose River	Date City		9,200		4,600	7,50	D	2,300	6,800	6,500	2,000	820	1,390	,800		890 1,290	1,150	3,000 880	1,430	2,010		1,910		2,860 2,	,070 1,	930 1	,190	1,110	1,590	1,3	10 1,4	120 1,	,040
94	Hirose River	Before the confluence			740		1,280	980		710	2,700	20,000	650	650	430	640		720	890	300 590	610	440		790		520 5	i40 9	10	278	470	360	4	0 5	10 5	550
95	Kurokawa River	Tochigisakai	Shirakawa City		105		50	114		133		82		194	135			73		213	56				143	153			65		64	1	27		89
06		Matanaka Bridaa	Tonoomo Tor		20		22	40	150			63		21			_		12	39	43		-		11		+		40		12		-	+	10
90	Kujigawa River	wasuoka bridge	ranagura rown		39		23	48	150	-				31	42	_	_		12	37	4.5		-		11		_		4U		12		-	-	10
97		Takachihara Bridge	Y amatsuri Town	T	63		14 Descent	41	44			13		14	24				16	18	0				27	13			14		10	1	2		11
				of sat	number mples	1,494	times	1,47	6																										
				*1: Bla	nk cells	are loca	tions where	sampl	es were	not coll	ected. 7	The result "Not	detec	able" is	indicate	ed as "I	0.**																		

# Table 4.3-8 Detection of radioactive cesium at respective locations

(Nakadori, Fukushima Prefecture: river sediments) (No.2)

		Location									R	liver se	diments/Radio	active	Cesium	(Cs-13	34+Cs-137)/C	Concent	ration(	Bq/kg)(	*1)								Average of		Coefficient	
No.	Water area	Location	Municipality				_	-	FY	2014										1	FY2015							Changes	FY2015 (*2)	No.	of variation	Trends(*3)
				4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		( =)			
54	Abukuma River	Habuto Bridge	Nishigo Village		36	28		17		23		33	52				29	73		14		22		25	19		1	m	30	54	0.89	1
55		Tamachi-ohashi Bridge	Shirakawa City	40	47	17	54	30	53	24		22	12 36			91	62	79	35	34	61	55		19	18	56	-	1	51	55	1.47	/
56	Yanta River	Before the confluence with Abukuma River			243	244		215		279		240	241				339	269		219		271		171	197			M	244	56	1.71	/
57	Yashiro River	Yashirogawa Bridge	Tanagura Town		81	52		71		51		45	51				73	42		36		33		39	107		-	A	55	57	1.17	/
58	Kitasu River	Yanagi Bridge	Hirata Village		21	17		19		16		0	17				17	16		21		0		18	17		),	hanne	15	58	0.95	Ĺ
59	Imade River	Nekonaki Bridge			78	0		139		14		63	203				167	21		11		17		22	154			~~~	65	59	1.59	Ĺ
60	Yashiro River	Oji Bridge	Ishikawa Town		16	24		24		22		23	78				94	31		31		22		33	13			Mr.	37	60	0.62	/
61		Kawanome Bridge	Tamakawa Village	15	57	78	18	49	24	58		33	64	58		44	17	24	36	25	22	19		34	19	20		M	26	61	1.08	/
62	Abukuma River	Emochi Bridge			39	12		10		11		12		27			14	12		15	-	16		32		12	Ĭ	M	17	62	1.51	/
63		Sukagawa City water intake	Sukamu a City		37	58		28		11		27		138	_	_	59	52		24	_	72	_	33	_	40		AM A	47	63	0.59	/
60	Shakado River	point Before the confluence with	outagan a city			50	12	10	21			21	~	100	_	0	27			20	12	72	_	100	16	10	_	- ~~	40		0.05	1
04		Abukuma River		80	00	57	42	18	31	51		20	32	80		02	21	21	60	20	42	35		189	15	15		sh	49	04	2.40	1
65	Sasahara River	Shinbashi Bridge	Koriyama City		75	148		99		114		85	131				135	116		88		66		77	74		Ŷ	w	93	65	1.40	~
66	Yatagawa River	Yatagawa Bridge			49	61		25		17		25	19				19	25		31		25		27	14		4	~^	24	66	1.06	1
67	Otakine River	Funehiki Bridge	Tamura City		38	65		53		42		25		112			33	22		25		28		29		27	لم	And the second	27	67	0.77	/
68		Before the confluence with Abukuma River			69	21		64		60		51	60				24	20		1,120		27		40		40	,	hun	212	68	2.75	1
69		Before the confluence with Babagawa River			90	71		64		66		49	18				93	36		71		24		30		22	/	L	46	69	1.47	/
70	Ouse River	Makunouchi Bridge			390	206		139		237		202	264				210	183		203		270		224		151	ſ	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	207	70	0.62	Į
71	1	Before the confluence with Abukuma River	Koriyama City	165	263	194	208	186	272	126		180	154	199		191	274	229	430	259	117	194		241	106	102	l	~~~~	214	71	2.94	1
72	Abukuma River	Akutsu Bridge		101	145	177	146		344 136	114		179	107	444			116 228	78	195	97	150	25		169	138	105	l	λ.h.	130	72	2.12	1
73		After the confluence with Ichimuro Pieur			24	38		24		32		33	28				22	29		18		21		20	42		ĺ		25	73	2.21	/
74	Gohyaku River	Kamisekishita Bridge			181	134		124		1,080		362	174				186	146		18		107		79	73				102	74	3.27	/
75		Before the confluence with	Motomiya City	58	102	86	91	129	19	48		25	36	30		22	59	101	36	55	67	36		18	29	51	Ì	4	47	75	1.41	/
76	Abalaana Biaar	Abukuma River		670	205	220	1.070		287 205	260		570	264	600	_	480	255	264	1.480	00	222	220	_	227	216	211	_	Museum	420	76	2.24	/
70	Abukuma Kivei	rakada isenge		570	305	229	1,070		387 303	2.50		570	204	090	_	400	335	304	1,400	<b></b>	332	230	_	337	515	211	-		420	70	3.34	1
77	Kuchibuto River	Kuchibutogawa Bridge	Nihonmatsu City		590	470		490		365		283	363				431	158		209		236		199	143	_	_		229	77	0.64	/
78	Utsushi River	Osegawa Bridge		300	118	179	134		132 149	246		130	162	122		268	164	228	207	142	156	102		105	144	76		~~~	159	78	1.09	/
79	Mizuhara River	Getouchi Bridge			169	141		171		268		165		187			106	224		246		167		187		165			183	79	1.89	1
80	Megami River	Tsurumaki Bridge			233	317		600		169		200		238			222	204		307		360		259		249		~~~~	267	80	0.73	/
81	Abukuma River	Horai Bridge		198	341	219	600	310	185	220		278	166	216			256 176	305	442	73	221	146		365	232	173	l		239	81	2.05	/
82	Nigori River	Omori River	-		1,290	1,050		720		370		299	322				228	810		208		322		720		251		~~~~	423	82	0.73	NVV•
83	Arakawa River	Hinokura Bridge			24	15		16		17		23	18				23	16		15		19		13		13	l		17	83	2.31	/
84	Sukawa River	Sukawa Bridge	Fukushima City		33	38		31		75		60	40				40	74		14		22		25		25	l	~~~~	33	84	1.35	/
85	Arakawa River	Before the confluence with		96	85	70	71	79	76	66		67	67	61			62 51	67	38	87	99	30		79	35	34	J	~.h	58	85	3.19	/
86	Matsukawa River	Abukuma River		257	167	305	1,590	71	3,060	98		25	287	75			850 34	720	259	183	16	1,120		39	31	84	l	muan	334	86	2.23	/
87	Hattanda River	Hattanda Bridge			510	700		910		420		1,440	490				378	510		569		483		580	620		)	show a	523	87	0.84	Ĺ
88		Totsuna Bridge			1,050	880		440		94		381		450			1,760	229		206		125		158		169		h	441	88	1.86	MM•
89	Surikami River	Before the confluence with Abukuma Pisser		112	52	68	99	58	33	500		44	33	44			64 35	88	117	35	21	29		39	74	38	l	M	54	89	1.71	1
90	Abukuma River	Taisho Bridge	Date City	135	78	132	100		95 287	110		77	85	71		276	39	148	148	55	380	49		26	39	112	ľ		127	90	2.51	/
91		Tatenokoshi Bridge	Kawamata Town		241	165		168		213		125	130				152	200		129		143		137	135		Ň	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	149	91	0.64	/
92	Hirose River	Jizogawara Bridge			297	211		177		207		196		200			237	175		304		59		81		61	1	L	153	92	1.04	/
93	Oguni River	Before the confluence with	Date City	890	580	520	610	560	730	450		730	570	620		630	490	650	3,270	680	251	285		368	288	216	V	N	713	93	1.13	/
94	Hirose River	Hrose River Before the confluence with		560	530	530	710		1.140 246	254		344	153	152		590	394	272	186	258	193	158		210	164	67		1	249	94	2.97	/
95	Kurokawa Risser	Abukuma River Tochirisakai	Shirakawa City		138	109		52		71		78	82				97	217		522		63		46	42		-	· · · · · · · · · · · · · · · · · · ·	164	95	0.79	<u>^</u>
95	A REAL PROPERTY OF A REAL PROPER	Matanaka Bridaa	Tananura Tour			13		12		22		, , ,	14					16			_			10	12		Ý	h	7.8	96	1.13	/ / / •
90	Kujigawa River	Takaakihara Daidaa	Vomotouri Tore -			13		12		11		0	14					10		10		0		17	14		1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	7.6	20	1.15	/
91		i aka, ninara broge	randisuri 1 own	I	<u> </u>	U U	L	15				U	U				11	U		10		U		U	U		V	m	3.5	91	1.00	1
				*1: Bla	ink cells	are loc:	ations w	here sa	mples were no	t collect	ed. The	result "I	Not detectable"	is indic	ated as '	-0."						A	В	с	D	Е			152	Average	I	
				*2: Ari	ithmetic	Averag	e; calcu	lated by	assuming ND	=0; Cok	r codes	show c	ategories (see t	he right	).																	
				*3: Re	sults of	the anal	lysis of	trends a	t respective loc	ations u	ising the	method	explained on 4	.3(1)2)			→ D	ecreasin	ig –	≯ In	creasin	g ົ	~ <b>•</b> U	inc hang	rd	~~~	/arying					

(iii) Aizu

In Aizu, Fukushima Prefecture, surveys were conducted 19 to 41 times from September 2011 to February 2016 for river sediment samples collected at 26 locations.

Regarding concentration levels of detected values, one location was categorized into Category C, seven locations into Category D, and 18 locations into Category E (see Table 4.3-9 and Table 4.3-10).

Concentration levels were generally decreasing at 21 locations, were unchanged at one location and fluctuating at four locations.

# Table 4.3-9 Categorization of detected values at respective locations (Aizu, Fukushima Prefecture: river sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	1	No.106
D	Upper 25 to 50 percentile	7	No.101, No.102, No.105, No.107, No.116, No.120, No.121
Е	Upper 50 to 100 percentile(lower 50%)	18	No.98、No.99、No.100、No.103、No.104、No.108、No.109、No.110、No.111、 No.112、No.113、No.114、No.115、No.117、No.118、No.119、No.122、No.123



(\*) Scales of the vertical axes differ in the left and right figures.

# Figure 4.3-6 Changes in concentration levels over the years at respective locations (Aizu, Fukushima Prefecture: river sediments)

# Table 4.3-10 Detection of radioactive cesium at respective locations (Aizu, Fukushima Prefecture: river sediments)

Location     River Set																		_																	
		Location	River sediments/Radioactive Cesium (Cs-134+Cs-137)/Concentration(Bq/kg)(*1)           Municipality         FY2011         FY2012           8         9         10         11         12         1         2         4         5         6         7         9         10         11         12         1         2         4         5         6         7         9         10         11         12         1         2         4         5         6         7         9         10         11         12         1         2         4         5         6         7         9         10         11         12         1         2         4         5         6         7         9         10         11         12         1         2         4         5         6         7         9         10         10         1         2         1         6         1         1         10         1         1         1         1         1         2         1         6         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1																		FY2013														
No.	Water area	Location	Municipality	8	9	10	11	12	1	2	3	4 5	6	7	8	9	10	11	12	T	1	2	3	4 5			7	8	9	10	11	12	1	2	3
98		Tajima Bridge	Minamiaizu		0		0		0		0	1	3	0	50			0						0	(			0		0		0			
99	Agano River	Okawa Bridge	Town		27		13		0		0	2	5	0	0			0	0					10				0		0		0			
100		Tabimi Baidan			200		220		256		228	-		120	211		122	-	124					10						124		100	120	_	
100		Takinii Bridge	Aizuwakamatsu City		290		320		250		220	20		120	211		125		124	_				10	• •	,		112		124		100	120		
101	Yukawa River	Shinyukawa Bridge			8,700		3,000	1	500		175	64	0	390	350			410	236			104		1,4	0 10	5		84		87		106	117		
102		with Agano River			2,300		240	1	550		420	13	2	400	0			440	153					11	4 19	9		132		10		89			
103	Miyakawa River	Saikuna Bridge			126		175		126		530	20	3	133	99			122	55			170		65	6	2		82		48		56	53		
104	Agano River	Miyako Bridge	Aizubange Town		380		134		142			(		17	42			0	0			11		0	(			0		0		0	0		
105	Ninnashi River	Minami-ohashi Bridge	Kitakata City		167		158		130		1 300	1.2	40	101	270		173 1	2 263	350	530	590	480		85		2 10	8 105	103	87	70		41	109	85	
106	Kyu-yukawa	A	Norman Village		12.000		25.000		260		020	-,-	10	470	1.080			207		72	2,500			27	1	0		102		70		00	120		
100	River Kyu-miyakawa	Awanonnya Bridge	i ugawa v mage		13,000		25,000	2	,200		950	2,0	10	470	1,080			207		12	2,390			27	/ 41	0		105		12		00	139		
107	River	Josuke Bridge	Aizubange Town		610		520	1	216			18	1	257	202			450	265		-			18	1 21	9		161		131		236	142		
108	Tatsuki River	Ohashi			670		199		67			25	0	157	112		198			86	121			11	3 15	2		17		14		25	26		
109		Shimokawara Bridge	10.1 × 10.		340		169	:	320		610	26	0	66	87		370			67	730			80	4	0		39		28		121	87		
110		Nigorigawa Bridge	Kitakata City		69		36		30			5	7	71	28			24		16	51			11	(			47		10		0	48		
111	Nigori River	Yamazaki Bridge			180		139		350			8	2	90	82		61			40	350			41	4	3		0		0		0			
112		A	Minamiaizu		0		0		0		0			0	0			0	0	-		0		0				0		0		0	-	_	
112	Inagawa River	Aoyagi Bhuge	Town		0		0		0		0		·	0	0			0	0	-		0		0				0		0		0			
113		Kurosawa Bridge	Tadami Town		0		0		10		44	(		0	0			0			0			0	(			0		0		0			
114	Tadami Rivor	Nishitani Bridge	Kaneyama Town		0		0					0		0	0		0			0	0			0				0		0		0	0		
115	i adami Kivei	Fuji Bridge	Aizubange Town		14		0		0	51		1	3	0	32		12	226	241		-			12	3	5		11		0		0			
116	Agano River	Shingo Dam	Kitakata City		129		1,220					54	0	260	270		183							34	) 30	9		137		163		251			
117	Sukawa River	Sukawano			161		52		218			6		123	169		58 3	9 213	86		18			87	7	5 44	1 73	70	78	63		21		-	
1.10	Name D	Variation Daily				$\vdash$	~~			-+			+			50						220			1.			10	10		$\vdash$		~	_	
118	rvagase River Takahashi	Nogane Bridge			24		52	-+	U			5	-	.360	/1	59	/8	340	42	47	55	220		40	3	, 87	23	42	19	45		32	24	62	
119	River	Shinbashi Bridge	Inawashiro Town										190	26		208		89					244	26	7 13	2		23		29					
120	Koguro River	Umeno Bridge											270	300		410		2,330	D	4	180	73		42	9	4		183		184		324			
121	Hishinuma River	Sekido District											700	90		2,090	67			520	360			48	) 7	1		272		115		223			
122	Funatsu River	Funatsu Bridge	Koriyama City										32	10		0		31		17	21			40	3	3		36		34		0	24		
122	Haragawa	Ectuary front	Aizuwakamatsu										0	670		0	47				12		27	16				12		0		0	11		
125	River	Estuary, none	City	T 1				-	_				Ů	070	<u> </u>	0	47				15		27		-	3		12		0		0			
		*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."																																	
	1	Location	1							2011	Ri	ver sedim	ents/Rac	lioactiv	e Cesiu	m (Cs-1	134 <b>+</b> Cs-1	37)/Conc	entrati	ion(Bq/	kg)(*1)								Average	of		Coef	ficient		(10)
No.	Water area	Location	Municipality		5	6	7		FY	/2014	Ri	ver sedim	ents/Rad	lioactiv	e Cesiu	m (Cs-1	134+Cs-1	37)/Cone	entrati o	on(Bq/l FY2	kg)(*1)		12	1 2	1	,	Changes	- /	Average FY201 (*2)	of 5	No.	Coef vari	ficient of iation	Trends	s(*3)
No.	Water area	Location Location	Municipality	4	5	6	7	8	FY 9	/2014	<b>Ri</b>	12	ents/Rac	lioactiv 2	e Cesiu 3	m (Cs-1	134+Cs-1	37)/Conco	entrati 8	ion(Bq/l FY2 9	kg)(*1) 015	11	12	1 2		3	Changes		Average FY201 (*2)	of 5	No.	Coef vari	ficient of iation	Trends	s(*3)
No. 98	Water area Agano River	Location Location Tajima Bridge	Municipality Minamiaizu Town	4	5	6	7	8	F¥ 9	/2014 10 0	<b>Ri</b>	12 0	ents/Rac	2	e Cesiu	m (Cs-1	5 6 0 0	37)/Conce 7	entrati 8 0	on(Bq/ FY2 9	kg)(*1) 015 10 0	11	12	1 2		3	Changes	_ /	Average FY201 (*2) 0	of 5	No. 98	Coeff vari	ficient of iation .97	Trends	s(*3)
No. 98 99	Water area Agano River	Location Location Tajima Bridge Okawa Bridge	Municipality Minamiaizu Town	4	5 0 0	6 0 0	7	8 0 0	FY 9	72014 10 0 0	<b>Ri</b>	12 0 0	ents/Rac	2	e Cesiu 3	4 4	5 6 0 0 0 0	37)/Conc 7	entrati 8 0 0	FY2 9	kg)(*1) 015 10 0	11	12 0 0	1 2 0 0		3 M	Changes		Average FY201 (*2) 0	of 5	No. 98 99	Coeff vari 3.	ficient of iation .97 .55	Trends	s(*3)
No. 98 99 100	Water area Agano River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge	Municipality Minamiaizu Town Aizuwakamatsu	4	5 0 0 98	6 0 126	7	8 0 0 69	9	72014 10 0 312	Ri	12 0 0	1	2	e Cesiu 3	4 (Cs-1	34+Cs-1           5         6           0         0           0         0           48         77	37)/Conce 7	entrati 8 0 0 70	9	kg)(*1) 015 10 0 0 39	11	12 0 69	1 2 0 0 39		3  	Changes		Average FY201 (*2) 0 0 57	of 5	No. 98 99 100	Coeff vari 3. 2. 0.	ficient of iation .97 .55 .60	Trends	s(*3)
No. 98 99 100 101	Water area Agano River Yukawa River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge	Municipality Minamiaizu Town Aizuwakamatsu City	4	5 0 98 131	6 0 126 159	7	8 0 0 69 80	FY 9	72014 10 0 312 82	Ri*	12 0 0 720	nts/Rac	2	a Cesiu	4 4	134+Cs-1           5         6           0         0           0         0           48         77           71         81	37)/Conce	entrati 8 0 0 70 78	9	kg)(*1) 015 10 0 0 39 70	11	12 0 69 63	1 2 0 0 39 68		3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Changes		Average FY201 (*2) 0 0 57 72	of 5	No. 98 99 100 101	Coeff vari 3. 2. 0. 2.	ficient of .97 .55 .60 .57	Trends	s(*3)
No. 98 99 100 101	Water area Agano River Yukawa River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge Before the confluence	Municipality Minamiaiza Town Aizuwakamatsu City	4	5 0 98 131	6 0 126 159	7	8 0 69 80 72	F¥ 9	/2014       10       0       312       82       97	Ri	12 0 0 720	1	2	3	4 4	34+Cs-1           5         6           0         0           0         0           48         77           71         81           08         122	7 7	entrati 8 0 0 70 78 89	9	kg)(*1) 015 10 0 0 39 70 134	11	12 0 69 63 37	1 2 0 39 68 42		s M V	Changes		Average FY201 (*2) 0 0 57 72 89	of 5	No. 98 99 100 101	Coeff vari 3. 2. 0. 2.	ficient of iation .97 .55 .60 .57 .80	Trends	s(*3) N N N N
No. 98 99 100 101	Water area Agano River Yukawa River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge Before the confluence with Agano River	Municipality Minamiaizu Town Azzuwakamatsu City	4	5 0 98 131 109	6 0 126 159 114	7	8 0 69 80 72	F¥ 9	/2014       10       0       312       82       97	11	12 0 0 720	1	2	a Cesiur	4 4 4	34+Cs-1           5         6           0         0           0         0           48         77           71         81           08         122           10         15	7 7	entrati 8 0 0 70 78 89 15	9	kg)(*1) 015 10 0 39 70 134	11	12 0 69 63 37	1 2 0 0 39 68 42			Changes		Average FY201 (*2) 0 0 57 72 89	of 5	No. 98 99 100 101 102	Coeff (vari) 3. 2. 0. 2. 1.	ficient of iation .97 .55 .60 .57 .80	Trends	s(*3) N N N N N
No. 98 99 100 101 102 103	Water area Agano River Yukawa River Miyakawa River	Location Location Tajima Bridge Okawa Bridge Okawa Bridge Shinyukawa Before the confilence with Agano River Saikuna Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town	4	5 0 98 131 109 16	6 0 126 159 114 72	7	8 0 69 80 72 41	F¥ 9	72014 10 0 312 82 97 36		12 0 0 720 67	1	2	a Cesim	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	134+Cs-1           5         6           0         0           0         0           48         77           71         81           08         122           19         15	37)/Conce	entrati 8 0 0 70 78 89 15	9	kg)(*1) 0015 10 0 0 39 70 134 23	11	12 0 69 63 37 37	1 2 0 39 68 42 31			Changes		Average FY201 (*2) 0 0 57 72 89 23	of 5	No. 98 99 100 101 102 103	Coeff vari 3. 2. 0. 2. 1. 1.	ficient of iation .97 .55 .60 .57 .80 .11	Trends	s(*3) N N N N N N N
No. 98 99 100 101 102 103 104	Water area Agano River Yukawa River Miyakawa River Agano River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Before the confluence Before the confluence Sakuna Bridge Sakuna Bridge Miyako Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town	4	5 0 98 131 109 16 11	6 0 126 159 114 72 0	7	8 0 69 80 72 41 0	FY 9	<ul> <li>2014</li> <li>10</li> <li>0</li> <li>312</li> <li>82</li> <li>97</li> <li>36</li> <li>0</li> </ul>	Ri	12 0 0 720 67 0	1	2	a Cesiu	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	334+Cs-1           5         6           0         0           0         0           0         0           48         77           71         81           08         122           19         15           0         10	7 7	entratii 8 0 0 70 78 89 15 0	ion(Bq/l FY2 9	kg)(*1) 015 0 0 0 39 70 134 23 0	11	12 0 69 63 37 37 0	1 2 0 39 68 42 31 0			Changes		Average FY201 (*2) 0 0 57 72 89 23 1.7	of 5	No. 98 99 100 101 102 103 104	Coeff vari 3. 2. 0. 2. 1. 1. 1. 2.	ficient of .97 .55 .60 .57 .80 .11 .81	Trends	K K K K K K
No. 98 99 100 101 102 103 104 105	Water area Agano River Yukawa River Miyukawa River Agano River Nippashi River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge Before the confluence Sakuna Bridge Shinyukawa Bridge Miyako Bridge Minami-ohashi Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Kitakata City	4	5 0 98 131 109 16 11 46	6 0 126 159 114 72 0 92	20	8 0 69 80 72 41 0 0	FY 9	72014 10 0 312 82 97 36 0 0 0		12 0 0 720 67 0	1	2		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	334+Cs-1           5         6           0         0           0         0           0         0           48         77           71         81           08         122           19         15           0         10           70         19	7 7 	8 0 0 70 78 89 15 0 24	9 9 42	kg)(*1) 1015 10 0 0 39 70 134 23 0 27	11	12 0 69 63 37 37 0 31	1 2 0 39 68 42 31 0 115 11		3 	Changes		Average FY201 (*2) 0 0 57 72 89 23 1.7 61	of 5	No. 98 99 100 101 102 103 104 105	Coeff (vari 3. 2. 0. 2. 1. 1. 1. 2. 1.	ficient of iation .97 .55 .60 .57 .80 .11 .81 .52	Trends	
No. 98 99 100 101 102 103 104 105	Water area Agano River Yukawa River Miyakawa River Agano River Nippashi River Nippashi River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge Before the confluence with Agano River Saakuna Bridge Miyako Bridge Minami-ohashi Bridge Awanomiya Bridge	Municipality Minamisiza Town Azrawakamatsu City Aizubange Town Kirakata City Yugawa Village	4	5 0 98 131 109 16 11 46 40	6 0 126 159 114 72 0 92 570	20	8 0 69 80 72 41 0 0 580	FY 9	IO         IO           10         0           312         82           97         36           0         0           0         0		12 0 0 720 67 0	1 1	2	e Cesim	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	334+ Cs-1           5         6           0         0           0         0           48         77           71         81           08         122           19         15           0         10           70         19           610         51	7 7 89 89	entrati 8 0 70 78 89 15 0 24 179	9 42	kg)(*1) 10 0 0 39 70 134 23 0 27 386		12 0 69 63 37 37 0 31 177	1         2           0		3			Average FY201 (*2) 0 0 0 57 72 89 23 1.7 61 394	of 5	No. 98 99 100 101 102 103 104 105 106	Coeff (vari 3. 2. 0. 2. 1. 1. 1. 2. 1. 2. 2. 1. 2. 2.	ficient         of           of         aation           .97         .55           .60         .57           .80         .11           .81         .52           .61         .61	Trends	
No. 98 99 100 101 102 103 104 105 106	Water area Agano River Yukawa River Miyakawa River Nuppashi River Kyu-yukawa River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge Shinyukawa Bridge Bofere the confinence with Agano River Saskuna Bridge Miyako Bridge Minami-ohashi Bridge Awanomiya Bridge Josuke Britor	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town	4	5           0           98           131           109           16           11           46           40           134	6 0 126 159 114 72 0 92 570 64	7	8 0 69 80 72 41 0 0 580 68	FY 9	10           0           312           82           97           36           0           690           172		12         0           0         0           720         67           67         0	1 I	2	e Cesim	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	334+ Cs-1           5         6           0         0           0         0           48         77           71         81           08         122           19         15           0         10           70         19           110         51           63         33	37)/Conce	8 0 0 70 78 89 15 0 24 179	9 9 42	kg)(*1) 10 0 0 39 70 134 23 0 27 386 79		12 0 69 63 37 37 0 31 1777 0	1         2           0	9				Average FY201 (*2) 0 0 57 72 89 23 1.7 61 394 64	of 5	No. 98 99 100 101 102 103 104 105 106 107	Coeff (vari 3. 2. 0. 2. 1. 1. 2. 1. 2. 2. 0. 0. 2. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ficient of iation .97 .55 .60 .57 .80 .11 .81 .52 .61	Trends	
No. 98 99 100 101 102 103 104 105 106	Water area Agano River Yukawa River Miyakawa River Agano River Nippashi River Kyu-yukawa River River River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Before the confluence Shinyukawa Bridge Before the confluence Sakuna Bridge Miyako Bridge Minami-ohashi Bridge Awanomiya Bridge Josuke Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town	4	5 0 98 131 109 16 11 46 40 134	6 0 126 159 114 72 0 92 570 64	7	8 0 69 80 72 41 0 0 580 68	F¥ 9	10           0           312           82           97           36           0           690           172		12 0 0 720 67 0	1	2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	34+Cs-1           5         6           0         0           0         0           0         0           48         77           71         81           08         122           19         15           0         10           70         19           63         33           19         27	37)/Conce	8 0 0 70 78 89 15 0 24 179 119	42	kg)(*1) 0015 100 0 0 0 134 23 0 27 3866 79 20		12 0 69 63 37 37 0 31 177 0	1 2 0 39 68 42 31 0 115 11 760 88	9		Changes		Average FY2010 (*2) 0 0 57 72 89 23 1.7 61 394 64	of 5	No. 98 99 100 101 102 103 104 105 106 107	Coeff (vari 3. 2. 0. 1. 1. 1. 2. 2. 1. 1. 2. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Ficient of iation .97 .55 .60 .57 .80 .57 .80 .11 .81 .52 .61 .78	Trends	
No. 98 99 100 101 102 103 104 105 106 107	Water area Agano River Yukawa River Miyakawa River Miyakah River Kyu-yukawa River River Tatsuki River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shiryukawa Bridge Before the confluence Sakuna Bridge Before the confluence Sakuna Bridge Miyako Bridge Minami-ohashi Bridge Josuke Bridge Josuke Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town	4	5           0           98           131           109           16           11           46           40           134           26	6 0 126 159 114 72 0 92 570 64 29	20	8 0 69 80 72 41 0 580 68 16	FY 9	2014 10 0 312 82 97 36 0 690 172 27	Ri           11	12           0           0           720           720           67           0           0           0	1	2		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Image: state	37)/Conce	8 0 0 70 78 89 15 0 24 179 119 24	42	kg)(*1) 1015 10 0 0 134 23 0 27 386 79 28	11	12 0 69 63 37 37 0 31 177 0 24	1         2           0	9				Average FY201 (*2) 0 0 0 72 89 23 1.7 61 394 64 64 24	of 5	No. 98 99 100 101 102 103 104 105 106 107 108	Coeff vari 3. 2. 0. 2. 1. 1. 2. 2. 1. 1. 2. 0. 1. 1. 0. 0. 1.	Facient         facient           of         .97           .55         .60           .57         .80           .11         .81           .52         .61           .78         .41	Trends	
No. 98 99 100 101 102 103 104 105 106 107 108 109	Water area Agano River Yukawa River Miyukawa River Agano River Nippashi River Kyu-myakawa River Tatsuki River	Location Location Tajima Bridge Okawa Bridge Dakami Bridge Before the confluence Before the confluence Before the confluence Sakuna Bridge Before the confluence Sakuna Bridge Misani-ohashi Bridge Misani-ohashi Bridge Josuke Bridge Ohashi Shimokawara Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town	4	5 0 98 131 109 16 11 11 46 40 134 26 23	6 0 126 159 114 72 0 92 570 64 29 14	20	8 0 69 80 72 41 0 0 580 68 16 11	FY 9	2014           10           0           312           82           97           36           0           10           0           110           0           0           110           0           110           0           0           0           10           10           10           10           10           10           10           10           10           10           10           10           11           12           12           12		xer sedim 12 0 7 720 720 67 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	1	2 2		m (Cs-1	S         6           5         6           0         0           0         0           48         77           48         77           10         81           108         122           119         15           0         10           10         10           10         51           103         33           104         51           105         51           106         51           107         19	37)/Conce	entratii 8 0 70 78 89 15 0 24 179 119 24 19	42	kg)(*1) 100 0 0 0 0 134 23 0 27 386 79 28 0		12 0 69 63 37 37 0 31 177 0 24 31	1         2           0	9		Changes		Average FY201 (*2) 0 0 0 57 72 89 23 1.7 61 394 64 24 24 21	of 5	No.           98           99           100           101           102           103           104           105           106           107           108	Coeff (vari 3. 2. 0. 2. 1. 1. 2. 1. 2. 0. 1. 1. 1. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ficient           of           iation           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37	Trends	
No. 98 99 100 101 102 103 104 105 106 107 108 109	Water area Agano River Yukawa River Miyakawa River Agano River Nippashi River Kyu-nyakawa River Tatsuki River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge Before the confluence Sakuna Bridge Before the confluence Sakuna Bridge Miyako Bridge Miyako Bridge Josuke Bridge Josuke Bridge Dhashi Shimokawara Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town	4	5 0 98 131 109 16 11 11 46 40 134 26 23 10	6 0 126 159 114 72 0 92 570 64 29 14 249	20	8 0 69 80 72 41 0 0 580 68 16 11	FY 9	Z2014         10           10         0           312         82           97         36           0         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           11         12		12           0           720           720           67           67           0           1		2 2		4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S         6           5         6           0         0           0         0           48         77           48         77           10         81           108         122           119         15           0         10           100         10           101         51           102         10           103         33           104         51           105         51           106         51           107         19           103         33           103         33           104         51           105         51           106         51           107         32           107         32           107         32           107         32           108         35	37)/Conce	entratii 8 0 0 70 78 89 15 0 24 179 119 24 19 0	42	kg)(*1) 10 0 0 39 70 134 23 0 27 386 79 28 0 0 0 0		12 0 69 63 37 37 0 31 177 0 24 31 0	1         2           0			Changes		Average FY201 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 21 0	of 5	No. 98 99 100 101 102 103 104 105 106 107 108 109	Coeff ( vari 2. 0. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1.	ficient of iation .97 .55 .60 .57 .80 .11 .52 .61 .78 .41 .37 .62	Trends           / / / / / / / / / / / / / / / / / / /	×
No. 98 99 100 101 102 103 104 105 106 107 108 109 110	Water area Agano River Yukawa River Miyukawa River Nipuashi River River River River Tatsuki River Nigori River	Location Location Tajima Bridge Okawa Bridge Okawa Bridge Shinyukawa Bridge Shinyukawa Bridge Miyako Bridge Miyako Bridge Awanomiya Bridge Josuke Bridge Okashi Nigorigawa Bridge Yamazaki Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Aizubange Town Kitakata City Kitakata City	71	5           0           98           131           109           16           11           46           40           134           26           23           10           25	6 0 126 159 114 72 0 92 570 64 29 14 249 0	7	8 0 69 80 72 41 0 0 580 68 16 11 16 0	FY 9	(2014)           10           0           312           82           97           36           0           0           10           0           10           10           11           12           12           12           0		12           0           720           720           67           0 </td <td></td> <td>2</td> <td></td> <td>4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4</td> <td>S         6           0         0           0         0           0         0           0         0           0         0           10         10           110         11           101         51           103         33           104         52           105         10           101         51           102         51           103         33           104         52           107         52           108         52           109         10           100         51           105         53           106         53           107         52           107         52           107         52           107         52           107         52           108         53           109         53</td> <td>37)/Conce</td> <td>8 0 0 70 78 89 15 0 24 179 119 24 19 0 0</td> <td>42</td> <td>kg)(*1) 10 0 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td></td> <td>12 0 69 63 37 37 0 31 177 0 24 31 0 0 0</td> <td>1         2           0         -           39         -           68         -           31         -           33         -           34         -           35         -           36         -           31         -           33         -           34         -           35         -           36         -           37         -           38         -           14         -           26         -           0         -           0         -</td> <td>9</td> <td></td> <td>Changes</td> <td></td> <td>Average FY201 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 21 0 0 0</td> <td>of 5</td> <td>No.           98           99           100           101           102           103           104           105           106           107           108           109           110</td> <td>Coeff ( vari 2. 0. 1. 1. 2. 2. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.</td> <td>ficient         of           97         .55           .60         .57           .80         .11           .81         .52           .61         .78           .41         .37           .62         .64</td> <td>Trends           / / / / / / / / / / / / / / / / / / /</td> <td></td>		2		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	S         6           0         0           0         0           0         0           0         0           0         0           10         10           110         11           101         51           103         33           104         52           105         10           101         51           102         51           103         33           104         52           107         52           108         52           109         10           100         51           105         53           106         53           107         52           107         52           107         52           107         52           107         52           108         53           109         53	37)/Conce	8 0 0 70 78 89 15 0 24 179 119 24 19 0 0	42	kg)(*1) 10 0 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0 0 0 0 0 0 0 0		12 0 69 63 37 37 0 31 177 0 24 31 0 0 0	1         2           0         -           39         -           68         -           31         -           33         -           34         -           35         -           36         -           31         -           33         -           34         -           35         -           36         -           37         -           38         -           14         -           26         -           0         -           0         -	9		Changes		Average FY201 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 21 0 0 0	of 5	No.           98           99           100           101           102           103           104           105           106           107           108           109           110	Coeff ( vari 2. 0. 1. 1. 2. 2. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ficient         of           97         .55           .60         .57           .80         .11           .81         .52           .61         .78           .41         .37           .62         .64	Trends           / / / / / / / / / / / / / / / / / / /	
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112	Water area Agano River Yukawa River Miyakawa River Agano Kiver Nippashi River River Tatsuki River Tatsuki River	Location Location Tajima Bridge Okawa Bridge Before the conflaence Shinyukawa Bridge Before the conflaence Sakuna Bridge Miyako Bridge Miyako Bridge Minami-ohashi Bridge Awanomiya Bridge Josuke Bridge Ohashi Shinokawa Bridge Nigorigawa Bridge Yamazaki Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town Kitakata City Kitakata City	4	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0	6 0 126 159 114 72 0 92 570 64 29 14 249 0 0	7 20 20	8 0 69 80 72 41 0 0 580 68 16 11 16 0 0	FY 9	10           0           312           82           97           36           0           10           0           10           10           10           11           12           12           12           12           0           0		12           0           720           720           67           0           0           10           10           11           12           12           11           11           11           11           11           11           11           11           11           11           11           11           11           11           11           12           12           13           14           15           15           16           17           18           18           19           110           110           110           110           110           110           110           110           110           110           110           110           110           110		2		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	34+ Cs-1           5         6           0         0           0         0           48         77           81         122           19         15           0         10           70         19           10         51           63         33           18         35           17         32           0         0           0         0	37)/Conce	entration 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	42	kg)(*1) 10 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0		12 0 69 63 37 37 37 0 31 177 0 24 31 0 0 0 0	1         2           0         -           39         -           68         -           31         -           33         -           34         -           35         -           36         -           31         -           33         -           34         -           35         -           36         -           37         -           38         -           14         -           26         -           0         -           0         -           0         -           0         -	9				Average FY2010 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 21 0 0 0	of 5	No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111	Coeff ( vari 2. 0. 2. 1. 1. 2. 2. 1. 1. 2. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ficient           of           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64		× K > K K K K K K K K K K K K K (*
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112	Water area Agano River Yukawa River Miyakawa River Miyakawa River Ngu-nyakawa River Tatsuki River Tatsuki River Nigori River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Shinyukawa Bridge Before the confluence Sakuna Bridge Before the confluence Sakuna Bridge Miyako Bridge Miyako Bridge Josuke Bridge Josuke Bridge Ohashi Shinokawara Bridge Yamazaki Bridge Location Shinokawara Bridge Shinokawara Bridge Shida Bridge Shida Bridge Shida Bridge Shinokawar	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town Kitakata City Minamiaizu Town	4	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0	6 0 126 159 114 72 0 92 570 64 29 14 249 0 0 0	20	8           0           69           80           72           41           0           580           580           68           16           0           0	FY 9	V2014           10           0           0           312           82           97           36           0           690           172           27           21           12           0           0           0	Rit	12           0           0           720           67           67           0           1           67           1 </td <td></td> <td></td> <td></td> <td>4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4</td> <td>34+Cs-11           5         6           0         0           0         0           0         0           10         0           10         10           10         10           10         10           10         10           10         10           10         11           10         11           110         51           131         33           18         35           17         32           0         0           0         0           0         0           0         0</td> <td>37)/Conco</td> <td>8         0           0         0           70         78           89         15           0         24           179         119           24         19           0         0           0         0</td> <td>42</td> <td>kg)(*1) 10 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0 0</td> <td></td> <td>12 0 69 63 37 37 0 31 177 0 24 31 0 0 0 0 0</td> <td>1         2           0        </td> <td></td> <td></td> <td></td> <td></td> <td>Average FY201 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 0 0 0 0 0 0</td> <td>of 5</td> <td>No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111</td> <td>Coeffic variation (Coeffic) (Coeffic</td> <td>ficient           of           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           -</td> <td></td> <td></td>				4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	34+Cs-11           5         6           0         0           0         0           0         0           10         0           10         10           10         10           10         10           10         10           10         10           10         11           10         11           110         51           131         33           18         35           17         32           0         0           0         0           0         0           0         0	37)/Conco	8         0           0         0           70         78           89         15           0         24           179         119           24         19           0         0           0         0	42	kg)(*1) 10 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0 0		12 0 69 63 37 37 0 31 177 0 24 31 0 0 0 0 0	1         2           0					Average FY201 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 0 0 0 0 0 0	of 5	No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111	Coeffic variation (Coeffic) (Coeffic	ficient           of           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           -		
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113	Water area Agano River Yukawa River Miyakawa River Agano River Nippashi River Kyu-myakawa River Tatsuki River Nigori River Inagawa River	Location Location Tajima Bridge Okawa Bridge Okawa Bridge Before the confluence Shinyukawa Bridge Before the confluence Sakuna Bridge Misami-ohashi Bridge Misami-ohashi Bridge Misami-ohashi Bridge Josuke Bridge Ohashi Shinokawara Bridge Yanazaki Bridge Karosawa Bridge	Municipality Minamiaizu Town Aizuwakamatsu City Aizuwakamatsu City Aizuwange Town Kitakata City Yugawa Village Aizubange Town Kitakata City Minamiaizu Town Tadami Town	4	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0           0	6 0 126 159 114 72 0 92 570 64 29 14 249 0 0 0 0	20	8           0           69           80           72           41           0           580           580           68           16           11           16           0           0	FY 9	2014           10           0           312           82           97           36           0           690           172           27           21           12           0           0           0           0           0           0           0           0           0           0           0		12           0           0           720           67           67           0           1           67           1 </td <td></td> <td></td> <td>e Cesíni 3 </td> <td>4</td> <td>34+Cs-1           5         6           0         0           0         0           0         0           48         77           48         72           10         10           11         81           122         10           10         11           11         51           13         33           14         32           17         32           10         0           11         32           12         0           13         0           14         0</td> <td>37)/Conco</td> <td>8         0           0         0           70         78           89         15           0         24           179         119           24         0           0         0           0         0           0         0           0         0           0         0           0         0</td> <td>42</td> <td>kg)(*1) 10 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td></td> <td>12 0 69 63 37 37 31 177 0 24 31 0 0 0 0 0 0 0 0</td> <td>1         2           0         -           39         -           68         -           42         -           31         -           0         -           115         11           760         -           88         -           14         -           26         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -</td> <td>9</td> <td></td> <td></td> <td></td> <td>Average (*2) (*2) (*2) (*2) (*2) (*2) (*2) (*2)</td> <td>of 5</td> <td>No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111 112</td> <td>Coeffic variation (Coeffic) (Coeffic</td> <td>Fiscient of iation           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           -           .97</td> <td></td> <td></td>			e Cesíni 3	4	34+Cs-1           5         6           0         0           0         0           0         0           48         77           48         72           10         10           11         81           122         10           10         11           11         51           13         33           14         32           17         32           10         0           11         32           12         0           13         0           14         0	37)/Conco	8         0           0         0           70         78           89         15           0         24           179         119           24         0           0         0           0         0           0         0           0         0           0         0           0         0	42	kg)(*1) 10 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0 0 0 0 0 0 0 0		12 0 69 63 37 37 31 177 0 24 31 0 0 0 0 0 0 0 0	1         2           0         -           39         -           68         -           42         -           31         -           0         -           115         11           760         -           88         -           14         -           26         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -	9				Average (*2) (*2) (*2) (*2) (*2) (*2) (*2) (*2)	of 5	No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111 112	Coeffic variation (Coeffic) (Coeffic	Fiscient of iation           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           -           .97		
No. 98 99 100 101 102 103 104 105 106 106 107 108 109 110 111 112 113	Water area Agano River Yukawa River Miyukawa River Nipushi River Kyu-uytawa River Tatsuki River Tatsuki River Itatsuki River	Location Loc	Municipality Minamisizu Town Aizuwakamatsu City Aizuwakamatsu City Aizuwange Town Kitakata City Yugawa Village Aizubange Town Kitakata City Yingawa Village Aizubange Town Kitakata City Tadami Town Kaneyama Town	4	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0           0           0	6 0 126 159 114 72 0 92 570 64 29 14 249 0 0 0 0 0 0	7 20 20	8 0 69 80 72 41 0 0 580 68 16 11 11 16 0 0 0	FY 9	IO         IO           0         0           312         82           97         36           0         0           100         0           00         112           27         21           12         27           12         0           0         0           0         0	Ri	12           0           0           720      7			e Cesíni 3	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	344 - Cs-11           5         6           0         0           48         77           81         122           19         15           0         10           70         19           10         51           63         33           18         35           17         32           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0	87)/Concess	8 0 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0	42	kg)(*1)           101           0           39           70           134           23           0           23           386           79           28           0		12 0 69 63 37 37 0 31 177 0 24 31 0 0 0 0 0 0 0 0 0	1         2           0         -           30         -           68         -           42         -           31         -           0         -           115         11           760         -           88         -           14         -           26         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -	9				Average FY2010 (*2) 0 0 72 89 23 1.7 61 394 64 24 24 21 0 0 0 0 0 0 0 0 0	of 5	No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111 112 113 114	Coeffic variation of the second secon	Fiscient of iation           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           -           .97           .00	Trends	> k   k   > k   k   k   k   k   k   k
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115	Water area Agano River Yukawa River Miyakawa River Nippashi River Kiver Tatsuki River Tatsuki River Inagawa River	Location Loc	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town Kitakata City Kitakata City Minamiaizu Town Tadami Town Kaneyama Town Aizubange Town	71	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0           0           0           10           23           10           25           0           0           0           13	6 0 126 159 114 72 0 92 570 64 29 14 249 0 0 0 0 0 0 0 0 0 0 21	7 20 20	8           0           69           80           72           41           0           580           68           16           11           16           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           99	FY 9	C2U14         10           0         0           312         82           97         36           0         0           10         0           10         0           10         0           10         0           172         21           12         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0	Ri	12           0           0           0           720           0           67           0           67           0 <td></td> <td></td> <td>e Cesiu 3</td> <td>m (Cs-1 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>S         6           0         0           0         0           0         0           10         0           10         0           11         81           12         12           10         12           11         81           12         15           10         10           110         51           131         33           143         35           15         0           10         0           11         32           12         0           13         0           14         0           15         29</td> <td>87)/Concess</td> <td>8 0 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 20 20 24 24 24 24 24 24 24 24 24 24</td> <td>42</td> <td>kg)(*1) 10 10 0 0 13 134 23 0 134 23 0 28 0 0 0 0 0 0 0 0 13 13 13 13 13 13 13 13 13 13</td> <td></td> <td>12 0 69 63 37 37 31 177 0 24 31 0 24 31 0 0 0 0 0 0 0 0 0 0 0</td> <td>1         22           0        </td> <td></td> <td></td> <td></td> <td></td> <td>Average FY2010 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td></td> <td>No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111 112 113 114 115</td> <td>Coeffic variants 2. 0. 2. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.</td> <td>ficient of iation           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           .97           .00           .63</td> <td>Trends       / / / / / / / / / / / / / / / / / / /</td> <td>~~~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~</td>			e Cesiu 3	m (Cs-1 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S         6           0         0           0         0           0         0           10         0           10         0           11         81           12         12           10         12           11         81           12         15           10         10           110         51           131         33           143         35           15         0           10         0           11         32           12         0           13         0           14         0           15         29	87)/Concess	8 0 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 20 20 24 24 24 24 24 24 24 24 24 24	42	kg)(*1) 10 10 0 0 13 134 23 0 134 23 0 28 0 0 0 0 0 0 0 0 13 13 13 13 13 13 13 13 13 13		12 0 69 63 37 37 31 177 0 24 31 0 24 31 0 0 0 0 0 0 0 0 0 0 0	1         22           0					Average FY2010 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 0		No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111 112 113 114 115	Coeffic variants 2. 0. 2. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ficient of iation           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           .97           .00           .63	Trends       / / / / / / / / / / / / / / / / / / /	~~~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116	Water area Agano River Yukawa River Miyakawa River Agano River Nippash River Kyu-myakawa River Tatsuki River Tatsuki River Inagawa River Tadami River Agano River	Location Loc	Municipality Minamiaizu Town City Aizuwakamatsu City Aizubange Town Kitakata City Minamiaizu Town Tadami Town Kaneyama Town Aizubange Town Kitakata City	71	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0           0           0           0           133	6 0 126 159 114 72 570 64 29 14 249 0 0 0 0 0 0 0 0 21 36	7 20 20	8 0 69 80 72 41 0 0 580 68 16 11 11 16 0 0 0 0 0 0 0 99 226	FY 9	ID         ID           10         0           312         82           97         36           0         0           10         0           10         0           10         0           10         0           10         0           172         21           12         0           0         0           0         0           0         0           0         0           56         272	Rit	12           0           0           0           0           720           67           0           67           0           67           0           67           0           67           0           67           0           10           11           11           11           11           11           11           11           12           13           14           15           15           16           17           18           19	ents/Rac		e Cesiu 3	m (Cs-1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	34+Cs-1           5         6           0         0           0         0           0         0           10         0           18         77           19         15           10         10           110         51           110         51           113         33           114         35           117         32           12         0           10         0           110         0           111         32           112         0           113         13           114         35           115         20           116         10           117         32           118         35           119         10           110         10           111         10           112         10           113         10           114         10           115         20           115         20	37)/Concellent	8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 208 95	42	kg)(*1) 10 10 0 0 13 13 23 0 13 4 23 0 28 0 0 0 0 0 0 0 0 0 13 87		12 0 69 63 37 37 31 177 0 24 31 0 24 31 0 0 0 0 0 0 0 0 114	1         2           0         0           0         10           39         0           68         0           42         11           31         10           0         115           115         11           12         0           0         0					Average FY201 (*2) 0 0 72 89 23 1.7 61 394 64 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 142		No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116	Coeff vari 3. 2. 1. 1. 2. 2. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ficient of iation           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           .97           .00           .63           .93	Trends	
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116	Water area Agano River Yukawa River Miyakawa River Miyakah River Kyu-nyukawa River Tatsuki River Tatsuki River Inagawa River Tadami River Agano River	Location Location Tajima Bridge Okawa Bridge Takimi Bridge Before the conflaence Shinyukawa Bridge Before the conflaence Sakuna Bridge Before the conflaence Sakuna Bridge Miyako Bridge Miyako Bridge Miyako Bridge Josuke Bridge Josuke Bridge Ohashi Shinokawara Bridge Karosawa Bridge Karosawa Bridge Karosawa Bridge Fuji Bridge Shingo Dang Shingo Chashi	Municipality Minamiaizu Town Aizuwakamatsu City Aizubange Town Aizubange Town Aizubange Town Aizubange Town Tadami Town Tadami Town Kinabange Town Aizubange Town Kinabange Town	4	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0           0           0           0           133	6 0 126 159 114 72 570 64 29 14 249 0 0 0 0 0 0 0 0 14 36 78	7 20 20	8           0           69           80           72           41           0           580           68           16           11           16           0           0           0           9           99           296           34	FY 9	Image: Constraint of the second sec	Rit	12           12           0           720	ents/Rac			m (Cs-1     4     7	34+Cs-1           5         6           0         0           48         77           481         77           481         77           10         10           10         10           110         51           110         51           113         33           114         32           115         10           110         51           111         32           111	37)/Concessor	entratii 8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 208 95 27	42	kg)(*1) 1015 10 0 134 134 23 0 134 23 0 27 386 0 28 0 0 0 0 0 0 0 0 0 134 386 0 0 134 386 0 134 134 134 134 134 134 134 134		12 0 69 63 37 37 0 31 177 0 24 31 0 24 31 0 0 0 0 0 0 0 0 0 0 0 114	1         2           0         1           39         1           68         1           42         1           31         1           0         1           115         11           12         1           760         1           68         1           14         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           141         1					Average FY201 (*2) 0 0 72 89 23 1.7 61 394 64 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 142 28		No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117	Coeff ( vari 3. 2. 1. 1. 1. 2. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Ficient         of           of         asion           .97         .55           .60         .57           .80         .11           .52         .61           .78         .41           .37         .62           .64         .97           .62         .63           .63         .97           .00         .63           .97         .00           .63         .93	Trends	<u> </u>
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117	Water area Agano River Yukawa River Miyakawa River Miyakawa River Nippashi River River Yuy-unyakawa River Tatsuki River Nigori River Inagawa River Tadami River Tadami River	Location  Locati	Municipality Minamiaizu Town Aizuwakamatsu City Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town Kitakata City Minamiaizu Town Tadami Town Kaneyama Town Aizubange Town Kaneyama Town Aizubange Town	4	5           0           0           98           131           109           16           11           46           40           134           26           23           10           25           0           0           0           0           0           0           0           0           0           308           79	6           0           126           159           114           72           0           92           570           64           299           14           249           0           0           0           0           0           0           0           0           78	7 20 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 20 20 20 20 20 20 20 20 20	8           0           69           80           72           41           0           580           68           16           11           16           0           11           16           0           0           0           0           0           0           0           0           0           10           10	FY 9	ID         ID           10         0           0         312           82         97           36         0           0         0           10         0           10         0           10         0           10         0           11         12           12         0           0         0	Rit	12           0           720           720           67           0           720           67           0           112           0           12           0           12           12           12           13           14           15           17           18           19           19           24	ents/Rac		e Cesiu 3	m (Cs-1 4	34+Cs-1           5         6           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         10           0         122           0         10           10         51           13         3           14         35           15         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0     <	37)/Concessor	entratii 8 0 0 70 78 89 15 0 24 179 24 19 0 0 0 0 0 0 0 0 20 8 9 5 27 27	17	kg)(*1) 10 10 0 39 70 134 23 0 27 386 79 28 0 0 0 0 0 0 0 0 0 134 386 79 28 0 0 0 10 134 386 70 134 134 134 134 134 134 134 134		12 0 69 63 37 37 0 31 177 0 24 31 0 24 31 0 0 0 0 0 0 0 0 0 0 0 114	1         2           0         1           39         1           68         1           42         1           31         1           70         1           88         1           14         1           26         1           0         1           0         1           0         1           0         1           0         1           14         1           0         1           141         1           143         1           144         1           141         1           143         1           144         1           145         1           146         1           147         1           148         1					Average FY201 (*2) 0 0 0 72 89 23 1.7 61 394 64 24 24 24 24 0 0 0 0 0 0 0 0 0 0 0 0 0		No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111 112 113 114 115 116	Coeff ( vari 2. 0. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ficient           of           .97           .55           .60           .57           .80           .11           .52           .61           .78           .41           .37           .62           .64           .97           .00           .63           .97           .00           .63           .97           .00           .63           .93           .81	Trends       / / / / / / / / / / / / / / / / / / /	<u> </u>
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118	Water area Agano River Yukawa River Miyukawa River Miyukawa River Nippashi River River River Tatsuki River Tatsuki River Inagawa River Tadami River Tadami River Sukawa River Sukawa River	Location  Location  Location  Jajima Bridge  Ckawa Bridge  Shinyukawa Bridge  Briore the confluence with Agano River Bridge  Minani-ohashi Bridge  Minani-ohashi Bridge  Awanomiya Bridge  Josuke Bridge  Shinokawara Bridge  Nigorigawa Bridge  Karosawa Bridge  Karosawa Bridge  Shinkani Bridge  Shi	Municipality Minamiaizu Town Aizuwakamatsu City Aizuwakamatsu City Aizubange Town Kitakata City Kitakata City Minamiaizu Town Tadami Town Kaneyama Town Kitakata City	4	5           0           98           131           109           16           11           46           40           134           26           23           10           25           0           0           0           0           0           0           0           0           0           0           0           0           13           308           79           61	6           0           126           159           114           72           0           92           570           64           29           14           229           14           249           0           0           0           0           0           0           136           78           125	7 20 20 20 20 20 20 20 20 20 20 20 20 20	8           0           69           80           72           41           0           580           580           68           16           11           16           0           0           0           0           0           0           0           0           0           0           0           0           34           26	FY 9 18 46 94	ID         ID           10         0           0         312           82         97           36         0           0         0           10         0           10         0           10         0           10         0           10         0           112         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         56           50         65	Rit	12           0	ents/Rac		e Cesiu: 3  4  5  5  5  5  5  5  5  5  5  5  5  5	4	34+Cx-1           5         6           0         0           4         70           4         77           8         77           10         122           10         121           10         121           11         51           13         3           14         35           17         32           0         0           0         0           0         0           0         0           0         0           15         20           16         12           17         32           18         35           19         0           10         0           10         0           10         0           10         10           11         20           12         20	37)/Concessor	entratii 8 0 70 78 89 15 0 24 179 24 19 0 0 0 0 0 0 0 0 0 208 95 27 20	PY2 9 9 42 42 17 18	kg)(*1) 10 0 0 39 70 134 23 0 134 23 0 27 386 79 28 0 0 0 0 0 0 13 87 32 29 0 0 13 87 13 87 13 13 14 14 15 16 16 16 16 16 16 16 16 16 16		12 0 69 63 37 37 37 0 31 177 0 24 31 0 0 0 0 0 0 0 0 114 220	1         2           0         -           39         -           68         -           42         -           31         -           0         -           115         11           760         -           760         -           761         -           762         -           763         -           764         -           765         -           760         -           760         -           761         -           762         -           763         -           764         -           765         -           766         -           767         -           768         -           760         -           761         -           762         -           763         -           764         -           765         -           766         -           767         -           768         -           769         - <td></td> <td></td> <td></td> <td></td> <td>Average FY2010 (*2) 0 0 0 57 72 89 23 1.7 61 394 64 24 24 24 24 24 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>of 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118</td> <td>Coeff ( vari 2. 2. 1. 1. 2. 2. 1. 1. 2. 2. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.</td> <td>Tickent         Of           of         37           .60         .57           .60         .57           .80         .11           .81         .52           .61         .61           .78         .62           .61         .78           .62         .64           .79         .62           .64         .79           .62         .64           .63         .93           .81         .81           .93         .81           .21         .21</td> <td>Trends     / / / / / / / / / / / / / / / / / / /</td> <td><u> </u></td>					Average FY2010 (*2) 0 0 0 57 72 89 23 1.7 61 394 64 24 24 24 24 24 0 0 0 0 0 0 0 0 0 0 0 0	of 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118	Coeff ( vari 2. 2. 1. 1. 2. 2. 1. 1. 2. 2. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Tickent         Of           of         37           .60         .57           .60         .57           .80         .11           .81         .52           .61         .61           .78         .62           .61         .78           .62         .64           .79         .62           .64         .79           .62         .64           .63         .93           .81         .81           .93         .81           .21         .21	Trends     / / / / / / / / / / / / / / / / / / /	<u> </u>
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119	Water area Agano River Yukawa River Miyakawa River Nippashi River Kyu-yukawa River Tatsuki River Tatsuki River Inagawa River Tatauki River Salamo River Salamo River Salamo River Salamo River Tasuki River	Location Loc	Municipality Minamiaizu Town Aizuwakamatsu City Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town Aizubange Town Aizubange Town Aizubange Town Kitakata City Kitakata City Kitakata City Kitakata City Aizubange Town	4	5           0           98           131           109           16           11           46           20           134           26           23           100           25           0           0           0           133           100           25           0           0           133           308           79           61           78	6           0           126           159           114           72           0           92           570           64           29           14           229           14           249           0           0           0           0           0           124           70           124           70           125           59	7 20 20 20 20 20 20 27 37	8           0           69           80           72           41           0           580           580           68           16           11           16           0           0           0           0           0           0           0           0           0           0           0           0           296           34           26           44	FY 9	ID           IO           IO           III           III           IIII           IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Rif           11	12         0           0         0           720         0           67         0           67         0           720         0	ents/Rac		e Cesiu 3  1  1  1  1  1  1  1  1  1  1  1  1	M (Cs-1 4 1 1 1 777 : 8 8 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S         6           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         122           0         0	37)/Concentration	entrational 8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 0 0 208 95 27 20 71	42 17 18	kg)(*1)           101           0           0           0           39           70           134           23           0           23           0           23           0           23           0           24           70           386           79           28           0           0           0           0           0           0           0           13           13           13           13           13           13           13           13           13           13           13           13           13           13           13           13           14           15           16           17           18           13           13           14           1		12           0           69           63           37           0           31           177           0           24           31           0           24           31           0           0           0           0           0           0           0           114           20           34	1         2           0         -           39         -           68         -           42         -           31         -           0         -           115         11           760         -           88         -           14         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           0         -           141         -           128         -					Average FY2010 (*2) 0 0 57 72 89 23 1.7 61 394 64 64 24 24 24 24 24 0 0 0 0 0 0 0 0 0 0 0 0	of 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119	Coeff ( variant) 2. 0. 2. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Treient of attion           .97           .60           .55           .60           .57           .80           .11           .81           .52           .61           .78           .61           .78           .61           .78           .61           .78           .61           .79           .62           .64           -           .97           .00           .63           .93           .81           .21           .87	Trends     / / / / / / / / / / / / / / / / / / /	<u> </u>
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 118 119 120	Water area Agano River Yukawa River Miyakawa River Agano River Nippash River Kyu-myakawa River Tatsuki River Tatsuki River Itasuki River Inagawa River Tadami River Agano River Sukawa River Sakawa River Sakawa River Takahashi River	Location  Location  Location  Jujima Bridge  Column Bridge  Rofore the confluence  Shinyulawa Bridge  Before the confluence  Sakuna Bridge Before the confluence  Mityako Bridge  Minami-ohashi Bridge  Awanomiya Bridge  Awanomiya Bridge  Josuke Bridge  Awanomiya Bridge  Josuke Bridge  Awanomiya Bridge  Awanomiya Bridge  Awanomiya Bridge  Awanomiya Bridge  Awanomiya Bridge  Shinokawa Bridge  Shinoka Bridge  Shinos Dam  Sokawa no  Location  Locat	Municipality Minamiaizu Town City Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town Tadami Town Kitakata City Minamiaizu Town Tadami Town Kitakata City Inawa Shiro Town	4	5           0           98           131           109           16           11           46           40           134           26           23           100           25           0           0           25           0           0           131           308           79           61           78           284	6           0           126           159           114           72           92           570           64           299           14           229           14           249           0           0           0           121           36           78           125           59           149	7 20 20 20 20 20 20 20 20 20 20 20 20 20	8           0           69           80           72           41           0           580           68           16           11           16           0           0           0           99           296           34           26           44           133	FY 9	2014           10           0           312           82           97           36           0           690           172           21           12           12           0	Ri           11	12         0           0         0           720         0           67         0           67         0           700         0	ents/Rac		e Cesiu 3 	4         -           4         -           1         -           1         -           1         -           1         -           777         -           8         -           6         -           1         -           2         -           226         -           3         3	Alt         Cs-1           5         6           6         0           0         0           48         77           81         72           91         15           10         10           110         11           111         31           112         32           113         33           114         35           115         32           116         32           117         32           118         35           119         10           110         10           110         32           111         32           111         32           111         32           111         32           111         32           111         32           111         32           111         32           111         32           111         32           112         32           113         32           114         32           115         32	37)/Conce 7 89 89 89 1 1 1 1 1 1 1 1 1 1 1 1 1	entrational 8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 0 0 208 95 27 20 71 245	42 17 18	kg)(*1)           101           0           0           0           39           70           134           23           0           23           0           23           0           23           0           24           70           386           79           28           0           0           0           0           0           0           0           133           87           32           29           49           103		12           0           69           63           37           0           31           177           0           24           31           0           24           31           0           1110	1         2           0         1           39         1           42         1           31         1           0         1           115         11           12         1           760         1           760         1           14         1           26         1           0         1           0         1           14         1           15         11           16         1           17         1           18         1           141         1           128         1           28         1					Average FY2010 (*2) 0 0 77 72 89 23 1.7 61 394 64 24 24 24 24 0 0 0 0 0 0 0 0 0 0 0 142 28 28 26 44		No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120	Coeff (variation)	Fricient           of           aiaian	Trends     / / / / / / / / / / / / / / / / / / /	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 118 119 120 121	Water area Agano River Yukawa River Miyukawa River Agano River Nippashi River Koryu yukawa River Tatsuki River Tatsuki River Inagawa River Tadami River Agano River Sukawa River Sukawa River Takahashi River Takahashi River Takahashi River Takahashi River Takahashi River Takahashi River	Location Location Location Tajima Bridge Cikawa Bridge Takimi Bridge Before the confluence Before the confluence With Agano Rever Saikuna Bridge Minami-ohashi Bridge Minami-ohashi Bridge Minami-ohashi Bridge Awanomiya Bridge Josuke Bridge Awanomiya Bridge Awanomiya Bridge Awanomiya Bridge Ghashi Bringe Angargi Bridge Angargi Bridge Karosawa Bridge Karosawa Bridge Shinbashi Bridge Shinbashi Bridge Uneno Bridge Sekido District	Municipality Minamiaizu Town Cry Aizuwakamatsu Cry Aizubange Town Aizubange Town Aizubange Town Tadami Town Tadami Town Kaneyama Town Kinakata City Kinakata City Aizubange Town Kinakata City	4	5           0           98           131           109           16           11           46           40           134           26           23           100           23           100           23           100           25           0           0           13           308           79           61           78           284	6 0 126 159 114 72 570 64 29 14 249 0 0 0 0 0 0 0 0 0 21 36 78 125 59 149	7 20 20 20 20 20 20 20 20 20 20 20 20 20	8           0           69           80           72           41           0           580           68           16           11           16           0           0           99           296           34           26           44           133           211	FY 9	22014           10           0           312           97           36           97           36           97           36           97           36           97           36           97           36           97           36           97           36           97           36           97	Ri           11	ver sellm 0 0 720 720 67 0 720 720 720 720 720 720 720			e Cesitu 3	4         -           4         -           -         -	3.4 + Cs-1           5         6           0         0           48         77           81         72           90         10           10         10           11         81           12         1           13         31           140         51           151         20           10         0           10         0           11         32           12         10           13         20           14         20           15         20           15         20           15         20           15         20           16         20           17         32           18         12           19         20           10         20           10         20           10         20           11         20           12         10           13         20           14         20           15         20           16         20 </td <td>37)/Concessor</td> <td>entrati 8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 0 0 0 0 0 208 95 27 20 71 245 238</td> <td>42 42 17 17 18</td> <td>kg)(*1)           1015           10           0           39           70           134           23           0           27           386           79           28           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           13           87           32           29           103           119</td> <td></td> <td>12           0           69           63           37           37           31           177           0           24           31           0           24           31           0           1110           200           34</td> <td>1         2           0         1           39         1           68         1           42         1           31         1           0         1           88         1           14         1           26         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           141         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           29         1           20         2</td> <td></td> <td></td> <td></td> <td></td> <td>Average FY2010 (*2) 0 0 0 77 72 89 23 1.7 61 394 64 24 24 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 144 142 28 28 26 44</td> <td></td> <td>No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121</td> <td>Coeff ( varia) 3. 2. 0. 1. 1. 2. 2. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 1. 2. 2. 2. 1. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.</td> <td>ficient           of           aiaian           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           .97           .63           .93           .81           .21           .83           .52</td> <td>Trends     / / / / / / / / / / / / / / / / / / /</td> <td><pre>c k k k k &gt;&gt;k  &gt; k &gt;k k k k k k k k k k k</pre></td>	37)/Concessor	entrati 8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 0 0 0 0 0 208 95 27 20 71 245 238	42 42 17 17 18	kg)(*1)           1015           10           0           39           70           134           23           0           27           386           79           28           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           13           87           32           29           103           119		12           0           69           63           37           37           31           177           0           24           31           0           24           31           0           1110           200           34	1         2           0         1           39         1           68         1           42         1           31         1           0         1           88         1           14         1           26         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           0         1           141         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           28         1           29         1           20         2					Average FY2010 (*2) 0 0 0 77 72 89 23 1.7 61 394 64 24 24 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 144 142 28 28 26 44		No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121	Coeff ( varia) 3. 2. 0. 1. 1. 2. 2. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 1. 1. 1. 1. 2. 2. 2. 1. 1. 1. 1. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 1. 1. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	ficient           of           aiaian           .97           .55           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           .97           .63           .93           .81           .21           .83           .52	Trends     / / / / / / / / / / / / / / / / / / /	<pre>c k k k k &gt;&gt;k  &gt; k &gt;k k k k k k k k k k k</pre>
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121	Water area Agano River Yukawa River Miyakawa River Agano River River River River River Tatsuki River Tatsuki River Inagawa River Inagawa River Tadami River Sukawa River Sukawa River Tadami River Tadami River Tadama River Tadama River Tadama River Tadama River Tadama River Tadama River Fanatsa River Fanatsa River	Location  Locati	Municipality Minamisizu Town Aizuwakamatsu City Aizuwakamatsu City Aizubange Town Aizubange Town Aizubange Town Aizubange Town Aizubange Town Aizubange Town Kitakata City Minamisizu Town Tadami Town Aizubange Town Kitakata City Inawashiro Town	4	5           0           0           98           131           109           16           11           40           40           134           26           23           100           25           0           0           0           0           0           0           133           308           79           61           78           284           28	6 0 126 159 92 570 64 29 14 249 0 0 0 0 0 0 0 0 0 0 0 0 125 59 149 56 59 149	7 20 20 20 20 20 20 20 20 20 20 20 20 20	8           0           69           80           72           41           0           580           68           16           0           0           0           68           11           16           0           111           12	FY 9	10           0           312           36           97           36           97           36           97           36           97           36           97           36           97           36           97           36           97           36           97           36           97	Riv           11           -	12           0			e Cesiu 3 	4         -           4         -           -         -           1         -           -         -	34+Cx-1           5         6           0         0           0         0           0         0           0         0           0         0           0         0           0         10           0         122           10         121           0         10           10         12           11         51           13         33           14         35           15         20           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         12           13         13           14         12           15 <td< td=""><td>37)/Concessor</td><td>entrati 8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 0 0 0 0 0 20 2</td><td>42 42 17 18</td><td>kg)(*1)           1015           10           0           0           39           70           134           23           0           23           0           23           0           23           0           23           0           23           0           24           0           0           0           0           0           0           0           0           0           0           0           0           0           13           87           32           29           49           103           119           0</td><td></td><td>12 0 69 63 37 0 31 177 0 24 31 0 24 31 0 0 0 0 0 0 0 0 0 0 114 130 34 16</td><td>1         2           0         1           39         1           68         1           31         1           33         1           34         1           35         1           760         1           760         1           760         1           760         1           760         1           760         1           760         1           70         1      7</td><td></td><td></td><td></td><td></td><td>Average FY2010 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 24 24 24 24 24 24 24 24 24 24 24</td><td></td><td>No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121</td><td>Coeff ( varia) 3. 2. 0. 1. 1. 2. 2. 0. 1. 1. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.</td><td></td><td>Trends     ////////////////////////////////////</td><td>&gt; k k k k k k &gt;&gt; k + k &gt;&gt; k + k k k k k</td></td<>	37)/Concessor	entrati 8 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 0 0 0 0 0 20 2	42 42 17 18	kg)(*1)           1015           10           0           0           39           70           134           23           0           23           0           23           0           23           0           23           0           23           0           24           0           0           0           0           0           0           0           0           0           0           0           0           0           13           87           32           29           49           103           119           0		12 0 69 63 37 0 31 177 0 24 31 0 24 31 0 0 0 0 0 0 0 0 0 0 114 130 34 16	1         2           0         1           39         1           68         1           31         1           33         1           34         1           35         1           760         1           760         1           760         1           760         1           760         1           760         1           760         1           70         1      7					Average FY2010 (*2) 0 0 57 72 89 23 1.7 61 394 64 24 24 24 24 24 24 24 24 24 24 24 24 24		No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121	Coeff ( varia) 3. 2. 0. 1. 1. 2. 2. 0. 1. 1. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		Trends     ////////////////////////////////////	> k k k k k k >> k + k >> k + k k k k k
No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 122	Water area Agano River Yukawa River Miyukawa River Miyukawa River Nippashi River Kyu-yukawa River Yuyu-yukawa River Tatuki River Tatuki River Tatuki River Tadami River Tadami River Sukawa River Tadami River Sakawa River Takahashi River Takahashi River Takahashi River Fanasu River Takahashi River Fanasu River	Location  Location  Location  Jajima Bridge  Ckawa Bridge  Shinyikawa Bridge  Briore the confluence with Agano River Sakuna Bridge  Miyako Bridge  Miyako Bridge  Miyako Bridge  Miyako Bridge  Minani-ohashi Bridge  Awanomiya Bridge  Josuke Bridge  Nahnickawara Bridge  Naparizaki Bridge  Aoyagi Bridge  Karosawa Bridge  Karosawa Bridge  Shinokawara Bridge  Karosawa Bridge  Shinokawara Bridge  Karosawa Bridge  Shinokawara Bridge  Karosawa Bridge  K	Municipality Minamiaizu Town City Aizuwakamatsu City Aizuwakamatsu City Aizuwange Town Kitakata City Yugawa Village Aizubange Town Kitakata City Minamiaizu Town Tadami Town Kitakata City Kitakata City Aizuwakamatsu Kitakata City	4 	5           0           0           98           131           109           16           11           40           134           26           23           10           25           0           13           308           79           61           78           284           28           10	6 0 126 159 92 570 64 29 14 249 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 125 59 149 559 149 56 104	7 20 20 20 20 20 20 20 20 20 20 20 20 20	8           0           69           80           72           41           0           580           68           16           11           16           0           133           211           23	FY 9	10           10           0           312	Rit           11	12           0	2 ents/Rac	2 2 3 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	e Cesiu 3 	4         -           4         -           4         -           1         -           1         -           77         -           8         -           1         -           1         -           1         -           1         -           2         -           2         -           2         -           3         -           3         -	Ist         Cs-1           5         6           0         0           0         0           0         10           0         12           0         12           0         12           0         12           0         12           0         12           10         12           11         51           12         13           13         3           14         35           15         2           16         0           17         32           18         35           19         0           10         0           10         0           11         12           12         14           12         14           12         14           12         14           12         14           13         15           14         15           15         13           16         13	37)/Conce 7 7 7 7 7 7 7 7 7 7 7 7 7	entrati 8 0 0 70 78 89 15 0 24 179 119 24 199 0 0 0 0 0 0 0 0 0 0 0 0 0	ion(Bq/l FY2 9 42 17 17 18	kg)(*1)           1015           10           0           39           70           134           23           0           23           0           386           79           28           0           13           32           29           49           103           119           0		12           0           69           63           37           0           31           177           0           31           0           31           0           110           32           34           130           31	1         2           0         -           39         -           68         -           42         -           31         -           0         -           115         11           760         -           88         -           115         11           760         -           761         -           762         -           763         -           764         -           765         -           766         -           767         -           768         -           769         -           760         -           761         -           762         -           763         -           764         -           765         -           766         -           767         -           768         -           769         -           760         -           761         -           762         -           763         - <td></td> <td></td> <td></td> <td></td> <td>Average FY2010 (*2) 0 0 72 89 23 1.7 61 394 64 24 24 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td></td> <td>No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121</td> <td>Coeff ( variation of the second secon</td> <td>Treining           .97           .65           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           .97           .63           .93           .81           .21           .81           .55           .63           .93           .55           .63           .63           .63           .64           .93           .63           .63           .63           .64</td> <td></td> <td></td>					Average FY2010 (*2) 0 0 72 89 23 1.7 61 394 64 24 24 24 21 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121	Coeff ( variation of the second secon	Treining           .97           .65           .60           .57           .80           .11           .81           .52           .61           .78           .41           .37           .62           .64           .97           .63           .93           .81           .21           .81           .55           .63           .93           .55           .63           .63           .63           .64           .93           .63           .63           .63           .64		
No.           98           99           100           101           102           103           104           105           106           107           108           109           100           101           102           103           104           105           106           111           112           112           120           121           122           123	Water area Agano River Yukawa River Miyakawa River Nipashi River Kyu-myakawa River Tatsuki River Tatsuki River Tatsuki River Tatsuki River Tadami River Tadami River Sukawa River Sukawa River Takahashi River Hahasu River Hahasu River Hangawa River	Location  Location  Location  Jajima Reidge  Cikawa Bridge  Shinyukawa Bridge  Miyako Bridge  Miyako Bridge  Miyako Bridge  Miyako Bridge  Miyako Bridge  Josuke Bridge  Awanoniya Bridge  Josuke Bridge  Awanoniya Bridge  Awanoniya Bridge  Awanoniya Bridge  Awanoniya Bridge  Awanoniya Bridge  Josuke Bridge  Awanoniya B	Municipality Minamiaizu Town City Aizuwakamatsu City Aizuwakamatsu City Aizuwage Town Kitakata City Minamiaizu Town Tadami Town Kaneyama Town Katakata City Katakata City	4 	5           0           98           131           109           16           11           46           23           10           24           23           10           25           0           0           134           25           0           0           133           308           79           61           78           284           10           92	6 0 126 159 114 72 0 92 570 64 29 14 249 0 0 0 0 0 0 21 36 78 125 59 149 56 104 22	7 20 20 20 20 20 20 20 20	8           0           69           80           72           41           0           580           68           16           11           16           0           0           0           0           0           0           0           0           0           0           0           0           296           34           26           44           133           211           23           19	FY 9 9 18 18 46 94	10           10           0           312           97           36           97           36           97           10           0           10           112           27           112           27           112           0	Riv           11	12           0           0           720      7		2 2 3 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		(Cs-1     ))	Ist + Cs-1           5         6           0         0           0         0           1         81           0         0           1         122           0         0           0         19           10         51           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           15         20           16         12           17         13           18         12           19         13           10         13           12         14           13         13           14         13           15	37)/Conce 7 7 89 89 89 1 1 1 1 1 1 1 1 1 1 1 1 1	entrati 8 0 0 70 78 89 15 0 24 179 119 0 0 0 0 0 0 0 0 0 0 0 0 0	ion(Bq/i FY2 9 42 42 17 18	kg)(*1)           0015           10           0           0           39           70           134           23           0           23           0           386           79           28           0           133           87           320           29           49           103           119           0           0		12           0           63           37           0           31           177           0           24           31           07           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           114           20           34           130           89           16           0	1         2           0         1           39         4           42         1           31         1           0         1           115         11           760         1           760         1           760         1           760         1           761         1           762         1           763         1           764         1           765         1           766         1           767         1           768         1           760         1           761         1           762         1           763         1           764         1           765         1           766         1           767         1           768         1           769         1           760         1           761         1					Average FY2010 (*2) 0 0 0 0 77 2 89 3 3 4 3 94 6 4 3 94 6 4 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	of 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121           122           123	Coeff (varianti stress of the			<u> ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~</u>
No. 98 99 99 100 101 102 103 104 105 106 107 108 109 109 101 101 101 101 101 101 101 101	Water area Agano River Yukawa River Miyakawa River Agano Kiver Niposhi River Kyu-myakawa River Tatsuki River Tatsuki River Iatsuki River Tatsuki River Gagano River Sakawa River Sakawa River Tadami River Sakawa River Tadami River Funatsu River Hishinuma River Funatsu River Haragawa River	Location  Location  Location  Jajima Reidge  Colored C	Municipality Minamiaizu Town City Aizuwakamatsu City Aizubange Town Kitakata City Yugawa Village Aizubange Town Aizubange Town Tadami Town Kaleata City Kitakata City Minamiaizu Town Tadami Town Kaleayama Town Kitakata City Kitakata City	*1: BI	5           0           98           131           109           16           11           46           20           134           26           23           10           25           0	6 0 126 159 114 72 0 92 570 64 29 14 249 0 0 0 0 0 0 0 0 0 21 36 78 125 59 149 56 104 22 23	20 20 20 20 20 20 20 20 20 20 20 20 20 2	8           0           69           72           41           0           580           68           16           11           16           0           99           296           34           26           44           133           211           23           19	FY 9 9 18 18 46 94 46	IDUIT           IDUIT </td <td>Ri           11           1</td> <td>12           0           0           2           720           67           0           67           0           1<td>2 ents/Rac</td><td></td><td>e Cesíu 3 1 1 1 1 1 1 1 1 1</td><td>m (Cs-1 4 4 7 7 1 1 7 7 5 8 8 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>All         Cs-1           5         6           6         0           0         0           48         77           81         122           19         15           6         6           70         10           10         5           63         33           163         34           170         10           18         35           10         6           10         10           10         10           10         10           11         32           12         10           13         10           14         12           15         12           16         12           17         32           18         12           12         14           12         14           13         130           14         130           15         131           16         131</td><td>37)/Concessor</td><td>entrati           8           0           70           78           89           15           0           24           179           119           24           19           0           0           0           0           0           0           0           0           0           0           208           95           27           20           71           245           238           0           17</td><td>177</td><td>kg)(*1)           1015           10           0           0           0           39           70           134           23           0           134           23           0           23           0           24           0           13           13           13           14           13           14           13           14           15           16           17           18           19           10           114           115</td><td></td><td>12       0       69       63       37       0       31       0       24       31       0       24       31       0       0       107       0</td><td>1         2           0         1           39         4           39         4           42         1           31         1           0         1           115         11           760         1           88         1           14         1           26         1           0         1           0         1           14         1           10         1           11         1           12         1           14         1           15         1           14         1           15         1           14         1           15         1           16         1           17         1           18         1           19         1           11         1           12         1           13         1           14         1           14         1</td><td></td><td></td><td></td><td></td><td>Average FY2010 (*2) 0 0 0 7 7 2 8 9 2 3 1.7 61 3 94 6 1 3 94 6 1 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>of 5</td><td>No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121           122           123</td><td>Coeff (vari vari 2. 1. 1. 2. 2. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.</td><td>Freient           .97           .40           .55           .60           .57           .80           .11           .81           .52           .61           .78           .61           .78           .61           .78           .62           .63           .97           .64           .97           .62           .63           .93           .81           .21           .83           .93           .81           .21           .83           .93           .81           .22           .53           .53           .53           .10           .93</td><td></td><td></td></td>	Ri           11           1	12           0           0           2           720           67           0           67           0           1 <td>2 ents/Rac</td> <td></td> <td>e Cesíu 3 1 1 1 1 1 1 1 1 1</td> <td>m (Cs-1 4 4 7 7 1 1 7 7 5 8 8 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>All         Cs-1           5         6           6         0           0         0           48         77           81         122           19         15           6         6           70         10           10         5           63         33           163         34           170         10           18         35           10         6           10         10           10         10           10         10           11         32           12         10           13         10           14         12           15         12           16         12           17         32           18         12           12         14           12         14           13         130           14         130           15         131           16         131</td> <td>37)/Concessor</td> <td>entrati           8           0           70           78           89           15           0           24           179           119           24           19           0           0           0           0           0           0           0           0           0           0           208           95           27           20           71           245           238           0           17</td> <td>177</td> <td>kg)(*1)           1015           10           0           0           0           39           70           134           23           0           134           23           0           23           0           24           0           13           13           13           14           13           14           13           14           15           16           17           18           19           10           114           115</td> <td></td> <td>12       0       69       63       37       0       31       0       24       31       0       24       31       0       0       107       0</td> <td>1         2           0         1           39         4           39         4           42         1           31         1           0         1           115         11           760         1           88         1           14         1           26         1           0         1           0         1           14         1           10         1           11         1           12         1           14         1           15         1           14         1           15         1           14         1           15         1           16         1           17         1           18         1           19         1           11         1           12         1           13         1           14         1           14         1</td> <td></td> <td></td> <td></td> <td></td> <td>Average FY2010 (*2) 0 0 0 7 7 2 8 9 2 3 1.7 61 3 94 6 1 3 94 6 1 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>of 5</td> <td>No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121           122           123</td> <td>Coeff (vari vari 2. 1. 1. 2. 2. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.</td> <td>Freient           .97           .40           .55           .60           .57           .80           .11           .81           .52           .61           .78           .61           .78           .61           .78           .62           .63           .97           .64           .97           .62           .63           .93           .81           .21           .83           .93           .81           .21           .83           .93           .81           .22           .53           .53           .53           .10           .93</td> <td></td> <td></td>	2 ents/Rac		e Cesíu 3 1 1 1 1 1 1 1 1 1	m (Cs-1 4 4 7 7 1 1 7 7 5 8 8 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	All         Cs-1           5         6           6         0           0         0           48         77           81         122           19         15           6         6           70         10           10         5           63         33           163         34           170         10           18         35           10         6           10         10           10         10           10         10           11         32           12         10           13         10           14         12           15         12           16         12           17         32           18         12           12         14           12         14           13         130           14         130           15         131           16         131	37)/Concessor	entrati           8           0           70           78           89           15           0           24           179           119           24           19           0           0           0           0           0           0           0           0           0           0           208           95           27           20           71           245           238           0           17	177	kg)(*1)           1015           10           0           0           0           39           70           134           23           0           134           23           0           23           0           24           0           13           13           13           14           13           14           13           14           15           16           17           18           19           10           114           115		12       0       69       63       37       0       31       0       24       31       0       24       31       0       0       107       0	1         2           0         1           39         4           39         4           42         1           31         1           0         1           115         11           760         1           88         1           14         1           26         1           0         1           0         1           14         1           10         1           11         1           12         1           14         1           15         1           14         1           15         1           14         1           15         1           16         1           17         1           18         1           19         1           11         1           12         1           13         1           14         1           14         1					Average FY2010 (*2) 0 0 0 7 7 2 8 9 2 3 1.7 61 3 94 6 1 3 94 6 1 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	of 5	No.           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121           122           123	Coeff (vari vari 2. 1. 1. 2. 2. 1. 1. 2. 2. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Freient           .97           .40           .55           .60           .57           .80           .11           .81           .52           .61           .78           .61           .78           .61           .78           .62           .63           .97           .64           .97           .62           .63           .93           .81           .21           .83           .93           .81           .21           .83           .93           .81           .22           .53           .53           .53           .10           .93		
No. 98 99 99 100 101 102 103 104 105 106 107 108 109 109 101 101 101 101 101 101 101 101	Water area Agano River Miyakawa River Agano River Miyakawa River Nipashi River Kyu-myakawa River Tatsuki River Tatsuki River Itasuki River Gagan River Sakawa River	Location  Location  Location  Jujima Bridge  Column Bridge  Before the confluence Bridge  Minami-ohashi Bridge  Awanomiya Bridge  Josuke Bridge  Josuke Bridge  Josuke Bridge  Josuke Bridge  Awanomiya Bridge  Awanomiya Bridge  Awanomiya Bridge  Josuke Bridge  Awanomiya Bridge  Josuke Bridge  Awanomiya Bridge  Josuke Bridge  Awanomiya Bridge  Brinoshi Bridge  Shinoshi Bridge  Shinbashi Bridge  Location  Skidon Bridge  Location  Skidon District  Funtasu Bridge  Bridge  Awanomiya Bridge  Shinbashi Bridge  Contasta Bridge  Shinbashi Bridge  Contasta Bri	Municipality Minamiaizu Town Cry Aizuwakamatsu Cry Kitakata City Yugawa Village Aizubange Town Katakata City Minamiaizu Town Tadami Town Kaneyama Town Katakata City Inawashiro Town Kitakata City Katakata City Kaneyama Town Kitakata City Kaneyama Town Kitakata City Katakata City Kitakata City Kitakata City	*1:BI	5           0           98           131           109           16           11           46           23           10           23           0           23           0           23           10           25           0           0           0           0           0           0           0           133           308           79           61           78           284           10           228           10           78           284           10           92           task celler	6 0 126 159 114 72 570 64 29 14 249 0 0 0 0 0 0 0 21 36 78 125 59 149 256 104 22 8 are loc	20 20 20 20 20 20 20 20 20 20 20 20 20 2	8           0           69           80           72           41           0           580           68           16           11           16           0           0           99           296           34           26           44           133           211           23           19	FY 9	2014           10           0           312           97           36           0           172           172           172           172           172           172           172           172           172           12           00           00           56           65           67           188           122           52           17		12           0	ents/Rad	Iloactiv 2	e Cesitur 3 		3.4 + Cs-1           5         6           0         0           48         77           81         122           10         10           110         51           121         51           132         33           133         33           140         51           151         20           101         61           110         51           111         32           112         32           113         32           114         32           115         20           115         20           115         20           115         20           115         20           115         20           115         20           115         20           115         21           115         21           116         21           117         32           118         32           119         32           110         32           111         32           112<	37)/Concessor 7 87)/Concessor 89 89 89 89 89 89 89 80 80 80 80 80 80 80 80 80 80	entrati 8 0 0 70 78 89 15 0 24 179 119 24 19 0 0 0 0 0 0 0 0 0 0 0 0 208 95 27 208 95 27 208 95 219 0 0 0 0 0 0 0 0 0 0 0 0 0	ion(Bq/N)           FV3           9           9           42           42           10           117           18	kg)(*1)           015           10           0           0           0           39           70           134           23           0           23           0           23           0           23           0           24           0           0           0           0           0           0           0           133           87           32           29           49           103           119           0           0           0		12       0       69       63       37       0       31       177       0       24       31       0       114       120       34       130       89       16       0       0       0       0       0       0       0       0       0       0       0       0       0	1         2           0         1           39         1           68         1           31         1           0         2           115         11           12         1           760         2           14         2           0         1           0         1           14         1           13         14           141         1           142         1           143         1           144         1           145         1           146         1           147         1           148         1           149         1           141         1           142         1           143         1           144         1           145         1           146         1           147         1           148         1           149         1           141         1           141         1           141         1					Average FY2010 (*2) 0 0 72 89 23 1.7 61 394 4 24 24 24 24 24 24 24 24 24 24 24 24	of 5	No. 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 Average	Coef ( vari 2. 1. 2. 1. 2. 2. 1. 1. 2. 2. 0. 1. 1. 1. 1. 1. 1. 2. 0. 0. 1. 1. 1. 1. 1. 2. 2. 0. 0. 1. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	Facient           .97           .43           .55           .60           .11           .81           .52           .61           .78           .61           .78           .61           .78           .61           .78           .62           .64           .79           .62           .64           .79           .62           .63           .64           .79           .63           .64           .79           .64           .63           .63           .63           .63           .63           .63           .63           .63           .63           .63           .63           .64           .63           .63           .63           .63           .63           .63           .64           .65      .65      .65 </td <td></td> <td></td>		

#### 4) Ibaraki Prefecture

In Ibaraki Prefecture, surveys were conducted 15 to 21 times from August 2011 to February 2016 for river sediment samples collected at 53 locations (this analysis excludes the survey results at 39 locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, two locations ware categorized into Category A, two locations into Category B, 11 locations into Category C, 21 locations into Category D, and 17 locations into Category E (see Table 4.3-11 and Table 4.3-12).

Concentration levels were generally decreasing at 46 locations, were unchanged at two locations and fluctuating at five locations.

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	2	No.34, No.36
В	Upper 5 to 10 percentile	2	No.28, No.38
С	Upper 10 to 25 percentile	11	No.13、No.26、No.31、No.32、No.37、No.39、No.40、No.41、No.42、No.49、 No.50
D	Upper 25 to 50 percentile	21	No.1, No.2, No.7, No.14, No.17, No.18, No.19, No.20, No.21, No.22, No.23, No.24, No.25, No.27, No.29, No.30, No.33, No.46, No.48, No.51, No.52
Е	Upper 50 to 100 percentile(lower 50%)	17	No.3、No.4、No.5、No.6、No.8、No.9、No.10、No.11、No12、No.15、No.16、 No.35、No.43、No.44、No.45、No.47、No.53

Table 4.3-11	Categorization of o	detected values	at respective	locations
	(Ibaraki Prefec	ture: river sedim	ents)	



(\*) Scales of the vertical axes differ in the left and right figures.

Figure 4.3-7 Changes in concentration levels over the years at respective locations (Ibaraki Prefecture: river sediments)

# Table 4.3-12 Detection of radioactive cesium at respective locations (Ibaraki Prefecture: river sediments) (No.1)

Location															R	tiver sedime	nts/Ra	dioact	ive Ces	sium (Cs-13	4+Cs	137)/C	oncenti	ation(	3q/kg)	*1)								
No.		Water area	1	Location	Munic ipality	8	9	10	FY20	11	1	2	3	4	5	6	7	8	FY2012	2 10 11	12		2	3	4	5	6 7	18	F	FY2013		12	1	2 3
1				Yamaeoya Bridee		0	2.000	10		12		760	-	-	166	0	,		121		153	L.	~	105	-	97		81	Ť	/ 10	52		÷	49
2			Satone River	Muravama Bridae	1		710			_	_	450			125				540		176		460			126		11/	6	++	187	+	-	128
2				Waashalahi	Kitaibaraki City		260			_	_				100			-	40		00		400			26			_	++	01	$\rightarrow$	_	
5	Τ	Dinas Constant	Hanazono River	Kuraoesin	4		200					144			102				42		60		00			50		40	+	+++	91	+	_	*
4	i agagawa i	kiver System		Isonare Bridge			300			_		10.5	_		55				/6		68		50	_		50		.58	, 	+	4/	$\rightarrow$	_	89
5			Okita River	Sakae Bridge	Takahagi City		3,100			_		310			101				50		87		14			42		21	-		30	$\rightarrow$	_	73
6				Sakai Bridge	Kitaibaraki City		2,200					750			109				103		310		186			101		68	\$	$\rightarrow$	98	_		83
7			Hananuki River	Shinhananuki Bridge	Takahagi City		650					400			248				82		82		102			135		115	5	$\rightarrow$	140	$ \rightarrow$		101
8	Kuiioawa I	Piver System	Kuijaawa River	Yamagata	Hitachiomiya City		1,040					157			62				0		10		111			60		94	1		45			20
9	Rajigawa i	uter bystem	najgawa kirci	Sakaki Bridge	Hitachi City/Tokai Village		290					44			11	0	0	0	161		156		135			55		11	1		92			0
10				Noguchi	Hitachiomiya City/Shirosato Town		169					52			13				163		88		13			11		15	5		18		_	12
11		Nakanawa	Nakagawa River	Shimokunii	Mito City		5,500					78			16				128		116		246			101		13	1		76			249
12		River Area		Katsuta Bridge	Mito City/Hitachinaka		4,400					60			86	34	330	176	114		760		340			,110		600	0		13	-		670
13		i I	Nakamaru River	Yanaeisawa Bridee	City Hitachinaka City			4 400				1 810			690				1 200		510		890			110		880	0		700	-	-	560
14	Nakagawa River		Hinumamae	Nagaoka Bridao				460				,				158			,		100					\$10		00			226			102
14	System	i I	River	Nagaoka binge				400		_	_	_	_			150					109			_				90	+	++	220	$\rightarrow$	_	155
15		Hinumagawa	Hinuma Kiver	1 akahashi	ibaraki i own			84		_						270					5/					19		59	4	++	16	$\rightarrow$	_	18
16		River Area	Kansei River	Kansei Bridge				167								92					139					159		82	2	+	79	$\rightarrow$		86
17		i I	Daiya River	Oya Bridge	Hokota City			320								630					143					810		310	0		204	$\rightarrow$		68
18		ļ	Hinuma River	Hinuma Bridge	Mito City/Oarai Town			630				570				1,260			36		330		560			190		430	0		400			440
19		i I	Hokota River	Asahi Bridge			390					390				270			420		370		380			370		18.	2		68			73
20		i I	Tomoe River	Shintomoegawa Bridge	Hokota City		280					690				220			370		540		159			410		600	0		314			87
21		i I	Taiyo River	Tazuka Bridge	1		720									108			330		159		172			320		320	10		136			198
22		Vitame Dinar	Takeda River	Uchijuku-ohashi Bridge				460								152			630		380		230			177		260	0		291			254
23		Area	Yamada River	Nioroshi Bridge	1			600								390			174		35		190			304		143	3		137	-	-	217
24		i I	Kurakawa River	Kurakawa Bridee	Namegata City			1.020								239			187		290		183			98		100	10		105	-	-	222
24		i I	Control Direct	IA Vehebeeki Deidee	4			220		_	_					200		-	202		2/0		100					10		++	165	$\rightarrow$	_	
25		i I	Gantsu River	JA Tokonasm Bruge				320								280		-	223		204		100			211		19.	,		104		_	151
26		<u> </u>	Nagare River	Suhoi Bridge	Kashima City			1,260								830			490		590		370			530		340	0		236			156
27		i I	Sonobe River	Sonobeshin Bridge	Omitama City		280								260				1,370		290		910			430		570	0		223	_		281
28		i I	Sanno River	Tokoro Bridge			1,920					1,950			1,550				900		1,510		1,470			860		820	0		730	$ \rightarrow $		1,800
29		i I	Koise River	Heiwa Bridge	Ishioka City		194								830				680		770		210			153		135	5		116			101
30		i I	Kajinashi River	Kamishuku Bridge	Namegata City		270								42				197		172		226			154		16	3		97			120
31		i I	Hishiki River	Hishiki Bridge			1,320					1,070			860				660		610		630			500		530	0		540			405
32		i I	Ichinose River	Kawanaka Bridge	Kasumigaura City		1,870					1,540			950				530		920		730			840		650	0		880			530
33			Sakai River	Sakai Bridge/National Route			2,300					760			780				680		112		160			160		224	4		296	-		178
34		River Area	Shinkawa River	354 Shinten Bridge	Tsuchiura City			5,500				4,400			900				4,000		2.210		2.340		4	.100		4.20	00		3,900	+	-	2.170
35		i I	Sakura River	Firi Bridae	Tsuchiura		58	.,				136			62				270		213		128			76		52	,	-	30	-	-	126
35	Tonegawa	i I	n n	ni nije	City/Tsukuba City		50					200			02				210		2.10		120											
36	System	i I	Bizen Kiver	Bizengawa Bridge	Tsuchiura City			2,600		_		228	_	-	4,800				4,500		2,800		2,150	_	-	,770	_	1,80	30		1,360	$\rightarrow$	_	1,540
37		i I	Hanamuro River	Shinwa Bridge	l			1,390				820	_	-	1,280				1,000		29		570	_		810		790	9		790	$\rightarrow$		1,200
38		i I	Seimei River	Katsuhashi Bridge	Ami Town			1,420				5,800		4	2,130				1,790		4,100		3,500		1	,290		1,17	10	_	940	$\rightarrow$		870
39		i I	Onogawa River	Okuhara-ohashi Bridge	Ryugasaki City/Ushiku City		260					220			620				570		980		990			960		910	0		420			620
40		i I	Shintone River	Shintone Bridge	Inashiki City		220								330				270		400		440			370		350	0		420			318
41		Hitachitonega	Yorokoshi River	Horinouchi Bridge				290								310			290		196		222			210		530	10		117			430
42		wa River Area	Maekawa River	Ayame Bridge	Itako City			510								580			470		500		580			530		430	0		200	-		400
43	. 1			Kawashima Bridge	Chikusei City			0				0				32			0		0		14			18		0	,		0	-		16
44		Kinugawa	Kinugawa River	Takishita Bridae	Moriva City			130		_		202				100 40	119	11	196		380		280			187		83	-	-	113	-	-	133
44		River Area	Terror Diver	Taxona Daidar	inoniyu cuy			1.000		_		202				100 40	,		1.70		300		200			20		60	<u>-</u>		26	-	-	
45			Tagawa River	Tagawa Bridge	Chikusei City			1,080		_	_	201	_			10		_	146		24		54	_		35		40		++	36	$\rightarrow$	_	52
46		i I	Kokai River	Kuroko Bridge		620						142				213			269		153		262			226		300	9	+	186	$\rightarrow$		275
47		Walasia and		Fumimaki Bridge	Toride City			500				310				68			350		112		75			98		73	\$		75	$\rightarrow$		120
48		River Area	Yatagawa River	Maruyama Bridge	1			660								1,800					840				1	,660		1,61	10		620			440
49		i I	Nishiyata River	Sakaimatsu Bridge	Tsukuba City			500								1,000					750				1	,160		630	0		420			244
50		i I	Inari River	Oguki Bridge				1,900				1,190				1,610			1,470		1,580		1,250			,770		2,15	50		720			680
51	_ [			Kurihashi Bridge	Koga City		1,440					159				52 48	42	18	123		39		22			109		55	5		23			26
52		Tonegawa Rister Area	Tonegawa River	Fukawa	Tone Town		820					330				320			95		122					290		17	1		202			62
53		Autor Fucu		Sawara	Inashiki City		1,220					330			195	202	181	39	140		133		256			117		10	1		115	-		88
						Total nu	mber of	038	Detec	tion	914			1	1		I	I	1			I			1									
						sam	ples	,50	tim	es																								
						•1: Dan	k cells a	re ioca	nons w	nere sa	unpres	were n	ot cone	cied. 1	ne rest	uit inot detec	lable	is inda	cated as	0.														
# Table 4.3-12 Detection of radioactive cesium at respective locations (Ibaraki Prefecture: river sediments) (No.2)

			Lo	cation								R	iver se	dimer	its/Rad	lioactiv	ve Ces	ium (C	's-134	+Cs-1	37)/Ce	oncentr	ation(	Bq/kg)	*1)					Average of		Coefficient	
No		Water are		Location	Municipality						FY20	14											FY2	015					Changes	FY2015	No.	of	Trends(*3)
140.		water are.		Elocation	Municipanty	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1 2	3	- changes	(※2)		variation	
1			Satone River	Yamagoya Bridge			55			44			66			23			160			36			67		8	8	L	87	1	2.06	/
2			Satone River	Murayama Bridge	10 A 11 C		137			81			234			137			96			88			87		4	3	Mar	79	2	0.87	~
3				Kurabeishi	Kitaibaraki City		56			89			60			21			45			52			44		4	L	~~~_	46	3	0.70	1
4	Tagagawa	River System	Hanazono River	Isonare Bridge	1		54			57				112		155			20			12			34		4	L	Lan	27	4	0.87	/
5				Sakae Bridge	Takahagi City		12			0			92			11			67			0			0		1	,	1	22	5	3.22	<u> </u>
6			Okita River	Sakai Bridaa	Kitoihoroki Citu		50		-	50				24		61			91			24			40			,	1	54	6	2.11	~
0				out a strike	Readon act City		50		-	50	_	_	100	24	_	01	_		01		_	34	_	_	49	_		-	<u></u>		0	2.11	~
1			Hananuki Kiver	Shinhananuki Bridge	Takahagi City		141		_	108			182			151			101			86	_		88		/	,	~~~~	88	/	0.87	~
8	Kujigawa	River System	Kujigawa River	Yamagata	Hitachiomiya City		16		_	24			12			15			20			15			18		1	8	<u> </u>	18	8	2.48	>
9				Sakaki Bridge	Hitachi City/Tokai Village		49			18			14			14			23			15			63		4	2	m	36	9	1.20	>
10				Noguchi	Hitachiomiya City/Shirosato Town		15			11			12			0			0			13			14		1	l	V	10	10	1.48	/
11		Nakagawa	Nakagawa River	Shimokunii	Mito City		73			369			62			142			33			31			91		1	2	\	42	11	3.07	$\searrow$
12		River Area		Katsuta Bridge	Mito City/Hitachinaka		258			274			170			202			116			17			16		1	2	1.000	40	12	2.04	/
13			Nakamaru River	Yanagisawa Bridge	Hitachinaka City		730			810			700			680			540			580			660		30	8	1	522	13	0.93	<u> </u>
14	Nakagawa River		Hinumamae	Naeaoka Bridee	-		312			188			61			126			88	_		37			62		5		V An	60	14	0.82	~
	System		River	Tablet at	Boneki Tomo		100		-				16			120			12			12	_		02	_			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		.4	1.70	
15		Hinumagawa	anuma River	r akanasm	IOMIANI LOWII		460		+		+		10	_		15			1/	_		15	_	_	U	-	-	-	<u>~</u>	11	15	1.75	/ / / *
16		River Area	Kansei River	Kansei Bridge			51		+	24	-+		113			31			25			118			35	_	2	, 		51	16	0.61	>
17			Daiya River	Oya Bridge	Hokota City		400		_	290	-+		137			77			99			156			160		20	2	~~~	154	17	0.79	>
18			Hinuma River	Hinuma Bridge	Mito City/Oarai Town		550			390			364			442			298			179			169		5	5	m	176	18	0.68	>
19			Hokota River	Asahi Bridge			163			182			352			113			147			118			113	[	8	2	$\sim\sim$	117	19	0.56	$\searrow$
20			Tomoe River	Shintomoegawa Bridge	Hokota City		156		Τ	99	T		348			242			57			67			73	Т	10	6	Mr	76	20	0.72	>
21			Taiyo River	Tazuka Bridge	1		174			93			154			141			69			140			166		7	5	w	113	21	0.76	$\sim$
22			Takeda River	Uchijuku-ohashi Bridge			190			228			238			220			116			143			124		13	0	V~~	128	22	0.54	<u> </u>
		Kitaura River Area	V	NT	+		02			100			126								_	194	_			_			1.	100		0.72	~
25			Tainada Kivei	Norosin indge	Namegata City		72		-	100			155	_		114						100	_	_	85	-	1.	-	\~~~~	125	23	0.75	~
24			Kurakawa River	Kurakawa Bridge	+		319		_	58			117			121			131			202			141		19	7	~~~	168	24	0.99	~
25			Gantsu River	JA Yokohashi Bridge			185			77			110			122				93		95			122		8	3	~~~	98	25	0.43	>
26			Nagare River	Suhoi Bridge	Kashima City		182			219			188			144			225			248			157		15	8	m	197	26	0.80	>
27		Sonobe River         Sonobeshin Bridge         0mitama City         800         11         97         162         132         146         90         97         ////////////////////////////////////															_Am	116	27	1.00	$\searrow$												
28		Sonobe River         Sonobeshin Bridge         Omizana City         800         11         97         162         132         146         90         97            Samo Kiver         Tokoro Bridge         0         31         680         368         590         441         580         600         497            Keine Bring         Haine Bridge         14/14         580         600         497															~~	530	28	0.61	1												
29		Samo River         Tokoro Bridge         31         680         368         590         441         580         600         497         V           Koise River         Heiwa Bridge         Ishioka City         263         34         31         70         27         40         262         103         //           Kajinashi River         Kamishuku Bridge         Namegara City         57         88         55         68         90         92         94         65         //															A.	108	29	1.11	$\overline{)}$												
30			Kajinashi River	Kamishuku Bridge	Namegata City		57			88				55		68			90			92			94		6	5	V	85	30	0.55	<u> </u>
31			- Hishiki River	Hishiki Bridee			610			364				301		324			214	_		305			275		24	2	<u> </u>	262	31	0.54	~
		Kasumigara         Kasumigara         Circ         Circ <thcirc< th="">         Circ         Circ</thcirc<>															~~~~	202		0.54	~ >												
32		Kasumiguru         Salai Rey         Salai Rege         Total         Total <thtotal< th="">         Total         Total<td>· ~~~~</td><td>422</td><td>32</td><td>0.57</td><td>~</td></thtotal<>															· ~~~~	422	32	0.57	~												
33		Kasunigan River Ave         Status River         354         To         S7         46         80         55         281         82         147         46           River Ave         Sinkawa River         Shaten Bridge         Tschara City         1,640         1,640         1,480         1,410         1,270         1,840         1,210         1,330         1,350         1,430         1,410         1,270         1,840         1,210															136	33	1.52	~													
34		Bindswar Rever         Shatenen Breige         L640         L640         L640         L410         L270         L840         L200         L350         V         L420         34         0.55           Salara Rever         Salara Rever         Ein Bridge         Tsachara Crevr/Tsatuba Cay         73         79         21         37         28         28         75         53															>																
35	Toneeswa	negava Regree Rever Eri Bridge Tuschiana Cay 73 79 21 37 28 28 75 53 000 46 35 0.71 5 Bioe River Bioegava Bridge Tuschiana Cay 8 1.60 1.110 350 70 1.70 850 1.50 2.160 000 46 35 0.71 5 Bioe River Bioegava Bridge Tuschiana Cay 8 1.60 1.110 350 2.10 1.70 850 1.50 2.160 000 46 35 0.71 5 Bioe River Bioegava Bridge Tuschiana Cay 8 1.60 1.110 350 2.10 1.70 850 1.50 1.50 2.160 000 46 35 0.71 5 Bioe River Bioegava Bridge Tuschiana Cay 8 1.60 1.110 350 1.110 1.50 1.50 1.50 1.50 1.50 1.50 1															/																
36	River	esgual River Sinva Bridge Tuchtra City 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1															$\sim$																
37	System	Onegava River System         Baen River         Bizengava Bedge         Tack         File															>																
38			Seimei River	Katsuhashi Bridge	Ami Town		610			970			920			790			610			980			660		68	0	A	733	38	0.88	1
39			Onogawa River	Okuhara-ohashi Bridoe	Ryugasaki City/Ushiku		610			450	+		432			520			371			476			443		31	9	m	402	39	0.43	~~~
40			Chintone Dive	Shintono Daid	City Inachild City		11		+	240	+		100	_		10.4				200		200	_		-	-+	-		~~.~	270	10	0.24	a a #
40			sumone River	simitone bridge	indsfilkt City		11		+	249	+	_	199	_		194				500		299	_	_	233 100	-+	25	•		2/8	40	0.35	λ Λ Λ
41		Hitachitonega wa	Yorokoshi River	Horinouchi Bridge	Itako City		34		_	36			22			329				262		219			190	_	23	4	~~~~~	226	41	0.58	1004
42		River Area	Maekawa River	Ayame Bridge			16		_	430			409			473			251			202			185		20	9	W	212	42	0.45	1
43			Kinugawa River	Kawashima Bridge	Chikusei City		17			20			0			0			0			0			0		(		Mr_	0	43	1.55	NM.
44		Kinugawa River Area		Takishita Bridge	Moriya City		213			75			56			90			74			103			18	[	2	,	Mm	56	44	0.73	$\mathbb{N}$
45			Tagawa River	Tagawa Bridge			65			16			17			16			26			0			26		2	2	6	19	45	2.40	
46				Kuroko Bridge	Chikusei City		131		1	13	+		23			76			128			150			132		10	3	hm	128	46	0.72	/
47			Kokai River	Fumimaki Bridge	Toride City		150			57	+		53			50			79			60			34		3	2	M .	51	47	1.00	<u> </u>
.40		Kokaigawa	Vatanauro Dir	-a- Maruyama Bridaa			212	-	+	660	+			171		177			200	_		150			102	+		7	M	142	49	0.05	~
40		River Area	Mahayawa River	estadore prime	Taulaha Cirri		212	+	+	200	+	-	100	1/1	_	20		_	200			1.79		_	.us	-	-	-	~~~	142	-40	0.95	/
49			rsishiyata River	Sakamatsu Bridge	i sukuba Cify		31	_	+	208	-+		450		_	.50			206			237			215	-	8	-	5 m	200	49	0.82	>
50			Inari River	Oguki Bridge			640		_	710				610		460			370			486			368		46	4		422	50	0.58	~
51		Trees		Kurihashi Bridge	Koga City		149			42			20			29			50			72			43		7	·	L	61	51	2.42	1
52	S2         Tonegawa River Area         Tonegawa River Area         Tone Town         57         100         236         65         123         134         14         26													74	52	1.02	~																
53	3 Sawara Inashiki City 11 14 90 15 14 26 13 37 23 53 1.63													1																			
	*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0." A B C D E 200 Average																																
	1. Jaunik celus are skalansko witzer samlijels were and concector. Fue festal: Noti defectance is funkcared as U.     10     1																																
	*2: Arithmetic Average; calculated by assuming ND=0; Color codes show categories (see the right).																																
								undi	,					- 431	5 .m.		pali		(1)	1				ь ·			. د	- Chi					

#### 5) Tochigi Prefecture

In Tochigi Prefecture, surveys were conducted 15 to 30 times from October 2011 to February 2016 at 56 locations (rivers) in public water areas (this analysis excludes the survey results at 49 locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, one location was categorized into Category C, five locations were categorized into Category D and 50 locations were categorized into Category E (see Table 4.3-13 and Table 4.3-14).

Concentration levels were generally decreasing at 39 locations, were unchanged at one location and fluctuating at 16 locations.

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	1	No.39
D	Upper 25 to 50 percentile	5	No8, No.32, No.35, No.51, No.55
Е	Upper 50 to 100 percentile(lower 50%)	50	No.1, No.2, No.3, No.4, No.5, No.6, No.7, No.9, No.10, No.11, No.12, No.13, No.14, No.15, No.16, No.17, No.18, No.19, No.20, No.21, No.22, No.23, No.24, No.25, No.26, No.27, No.28, No.29, No.30, No.31, No.33, No.34, No.36, No.37, No.38, No.40, No.41, No.42, No.43, No.44, No.45, No.46, No.47, No.48, No.49, No.50, No.52, No.53, No.54, No.56

Table 4.3-13 Categorization of detected values at respective locations (Tochigi Prefecture: river sediments)



(\*) Scales of the vertical axes differ in the left and right figures.

Figure 4.3-8 Changes in concentration levels over the years at respective locations

(Tochigi Prefecture: river sediments)

## Table 4.3-14 Detection of radioactive cesium at respective locations

|--|

				Location	r	1								-			River	sedime	nts/Radie	oactive C	Cesium	(Cs-134	+Cs-1	37)/Cor	centr	ation(B	/kg)(*	l)									
No.		,	Water area		Location	Municipality				FY2011			Τ.					-		FY2012		1		. 1	.	-	.		- 1	- 1	F	Y2013				<u> </u>	1.
							8	9	10	11	12 1	2	-	5 4	: 5	,	6	7	8	9	10	11	12	1	2	3	4		-	7	8	9	10	11	12	2	3
				Nakagawa River	ikuyobasnisnita	Nasushiobara City			90		_	90							42	93			19		15	_	-	5	_	_	12			14	_	23	_
2					Komei Bridge				250			97	-				139			78			43		64		-	1			97			38		36	
3				Takaomata River	Takaomata Bridge	Nasu Town			650			1,25	90				89			162	2		221		197		1	13			76			79		116	
4				Yukawa River	Yukawa Bridge				240			204	4				79			75			54		73		1	5			73			50		43	
5				Nakagawa River	Kamikuroiso	Nasushiobara City/Nasumachi			101			110	6			6	4 87		44	72 109	9		59		16			1 49	,	28	73	42		74		11	
6				Yosasa River	Yosasa Bridge				1,160			610	D				73			120	D		91		79			8			105			85		90	
7				Kurokawa River	Shinden Bridge	Nasu Town			64			50	0				175			105	5		194		128			10	4		90			80		74	
8				Vorana Disar	Kawada Bridon				610			16	,			10	102		180	20 120			200		120			10		274	77	07		60		67	+
0					rent and in the type	-		_	610			10.	-	+	+		02 102		189 2	39 13	,		209	-	50				_	40		87		30	_		-
9				Nakagawa River	Kurobane				57			83	-	_		4	0 35		54 .	54 10.	2		53		58		-	9 61		42	31	16		35		49	_
10				Matsuba River	Tributary	Otawara City			780			19	9			7.	5 320		114 1	15 62			82		69		1	8 30	5	80	119	84		132		106	
11				Sabigawa River	Udagawa Bridge				32			66	D				34			270	D		234		183		1	i4			336			360		162	1
12	Naka	Di	Fantan	Momura River	Momuranaka Bridge				114			19	6				290			290	D		120		105		1	17			87			107		143	1
13	Naka	gawa Kiver	System		Yunohara				83			10	D						84	98			58		36			73	2	56				42			
14					Sekiba Bridge	Nasushiobara City			126			10	1				76			81			82		193			11	1		64			67		88	
15				Hokigawa River	Iwai Bridee				16			50					66			79			62		93			5			53			51		19	
						Otawara City			100				-	-									62			-					10				-		+
10					nokigawa isriage			_	165			89	-		_	3	0 72		54 .	54 52	-		52		53	_	-	/ 21		40	18			30	_	25	_
17				Nakagawa River	Shinnaka Bridge	Nakagawa Town			40			14	-			5	1 31		30 1	07 38			56		16		-	3 19	'	14	57	0		94		18	
18				Mumogawa River	Kosei Bridge	L			28			26				1	2 12	14	14	34	-	1	43		30		1	1 22	2	20	19	16		14		15	
19				Arakawa Disar	Saikachi Bridge	Shioya Town			198			30	D				300			1,02	20		102		168		1	91			176			217		201	
20				adkawa Kiver	Renjo Bridge	Sakura City			0	T		33					32			44			15		33	T		3	T		0			12	T	14	
21					Tanaka Bridge	Yaita City			1,440			13	D	1	1		78			127	7		122		143		1	5			195			103		72	
22				Uchikawa River	Asahi Bridge	Sakura Citv			18	+	$\top$	77		1	1	+	82			114	4	1	101	+	82	+		4	$\neg$		100			72		68	
23				Arakawa Disar	Mukada Bridee				90			7.4					1 12	49	30	84			75		00	-		1 2	,	30	85	58		19		35	+
~				r n	T 3	Nasu Karasuyama City		_	10			1.74		+	+				50	64				-	~		-					20		400	_		-
24				Egawa River	Tributary				162			1.9	0		_	5	8 85	52	51	58			60		63			5 18	5	84	24	20		480	_	440	_
25				Kinugawa River	Station, front				19			40	•						36	75			19		45			38	3		33			71		17	
26				Yunishi River	Maesawa Bridge				25										10	0					0			13	5		0			0		12	
27				Ojika River	Tributary				37			32							36	18			16		15			14	L I		240			17		35	
28				Kinugawa River	Kosagoe				55			63							800	780	D				590			35	;		59			47		23	
29				Itaana River	Tributary	Nikko City			4 900			29	0				120		146	113	3 91	91	86					75	81	94	86	43		73		+	
30				Volcanca Divar	Tributary	-		_	118				-				-		63	60			114		72		-			~	0					137	
30				Tukawa Kivei	modary	-			118		_		_	-	-				03	00			114	_	12	_	_	0	_		0				_	137	-
31				Daiya River	Shinkyo Bridge				4/			12.	3	_			58			37			54		38		_	72	,	_	21			35		15	_
32				Shidobuchi River	Sujichigai Bridge				260			400	D				270			245	5		203	1	226			21	2		182			123		162	
33				Daiya River	Kaishin Bridge (Harigai)				13			45					45		24	69	15	0	57		13			16	15	0	15	11		18		12	
34				Kinugawa River	Sanuki	Shioya Town			20			17	7				11		29	109	9 18	12	74		42			470	134	154	310		17	274		97	
35		Kinugawa	River System	Nishi-Kinugawa River	Nishi-Kinugawa Bridge				1,520			2,25	90				126			65			45		360		3	6			0			31		1,540	D
36					Kinugawabashi	Utsunomiya City			28			0					10			24			20		14			1			0			0		0	
				Kinugawa River	Bridge(Hoshakuji Temple)			_					+	+	-	-								_		_	-		_	_	-			-	_	+	-
37					Daidoizumi Bridge	Mooka City			0			12	-				24			30	'		42	_	51	_		)			10			11	_	0	_
38				Egawa River	Tributary	Shimotsuke City			175			550	D			13	37 214	56	62	58			49		88			1 30	)	34	17	480		70		51	
39				Akabori Pinar	Nikko City Hall, front	Nikko City			510			80	D				450			1,78	80		500		450			31	0		420			370		650	1
40	Tonegawa				Kiwadajima	-take cay			117			12	5				104			93			40	1	380			18	7		78			61		69	
41	System			Tagawa River	Ozobashi Bridge				62			57				2	8 69	104	28	10	1		142		150			4 23	;	18	13	36		17		35	T
42				Kamagawa River	Tsukushi Bridge	Utsunomiya City			182			65				1	99			78			68		123		1	13			27			50		169	
43					Meiji Bridge	Kaminokawa			10			10		+	+		122			10	1	1	18	+	29		1,	2			31			76		41	
44				Tagawa River	Yanahar bi Bridaa	Town			360	+	+			+	+	+	86			100		1	72	+	69	+	+	6	+					104	+		+
-+4					a matulas in an age	oyama city			300	-		- 22.	-	+	+	+		-		122		-	13	+	~7	-		-	-		43	_		104		- 90	+
45				Kurokawa River	Kauma Bridge	Kanuma City			109	_	_	93	1	_	+	_	11	-		46	-	-	30	_	0	_	-	9		_	0			15		- 0	+
46					Onari Bridge	Mibu Town			56			38	-				75			32			15		0		-	3			0			0		17	
47			Omoi River	Oashi River	Akaishi Bridge	Kanuma City			10			14					15			0			11		11			)			0			0		0	
48			Area	Koyabu River	Koyabu Bridge				940			86	D				42			65			56		65			5			36			49		420	
49					Tamotsu Bridge	Tochigi City			30			66					12			79			10		0			0			119			0		0	
50				Omoi River	Otome-ohashi Bridge	Oyama City			186			40		1	1	15	54 34	106	27	191	1		46	+	0			2 13	,	15	101		53	0		0	
51		Watarase River Area	Uzuma River	Uzuma River	Uzuma Bridge	Tochigi City			95		+	n	+		+	8	2 135	89	89	34	1	1	52	+	56			12 53		460	44	186		26		50	$\square$
H			Area		Watarasegawa River intak-					+	+	+	+	+	+	+				-	+	-		+		+	÷				-		_	-	-	+	+
52					weir at Sori Power Station	Nikko City			63			34					36	20	38	55	53		34		27			8 19	'	32	54		20	15		21	
53					Hajika Bridge	Arbikam City			26			48					34			80			36		46		:	9			28			16		15	
54			Watarase River Area	Watarase River	Nakabashi Bridge	о сыякада Сжу			71	Τ	T	30	D	Τ	Τ	Τ	37			22			12		53	Т	Τ	)			0			0	Τ	0	
55					Watarase-ohashi Bridge	Tatebayashi City			128			30		1	Τ		260			67		1	310		228	1		1			112			0		160	
56					Shinkai Bridge	Tochigi City			48		+	57	1	+	+	4	3 164	127	46	45		1	40	+	36			9 34		30	16	13		19		22	$\square$
H				1		1 - 14	Total n	mber		Detec ti	ion .			<u> </u>	<u> </u>		1		. <u> </u>		-	<u> </u>					1	1									4
							of san	nples	1,213	times	1,0	101																									
							*1: Blank	cells a	re locatio	ons who	ere samp	oles wer	e not e	: ollec te	d. The	result	"Not dete	table"	is indicate	ed as "0."																	
L																																					

# Table 4.3-14 Detection of radioactive cesium at respective locations (Tochigi Prefecture: river sediments) (No.2)

				Location									I	River s	sedime	nts/Rac	ioactive	Cesiur	m (Cs-l	34 <b>+</b> C	's-137)/Co	ncentr	ation(	Bq/kg)	(*1)						Average of		Coefficient	
No.			Water area		Location	Municipality					1	FY201-	4									- 1	F	Y2015						Changes	FY2015 (*2)	No.	of variation	Trends(*3)
							4	5	18	7	8	9	10	11	12	1	2 .	s .	4 :		0	7	8	9	10	1 12	1	2	3	$\sim$	10		1.01	/
1				Nakagawa River	Ikuyobashishira	Nasushiobara City			18	_	20			12					1				15					21		·~~~	12	1	1.01	1
2					Komei Bridge			24			24			45			19		1	/			21		_	1		16		4	16	2	0.99	ί (
3				Takaomata River	Takaomata Bridge	Nasu Town		52			20			25			191		4	7			82		-	1		41		han	50	3	1.59	1
4				Yukawa River	Yukawa Bridge	Namahinkana		62			49			25			43		3	0			15			7		64		~~~~	32	4	0.83	1
5				Nakagawa River	Kamikuroiso	City/Nasumachi		102	58	83	45	90		44			24		4	7	131	32	59	66	1	4		29		www.h	55	5	0.50	~~~*
6				Yosasa River	Yosasa Bridge	Nasu Town		24			430			55			820		1	9			17			9		17		L	18	6	1.51	MM
7				Kurokawa River	Shinden Bridge			68			90			62			77		7	5			60			5		30		A	50	7	0.95	1
8				Yosasa River	Kawada Bridge			75	134	152	146	206		61			137		3	6	54	123	82	68		1		80		Lucm	73	8	0.79	1
9				Nakagawa River	Kurobane			26	38	63	23	31		19			25		2	3	15	18	21	29		3		19		m	21	9	0.53	1
10				Matsuba River	Tributary	Otawara City		19	73	61	59	80		96			79		3	0	24	165	29	40		0		27		Lan.	49	10	1.30	Z
11				Sabigawa River	Udagawa Bridge				66		212			67			46		1	4			30			3		24		1~~~	23	11	1.04	/
12				Momura River	Momuranaka Bridge				83			110		106			125		2	1			35			2		77		Ann.	54	12	0.58	/
13	Nakaj	gawa River	System		Yunohara				12		16			11							0		32			4		32		~~	22	13	0.69	ζ,
14					Sakiba Bridaa	Nasushiobara City			60		410			75			106		7	4			49					34		. 1	49	14	0.83	× ۸ ۸
14				Hokigawa River	D. I		-		14	-	410	204		10			100	+		-					-							14	0.00	/ V V •
15					Iwai Bridge	Otawara City			14			204		12			15		1	8	12		25			3		17		$\sim$	18	15	0.98	////*
16					Hokigawa Bridge				17	22	15	24					17			,	15	45	12	10	_	3		14		mon	15	16	0.97	1
17				Nakagawa River	Shinnaka Bridge	Nakagawa Town		19	17	19	15	42		15			12		1	2	15	16	13	11	_	2		10		Mulle-	13	17	0.87	1
18				Mumogawa River	Kosei Bridge		<u> </u>	16	11	18	0	20		16			15	_	1	3	0	17	0	14		4	-	12	1	VWW	10	18	0.55	1
19				Arakawa River	Saikachi Bridge	Shioya Town		65			355			125			126		7	1			55			4		26	<u> </u>	<u> </u>	42	19	1.09	1
20					Renjo Bridge	Sakura City		13			0			13			11		0				17			D		0		~~~	4.3	20	1.07	/
21				Lichikawa Pier-	Tanaka Bridge	Yaita City		105			152			63			97		5	9			32			6		43		L	40	21	1.87	/
22				Ocilikawa Kivei	Asahi Bridge	Sakura City		54			279			19			33		3	5			38			9		32		~~^_	34	22	0.81	$\sim$
23				Arakawa River	Mukada Bridge	Nasu Karasuyama		16	10	20	39	73		12			21		(	)	15	12	12	12		1		0		Λ	8.9	23	2.22	ļ
24				Egawa River	Tributary	City		21	520	36	28	255		20			18		1	4	16	12	21	0		2		105		- M	26	24	1.45	٨٨A
25	1			- Vinuesaus Disse	Kawaji Daiichi Power			21			13			17			13						0			4		16		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	15	25	0.69	/
26					Station, front					_																		10		· · · · ·		~	1.00	^ ^ ^
20				runisni kiver	Maesawa Briage			0		_				21			_	-		'		_	14		_			15		- VWW	0.8	20	1.08	////
27				Ojika River	Tributary			11			14			20			11		(	)			21			D		0		h	5.3	27	1.80	////
28				Kinugawa River	Kosagoe			66			73			118			36		3	3			95		_	4		16		/ ~~~	40	28	1.58	////
29				Itaana River	Tributary	Nikko City		62	41	72	53	75		55			47		6	2	63	41	34	23	1	5		116		<u> </u>	52	29	3.62	1
30				Yukawa River	Tributary			0			10			0							0		0			7		0		M_	4.3	30	1.31	1
31				Daiya River	Shinkyo Bridge			12			20			17			20		1	4			15			1		13		~~	13	31	0.83	1
32				Shidobuchi River	Sujichigai Bridge				189		150			108			67		9	5			81		1	46		100		~~~~	106	32	0.47	/
33				Daiya River	Kaishin Bridge (Harigai)				24 11	13	0	12		0			0		1	9	11	18	15	11		D		20		Am	13	33	0.95	Ĺ
34				Kinugawa River	Sanuki	Shioya Town			14 0	0	0	20		0			19		1	3	0	25	12	0		7		19		~M	12	34	1.59	NVA.
35		Kinugawa	River System	Nishi-Kinugawa	Nishi-Kinugawa Bridge				32		69			108			18		1	4			25		1	96		149		1. 1	96	35	1.82	/
36				Kivei	Kinugawabashi	Utsunomiya City			0		13			0			0				0		0			2		15		IM	6.8	36	1.17	٨٨٨
50				Kinugawa River	Bridge(Hoshakuji Temple)				0					Ŭ							0					-				V L	0.0	50	,	
37					Daidoizumi Bridge	Mooka City			22		95			43			0				0		0			1		13		<u>_</u>	6.0	37	1.23	\/V\•
38				Egawa River	Tributary	Shimotsuke City		38	46	13	20	0		19			11		2	1	45	18	40	31		0		17		A.L.	30	38	1.54	/
39				Akabori River	Nikko City Hall, front	Nikko City		191			150			293			117		1,0	10			262			2		64		m	352	39	0.88	1
40	onegawa River				Kiwadajima			48			41			26			25		2	3			29		1	02		20			44	40	0.99	/
41	System			Tagawa River	Ozobashi Bridge	Dame: C:		20	12	27	12	13		14			16		1	0	14	14	12	0		1		11		-M	10	41	1.04	/
42				Kamagawa River	Tsukushi Bridge	Cesunomiya City		81			107			56			40	Τ	3	5			25		Τ	4		18		hm	23	42	0.66	1
43					Meiji Bridge	Kaminokawa Town		0			17			14			0			)	1		0			D		19		Λ-Λ_	4.8	43	1.24	1
44				Tagawa River	Yanabashi Bridge	Oyama City	1	42			57			74			27	$\uparrow$	5	1			63			2		22	1	~~~~·	37	44	0.93	/
45	ŀ				Kaijima Bridge	Kanuma City	1	10			14			0			0	+	(	,			0			D		0		h	0	45	1.68	/
46				Kurokawa River	Onari Bridge	Mibu Town			0		0	-		0			0	+		,	-		0		+	D		0	1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0	46	1.64	/
47				Oashi River	Akaishi Bridge	t		0			0	-		18			0	+		,			0		+	0		0	1	~~ L.	2.5	47	134	× ^ ^
49			Omoi River Area	Koonhu Pirror	Koauhu Bridge	Kanuma City	⊢	-			20			10			18	+	<u> </u>			_	12			~ 4	-	12	-		16	41	1.34	/vv•
				- Juon Arter	m . p.1		-	30	0		~7	-		.7				+		-					-		-	- 13	-			+0	1.07	× × ×
49				Omoi River	Tamotsu Bridge	Tochigi City			0		0			0			0			,			0		_	0		0		~~	0	49	1.97	////
50		Watarase	Uzuma River		Otome-ohashi Bridge	Oyama City	<u> </u>	15	43	65	540	0		0		$ \mid$	U	+	1	7	0	14	U	U	+	v	-	0	-	mil	4.7	50	1.85	////
51		Kiver Area	Area	Uzuma River	Uzuma Bridge	Tochigi City	<u> </u>	195	0	115	82	69		157			116	+		16	53 195	0	0	67		8		13	-	Nhim	77	51	1.07	$\sim$
52					Watarasegawa River intake weir at Sori Power Station	Nikko City	l	15	90	18	15	13		18			28		1	1	13	13	23	23		5		0		with	14	52	0.68	1
53					Hajika Bridge		1	0			15			0			14	1			0		0			D		21		A	5.3	53	0.94	/
54			Watarase River Area	Watarase River	Nakabashi Bridge	Ashikaga City			10		0			0			0	+		+	0		0			D		0	1	Λ	0	54	2.53	/
55					Watarase-ohashi Bridee	Tatebayashi Citv	1	$\square$	0		59	-		12			0	+	+	+	295		14		+	0		0		Mus A	80	55	1.16	<u>^</u> ^/
56		Watarae         Mukapacity         III         III         III         III         IIII         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII													10	56	1.06	· v v •																
	Shinkai Bidge         Tackigi City         17         11         77         16         24         18         11         0         0         12         0         0         12         0         13         11         10         10         11         10         11													10			1																	
*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0." A B C D E 32												32	Average																					
							*2: Ar	ithmetic	Average; ca	lc ulated	by ass	uming	ND=0	; Color	codes	show c	ategories	(see th	e right)															
							*3: Re	sults of	the analysis	of trend	ls at re	spec tiv	e locat	ions us	sing the	method	explained	l on 4.	3(1)2)		1	Decrea	ing	~	Increas	1g ~	⊶ Un	c hange	sd	Varying				

#### 6) Gunma Prefecture

In Gunma Prefecture, surveys were conducted 10 to 30 times from November 2011 to January 2016 at 48 locations (rivers) in public water areas (this analysis excludes the survey results at eight locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, one location was categorized into Category A, nine locations into Category D, and 38 locations into Category E (see Table 4.3-15 and Table 4.3-16).

Concentration levels were generally decreasing at 31 locations, were unchanged at one location and fluctuating at 16 locations.

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	1	No.47
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	9	No.1, No.4, No.15, No.27, No.32, No.39, No.41, No.44, No.48
Е	Upper 50 to 100 percentile(lower 50%)	38	No.2, No.3, No.5, No.6, No.7, No.8, No.9, No.10, No.11, No.12, No.13, No.14, No.16, No.17, No.18, No.19, No.20, No.21, No.22, No.23, No.24, No.25, No.26, No.28, No.29, No.30, No.31, No.33, No.34, No.35, No.36, No.37, No.38, No.40, No.42, No.43, No.45, No.46

Table 4.3-15 Categorization of detected values at respective locations (Gunma Prefecture: river sediments)





Figure 4.3-9 Changes in concentration levels over the years at respective locations

(Gunma Prefecture: river sediments)

			In	antion												Direct	. codimont	Padioo	tine Coolum	(Co 12	u±c.	127)/Ca	noonte	tion (P	all a) (	en.									
			Lo	canon					FY20	11						River	seament	F	2012	(03-13	9 <b>7</b> (3)	157)/C0	ncentra	ition(B	the Bill	-1)				FY201	13				
No.		Water a	irea	Location	Municipality	8	9	10	11	12	1	2	3	4	5 6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2 3
1			Tononomo Pinor	Hirose Bridge					77						350			74		90							72		194			52		61	
2			i onegawa Kivei	Tsukiyono Bridge	Minakami Town				71			87			102	37	55	i4 60		68		71					70 46	47	115	40		60		36	
3			Akaya River	Kosode Bridge					24				92		68			42		40		113					39		60			13		90	
4			Sakura River	In Ooaza Yachi	Kawaba Village					173		330			410	244	227 5	00 279		259		271					282 260	263	222	126		129		147	
5				Kirinoki Bridge	Katashina Village					38			63		38			159		31							46		17			17	-	34	
6			Katashina River	Tonemachitakatoya						10			15		0	10	0	5 0		0							10 10	0	0	0		0		0	
7				Futae Bridge	Numata City				30			51			39	86	96 1	54 47		74		126					99 80	95	74	92		39		34	-
8		_	Agatsuma River	Shinto Bridge	Naganohara Town					0	_	24			11		187			95		0					0		0			0	-	0	
9		Tonegawa River Area	Shirasuna River	Shuttatsu Bridge	Nakanojo Town					12								12									0		12			0		0	
10			Anatonna Piver	Downstream of Azuma	Higashi-Agatsuma					0		0			11	22	0	4 14		10		0				0	0	0	12	0		0		0	
10			Nebute Diver	Bridge Tonodo Bridan	Town					215		72				2				00		02					69	0	02			60		29	-
11			Nakuta River	I onoda Bridge	i akayama viitage					215		15			13	3		81		85		85					08		93			00		38	_
12			Agatsuma River	Agatsuma Bridge	Shibukawa City					153		35			53 19	37	170 e	10		0						16	34	95	51	56		46		10	_
13			Tonegawa River	Taisho Bridge	Shibukawa					39		34			31 49	15	56	19		30		50				46	54	65	147	16		15		20	
14			Takizawa River	Shintakizawa Bridge	City/Yoshioka Town					206		97			81	·	_	50		48		245				_	65		48			24		39	_
15			Tonegawa River	Gunma-ohashi Bridge	Maebashi City					55		410			6			0			37	53					73		140			12		43	_
16			-	Fukushima Bridge	Tamamura Town					112		23			44			43			46	39					64		56			0		0	
17			Nagai River	Kamigonda Bridge	Takasaki City					126			160		31	0		107			247	170					186		176			137		52	
18			Karasu River	Karasugawa Bridge						77			88		53			51			45	39					41		30			19		19	
19			Umi Dinas	Nakase Bridge	Annaka City					106		94			37	0		120			95	63					127		57			19		131	
20			CSUI RIVEI	Hanataka Bridge	Takasaki City					38		78			74			82			40	61					47		68			12		0	
21				Tadakawa Bridge	Shimonita Town					17		11			51			29			15	17				0			13			0		0	
22			Kabura River	Kaburagawa Bridge	Takasaki City/Fujioka City					0		69			43			38			91	73			2	14			49			50		22	-
23			Ogawa River	Kinzan Bridge	Kanra Town										8			90			36	13				13			16			63	-	36	
24 T	onegawa	Karasu	Nanmoku River	Ozawa Bridge	Nanmoku Village										61			10			18	0				13			21			0	-	11	-
25	River	River Area	Someya River	Yakushi Bridge	Shinto Village					142		73			11	3		133			67	53					47		67			24		35	
26			Inceawa River	Kamakura Bridee	Takasaki City					68		0			12	5		12			11	0					23		19			23		39	
27			Koroon Dinor	Intelance Bridge	Takasaki					67		10			10			720			210	280				102			050			122		16	
20			Karasu River	Chistorean Deites	City/Tamamura Town					07		19			10		-	720			310	380			-	102			950			0		10	
28			Kanna Kiver	Shinkaname Bruge	Ceno viiage										3			0			10	0				10						0			-
29			Kanna Kiver	Monto Bridge	Kanna Town Fujioka City/Kamikawa					0		0			U			0			0	0				0						0			
30			Kanna River	Tobukyo Bridge	Town					0		0			0			0			43	0				0						0			
31			Kanna River	Kannagawa Bridge	Kamisato Town					0		0			14		-	0			36	107				_	36					42	_		
32			Tonegawa River	Bando-ohashi Bridge	Honjo City					22		46			93	:		0			252	17			2	24			237			66		53	_
33			Akagishirakawa River	In Shimohosoi Town						108		15			40			78			61	41					63		17			18		13	
34			Momonoki River	Utsuboi Bridge	Maebashi City					27		15			7:			14			41	0					0		16			0		13	
35			Arato River	Okuhara Bridge						0		48						13			0	0					0		0			26		10	
36		Tonegawa River Area	Kasukawa River	Hozumi Bridge						46		46			35			18			31	16				31			286			15		29	
37			Hirose River	Nakajima Bridge	Isesaki City					15		17			61			41			0	35				0			83			57		45	
38				Hayakawa Bridge						370					14	7					261				1	73			82			25		95	
39			Hayakawa River	Maejima Bridge	Ota City					99					18	3					77					70			169			67		56	
40			Tonegawa River	Tone-ozeki Weir	Chiyoda Town /Gyoda Ciw					235		203			410	340	280		640 380	)	72	83				59	75	50	95	400		172		28	-
41			Koguro River	Kayano Bridge	Kiryu City					340			158		103	136	i 198		228 120	)	187		139		3	30	143	157	113	48		90	-	87	
42				Takatsudo	Midori City					86		50			61			56			84		64			65			61			36		89	
43			Watarase River	Intake for Akaiwayosui	Kirvu City					98		96			82	69	66		74 80		76		81			78	65	90	78	62		53		52	+
44		Watarasa	Tatara Divar	water channel	Ours Town										63	0		_			164	197				04			360			126		26	
45		River		Vannan Bridaa	Vienn City					110			104		24			129			100		225			21			110			04		107	
40			Kiryu River	e da i pilda	Kiryu City/Ashikaga	-	-	-	$\left  \right $	100	_	100	104	+	24	-		128		-	100		104	+		.51		-	110	-	-	24	-+	.07	+
46				sakai Bridge	City			-		198	_	155	$\rightarrow$	+	122	243	140	-	95 118	<u>`</u>	105		104	+	+	/0		-	135	-	-	152	$\dashv$	58	+
47			1 suruuda River	Lake Jonuma	1 atebayashi City Meiwa Town/Itakura									_	10	U		_		-	1560	141	+	+	4	10		-	510		-	1560		92	_
48	Yatagawa River         Togoda Bridge         Meira Town Riskura Town         Meira Town         Gala         640         0         490         124         52         550         28																																		
						of sa	mples	214	tim	es	161																								
						*1: Blar	nk cells	are loc:	ations w	here s:	amples	were r	not colle	cted. T	ie result	'Not de	tectable" is	ndicated	ıs "0."																
1																																			

# Table 4.3-16 Detection of radioactive cesium at respective locations (Gunma Prefecture: river sediments) (No.1)

						-	•					_		_						_	<u> </u>	<u>`</u>							-			r	r								
			Loc	ation							FY2014		River s	edimer	its/Radi	toactive	Cesium	(Cs-13	+Cs-137)/0	oncent	ration	(Bq/kg)(*1) FY2015						1		Average of FY2015	No.	Coefficient of	Trends(*3)								
No.		Water	area	Location	Municipality	4	5	6	7	8	9	10	11	12	1	2	3 4	5	6	7	8	9	10	11	2	2	3	Changes		(*2)		variation									
1			Topogawa Piyar	Hirose Bridge				42		34			83						154		38			84	30	17		An	J	146	1	0.85	M.								
2			ronegawa rurer	Tsukiyono Bridge	Minakami Town			33 55	25	50	23		38		51			27	15	18	18	15		19	2	2		Than	-	19	2	0.54	1								
3			Akaya River	Kosode Bridge				16		17			19		24			25			11			13	1	3		M	_	16	3	0.79	/								
4			Sakura River	In Ooaza Yachi	Kawaba Village		135	169	179	132	185		141					150	231	273	100	85		144	13	18		~~~~	h	159	4	0.44	$\searrow$								
5				Kirinoki Bridge	Katashina Village		15			13			17					18			15			14	1	7		A	_	16	5	1.05	1								
6			Katashina River	Tonemachitakatoya			42	0	0	0	0		0					21	47	58	10	0		0		)		mil	1	19	6	1.76	$\sim$								
7				Futae Bridge	Numara City		54	110	53	89	85		30		36			53	31	161	59	19		18	2	4		Ma	L	52	7	0.56									
8		Topegawa	Agatsuma River	Shinto Bridge	Naganohara Town			38		27			0		10			0			10			0	2	D		A		7.5	8	2.01	/								
9		River Area	Shirasuna River	Shuttatsu Bridge	Nakanojo Town			10		0			0		0			0			0			0	1	9		-\AA		4.8	9	1.45	-MM								
10			Agatsuma River	Downstream of Azuma Bridge	Higashi-Agatsuma Town		0	0	0	0	11		0		0			0	0	0	0	0		0		)		AL		0	10	1.94	/								
11			Nakuta River	Tonoda Bridge	Takayama Village			19		15			17		21			19			17			20	2	5		h		20	11	0.87	1								
12			Agatsuma River	Agatsuma Bridge			0	26	11	11	0		13		17			0	0	0	0	12		0		,		Λ.		1.7	12	2.30	/								
13			Tonegawa River	Taisho Bridge	Shibukawa City	-	25	20	14	12	15		35		53			12	11	15	14	0		12	1	6		-		11	13	0.86									
14			Takizawa River	Shintakizawa Bridge	Shibukawa		23			15			24		22			42			20			18	4	2		LA	~	31	14	1.04									
15				Gunma-ohashi Bridge	City/Yoshioka Town Maebashi City		93			52			50		80			69			286			0	1	4		Λ	^	92	15	1.22	$\overline{}$								
16			Tonegawa River	Enkuchima Bridae	Tamamura Town	-	57			0			85		16		-	37			11			0	3	5	-	1-211	1	21	16	0.84									
17			Nami Piyar	Kamigonda Bridge	Tanana Town		81			42			31		51		-	55			01			28	3			And No	~	51	17	0.70	<u> </u>								
10			Kanan Rivar	Kamponia Intige	Takasaki City			26		12					26		-	22			22			11			-	2	~	14	19	0.60	~								
10			Karasu Kivei	Nahara Bridan	Annaha Cita			17		13			26		35	_	_	22			42			14	-	,	-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		14	10	0.09									
19			Usui River	Nakase in lage	The life		0	17		21			20				_	20			42			14		, 	-	m	~	10	19	0.00	/								
20				Hanataka Bridge	I akasaki City	-	0			0			15		0		-	13			15			0		2	-	, · C.	~	10	20	0.99	~								
21			Kabura River	Tadakawa Bridge	Shimonita Town Takasaki City/Fuijoka		17			12			0		0		_	0			0			0	-	)	_	~~~		0	21	1.39									
22				Kaburagawa Bridge	City		24			23			27		43		_	0			123			17		)	_	~~~	Λ	35	22	1.04	1001								
23		V	Ogawa River	Kinzan Bridge	Kanra Town			13		37			18		18		_	10			11			23	1	3	_	1	~	14	23	0.85	>								
24	Tonegawa River	River Area	Nanmoku River	Ozawa Bridge	Nanmoku Village		0			13			0		0			0			0			0		)		hm		0	24	1.79	>>								
25	System		Someya River	Yakushi Bridge	Shinto Village		23			20			20		17			23			19			29	2	1		n.	~	23	25	0.79	>								
26			Inogawa River	Kamakura Bridge	Takasaki City		46			10			12		14			0			11			0		)		n_	~	2.8	26	1.36	>								
27			Karasu River	Iwakura Bridge	Takasaki City/Tamamura Town		29				362		296		192				60		164			48		)		M	~	68	27	1.12	$\sim$								
28			Kanna River	Shinkaname Bridge	Ueno Village		17						0					0						0				m	_	0	28	1.47	/								
29			Kanna River	Morito Bridge	Kanna Town		13						0					0						0				$-\Lambda$		0	29	3.46	$\sim$								
30			Kanna River	Tobukyo Bridge	Fujioka City/Kamikawa Town		0						0						14					0					~	7.0	30	2.67	$\sim$								
31			Kana River         Tobakyo Bidge         Fujika CRyKamkawa         0         0         0         14         0         0         1           Kana River         Kama Kore         Kama Kore         Kama Kore         0         0         0         0         14         0         0         1         1           Tonegava River         Bando-shuh Bidge         Kamiako Town         16         0         0         0         65         0         0         1																33	31	1.26	$\sim$																			
32			Tonegawa River	Bando-ohashi Bridge	Honjo City		33				79		11		39				16		192			23	1	D		M	٨	60	32	1.09	$\sim$								
33		Kuma River         Kumajora Birdge         Kumajora Toren         16         I         0         0         I         66         I         0         0         I         33         31           Tonegora River         Rando-stashi Birdge         Popularization         33         I         700         11         30         I         10         10         12         23         10         Monocolina         60         12         10         10         33         31															33	0.83	1																						
34			Momonoki River	Utsuboi Bridge	Maebashi City		19			16			17		15			14			0			10		)		A	~	6.0	34	1.12	/								
35			Arato River	Okuhara Bridge			10			0			10		0			0			0			0		)		NM		0	35	1.87	1								
36		Tonegawa River Area	Kasukawa River	Hozumi Bridge			28			413			11		13			12			23			13	2	D		A		17	36	1.78	NM.								
37			Hirose River	Nakajima Bridge	Isesaki City		19		1	32			17		18		1	18			24			21	1	5	1	$\sim$	~	20	37	0.76	M								
38				Hayakawa Bridge	1		270				45		51		73			55			62			22	3	D		×^_	_	42	38	0.90	/								
39			Hayakawa River	Maejima Bridge	Ota City		150			58			91		44			36			107			109	10	10		~m		88	39	0.47	~~~								
40			Tonegawa River	Tone-ozeki Weir	Chiyoda Town /Gyoda		23	45	181		178 105		116		158				16 18	16	11	18		19	1	6		Ale		16	40	1.05									
41			Koguro River	Kayano Bridge	City Kiryu City			102 72	41	26	61		56		57			36	76	87		97 57		74	7	0		Wh_		71	41	0.67									
42			-	Takatsudo	Midori City			60		23			45		27			69				59		16	2	7		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		43	42	0.40									
43			Watarase River	Intake for Akaiwayosui	Kirvu Citv			35 35	20	46	46		49		47			36	22	35	55	15		26	2	9		~~~	,	31	43	0.42									
44		Watarase	Tatara River	water channel Fiiri Bridee	Oura Town			640		610			101		64			31			225			86	۰,		-	\_^	e La	90	44	1.00									
45		River		Kannon Bridas	Kirvu City	-		164	-	43			25		27	+	+	7.4		1	67			29	<b> </b> ,	5	+	A.	$\sim$	52	45	0.63	· v v •								
46			Kiryu River	Salari Bridan	Kiryu City/Ashikaga	$\vdash$	$\vdash$	14	-	12		-	22		26	-	_	1.4		+	19			32	-	-	-	1		22		0.74	1								
40			Trurund- Diam	Laka Jonur-	City Tatabayachi City	-	$\vdash$	7,00	-	2140		-	1340		1440	+	+	720		+	1510			870	12	30	+	AAA	~	1.085	40	0.57	<u>~</u>								
47			Vataraue Dises	Tonoda Brid	Meiwa Town/Itakura	-		320	-	2100		-	40		48	+	+	130		+	102			82		3	+	NA.		-,085	47	1.24	/ V V •								
+5		Yatagawa River         Togoda Bridge         Meiwa Town/Italara         320         22         40         48         14         192         82         33         Mm         80         48         1.24																																							
		*1: Bank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0." A B C D E 55 Average																																							
		*2: Arithmetic Average; calculated by assuming ND=0; Color codes show categories (see the right).																																							
						*3: R	esults of	the analysis	of tren	ls at re	spective locat	ions us	ing the	method	l explain	ied on 4.	3(1)2)		> Decrea	sing	1	Increasing	~~*	Unchan	jed	~~*	Varying			*: Annumers: Average; canculated by assuming 0x1-xt, Lour codes show categories (see the right). *3: Results of the analysis of trends at respective locations using the method explained on 4.3(1)2)  Decreasing  Increasing  Increasi											

## Table 4.3-16 Detection of radioactive cesium at respective locations

(Gunma Prefecture: river sediments) (No.2)

#### 7) Chiba and Saitama Prefectures and Tokyo Metropolis

In Chiba and Saitama Prefectures and Tokyo Metropolis, surveys were conducted 16 to 29 times from October 2011 to January 2016 at 51 locations (rivers) in public water areas (47 locations in Chiba Prefecture, two locations in Saitama Prefecture, and two locations in Tokyo Metropolis).

Regarding concentration levels of detected values, five locations were categorized into Category A, eight locations into Category B, 19 locations into Category C, 14 locations into Category D, and five locations into Category E (see Table 4.3-17 and Table 4.3-18).

Concentration levels were generally decreasing at 40 locations, were unchanged at three locations and fluctuating at eight locations.

# Table 4.3-17 Categorization of detected values at respective locations (Chiba and Saitama Prefectures and Tokyo Metropolis: river sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	5	No.8, No.10, No.19, No.26, No.28
В	Upper 5 to 10 percentile	8	No.1, No.7, No.11, No.12, No.13, No.15, No.20, No.29
С	Upper 10 to 25 percentile	19	No.3、No.5、No.9、No.14、No.16、No.17、No.18、No.21、No.24、No.30、No.31、 No.33、No.38、No.39、No.40、No.41、No.42、No.44、No.50
D	Upper 25 to 50 percentile	14	No.4, No.6, No.22, No.23, No.25, No.27, No.32, No.36, No.43, No.45, No.46, No.47, No.49, No.51
Е	Upper 50 to 100 percentile(lower 50%)	5	No.2, No.34, No.35, No.37, No.48



(\*) Scales of the vertical axes differ in the left and right figures.

Figure 4.3-10 Changes in concentration levels over the years at respective locations (Chiba and Saitama Prefectures and Tokyo Metropolis: river sediments)

# Table 4.3-18 Detection of radioactive cesium at respective locations (Chiba and Saitama Prefectures and Tokyo Metropolis: river sediments) (No.1)

			Location	1										River	sedime	nts/Ra	dioactiv	e Cesit	m (Cs-1	34+Cs-	137)/Ca	centrati	m(Bq/k	g)(*1)									
No.	Prefecture	,	Water area	Location	Munic ipality		0	10	FY2011							0	FY2	012		10								FY2	1013				
$\square$						8	9	10	11	12 1	2	3	4 5	0	7	8	9	10	11	12	1 3	3	4	5	6	7	8	9	10	11	12 1	2	3
1			Shogen River	Fukama-ohashi Bridge	Inzai City /Sakae Town				1,910	_	1,780	_		1,660		1,190			1,200	2	90		-	1,800			1,750	⊢	-	1,840	1,81	0	_
2				Shinbei Bridge				50		_	72			149		81			54		i6			26			56	$ \square$		31	55		
3				Intake at Maeshinden Water Purification Plant				1,000			950			1,230		850			310	4	30			420			210			320	420	)	
4		Tonegawa River System	Nagato River	Nagato Bridge	Sakae Town			660			510		500			430			300	2	44			285			217			291	420	)	
5		-		Fujimi Bridge	t			700			920		550			390			480	4	10			390			370			340	370	)	
6			Ryadai River	Ryumatsuno Bridge					197		260		143			234			290	3	50				236		177			49	45		+
2			Nobere Birer	Shinhama Dandanta	Narita City			-	2 200	-	2.010	-	010			1.620			640		200				220		1.220	$\vdash$		1.020			-
-			ivekona kivei	Salaikawa Pisougale				_	2,300	_	2,010	_	910			1,020			040	1.	180		-	-	720		1,330	⊢		1,020	910	, 	-
8			Ohori River	Kitakashiwa Bridge	Kashiwa City				9,700	_	4,100	_	12,00	0		5,100			3,000	4,	200			7,900			7,600	⊢⊢	2	2,560	2,65	0	
9			Otsu River	Sanno Bridge, under	Kamagaya City				3,900	_	440		390			2,140			900	7	10			1,600			1,250	$\square$		930	820	)	
10				Kaminuma Bridge	Washiwa City				5,000		9,000		20,20	0		14,000			380	14	,200			6,700			6,000		3	5,400	1,97	0	
11		Feeder rivers of Lake	Someiriotoshi	Someishinbashi Bridge					3,100		5,100		990			4,900			5,700	2,	900			305			430		1	1,310	1,15	0	
12		1 eganuma		Downstream of Karuizawasaka	Kamagaya City /Shiroi				2 500		2 260		7.10			7 200			1 300	1.	130			920			820			460	460		
**			Kanayamaotoshi	Bridge	City				2,000	_	2,200		7,10	·		7,200			1,000		*			120			020	$\square$		400		·	
13				Nauchi Bridge	Shiroi City				2,200		2,400		1,80	)		1,270			1,330	1,	210			1,280			1,170			750	710	)	
14			Kamenari River	Kamenari Bridge	Inzai City			256			360		600			560			1,620	5,	300			3,600			2,680			162	222	2	
15			Igusasuiro Channel	Downstream of Igusasuiro Channel	Kamagaya City				3,500		4,100		3,20	0		2,800			3,500	2,	750				2,980		1,890			800	97(	)	
16			Futae River	Tomigaya Bridge	Funabashi City /Shiroi				2,700		3,300		1,64	)		1,760			1,150	1,	460			1,150			1,480			760	760	)	
17			Kanzaki River	Kanzaki Bridge	Yachiyo City /Inzai City				2,800		2,380		2,17	)		830			1,650	1,	150			1,590			1,790			680	670	)	
18			Kanno River	Kanno Bridze					3,300		1.250		5.00			2.410			880	7	30			2.840			2.780			126	58		-
-			Inba Discharge Channel/Upper		Yachiyo City	$\vdash$			2.700		2.000	+						-	0.000				1	205	-						-		+
19		Feeder rivers of Laka	reaches)	racniyo Bridge					3,700		7,800	_	3,20	'		910			2,530	1,	280		1	202	<u> </u>		231	⊢⊢	-	2,030	1,08	N	-
20		Inbanuma	Teguri River	Mumei Bridge	Sakura City				2,500		3,200		3,00	)		3,600			3,100	2,	780			1,620			1,900	$\square$	1	1,280	1,39	0	
21			Moroto River	Moroto Bridge	Inzai City				1,760		1,290		1,34	)		1,640			850	2,	330			1,910			2,020			810	1,01	0	
22			Kashima River	Iwatomi Bridge					178		230		170			218			179	1	44			284			307			205	15		
23			Takasaki River	Ryuto Bridge	Sakura City				350		310		340			270			890	3	10			450			550			143		154	
24			Kashima River	Kashima Bridge	1				130		149		173			126			1,080	1	43				149		127			12		0	
25	Chiba		Inhasuiro Channel	- Tsurumaki Bridae	Inzai City				470		460			410		250			226	2	91				182		81			150	149	,	<u> </u>
26	Prefecture		Transmiss Crawl	Lines Deider	Nagareyama City/Noda				2 200	-	2 100	-		2.210		1.050			2.660	2				1.040			2.490			2,000	1.24		-
20			Toliedigi Calla	Cuga ininge	City Nazarevama City/Misato				3,200	_	3,100	-		2,210		1,930			2,330	3,			-	1,940	-		2,480	⊢		:,000	1,24		-
27			Edogawa River	Nagareyama Bridge	City				240	_	220	_		166		520			410	2	75			191			450	⊢⊢		348	283	2	-
28			Sakagawa River	Benten Bridge	Matsudo City				4,900	_	3,900	_		3,500		1,990			3,600	3,	400				3,300		3,040	⊢	2	2,730	3,90	0	
29			Shinsaka River	Sakane Bridge					4,600		4,600			3,300		3,700			2,520	3,	S00				2,350		1,950	$\square$	1	1,820	1,68	0	
30				Shinkatsushika Bridge	Matsudo City/Katsushika City				1,360		1,010			1,120		1,110			740	7	00				890		820		1	1,150	920	)	
31				Ichikawa Bridge	Ichikawa City/Edogawa									290		64			73	3	50				258		206			250	287	7	
32			Edogawa Riper	Vicinity of Keiyo Road	City									145		137			218	2	16				380		330			175	16	1	
33				Gyotokukadozeki Weir										350	420	1.140	200		190	3	70				660	550	580	960	1.020	420	3.20		+
3.5				(upperreaches)	Ichikawa City					_		_	_	550	420	1,140	500		1.70						000	556	500		1,020	420		, 	
34				Shingyotokubashi Bridge					78		59			104	44	48	35		53		7				20		19	$\square$		20	12		
35		Edogawa River		Edogawa Floodgate, down							850						136		109	1	03				83		84			56	70		
36		System		8 km Point to the estuary	Ichikawa City/Edogawa City									71	128	134	340		121	1	45				283		310			112	65		
37			Kyu-Edogawa River	Imai Bridee										70	75	73	104		92		15				48		108			50	32		-
20				I lanuar Daidan			-	26	-	280	-		20	71	1.260	500		2.050		-				700	290	200	850	810	440	0.4			
30				Grayasu nange				13	_	380	_		70	~	1,300	380		2,030	1.	540		-	-	700	380	700	8.50	810	440	244	, 	_	
39			Mamagawa River	Nemoto Floodgate	ł	$\vdash$			1,100	_	1,050	$\downarrow$	_	960	<u> </u>	700			700	7	50	_	1	-	480		480	⊢	-+	222	295	·	+
40			Kokubu River	Suwada Bridge	Ichikawa City	$\square$			2,020		1,610	$\downarrow$		1,200		5,400			2,390	9	70		1		790		730	⊢		770	770	)	4
41			Haruki River	Before the confluence with Kokubu River					1,380		1,270			1,210		930			840	7	60				730		710			304	305		
12			Haran abashina Diran	Downstream of	Kamagaya City/Ichikawa				710		1.220			800		162			180					440			250			179	54		
42			Pasen-okasinwa Kivei	Nakazawashinbashi Bridge	City				/10		1,220			800		155			189		00			440			330			178	30	,	
43			Okashiwa River	Sengen Bridge					970		790			780		610			790	7	30				440		410			158	141		
44			Mamagawa River				430		4,700			4,500		920			580	2,	020				5,800	4,900	5,900	3,010	3,180	138	34				
45		Ebigawa River		Yachiyo Bridge	Funabashi City				6,400		340			6,000		410			530	1,	160				410		460			80	640	)	
		Inba Discharge																												-		1	-
46		Channel (lower reaches)		Shinhanamigawa Bridge	Chiba City				167		1,770			530	208	1,020	1,730		2,900	1,	270		1		960	1,640	1,130	1,680	1,590	146	233	2	
47		Miyako River		Miyako Bridge	1 .				50	+	171	+		530		241			91	1	93		1	1	238		259	-t	-	750	500	,	+
40			Arakawa River Middle						35	+		10	$\vdash$	25			37		2		+	2.6	1		30			10	10		+		
+5	Saitama Prefecture		_		+	22	+	_	19	$\vdash$	25	$\vdash$	-	31	+	-	+	1	.54	-		38	⊢┤	+	10	19	+	+					
9 Precentes Arakawa River Arakawa River Lower Reaches Sasame Bridge Toda City														266		61			490	5	40		1	41	<u> </u>		49	⊢		67	36	_	-
50	Tokyo							_	700			131	520	217	280		300	1	75	_	1	1	248		75	$\square$		316	450	)	-		
51	metropolis						580			260	370		300	470	670	3	10				450		460			283	278	3					
1			954	Detection	n 947	1																											
a maple in model in model in the second seco																																	
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		Location									R	iver sed	liments/	/Radios	active	Cesium (Cs-	134 <b>+</b> C	s-137)/C	oncent	ration(	Bq/kg)(*	*1)							Average of		Coefficient -4	
Prefecture	,	Water area	Location	Municipality					1	FY2014	40		10								FY20	015						Changes	FY2015 (*2)	No.	variation	Trends(
	r		Dahama abashi Daidaa		4	5	6	7	8	9	10	11	12	1	2	3 4	5	6	7	8	9	10	11	12	1	2	3	~~_	000		0.20	
		Shogen River	Pukama-onasni Bridge	Inzai City /Sakae Town		1,370			1,210			1,150	-	1,170	40		1,010			1,0/0			1,000		910			×	998	1	0.29	-
			Shinbei Bridge Intake at Maeshinden Water			31			5/		_	59	_	-	27		30			18			25		0			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	18	2	0.00	
	Tonegawa River		Purification Plant			171			229			369			178		431			438			389		411			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	417	3	0.63	
	System	Nagato River	Nagato Bridge	Sakae Town		263			173			185		_	207		138		_	155			148		173				154	4	0.51	-
			Fujimi Bridge			283			248			255	_		258		167			206			182		183			·~	185	5	0.52	
		Ryudai River	Ryumatsuno Bridge	Narita City		46			89		_	161	_	48	_		31			48			161		44			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	71	6	0.69	È
		Nekona River	Shinkawa Floodgate			920			1,160			580		221			880			640			760		508			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	697	7	0.52	
		Ohori River	Kitakashiwa Bridge	Kashiwa City		5,200		-	2,660			1,550	1	1,700			1,780			2,380			1,480		1,470			~~~	1,778	8	0.73	$ \geq $
		Otsu River	Sanno Bridge, under	Kamagaya City			1,120		610			680		470	_		385			471			460		432			y~~	437	9	0.88	$\geq$
			Kaminuma Bridge	Kashiwa City		3,360			3,640			1,290	1	1,220			2,790			3,290			3,450		4,100			1	3,408	10	0.90	$\geq$
	Feeder rivers of Lake Teganuma	Someiriotoshi	Someishinbashi Bridge			1,100			1,160			900		790			640			510			510		605			<u></u>	566	11	0.99	$\sim$
	-		Downstream of Karuizawasakai Bridge	Kamagaya City /Shiroi City		440			440			440		305			510			469			660		560			Л	550	12	1.35	
		Kanayamaotoshi	Nauchi Bridge	Shimi City		129			510	_		510		392	-		590			600			518		534				561	13	0.64	
		Kamanari Pinar	Kamanari Bridaa	Invai City		265			290	_	_	410		419	_		750		_	519			262		202			~~~~	484	14	1.25	1
		Innersian Channel	Downstream of Igus asuiro	Non-cuy		2.00			1.000			740	_	41.7	260		1.110			020			1.000		1.000			~~~	1.012	.4	0.00	~
		Euton Pinar	Channel Tomicana Bridge	Funabashi City /Shiroi	-	2,070	720		.,000			,40	-	156	730		450	$\vdash$		510			429		.,000			1	1,043	15	0.37	
		Yawaki Dinar	Vanyaki Bridaa	City Vaching City Armi Ci	-	940	130	$\left  \right $	540			460	-	-30	-	$\vdash$	409			411			437		++/			200	104	10	0.72	$\vdash$
		Kanzaki River	Kanzaki Bridge	racinyo City /Inzii City	-	850		$\vdash$	350	_		408	_	309	_		403			411	$\vdash$		+10	_	97			×	332	- 17	0.75	$\vdash$
		Kanno River	Kanno Bridge	Yachiyo City		265			620			640		540	-		198			262			105		900			·~~	300	18	1.10	-
	Feeder rivers of Labo	reaches)	Yachiyo Bridge			1,220			1,220			1,050		352			2,150			1,350			1,460		1,580			'han	1,635	19	0.95	È
	Inbanuma	Teguri River	Mumei Bridge	Sakura City		1,250			1,000			760	1	1,000			860			610			1,010		740			~~~~	805	20	0.57	
		Moroto River	Moroto Bridge	Inzai City		540			420			234		408			354			300			208		511			m_	343	21	0.69	
		Kashima River	Iwatomi Bridge			167			181			126		153			98			81			76		63			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	80	22	0.40	
		Takasaki River	Ryuto Bridge	Sakura City		157			380			155		232			125			131			133		161			-M-	138	23	0.67	$\geq$
		Kashima River	Kashima Bridge			132			139			120		126			13			266			404		79				191	24	1.29	W
Prefecture		Inbasuiro Channel	Tsurumaki Bridge	Inzai City		99			58			125			70		104			151			100		107			~~~~	116	25	0.68	
		Toneunga Canal	Unga Bridge	Nagareyama City/Noda City		980			2,270			2,100		:	2,450		690			1,260			2,440		3,240			$\sim \sim \sim$	1,908	26	0.35	~~~
		Edogawa River	Nagareyama Bridge	Nagareyama City/Misato City		216			155			175			292		127			326			38		105			~~~	149	27	0.50	~~~
		Sakagawa River	Benten Bridge			3,240		:	2,000			1,840			1,260		1,170			970			1,070		1,140			~~	1,088	28	0.46	/
		Shinsaka River	Sakane Bridge	Matsudo Cry		990			1,330			1,100			1,200		880			1,000				1,140	1,070			~~~	1,023	29	0.59	/
			Shinkatsushika Bridge	Matsudo City/Katsushika City		630			670			570			490		508			510			306		340			~~	416	30	0.39	
			Ichikawa Bridge	Ichikawa City/Edogawa		92			219			171			114		231			242			278		580			m	333	31	0.54	W
		Edorawa River	Vicinity of Keiyo Road	City		235			180			93			142		144			95			38		41			~~	80	32	0.54	
		-	Gyotokukadozeki Weir			520	390	500	400	680		540			490		630	790	289	610	21		43		67			IAm	350	33	0.56	W
			(upperreaches)	Ichikawa City													12			10			24		22			Л.	22	24	0.74	
			Shingyotokuoushi is tage			10					_	15		_	10		17			10			25		27			, <sup>n</sup>	22	34	0.76	
	Edogawa River System		Edogawa Floodgate, down	Jubiliana Cita Education		38			42			31			50		35			57			26		22			<u> </u>	35	35	1.78	
		Kyu-Edogawa River	8 km Point to the estuary	City		360			139			30			368		114			279			87		110			MVM	148	36	0.63	////
			Imai Bridge			67			27			31			54		25			28			27		39			~~~	30	37	0.93	$\mathbb{N}$
			Urayasu Bridge	Urayasu City/Edogawa City		920	840	680	590	650		760			700		650	740	760	539	660		29		322			Am	529	38	0.64	M
		Mamagawa River	Nemoto Floodgate			279			335			260			255		214			207			232		214			~~	217	39	0.64	$\sim$
		Kokubu River	Suwada Bridge	Ichikawa City		520			530			406			430		304			293			570		437				401	40	1.09	$\left  \right\rangle$
		Haruki River	Before the confluence with Kokubu River			306			321			286			277		210			242			198		281			1	233	41	0.68	/
			Downstream of	Kamagaya City/Ichikawa							Ī																	Δ				/
		Hasen-okashiwa River	Nakazawashinbashi Bridge	City		323			215			56			277		328			196			261		267			Lw~	263	42	0.78	
		Okashiwa River	Sengen Bridge			175			251			156			144		137			168			143		131			~	145	43	0.75	
		Mamagawa River	Mitomae Bridge	ichikawa City		295	1,060	730	314	411		670			460		640	487	440	196	137		178		176			лЛ	322	44	1.23	/
	Ebigawa River		Yachiyo Bridge	Funabashi City			108		167			213		52			102			31			61		165			M	90	45	2.00	
	Inba Discharge																											· A				
	reaches)		suunaaamigawa Brizge	Chiba City			329 154	1/4	284	370		131		100			199	90	/4	79	75		109		19/			NUL	130	40	1.09	
	Miyako River		Miyako Bridge			410			85			56		125			37			53			42		107			~~_	60	47	0.93	IW
Saitama		Arakawa River Middle Reaches	Onari Bridge	Konosu City		17		Γſ	0		_ [	10	[	_[	10		0			0	LΓ		0	_1	0			Mr.	0	48	0.89	$\sim$
Prefecture	Arakawa River	Arakawa River Lower Reaches	Sasame Bridge	Toda City		53			48			35			68		63	1		60			291		31			M	111	49	1.17	
Tokwo	System		Kasai Bridge	Koto City /Edogawa City		430			317			410	+		330		404			210			279		272			hom	291	50	0.45	~~~
Metropolis		Sumida River	Ryogoku Bridge	Chuo City		145			147			160			96		86			191			183		197			m.	164	51	0.56	
	1		-		*1- Bis	nk celt	are locations w	there same	inles	vere net	collecter	d The r	esult "N	lot det~	table"	is indicated a								в	c	D	E.		478	Average	1	<u> </u>
																											-			Br	1	

# Table 4.3-18 Detection of radioactive cesium at respective locations (Chiba and Saitama Prefectures and Tokyo Metropolis: river sediments) (No.2)

(2)-2 Lakes

#### 1) Miyagi Prefecture

In Miyagi Prefecture, surveys were conducted 9 to 17 times from October 2011 to December 2015 for lake sediment samples collected at 21 locations.

Regarding concentration levels of detected values, one location was categorized into Category C, three locations were categorized into Category D and 17 locations were categorized into Category E (see Table 4.3-19 and Table 4.3-20).

Concentration levels were generally decreasing at 13 locations, were unchanged at two locations, were fluctuating at five locations, and generally increasing at one location.

Table 4.3-19 Categorization of detected values at respective locations (Miyagi Prefecture: lake sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	1	No.16
D	Upper 25 to 50 percentile	3	No.9, No.13, No.17
Е	Upper 50 to 100 percentile(lower 50%)	17	No.1、No.2、No.3、No.4、No.5、No.6、No.7、No.8、No.10、No.11、No.12、 No.14、No.15、No.18、No.19、No.20、No.21



Figure 4.3-11 Changes in concentration levels over the years at respective locations (Miyagi Prefecture: lake sediments)

		Location												L	ake Se	diment	s/Radio	active	Cesiun	n (Cs-1	134 <b>+</b> C	s-137)/	Concer	tration	(Bq/kg	)(*1)										
No.	Water	area	Location	Municipality				FY201	1									FY2	012											FY2	.013					
					8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	Kurikoma Dam	Dam site	Kurihara City			1,100								800			290		242							193		241		154		69			
2		Hanayama Dam	Dam site				440								2,290			1,780		300							320		243		225		184			
3	Kitakami River System	Narugo Dam	Dam site	Oeski City			490								290			1,190		660							770		650		520		540			
4		Lake Naganuma	Dam site	Ostaki City			1,180				350				420			610		780							470		146		318		238			
5		Shukunosawatameike Pond	Kurihara City			440								1,260					183							161		176		216		225				
6		Futatsuishi Dam	Dam site	K			2,300									370		560		550							510		331		369		760			
7	Naruse River System	Urushizawa Dam	Dam site	Kami I own				700								440			330	115							390		390		343		364			
8	1	Minamikawa Dam	Dam site	Taiwa Town			2,600								1,600				1,520	1,330							1,230		1,970		1,080		1,030			
9	Sunaoshi River System	Sonoseki Dam	Dam site	Rifu Town			710								1,190					2,640							1,920		1,950		88		2,540			
10	Nanakita River System	Nanakita Dam	Dam site				400								232				148	44							107		213		80		380			
11	Marutazawatameike Pond		Pond exit				1,100								940					69							380		222		129		181			
12	Natori River System	Okura Dam	Dam site	Sendai City			440												1,150								88		47		175		68			
13	Lake Amanuma		Lake exit				2,200				3,000				1,080				1,940	9,700							2,930		2,180		1,220		1,550			
14	Natori River System	Kamafusa Dam	Dam site	Kawasaki Town			85									1,090		126		204							620			690	590		450			
15		Kawarago Dam	Dam site	Shiroishi City			730									660		280		5,700		460					620		790		380		297			
16	Abukuma River System	Shichikashuku Dam	Dam site	Shichikashuku Town			2,160								3,000			840		1,890		1,670					1,310			1,750	1,400		1,550			
17	Lake Bagyunuma		Lake exit	Shiroishi City			1,810								1,310			1,940									340		231		1,380		4,200			
18	Abukuma River System	Murata Dam	Dam site	Murata Town			370									0				115							430				92					
19	Kitakami River System	Lake Izunuma	Lake exit	Tome City			900				420				48			195		270		320					340				350					
20	Natori River System	Tarumizu Dam	Dam site	Natori City			185								270				222	460							326				288					
21	Naruse River System	Miyatoko Dam			31								12					163							195				18							
					Total nu sam	mber of ples	309	Detec time	tion es	305																										
					*1: Blank	cells are	loc ation	s where	e sampl	es were	not col	llec ted.	The re	sult "No	t detec	table" is	indic at	ed as "(	0."																	

## Table 4.3-20 Detection of radioactive cesium at respective locations (Miyagi Prefecture: lake sediments)

		Location										Lak	e Sedi	ments/	Radioa	ctive C	esium (	Cs-134	+Cs-1	137)/Co	ncentr	ation(B	q/kg)(	*1)						Average of		coefficient	_
No.	Water	area	Location	Municipality						FY2	014											FY2	015						Changes	FY2015	No.	of	Trends (*3)
					4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		(2)		The matrix	~
1		Kurikoma Dam	Dam site	Kurihara City		164				23	14		18						224		550		137		100					253	1	1.12	>
2		Hanayama Dam	Dam site	-		185			168		153		161					124			123		204		196				$\wedge$	162	2	1.43	>
3	Kitakami River System	Narugo Dam	Dam site	Oeski Cire			420		394		350		331					375			304		214		244					284	3	0.51	$\searrow$
4	1	Lake Naganuma	Dam site	control cuty		580				141	384		392					185			252		346		263				Lan	262	4	0.63	$\searrow$
5	1	Shukunosawatameike Pond	Pond exit	Kurihara City		246			164		19		76					173			218		24		10				<u> </u>	106	5	1.26	1
6		Futatsuishi Dam	Dam site				450		245		480							560			390		410		182					386	6	0.89	$\checkmark$
7	Naruse River System	Urushizawa Dam	Dam site	Kami Town			286		231		284		252					209			105		188		276				~~~~	195	7	0.46	$\checkmark$
8		Minamikawa Dam	Dam site	Taiwa Town		1,180			432		476		1,000						690		451		560		282				~~	496	8	0.58	$\swarrow$
9	Sunaoshi River System	Sonoseki Dam	Dam site	Rifu Town			1,750		1,150		415		2,080						1,250		1,690		1,380		1,730				$\sim\sim\sim\sim$	1,513	9	0.48	~~*
10	Nanakita River System	Nanakita Dam	Dam site			340				91	33		20					18			70		32		37				2	39	10	0.94	Ļ
11	Marutazawatameike Pond		Pond exit				313			165	109		94					199			90		179		94				2~~~	141	11	1.10	$\swarrow$
12	Natori River System	Okura Dam	Dam site	Sendai City		0				41	46		35					0			20		89		288				$\sim$	99	12	1.72	$\checkmark$
13	Lake Amanuma		Lake exit				1,190		1,720		1,580		1,050					590			710		4,490		1,350				~~~~	1,785	13	0.95	$\checkmark$
14	Natori River System	Kamafusa Dam	Dam site	Kawasaki Town			430		530		431		395					345			377		319		180				$\bigwedge$	305	14	0.58	MM
15		Kawarago Dam	Dam site	Shiroishi City		630			430		306		352					231			500		396		680					452	15	1.61	MM
16	Abukuma River System	Shichikashuku Dam	Dam site	Shichikashuku Town			1,750		2,220		1,960		1,700					2,330			2,970		2,960		3,260				~~~~	2,880	16	0.33	>
17	Lake Bagyunuma		Lake exit	Shiroishi City		160				560	830		215					270			1,320		1,070		1,070				~~~~	933	17	0.93	MM
18	Abukuma River System	Murata Dam	Dam site	Murata Town		259					121							121					36						$\sim$	79	18	0.87	MM
19	Kitakami River System	Lake Izunuma	Lake exit	Tome City		208					149							108					181						$\searrow$	145	19	0.76	$\checkmark$
20	Natori River System	Tarumizu Dam	Dam site	Natori City			329				79							121					190						$\sim$	156	20	0.45	~~~*
21	Naruse River System	Miyatoko Dam	Dam site	Taiwa Town		75					66								67				0						2	34	21	0.97	MM
					*1: Bla	nk cells	s are loc	ations v	where sa	imples	were no	t collec	ted. Th	ie result	"Not d	etectabl	e" is ind	icated a	as "0."					А	в	с	D	Е		510	Average		
					*2: Ari	ithmetic	Averag	e; calcu	ilated by	/ assum	ning ND	=0; Col	or code	es show	catego	ries (se	e the rig	ht).					1						1				
					*3: Re	sults of	the ana	lysis of	trends a	at respe	ctive lo	ations	using tl	he meth	od expl	ained or	14.3(1)	2)	>	Dec	reasing	_	➤ Inc	reasing	~	🔶 Un	changed	1	Varying				

#### 2) Fukushima Prefecture

#### (i) Hamadori

In Hamadori, Fukushima Prefecture, surveys were conducted 13 to 44 times from September 2011 to February 2016 for lake sediment samples collected at 41 locations.

Regarding concentration levels of detected values, eight locations were categorized into Category A, eight locations into Category B, 11 locations into Category C, 10 locations into Category D, and four locations into Category E (see Table 4.3-21 and Table 4.3-22).

Concentration levels were generally decreasing at 22 locations, were unchanged at two locations, fluctuating at 13 locations, and generally increasing at four locations.

Table 4.3-21 Categorization of detected values at respective locations (Hamadori, Fukushima Prefecture: lake sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	8	No.4, No.6, No.9, No.10, No.20, No.22, No.24, No.25
В	Upper 5 to 10 percentile	8	No.3, No.5, No.7, No.18, No.21, No.27, No.29, No.30
С	Upper 10 to 25 percentile	11	No.1, No.11, No.13, No.15, No.16, No.26, No.31, No.32, No.33, No.35, No.36
D	Upper 25 to 50 percentile	10	No.8, No.14, No.17, No.23, No.28, No.34, No.38, No.39, No.40, No.41
Е	Upper 50 to 100 percentile(lower 50%)	4	No.2, No.12, No.19, No.37



 $(\ast)$  Scales of the vertical axes differ in the left and right figures.

Figure 4.3-12 Changes in concentration levels over the years at respective locations (Hamadori, Fukushima Prefecture: lake sediments)

		Location		1	•										-	ake Se	dimen	te/Rad	ioactive	Cosium (Co.	134-6	~s-137)/Conce	atration	(Ra/ka	)(*1)		,								
		Location	1				FY20	)11			1					Jake 30	umen	FY2	012	e Cesiulii (Cs*	13470	.s-157//Conce	iti attoi	(Dd/A)	)(-1)			FY:	2013						
No.	Wat	ier area	Location	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Som	Takei	Shinchi Town		140		129		154		209				5,100			1,580	4,400	6,300	2,180		1,560			4,300	1,280	2,650		3,700		4,400	_	2,580	-
2	(farm pond)	Uchizawa			250		45		830	2.140																350	370	530		340		277	_	254	
3	Matsugaho Dam (I	ske Utaaswa)	Soma City		22.000		3 600		7 500							4 900	7 800	59.000	23.400							42.000	26 200	20.900		10 800		15.400		16 800	
	Mara Dan				0.000		11,000		20,000		17.000					0,000	4.400	10,000	42	1 270 21 000		0.400 20.000			10.000		£ 000 17 500	17,200	26.000	25,500	10,000	22,000	22.000	12,000	
4	Nano Dam Soso		ł		9,900		11,500		39,000		17,400		_	_		8,800	14,400	19,000	42	1,270 21,800		9,400 38,000			19,800		5,000 17,500	17,200	36,000	25,500	48,000	22,600 :	32,800	15,900	
5	(farm pond) Ganbe Dam	Ainosawa	ł												59,000			103,000	8,100	15,500					19,400	43,000		70,000		22,700	⊢	14,200		-	
6	Reservoir		litate Village		8,200		12,200									18,000	87,000	123,000	121,000						106,000	106,000		78,000		50,000	ьĻ	87,000		⊢	
7	Soso	Fugane Dam	1												2,000			20,500	26,600	26,500					2,540	41,000		32,000		4,100		19,900		30,900	
8	(farm pond)	Sasatoge													4,700			4,000	2,900	2,760					8,200	1,030		7,500		5,100		6,600			
9	Takanokura Dam Reservoir				22,000		39,000		30,000		1,560					12,400	19,100	35,000	23,600							7,300	9,800	13,200		960		26,800		23,400	
10	Yokokawa Dam Reservoir		1		13,800		23,000		4,500		3,500					25,900	14,200	125,000	53,000		2,900	2,020				72,000	29,300	12,500		24,300		12,300			
11		Tarayachi	Minamisoma												420	7,600	20,500	7,200				6,400													
12		Takeshiyachi	city															1,180	1,340	1,240	790					550 1,180		600		410		520		600	
13		Ryugasaku	1													47,000		1,080	17,400	12,500						26,600 6,600		6,600		7,400		8,000	_	36,000	
14	Soso	Uwatashiro	Kawamata Towr												4.200			5,100	690	820					380	1.060		780		311		140	-		
15	(farm pond)	Koskuto	Namie Town	1											56.000			13.000	32.000	13.000					61.000	51.000		14 600		12 500		40.000	-	-+	
16		Vosoushi	Etata Villaga												20,000			22,000	44,000	27 700					\$20	84,000		20,700		2.020		8 000			
10		rosouciii	Minamisoma										_	_	0,000	e 000		33,000	44,000	21,100			0.050		520	10 000 4 750		20,700		3,050		8,900		1.000	
17		Myobusaku No. 2	City	-											2,240	5,800	1,180	830	5,100				2,250			10,800 1,750		6,400		11,800		14,000		4,000	
18	Ogaki Dam		Namie I own		13,100		8,400		5,100		260,000				8,200	13,600		51,000	35,000	30,000 37,000					8,100	2,800	4,500	9,300	8,300	13,100	11,000	9,300	10,000	-	
19		Uenokawa	Katsurao Village	8										-	21,200										1,100	3,600		6,400		2,420	⊢	3,050		⊢	
20	Soso	Heigoiri	litate Village												7,600			56,000	34,000	2,790					9,900	31,000		39,000		9,400	$ \square$	52,000		⊢	
21	(tarm pond)	Mekurasawa No. 2	Namie Town												1,700			11,400	7,900	12,100	13,200	11,500			14,800	17,400		8,300		6,300		5,200		$ \rightarrow $	
22		Joroku													96,000			40,000	23,800	10,000			98,000		62,000	93,000		74,000		43,000		89,000			
23	Furumichigawa Power Plant Dam		Tamura City													7,600	1,580	11,000	9,500						9,800		9,900	10,000		3,200		2,980		3,100	
24	Soso(farm pond)	Sawairi No. 1	Futaba Town															780,000	450,000	560,000					254,000	460,000		279,000		302,000		450,000		266,000	
25		Suzunai No. 4	Okuma Town															91,000	59,000	72,000	40,000	71,000			88,000	32,000		27,700		123,000		92,000	_	102,000	
26		Nishihaguro	Futaba Town												55,000			43,000	5,200	87,000	13,900	54,000			15,100	63,000		39,000		18,500		17,100	_	18,200	
27	Sakashita Dam				37,000	I.	69,000		46,000		11,800				5,100	17,600		20,600	20,700	20,100	21,900	24,600				17,700 25,000	20,700	350		18,800		15,300			
28	e	Atamamori 2	Okuma Town												9,400			6,300	5,700	2,790	13,000	5,900			5.700	3,900		7.000		4,900		4,500	_		
29	(farm pond)	Yonomori	Tomioka Town	1											52.000		54,000		47,000	45,000	57.000	48.000				47.000	50.000	42.000		36.000		48,000	-	53.000	
30	Takikawa Dam		Kawauchi		31.000		50.000		80.000		110.000				28.000	7 600		4 100	8 600	760 630	690	850 45 000			990	1 320	4 700	2 320	30 400	17 300	2 130	930	25 500	11.800	
21		Takinosawa	Village Tomioka Town		- 1,000		- 0,000								2 200	.,	4 700	.,	10,200	10 200			11 800			4 100 2 060	.,	7,400		10 500	-,	7 800			
20	Soco(form nond)	Kamialasaha Ma-1	TOHIOKI TOWN	-				_							7.000		0,500	14 800	4 200	10,500	10.400		11,000			16,000 0,000		22,400		11,000	$ \rightarrow$	10,600		-+	
32	Soso(tattii poild)	Kamisigeoka No. 1	Naraha Town											-	0,100		9,500	14,800	4,200		20,100	26.400				10,000 9,800		23,400		0.500	ł	7.000		e 100	
55		Shimoshigeoka		-									_		18,100		//,000	8,400	27,000		20,100	26,400				4,900 2,660		14,000		9,500		7,900	_	5,100	
34	Komachi Dam		Ono Town	-	1,730		1,460									2,480		7,500	8,200							3,100	2,790	6,300		2,860	⊢	3,700		4,800	
35	Kido Dam		Naraha Town		11,400		17,600		810		290					7,400		8,700	2,290	4,700 4,200			7,200			16,200	14,800 4,200	820	3,900	14,300	5,400	16,800 1	13,300	⊢	
36	Soso(farm pond)	Otsutsumi													6,200		19,300	13,200	7,200		9,700	1,450				5,700 1,470		10,500		6,500		7,100		$ \rightarrow $	
37	Iwaki(farm pond)	Shinike			310		540		830	510					1,780	500		132								89	78	112		68		111		750	
38	Kodama Dam Rese Kodama)	ervoir (Lake	]				1,360		600	1,710						2,280	213	3,200	960		4,000	3,800				1,740	2,020	1,730		1,770		2,300		1,740	
39	Iwaki (farm pond)	Kanoritsutsumishita	Iwaki City		600		4,000		820	1,200				T	48	2,800		3,600	5,000		990	1,240				170	500	510		82	LT	730		1,310	
40	Takashiba Dam Re Takashiba)	eservoir (Lake	1		1,940		1,430		1,410		1,920					800	1,070	790	690		700	710			790		870	880		1,050		1,530		1,140	
41	Shitoki Dam Reser	rvoir	1		3,000		3,300		6,400		3,300					930	980	1,120	1,310		1,690	1,400			1,820		1,120	1,200		1,270		2,000		1,340	
				total nu	imber of	278	Detectio	on times	278	1	1	1		l															· · · · ·						
				*1: Bla	nk cells :	are loca	tions wh	here san	nples w	ere not	collecte	d. The	result "	Not dete	ctable'	' is indi	ated a	s "0."																	

## Table 4.3-22 Detection of radioactive cesium at respective locations

(Hamadori, Fukushima Prefecture: lake sediments) (No.1)

Table 4.3-22 Detection of radioactive cesium at respective locations
(Hamadori, Fukushima Prefecture: lake sediments) (No.2)

		Location											Lake S	edimer	ats/Radi	oactive	Cesiun	1 (Cs-1	34 <b>+</b> Cs-	137)/C	oncentra	ation(Bo	q/kg)(*1)						Average of		coefficient	Trande
No.	Wat	ler area	Location					-	FY201-	4							_				_		FY2015	-	-		Chang	es	FY2015 (*2)	No.	of variation	(*3)
		L		4	5	6	7	8	9	10	11	12	1	2	3	4	5		6	7	8	9	10	11	12	1 2	3		( 2)		Taranton.	٨٨٨
	Soso (farm pond)	1 akei	Sninchi Iown		5,200	4,800		3,530		2,830		2,740		2,730				2,530	1,750		1,810		2,330	-	2,630	2,15	JN(7*	~	2,210	-	0.00	/\\
2		Uchizawa	Soma City		390	222		307		213		282		239				139	540		250		1,060		446	65		~~^	514	2	0.96	~
3	Matsugabo Dam (La	ake Utagawa)			36,900	10,400		17,200		25,100		28,800						16,900	31,400		11,700		15,000		11,100	14,8	» "M	m	16,817	3	0.64	////*
4	Mano Dam				20,400	27,200	17,600	12,400	41,000	31,700	38,300	21,100	45,000	42,700				38,400	17,800	12,000	9,000		24,900 47,200 29,700 38,10	0 32,100	40,800	90,000 35,6	MAN 00	W-M	37,967	4	0.61	~
5	Soso (farm pond)	Ainosawa			28,700	33,900		7,200		33,000		3,530					10,400	3	34		8,400		13,600 16,200 6,700		49,500		21	m)	15,019	5	0.95	NW.
6	Ganbe Dam Reservoir		Iitate Village		77,000	71,000		71,000		36,800		32,800						55,000	60,000		65,000		54,000 73,000 64,000		26,100		1	3	56,729	6	0.51	$\sim$
7	Saso	Fugane Dam			17,800	26,900		3,610		33,000		22,400		14,100			1,930	17,	,500		20,100		10,300 10,100 11,200		6,100	34,2	∞ _\/\^	m	13,929	7	0.60	$\sim$
8	(farm pond)	Sasatoge	1		1,090	2,960		3,090		3,390		980					1,920	6	70		384		650 1,610 455		477		- M	20.	881	8	0.83	1
9	Takanokura Dam				27,200	33,900		35,100		24,200		35,200					20,400	22.	,800		19,200		28,700 26,400 32,400		29,800	20,8	x NJ	~~	25,063	9	0.44	~
10	Yokokawa Dam				22.900	11,900		34,700		35,700		48,000		32.200			1.240	8,	500		27,500		43.400 34.300 35.900		19.500	24.5	10 LA		24,355	10	0.91	٨٨٨
11	Reservoir	Taraachi	Minamisoma City														4 040	1	180		770		3 760 5 500 2 700		4 100	4.8/	0	$\sim$	3 361		0.96	///
		Tabarbianahi			1.240	204		202		1.080		265		225			820				247		40 242 24		259	4,04	1	~~~	201		0.70	1
12		i akesinyacin	-		1,240	2.94		293		1,080		200		223			820		00		247		47 343 34	-	236		~~	11/4-	271	12	0.71	
13	Sara	Ryugasaku			3,670	16,300		1,590		2,410		4,140		15,600			900	1,	390		17,400		3,550 6,300 6,300		14,500	10,8	× 1/1/	w	7,643	13	1.00	/\/\
14	(farm pond)	Uwatashiro	Kawamata Town		165	193		190		226		660						402	1,270		1,840		349		16		L~	~~	775	14	1.39	1
15		Koakuto	Namie Town		3,260	16,300		1,530		8,900		10,300					5,000	4,	690		6,300		8,900		6,600		WV.		6,298	15	0.99	1
16		Yosouchi	Iitate Village		11,300	4,000		25,300		17,300		7,300		13,000			3,430	2,	660		2,010		5,070 8,600 12,500		9,000		V	$\sim$	6,181	16	1.17	1
17		Myobusaku No. 2	Minamisoma City		4,900	6,800		4,080		3,760		2,460		5,000			2,010	1,	510		1,840		1,360 294 1,360		3,150	1,00	o "M	~~	1,573	17	0.87	λŴ
18	Ogaki Dam		Namie Town			6,000	10,100	6,800	6,100	740	8,900	2,440	3,090				6,300	25.	,300	2,890	1,400		5,500	107,000	26,900	14,700 18,5	x0		23,166	18	2.06	1
19		Uenokawa	Katsurao Village		2,580	2,450		2,030		1,070		810		710				500	620		252		525		335	69			487	19	1.73	1
20	·	Heigoiri	litate Village		4,200	12,600		1,910		7,700		10,800						7,600	5,000		28,700		44,500 41,300 38,700		6,000		AN	. ^	24,543	20	0.81	٨٨Ā
21	(farm pond)	Mekurasawa No. 2			10.000	9,700		9,700		6.500		16.800		8,300			10.800	20.	,100		5.300		10,700		5,500	21.8	10 VA	w	12.367	21	0.41	~~*
22		lataku	Namie Town		16.000	64.000		79.000		25.600		110.000		58.000			41.100	53	000		223.000		439.000		145 000	217.0	no	A	186 350	22	1.00	7
22	Furumichigawa	JUIDE	Terrar City		1.620	2 820		2 750		20,000		161		50,000			41,100	2.080	2 820		860		08		226	1.2	n m	~J. '	1.404	22	0.04	$\leq$
2.5	Power Plant Dam		rankira City		1,020	2,830		3,730		07		101						2,980	2,830		800		20	-	330	1,34		N	1,404	25	0.94	
24	Soso(farm pond)	Sawairi No. 1	Futaba Town		20,500	121,000		46,000		74,000		263,000		297,000			437,000	920	0,000		660,000		212,000		610,000	540,0	00 M	24	563,167	24	0.63	/\/\
25		Suzunai No. 4	Okuma Town		31,600	88,000		114,000		108,000		72,000		55,000				94,000	79,000		80,000		43,800		81,000	88,0	x0 x(1)	~~	77,633	25	0.36	~~*
26		Nishihaguro	Futaba Town		13,800	31,000		22,600		17,200		12,900		28,300			6,600	7,	600		3,730		5,400		22,200	25,5	∞ W	$\sim$	11,838	26	0.82	/
27	Sakashita Dam		Okuma Town		7,200	14,800		14,700		2,600		17,100		14,300			19,600	13.	,800		14,800		17,500		19,800	9,50	0 <u>}</u>	~~~	15,833	27	0.66	1
28	Saso	Atamamori 2			4,100	4,200		1,160		6,300		3,470		3,620			1,280	7	30		910		1,610		202	2,03	o Vi	n.	1,127	28	0.70	1
29	(farm pond)	Yonomori	Tomioka Town		41,000	39,000		39,900		31,600		32,800		30,900			12,700	8,	200		35,200		9,200		12,400	19,6	x~~	~~	16,217	29	0.41	1
30	Takikawa Dam		Kawauchi Village		11,900	1,740	16,300	27,100	10,200	23,900	30,400	21,000	21,900	7,400			9,400	- 1,	790	40,400	25,600	4,760	6,300	6,200	6,300	5,700 19,5	10 A.	~~	12,595	30	1.23	1
31		Takinosawa	Tomioka Town		7,500	8,600		9,300		4,800		7,600		7,900			2,930	6	80		2,760		1,780		870	3,0	0 VV-	h	2,005	31	0.59	1
32	Soso(farm pond)	Kamisigeoka No. 1			2,940	590		11,800		2,370		63,000		3,890			14,100	- 11,	,700		2,520		6,300	1	7,400	10,3	00	1	8,720	32	1.21	NM.
33		Shimoshigeoka	Naraha Town		7,600	7,600		2,410		5,300		2,600		7,100			14,000	2,	600		1,600		650		9,700	10,7	x0 1	~~~	6,542	33	1.28	ĺ /
34	Komachi Dam	-	Ono Town			3,320 3,650		1.880		3,100		1.690						1.200	1.600		2.320		2.160		448		Nr.	~	1.546	34	0.64	/
35	Kido Dam				9.500	10.300	18 700	12.500	14.600	12.200	16.000	15 700	14 400	10.800			12 900	15	.500	17.804	13 800	13.600	8.400	10 104	8 700	9.400	1.11	MA.	12 244	35	0.50	~
35		a	Naraha Town		2,500	4.500	10,700	2,000	14,000	2,200	10,000	1.040	14,400	r0,000			2,000		870	17,000	1.000	15,000	6 240	10,100	4,000	2,400	WVV	-	2,00	~	0.30	<
30	Soso(rarm pond)	Otsutsumi			3,650	4,500		2,390		2,370		1,840		5,300			2,280	1,	870		1,200		5,340	-	4,890	4,85	1	~~	3,412	30	0.77	1
37	Iwaki(farm pond)	Shmike	4		18	141		380		610		-	-	304	<u> </u>		-	241	288	-	139		187	-	257	37	~L_A	$\sim$	248	37	1.03	
38	Kodama Dam Reser	voir (Lake Kodama)	4		2,340	3,190		2,520		2,790		1,290	<u> </u>	1,480	<u> </u>			2,430	1,040		2,120		750		670	67	1	n	1,282	38	0.52	////
39	(farm pond)	Kanoritsutsumishita	Iwaki City		32	92		53		80		150		140				640	1,730		4,700		172		2,240	1,20	o Man	M	1,780	39	1.18	NVV.
40	Takashiba Dam Res- Takashiba)	ervoir (Lake	ļ		1,050	860		720		780		950		990				780	1,010		700		900		710	90	~~~	~~~	833	40	0.34	1
41	Shitoki Dam Reserv	oir			1,230	900		1,110		1,200		1,220		1,130				1,460	1,310		1,960		1,590		1,980	1,5	• A		1,635	41	0.64	/
				*1: Blar	1k cells a	re locations wh	ere sam	ples we	re not c	ollected	The re	sult "No	t detecta	ıble" is i	ndicated	as "0."								А	в	C D	Е	T	29,429	Average		
				*2: Arit	hmetic /	werage; calcula	ited by a	ssuminį	g ND=0	; Color	odes sl	now cate	gories (	see the	right).													-				
				*3: Res	ults of th	e analysis of tr	ends at :	respecti	ve locat	ions usi	ig the n	iethod e	xplained	on 4.3(	1)2)		>	Decre	asing	->	Increasi	ing -	Unchanged	Varying								
_																																

(ii) Nakadori

In Nakadori, Fukushima Prefecture, surveys were conducted 21 to 36 times from September 2011 to February 2016 for lake sediment samples collected at 12 locations.

Regarding concentration levels of detected values, four locations were categorized into Category C, six locations into Category D, and two locations into Category E (see Table 4.3-23 and Table 4.3-24).

Concentration levels were generally decreasing at five locations, were unchanged at one location, fluctuating at five locations, and generally increasing at one location.

# Table 4.3-23 Categorization of detected values at respective locations

(Nakadori,	Fukushima	Prefecture:	lake	sediments)	
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Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	4	No.42, No.47, No.52, No.53
D	Upper 25 to 50 percentile	6	No.43, No.44, No.45, No.49, No.50, No.51
Е	Upper 50 to 100 percentile(lower 50%)	2	No.46, No.48



(\*) Scales of the vertical axes differ in the left and right figures.



# Table 4.3-24 Detection of radioactive cesium at respective locations

 $(Nakadori,\,Fukushima\,\,Prefecture:\,lake\,\,sediments)$ 

	Location												Lal	ke Sedi	ments	/Radio	active	Cesiu	ım (Cs-	134+	Cs-137	)/Con	centra	tion(B	q/kg)(*	1)									
No.	Water area	Location		-		FY20	011									FY.	2012											FY2	013	_					
42	Surikamigawa Dam	Fukushima	8	9	10	11	12	1	2	3	4	5	6	7	8	9 2.600	10	2 020	12	1	2	3	4	5	3.	6 400	7	8	9	10	11	12	1	2	3
43	Reservoir Lake Handanuma	City Kori Town		3.800	, )	21,900		35.000						1.050	-	8,800	7 400	6.900	24,900						930	890	1.260	2,770	520	4 500	790	1 400	630	.,	
44	(farm pond)	Matania Cir		2,400		4 000		1 220	1.240					2 110	680	.,	4 500	2.070	1 840		1 290				060	5 700	-,	470		620		1 220		620	
44	Oike Polid (failif polid)	Motonnya City		2,400	,	4,000		7,520	1,540					2,110	4 400		4,500	2,070	1,040		1,380				900	3,700	4 500 4 800	470	c coo	020	2 (00	1,220	2 700	030	
45	Minaru Dam	Minaru Town		09		0		7,500						3,700	4,400		0,800	3,100	4,800						4,	800	4,000 4,800	0,500	0,500	3,500	3,000	4,500	3,700		
46	Hounokusa (farm pond)	Koriyama City		1,140	)	400		2,100		1,700					1,450		3,700			4,000					1,460	92		83		88		510	1,400		
47	Lake Hatori	Tenei Village		2,060	)	2,240									1,950		1,270	3,700	)						2,	210	2,750	2,630		5,000		3,700			
48	Hirodaira (farm pond)	Sukagawa City	r	290		570		119		191				139	133		148	217		340	163				88	75		106		69		340	179		
49	Sengosawa Dam Reservoir	Ishikawa Town		300		1,240		17							2,700		1,740	3,800	720						1,	740	2,670	7,300		2,620		2,830	2,370		
50	V       Valuaritike Pond (farm pond)       Yabuki Town       102       550       2,800       17       0       63       144       360       4,100       222       1       75       99       202       88       10       68       107       102         1       Izumikawa (farm pond)       Shirakawa Cay       11.300       14.400       5,800       660       1       70       820       8,900       710       1       710       90       1       3,200       1,700       1       5,400       5,400       1,000 <td></td>																																		
51	Watarike Pond (farm pond)       Yabuki Town       I																																		
52	Variande C Variant prome       Variant Varianteter pr																																		
53	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$																																		
	11       Izamkava (farm pond)       Shärakava Grig       11,300       14,200       5,000       660       0       700       100       1,200       100       1,700       540       540       540       1000       1,200       1,200       1000       1,200																																		
	Image: Normal base in the state of																																		
	Hokkawa Dam       Nishigo Village       1,920       6,800       1,210       5,100       13,00       6,600       13,200       6,600       13,200       6,600       13,200       6,600       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500       2,970       7,600       2,180       11,100       8,500																																		
	Lake Nanko       Shirakawa City       900       1,980       10.500       3,200       580       820       7,100       2,300       8,600       6.800       4,300       5,900       2,870       9,100         total number of samples       78       Detection times       78         *1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."																																		
	Location								I	ake S	dimer	nts/Rae	lioactiv	e Cesi	ım (C	s-134 <del>+</del>	Cs-13	7)/Cor	ncentrat	tion(B	q/kg)(*	1)					Т		Averag	ge of		co	efficient	Tra	unde
No.	Water area	Location	4	5	6	7	8	FY201- 9	4 10	11	12	1	2	3	4	5	6		7	5 F Y	2015 9 1	10 1	пт	2	1 2	3	Change	s	FY20 (*2	)15 !)	No.	va	of ariation	(*	3)
42	Surikamigawa Dam I Reservoir 0	Fukushima City	2,	750	3,220		2,690		2,820		4,250		2,700			4	1,020 3	,090	1,	,990	3,	140	2,2	280			VER	M	2,90	04	42		0.45	~	~
43	Lake Handanuma (farm pond)	Kori Town	1,	190	920	317	257	500	346	216	233	437	176			2	2,780	520 1	1,170 3	335	464 5	29 6	00 8	10	95	0	Ar.		900	6	43		2.03	/	1
44	Oike Pond (farm pond)	Motomiya City	3,	280	470		730		71		85		226		1	1,020	1,73	0	1,	,000	6	80	6	10	47	9	Wh	$\overline{}$	920	D	44		0.93	/	1
45	Miharu Dam I	Miharu Town	2,	880	3,040	2,310	2,410	1,990	2,580	2,440	1,960	1,740				2	2,070 3	,770 1	1,480 1,	710 1	,340 1,3	260 1,4	450 1,9	2,7	70 1,5	70	Mr	L	1,93	33	45		0.58	/	1
46	Hounokusa (farm pond)	Koriyama City	3,	900	3,640		18		0		13	710				123	81			68	4	54	4	4	10	7	M	~~	140	6	46		1.25	/	1
47	Lake Hatori	Tenei Village		2,3	40 1,440	D		4,200	6,400		2,080					1	1,900 3	,070	4,	,080	1,5	810	3,3	750 2,6	540		~~N	LM	2,87	75	47		0.44	$\sim$	~
48	Hirodaira (farm pond)	Sukagawa City	1	04	16		0		159		351	107				244	75		1	113	3	68	2	01 2	45		Lin	W	208	8	48		0.68	N	$\bigvee$
49	Sengosawa Dam Reservoir	Ishikawa Town	4,	500	3,500		6,200		4,700		3,140					1	,200 3	,640	2,	160	1,	620	1,4	150 1,4	150		M	K	1,92	20	49		0.66	N	$\wedge$
50	Watariike Pond (farm pond)	Yabuki Town	1,	280	1,300			1,570	1,210		640	1,540				1	,200 1	,260	1,	160	1,-	420	1,1	800 1,3	30		N	~~1	1,36	52	50		1.05	N	$\mathbb{A}$
51	Izumikawa (farm pond)	Shirakawa City	1,	880	326			670	3,890		3,860	780					870 1	,390	1	153	2,	850	5	52 2,3	00		Um	∿~	1,35	53	51		1.21	/	1
52	Hokkawa Dam I	Nishigo Village	1,	480	3,900		4,400		6,600		3,480	2,990				2	2,570 2	,450	5,	800	5,	080	4,0	050 4,5	80		M	Ś	4,08	38	52		0.65	N	$\mathbb{N}$
53	Lake Nanko S	Shirakawa City	9	70	6,400		10,900		840		7,400					e	5,200 3	,320	3,	730	3,	770	4,2	250 3,8	\$70		AMM	P	4,19	90	53		0.66	N	$\mathbb{N}$
		4	1: Blank	cells ar	e locatior	ns whe	re samp	les wei	e not c	ollected	I. The	result "	Not det	ectable'	'is indi	icated a	ıs "0."						A	в	с	Е			1,90	00	Averaş	ge			
			2: Arithi	metic Av	verage; ca	alculate	d by as	suming	ND=0	; Color	codes	show c	ategori	es (see	the rigl	nt).																			
			3: Resul	ts of the	e analysis	of trea	nds at re	spectiv	e locat	ions us	ing the	metho	1 explai	ned on	4.3(1)	2)	<u> </u>	D 4	ecreasin	g -	→ 1	ncreasi	ng	~	Uncha	nged	∧∧∧ Varyi	ng							

(iii) Aizu

In Aizu, Fukushima Prefecture, surveys were conducted 14 to 40 times from September 2011 to February 2016 for lake sediment samples collected at 31 locations.

Regarding concentration levels of detected values, six locations were categorized into Category C, three locations were categorized into Category D and 22 locations were categorized into Category E (see Table 4.3-25 and Table 4.3-26).

Concentration levels were generally decreasing at seven locations, unchanged at seven locations, fluctuating at 10 locations, and generally increasing at seven locations.

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	6	No.55, No.56, No.58, No.59, No.60, No.78
D	Upper 25 to 50 percentile	3	No.54, No.57, No.74
Е	Upper 50 to 100 percentile(lower 50%)	22	No.61、No.62、No.63、No.64、No.65、No.66、No.67、No.68、No.69、No.70、 No.71、No.72、No.73、No.75、No.76、No.77、No.79、No.80、No.81、No.82、 No.83、No.84





Figure 4.3-14 Changes in concentration levels over the years at respective locations (Aizu, Fukushima Prefecture: lake sediments)

		Location													Lake S	Sedimer	nts/Rad	lioactive	e Cesiu	m (Cs-	134+0	(s-137)	Concen	tration	Bq/kg	(*1)										
No.	Wate	r area	Location				FY2	2011	-	-								FY2012		_	_										FY2013		_		_	
				8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	0	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
54	Nicchu Dam		Kitakata City		298		1,380									2,270	970	1,1	90	2,220						970	1,630		1,140		3,280		1,590		<u> </u>	-
55	Lake Sohara		Kitashiohara		380		196											530	2,180	590						660	650		1,040		950				<u> </u>	_
56	Lake Hibara		Village		630		480											1,420	1,060	1,250	2,750					1,040	1,220	342	1,740	850	570	540	1,470			_
57	Lake Onogawa					270	57											1,870	111	980	780					530	490	380	870	86	210	1,040	282			
58	Lake Akimoto		Inawashiro Town		440		2,020											1,760	177	540	219					214	2,010	1,340	380	1,580	1,270	2,300	450			
59	Lake Bishamonnuma		Kitashiobara		150		0											1,260	3,900	2,260						82	13,400		570		3,570					
60	Lake Oguninuma		Village		1,330		1,670											2,370	10,200	310							198	620	3,250		1,300					
61	Aizu(farm pond)	Lake Onuma	Nishiaizu Town		61		28								720	510		60	10	720						2,740	59		480		740		1,230			
62		Center	Aizuwakamatsu City		0		0		44		93						286	13	13	76	33	126		122		190	178	229	86	103	215	99	237	256	199	
63		Takahashi River Estuary															86	15	i4	270	166	128		284		171	300		130		147		153	139		
64		Oguro River Estuary															200	76	6	179	114	127		245		110	84		163		130		114	126		
65		Tenjinhama Beach	Inawashiro Town														111	11	0	99	132	135				208	122		80		157		105	83		Τ
66		Hishinuma River Estuary															83	10	18	39	96	89		68		85	50		57		82		60	15		
67		Intake of Asakasosui	1														126	11	8	115	251	108		116		236	249	172	123	241	194	263	216	222	152	
68	Lake Inawashiro	Hamajihama Beach															235	20	13	240	169	242		221		194	162		151		205		228			
69		Funatsu Port															223	21	3	186	370	182		223		186	141		187		107		138	160		
70		Offshore of Funatsu River Estuary	Koriyama City														74	86	6	118	800	186		116		88	97		107		92		70			
71		Seishogahama Beach															220	47	0	440	460	560		610		480	620		211		420		550	470		
72		Haragawa River Estuary	Aizuwakamatsu City														390	15	1	168	215	2,560		610		176	590		470		760		830	700		
73		Koishigahama Floodgate	Inawashiro Town														206	22	2	161	209	263		306		241	133	144	134	228	111	133	361	114	195	
74	Higashiyama Dam Reservoi	r	Aizuwakamatsu City		157		290		1,230							220		2,2	50	490						24	680		880		600		2,110			
75		Center			100		59		63		84					160		13	8	2,210	120					219	90		191		62		221			
76	Lake Numazawa	Midpoint between the center of the lake and off the estuary	Kaneyama Town																							146	1,030		118		77		103			
77		Offshore of Maenosawa																								144	139		134		79		54			-
78	Aizu (farm pond)	Kivei estuary	Aizumisato Town		510		1,640		1						310	1,330		1,9	10	3,200						3,100	660		540		142		117		<u> </u>	+
79	Okawa Dam Reservoir	I	Aizuwakamatsu City		1,450		1,120		1,320		830					218		61	0	242	35	44	69			120	297		49		740		286	810		1
80	Tagokura Reservoir		m. 4			90										229										360	1,090		410		1,290					
81	Minamiaizu (farm pond)	Fukui	Tadami Town		22		47								0	0		27	0	0						0	70		12		28		39			
82	Tajima Dam Reservoir (Lake Funehana)		Minamiaizu Town		410		0		177		34					207		27	0	700						175	630		1,000		420		740			
83	Okutadami Reservoir		Tadami Town		980		18									97		19	0								38	24	34	259	160	180				1
84	Lake Ozenuma		Hinoemata Village			0										310	430	34	4								13	202	51	0	242 57					
				total nu sam *1: Blan	mber of uples ik cells a	725 ire locat	Det ti	ection mes here san	706 nples we	re not o	ollected	l. The r	esult "N	ot detec	table" i	s indicat	ted as "I	0."													·					

# Table 4.3-26 Detection of radioactive cesium at respective locations (Aizu, Fukushima Prefecture: lake sediments) (No.1)

		Location		1							1	.ake S	edimen	ls/Rad	ioactive	Cesiu	m (Cs	s-134 <b>+</b>	Cs-137)/	Concer	tration(	Bq/kg)(*1)								Aurona of		an affiniant	
No.	Wat	er area	Location						FY2014								-					FY2015							Changes	FY2015	No.	of	Trends (*3)
				4	5	6	7	8	9	10	11	12	1	2	3	4	5		6	7	8	9	10	11	12	1	2	3		(*2)		variation	
54	Nicchu Dam		Kitakata City		1,930	1,490		1,990		43								18	2,890		413		530		1,920				mu	1,187	54	0.63	$\sim$
55	Lake Sohara		10.11.1		1,440	2,450		130		2,500								2,45	3,290		2,440		1,680						IN.	2,465	55	0.72	^
56	Lake Hibara		Village		1,640	287	196	373	192	710	2,300	1,590						1,97	0 4,540	4,380	2,260	2,380	1,090	3,070	5,080	3,720			www	3,166	56	0.81	~
57	Lake Onogawa				1,220	309	168	97	62	2,540	1,330	1,720						1,53	1,470	2,970	550	2,950	1,930	1,660					rut	1,866	57	0.89	
58	Lake Akimoto		Inawashiro Town		1,200	3,440	590	850	2,340	3,150	1,710	257						3,19	0 5,900	1,720	870	830	2,330	4,240					nn	2,726	58	0.83	~
59	Lake Bishamonnuma		Kitashiobara		1,620	400		140		11								45	2 2,330		2,310		4,150						-th-	2,311	59	1.50	NW.
60	Lake Oguninuma		viilage			4,100	2,670	1,180		2,240										3,850	3,060	2,860	3,850						Lim	3,405	60	0.87	$\sim$
61	Aizu(farm pond)	Lake Onuma	Nishiaizu Town		930	129		620		385							0		17		172		351		0				m	108	61	1.20	MM
62		Center	Aizuwakamatsu City		149	29	114	63	319	97	119	194	67	193			81	1	159	214	212	372	87	102	156	198	530		North	211	62	0.68	~
63		Takahashi River Estuary			261	291		142		233		195	98				97	7	99		86		155		93	141			MM	112	63	0.41	~~~*
64		Oguro River Estuary			90	99		95		96		110	88				75	5	85		75		89		78	65			m	78	64	0.39	/
65		Tenjinhama Beach	Inawashiro Town		198	99		106		201		47	148				83	5	71		62		95		39	92			M	74	65	0.41	$\sim$
66		Hishinuma River Estuary			39	47		49		25		47	23				28	8	27		28		25		30	45			m	31	66	0.51	1
67		Intake of Asakasosui	1		182	91	255	247	201	160	170	248	440	103			163	2	211	262	278	156	225	272	211	178	359		man	231	67	0.36	~
68	Lake Inawashiro	Hamajihama Beach			189	189		151		206		213	161				17	5	138		152		149		156	176			*~~~~	158	68	0.17	~~~*
69		Funatsu Port	1		192	382		101		141		224	109				174	4	146		244		202		221	123			ham	185	69	0.37	~~~*
70		Offshore of Funatsu River Estuary	Koriyama City		87	74		91		278		73	79				54		273		166		42		22	13			Las	95	70	1.19	>
71		Seishogahama Beach			344	174		387		331		500	490				370	0	241		455		374		272	438			mm	358	71	0.30	~~*
72		Haragawa River Estuary	Aizuwakamatsu Oty		790	520		1,030		740		379	700				691	0	469		700		279		188	348			home	446	72	0.80	$\searrow$
73		Koishigahama Floodgate	Inawashiro Town		226	389	303	30	363	109	274	89	257	200			229	9	193	211	235	190	121	205	219	246	256		Norther	211	73	0.42	~~*
74	Higashiyama Dam Reservoi	ir	Aizuwakamatsu		850	1,990		18		2,000		214						52	1,870		1,880		1,360			790			NMA	1,284	74	0.79	٨٨٨
75		Center	Cay		57	127		58		70		197					1,54	40	372		45		60		537				A A.	511	75	1.77	ΛΛΛ
		Midpoint between the																															ΛΛΛ
76	Lake Numazawa	center of the lake and off the estuary	Kaneyama Town		37	1,200		129		74		237					550	0	130		101		265		100				LLA	229	76	1.26	
77		Offshore of Maenosawa			98	118		163		148		163					13	1	53		72		26		15				Vì.	59	77	0.48	~~^
78	Aizu (farm pond)	River Estuary	Aizumisato Town		640	970		7,800		490							41		79		870		308		327	12,300				2,321	78	1.68	٨٨٨
79	Okawa Dam Reservoir		Aizuwakamatsu		139	344		14		400		298	90					52	5 218		350		124		89				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	261	79	1.00	$\sim$
80	Tagokura Reservoir		City		700	343		360			378						303	3	760		351			310					Nu	431	80	0.68	
81	Minamiaizu	Fukui	Tadami Town		0	0		0		30							0		0		0		10		0				T	2	81	2.30	<u> </u>
82	(tarm pond) Tajima Dam Reservoir (Laka Eurobana)		Minamiaizu Town		550	870		333		980							26	0	384		134		404						MM	296	82	0.69	M.
83	Okutadami Reservoir	1	Tadami Town			209	236	148	86	277	103						$\uparrow$		71	140	131	109	154	203						135	83	1.11	/
84	Lake Ozenuma		Hinoemata Village			70	160	117	550 122	59					$\mathbf{T}$		t		112	70	160	1,160 1,380	670							592	84	1.36	^
			1	*1: Bla	nk cells	are loca	ations w	here sa	mples were not	collect	ed. The	result '	"Not de	ectable	" is ind	icated a	s =0."			I		<u> </u>	I	А	в	с	D	Е	- and	824	Average		1
				*2: Ari	thmetic	Average	e; calcui	lated by	assuming ND-	=0; Cole	or codes	show	categori	es (sec	the rigi	ıt).																	
				*3: Re	sults of	the anal	ysis of t	trends a	t respective loc	ations u	using the	e metho	d explai	ned or	4.3(1) 2	.)	-	>	Decreasin	g -	⇒ Inc	reasing ~	🛶 Un	hanged	~	å Vary	ing						

# Table 4.3-26 Detection of radioactive cesium at respective locations (Aizu, Fukushima Prefecture: lake sediments) (No.2)

#### 3) Ibaraki Prefecture

In Ibaraki Prefecture, surveys were conducted 9 to 18 times from September 2011 to February 2016 for lake sediment samples collected at 19 locations.

Regarding concentration levels of detected values, one location was categorized into Category C, four locations into Category D, and 14 locations into Category E (see Table 4.3-27 and Table 4.3-28).

Concentration levels were generally decreasing at eight locations, were unchanged at eight locations, fluctuating at two locations, and generally increasing at one location.

### Table 4.3-27 Categorization of detected values at respective locations

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	1	No.13
D	Upper 25 to 50 percentile	4	No.12, No.14, No.15, No.16
Е	Upper 50 to 100 percentile(lower 50%)	14	No.1、No.2、No.3、No.4、No.5、No.6、No.7、No.8、No.9、No.10、No.11、No.17、 No.18、No.19

(Ibaraki Prefecture: lake sediments)



Figure 4.3-15 Changes in concentration levels over the years at respective locations (Ibaraki Prefecture: lake sediments)

							(II	bar	rak	i P	ref	fec	tur	e:	lak	e :	sec	nit	ner	nts	1) (1	No.	.1)												
		Location										1	Lake S	Sedim	ents/R	adioa	ctive (	Cesiun	n (Cs-	134+	Cs-13	7)/Coi	ncentr	ation(	Bq/kg	)(*1)									
No.	Wat	er area	Location	8	9	10	FY2	12	1	2	3	4	5	6	7	8	FY2	10	11	12	1	2	3	4	5	6	7	8	FY2	10	11	12		2	3
1		Hiroura		0	320	10				260	5		5	200	,	5	122	10		219		219	,		221	0	,	114	Ź	10	155		·	165	
2	Hinuma	Miyamae	Ibaraki Town		37					162				179			98			118		184			146			49			49			204	
3		Oyazawa			670					420				550			810			690		610			570			540			490			490	
4		Offshore of Tamatsukuri	Namegata City		330					1,300				228			201			370		890				650		630			770			640	
5	Lake	Offshore of Kakeuma	Ami Town		340					440				610			430			252		270				280		320		$\square$	208			257	
6	Kasumigaura	Center	Miho Village		221					900				178			151			630		310				300		880			490			340	1
7		Offshore of Aso	Inashiki City		330					250				183			202			186		183				150		139			164			138	
8	Lako Kitaura	Offshore of Kamaya	Namegata City		90					1,000				510			520			239		610				610		410			470			470	
9	Lake Khadra	Jingu Bridge	Itako Citu		220					217				106			103			93		95				121		136			139			172	
10	Hitachitone	Lake Sotonasakaura	nako City		184					143				110			97			102		93				113		66			91			141	1
11	River	Ikisu	Kamisu City		290					205				168			152			154		142				104		102			108			98	
12	Lake Ushikunuma	Center of Lake Ushikunuma	Ryugasaki City			1,840	)			1,020				1,090			1,170			1,210		1,300			1,010			850			980			770	
13	Mizunuma Dam		Kitaibaraki City																							5,100		5,400	$\square$		3,600			4,200	
14	Koyama Dam		Takahagi																							940		690	Ш		890			1,250	
15	Hananuki Dam		City																							2,730		2,520	$\square$		2,000			1,940	
16	Jyuou Dam	Center	Hitachi City																							620		520	Ш		1,750			950	
17	Ryuji Dam		Hitachiota City																							1,020		1,010	$\square$		760			1,110	
18	Fujiigawa Dam		Shirosato Town																							500		480	$\square$		450			650	
19	Iida Dam		Kasama City	1																						18		0			45			53	
				of sa	umber mples ank cell	297 s are l	tir	nes nes	295 ere san	iples w	ere no	ot colle	ected '	The re	sult "N	lot det	ectable	e" is i	ndicate	ed as "	0."														
										1																									

## Table 4.3-28 Detection of radioactive cesium at respective locations

		$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$																														
No.	Wat	er area	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$																													
				4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	-				
1		Hiroura	ļ		136			111			136			94			101			99			95			99		V~	99	1	0.42	
2	Hinuma	Miyamae	Ibaraki Town		119			264			120			119			80			128			146			61		~~~	104	2	0.47	~~~*
3		Oyazaw a			450			442			460			590			470			405			465			367		$\sim \sim$	427	3	0.22	$\searrow$
4		Offshore of Tamatsukuri	Namegata City		510			580			540			510			540				530		439			461		A~~~	493	4	0.45	~~~*
5	Lake	Offshore of Kakeuma	Ami Town		165			168			78			182			137				261		132			147		1	169	5	0.51	$\checkmark$
6	Kasumigaura	Center	Miho Village		242			192			460			360			257				610		165			543		MM	394	6	0.58	$\sim$
7		Offshore of Aso	Inashiki City		143			134			139			138			108				121		133			124		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	122	7	0.33	$\searrow$
8		Offshore of Kamaya	Namegata City		550			203			416			429			200				405		427			361		$\sim$	348	8	0.46	~~~*
9	Lake Kitaura	Jingu Bridge			99			107			115			86			128				102		118			117		$\sum$	116	9	0.31	~~~*
10	IF. L'A D'	Lake Sotonasakaura	пако Спу		49			76			42			79			94				89		115			81		-m-	95	10	0.35	$\searrow$
11	Hitachitone Kiver	Ikisu	Kamisu City		74			97			95			91			91				80		82			91		}	86	11	0.44	$\searrow$
12	Lake Ushikunuma	Center of Lake Ushikunuma	Ryugasaki City		840			510			740			760			800			670			660			565		5	674	12	0.34	$\checkmark$
13	Mizunuma Dam		Kitaibaraki City		2,720			2,980			3,170			2940				2490		3070			2730			2600		h	2,723	13	0.29	$\searrow$
14	Koyama Dam	Lami         U																														
15	Hananuki Dam	Fir difficient in the set of																														
16	Jyuou Dam	Center	Hitachi City		1,920			1,980			2,540			1360			101       99       95       99       99       1       0.42         80       128       146       61       99       104       2       0.47         470       405       465       367       427       3       0.22         540       530       439       461       427       3       0.22         540       530       439       461       407       493       4       0.45         137       261       132       147       403       4       0.45															
17	Ryuji Dam	Tandaki       Cy       Do																														
18	Fujiigawa Dam		bith village       222       192       400       360       227       1       610       165       533       MMMM<       394       6       0.58       MMM         Inamiali       1       13       13       13       13       13       13       13       13       13       13       12       13       12       13       14       13       13       13       14       143       13       13       13       12       13       12       13       12       13       12       13       14       143       13       14       143       143       143       143       144       143       143       144       143       143       144       143       143       144       143       143       144       143       144       143       144       145<																													
19	Iida Dam	uma       Cshkumma       Csy       Gold       Fol																														
				*1: Bk	ank ce	lls are l	ocation	is wher	e samp	oles we	ere not	collect	ed. The	result	"Not o	detecta	ble" is	indicat	ed as '	0."			А	в	с	D	Е					
		naki Dam       Cay       610       1,290       1,050       1380       1410       2050       1990       1310       1.690       15       0.37       ~~~         a Dam       Center       Hachi City       1,920       1,980       2,540       1360       1170       1340       346       445       M       825       16       0.56       M/M         ib Dan       Gay       0       900       740       490       391       469       880       610       M/M       588       17       0.46       ~~         gaw Dam       Microsof       193       498       117       346       580       0       0       900       740       490       391       469       880       610       M/M       588       17       0.46       ~~         Dam       Kasama       180       11       55       156       165       182       218       246       M       203       19       0.80       ///         *1: Bank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."       A       B       C       D       E         *2: Arithmetic Average: calculated by assuming ND=0; Color codes show categories (see th																														
		Center       Hinchi City       1.920       1.980       2.540       1360       1170       1340       346       445       Machi City       825       16       0.56       MMA         Dam       Hinchi City       1.920       1.980       740       490       391       469       880       610       MACH       588       17       0.46       ~~~         Dam       Shirosato       193       498       117       346       580       18       18       0.41       ~~~         Name       Issama       180       11       55       156       165       182       218       246       MACH       ~~~         *1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."       A       B       C       D       E         *2: Arithmetic Average: calculated by assuming ND=0; Color codes show categories (see the right).       *3: Results of the analysis of trends at respective locations using the method explained on 4.3(1) 2)       M       B       C       D       E																														

# Table 4.3-28 Detection of radioactive cesium at respective locations (Ibaraki Prefecture: lake sediments) (No.2)

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#### 4) Tochigi Prefecture

In Tochigi Prefecture, surveys were conducted 14 to 18 times from October 2011 to December 2015 for lake sediment samples collected at eight locations.

Regarding concentration levels of detected values, four locations ware categorized into Category D, and four locations into Category E (see Table 4.3-29 and Table 4.3-30).

Concentration levels were generally decreasing at two locations, were unchanged at one location, fluctuating at four locations, and generally increasing at one location.

#### Table 4.3-29 Categorization of detected values at respective locations

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	4	No.1, No.2, No.4, No.7
Е	Upper 50 to 100 percentile(lower 50%)	4	No.3, No.5, No.6, No.8



Figure 4.3-16 Changes in concentration levels over the years at respective locations (Tochigi Prefecture: lake sediments)

# Table 4.3-30 Detection of radioactive cesium at respective locations (Tochigi Prefecture: lake

sec	וווג	iei	its)	

		Location											L	nke Se	dimer	nts/Ra	dioac	tive C	esiun	ı (Cs-	134+	Cs-13	7)/Coi	ncentr	ation	(Bq/kş	g)(*1)									
N.	Weter	T time		Maniatantia				FY20	011									FY2	2012											FY2	2013					
NO.	water area	Location		Municipality	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Nakagawa	Miyama Dam Reservoir	Center	Nasushiobar			48										850		11								284	106			610					
2	River System	Shiobara Dam Reservoir	Center	a City			2,700				1,590						900		1,000		990		1,000				1,160	1,080			1,020		1,040			
3		Kawaji Dam Reservoir	Center				920				610						690		750		25		320				850	1,320			460		410			
4		Ikari Dam Reservoir	Center				4,400				6,700						4,100		3,300		2,500		4,000				2,530	5,100			1,980		2,560			
5	Kinugawa River System	Kawamata Dam Reservoir	Center	Nikko City			0				176					212			190		140						330		350		321		370			
6		Lake Yuno	Center				0										270		28		390						286		248		440		320			
7		Lake Chuzenji	Center				153										1,180		830		115		710				420		270		122		168			
8	Watarase River System	Watarase Reservoir	Center	Tochigi City			251										165	134		197							177		113		164		460			
					total n of sar	umber nples	134	Dete tin	ction nes	132																										
					*1: Bla	nk cells	s are lo	ocation	is whe	re san	nples v	vere n	ot coll	ected.	The n	esult "	Not de	etectal	ble" is	indica	ated as	s "0."														

		Location									La	ke Sec	liment	s/Rad	ioactiv	e Cesi	ium ((	Cs-13	4+Cs	-137)/	Conc	entrati	on(Bq	/kg)(*)	l)					Average of		coefficient	
No.	Water area	Location		Municipality	_	E	6	1 -	0	FY2	014		12		2	2	4	E	6	1 7	0	FY	2015	1	1.12		2	2	Changes	FY2015 (*2)	No.	of variation	Trends (*3)
1	Nakagawa	Miyama Dam Reservoir	Center	Nasushiobara	-+	343	0	,	560	9	1,230		740	1	2	3	4	5	960	,	82	0	580	11	514	1	2	3	wh	719	1	0.66	>
2	River System	Shiobara Dam Reservoir	Center	City		930			1,060		1,030		1,210						960		1,13	30	290		290				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	668	2	0.46	1
3		Kawaji Dam Reservoir	Center			1,420			307		355		330					382			25	7	261		215				M	279	3	0.69	$\sim$
4		Ikari Dam Reservoir	Center				1,740	)	8,700		4,500		2,090					1,760			1,05	50	275		333				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	855	4	0.68	Į
5	Kinugawa River System	Kawamata Dam Reservoir	Center	Nikko City		293			354		232		196					191			18	5	147		285				$\sim$	202	5	0.42	~~~*
6		Lake Yuno	Center				1,270	)	250		1,500	339							520		53	5	132		1,240				M	607	6	0.93	$\sim$
7		Lake Chuzenji	Center			840			640		550		1,010						870		64	0	1,01	D	880				$\sim$	850	7	0.57	$\wedge \! \wedge \! \wedge$
8	Watarase River System	Watarase Reservoir	Center	Tochigi City		146			134		144		421						103		12	3	137		148				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	128	8	0.56	$\sim$
					*1: B	lank ce	ells are	locatio	ns whe	ere sam	ples w	ere no	t collec	ted. T	he res	ılt "No	t detec	table"	is ind	icated	as "0	l."		А	в	с	D	Е		538	Average		
					*2: A	rithme	tic Ave	erage; c	alculat	ed by a	issumii	ng ND	=0; Co	lor coo	les sho	ow cate	egories	(see	the rig	ht).									-			-	
					*3: R	esults	of the a	analysi	s of tre	nds at	respect	tive loc	ations	using	the me	thod e	xplaine	ed on 4	4.3(1)	2)	/	⇒ De	creasi	ıg .	~	Increa	sing	~~	<ul> <li>Unchanged</li> </ul>	Varying			

#### 5) Gunma Prefecture

In Gunma Prefecture, surveys were conducted 12 to 18 times from November 2011 to December 2015 for lake sediment samples collected at 24 locations.

Regarding concentration levels of detected values, one location was categorized into Category C, 10 locations were categorized into Category D and 13 locations were categorized into Category E (see Table 4.3-31 and Table 4.3-32).

Concentration levels were generally decreasing at six locations, were unchanged at seven locations, fluctuating at eight locations, and generally increasing at three locations.

### Table 4.3-31 Categorization of detected values at respective locations (Gunma Prefecture: lake sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	1	No.10
D	Upper 25 to 50 percentile	10	No.1, No.2, No.5, No.6, No.7, No.9, No.14, No.15, No.22, No.24
Е	Upper 50 to 100 percentile(lower 50%)	13	No.3, No.4, No.8, No.11, No.12, No.13, No.16, No.17, No.18, No.19, No.20, No.21, No.23





													S	ed	im	e	nts	5)																			
		Location																																			
No.	Water area	Location		Municipality	8		9	FY 10	2011	12	1	2	3	4	5	6	7	8	FY2 9	10	11	12	1	2	3	4	5	6	7	8	FY20 9	13	11	12	1	2	3
1		Lake Okutone (Yagisawa Dam)	Center							750							1,250		2,210		1,210							2,260		1,230	1	,250	1,550				
2		Lake Naramata (Naramata Dam)	Center	Minakami Town						0							1,130		3,400		2,420							2,920		1,100		910	3,900				
3		Lake Dogen (Sudagai Dam)	Center							1,490							970		640		560							960		660		440		540	+		
4		Lake Marunuma	Center	Katashina Village						0								540		98		16						21	151			81		74			
5	Tonegawa River	(Marunuma Dam) Lake Fujiwara	Center	Minakami Town		-				4 600			_			_	1.430		2 900		1 880								1 310	1 160		130		3 590	-		
		(Fujiwara Dam) Lake Tanbara	conter conter	N	_	-		_	_	4,000	_				_	_			2,700		1,000							100	1,510				⊢	5,570	-		
6		(Tanbara Dam) Lake Akaya	Center	Numata City	_	-		_	_		_	_	_	_	_	_	35		860		380							420		390		\$90	⊢	520	_		
7		(Aimata Dam)	Center	Minakami Town						1,690		1,970				_	2,560		3,800		2,320							2,790		3,500	3	,260	⊢	760	_		
8		(Sonohara Dam)	Center	Numata City				_		420								500	490		500							590		440		380		164	_		
9		Lake Akagionuma	Center	Maebashi City				1	310								104		1,400		1,480							1,060	1,860			980	$\square$	1,000			
10		Lake Okushima (Shimagawa Dam)	Center	Nakanoio Town						660								530		1,760	380							560		630	4	,300		1,520			
11	Agatsuma River Area	Lake Shimako (Nakanojo Dam)	Center															94		1,120	510		1,350					840		1,190	-	860		278			
12		Lake Tashiro (Kazawa Dam)	Center	Tsumagoi Village						650						540			780			800						850		110	1	,260	1,160				
13		Lake Haruna	Center	Takasaki City/Higashi- Agatsuma Town					0							114			76		30							47		460		148					
14		Lake Kirizumi (Kirizumi Dam)	Center							49						790			3,700		1,900					_		2,380		310		770		490	-	-	
15		Lake Usui	Center	Annaka City		+				2,600			970		1	1,950			4,100		3,500							3,400		3,400	1	,340		1,960	+		
16	Karasu River	(Sakamoto Dam) Lake Arafune	Cepter	Shimonita Town	+	+	-	+	+	37		233		+	-	310	_		390	-		450	239	$\vdash$	$\vdash$	_		490		630	H	620		530	+	+	
17		(Dodairagawa Dam) Lake Oshio	Cortes	Tomicka Circ	+	+		+	+	740		280	-	+	+			\$40	- 10	600	104		210	$\vdash$	$\vdash$	_		2,40		600	$\vdash$	400	$\vdash$	220	+	+	
		(Oshio Dam) Lake Kanna	Center	Fujioka City/Kamikawa	+	+	-+	+		740	+	200		+	+			540		080	190		510	$\vdash$	$\left  \right $			.540		000		+00	$\vdash$	320	+	+	
18		(Shimokubo Dam) Lake Hebikami	Center	Town	+	+	-+	+		75	-	197		-	+	128			213			228	242				178			320		+10	$\vdash$	93	+	+	
19		(Shiozawa Dam)	Center	Kanna Town		_				1,670						690			270			990						111		720		510	$\square$	770	_		
20	Watarase River	Lake Kusaki (Kusaki Dam)	Center	Midori City						147			1,860				2,400		207			440		760			650		1,010			720		1,670			
21	Area	Lake Umeda (Kiryugawa Dam)	Center	Kiryu City						179			0			123			129			710		280			62		203		1	810		245			
22	Nakatsu River	Lake Nozori (Nozori Dam)	Center	Nakanojo Town															550	300	700							82		660	1	,580	181				
23	Watarase River	Lake Jonuma	Center																								540			301		291		670			
24	Area	Lake Tataranuma	Center	Tatebayashi City																							1,440			950		530		1,240			
		1		1	tota	l numb sample	ber of le	383	Detec time	tion 25	379																									l-	
					*1: Bl	ank ce	ells are lo	cations	wher	e samp	les we	re not	collect	ed. The	result	"Not	detecta	able" is	indica	ited as	"0."																
																	Improvementation of the property intermediate																				
		Location							FY	/2014	Lake S	Sedime	nts/R	adioacti	ve Ces	ium (	Cs-13-	4+Cs-	137)/0	<th colspac<="" td=""></th>																	
No.	Water area	Location		Municipality	4	5 (	6 7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	Char	iges		(*2)	╇		variati	ion	(~3)	
1		Lake Okutone (Yagisawa Dam)	Center		1,:	520		760		1,170	850							1,010		940		910	790					NV	~	-	913		1	0.38	3 .	~~~~	*
2	-	Lake Naramata (Naramata Dam)	Center	Minakami Town	7	50		2,280		2,060	1,950							1,620		1,780		3,030	1,230				_	M	$\sim$	Л	1,915		2	0.5	5	////	1
3	-	Lake Dogen (Sudagai Dam)	Center		8	60		680		820		600						620		630		431	630					~	~	~	578		3	0.36	5	$\geq$	*
4	-	Lake Marunuma (Marunuma Dam)	Center	Katashina Village	2	11		201		349	127							227		265		118	352				/	L	N	1	241		4	0.82	2	$\overline{M}$	1
5	Tonegawa River	Lake Fujiwara (Fujiwara Dam)	Center	Minakami Town	1,	140		1,240		1,330		1,100						1,220		1,240		810		1,300				~/	1	~	1,143		5	0.59	ş	$\geq$	Ż
6		Lake Tanbara (Tanbara Dam)	Center	Numata City	5	70		530		1,250	)							1,430		1,270		660	550					<u>~</u> ~	5	J	978		6	0.51	7	_	7
7		Lake Akaya (Aimata Dam)	Center	Minakami Town	1,2	830		1,240		2,650		1,950						750		980		1,350		1,850				~1	$\sim$	/	1,233		7	0.4	5	~~	*
8		Lake Sonohara (Sonohara Dam)	Center	Numata City	2	66		237		342		336						281		279		193		146			1	7	~~	~	225		8	0.38	8	/	ž
9		Lake Akagionuma	Center	Maebashi City	1,	040		790		640	5,100							1,740			1,230	660	1,920		T	Τ	_	~~	$\nabla$	4	1,388	T	9	0.79	9	$\overline{\mathbb{N}}$	V.
10		Lake Okushima (Shimagawa Dam)	Center	Nahara la M	1,	110		438		1,710	1,600							4,570		1,140		580		2,070	T	T		1		V	2,090	T	10	0.8	, ,	$\overline{\mathbb{N}}$	V.
11	Agatsuma River Area	Lake Shimako (Nakanojo Dam)	Center	wakanojo Town	2	66		510		570	410							720		670		107		339				M	N	V	459	T	11	0.63	2 /	$\overline{\mathbb{N}}$	V.
12		Lake Tashiro (Kazawa Dam)	Center	Tsumagoi Village		1,4	,420	1,120		1,180	1,320	0						343		610		620	580				~	$\overline{\neg}$	~	~	538	T	12	0.4	5.	~~	*
13		Lake Haruna	Center	Takasaki City/Higashi- Agatsuma Town	2	66		490		112	520							470		346		460	650		╡	+	╈	Ņ	N	J	482	T	13	0.7*	7	/	7
14		Lake Kirizumi (Kirizumi Dam)	Center		3	38		1,420		800		810						570		600		680		670	+	+	1	h	~		630	T	14	0.93	5		*
15		Lake Usui	Center	Annaka City	2	15			1,23	0 1,330		1,160						990		1,130		830		740	+	+	1	ñ	~		923	t	15	0.6	4	<	4
16	Karasu River	(SaAanoto Dam) Lake Arafune	Center	Shimonita Town	7	10	+	770		700		840		$\square$				530		237		47		660	+	+		N	$\sim$	Ň	369	t	16	0.5:	2	$\overline{\mathcal{M}}$	Ā
17		(Dodaragawa Dam) Lake Oshio	Center	Tomioka City	6	50	+	830		1,170	,	700						468		610		640	+	600	+	+	1	1.4	Л	¥	580		17	0.4	2	$\sim$	*
18		(Osnio Dam) Lake Kanna	Center	Fujioka City/Kamikawa	1	73		100	-	110		222	$\vdash$	$\vdash$		_		226		175		118		272	+	+	-		~~		198		18	0.4	4	~	*
10		(Shimokubo Dam) Lake Hebikami	Ceptor	Lown Kanna Town	-	60	+	510		500		560	$\vdash$	$\parallel$		_	—	530		521	-	5/8	+	476	+	+	1			1	510	╉	10	0.0	,	$\overline{\Lambda}\overline{\Lambda}$	Ā.
19		(Shiozawa Dam) Lake Kusaki	Conter	Midori Cire	0	 an	+	201	-	390	-	2.10	-	$\vdash$		_		200	_	227	-	+0	-	116	+	+	1	<u>vv</u>	~		222	╉	-7	0.5		<u> </u>	<u> </u>
20	Watarase River Area	(Kusaki Dam) Lake Umeda	Center	Malon City	3	×U	120	361	-	400	-	345	-	$\parallel$		_		200	_	257		337	-	115	+	+	-/	M	~		227	ł	20	0.96			*
21		(Kiryugawa Dam) Lake Nozori	center	Kiryu City		1,1	,1.50	1,000	-	980	-	1,420	-	$\left  \right $				240		/80	_	950		000	+	+	~	<u>, v</u>	/ \	n A	618	4	21	0.80	, I.	<u></u>	<u></u>
22	Nakatsu River	(Nozori Dam)	Center	Nakanojo Town		1,9	,900	358		1,220	-	-		$\left  \right $				1,020		2,210		1,050	454		+	+	+	M	1	-1	1,184	+	22	0.75	; ,	1 V V	*
23	Watarase River Area	Lake Jonuma	Center	Tatebayashi City	7	20	_	720		260		241				_		518		560		680		688	+	+	+	V	~		612	4	23	0.31		~~	*
24		Lake Tataranuma	Center		8	50		750		1,200	2	530						510		590		429		1,060		-	+	V	J.	-1	647	4	24	0.40	)	~	*
					*1: Blank	cells a	are locatio	ons whe	re san	nples w	ere not	collec	ted. Th	he result	"Not d	letec ta	ble" is	indicat	ed as "	0."			A	В	C	D	E			L	778	A	verage	l			
					*3: Resul	ts of th	he analysi	is of tre	a oy : 1ds at	respec	tive loc	ations	using t	he meth	od exp	a nes (s lained	on 4.3	(1) 2)		~	⇒ De	creasi	ıg .	~	Increasi	ng	~~*	Uncha	inged	~	Varyi	ag					
																III <thi< th="">II&lt;</thi<>																					

# Table 4.3-32 Detection of radioactive cesium at respective locations (Gunma Prefecture: lake

#### 6) Chiba Prefecture

In Chiba Prefecture, surveys were conducted 18 times from November 2011 to February 2016 for lake sediment samples collected at eight locations.

Regarding concentration levels of detected values, one location was categorized into Category C, one location into Category D, and six locations into Category E (see Table 4.3-33 and Table 4.3-34).

Concentration levels were generally decreasing at six locations and were unchanged at two locations.

#### Table 4.3-33 Categorization of detected values at respective locations

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	1	No.4
D	Upper 25 to 50 percentile	1	No.3
Е	Upper 50 to 100 percentile(lower 50%)	6	No.1, No.2, No.5, No.6, No.7, No.8

(Chiba Prefecture: lake sediments)



Figure 4.3-18 Changes in concentration levels over the years at respective locations

(Chiba Prefecture: lake sediments)

## Table 4.3-34 Detection of radioactive cesium at respective locations (Chiba Prefecture: lake sediments)

	Location         Numicipality         V																																
No	Lacation         VII 12 1 2 3 4         VII 12 1         VII 12 1 <th colspan="5" td="" vi<=""></th>																																
140		Lacion       Vertexe vertex verte																															
1		Fusashita	I C.				870			1,090	D			980	D		940			900		880			660	(*1)       FY2013         6       7       8       9       10       11       12       1       2       3         440       880       730       1       1       1       2       3         349       520       760       1       1       1       1       1       1       1         1,200       1,320       1,550       500       1 <t< td=""></t<>							
2	Lake	Shimoteganuma Chuo	Inzai City				1,350	)		1,140	D			650	0		720			490		900			420		349		52	0	76	0	
3	Teganum	1 Teganuma Chuo	Abiko				990			1,670	D			990	0		1,540			1,580		1,540			420	1	1,200		1,3	20	1,5	50	
4	1	Nedoshita	City/Kashiwa City	-			3,300	)		7,400	D			5,30	00	1	7,600			7,600		8,200			2,530	2	3,800		4,4	00	5,7	00	
5		Kita-Inbanuma Chu	o Inzai City/Nari City	a		1	730	1		880		1		910	D	1	630			460		560			151		195		55	0	50	0	
6	Lake	Ipponmatsushita	Inzai City				1,160	)		1,070	D			600	D		860			740		730			152		440		56	0	57	0	
7	Inbanuma	Lower area of Josuido water intak	Sakura City				1,100	)		1,250	D			940	D		1,050			910		880			340		251		80	0	80	0	
8		Asobashi Bridge	Yachiyo City				1,160	)		440				980	0		800			1,080		970			770		360		26	6	20	2	
	Lacion         Minicipality         FV-UP																																
	Lation         Mmicipality         V																																
N	Lacing         Minicipality         V     <																																
INO.		Lacion         Location         Mainicipality         P </td																															
1	Lation         Municipality         FY = 11         Lat Scaling         FY = 11         FY = 11																																
2	Lake																																
3	. countrie	Locality         Produit         <																															
4		Learning       Wingenergy       No       No<																															
5		Kita-Inbanuma Chuo	Inzi City       Inzi City																														
6	Lake	Ipponmatsushita	Inzai City		313			430			520	4	990       1.540       1.580       1.580       420       1.200       1.320       1.550         910       630       7.600       8.200       2.530       3.800       4.400       5.700       1         910       630       7.600       560       151       195       550       500       1         910       630       7.40       730       152       440       560       570       1         940       1.050       910       880       340       251       800       800       10         980       800       1.080       970       770       360       266       202       1         collected. The result "Not detectable" is indicated as "0."       770       360       266       202       1         123       4       5       6       7       8       9       10       11       12       1       2       3       1       0.33       1       0.33       1																				
7	Inbanuma	Notability       City       Notability       City       Notability       Notability <th< td=""></th<>																															
8		Asobashi Bridge         Yachiyo Ciy         I.160         440         980         800         I.080         970         770         360         266         202           Ubil number         144         Detection         144         Detection         144         Detection         144         Detection         144         Detection         145         Detection         144         Detection         145         Detection         145         Detection         144         Detection         145         Detection         Detection <t< td=""></t<>																															
	Inhumm       Lower area of Josuido Makura City       760       780       600       620       570       580       610       505       7       566       7       0.35         Asobashi Bridge       Yachiyo City       121       460       34       338       187       216       312       213       247       8       0.67         **I: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."       A       B       C       D       E       863       Average																																
			4	1: Blank	cells are	locatio	ns when	re sam	ples we	ere not	collect	ed. The	result	"Not c	detec tab	ole" is i	ndic ated	as "0."			А	В	С	D	E		8	63	Averaş	je.			
				1: Blank 2: Arith	cells are netic Av	locatio erage; c	ns when	re sam ed by a	ples we ssumin	g ND=	collect 0; Cole	ed. The	s show	"Not c	detectab ories (se	ole" is i ee the r	idicated	as "0."			A	В	с	D	E		8	63	Averaş	je			

#### (2)-3 Coastal areas

#### 1) Iwate Prefecture

In Iwate Prefecture, surveys were conducted 9 times from January 2012 to November 2015 for coastal area sediment samples collected at two locations.

Regarding concentration levels of detected values, both two locations were categorized into Category E (see Table 4.3-35 and Table 4.3-36).

Concentration levels were generally unchanged at one location and fluctuating at one location.

#### Table 4.3-35 Categorization of detected values at respective locations

|--|

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	0	(None)
Е	Upper 50 to 100 percentile(lower 50%)	2	No.1, No.2



Figure 4.3-19 Changes in concentration levels over the years at respective locations (Iwate Prefecture: coastal area sediments)

# Table 4.3-36 Detection of radioactive cesium at respective locations (Iwate Prefecture: coastal area sediments)

	Location											Coast	al are	a sedi	ments	s/Radi	ioacti	ve Ces	ium (C	Cs-134	+Cs-1	137)/C	oncent	ration	(Bq/k	g)(*1)									
No	Location					FY20	11										FY2	012											Fy20	13					
NO.	Location	8	9	)	10	11	12	1	2	3	4	5	e	; ·	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Ofunato Bay (A)							0											33				39				46				35				
2	Hirota Bay							0											0			0					0				0				
		total r sa	umber mples	of	18	Dete tin	ction nes	7																											
	*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."																																		
	Location							Coas	tal area	ı sedir	nents/	Radio	active	Cesiu	m (Cs	134+	Cs-13	87)/Coi	icentra	tion(B	q/kg)(*	⊧1)						Av	erage of						
No	Logation						Fy20	014											FY	2015						Cho		I	FY2015		No.	coeffic of varia	tion	Trends (*3)	*
NO.	Location	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	Cita	nges		(*2)					( =)	
1	Ofunato Bay (A)		16						13							0					10					$\langle$	5		5.0		1	0.81			1
2	Hirota Bay		0						0							0					0							-	0		2	-		~~~	
		*1: Blank	cells a	ire lo	cations	where	sample	es were	not co	llected.	The re	esult "	Not de	tectabl	e" is in	dicate	d as "(	)."			A	в	с	D	Е				3	А	Average				

\*2: Arithmetic Average; calculated by assuming ND=0; Color codes show categories (see the right).

\*3: Results of the analysis of trends at respective locations using the method explained on 4.3(1) 2) 💙 Decreasing 🛹 Increasing 🗸 Unchanged 🛝 Varying

#### 2) Miyagi Prefecture

In Miyagi Prefecture, surveys were conducted 9 to 37 times from October 2011 to February 2016 for coastal area sediment samples collected at 12 locations (excluding the 28 locations surveyed only in 2011 from the analysis herein).

Regarding concentration levels of detected values, one location was categorized into Category A, one location into Category B, one location into Category C, five locations into Category D, and four locations into Category E (see Table 4.3-37 and Table 4.3-38).

Concentration levels were generally decreasing at two locations, were unchanged at two locations, fluctuating at six locations, and generally increasing at two locations.

# Table 4.3-37 Categorization of detected values at respective locations

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	1	No.8
В	Upper 5 to 10 percentile	1	No.9
С	Upper 10 to 25 percentile	1	No.2
D	Upper 25 to 50 percentile	5	No.1, No.4, No.6, No.7, No.11
Е	Upper 50 to 100 percentile(lower 50%)	4	No.3, No.5, No.10, No.12







# Figure 4.3-20 Changes in concentration levels over the years at respective locations (Miyagi Prefecture: coastal area sediments)

# Table 4.3-38 Detection of radioactive cesium at respective locations

(Mivadi Prefecture: coastal area sediment	efecture: coastal area sedim	ents)
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									-																											
	Locatio	n										Co	oastal	area s	edimer	nts/Ra	dioacti	ve Ces	sium (	Cs-134	+Cs-1	137)/C	oncen	tratior	ı(Bq/k	g)(*1)										
	_					FY20	011									]	FY2012	2											F	Y201?	3					
No.	Loca	ation	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1		2	3	4	5	6	7		8	9	10	11	12	1	2	3
1	Kesennuma Bay (B)	Offshore of Hachigasaki			17			0											54	50	D	16	48				57	1	174			191			76	
2	Kesennuma Bay (C)	Offshore of Oshimakita			0			158											44	41	0	91	78				400	7	740			450			19	
3	All other neighboring sea areas	Oppa Bay (Jyusanhama Beach)			350				390										216	28	1	12	101		26			2	203			76			23	
4	Neighboring sea area of Ishinomaki (C)	Lake Mangokuura, M-6 (center)			0				75										109	10	1	77	145		74				51			71			76	
5	Neighboring sea area of Ishinomaki (B-3)	Offshore of Kitakami River Estuary			105				25									0	0	0		0					109	1	148			0			0	
6	Neighboring sea area of Ishinomaki (C)	Offshore of Naruse			165				205									136	101	50	6	93					151	1	128			17			16	
7	Matsushima Bay (B)	Nishihama Beach			139				830									410	450	47	0	400				450		4	540			360			229	
8	Neighboring sea area of Sendai Port(A)	Naiko Inner Port, 4-Nai			270			213										1,530	1,500	1,5	30	1,020				1,030		2,	,040			530			420	
9	Neighboring sea area of Sendai Port (B)	Gamo-3			44			540										0	258	33	3	10				35			50			31			19	
10	All other neighboring sea areas	Ido-5			71			28										0	12	0		0				10			12			102			48	
11	Offshore of Abukuma River Estuary				390			230										142	128	193	131	103	115			61	13 1	08 2,	,030	21	290		170	62	55	
12	Offshore of Tsuyagawa River Estuary				0														0			0					0					0				
			total nu san	mber of ples	226	Dete tir	ection nes	187																												
			*1: Blar	ık cells a	are loca	ations v	where s	amples	s were	not col	lected.	The re	esult "?	vot det	ectable	" is ind	licated	as "0."																		

Location Coastal area sediments/Radioactive Cesiun														m (Cs	-134+	Cs-13	7)/Cor	ncentr	ation(l	Bq/kg)	(*1)					Average of					
Na	Inco							FY.	2014											FY.	2015						0	FY2015	No.	coefficient of variation	Trends (*3)
INO.	Loca	non	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	Changes	(*2)			
1	Kesennuma Bay (B)	Offshore of Hachigasaki		67			82			141			87				99		40			47			105		~~~	73	1	0.69	$\backslash$
2	Kesennuma Bay (C)	Offshore of Oshimakita		68			72			490			464				426		382			418			277		~~~	376	2	0.77	$\mathbb{N}$
3	All other neighboring sea areas	Oppa Bay (Jyusanhama Beach)		163			52			0			15				181		17			0			0		m	50	3	1.09	/
4	Neighboring sea area of Ishinomaki (C)	Lake Mangokuura, M-6 (center)		74			71			54			48			110			59			76			61		An	77	4	0.41	~~~*
5	Neighboring sea area of Ishinomaki (B-3)	Offshore of Kitakami River Estuary		0			0			0			0			0			0			24			0		Ś	6.0	5	2.03	$\sim$
6	Neighboring sea area of Ishinomaki (C)	Offshore of Naruse		149			136			36			93			53			120			65			115		$\sim$	88	6	0.52	$\sim$
7	Matsushima Bay (B)	Nishihama Beach		440			520			155			230			216			239			198			180		$\sim\sim\sim$	208	7	0.50	$\nearrow$
8	Neighboring sea area of Sendai Port(A)	Naiko Inner Port, 4-Nai		55			54			322			1,090			530			740			563			530		$\sim$	591	8	0.74	$\sim$
9	Neighboring sea area of Sendai Port (B)	Gamo-3		49			0			0			327			15			560			910			790		rend	569	9	1.45	>
10	All other neighboring sea areas	Ido-5		49			11			21			140			0			0			0			0		M	0	10	1.43	$\sim$
11	Offshore of Abukuma River Estuary			45	126	1,020	118	400	0	311	226	86	80			113	144	135	265	171	124	104	116	119	129		hh	142	11	1.61	$\sim$
12	Offshore of Tsuyagawa River Estuary			0						0							0					0						0	12		~~~
			*1: Bl	ink cel	lls are l	ocatior	is whe	re sam	ples w	ere not	collect	ed. Th	e resul	t "Not	detec ta	ble" is	indicat	ted as	"0."			A	в	с	D	Е		182	Average		
			*2: A	ithmet	ic Aver	age; c	alc ulat	ed by a	ssumir	ng ND=	0; Cok	or code	s shov	v categ	ories (s	ee the	right).														
			*3: Re	sults o	of the a	nalysis	of tre	nds at i	respect	ive loca	ations u	using th	he metl	10d exp	lained	on 4.3	(1) 2)		~	× 1	Decreas	ing	~	Incre	asing	~~	✤ Unchanged	∧∧∧ <b>4</b> Varying			

#### 3) Fukushima Prefecture

In Fukushima Prefecture, surveys were conducted 30 to 43 times from October 2011 to February 2016 for coastal area sediment samples collected at 15 locations (this analysis excludes the survey results at eight locations where the survey was conducted only once in 2011).

Regarding concentration levels of detected values, one location was categorized into Category A, one location into Category B, four locations into Category C, three locations into Category D, and six locations into Category E (see Table 4.3-39 and Table 4.3-40).

Concentration levels were generally decreasing at nine locations, were generally unchanged at one location, were fluctuating at four locations, and generally increasing at one location.

### Table 4.3-39 Categorization of detected values at respective locations (Fukushima Prefecture: coastal area sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	1	No.2
В	Upper 5 to 10 percentile	1	No.14
С	Upper 10 to 25 percentile	4	No.7, No.8, No.9, No.10
D	Upper 25 to 50 percentile	3	No.4、No.11、No.15
Е	Upper 50 to 100 percentile(lower 50%)	6	No.1, No.3, No.5, No.6, No.12, No.13





# Figure 4.3-21 Changes in concentration levels over the years at respective locations (Fukushima Prefecture: coastal area sediments)

# Table 4.3-40 Detection of radioactive cesium at respective locations

	1	location											Coast	al are	a sedir	nents/	Radio	active Cesiu	m (Cs-	134+	Cs-137	/)/Con	centra	tion(B	<b>į/kg</b> )(	*1)										
No		Location				FY20	)11										FY2	2012											]	FY201	3					
140.		Location	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	:	2	3	4	5	6	1	7	8	9	10	11	12	1	2	3
1	Neighboring sea area of Soso	Approx. 2,000 m offshore of Tsurushihama Fishing Port			35	123		1,240		38				320	62	0	11	30	0	11		)	0			28	12	0	44	10	0	0	0	81	11	
2	Matsukawaura sea area	Around center of Fishing Right Area-1 in Matsukawaura sea area			94	32		610		15				300	164	90		105 123	175	55	53	48				26	18	11	48	101	0	89	45	164	39	
3	Neighboring sea area of Soso	Approx. 2,000 m offshore of Manogawa River			81	57		102		36				106	38	300	36	131	11	91	3	5	19			15	36	17	55	23	48	61	16	13	11	
4	Neighboring sea area of	Approx. 1,000 m offshore of Niida River			177	49		300		44				290	280	470	400	268	114	67	6	10				51	33	38	61	79	27	70	48	43	221	
5	Haramachi City	Approx. 1,000 m offshore of Ota River															36	48	53		7	8	57			47	14	38	15	38	47	44	51	81	54	
6		Approx. 1,000 m offshore of Odaka River																88 127	50	59	1	87	37			38	31	44	39	380	64	64	59	45	35	
7	Neighboring sea area of	Approx. 2,000 m offshore of Ukedo River																								214	420	234	1,240	187	243	294	870	133	152	
8	Soso District	Approx. 1,000 m offshore of Kumagawa River																								620	570	620	620	580	530	400	500	700	620	
9		Approx. 1,000 m offshore of Tomioka River																								520	480	1,600	440	340	610	530	520	510	1,140	
10	Neighboring sea area of Naraha Town	Approx. 1,000 m offshore of Kidogawa River																400 380	154	113	380	530				295	290	251	154	191	278	243	290	198	1,160	
11	Approx. 1,000 m offsho	e of Asami River Estuary			730	480		900		480				570	470	310	330	360	1,110	970	277	430				320	290	190	241	143	272	254	202	192	262	
12	Approx. 1,000 m offsho	e of Ohisa River Estuary			520	490		246		205				153	196	170	102	213	54	80	290	200				149	131	102	125	96	75	167	100	155	161	
13	Neighboring sea area of Iwaki City	Approx. 1,500 m offshore of Natsui River			590	211		310		223				156	159	113	133	74	150	86	125	132				55	60	55	63	47	57	49	53	90	76	
14	Onahama Port	Approx. 400 m north of Nishibouhatei No. 2			380	630		590		156				590	480	280	550	730	770	420	470	460				580	460	400	740	450	380	520	560	370	630	
15	Joban coastal sea area	Approx. 1,000 m offshore of Binda River			800	360		340		260				280	214	249	193	167	77	168	169	184				112	139	108	189	129	200	104	205	122	98	
			total n of sau *1: Bla	umber nples nk cells	583 are loo	Dete tir	ction nes where	553 sampl	es were	e not c	ollecte	d. The	result *	"Not d	etectat	ole" is	indicat	ed as "0."																		

## (Fukushima Prefecture: coastal area sediments)

	1	Location							Coa	astal ar	rea sed	iments	/Radio	active	Cesiun	n (Cs-	134+0	Cs-137)	)/Conc	entrati	on(Bq	kg)(*1	)					Average of			<i>m</i> 1
No		Location						FY2	014											FY2	015						Changes	FY2015	No.	of variation	(*3)
		Lise in car	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	charges	(*2)			
1 N	veighboring sea area of loso	Approx. 2,000 m offshore of Tsurushihama Fishing Port		0	12	0	0	0	0	0	0	0	0			0	0	0	0	15	0	0	0	15	0		h	3.0	1	3.96	1
2 N	Matsukawaura sea area	Around center of Fishing Right Area-1 in Matsukawaura sea area		38	73	32	17	19	43	45	26	0	44			103	35	23	16	2,460	2,950	800	1,230	570	333		mil	852	2	2.29	~
3 N	veighboring sea area of Soso	Approx. 2,000 m offshore of Manogawa River		35	18	17	20	17	10	31	24	17	12			0	13	13	12	58	109	16	22	13	18		Anna	27	3	1.21	$\checkmark$
4	veighboring sea area of	Approx. 1,000 m offshore of Niida River		13	20	12	27	18	22	41	43	0	85			10	15	20	17	322	284	251	112	218	95		Maria	134	4	1.13	$\bigwedge \!\!\!\bigwedge$
5 F	łaramachi City	Approx. 1,000 m offshore of Ota River		24	22	18	17	15	38	21	26	26	24			20	18	17	19	22	52	17	39	25	33		Mw	26	5	0.52	$\checkmark$
6		Approx. 1,000 m offshore of Odaka River		20	18	28	22	18	22	21	16	10	21			31	59	0	12	62	58	232	46	26	20		almit	55	6	1.25	$\bigwedge \!\!\!\bigwedge$
7	veighboring sea area of	Approx. 2,000 m offshore of Ukedo River		90	182	440	205	230	263	293	194	163	206			239	740	127	174	231	104	440	532	13	251		Alman	285	7	0.84	$\bigwedge \!\!\! \bigwedge$
8	loso District	Approx. 1,000 m offshore of Kumagawa River		440	470	450	368	333	297	374	350	365	403			213	397	267	301	308	402	365	321	319	418		Nor	331	8	0.29	$\checkmark$
9		Approx. 1,000 m offshore of Tomioka River		530	388	385	390	390	410	500	430	550	417			311	295	367	480	354	297	484	372	265	313		12~~~~	354	9	0.54	$\searrow$
10 N	Veighboring sea area of Varaha Town	Approx. 1,000 m offshore of Kidogawa River		370	240	201	215	203	274	275	404	144	234			361	206	477	217	219	95	67	1,740	224	118		nha	372	10	0.95	$\bigwedge \!$
11 /	Approx. 1,000 m offshore	of Asami River Estuary		127	268	105	173	100	88	205	188	209	219			123	132	150	72	92	175	118	124	137	134		When	126	11	0.81	$\checkmark$
12	Approx. 1,000 m offshore	of Ohisa River Estuary		75	76	43	84	101	105	76	55	64	65			66	33	38	63	56	55	50	31	45	43		Lun	48	12	0.84	$\searrow$
13 N	veighboring sea area of waki City	Approx. 1,500 m offshore of Natsui River		101	80	70	89	78	54	50	35	45	44			60	37	25	31	48	47	35	24	32	66		han	41	13	1.01	$\searrow$
14	Onahama Port	Approx. 400 m north of Nishibouhatei No. 2		540	540	450	450	780	480	440	830	449	354			368	340	452	399	490	477	312	508	361	530		WWWW	424	14	0.28	~~~*
15 J	oban coastal sea area	Approx. 1,000 m offshore of Binda River		104	124	114	102	96	108	88	75	84	125			62	60	58	96	75	84	62	74	64	79		hum	71	15	0.82	$\searrow$
			*1: Bla	nk cells	s are lo	cations	where	sample	s were	not col	lected.	The re	sult "No	ot detec	table" i	is indic	ated as	"0."				A	в	с	D	Е		210	Average		
			*2: Ari	thmetic	Avera	ge; cak	culated	by assu	iming N	VD=0;	Color c	odes sh	iow cat	egories	(see th	e right	).														
			*3: Res	sults of	the an	alysis o	f trend:	s at res	pective	locatio	ns usin;	g the m	ethod e	xplaine	d on 4.	3(1) 2)	~	De	creasin	g -	≯ I	ncreasi	ıg ·		Uncha	nged	Varying				
#### 4) Ibaraki Prefecture

In Ibaraki Prefecture, surveys were conducted 19 to 21 times from October 2011 to February 2016 for coastal area sediment samples collected at five locations.

Regarding concentration levels of detected values, all five locations were categorized into Category E (see Table 4.3-41 and Table 4.3-42).

Concentration levels were generally decreasing at three locations and were generally varying at two locations.

Table 4.3-41 Categorization of detected values at respective locations(Ibaraki Prefecture: coastal area sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	0	(None)
Е	Upper 50 to 100 percentile(lower 50%)	5	No.1, No.2, No.3, No.4, No.5



Figure 4.3-22 Changes in concentration levels over the years at respective locations (Ibaraki Prefecture: coastal area sediments)

## Table 4.3-42 Detection of radioactive cesium at respective locations

	Location										Coast	al area	sediments/	Radioa	ctive (	Cesiur	1 (Cs-1	134+0	Cs-137	)/Conc	entrat	tion(Bo	/kg)(*	1)									
N	T an adda				FY20	11								]	FY2012	2											FY2	2013					
INO.	Location	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Offshore of Satone River Estuary			80				94				53				52	0	29		0				35		41			53			67	
2	Offshore of Okita River Estuary			173				165				52				18	17	30		34				42		28			0			13	
3	Offshore of Momiya River/Kujigawa River Estuaries			155				230				64	60	69		32	12	14		49				14		42			0			11	
4	Neighboring water body of Ken-o Offshore of Nakagawa River			10				11				0	0	0		0	0	0		0				11		0			0			0	
5	Offshore of Tonegawa River Estuary			21				12					17 25	0		0	0	0			0			0		0			0			0	
		total nur sam	mber of ples	101	Dete tin	ction nes	57																										
		*1: Blank	k cells ar	e locat	ions w	here sa	mples	were n	ot coll	ected.	The res	sult "No	ot detectable"	is indi	ic ated a	s "0."																	

#### (Ibaraki Prefecture: coastal area sediments)

Location       U<	No. of	coefficient of variation     Trends (*3)       0.67     \lambda \lambda \lambda												
No.       Location       Image: Constraint of the symbol of the s	No. of	0.67 Model of the second secon												
No.       Likelikin       4       5       6       7       8       9       10       11       12       1       2       3       Changes       (*2)         1       Offshore of Satone River Estuary       14       4       5       6       7       8       9       10       11       12       1       2       3       Changes       (*2)         2       Offshore of Satone River Estuary       13       4       5       6       7       8       9       10       11       12       1       2       3       Changes       (*2)         2       Offshore of Momix River Katuary       13       4       5       6       7       8       9       10       11       12       1       2       3       Changes       (*2)         3       Offshore of Momix River Katuary       13       5       6       7       8       6       7       8       6       7       8       6       7       8       6       7       8       6       7       8       6       7       8       6       7       8       6       7       8       6       7       8       6       7       8 <td>1</td> <td>0.67</td>	1	0.67												
1       Offshore of Satone River Estuary       14       27       25       25       31       24       15       43       7       28         2       Offshore of Okia River Estuary       13       0       10       11       0 </td <td>1</td> <td>0.67</td>	1	0.67												
2       Offshore of Okita River Estuary       13       0       10       11       0       0       0       0       0       0       0         3       Offshore of Momiya River/Kujigawa       15       13       63       67       13       23       17       178       178       58         4       Neighboring water body of Ken-o Offshore of Nakagawa River       0	2													
3         Offshore of Momiya River/Kujigawa River Estuaries         15         13         63         67         13         23         17         178         58           4         Neighboring water body of Ken-o Offshore of Nakagawa River         0	4	1.59												
Neighboring water body of Ken-o Offshore of Nakagawa River         0	3	1.13												
5 Offshore of Tonegawa River Estuary 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4	2.51												
	5	2.20												
*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0." A B C D E	Average													
*2: Arithmetic Average; calculated by assuming ND=0; Color codes show categories (see the right).														
*3: Results of the analysis of trends at respective locations using the method explained on 4.3(1) 2) 📏 Decreasing 🛹 Increasing 🛶 Unchanged 👭 Varying	*2: Arithmetic Average; calculated by assuming ND=0; Color codes show categories (see the right). *3: Results of the analysis of trends at respective locations using the method explained on 4.3(1) 2) 💙 Decreasing 🥣 Increasing 🛶 Unchanged 👭 Varying													

#### 5) Chiba Prefecture and Tokyo Metropolis

In Chiba Prefecture and Tokyo Metropolis, surveys were conducted 17 to 29 times from May 2012 to February 2016 for coastal area sediment samples collected at eight locations in total.

Regarding concentration levels of detected values, one location was categorized into Category C, three locations were categorized into Category D and four locations were categorized into Category E (see Table 4.3-43 and Table 4.3-44).

Concentration levels were generally decreasing at four locations, were fluctuating at three locations, and increasing at one location.

# Table 4.3-43 Categorization of detected values at respective locations(Chiba Prefecture and Tokyo Metropolis: coastal area sediments)

Category	Percentile (percentile in all detected values)	Number of locations	Locations
А	Upper 5 percentile	0	(None)
В	Upper 5 to 10 percentile	0	(None)
С	Upper 10 to 25 percentile	1	No.6
D	Upper 25 to 50 percentile	3	No.5, No.7, No.8
Е	Upper 50 to 100 percentile(lower 50%)	4	No.1, No.2, No.3, No.4





# Table 4.3-44 Detection of radioactive cesium at respective locations

## (Chiba Prefecture and Tokyo Metropolis: coastal area sediments)

Г		Location									Coa	ıstal a	rea se	edime	nts/Ra	dioad	tive (	Cesiu	n (Cs-	134+	Cs-13	7)/Co	ncent	ration	(Bq/k	g)(*1)									
No	Desfectures	т	continu				FY2011	1									FY	2012											FY.	2013					
INO.	Fielectule	Б	ocation	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1		Tokyo Bay 7	Offshore of Yorogawa River Estuary											0				15	0	15		21				0		0			11		11		
2		Tokyo Bay 5	Offshore of Miyako River Estuary											17				15	27	59		33				19		30			19		21		
3	Chiba Prefecture	Coastal sea area of Makuhari	Offshore of Inbanuma Discharge Channel											0		35	10	0	16	27		26				0	17	52	15	36	47		23		
4		Approx. 1 km offshore of Ebigawa River Estuary	Coastal area of Keiyo Port											134		0	0	60	12	0		0				0		0			0		0		
5		Approx. 1 km offshore of Edogawa River Estuary	(Ebigawa River Estuary)											37		14	31	13	0	0		0				38		0			54		0		
6		Approx. 1 km offshore of Kyu-Edogawa River Estuary	Offshore of Kyu-Edogawa River Estuary															380		780		710				226	450	550	580	193	580			780	
7	Tokyo Metropolis	St-8	Offshore of Arakawa River/Kyu- Edogawa River Estuaries										490	440	380	400	440	420		320		410				97	330	330	332	370	294			354	1
8		Southwestern area of Toyosu Wharf	Offshore of Sumida River Estuary										16	11	0	29	0	72		49		126				12		100			30			118	
				total nu sam	mber of ples	173	Dete tin	ction nes	129																										
				*1: Blan	k cells ar	e locatio	ons whe	ere sam	ples w	ere no	t colle	cted. 1	The re	sult "l	lot de	ectab	le" is	indica	ted as	"0."															

		Location								Co	oastal a	rea se	diment	s/Rad	lioactiv	ve Ce	sium (	Cs-12	4+C	s-137)	/Conc	entrati	on(Bq/	/kg)(*	1)					Average of			
No	Profesture		operation						FY	2014												FY201	4						Changes	FY2015	No.	coefficient of variation	Trends (*3)
140.	Trefecture	b	oc anon	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8		9	10	11	12	1	2	3	Changes	(*2)			
1		Tokyo Bay 7	Offshore of Yorogawa River Estuary			11			11			0		0				0				0			0		0		$\Lambda$	0	1	1.30	$\sim$
2		Tokyo Bay 5	Offshore of Miyako River Estuary			21			20			21		20				17				18			17		0		Any	13	2	0.54	1
3	Chiba Prefecture	Coastal sea area of Makuhari	Offshore of Inbanuma Discharge Channel			14	11	0	14	16		14		19				0	17	11		17	17		0		17		Mm	11	3	0.80	$\bigwedge \!$
4		Approx. 1 km offshore of Ebigawa River Estuary	Coastal area of Keiyo Port (Ebigawa			13			0			0		0				0				0			0		0			0	4	2.84	1
5		Approx. 1 km offshore of Edogawa River Estuary	River Estuary)			19			0			0		0				0			1	123			99		315		~~~~	134	5	1.93	\
6		Approx. 1 km offshore of Kyu- Edogawa River Estuary	Offshore of Kyu-Edogawa River Estuary		630	500	375	168	409		237			0			410	267	109		266	335		198			197		MAN	255	6	0.55	1
7	Tokyo Metropolis	St-8	Offshore of Arakawa River/Kyu- Edogawa River Estuaries		311	330	370	309	278		257			255			180	195	280		248	234		322			230		Ann	241	7	0.27	1
8		Southwestern area of Toyosu Wharf	Offshore of Sumida River Estuary		18			62			49			109			83			110				89			84		MM	92	8	0.72	$\bigwedge \! \bigwedge$
				*1: Bl	lank ce	lls are l	locatio	ns whe	ere sar	nples v	were not	collec	cted. Th	e rest	ilt "No	t detec	table"	is ind	icated	as "0.'				A	в	с	D	E		93	Average		
				*2: A	rithmet	ic Ave	rage; c	alculat	ied by	assum	ing ND:	=0; Co	dor code	es sho	w cate	gories	(see t	he rig	nt).														
				*3: Re	esults o	of the a	malysis	s of tre	ends at	respe	ctive loc	ations	using th	he me	thod e	cplaine	d on 4	.3(1)	2)	>	Decr	easing	~	≯ In	creasir	ıg	~~	Unch	nanged 👭	Varying			

#### (3) Conclusion

Concentration levels of detected values for sediment samples from public water areas (rivers, lakes, and coastal areas) from FY2011 to FY2015 and their changes shown so far are summarized as follows (see Figure 4.3-24 and Table 4.3-45).

#### 1) Concentration levels of detected values

Rivers

Within all surveyed locations (396 locations in total), the number of locations categorized into Category A or B, which fall under the upper 10%, was the largest in Hamadori in Fukushima Prefecture (20 locations). Such locations were also found in Nakadori, Fukushima Prefecture, Ibaraki Prefecture, Gunma Prefecture and Chiba Prefecture.

#### Lakes

Among all the locations (164 locations), locations categorized into Category A or B were found in Hamadori in Fukushima Prefecture.

#### Coastal areas

Among all locations (42 locations), locations categorized into Category A or B were found in Miyagi and Fukushima Prefectures.



Figure 4.3-24 Categorization by concentration levels of detected values for sediment samples

(upper: rivers; middle: lakes; lower: coastal areas)

(\* Figure 4.3-24 shows the aforementioned Table 3.1-1 graphically.)

#### 2) Changes in detected values

Rivers

A decreasing trend was observed at most locations.

Lakes

Detected values were generally decreasing or unchanged at most locations but some locations showed fluctuations.

· Coastal areas

A decreasing trend was observed at most locations except for some locations showing fluctuations.

# Table 4.3-45 Changes in detected values for sediment samples from public water areas (rivers, lakes, and coastal areas)

#### <Rivers>

						Nur	nber of loca	tions					
Trends				Fukushima								Т	otal
	Iwate	Miyagi	Hamadori	Nakadori	Aizu	Ibaraki	Tochigi	Gunma	Chiba	Saitama	Tokyo	Number of locations	Percentage
Decreasing	19	35	47	41	21	46	39	31	37	2	1	319	80.6
Unchanged	0	0	2	0	1	2	1	1	2	0	1	10	2.5
Varying	3	8	4	3	4	5	16	16	8	0	0	67	16.9
Increasing	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total	22	43	53	44	26	53	56	48	47	2	2	396	100.0

#### <Lakes>

					Number o	f locations				
Trends			Fukushima						To	otal
	Miyagi	Hamadori	Nakadori	Aizu	Ibaraki	Tochigi	Gunma	Chiba	Number of locations	Percentage
Decreasing	13	22	5	7	8	2	6	6	69	42.1
Unchanged	2	2	1	7	8	1	7	2	30	18.3
Varying	5	13	5	10	2	4	8	0	47	28.7
Increasing	1	4	1	7	1	1	3	0	18	11.0
Total	21	41	12	31	19	8	24	8	164	100.0

#### <Coastal areas>

				Number o	f locations		_	
Trends							То	otal
	Iwate	Miyagi	Fukushima	Ibaraki	Chiba	Tokyo	Number of locations	Percentage
Decreasing	0	2	9	3	2	2	18	42.9
Unchanged	1	2	1	0	0	0	4	9.5
Varying	1	6	4	2	2	1	16	38.1
Increasing	0	2	1	0	1	0	4	9.5
Total	2	12	15	5	5	3	42	100.0

#### 3) Summary by prefecture

Concentration levels of detected values and their changes are summarized by prefecture as follows (see Figures 4.3-25 to 4.3-27).

- (i) Iwate Prefecture
- Surveyed locations for rivers were the 22 locations categorized into Category D or E. A decreasing trend was observed at most locations.
- Surveyed locations for coastal areas were all two locations categorized into Category E. An unchanged trend was observed at most locations except for several locations showing fluctuations.
- (ii) Miyagi Prefecture
  - Surveyed locations for rivers were over 80% categorized into Category D or E, among the 43 locations, some locations in the lower reaches were Category C. A decreasing trend was observed at most locations.
  - Surveyed locations for lakes were almost all categorized into Category D or E, among the 21 locations, only
    one location categorized into Category C. Concentration levels were generally decreasing or unchanged at
    most locations.
  - Surveyed locations for coastal areas were three-quarters of all locations categorized into Category D or E, among the 12 locations, one categorized into Category A, another into Category B, and yet another into Category C. There was a location categorized into Category A in the Sendai Port. Concentration levels were fluctuating at many locations and the other locations shown mixture of each trend.
- (iii) Hamadori, Fukushima Prefecture
  - Approximately 50% of the 53 surveyed locations for rivers were categorized into Category A, B or C. Many of the locations categorized into Category A or B were found near or northwest to Fukushima Daiichi NPS, while the locations categorized into Category C were seen in the northern and southern parts of the district. A decreasing trend was observed at most locations.
  - Approximately 70% of the 41 surveyed locations for lakes were categorized into Category A, B or C. Many
    of the locations categorized into Category A or B were found northwest to Fukushima Daiichi NPS. A
    decreasing or unchanged trend was observed generally at most locations except for several locations
    showing fluctuations.
  - 60% of the 15 surveyed locations for coastal areas were categorized into Category D or E and the rest were categorized into Category A, B, or C. The one location categorized into Category A was seen in the Matsukawaura. A decreasing trend was observed generally at most locations except for several locations showing fluctuations.
- (iv) Nakadori, Fukushima Prefecture
  - Approximately 70% of the 44 surveyed locations for rivers were categorized into Category D or E and the rest were categorized into Category B or C. The locations categorized into Category B or C were found from the center of the Abukuma River to the northern part. A decreasing trend was observed at most locations.
  - Eight of the 12 surveyed locations for lakes were categorized into Category D or E and the rest four locations were categorized into Category C. The locations categorized into Category C were seen in the upper and

lower reaches of the Abukuma River basin. A decreasing trend was observed at most locations except for several locations showing fluctuations.

- (v) Aizu, Fukushima Prefecture
  - One of the 26 surveyed location for rivers was categorized into Category C and all the remaining locations were categorized into Category D or E. A decreasing trend was observed at most locations.
  - Six of the 31 surveyed locations for lakes were categorized into Category C and over 80% of the locations were categorized into Category D or E. Concentration levels were fluctuations at many locations and the other locations showed mixture of each trend.
- (vi) Ibaraki Prefecture
  - Over 70% of the 53 surveyed locations for rivers were categorized into Category D or E and the rest were categorized into Category A, B, or C. The locations categorized into Category A or B were found in rivers flowing into Lake Kasumigaura. A decreasing trend was observed at most locations.
  - One of the 19 surveyed location for lakes was categorized into Category C in the northern part of the prefecture and the remaining locations were categorized into Category D or E. A decreasing or unchanged trend was observed at most locations.
  - Surveyed locations for coastal areas were all the categorized into Category E. A decreasing trend was observed generally at most locations except for several locations showing fluctuations.
- (vii) Tochigi Prefecture
  - One of the 56 surveyed locations for rivers was categorized into Category C and the remaining locations were categorized into Category D or E. A decreasing trend was observed generally at most locations except for several locations showing fluctuations.
  - All eight locations for lakes were categorized into Category D or E. Concentration levels were fluctuating at many locations and the other locations showing mixture of each trend.
- (viii) Gunma Prefecture
  - One of the 48 surveyed locations for rivers was categorized into Category A in the lower reach of the Watarase River basin and all remaining locations were categorized into Category D or E. A decreasing trend was observed generally at most locations except for several locations showing fluctuations.
  - One of the 24 surveyed locations for lakes was categorized into Category C and all remaining locations were categorized into Category D or E. Concentration levels were fluctuating at many locations and other locations showing mixture of each trend.
- (ix) Chiba and Saitama Prefectures and Tokyo Metropolis
  - Over 60% of the 51 surveyed locations for rivers were categorized into Category A, B, or C. The locations categorized into Category A or B were found in rivers flowing into Lake Teganuma or Lake Inbanuma, the Edogawa River system, and a part of the Tonegawa River system. A decreasing trend was observed at most locations.
  - One of the eight surveyed locations for lakes was categorized into Category C in Lake Teganuma and all the remaining locations were categorized into Category D or E. A decreasing trend was observed at most locations.

• One of the eight surveyed location for lake was categorized into Category C at the mouth of the Kyuedogawa River and all remaining locations were categorized into Category D or E. A decreasing trend was observed at most locations except for several locations showing fluctuations.



Figure 4.3-25 Categorization of and changes in concentration levels for river sediment samples from public water areas

(\*) Categories A to E show relative concentration levels for river sediment samples and cannot be compared with those for lake sediment samples or coastal area sediment samples.



Figure 4.3-26 Categorization of and changes in concentration levels for lake sediment samples from public water areas

(\*) Categories A to E show relative concentration levels for lake sediment samples and cannot be compared with those for river sediment samples or coastal area sediment samples.



Figure 4.3-27 Categorization of and changes in concentration levels for coastal area sediment samples

#### from public water areas

(\*) Categories A to E show relative concentration levels for coastal area sediment samples and cannot be compared with those for river sediment samples or lake sediment samples.

#### 5. Results (Radionuclides Other than Radioactive Cesium)

- 5.1 Radioactive strontium (Sr-90 and Sr-89)
- (1) Public water areas
- 1) Outline

In principle, radioactive strontium was measured at locations with where the radioactive cesium concentrations in sediments were high. Sediment samples from public water areas (rivers, lakes, and coastal areas) were surveyed for Sr-90 from FY2011 to FY2015, and those from public water areas (rivers and lakes) for Sr-89 in FY2011, respectively. The status of the survey and the summary of the results are as shown in Table 5.1-1 (detection limits: approx. 1 Bq/kg (dry) for Sr-90 and approx. 2 Bq/kg (dry) for Sr-89).

Sr-90 was detected as detailed are as shown in 2).

A survey of Sr-89 was conducted with regard to 22 samples (13 river sediment samples and nine lake sediment samples) only in FY2011 but Sr-89 was not detectable in any of these samples.

#### 2) Detection of Sr-90 in sediment samples

(i) River sediments

Sr-90 was detected in nine of the 22 river sediments specimens surveyed in FY2015 (detection rate: 40.9%). Except for Fukushima Prefecture, detected values were less than 1 Bq/kg (dry) (see Table 5.1-1).

Sr-90 was continuously detected since FY2011 at some locations in the Ota River and the Ukedo River in Fukushima Prefecture, but detected values gradually decreased to fall below 2 Bq/kg (dry) in FY2014 (see Figure 5.1-1).

#### (ii) Lake sediments

In FY2015, the 68 lake sediments specimens were surveyed for Sr-90; from the 66 of these specimens, Sr-90 was detected (detection rate: 97.1%) (see Table 5.1-1). Sr-90 has been detected until FY2015 in each prefecture surveyed. When reviewed site by site, detected values have been at relatively low levels and within the range of FY2015 measured values from not detectable to 150 Bq/kg (dry) (see Figure 5.1-1).

#### (iii) Coastal area sediments

In FY2015, the 32 coastal area sediment specimens were surveyed; from three specimens from Fukushima Prefecture, Sr-90 was detected (detection rate: 9.4%) (see Table 5.1-1). Measured values ranged from not detectable to 0.78 Bq/kg (dry), which were lower than those obtained from rivers and lakes.

### Table 5.1-1 Detection of Sr-90 and Sr-89 in sediment samples from public water areas (rivers, lakes, and coastal areas)

O Sr-90

			F	Y2011			F	Y2012			F	Y2013			F	Y2014			F	Y2015			Total	
Property	Prefecture	Number of samples	Number of detections	Detection rate(%)	Range of measured values [Bq/kg(dry)]	Number of samples	Number of detections	Detection rate(%)	Range of measured values [Bq/kg(dry)]	Number of samples	Number of detections	Detection rate(%)	Range of measured values [Bq/kg(dry)]	Number of samples	Number of detections	Detection rate(%)	Range of measured values [Bq/kg(dry)]	Number of samples	Number of detections	Detection rate(%)	Range of measured values [Bq/kg(dry)]	Number of samples	Number of detections	Range of measured values [Bq/kg(dry)]
	Miyagi	2	2	100.0	0.40 - 1.1	7	1	14.3	ND - 1.2	5	3	60.0	ND - 0.56	4	3	75.0	ND - 0.52	2	0	-	-	20	9	ND - 1.2
	Fukushima	7	7	100.0	1.2 - 4.1	25	15	60.0	ND - 12	16	10	62.5	ND - 2.9	14	9	64.3	ND - 1.5	10	5	50.0	ND - 1.9	72	46	ND - 12
	Ibaraki	1	1	100.0	1.6 - 1.6	4	1	25.0	ND - 1.8	6	4	66.7	ND - 1.8	6	2	33.3	ND - 0.89	4	2	50.0	ND - 0.92	21	10	ND - 1.8
Rivers	Tochigi	1	1	100.0	1.3 - 1.3	2	0	-	-	2	1	50.0	ND - 0.23	2	1	50.0	ND - 0.53	1	0	-	-	8	3	ND - 1.3
	Gunma	1	1	100.0	0.70 - 0.70	2	0	-	-	2	1	50.0	ND - 0.44	1	0	-	-	0	0	-	-	6	2	ND - 0.70
	Chiba	1	1	100.0	1.1 - 1.1	4	0	-	-	4	2	50.0	ND - 0.49	4	1	25.0	ND - 0.40	5	2	40.0	ND - 0.35	18	6	ND - 1.1
	Total	13	13	100.0	0.40 - 4.1	44	17	38.6	ND - 12	35	21	60.0	ND - 2.9	31	16	51.6	ND - 1.5	22	9	40.9	ND - 1.9	145	76	ND - 12
	Miyagi	1	1	100.0	1.6 - 1.6	3	2	66.7	ND - 2.1	5	5	100.0	0.3 - 2.2	6	5	83.3	ND - 0.96	8	7	87.5	ND - 1.4	23	20	ND - 2.2
	Fukushima	3	3	100.0	3.3 - 6.8	41	41	100.0	2.1 - 93	40	40	100.0	0.7 - 55	39	39	100.0	0.70 - 50	40	39	97.5	ND - 150	163	162	ND - 150
	Ibaraki	2	2	100.0	0.70 - 3.3	6	1	16.7	ND - 7.0	6	5	83.3	ND - 5.2	6	6	100.0	0.57 - 3.0	6	6	100.0	0.34 - 2.6	26	20	ND - 7.0
Lakes	Tochigi	1	1	100.0	1.3 - 1.3	2	1	50.0	ND - 1.6	2	2	100.0	0.74 - 0.93	2	2	100.0	1.0 - 1.1	2	2	100.0	0.47 - 2.2	9	8	ND - 2.2
	Gunma	1	1	100.0	2.0 - 2.0	2	2	100.0	1.9 - 2.2	2	1	50.0	ND - 1.7	2	2	100.0	1.5 - 1.7	8	8	100.0	0.67 - 2.4	15	14	ND - 2.4
	Chiba	1	1	100.0	1.4 - 1.4	4	1	25.0	ND - 4.4	2	1	50.0	ND - 1.8	4	3	75.0	ND - 2.5	4	4	100.0	0.36 - 0.61	15	10	ND - 4.4
	Total	9	9	100.0	0.70 - 6.8	58	48	82.8	ND - 93	57	54	94.7	ND - 55	59	57	96.6	ND - 50	68	66	97.1	ND - 150	251	234	ND - 150
	Miyagi	0	0	-	-	2	0	-	-	4	0	-	-	2	0	-	-	2	0	-	-	10	0	-
Coastal	Fukushima	0	0	-	-	21	0	-	-	30	1	3.3	ND - 0.33	30	2	6.7	ND - 0.58	30	3	10.0	ND - 0.78	111	6	ND - 0.78
areas	Tokyo Metropolis	0	0	-	-	2	0	-	-	0	0	-	-	0	0	-	-	0	0	-	-	2	0	-
1	Total	0	0	-	-	25	0	-	-	34	1	2.9	ND - 0.33	32	2	6.3	ND - 0.58	32	3	9.4	ND - 0.78	123	6	ND - 0.78

ND: Not detectable

I

### O Sr-89 (FY2011)

	Ri	ver	La	ıke
Prefecture	Number of	Number of	Number of	Number of
	samples	detections	samples	detections
Miyagi	2	0	1	0
Fukushima	7	0	3	0
Ibaraki	1	0	2	0
Tochigi	1	0	1	0
Gunma	1	0	1	0
Chiba	1	0	1	0
Total	13	0	9	0



Figure 5.1-1 Detection of Sr-90 in sediment samples from public water areas (upper: rivers; lower: lakes)

#### (2) Groundwater

Surveys of Sr-89 and Sr-90 were conducted with regard to approx. the 240 groundwater samples collected in Fukushima Prefecture from January 2012 to February 2016.

The outline of the results of these surveys is as shown in Table 5.1-2. Detected values of Sr-89 and Sr-90 were all below the detection limit (1 Bq/L).

Table 5.1-2 Detection of Sr-89 and Sr-90 in groundwater samples (all collected in Fukushima Prefecture)

		S	r-90			S	r-89	
Financial year	Number of samples	Number of detections	Detection rate(%)	Range of measured values [Bq/L](*1)	Number of samples	Number of detections	Detection rate(%)	Range of measured values [Bq/L](*1)
FY2011	8	0	0.0	-	8	0	0.0	-
FY2012	60	0	0.0	-	60	0	0.0	-
FY2013	77	0	0.0	-	77	0	0.0	-
FY2014	48	0	0.0	-	48	0	0.0	-
FY2015	48	0	0.0	-	48	0	0.0	-
Total	241	0	0.0	-	241	0	0.0	-

\*1:Results were compiled by setting the detection limit at 1 Bq/L.In reality, the detection limit was set at 0.0002 Bq/L and at 0.001 Bq/L for Sr-90 and Sr-89, respectively, for the FY2011 survey, and was set at 1 Bq/L for both Sr-90 and Sr-89 for surveys in FY2012 onward.

In the FY2011 survey (calendar year 2012), Sr-90 was detected in all eight specimens, with detected values ranging from 0.0004 to 0.0029 Bq/L. Similarly, while the detection limit for Sr-89 was set to 0.001 Bq/L in FY2011 (calendar year 2012), Sr-89 in all eight specimens was below the detection limit.

#### 5.2 Other γ-ray emitting radionuclides

Apart from the aforementioned radionuclides (Cs-134, Cs-137, Sr-89 and Sr-90), measurement results for water samples and sediment samples using a germanium semiconductor detector were analyzed from FY2011 to FY2015 to obtain activity concentrations of accident-derived radionuclides (Ag-110m, Te-129m, Nb-95, Sb-125 and Ce-144, etc<sup>12</sup>.) and major naturally occurring radionuclides such as K-40. The summary of the results is as shown in Table 5.2-1.

Among the detected radionuclides, no artificial radionuclides were detected in water samples, while two types of radionuclides, Ag-110m and Sb-125, were detected in sediment samples with detection rates of 1% or less. Since FY2013, neither radionuclide has been detected.

Six naturally occurring radionuclides (K-40, Pb-212, Pb-214, Tl-208, Ac-228 and Bi-214) were detected; K-40 is a naturally occurring radionuclide entrained during the Earth's formation, while the other species are all either uranium series or thorium series radionuclides, which are widely distributed in nature including earth crusts.

Among the detected radionuclides, Ag-110m and Sb-125 are artificial radionuclides that are generated at nuclear power stations, etc. Therefore, their emitting sources are examined below.

<sup>&</sup>lt;sup>12</sup> For I-131 from among the accident-derived radionuclides, water samples from public water areas (3,111 river water specimens, 1,416 lake water specimens, and 715 coastal area water specimens) and sediment samples (3,073 river sediment specimen, 877 lake sediment specimens, and 393 coastal area sediment specimens) were surveyed from FY 2011 to FY 2012; from FY 2011 to FY 2014, groundwater samples (3,793 specimens) were surveyed. In none of these samples was I-131 detected (lower detection limit values: 1 Bq/L for water and 10 Bq/kg for sediments).

Fiscal	Number	Major detected artificial radionuclide		Major detected naturally occurring radionuclide	
year	of samples	Туре	Detection rate and detected values	Туре	Detection rate
FY2011	1,755	_	_	K-40	10%
FY2012	3,518	—	-	K-40	6%
FY2013	3,860	_	_	K-40	13%
FY2014	3,856	_	_	K-40	10%
FY2015	3,916	_	_	Pb-214 Pb-212 K-40	9% 7% 7%

#### Table 5.2-1 Detection of other radionuclides

<Water>

# <Sediments> (detection limits: 7 - 180 Bq/kg for Ag-110m and 130 - 330 Bq/kg for Sb-125)

Fiscal year	Number of samples	Major detected artificial radionuclide		Major detected naturally occurring	
				radionuclide	
		Туре	Detection rate and detected values	Туре	Detection rate
FY2011	1,559	Ag-110m	4 samples (0.26%) 46 - 170 Bq/kg	K-40	79%
				Pb-212	41%
				Pb-214	16%
				T1-208	14%
FY2012	2,885	Ag-110m	26 samples (0.90%) 7.9 - 350 Bq/kg	Ac-228	41%
				Bi-214	43%
				K-40	97%
		Sb-125	3 samples (0.10%)	Pb-212	75%
				Pb-214	44%
			140 - 420 Bq/kg	T1-208	39%
	3,062	-	-	Ac-228	25%
				Bi-214	25%
EV2013				K-40	91%
F12015				Pb-212	49%
				Pb-214	23%
				T1-208	23%
	3,035	-	-	Ac-228	24%
				Bi-214	24%
EV2014				K-40	91%
F12014				Pb-212	48%
				Pb-214	24%
				T1-208	24%
FY2015	3,158	-	-	Ac-228	32%
				Bi-214	60%
				K-40	88%
				Pb-212	63%
				Pb-214	67%
				T1-208	37%

The two types of detected artificial radionuclides (Ag-110m and Sb-125) were not included in the publicized reference materials concerning the amount of radioactive materials discharged due to the Fukushima NPS Accident<sup>13</sup>, but the Distribution Maps of Radiation Doses, etc., prepared in October 2011 include a detailed map showing activity concentrations in soil which contains data for Ag-110m (see Figure 5.2-1). In addition, there were instances of detection of Sb-125 in Niigata Prefecture after the accident<sup>14</sup>. Since FY2013, however, Sb-125 has not been detected.

Ag-110m is produced as the result of activation of Ag-109 in a nuclear reactor, while Sb-125 is a radioisotope produced as a result of nuclear fission.

Accordingly, in light of the distribution of the detected artificial radionuclides and their production processes, they are considered to have been derived from the Fukushima NPS Accident.



(\*) Reference: Website of the Ministry of Education, Culture, Sports, Science and Technology<sup>15</sup> Figure 5.2-1 Map showing concentrations of Ag-110m in soil

<sup>&</sup>lt;sup>13</sup> Errors in the Released Data on the Amount of Radioactive Materials (October 20, 2011; Nuclear and Industrial Safety Agency) <u>http://www.meti.go.jp/press/2011/10/20111020001/20111020001.pdf</u>

<sup>&</sup>lt;sup>14</sup> Artificial Radionuclides Detected in Niigata Prefecture After the Accident at the Fukushima Daiichi NPS, by Ono, et al.; Annual Report of the Niigata Prefectural Institute of Environmental Radiation Monitoring, vol. 9, 19-29.

<sup>&</sup>lt;sup>15</sup> Preparation of Distribution Maps of Radiation Doses, etc. (Te-129m and Ag-110m) by MEXT: http://radioactivity.nsr.go.jp/ja/contents/6000/5050/24/5600 111031\_rev130701.pdf



(\*) Average of detected values; Ag-110m was not detectable at any other time, or at any unmarked locations.

(\*) Sb-125 was detected only at Joroku (agricultural reservoir) (approx. 10 km northwest of the Fukushima Daiichi NPS) at Levels of 140 to 420 Bq/kg during the period from July to November 2012.

Figure 5.2-2 Detection of Ag-110m in sediment samples from public water areas (average of data from September 2011 to March 2013)