

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

Prefecture	FY2011				FY2012				FY2013				FY2014				Total			
	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)
Yamagata	2	2	100.0	34 - 470	0	0	-	-	0	0	-	-	0	0	-	-	2	2	100.0	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	233	231	99.1	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	1538	1522	99.0	ND - 780,000
Hamadori Area	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	745	745	100.0	18 - 780,000
Nakadori Area	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	253	250	98.8	ND - 35,000
Aizuwakamatsu City	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	540	527	97.6	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	224	222	99.1	ND - 5,400
Tochigi	12	10	83.3	ND - 6,700	27	27	100.0	11 - 4,100	31	31	100.0	10 - 5,100	32	32	100.0	134 - 8,700	102	100	98.0	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	287	283	98.6	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	112	112	100.0	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	2498	2472	99.0	ND - 780,000

■ 10 Bq/kg or less ■ 10 to 100 Bq/kg or less ■ 100 to 1,000 Bq/kg or less ■ 1,000 to 10,000 Bq/kg or less ■ 10,000 to 100,000 Bq/kg or less ■ 100,000 to 1,000,000 Bq/kg or less

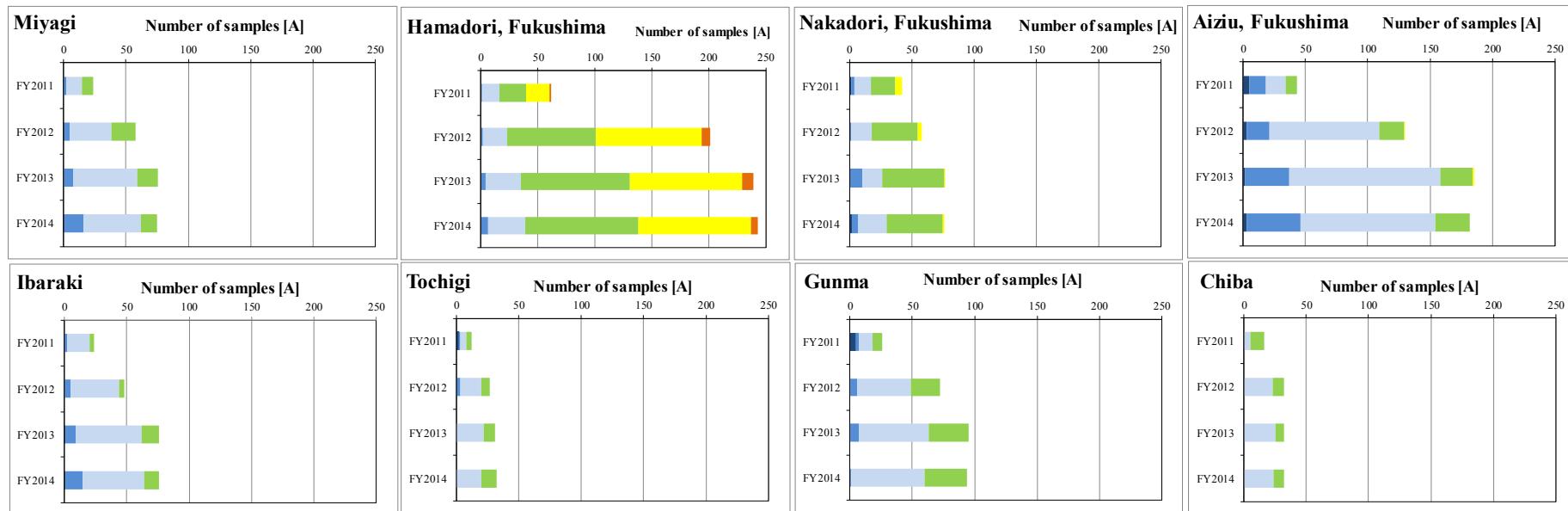


Figure 4.2-1 Detection of radioactive materials in river sediment samples (changes) (Prefectures where only a small number of samples were collected are omitted.)

Table 4.2-2 Detection of radioactive cesium in lake sediment samples (by fiscal year)

Prefecture	FY2011				FY2012				FY2013				FY2014				Total			
	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (%)	Range of measured values (Bq/L)
Iwate	18	18	100.0	62 - 990	64	63	98.4	ND - 1,040	80	71	88.8	ND - 340	80	68	85.0	ND - 301	242	220	90.9	ND - 1,040
Yamagata	10	6	60.0	ND - 132	0	0	-	ND -	0	0	-	ND -	0	0	-	ND -	10	6	60.0	ND - 132
Miyagi	113	111	98.2	ND - 11,100	199	191	96.0	ND - 3,700	192	182	94.8	ND - 2,450	196	187	95.4	ND - 1,620	700	671	95.9	ND - 11,100
Fukushima	441	421	95.5	ND - 92,000	847	808	95.4	ND - 165,000	795	750	94.3	ND - 45,000	770	724	94.0	ND - 24,700	2853	2703	94.7	ND - 165,000
Hamadori Area	192	191	99.5	ND - 92,000	336	329	97.9	ND - 165,000	325	321	98.8	ND - 45,000	326	318	97.5	ND - 24,700	1179	1159	98.3	ND - 165,000
Nakadori Area	176	174	98.9	ND - 30,000	354	353	99.7	ND - 20,000	316	316	100.0	ND - 8,300	324	317	97.8	ND - 3,060	1170	1160	99.1	ND - 30,000
Aizu	73	56	76.7	ND - 25,000	157	126	80.3	ND - 2,590	154	113	73.4	ND - 1,410	120	89	74.2	ND - 720	504	384	76.2	ND - 25,000
Ibaraki	128	125	97.7	ND - 5,800	214	208	97.2	ND - 4,800	212	209	98.6	ND - 4,200	212	208	98.1	ND - 1,640	766	750	97.9	ND - 5,800
Tochigi	159	150	94.3	ND - 4,900	275	267	97.1	ND - 1,780	276	245	88.8	ND - 1,540	274	231	84.3	ND - 820	984	893	90.8	ND - 4,900
Gunma	88	74	84.1	ND - 410	211	184	87.2	ND - 1,360	214	179	83.6	ND - 1,560	210	177	84.3	ND - 2,160	723	614	84.9	ND - 2,160
Saitama	2	2	100.0	35 - 530	8	8	100.0	12 - 540	8	8	100.0	10 - 67	8	7	87.5	ND - 68	26	25	96.2	ND - 540
Chiba	83	83	100.0	50 - 9,700	199	199	100.0	17 - 20,200	200	199	99.5	ND - 7,900	200	200	100.0	11 - 5,200	682	681	99.9	ND - 20,200
Tokyo	2	2	100.0	580 - 700	12	12	100.0	131 - 670	8	8	100.0	75 - 460	8	8	100.0	96 - 430	30	30	100.0	75 - 700
Total	1044	992	95.0	ND - 92,000	2029	1940	95.6	ND - 165,000	1985	1851	93.2	ND - 45,000	1958	1810	92.4	ND - 24,700	7016	6939	94.0	ND - 165,000

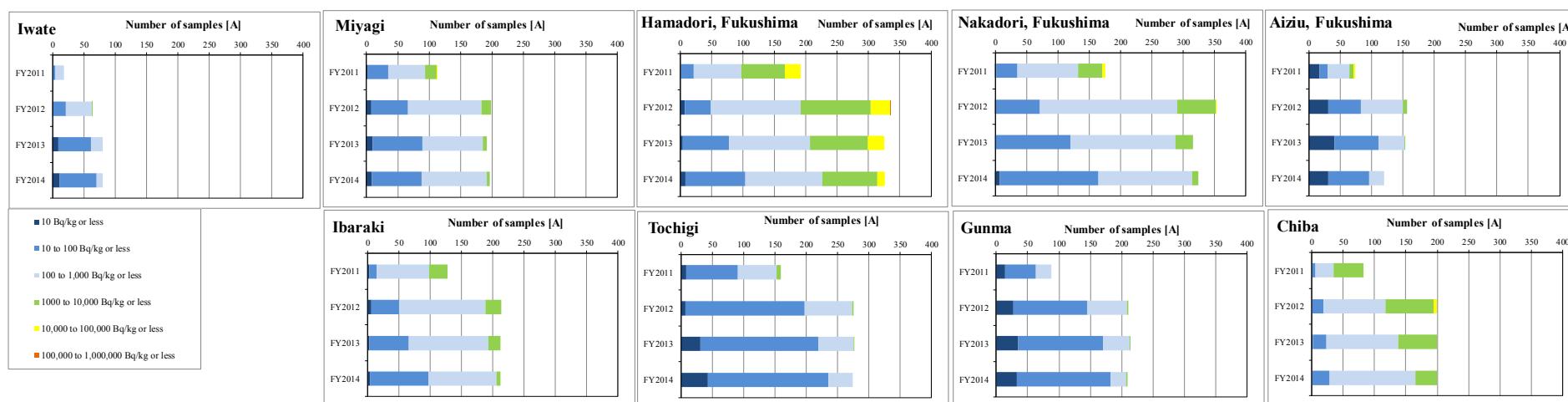


Figure 4.2-2 Detection of radioactive cesium in lake sediment samples (changes) (Prefectures where only a small number of samples were collected are omitted.)

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

Prefecture	FY2011				FY2012				FY2013				FY2014				Total								
	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)	Number of samples [A]	Number of detections [B]	Detection rate (B/A) (%)	Range of measured values (Bq/L)					
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	15	6	40.0	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	203	161	79.3	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	477	454	95.2	ND -	1,600
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	99	66	66.7	ND -	230
Chiba	0	0	-	-	-	31	20	64.5	ND -	134	23	14	60.9	ND -	54	23	14	60.9	ND -	21	77	48	62.3	ND -	134
Tokyo	0	0	-	-	-	19	17	89.5	ND -	780	18	18	100.0	ND -	780	18	17	94.4	ND -	630	55	52	94.5	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	926	787	85.0	ND -	2,040

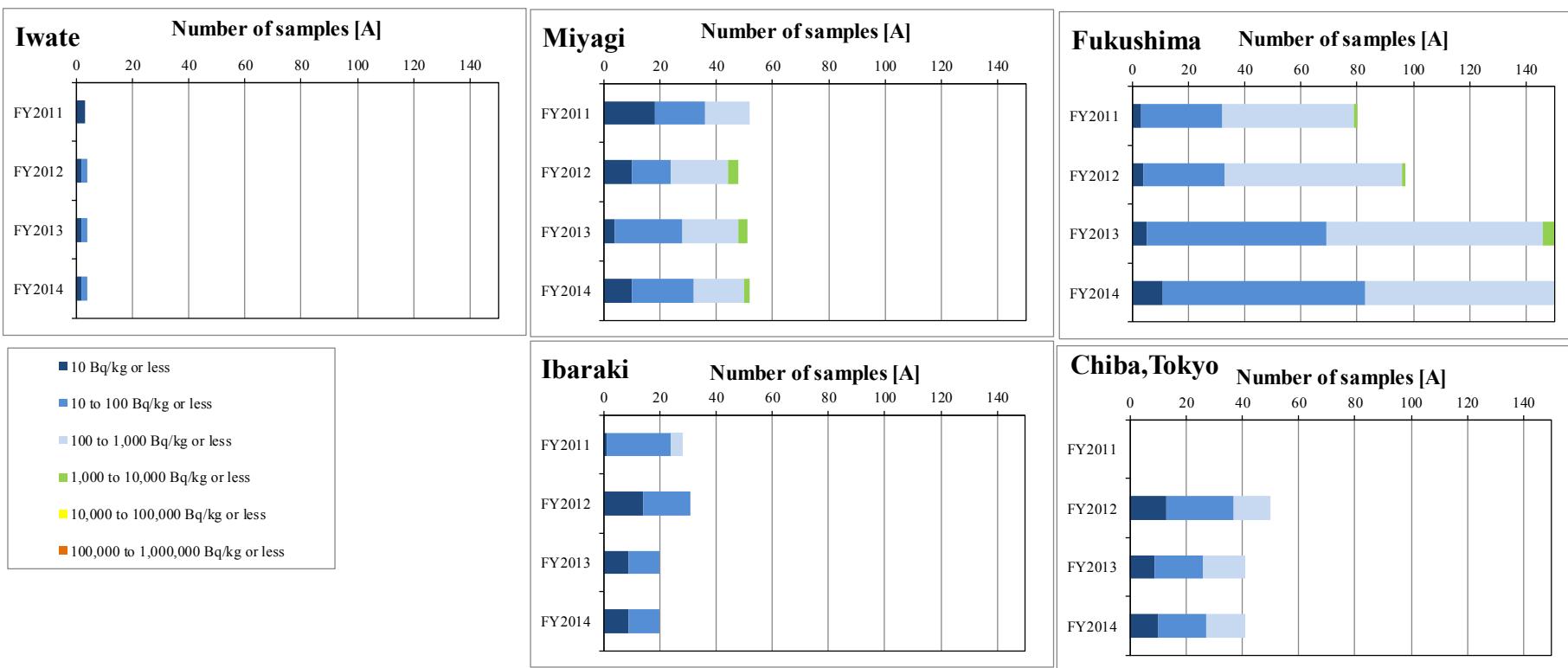


Figure 4.2-3 Detection of radioactive cesium in coastal area sediment samples (changes) (Prefectures where only a small number of samples were collected are omitted.)

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 of 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 Yamagata prefecture, where surveys have not been conducted since FY2012.

1) Detected concentration levels

- i. Obtain the average for each location by using all survey results concerning concentrations of radioactive cesium (the total of Cs-134 and Cs-137) (arithmetic average calculated by assuming ND 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 revealed a good correlation between them (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.
 - (i) 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), when a coefficient of variation (sample standard deviation/average) 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.

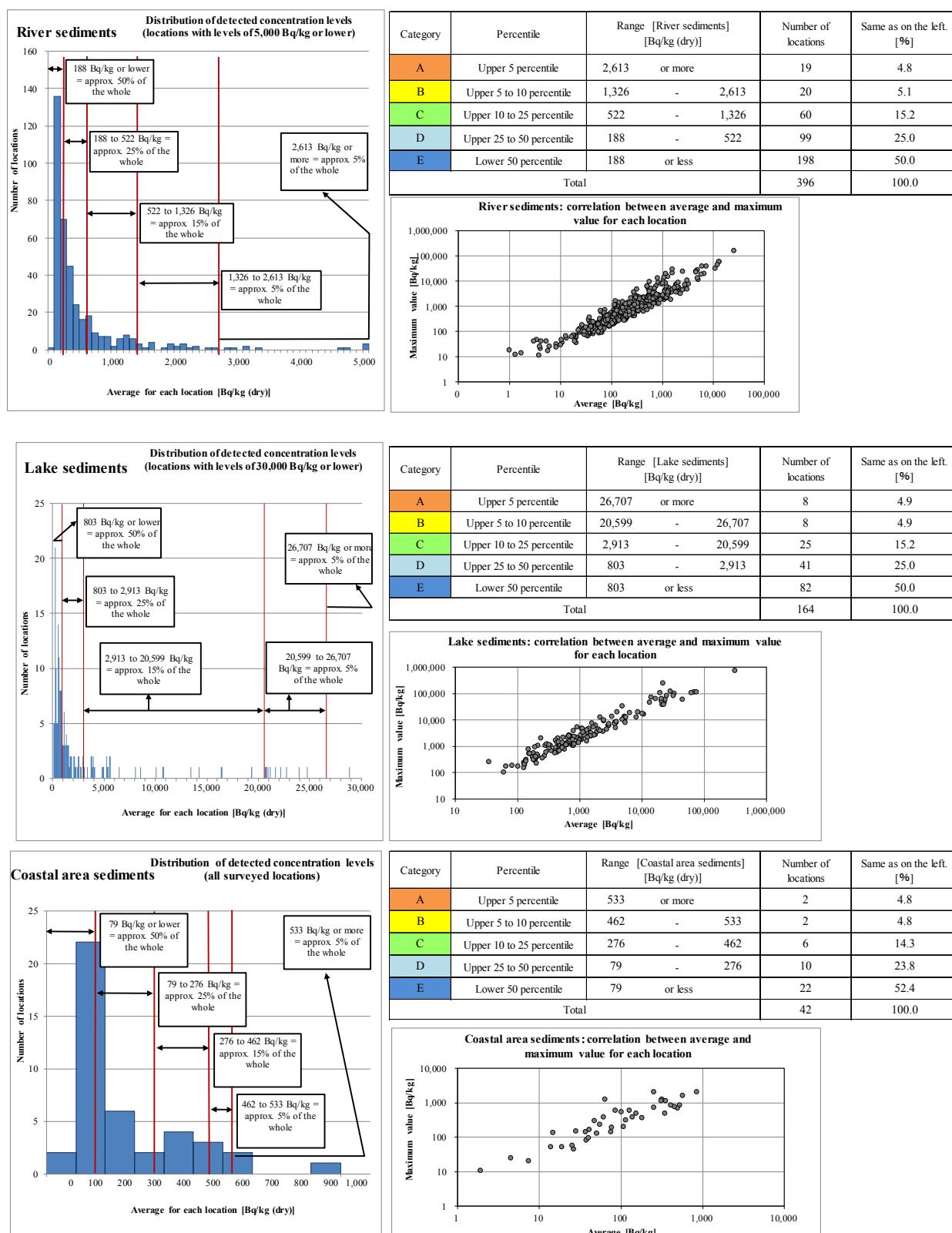


Figure 4.3-1 Categories based on the average for each location
 (left: picture showing means of categorization; upper right: results of categorization¹¹; lower right correlation between average and maximum value for each location)

¹¹ Setting of boundary values: The average of the minimum value of the upper category and the maximum value of the lower category is adopted as the boundary value between the relevant upper category and lower category.

(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 7 to 13 times from December 2011 to February 2015 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 17 locations but were generally unchanged or varying at five locations.

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

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

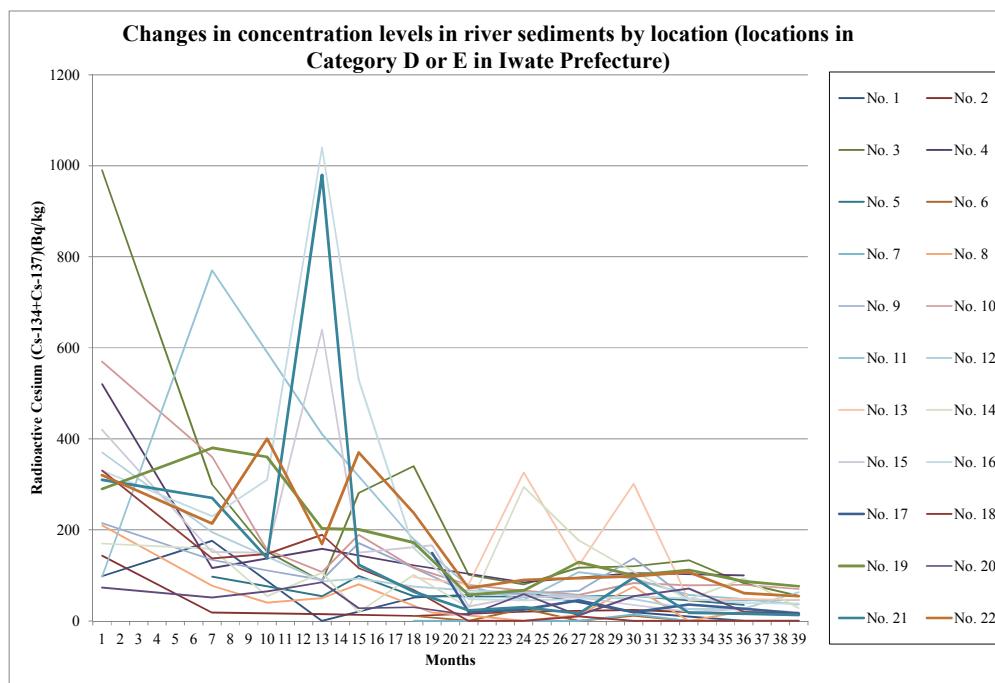


Figure 4.3-2 Changes in concentration levels over the years at respective locations (Iwate Prefecture: river sediments)

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

No.	Water area	Location	Municipality	River sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)(^a 1)																									Average (*2)	No.	(*2)	Trends (*3)										
				FY2011						FY2012						FY2013						FY2014						Changes														
				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					19				0			58	1	1.08	↘↗				
2	Kesen River	Aneha Bridge	Rikuzentakata City					143					18				15			11				20				24				15			35	2	1.36	↘↗				
3	Okawa River	Prefectural border with Miyagi	Ichinoseki City				990					300			152		87	281		340			101		80		117			120		133		83			218	3	1.14	↘↗		
4	Tsuyagawa River	Chiyogahara Bridge	Ichinoseki City				520					116				158			122				85					105				100			172	4	0.90	↘↗				
5	Kurosawa River	Kawarada Bridge	Kanegasaki Town									97			76		54	99		54			53					55				35			65	5	0.35	↘↗				
6	Ikawa River	Oago Bridge	Oshu City														11			0		27		0			11			0	0		0	0		6	6	1.60	↗↖			
7		Sajin Bridge	Oshu City														0		0		0		0		0		14			0	0		0	0		2	7	2.83	↗↖			
8	Katakami River	Fuji Bridge	Oshu City				210					77			40		50	80			18		12		0		13		75		0		21			13	8	1.21	↘↗			
9	Shiratori River	Shiratori Bridge	Oshu City				215					134			111		90	171			98		61		59		66		138		46		45			46	9	0.54	↘↗			
10	Koromo River	Koromogawa Bridge	Hiraizumi Town				570					360			156		107	189		117			79		66		57		83		78		79		70			155	10	0.96	↘↗	
11	Ota River	Hitosuji Bridge	Hiraizumi Town				97					770				410			179			76		46		107		93		57		48		36			174	11	1.28	↘↗		
12	Kubani River System	Iwai River Middle Reaches	Kamino Bridge	Ichinoseki City			370					195			141		87	93		75			67		63		55		48		26		27		63			101	12	0.92	↘↗	
13		Iwai River Lower Reaches	Koenji Bridge	Ichinoseki City															96			80		326		122		301		45		48		46			133	13	0.86	↗↖		
14		Chitose River (Kozenji)	Ichinoseki City				170					158			54		106	19		101			29		294		177		108		47		93		28			106	14	0.73	↗↖	
15		Sokei River	Unada Bridge	Ichinoseki City			420					151			150		640	150		166			32		54		52		35		20		26		19			147	15	1.25	↘↗	
16		Sarusawa River	Kannon Bridge	Ichinoseki City			330					230			310		1,040	530		160			48		45		48		54		49		39			38			225	16	1.29	↘↗
17		Satetsu River	Onde Bridge	Ichinoseki City															149			19		25		45			19		36		27		16			42	17	1.05	↘↗	
18			Kanzaki Bridge	Ichinoseki City			330					137			147		189	116		68			0		0		10		0		0		0			77	18	1.34	↘↗			
19		Sennaya River Upper Reaches	Miyata Bridge	Ichinoseki City			290					380			360		203	201		172			57		67		129		100		112		87		76			172	19	0.64	↘↗	
20			Katakami River	Katakamigawa Bridge	Ichinoseki City		73					51			65		85	28		30			13		59		12		54		71		20		16			44	20	0.58	↗↖	
21		Konomi River	Higuchi Bridge	Ichinoseki City			310					270			138		980	123		64			23		30		16		95		18		16		13			161	21	1.64	↘↗	
22		Kanyu River	Tenjin Bridge	Ichinoseki City			320					214			400		169	370		237			72		90		94		98		107		61			54			176	22	0.69	↘↗
				Total number of samples	241	Detection times	219																										110	Average								

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

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

A B C D E

*3: Results of the analysis of trends at respective locations
Decreasing ↘ Increasing ↗ Unchanged ▲▼ Varying ↘↗

using the method explained on P.60

2) Miyagi Prefecture

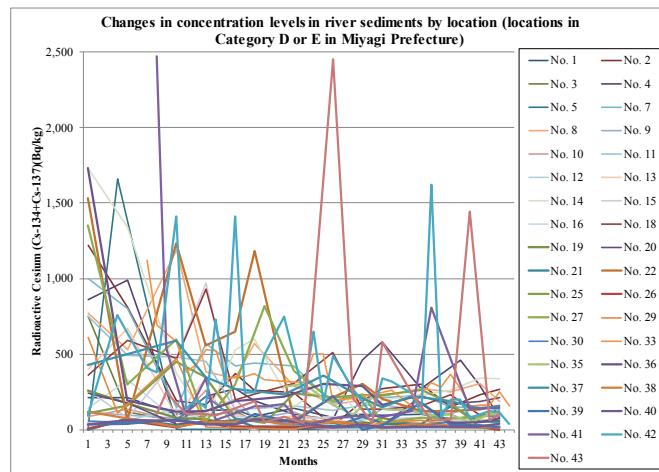
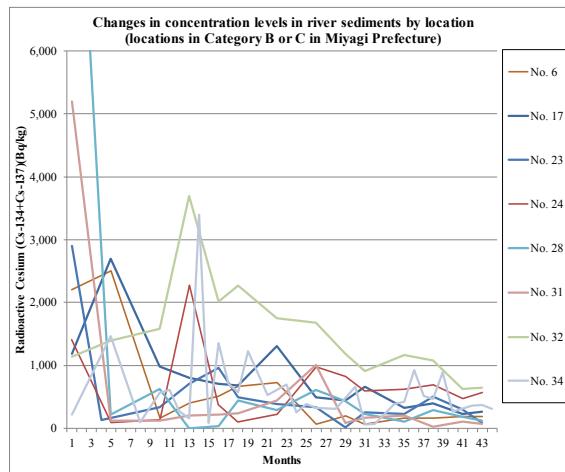
In Miyagi Prefecture, surveys were conducted 12 to 33 times from October 2011 to February 2015 for river sediment samples collected at 43 locations (this analysis excludes the survey results at 37 locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, one location was categorized into Category B, seven locations into Category C, 15 locations into Category D, and 20 locations into Category E (see Table 4.3-3 and Table 4.3-4).

Concentration levels were generally decreasing at 34 locations but were generally unchanged or varying at nine locations.

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

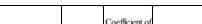
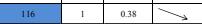
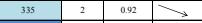
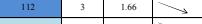
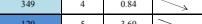
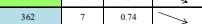
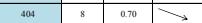
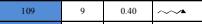
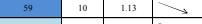
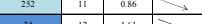
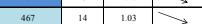
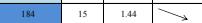
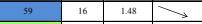
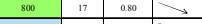
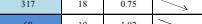
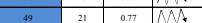
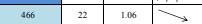
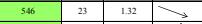
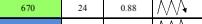
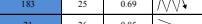
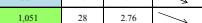
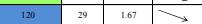
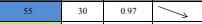
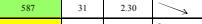
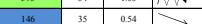
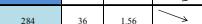
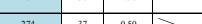
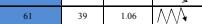
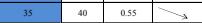
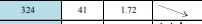
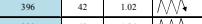
Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	1	No.32
C	Upper 10 to 25 percentile	7	No.6, No.17, No.23, No.24, No.28, No.31, No.34
D	Upper 25 to 50 percentile	15	No.2, No.4, No.7, No.8, No.11, No.14, No.18, No.22, No.27, No.33, No.36, No.37, No.41, No.42, No.43
E	Lower than upper 25 to 50 percentile (lower 50%)	20	No.1, No.3, No.5, No.9, No.10, No.12, No.13, No.15, No.16, No.19, No.20, No.21, No.25, No.26, No.29, No.30, No.35, 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 (Miyagi Prefecture: river sediments)

No.	Water area	Location	Municipality	River sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)*1																									Average(*2)	No.	Coefficient of variation	Trends(*3)												
				FY2011				FY2012				FY2013				FY2014				Changes																								
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	Shiobara River	Kazan Bridge	Kesennuma City	210	211	100	124	128	86	139	83	99	96	103	71	93	85	116	1	0.38																								
2		Namida Bridge		1,220	810	189	165	370	262	245	28	186	268	300	150	231	265	335	2	0.92																								
3		Tatsuyama-ohashi Bridge		750	115	56	91	121	56	39	43	51	35	33	54	60	61	112	3	1.66																								
4		Okawa River		860	990	59	222	271	190	99	65	460	580	269	460	288	76	349	4	0.84																								
5		Okawa River Estuary		23	1,660	0	0	0	0	0	0	0	0	0	0	0	0	120	5	3.69																								
6		Omose River		2,200	2,500	159	400	510	670	730	64	194	63	158	158	185	182	584	6	1.34																								
7	Hasama River Area	Arima River	Kurihama City	1,000	800	146	570	420	440	420	173	229	210	225	152	145	131	362	7	0.74																								
8		Kanyu River		770	530	1,190	380	340	570	289	165	196	221	271	250	304	184	404	8	0.70																								
9		Katakami River		113	98	74	118	199	71	115	22	63	133	119	106	158	139	109	9	0.40																								
10		Sanhasama River		85	137	55	260	24	20	25	13	38	45	40	33	26	22	59	10	1.13																								
11		Nihasama River		750	490	480	450	131	0	14	153	123	161	167	124	54	98	91	252	11	0.86																							
12		Hasama River		44	60	135	56	0	14	17	0	0	0	0	0	0	0	24	12	1.61																								
13		Kasumi River System		400	670	84	340	104	65	90	71	33	52	62	55	61	72	154	13	1.20																								
14		Yamayoshida Bridge		1,730	1,340	370	69	530	600	150	327	68	197	225	258	339	337	467	14	1.03																								
15		Eai River		260	77	470	970	89	0	66	67	85	66	80	67	49	46	184	15	1.44																								
16		Shiobarakuhon, entrance		141	320	63	104	18	0	59	37	17	17	16	18	11	0	59	16	1.48																								
17		In Furukawa District, Iwaki City		1,190	2,700	980	800	710	690	1,310	490	450	660	324	398	229	265	800	17	0.80																								
18		Ogikawa River		360	590	470	930	195	233	305	510	134	133	153	232	95	101	317	18	0.75																								
19		Eai River		260	172	79	66	37	73	56	41	21	79	20	19	13	18	68	19	1.02																								
20		Kyu-Katakami River		240	175	36	49	0	10	0	27	18	26	221	171	184	212	98	20	0.97																								
21		Nanase River		0	74	28	41	65	17	19	19	82	44	40	153	53	54	49	21	0.77																								
22	Sunaochi River System	Tagajyo River	Tagajo City	1,530	62	1,230	560	650	1,180	61	215	302	202	122	123	132	156	466	22	1.06																								
23		Nembutsu Bridge		2,900	129	340	710	960	490	380	340	17	255	225	500	307	87	546	23	1.32																								
24		Yonezumi River		1,410	95	141	2,280	380	101	218	980	820	600	620	690	470	570	670	24	0.88																								
25	Nanakita River System	Nanakita Bridge	Sendai City	109	157	450	350	71	43	238	215	230	226	264	173	20	18	183	25	0.69																								
26		Nanakita River		10	60	14	60	17	17	13	12	16	13	18	22	16	0	21	26	0.85																								
27		Umeza River		1,350	300	600	53	300	820	390	186	233	47	76	71	84	331	27	1.12																									
28		Nanakita River		11,100	220	630	0	42	450	291	610	430	225	114	293	185	124	1,051	28	2.76																								
29		Natori River		610	108	470	14	0	52	11	47	61	26	23	18	120	29	1.67																										
30		Natori River System		56	47	68	220	73	0	35	23	17	20	28	52	27	43	55	30	0.97																								
31	Masuda River	Koyano Bridge	Natori City	5,200	116	124	202	221	236	450	1,010	81	168	208	21	112	74	587	31	2.30																								
32		Bishamon Bridge		1,140	1,390	1,590	3,700	2,020	2,270	1,750	1,680	1,190	910	1,170	1,080	630	650	1,312	32	0.52																								
33		Hadarenwa Bridge		1,120	690	580	380	430	530	320	310	500	500	196	203	236	247	259	155	251	155																							
34	Akabane River System	Abukame River	Shiogama City	220	1,470	570	101	560	610	280	162	3,400	90	1,360	710	580	312	660	59	75	380	420	930	520	470	890	262	364	373	318	593	34	1.03											
35		Higashine Bridge		1,140	1,390	1,590	3,700	2,020	2,270	1,750	1,680	1,190	910	1,170	1,080	630	650	1,312	32	0.52																								
36		Shioishi River		1,730	191	116	123	190	0	218	302	306	165	212	45	46	47	284	36	1.56																								
37		Sakawa River		430	191	19	47	54	66	31	58	139	10	39	13	15	14	274	37	0.50																								
38		Matsukawa River		119	36	68	38	32	101	47	222	0	27	178	26	26	14	61	39	1.06																								
39		Atakawa River		33	36	68	38	32	101	47	222	0	27	178	26	26	14	61	39	1.06																								
40		Shioishi River		32	61	60	32	31	68																																			

3) Fukushima Prefecture

i. Hamadori

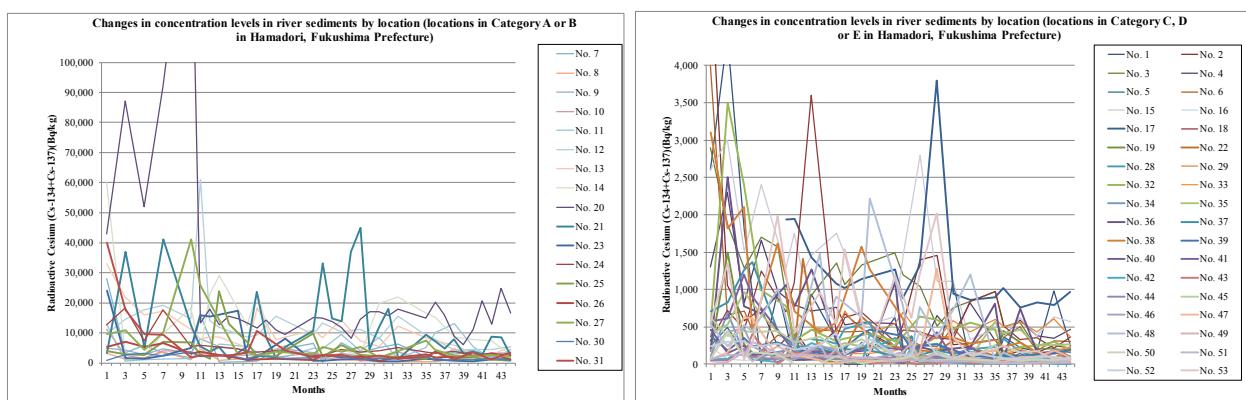
In Hamadori, Fukushima Prefecture, surveys were conducted 17 to 35 times from September 2011 to February 2015 for river sediment samples collected at 53 locations.

Regarding concentration levels of detected values, 15 locations were categorized into Category A, two locations into Category B, 13 locations into Category C, 10 locations into Category D, and 13 locations into Category E (see Table 4.3-5 and Table 4.3-6).

Concentration levels were generally decreasing at 41 locations but were generally unchanged or varying at 12 locations.

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

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



(*) 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)

ii. Nakadori

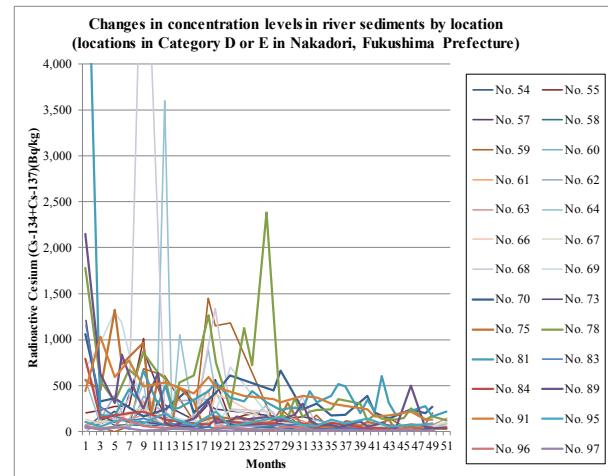
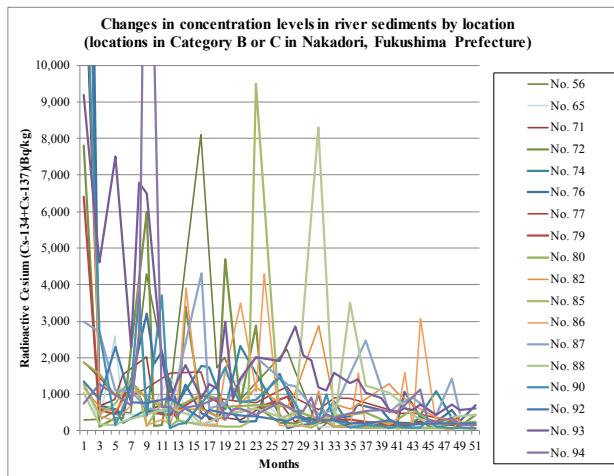
In Nakadori, Fukushima Prefecture, surveys were conducted 21 to 37 times from September 2011 to February 2015 for river sediment samples collected at 44 locations.

Regarding concentration levels of detected values, three locations were categorized into Category B, 15 locations into Category C, 10 locations into Category D, and 16 locations into Category E (see Table 4.3-7 and Table 4.3-8).

Concentration levels were generally decreasing at 40 locations but were generally unchanged or varying at four locations.

**Table 4.3-7 Categorization of detected values at respective locations
(Nakadori, Fukushima Prefecture: river sediments)**

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	3	No.74, No.76, No.93
C	Upper 10 to 25 percentile	15	No.56, No.65, No.71, No.72, No.77, No.79, No.80, No.82, No.85, No.86, No.87, No.88, No.90, No.92, No.94
D	Upper 25 to 50 percentile	10	No.59, No.64, No.68, No.69, No.70, No.75, No.78, No.81, No.89, No.91
E	Lower than upper 25 to 50 percentile (lower 50%)	16	No.54, No.55, No.57, No.58, No.60, No.61, No.62, No.63, No.66, No.67, No.73, No.83, No.84, No.95, 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)

Location			River sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)*1																																								
No.	Water area	Location	Municipality	FY2011						FY2012						FY2013						FY2014						Changes			Average (*2)	No.	Coefficient of variation	Trends (*3)									
				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								
54	Ashikuma River	Habuto Bridge	Nagiso Village	66	81	155	96	262	44			31	49	144	89			51	135	80	14	53	25			36	28	17		23	33	52		71	54	0.83							
55		Tamachiohashi Bridge	Shirakawa City	200	228	270	280	1,010	46	330	184	56	107	60	85	560	125	180	203	77	113	57	51	46	59	39	33	53	22	40	47	17	54	30	53	24		134	55	1.41			
56	Yanita River	Before the confluence with Akibuna River		290	330	530	490	4,300	1,050			8,100	1,720	2,010	860			2,230	1,630	43	380	212	234			243	284	215		279	240	241		1,176	56	1.57							
57	Yashiro River	Yashirogawa Bridge	Tanagata Town	77	108	218	150			870	290			129	300	246			170	132	159	135	66	71			81	52	71		51	45	51		165	57	1.08						
58	Kitaue River	Yanagi Bridge	Hanita Village	27	165	66	70	64	65			14	57	19	72			37	40	29	40	11	21			21	17	19		16	0	17		40	58	0.88							
59	Imade River	Nekomaki Bridge	Ishikawa Town	45	47	0	55	680	610			105	1,450	1,150	1,180			116	248	42	179	15	120			78	0	139		14	63	203		297	59	1.45							
60	Yashiro River	Oji Bridge		35	36	51	52	145	50			55	98	100	98			71	80	46	127	64	54			16	24	24		22	23	78		61	60	0.57							
61	Ashikuma River	Kawanose Bridge	Tanakawa Village	71	34	37	77	330	105	213	84	53	73	180	450	49	120	130	138	108	57	63	40	31	38	50	72	69	69	15	57	78	18	49	24	58	33	64	58		89	61	0.98
62	Funichi Bridge			0	124	390	24	380			193	330			350	72	48			68	19	13	35	13	17			39	12	10		11	12	27		99	62	1.35					
63	Sakugawa City water intake		Sakugawa City	72	97	138	126	182	77			83	168	94	108			109	175	113	47	63	51			37	58	28		11	27	138		91	63	0.54							
64	Shakado River	Before the confluence with Akibuna River		550	89	124	129	540	41	600	3,600	93	1,050	117	890	440	96	85	75	282	107	80	88	51	59	58	18	73	67	80	66	57	42	18	31	51	26	52	80		275	64	2.26
65	Satsuma River	Shishibashi Bridge	Kotiyama City	1,240	260	2,600	480	380	1,470	237			200	1,540	1,300			240	730	102	106	114	199			75	148	99		114	85	131		539	65	1.24							
66	Yatagawa River	Yatagawa Bridge		137	79	184	160	236	140	99	81	400	340			85	57	49	66	39	61			49	61	25		17	25	19		110	66	0.93									
67	Okutake River	Funabiki Bridge	Tanaka City	27	119	87	173	270	52	96	133	120	239			132	98	35	69	110	75			38	65	53		42	25	112		99	67	0.65									
68		Before the confluence with Akibuna River		750	270	134	360	6,400	215	89	108	1,340	242			213	49	370	73	66	64			69	21	64		60	51	60		503	68	2.68									
69		Before the confluence with Bahagawa River		700	960	1,290	1,190	183	164			110	370	199	700			106	96	60	50	56	87			90	71	64		66	49	18		304	69	1.30							
70	Ouse River	Makanouchi Bridge	Kotiyama City	1,060	330	360	310	163	240	440	209	420	610			450	660	241	298	174	178			390	206	139		237	202	264		345	70	0.62									
71		Before the confluence with Akibuna River		13,500	690	860	1,540	2,020	640	690	610	290	189	820	330	360	290	420	550	800	241	390	232	224	295	129	194	233	187	165	263	194	208	186	272	126	180	154	199		796	71	2.78
72	Ashikuma River	Akatsu Bridge		7,800	116	350	350	6,000	148	1,610	269	3,400	610	400	4,700	740	2,880	520	220	197	280	400	233	251	113	114	90	103	101	145	177	146	344	136	114	179	107	444		938	72	1.91	
73		After the confluence with Ishimaru River		1,210	184	99	122	96	74			50	116	158	63			83	85	42	21	40	39			24	36	24		32	33	28		121	73	2.05							
74	Gohyaku River	Kamekurokita Bridge	Motonomiya City	22,000	700	590	230	590	450			1,780	1,730	590	2,330			67	130	222	810	134	116			181	134	121		1,080	362	174		1,569	74	2.93							
75		Before the confluence with Akibuna River		560	450	1,320	730	960	201	580	89	111	470	330	114	167	137	150	99	88	157	310	179	59	101	49	51	18	97	58	102	86	91	129	19	48	25	36	30		228	75	1.26
76	Ashikuma River	Takada Bridge		30,000	610	600	440	3,200	1,840	2,160	1,280	720	1,260	490	268	970	1,570	540	285	360	1,020	2,56	380	400	730		570	305	229	1,070	387	305	250	570	690		1,580	76	3.16				
77	Kuchibute River	Kuchibutegawa Bridge	Nishinomatsu City	1,880	1,440	990	930	1,160	1,570			1,620	920	790	780			1,210	900	570	900	880			390	470	490		400	365	283	363		911	77	0.49							
78	Utsusui River	Oegawa Bridge		1,780	550	330	670	610	860	640	580	234	530	610	1,260	750	250	1,130	720	2,380	191	144	360	154	212	229	244	350	300	118	179	134	132	149	246	130	162	122		498	78	1.00	
79	Mitohara River	Getouchi Bridge		6,400	570	460	1,410	520	410			980	800	450			620	930	430	229	302	321			169	141	171		171	268	165	187		759	79	1.76							
80	Megan River	Tourumaki Bridge		1,870	1,570	950	1,340	880	550			1,010	900	650			690	680	540	330	410	440	510			233	317	600		169	200	238		685	80	0.66							
81	Ashikuma River	Honi Bridge		6,500	176	171	460	370	660	290	500	242	255	340	440	530	370	330	440	320	235	250	259	242	440	318	390	520	490	198	341	219	600	310	185	220	278	166	216		508	81	2.04
82	Nigou River	Before the confluence with Ono River		1,160	650	530	1,090	980	590			610	410	300			1,180	650	1,030	2,880	740	610			1,290	1,050	720		720	370	299	322		831	82	0.68							
83	Anakawa River	Hinokura Bridge		1,160	270	167	114	139	77	79			45	42			22	61	77	72	22	29	38			33	38	31		75	60	40		130	84	1.23							
84	Sakawa River	Sakawa Bridge	Fukushima City	790	137	173	199	216	125			82	74	132	84			87	119	87	44	99			33	38	31		75	60	40		115	83	2.10								
85	Anakawa River	Before the confluence with Akibuna River		1,290	460	750	1,380	990	142	760	119	280	237	161	145	117	119	220	9,500	340	500	135	85	200	380	122	143	112	96	85	70	71	79	76	66	67	61		555	85	2.87		
86	Matsusaka River			15,200	400	280	600	4,000	144	330	175	920	3,900	145	173	1,560	3,500	1,070	4,300	149	119	152	137	1,100	277	129	137	1,580	105	257	167	305	1,590	71	3,060	98	25	287	75		1,295	86	2.08
87	Hattanda River	Hattanda Bridge		3,000	2,700	1,100	1,090	620	520			4,300	610	750			2,010	1,260	1,220	470	570	1,560	2,480			510	700	910		420	1,440	490	1,440	490	381	1,306	87	0.78					
88	Surukawa River	Before the confluence with Akibuna River		1,040	186	167	260			630		400	170		430		620		300	510	8,300	176	3,500	1,250	1,050	880	440	94	381	450	1,011	88	1.80										
89		Before the confluence with Akibuna River		2,150	630	310	830	410	250	640	92	50	86	140	330	96	110	163	131	154	108	157	179	300	124	76	66	50	63	112	52	68	99	58	33	500	44	33	44		243	89	1.56
90	Ashikuma River	Taishi 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																									

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

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

A B C D E

*3: Results of the analysis of trends at respective locations using the method explained on P.60

iii. Aizu

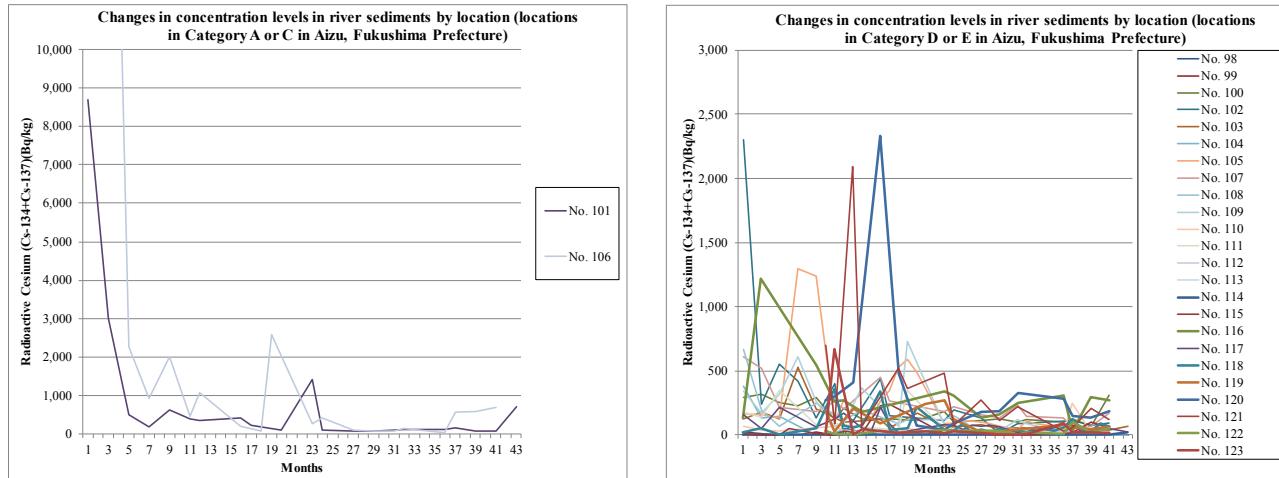
In Aizu, Fukushima Prefecture, surveys were conducted 13 to 31 times from September 2011 to December 2014 for river sediment samples collected at 26 locations.

Regarding concentration levels of detected values, one location was categorized into Category B, one location into Category C, six 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 18 locations but were generally unchanged or varying at eight 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
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	1	No.106
C	Upper 10 to 25 percentile	1	No.101
D	Upper 25 to 50 percentile	6	No.102, No.105, No.107, No.116, No.120, No.121
E	Lower than upper 25 to 50 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)

No.	Water area	Location	Municipality	River sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg) ^(*)																									Average (%)	No.	Coefficient of variation	Trends (#3)						
				FY2011						FY2012						FY2013						FY2014						Changes										
				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			
98	Agano River	Tajima Bridge	Minamazou Town	0	0	0	0	0	13	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	98	3.43	↘↗		
99		Ukawa Bridge		27	13	0	0	0	26	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	99	2.18	↘↗			
100		Takumi Bridge	Aizuwakamatsu City	290	320	256	228	290	120	211	123	124	111	184	98	112	124	100	120	98	126	69	312									171	100	0.48	~~~↑			
101	Yukawa River	Shin'yukawa Bridge		8,700	3,000	500	175	640	390	350	410	236	104	1,410	105	84	87	106	117	131	159	80	82	720								837	101	2.29	↘↗			
102		Before the confluence with Agano River		2,300	240	550	420	132	400	0	440	153			114	199	132	10	89		109	114	72	97							310	102	1.68	↘↗				
103	Miyakawa River	Sakuna Bridge	Ainuhange Town	126	175	126	530	203	133	99	122	55	170	69	62	82	48	56	53	16	72	41	36	67								111	103	0.97	↘↗			
104	Agano River	Miyako Bridge		380	134	142		0	17	42	0	0	11	0	0	0	0	0	0	11	0	0	0	0						37	104	2.47	↘↗					
105	Nippashi River	Minam'-ohashi Bridge	Kanakata City	167	158	130	1,300	1,240	101	270	173	132	263	350	530	590	480	88	92	108	105	103	87	70	41	109	85	71	46	92	20	0	18	0	226	105	1.39	↘↗
106	Kyu-yukawa River	Awanomori Bridge	Vagawa Village	13,000	25,000	2,260	930	2,010	470	1,080	207	72	2,590		279	410	103	72	88	139		40	570	580	690						2,530	106	2.37	↘↗				
107	Kyu-etylakawa River	Josuke Bridge	Ainuhange Town	610	520	216		181	257	202	450	265			181	219	161	131	236	142		134	64	68	172						234	107	0.63	↘↗				
108		Ohashi	Kanakata City	670	199	67		250	157	112	198		86	121		118	152	17	14	25	26		26	29	16	27						122	108	1.25	↘↗			
109	Tatsuki River	Shimomukawa Bridge		340	169	320	610	260	66	87	370		67	730		80	40	39	28	121	87		23	14	11	21					174	109	1.18	↘↗				
110		Nigorigawa Bridge	Nigorigawa	69	36	30		57	71	28		24	16	51		11	0	47	10	0	48		10	249	16	12						41	110	1.33	~~~▲			
111	Nigorigawa	Yamazaki Bridge		180	139	350		82	90	82	61		40	350		41	43	0	0	0			25	0	0	0					82	111	1.33	↘↗				
112	Itagawa River	Aoyagi Bridge	Minamazou Town	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	112	-	~~~▲					
113		Kinosawa Bridge	Tadam Town	0	0	10	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	113	-	~~~▲					
114		Nishitani Bridge	Kaneyama Town	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	114	-	~~~▲					
115		Fuji Bridge	Ainuhange Town	14	0	0	51	13	0	32	12	226	241			12	36	11	0	0		13	21	99	56						44	115	1.62	~~~▲				
116	Agano River	Shingo Dam	Kanakata City	129	1,220			540	260	270	183			340	309		137	163	251			308	36	296	272						314	116	0.88	↘↗				
117	Sakawa River	Sakawano	Iwawashiro Town	161	52	218		61	123	169	58	39	213	86	18		83	76	44	73	70	78	63	21		55	79	78	27	34	46	50	24	78	117	0.70	↘↗	
118	Nagase River	Kogane Bridge		24	52	0		52	360	71	59	78	340	42	47	55	220	40	35	87	23	42	19	45	32	24	62	36	61	125	37	26	94	65	75	118	1.13	↘↗
119		Takahashi River	Shinshishi Bridge					190	26	208	89		244		267	122	23	29				78	59	44	67						111	119	0.78	~~~▲				
120	Kogane River	Umeno Bridge					270	300	410	2,330	480	73	42	94		183	184	324			284	149	133	188						363	120	1.54	↘↗					
121	Hishimuru River	Sekido District					700	90	2,090	67	520	360		480	74		272	115	223			28	56	211	122						361	121	1.44	↘↗				
122	Funatsu River	Funatsu Bridge	Koriyama City					32	10	0	31	17	21		40	33	36	34	0	24		10	104	23	52						29	122	0.84	~~~▲				
123	Haragawa River	Estuary, front	Aizuwakamatsu City					0	670	0	47	13	27	16	28	12	0	0	11		92	22	19	17						61	123	2.69	↘↗					
			Total number of samples	504	Detection times	384																									243	Average						

*3: Results of the analysis of trends at respective locations using the method explained on P.60

↘ Decreasing ↗ Increasing ^ Unchanged ▲▼ Varying

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

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



4) Ibaraki Prefecture

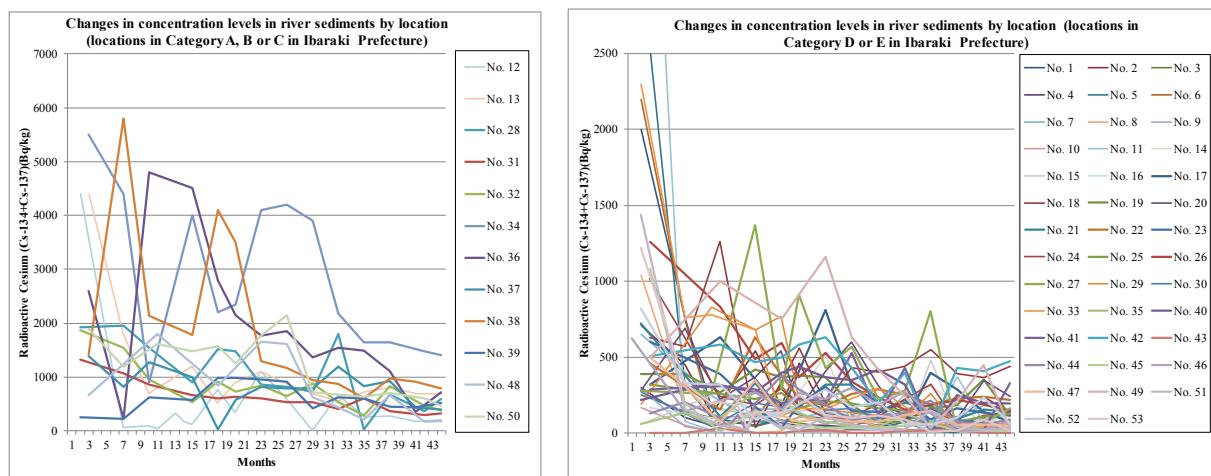
In Ibaraki Prefecture, surveys were conducted 11 to 17 times from August 2011 to February 2015 for river sediment samples collected at 53 locations (this analysis excludes the survey results at 39 locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, one location was categorized into Category A, two locations into Category B, nine locations into Category C, 27 locations into Category D, and 14 locations into Category E (see Table 4.3-11 and Table 4.3-12).

Concentration levels were generally decreasing at 45 locations but were generally unchanged or varying at eight locations.

**Table 4.3-11 Categorization of detected values at respective locations
(Ibaraki Prefecture: river sediments)**

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



(*) 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.	Water area	Location	Municipality	River sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)*1																									Average (*2)	No.	Coefficient of variation	Trends (*3)
				FY2011						FY2012						FY2013						FY2014						Changes				
				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	Tagagawa River System	Saitone River	Yamugoya Bridge Manyama Bridge Kurobeishi	2,000					760	166			121	153		105	97	81	52	49	55	44	66	23		269	1	1.97	↘			
2				710					450	125			540	176	460	126	116	187	128	137	81	234	137		258	2	0.77	↘				
3				250					144	102			42	88	66	36	45	91	94	56	89	60	21		85	3	0.68	↘				
4		Okita River	Isonoe Bridge	300					103	53			76	68	50	50	38	47	89	54	57	112	155		89	4	0.77	↘				
5			Sakai Bridge	3,100					310	101			50	87	14	42	21	30	73	12	0	92	11		282	5	2.89	↗				
6			Takahagi City	2,200					750	109			103	310	186	101	68	98	83	50	50	24	61		300	6	1.93	↘				
7			Hanamaki River	650					400	248			82	82	102	135	115	140	101	141	108	182	151		188	7	0.83	↘				
8	Kajigawa River System	Kajigawa River	Yamagata	1,040					157	62			0	10	111	60	94	45	20	16	24	12	15		119	8	2.26	↘				
9		Sakaki Bridge	290					44	11	0	0	0	161	156	135	55	111	92	0	49	18	14	14		68	9	1.19	↘				
10		Nakagawa River	Neoguchi	169				52	13			163	88	13	11	15	18	12	15	11	12	0		42	10	1.35	↘					
11		Mito City	2,500					78	16			128	116	246	101	131	76	249	73	369	62	142		521	11	2.76	↘					
12		Katsuta Bridge	4,400					60	86	34	330	176	114	760	340	1,110	600	13	670	258	274	170	202		565	12	1.83	↘				
13		Yamagawa Bridge	4,400					1,810	690			1,200	510	890	1,110	880	700	560	730	810	700	680		1,119	13	0.89	↘					
14		Hinumegawa River	Hinumegawa River	460								158		109		510	90	226	193	312	188	61	126		221	14	0.67	↘				
15	Katsuta River	Hinumegawa River	Hinumegawa River	84									270		57		19	39	16	18	480	55	16	13		97	15	1.52	↗			
16		Kanisawa River	Kanisawa Bridge	167									92		139		159	82	79	86	51	24	113	31		93	16	0.52	↘			
17		Daiya River	Oya Bridge	320									630		143		810	310	204	68	400	290	137	77		308	17	0.76	↘			
18		Hanami River	Hanami Bridge	630									1,260	36	330	560	190	450	400	550	390	364	442		471	18	0.59	↘				
19		Hakutsu River	Azaiishi Bridge	390									300	270	420	370	380	370	182	68	73	163	182	352		113	266	19	0.49	↗		
20		Tone River	Shintomegawa Bridge	280									690	220	370	540	159	410	600	314	87	156	99	348		242	323	20	0.58	↘		
21		Futaba River	Tanaka Bridge	720									108	330	159	172	320	320	136	198	174	93	154	141		233	21	0.72	↘			
22	Katsuta River	Takeda River	Uchijigashishi Bridge	460									152	630	380	230	177	260	291	254	190	228	238	220		285	22	0.47	↘			
23		Yamada River	Niourou Bridge	600									390	174	35	190	304	143	137	217	92	165	135	114		207	23	0.72	↘			
24		Karakawa River	Karakawa Bridge	1,020									229	187	290	183	98	100	105	222	319	58	117	121		235	24	1.06	↘			
25		Gantsu River	JA Yokohoshi Bridge	320									260	223	264	166	211	195	164	151	185	77	110	122		188	25	0.36	↘			
26		Nagare River	Sakai Bridge	1,260									830	490	590	370	530	340	236	156	182	219	188	144		426	26	0.76	↘			
27	Kawagunji River System	Saitone River	Somobetsu Bridge	280									260		1,370	290	910	430	570	223	281	800	11	97	162		437	27	0.88	↘		
28		Saitone River	Uyoko Bridge	1,920									1,950	1,550		900	1,510	1,470	860	820	730	1,800	31	680		368	590	1,084	28	0.56	↘	
29		Kitate River	Iwao Bridge	194									830		680	770	210	153	135	116	101	263		34		31	70	276	29	1.03	↗	
30		Kajiwara River	Kamishuku Bridge	270									42		197	172	226	154	163	97	120	57	88		55	68		131	30	0.55	↘	
31		Hishiki River	Hishiki Bridge	1,320									1,070	860	660	610	630	600	530	540	405	610	364		301	324		630	31	0.45	↘	
32		Echinoe River	Kawasaki Bridge	1,870									1,340	950	530	920	730	840	650	880	530	284	830		460	382		814	32	0.53	↘	
33		Saitone River	Obuchi National Route 354	2,300									760	780	680	112	160	160	224	296	178	70	37		46	80		420	33	1.43	↘	
34	Tonegawa River System	Shikoku River	Shikoku Bridge	5,500									4,000		2,210	2,340	4,100	4,200	3,900	2,170	1,640	1,640	1,480		1,410		2,849	34	0.51	↘		
35		Buen River	Iri Bridge	58									136	62	270	213	128	76	52	39	126	73	1,79	21		37	98	35	0.73	↘		
36		Buen River	Buenogawa Bridge	2,600									228	4,800	4,500	2,800	2,150	1,770	1,860	1,360	1,540	1,490	1,110		350		720		1,948	36	0.70	↘
37		Hanamaki River	Shitawa Bridge	1,390									820	1,280	1,000	29	570	810	760	790	1,200	830	930		432		396		805	37	0.45	↗
38		Senri River	Katsutashi Bridge	1,420									2,130		1,790	4,100	3,500	1,290	1,170	940	870	610	970		920		790		1,879	38	0.82	↘
39		Daiwayo River	Ohuhara-shishi Bridge	260									220	620	570	989	990	960	910	420	620	610	450		432		520		612	39	0.42	↗
40		Saitone River	Saitone Bridge	220									330		270	400	440	370	350	420	318	11	249		199		194		290	40	0.41	↗
41	Katsuta River	Yonokoshi River	Horimochi Bridge	290									310		290	196	222	210	530	117	430	34	36		329		232	41	0.67	↗		
42		Murakami River	Ayomo Bridge	510									580		470	500	580	630	450	200	400	16	430		409		473		433	42	0.38	↗
43		Kawagawa River	Kawagawa Bridge	0									0		32	0	14	18	0	0	16	17	20	0		0	8	43	1.29	↗		
44		Takada River	Takada Bridge	130									202	100	40	119	11	196	380	289	187	83	113	213	75	90	142	44	0.66	↗		
45		Tajigawa River	Tajigawa Bridge	1,080									201	10	146	24	54	35	40	36	52	65	16	17		16		128	45	2.18	↘	
46		Karuso Bridge	Chikurei City	620	</																											

5) Tochigi Prefecture

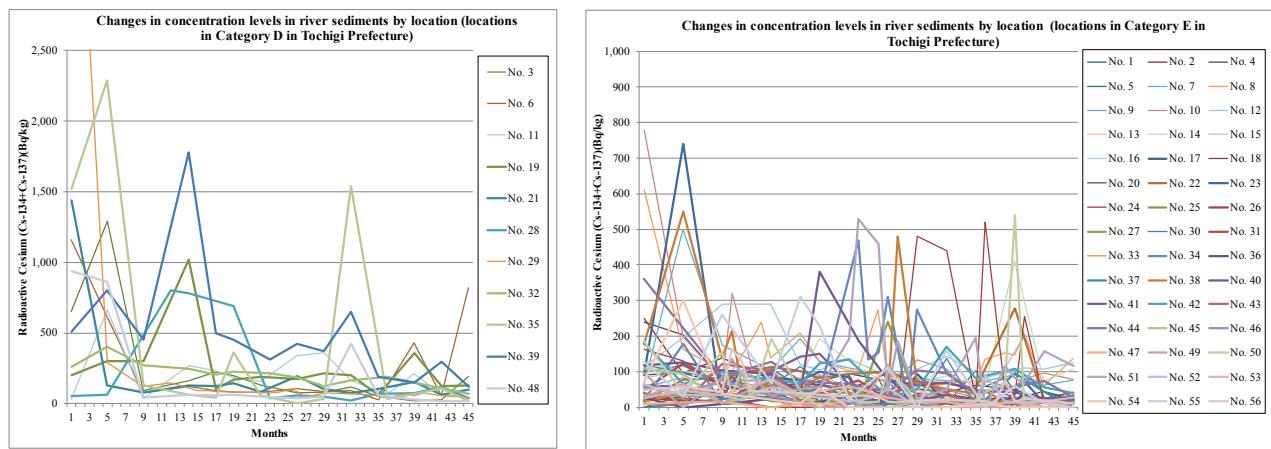
In Tochigi Prefecture, surveys were conducted 11 to 23 times from October 2011 to February 2015 at 56 locations (rivers) in public water areas (this analysis excludes the survey results at 49 locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, 11 locations were categorized into Category D and 45 locations were categorized into Category E (see Table 4.3-13 and Table 4.3-14).

Concentration levels were generally decreasing at 38 locations but were generally unchanged or varying at 18 locations.

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

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	11	No.3, No.6, No.11, No.19, No.21, No.28, No.29, No.32, No.35, No.39, No.48
E	Lower than upper 25 to 50 percentile (lower 50%)	45	No.1, No.2, No.4, No.5, No.7, No.8, No.9, No.10, No.12, No.13, No.14, No.15, No.16, No.17, No.18, No.20, No.22, No.23, No.24, No.25, No.26, No.27, 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.49, No.50, No.51, No.52, No.53, No.54, No.55, No.56



(*) 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 (Tochigi Prefecture: river sediments)

No.	Water area	Location	Municipality	River sediments/Radioactive Cesium (Cs-134+Cs-137) concentration(Bq/kg)*1																				Average (T2*)	No. of samples	Coefficient of variance (%)	Trend (*)							
				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
1				89	90	86	42	93	19	15	13	12	14	18	23	18	26	32	36	36	1	0.91	↘											
2		Sakagawa River	Kurobe Bridge	250	97	139	78	43	64	51	97	38	36	24	24	45	19	72	2	0.87	↘													
3			Kakunodate River	1,200	39	162	221	197	133	76	79	116	52	20	25	191	236	3	1.51	↘														
4			Ukisima River	1,200	79	75	54	77	95	73	50	43	62	49	23	40	83	4	0.76	↘														
5			Sakagawa River	Kurobe	101	116	64	87	44	72	109	59	16	91	49	28	73	42	74	11	102	58	83	45	90	44	24	64	5	0.46	~~~			
6			Yanase River	Yanase Bridge	1,100	610	73	120	91	79	78	105	85	90	24	430	55	820	273	6	1.20	~~~~~												
7			Kankawa River	Nakanohashi	64	90	175	105	194	128	104	90	80	74	68	90	62	77	129	7	0.91	↘												
8			Sakagawa River	Kurobe	616	162	102	102	189	239	139	209	136	103	109	274	77	97	59	67	75	134	152	146	206	161	117	155	8	0.76	↘			
9			Ukisima River	Kakunodate	57	83	48	35	54	34	102	53	58	39	61	42	31	18	33	49	26	38	63	23	31	19	25	45	9	0.46	↘			
10			Matsuda River	Tobishiray	780	199	73	320	114	115	62	82	69	68	36	80	119	84	132	106	19	73	61	59	38	96	79	126	10	1.25	↘			
11	Nakagawa River System		Sakagawa River	Udagawa	32	660	34	270	234	183	154	336	340	162	66	212	67	46	201	11	0.86	↘												
12			Yanase River	Momonaka Bridge	114	196	290	290	290	105	137	87	107	143	83	110	106	125	144	12	0.49	↘												
13			Yanase River	Nakanohashi	831	100	84	98	98	36	72	56	42	42	12	16	11	56	13	0.58	↘													
14			Sakagawa River	Shimada	126	103	76	81	82	93	111	64	67	88	60	410	75	108	117	14	0.81	~~~~~												
15			Sakagawa River	Shimada	16	59	66	93	55	17	21	46	18	11	36	25	11	17	22	15	24	11	37	39	16	0.90	↘							
16			Sakagawa River	Kurobe	165	89	30	72	54	34	52	53	17	21	46	11	36	33	17	19	15	42	15	32	33	17	0.80	↘						
17			Momonaka River	Kurobe	40	14	31	31	30	37	38	56	16	33	19	14	18	19	17	19	15	42	15	32	33	17	0.80	↘						
18			Momonaka River	Kurobe	25	26	12	12	14	14	34	43	30	31	22	20	19	16	14	35	16	11	18	20	16	25	19	19	0.48	↘				
19			Udaga River	Kurobe	195	200	200	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
20			Udaga River	Shimada	9	13	32	44	15	31	63	0	0	12	14	13	0	13	13	13	20	20	0.94	↘										
21			Tanaka River	Yana	1,480	150	78	127	122	122	143	85	195	103	72	105	152	63	97	208	21	1.78	~~~~~											
22			Udaga River	Azumi	18	77	82	114	101	82	94	100	72	68	54	279	19	85	22	0.75	~~~~~													
23			Udaga River	Momonaka	90	740	111	12	49	30	84	75	99	84	27	30	85	58	19	35	16	10	20	39	73	12	21	75	23	2.02	~~~~~			
24			Yanase River	Tobishiray	162	150	58	85	52	51	58	66	63	114	72	0	0	11	137	0	10	0	0	0	119	24	1.31	~~~~~						
25			Campogawa River	Kurobe	19	40	36	75	75	19	45	38	33	71	17	21	13	17	17	33	25	0.62	~~~~~											
26			Yanase River	Masunaga Bridge	23	0	10	0	0	0	13	0	0	12	0	11	21	8	26	1.09	~~~~~													
27			Ijika River	Tobishiray	37	32	36	18	16	15	14	240	17	35	11	14	20	31	37	27	1.66	~~~~~												
28			Campogawa River	Kurobe	55	63	800	780	690	35	59	47	23	66	73	118	36	219	28	1.45	~~~~~													
29			Yanase River	Tobishiray	3,000	290	120	146	113	91	91	86	75	81	94	43	73	62	41	72	53	75	55	47	319	29	1.38	~~~~~						
30			Yanase River	Tobishiray	118	63	60	114	72	0	0	11	137	0	10	0	0	0	49	30	1.07	~~~~~												
31			Shuzenji River	Shuzenji	47	123	58	37	54	34	31	75	21	33	15	12	20	17	28	41	31	0.76	~~~~~											
32			Udaga River	Shuzenji	260	400	270	245	203	226	212	182	123	162	189	150	108	67	200	32	0.38	~~~~~												
33			Udaga River	Kurobe	15	45	45	24	69	15	0	57	13	16	15	0	15	18	12	24	11	13	0	12	0	0	19	33	0.99	~~~~~				
34			Kamogawa River	Nakanohashi	20	177	11	29	109	18	12	74	42	470	134	154	310	17	274	97	14	0	20	0	0	19	87	34	1.41	~~~~~				
35			Wadano-Kimogawa River	Udagawashiro	1,250	2,500	126	65	45	56	56	0	0	31	0	1,540	32	69	100	19	447	35	1.72	~~~~~										
36			Udagawashiro Bridge	Hachimanji Temple	23	0	10	24	20	13	31	0	0	0	0	0	0	0	0	10	36	1.18	~~~~~											
37			Campogawa River	Chikusawa	0	12	30	42	51	0	10	11	0	22	95	43	0	0	24	37	1.11	~~~~~												
38			Egawa River	Tobishiray	175	550	137	214	56	62	58	49	39	41	30	34	17	480	70	51	38	13	20	19	31	96	38	1.47	~~~~~					
39			Egawa River	Hanazono	510	800	450	1,780	500	450	310	420	370	650	191	159	293	117	499	39	0.83	~~~~~												
40	Trinego River System		Egawa River	Hanazono	117	125	104	93	40	90	187	78	61	49	48	41	24	26	25	100	40	0.94	~~~~~											
41			Egawa River	Hanazono	62	37	28	69	104	28	101	142	153	64	23	18	36	17	35	20	27	12	13	14	16	46	41	0.91	~~~~~					
42			Campogawa River	Trukushiba	182	65	99	78	68	123	133	27	50	169	81	107	56	40	91	42	0.51	~~~~~												
43			Yanase River	Maruishi	10	10	122	101	18	29	32	31	76	41	0	17	14	0	0	36	43	1.05	~~~~~											
44			Yanase River	Vannaburi	340	223	86	128	73	69	66	43	104	96	42	57	74	27	103	44	0.86	~~~~~												
45			Yanase River	Kurama	309	321	11	46	30	0	19	0	15	0	0	10	14	0	0	25	45	1.44	~~~~~											
46			Yanase River	Kurama	56	20	75	32	15	0	12	0	0	17	0	0	0	0	0	18	46	1.40	~~~~~											
47			Yanase River	Kurama	10	14	15	0	11	11	0	0	0	0	0	0	0	0	0	6	47	1.26	~~~~~											
48			Koyabe River	Koyabe	940	860	42	65	56	65	46	36	49	420	60	29	19	18	18	393	48	1.68	~~~~~											
49			Futoma Bridge	Tsuchigaya	30	46	12	79	10	0	0	119	0	0	0	0	0	0	0	23	49	1.73	~~~~~											
50			Futoma Bridge	Tsuchigaya	154	34	106	27	191	46	0	162	13	15	101	53	0	0	15	43	51	540	0	0	0	0	74	50	1.62	~~~~~				
51			Yanase River	Tsuchigaya	156	40	154	34	106	27	191	46	0	162	13	15	101	53	0	0	15	43	51	1.07	~~~~~									
52	Watarase River Area		Yanase River	Tsuchigaya	95	65	82	135	89	89	34	52	56	192	530	460	188	26	50	195	0	115	82	69	157	116	324	51	1.07	~~~~~				
53			Yanase River	Watarase	26	48	34	80	36	46	59	28	16	15	0	0	14	0	0	30	53	0.78	~~~~~											
54			Nakabuchi Bridge	Uchikoga City	71</td																													

6) Gunma Prefecture

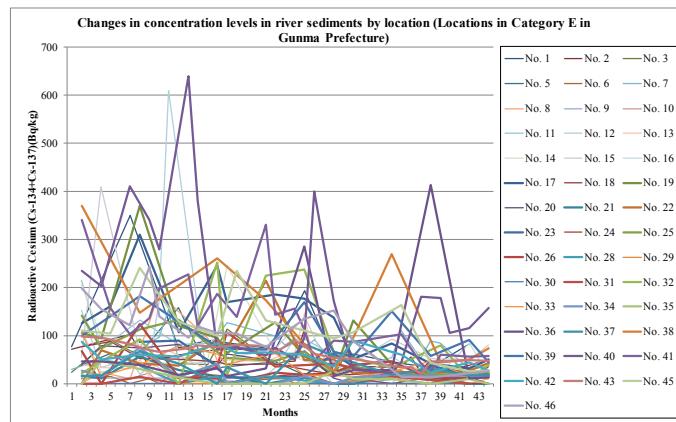
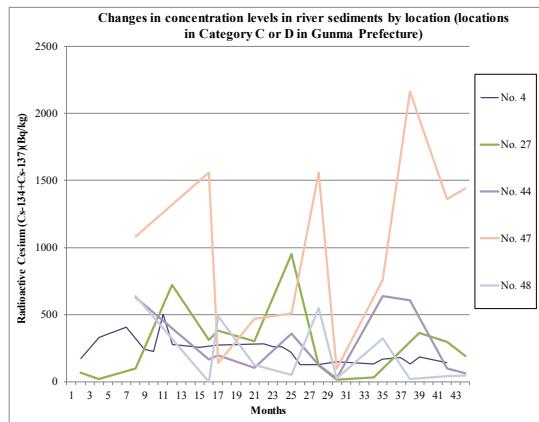
In Gunma Prefecture, surveys were conducted 8 to 23 times from November 2011 to January 2015 at 48 locations (rivers) in public water areas (this analysis excludes the survey results at eight locations where the survey was conducted only in 2011).

Regarding concentration levels of detected values, one location was categorized into Category C, four locations into Category D, and 43 locations into Category E (see Table 4.3-15 and Table 4.3-16).

Concentration levels were generally decreasing at 33 locations but were generally unchanged or varying at 15 locations.

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

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	1	No.47
D	Upper 25 to 50 percentile	4	No.4, No.27, No.44, No.48
E	Lower than upper 25 to 50 percentile (lower 50%)	43	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.19, No.20, No.21, No.22, No.23, No.24, No.25, No.26, No.28, No.29, No.30, No.31, No.32, No.33, No.34, No.35, No.36, No.37, No.38, No.39, No.40, No.41, No.42, No.43, No.45, No.46



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

**Figure 4.3-9 Changes in concentration levels over the years at respective locations
(Gunma Prefecture: river sediments)**

Table 4.3-16 Detection of radioactive cesium at respective locations (Gunma Prefecture: river sediments)

No.	Location			River sediments/Radioactive Cesium (Cs-134+Cs-137)/Concentration(Bq/kg)*1																									Average (*2)	No	Coefficient of variation	Trends (*3)				
	Water area	Location	Municipality	2011				FY2012				FY2013				FY2014				Changes				Changes												
				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	Tonegawa River System	Tonegawa River	Hanue Bridge			77			350			74	90				72	194		52	61			42	34		83				103	1	0.90	↘		
2			Fusakyo Bridge	Marukama Town		71	87	102	37	55	54	60	68	71			70	46	47	115	40	60	36		33	55	25	50	23	38	51	56	2	0.41	↘	
3		Akaya River	Kosode Bridge			24			92	68		42		40	113			39	60		13	90			16	17			19	24		47	3	0.70	↘	
4		Sakura River	In Owan Yachi	Kawaba Village		173	330	410	244	227	500	279	259	271			282	260	263	222	126	129	147		135	169	179	132	185	141			230	4	0.41	↘
5		Katsushika River	Katsushika Village			28	65	58		159	31						46	17		17	24		15		13		17				41	5	0.99	↘		
6		Katashina River	Tonomochitakayata	Nunuma City		10	15	0	10	0	15	0	0			10	10	0	0	0	0	0		42	0	0	0	0	0			5	6	1.88	↗	
7			Futae Bridge			30	51	39	86	96	154	47	74	126			99	80	95	74	92	39	34		54	110	53	89	85	30	36		73	7	0.46	↗
8		Agatsuma River	Shuto Bridge	Nagatoro Town		0	24	11		187		95	0				0	0	0	0	0	0	0		38	27		0	10			28	8	1.88	↘	
9		Shimomura River	Shimotanabe Bridge	Nakanojo Town		12				12							0	12	0	0	0	0	0		10	0		0	0			5	9	1.30	↘	
10		Agatsuma River	Downstream of Amano	Higashisoma Town		0	0	11	22	0	14	14	10	0			0	0	0	12	0	0	0	0	0	0	0	11	0	0	4	10	1.63	↘		
11		Nakata River	Tonoda Bridge	Takayama Village		215	73		133		81	85	83				68	93		60	38			19	15		17	21			72	11	0.76	↘		
12		Agatsuma River	Agatsuma Bridge	Shibukawa City		153	33	53	19	37	170	610	0	11		16	34	95	51	56	46	10		0	26	11	11	0	13	17		64	12	1.99	↘	
13		Tonegawa River	Tsuchi Bridge			39	34	31	49	15	56	69		30	50		46	54	65	147	16	15	20	25	20	14	12	15	35	53		40	13	0.74	↗	
14		Takizawa River	Shirakawa Bridge	Shirakawa City/Yoshieka Town		206	97		80		50	48	245				65	48		24	39		23		15		24	22		70	14	1.00	↘			
15		Tonegawa River	Gumoi-hachibashi Bridge	Maebara City		55	410		64	0		37	53		73	140		12	43		93			52	50	80			83	15	1.21	↘				
16		Tonegawa River	Fukuhara Bridge	Tanumoto Town		112	23		44		43	46	39		64	56	0	0	0	27	0		0	85	16		42	16	0.79	↗						
17	Katsuta River System	Nagai River	Kamogawa Bridge	Takasaki City		126	160	310	107			247	170		186	176	137	52	84		42		31	51			134	17	0.61	↘						
18		Kanase River	Kanagawa Bridge	Takasaki City		77	88		52	51		45	39		41	30	19	19			26	13		11	35			39	18	0.58	↘					
19		Nisui River	Nakare Bridge	Anmaka City		106	94		370	120		95	63		127	57	19	131			17	27		26	22			91	19	1.00	↘					
20			Honshita Bridge	Takasaki City		38	78		74	82		40	61		47	68	12	0	0	0	0		13	0		37	20	0.88	↘							
21		Kabuna River	Kabunoya Bridge	Takasaki City/Fujisaka City		17	11		56	29		15	17	0	13	0	0	17		12	0	0	0	13	21		13	21	1.14	↘						
22		Kabuna River	Kabunoya Bridge	Takasaki City/Fujisaka City		0	69		42	38		91	73		214	49	50	22		24		23		27	43			55	22	0.94	↗					
23		Ogawa River	Kasunai Bridge	Kasunai Town					87	90		36	13		13	16	63	36			13	37		18	18			37	23	0.77	↘					
24		Nanmoku River	Oasawa Bridge	Nanmoku Village					68	10		18	0		13	21	0	11		0	13		0	0	0			13	24	1.48	↘					
25		Soneya River	Yakuishi Bridge	Shinsei Village		142	73	113	133	67	53		47	67		24	35		23	20		20	20	17			60	25	0.72	↘						
26		Izunaga River	Kanakami Bridge	Takasaki City		68	0		125	12	11	0		23	19	23	39		46	10		12	14			29	26	1.16	↘							
27		Kanase River	Yasunai Bridge	Tanumoto Town/Tanumoto City		67	19	101	720	310	380	302		950	122	16	29			362	296	192						276	27	0.99	↗					
28		Kanase River	Shinkanane Bridge	Ueno Village					37	0		16	0		16	0		0		17			0				11	28	1.24	↘						
29		Kanase River	Maruto Bridge	Kasuno Town		0	0		0	0		0	0		0		0		0		0		0				1	29	3.16	↗						
30		Kanase River	Tobayuki Bridge	Fujisaka City/Kamikawa Town		0	0		0	0		43	0		0		0		0		0		0				4	30	3.16	↗						
31		Kanase River	Kanagawa Bridge	Kanase Town		0	0		14	0		36	107		42		42		16			0					25	31	1.33	↗						
32	Tonegawa River Area	Tonegawa River	Bando-hachibashi Bridge	Hino City		22	46	93	0		252	17	224		237	66	53	33		79	11	39			84	32	1.04	↗								
33		Atago & Hinaka River	In Shimojōto Town			108	15		40	78	61	41		63	17	18	13		25	47	15	10					39	33	0.75	↘						
34		Miunomori River	Utsuishi Bridge	Maebara City		27	15		75	14	41	0		0	16	0	13	19		16	17	15	17				19	34	1.01	↘						
35		Anto River	Okushan Bridge			0	48				13			0	0		0	26	10	10	0	10	0			9	35	1.57	↘							
36		Kasukawa River	Hozumi Bridge			46	46		39	18		31	16		31		286	15	29	28	413					73	36	1.65	↗							
37		Haseo River	Nakajima Bridge	Izuraki City		15	17		68	41		0	35	0	83	57	45	19		32							32	37	0.77	↗						
38			Hayakawa River			370		147			261		173	82	25	95		270		45	51	73					145	38	0.77	↘						
39			Hayakawa River			99		183			77		70	169	67	56	150		58	91	44					97	39	0.50	↗							
40		Tonegawa River	Tonegawa Wewa	Chiyoda Town/Gyoda City		235	203	410	340	280	640	380	72	83	59	75	50	95	400	172	28	23	45	181	178	105	116	158		188	40	0.83	↘			
41	Watanabe River Area	Kaguro River	Kayao Bridge	Kiyra City		340	158	103	136	198	228	120	187	139	330	143	157	113	48	90	87		102	72	41	26	61	56	57		130	41	0.64	↘		
42			Takatsubo	Maejiri City		86	50		60		56		84	64	65	61	36	89		60	23		45	27				58	42	0.35	↘					
43			Izutani River	Izutani		98	96	82	69	66	74	80	76	81	78	65	90	78	62	53	52		35	35	20	46	46	49	47	64	43	0.32	↘			
44		Tanun River	Eto Bridge	Dan Town					630			164	197		104		360	126	26			640	610	101	64				275	44	0.88	↗				
45		Kayu River	Kayu Bridge	K																																

6) Chiba and Saitama Prefectures and Tokyo Metropolis

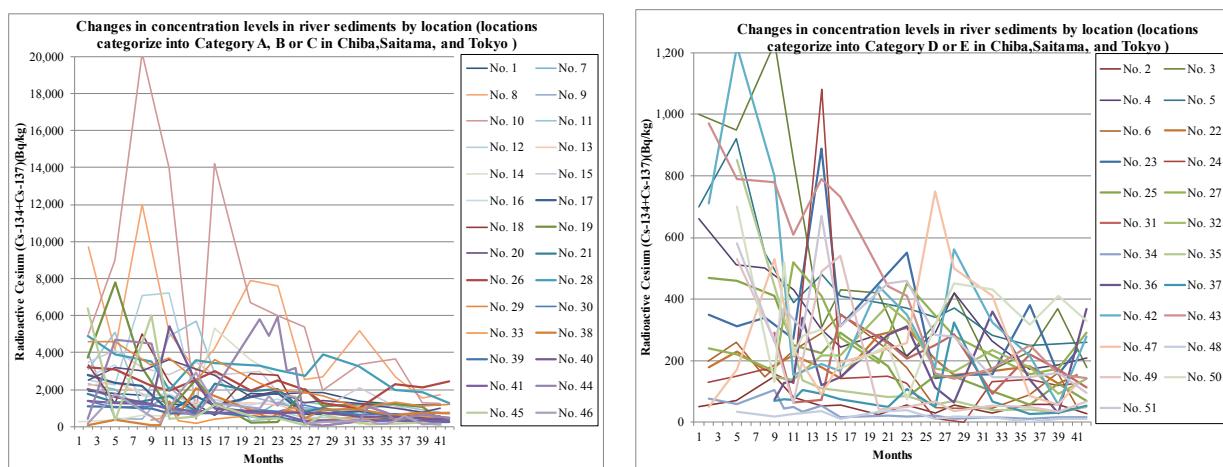
In Chiba and Saitama Prefectures and Tokyo Metropolis, surveys were conducted 12 to 22 times from October 2011 to February 2015 at 51 locations (rivers) in public water areas (47 locations in Chiba Prefecture, two locations in Saitama Prefecture, and two locations in Tokyo Metropolis).

Regarding concentration levels of detected values, three locations were categorized into Category A, 11 locations into Category B, 14 locations into Category C, 14 locations into Category D, and nine locations into Category E (see Table 4.3-17 and Table 4.3-18).

Concentration levels were generally decreasing at 37 locations but were generally unchanged or varying at 14 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
A	Upper 5 percentile	3	No.8, No.10, No.28
B	Upper 5 to 10 percentile	11	No.1, No.11, No.12, No.15, No.16, No.18, No.19, No.20, No.26, No.29, No.44
C	Upper 10 to 25 percentile	14	No.7, No.9, No.13, No.14, No.17, No.21, No.30, No.33, No.38, No.39, No.40, No.41, No.45, No.46
D	Upper 25 to 50 percentile	14	No.3, No.4, No.5, No.22, No.23, No.25, No.27, No.31, No.32, No.42, No.43, No.47, No.50, No.51
E	Lower than upper 25 to 50 percentile (lower 50%)	9	No.2, No.6, No.24, No.34, No.35, No.36, No.37, No.48, No.49



(*) 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)

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

*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 P.60

A B C D E

(2)-2 Lakes

1) Miyagi Prefecture

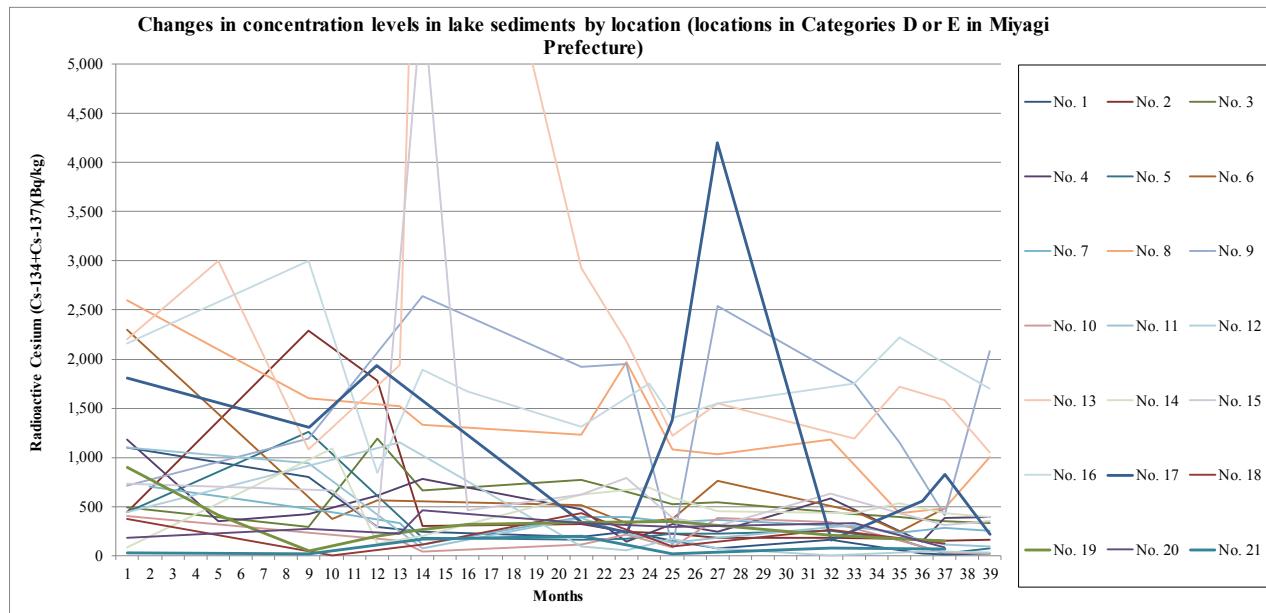
In Miyagi Prefecture, surveys were conducted 7 to 13 times from October 2011 to December 2014 for lake sediment samples collected at 21 locations.

Regarding concentration levels of detected values, six locations were categorized into Category D and 15 locations were categorized into Category E (see Table 4.3-19 and Table 4.3-20).

Concentration levels were generally decreasing at 12 locations but were generally unchanged or varying at nine locations.

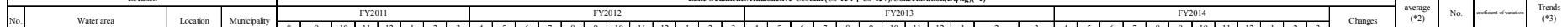
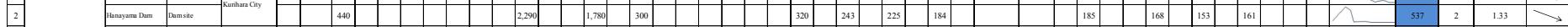
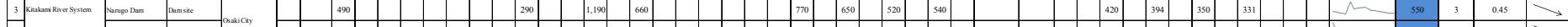
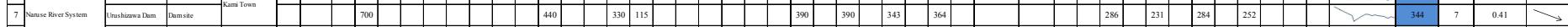
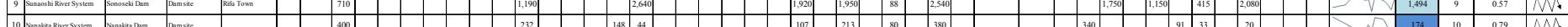
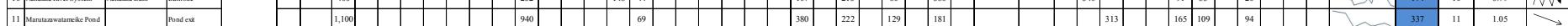
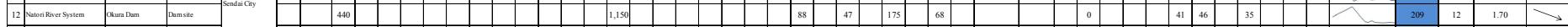
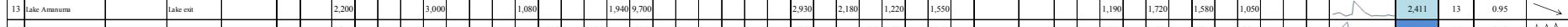
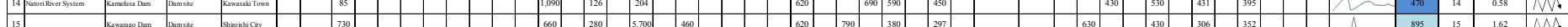
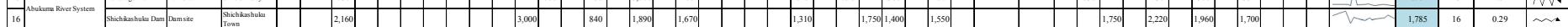
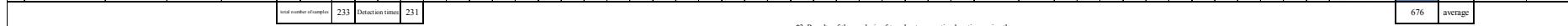
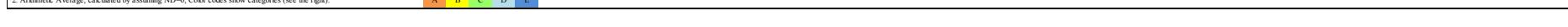
**Table 4.3-19 Categorization of detected values at respective locations
(Miyagi Prefecture: lake sediments)**

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	6	No.8, No.9, No.13, No.15, No.16, No.17
E	Lower than upper 25 to 50 percentile (lower 50%)	15	No.1, No.2, No.3, No.4, No.5, No.6, No.7, No.10, No.11, No.12, No.14, 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)**

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

No.	Location			Lake Sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)*1																									Changes	average (*2)	No.	coefficient of variation	Trends (*3)					
	Water area		Location	Municipality	FY2011						FY2012						FY2013						FY2014															
	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	Kakami River System	Kurikoma Dam	Dam site	Kurihara City		1,100								800	290	242					193	241	154	69					164		23	14	18		276	1	1.21	↘
2		Hanayama Dam	Dam site			440								2,290	1,780	300					320	243	225	184					185		168	153	161		537	2	1.33	↗
3		Nango Dam	Dam site			490								290	1,190	660					770	650	520	540					420		394	350	331		550	3	0.45	↘
4		Lake Naganuma	Dam site		Osaki City	1,180		350			420		610	780					470	146	318	238					580		141	384	392		462	4	0.61	↘		
5		Shinkinosawatameki ke Pond	Pond ext			440								1,260		183					161	176	216	225					246		164	19	76		288	5	1.18	↘
6	Nanuse River System	Futatsushishi Dam	Dam site	Kama Town		2,300								370	560	550					510	331	369	760					450		245	480			630	6	0.91	↘
7		Urushizawa Dam	Dam site			700								440	330	115					390	390	343	364					286		231	284	252		344	7	0.41	↘
8		Mitamakawa Dam	Dam site		Tainai Town	2,600								1,660	1,520	1,330					1,230	1,970	1,080	1,030					1,180		432	476	1,000		1,287	8	0.46	↘
9	Sunaoshi River System	Somoseki Dam	Dam site	Rifu Town		710								1,190		2,640					1,920	1,950	88	2,540					1,750		1,150	415	2,080		1,494	9	0.57	↘
10	Nanakita River System	Nanakita Dam	Dam site			400								232	148	44					107	213	80	380					340		91	33	20		174	10	0.79	↘
11	Maruzawatazumeki Pond	Pond ext	Sendai City		1,100									940		69					380	222	129	181					313		165	109	94		337	11	1.05	↘
12	Natori River System	Okura Dam	Dam site		440								1,150							88	47	175	68					0		41	46	35		209	12	1.70	↘	
13	Lake Amanuma	Lake ext	Kawanishi Town		2,200		3,000			1,080				1,940	9,700					2,930	2,180	1,220	1,550					1,190		1,720	1,580	1,050		2,411	13	0.95	↘	
14	Natori River System	Karafusa Dam	Dam site		85								1,090	126	204					620	690	590	450					430		530	431	395		470	14	0.58	↘	
15	Abukuma River System	Kawango Dam	Dam site	Shinjichi City		730								660	280	5,700	460			620	790	380	297					630		430	306	352		895	15	1.62	↘	
16		Shichikashuku Dam	Dam site		Shichikashuku Town	2,160								3,000	840	1,890	1,670			1,310	1,750	1,400	1,550					1,750		2,220	1,960	1,700		1,785	16	0.29	↘	
17	Lake Bagyumin	Lake ext	Shinjichi City		1,810									1,310	1,940					340	231	1,380	4,200					160		560	830	215		1,180	17	1.01	↘	
18	Abukuma River System	Murata Dam	Dam site	Murata Town		370								0		115				430		92						259		121				198	18	0.80	↘	
19	Kakami River System	Lake Izumina	Lake ext	Tome City		900		420			48		195	270	320			340		350						208		149				320	19	0.72	↘			
20	Natori River System	Tarumai Dam	Dam site	Natori City		185								270	222	460					326		288						329		79				270	20	0.42	↘
21	Nanuse River System	Miyatako Dam	Dam site	Tainai Town		31								12		163				195		18						75		66				80	21	0.90	↘	
						total number of samples	233							231																					676	average		

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

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

A B C D E

*3: Results of the analysis of trends at respective locations using the method explained on P.60

Decreasing ↘ Increasing ↗ Unchanged ⇠ Varying ↘

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2) Fukushima Prefecture

i. Hamadori

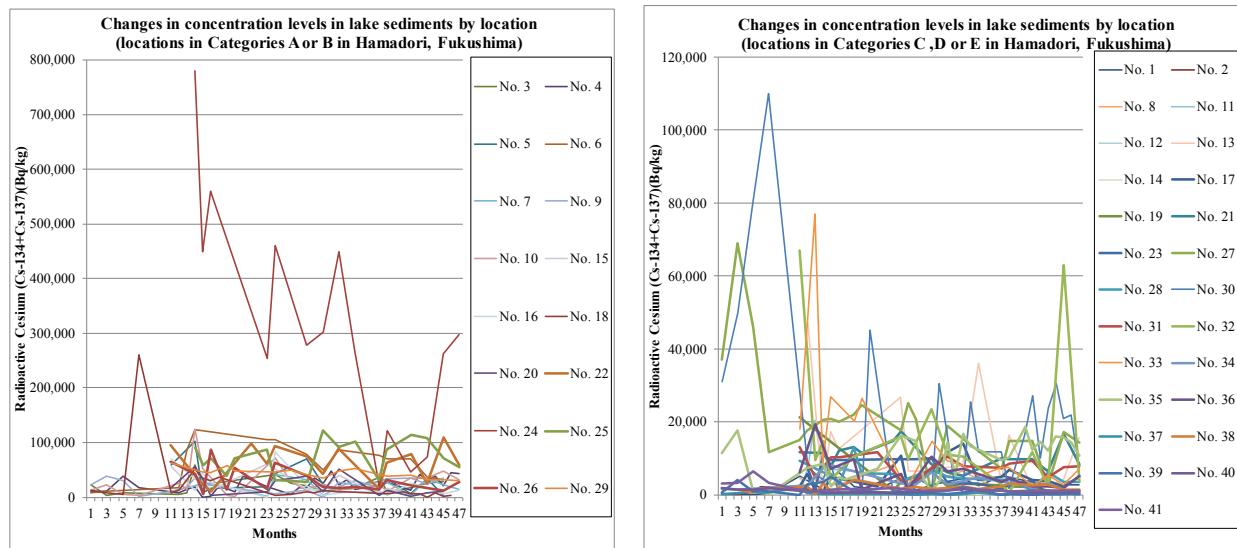
In Hamadori, Fukushima Prefecture, surveys were conducted 5 to 33 times from September 2011 to February 2015 for lake sediment samples collected at 41 locations.

Regarding concentration levels of detected values, eight locations were categorized into Category A, eight locations into Category B, 16 locations into Category C, six locations into Category D, and three locations into Category E (see Table 4.3-21 and Table 4.3-22).

Concentration levels were generally decreasing at 21 locations, generally unchanged or varying at three locations, and generally increasing at three 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
A	Upper 5 percentile	8	No.5, No.6, No.10, No.22, No.24, No.25, No.26, No.29
B	Upper 5 to 10 percentile	8	No.3, No.4, No.7, No.9, No.15, No.16, No.18, No.20
C	Upper 10 to 25 percentile	16	No.8, No.11, No.13, No.17, No.19, No.21, No.23, No.27, No.28, No.30, No.31, No.32, No.33, No.34, No.35, No.36
D	Upper 25 to 50 percentile	6	No.1, No.14, No.38, No.39, No.40, No.41
E	Lower than upper 25 to 50 percentile (lower 50%)	3	No.2, No.12, No.37



(*) 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)**

Table 4.3-22 Detection of radioactive cesium at respective locations (Hamadori, Fukushima Prefecture: lake sediments)

No.	Location	Municipality	Lake Sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)(*)1																											average (*2)	No.	coefficient of variation (*3)	Trends (*3)									
			FY2011						FY2012						FY2013						FY2014																					
			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	Soso (farm pond)	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	5,200	4,800	3,530	2,830	2,740	2,730		2,841	1	0.64	↗							
2		Uchimura	Iitate Village	250	45	830	2,140												350	370	530	340	277	254	390	222	307	213	282	239		440	2	1.10	↘							
3	Matsugobo Dam(Lake Utagawa)			22,000	3,600	7,500												42,000	26,200	20,900	10,800	15,400	16,800	36,900	10,400	17,200	25,100	28,800		21,039	3	0.68	↖									
4	Mansu Dam			9,900	11,500	39,000	17,480			8,800	14,400	19,000	42	1,270	21,800	9,400	38,000	19,800	5,000	17,500	17,200	16,000	25,500	48,000	22,600	32,800	13,900	20,400	27,200	17,600	12,400	41,000	31,700	38,300	21,100	45,000	42,700		22,694	4	0.58	↖
5	Soso (farm pond)	Ainozawa								59,000		103,000	8,100	15,500				19,400	43,000		70,000	22,700	14,200			28,700	33,900	7,200	33,000	3,530		32,945	5	0.85	↘							
6	Ganbe Dam Reservoir			8,200	12,200					18,000	87,000	123,000	121,600				106,000	106,000	78,000	50,000	37,000		77,000	71,000	71,000	36,800	32,800			67,813	6	0.56	↖									
7	Soso (farm pond)	Fugane Dam								12,000		20,500	26,600	26,500				2,540	41,000		32,000	4,100	19,900	30,900	17,800	26,900	3,610	33,000	22,400	14,100		20,866	7	0.54	↖							
8		Sasatoge								4,700		4,000	2,900	2,760				8,200	1,030		7,500	5,100	6,600			1,090	2,960	3,090	3,390	980			3,879	8	0.60	↖						
9	Takanoura 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	27,200	33,900	35,100	24,200	35,200			22,091	9	0.53	↗								
10	Yokakawa Dam Reservoir			13,800	23,000	4,500	3,500			25,900	14,200	123,000	33,000		2,900	2,020		72,000	29,300	12,500	24,800	12,300		22,900	11,900	34,800	35,700	48,000	32,200		28,744	10	0.99	↖								
11		Tarayachi	Minamisoma City						420	7,600	20,500	7,200			6,400																	8,424	11	0.87	↘							
12		Takeshiyachi							1,180	1,340	1,240	790			550	1,180		600	410	520	600	1,240	294	293	1,080	265	225		738	12	0.55	↘										
13		Ryugaku							47,000	1,080	17,400	12,500				26,600	6,600	6,600	7,400	8,000	36,000	3,670	16,300	1,590	2,410	4,140	15,600			13,306	13	0.99	↖									
14	Soso (farm pond)	Usutachiro							4,200		5,100	690	820			380	1,060		780	311	140		165	193	190	222	660			1,065	14	1.46	↘									
15	Kokuto	Name Town							56,000		13,000	32,600	13,000			61,000	51,000	14,600	12,500	40,000		3,260	16,300	1,530	8,900	10,300			23,814	15	0.85	↗										
16	Vosouchi	Iitate Village							70,000		33,000	44,000	27,700			520	84,000		20,700	3,030	8,900		11,300	4,000	25,300	17,300	7,300	13,000			24,670	16	1.00	↘								
17	Myobusaki No. 2	Minamisoma City							2,240	5,800	1,180	830	5,100		2,250	10,800	1,750	6,400	11,800	14,000	4,000	4,900	6,800	4,080	3,760	2,460	5,000		5,175	17	0.72	↖										
18	Ogaki Dam	Name Town		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	6,000	10,100	6,800	6,100	740	8,900	2,440	3,090		21,554	18	2.28	↘					
19		Uenokawa	Iitate Village						21,200							1,100	3,600		6,400	2,420	3,050			2,580	2,450	2,030	1,070	810	710		3,952	19	1.43	↗								
20	Soso	Hegomi	Iitate Village						17,600		56,000	34,000	2,790			9,900	31,000		39,000	9,400	52,000		4,200	12,600	1,910	7,700	10,800			20,636	20	0.89	↖									
21	Soso (farm pond)	Mekurasawa No. 2	Name Town						11,700		11,400	7,900	12,100	13,200	11,500		14,800	17,400		8,300	6,300	5,200		10,000	9,700	9,700	6,500	16,800	8,300		10,635	21	0.33	↖								
22		Jonku							96,000		40,000	23,800	10,000		98,000	62,000	93,000		74,000	41,000	89,000			16,000	64,000	79,000	25,600	110,000	58,000		61,338	22	0.52	↖								
23	Funachigawa Power Plant		Tamura City						7,600	11,580	11,000	9,500				9,800		9,900	10,000	3,200	2,980	3,100		1,620	2,830	3,750	87	161		5,141	23	0.78	↖									
24	Soso (farm pond)	Sawari No. 1	Futaba Town						700,000	450,000	560,000					224,000	460,000		279,000	302,000	450,000	266,000		20,500	121,000	46,000	74,000	263,000	297,000			308,167	24	0.67	↘							
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		31,600	88,000	114,000	108,000	72,000	55,000		74,488	25	0.40	↖								
26		Nishihiguro	Futaba Town						65,000		43,000	5,200	87,000	13,900	54,000		15,100	63,000		39,000	18,500	17,100	18,200		13,800	31,000	22,600	17,200	12,900	28,300		31,378	26	0.72	↘							
27	Sakashita Dam		Okuma Town	37,000	69,000	46,000	11,800		15,100	17,600	20,600	20,700	20,100	21,900	24,600		17,700	25,000	20,700	350	18,800	15,300		7,200	14,800	14,700	2,600	17,100	14,300		20,563	27	0.69	↘								
28	Soso	Atanumori 2							9,400		6,300	5,700	2,790	13,000	5,900		5,700	3,900		7,000	4,900	4,500			4,100	4,200	1,160	6,300	3,470	3,620		5,408	28	0.50	↘							
29	Soso (farm pond)	Yonomori	Tomaka Town						62,000		54,000	47,000	45,000	57,000	48,000			47,000	50,000	42,000	36,000	48,000	53,000		41,000	39,000	39,900	31,600	32,800	30,900		44,678	29	0.20	↘							
30	Takikawa Dam	Kawachi Village	Nanha Town	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	17,500	2,130	1,180	11,900	1,740	16,300	27,100	10,200	23,900	30,400	21,900	7,400	19,287	30	1.24	↘				
31	Takinawa	Tomaka Town							13,200		4,700	10,300	10,300			11,800		4,100	2,060		7,400	10,500	7,800		7,500	8,600	9,300	4,800	7,600	7,900		7,991	31	0.37	↖							
32	Soso (farm pond)	Kamigōgeka No. 1	Nanha Town						67,000		9,500	14,800	4,200		10,400		16,000	9,800		23,400	11,000	10,600			2,940	590	11,800	2,370	63,000	3,890		16,331	32	1.22	↖							
33		Shinonohgeka							18,100		77,000	8,400	27,600		20,100	26,400		4,900	2,660		14,600	9,500	7,900	5,100		7,600	7,600	2,410	5,300	2,600	7,1											

ii. Nakadori

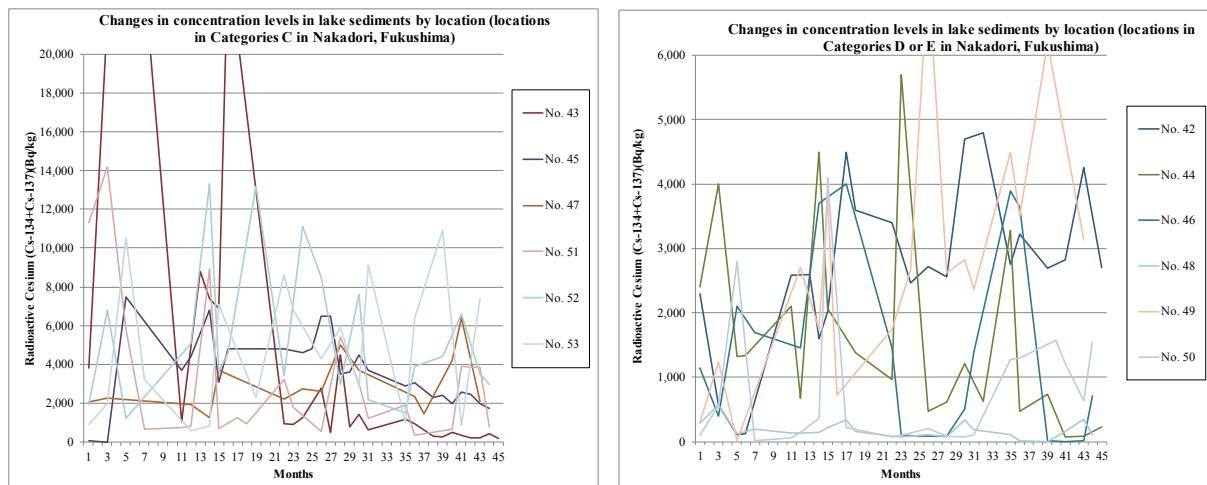
In Nakadori, Fukushima Prefecture, surveys were conducted 15 to 27 times from September 2011 to February 2015 for lake sediment samples collected at 12 locations.

Regarding concentration levels of detected values, six locations were categorized into Category C, four 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 four locations, generally unchanged or varying at six locations, and generally increasing at two locations.

**Table 4.3-23 Categorization of detected values at respective locations
(Nakadori, Fukushima Prefecture: lake sediments)**

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	6	No.43, No.45, No.47, No.51, No.52, No.53
D	Upper 25 to 50 percentile	4	No.42, No.44, No.46, No.49
E	Lower than upper 25 to 50 percentile (lower 50%)	2	No.48, No.50



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

**Figure 4.3-13 Changes in concentration levels over the years at respective locations
(Nakadori, Fukushima Prefecture: lake sediments)**

Table 4.3-24 Detection of radioactive cesium at respective locations (Nakadori, Fukushima Prefecture: lake sediments)

Location			Lake Sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)*1																														average (*2)		No.	coefficient of variation	Trends (*3)										
No.	Location	Municipality	FY2011							FY2012							FY2013							FY2014							Changes																
			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													
42	Surikamigawa Dam Reservoir	Fukushima City		2,300		570		104	116				2,580		2,600	1,600	2,020	4,500	3,600			3,400		2,470	2,720	2,560	4,700	4,800		2,750	3,220	2,690	2,820	4,250	2,700			2,685	42	0.48							
43	Lake Handanuma (farm pond)	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			1,190	920	317	257	500	346	216	233	437	176		4,742	43	1.83	
44	Oike Pond (farm pond)	Motomiya City		2,400		4,000		1,320	1,340				2,110	680		4,500	2,070	1,840	1,380			960	5,700		470	620	1,220	630		3,280	470	730	71	85	226				1,641	44	0.92						
45	Miharu Dam	Miharu Town		69		0		7,500					3,700	4,400		6,800	3,100	4,800				4,800	4,600	4,800	6,500	6,500	3,500	3,600	4,500	3,700			2,880	3,040	2,310	2,410	1,990	2,580	2,440	1,960	1,740			3,624	45	0.52	
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		3,900	3,640	18	0	13	710				1,390	46	1.03							
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			2,340	1,440	4,200	6,400	2,080				2,931	47	0.48								
48	Hirodaira (farm pond)	Sukagawa City		290		570		119	191				139	133	148	217	340	163			88	75		106	69	340	179		104	16	0	159	351	107				177	48	0.74							
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		4,500	3,500	6,200	4,700	3,140				2,894	49	0.67								
50	Watariki Pond (farm pond)	Yabuki Town		102		550		2,800	17				63	144	360	4,100	222			75	99		202	88	68	107		1,280	1,300		1,570	1,210	640	1,540				787	50	1.34							
51	Izumikawa (farm pond)	Shinkawa City		11,300		14,200		5,800	660				720	820	8,900	710	1,270	940			3,200	1,770		540	5,400	3,000	1,200		1,880	326	670	3,890	3,860	780				3,265	51	1.16							
52	Hokkawa Dam	Nishigo Village		1,920		6,800		1,210					5,100		13,300	3,600	4,600	13,200			3,400	11,100	8,500	2,970	7,600	2,180		1,480	3,900	4,400	6,600	3,480	2,990				5,417	52	0.68								
53	Lake Nanko	Shinkawa 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		970	6,400	10,900	840	7,400				4,814	53	0.73								
total number of samples			253	Detection times		250																													2,864		average										

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0".

*3: Results of the analysis of trends at respective locations
using the method explained on P.60

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

). A B C D E

iii. Aizu

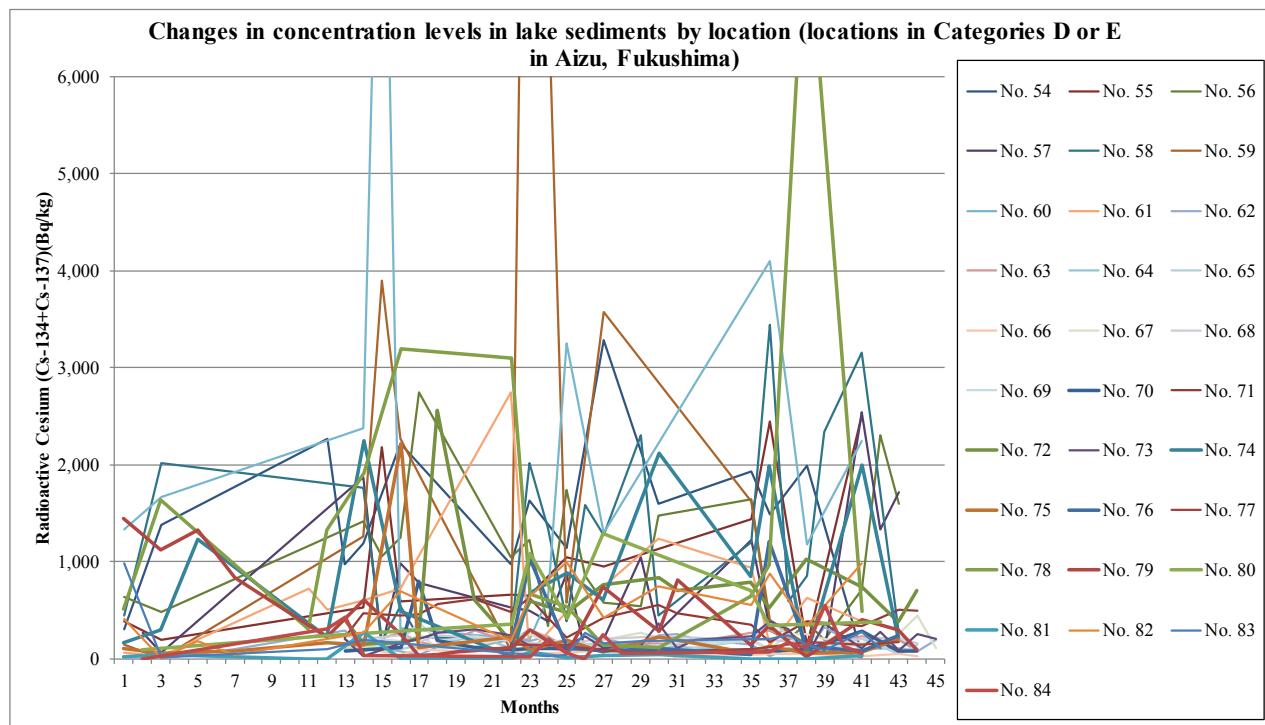
In Aizu, Fukushima Prefecture, surveys were conducted 10 to 30 times from September 2011 to February 2015 for lake sediment samples collected at 31 locations.

Regarding concentration levels of detected values, eight locations were categorized into Category D and 23 locations were categorized into Category E (see Table 4.3-25 and Table 4.3-26).

Concentration levels were generally decreasing at four locations, generally unchanged or varying at 24 locations, and generally increasing at three locations.

**Table 4.3-25 Categorization of detected values at respective locations
(Aizu, Fukushima Prefecture: lake sediments)**

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	0	(None)
D	Upper 25 to 50 percentile	8	No.54, No.55, No.56, No.58, No.59, No.60, No.74, No.78
E	Lower than upper 25 to 50 percentile (lower 50%)	23	No.57, 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)**

Table 4.3-26 Detection of radioactive cesium at respective locations (Aizu, Fukushima Prefecture: lake sediments)

No.	Location	Municipality	Lake Sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration (Bq/kg*)																									average (*2)	No	coefficient of variation	Trends (*3)											
			FY2011						FY2012						FY2013						FY2014						Changes															
			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								
54	Nechu Dam	Katakata City	298	1,380							2,270	970	1,190	2,220			970	1,630	1,140	3,280		1,590				1,930	1,490	1,990		43				1,493	54	0.54	↘					
55	Lake Sohara		380	196								530	2,180	590				660	650	1,040		950					1,440	2,450	130		2,500				1,054	55	0.79	↗				
56	Lake Hibara	Kitaibaraki Village	630	480								1,420	1,060	1,250	2,750			1,040	1,220	342	1,740	850	570	540	1,470				1,640	287	196	373	192	710	2,300	1,590		1,030	56	0.67	↗	
57	Lake Onagawa		270	57							1,870	111	980	780			530	490	380	870	86	210	1,040	282				1,220	309	168	97	62	2,540	1,330	1,720		700	57	0.98	↗		
58	Lake Akimoto	Iwashiro Town	440	2,020								1,760	177	540	219			214	2,010	1,340	380	1,580	1,270	2,300	450				1,200	3,440	590	850	2,340	3,150	1,710	257		1,284	58	0.76	↗	
59	Lake Bishamonzumi	Kitaibaraki Village	150	0								1,260	3,900	2,260				82	13,400	570		3,570					1,620	400		140			11			2,105	59	1.73	↗			
60	Lake Oguninuma		1,330	1,670								2,370	1020	310				198	620	3,250		1,300					4,100	2,670	1,180		2,240				2,418	60	1.08	↗				
61	Aizu (farmpond)	Lake Onuma	61	28							720	510	600	720			2,740	59	480	740	1,230					930	129	620		385				66	61	1.01	↗					
62		Center	0	0	44	93					286	133	76	33	126	122	190	178	229	86	103	215	99	237	256	199		149	29	114	63	319	97	119	194	67	193		135	62	0.62	↗
63		Takahashi River Estuary									86	154	270	166	128	284	171	300		130		147	153	139			261	291	142		233	195	98			186	63	0.37	↔			
64		Oguro River Estuary									200	76	179	114	127	245	110	84	163		130		114	126			90	99	95		96	110	88			125	64	0.36	↔			
65		Fenjinbama Beach	Iwashiro Town								111	110	99	132	135		208	122	80		157	105	83		198	99	106		201	47	148			126	65	0.36	↔					
66		Hishimura River Estuary									83	108	39	96	89	68	85	50	57		82		60	15			39	47	49		25	47	23			59	66	0.45	↘			
67	Lake Inawashiro	Intake of Asakasouji									126	118	115	251	108	116	236	249	172	123	241	194	263	216	222	152		182	91	255	247	201	160	170	248	440	103		192	67	0.40	↔
68		Hanajima Beach									235	203	240	169	242	221	194	162	151		205		228				189	189	151		206	213	161			198	68	0.15	↔			
69		Funatsu Port	Koriyama City								223	213	186	370	182	223	186	141	187		107		138	160			192	382	101		141	224	109			193	69	0.40	↔			
70		Offshore of Funatsu River Estuary									74	86	118	800	186	116	88	97	107		92		70				87	74	91		278	73	79			148	70	1.19	↗			
71		Sekisugahama Beach									220	470	140	460	560	610	480	620	211		420		550	470			244	174	387		331	500	490			430	71	0.30	↔			
72		Hangawa River Estuary	Aizumakatu City								390	151	168	215	2,560	610	176	590	470		760		830	700			790	520	1,030		740	379	700			654	72	0.83	↗			
73		Koishigahama Floodgate	Iwashiro Town								206	22	161	209	263	306	241	133	144	134	228	111	133	361	114	195		226	389	303	30	363	109	274	89	257	200		200	73	0.49	↔
74		Higashiyama Dam Reservoir	Konosakamatu City	157	290	1,230					220		2,250	490			24	680	880		600		2,110				850	1,990	18		2,000	214				875	74	0.91	↗			
75		Center		100	59	63	84				160	138	2,210	120			219	90	191		62		221				57	127	58		70	197				235	75	2.11	↗			
76		Lake Numazawa	Kaneyama Town														146	1,030	118		77		103				37	1,200	129		74	237					315	76	1.35	↗		
77		Midpoint between the center of the lake and off the estuary (at the depth of 30 m)															144	139	134		79		54				98	118	163		148	163					124	77	0.29	↔		
78	Aizu (farmpond)	Aizumato Town	510	1,640							310	1,330	1,910	3,200			3,100	660	540		142		117				640	970	7,800		490					1,557	78	1.27	↗			
79	Okawa Dam Reservoir	Konosakamatu City	1,450	1,120	1,320	830					218	610	242	35	44	69	120	297	49	740		286	810			139	344	14		400	298	90			433	79	1.00	↘				
80	Tagokura Reservoir	Tadami Town		90							229						360	1,090	410		1,290					700	343	360			378					525	80	0.73	↗			
81	Minnamai (farm pond)	Fukui	22	47							0	0	270	0			0	70	12		28		39				0	0	0		30					35	81	1.99	↗			
82	Tajima Dam Reservoir (Lake Furehama)	Minnamai Town	410	0	177	34					207	270	700				175	630	1,000		420		740				550	870	333		980					469	82	0.69	↗			
83	Okutadami Reservoir	Tadami Town	980	18							97		190				38	24	34	259	160	180					209	236	148	86	277	103				190	83	1.20	↗			
84	Lake Ozenma	Iminomata Village		0							310	430	34					13	202	51	0	242	57					70	160	117	550	122	59			151	84	1.06	↗			
			total number of samples	540	Detection times	527																													590	average						

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0".

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



3) Ibaraki Prefecture

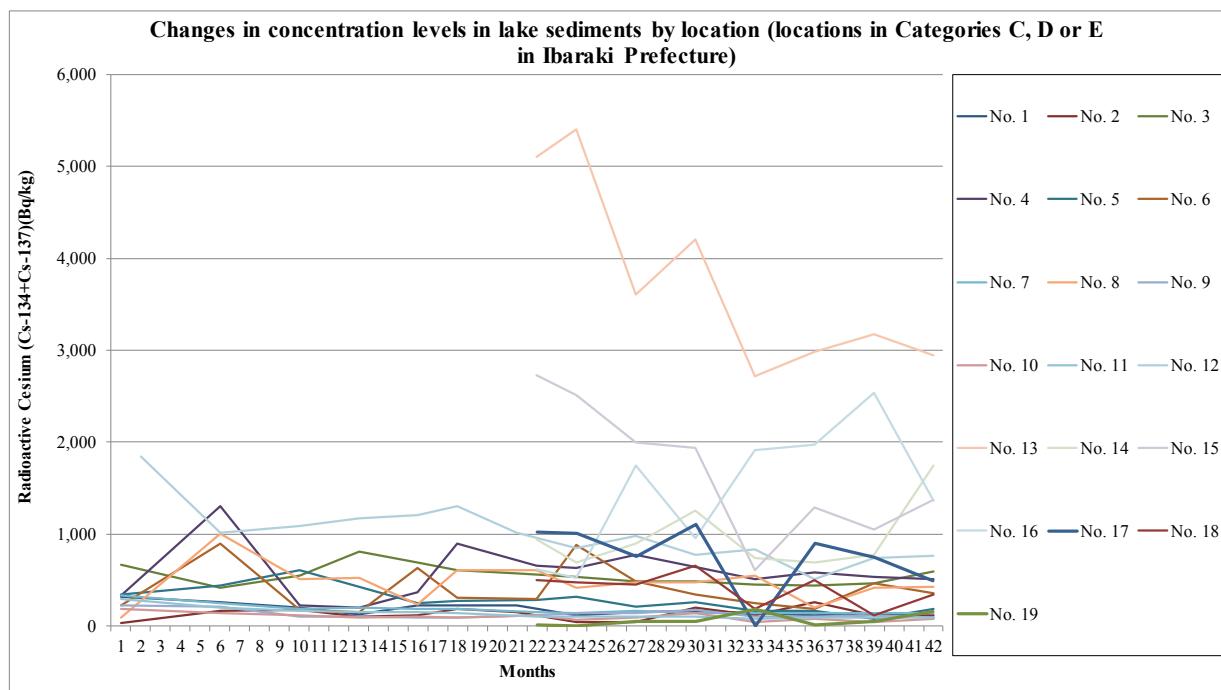
In Ibaraki Prefecture, surveys were conducted 8 to 14 times from September 2011 to February 2015 for lake sediment samples collected at 19 locations.

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 11 locations, generally unchanged or varying at seven locations, and generally increasing at one location.

**Table 4.3-27 Categorization of detected values at respective locations
(Ibaraki Prefecture: lake sediments)**

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	1	No.13
D	Upper 25 to 50 percentile	4	No.12, No.14, No.15, No.16
E	Lower than upper 25 to 50 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



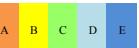
**Figure 4.3-15 Changes in concentration levels over the years at respective locations
(Ibaraki Prefecture: lake sediments)**

Table 4.3-28 Detection of radioactive cesium at respective locations (Ibaraki Prefecture: lake sediments)

No.	Location		Municipality	Lake Sediments/Radioactive Cesium (Cs-134+Cs-137)/Concentration(Bq/kg)(*1)																														average (*2)	No.	coefficient of variation	Trends (*3)
	Location			FY2011	FY2012						FY2013						FY2014						Changes														
				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	Hinuma	Hiroura	Ibaraki Town	320			260			200		122		219	219		221		114		155		165		136		111		136		94		177	1	0.36	↘	
2		Miyamae		37			162			179		98		118	184		146		49		49		204		119		264		120		119		132	2	0.50	▲▼	
3		Oyazawa		670			420			550		810		690	610		570		540		490		490		450		442		460		590		556	3	0.21	~~▲	
4	Lake Kasumigaura	Offshore of Tamisukuri	Namegata City	330			1,300			228		201		370	890		650	630	770		640		510		580		540		510		582	4	0.51	▲▼			
5		Offshore of Kakeuma	Ami Town	340			440			610		430		252	270		280	320	208		257		165		168		78		182		286	5	0.49	↘			
6		Center	Miho Village	221			900			178		151		630	310		300	880	490		340		242		192		460		360		404	6	0.63	▲▼			
7		Offshore of Aso	Inashiki City	330			250			183		202		186	183		150	139	164		138		143		134		139		138		177	7	0.32	↘			
8	Lake Kitaura	Offshore of Kamaya	Namegata City	90			1,000			510		520		239	610		610	410	470		470		550		203		416		429		466	8	0.48	~~▲			
9		Jingu Bridge	Itako City	220			217			106		103		93	95		121	136	139		172		99		107		115		86		129	9	0.34	↘			
10	Hitachitone River	Lake Sotonasakura		184			143			110		97		102	93		113	66	91		141		49		76		42		79		99	10	0.40	↘			
11		Iksu	Kamisu City	290			205			168		152		154	142		104	102	108		98		74		97		95		91		134	11	0.44	↘			
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		840		510		740		760		1,006	12	0.32	↘			
13	Mizumuna Dam	Center	Kitaibaraki City															5,100	5,400	3,600		4,200		2,720		2,980		3,170		2,940		3,764	13	0.28	↘		
14	Koyama Dam		Takahagi City															940	690	890		1,250		740		690		770		1,750		965	14	0.21	~~▲		
15	Hananuki Dam		Hitachi City															2,730	2,520	2,000		1,940		610		1,290		1,050		1,380		1,690	15	0.46	↘		
16	Jyuou Dam		Hitachioti City															620	520	1,750		950		1,920		1,980		2,540		1,360		1,455	16	0.53	↗		
17	Ryuuji Dam		Shirosato Town															1,020	1,010	760		1,110		0		900		740		490		754	17	0.50	↗		
18	Fujigawa Dam		Kasama City															500	480	450		650		193		498		117		346		404	18	0.47	↘		
19	Iida Dam																	18	0	45		53		180		11		55		156		65	19	0.93	▲▼		
				total number of samples	224	Detection times	222																									697	average				

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

*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 P.60



Decreasing



Increasing



Unchanged



Varying

4) Tochigi Prefecture

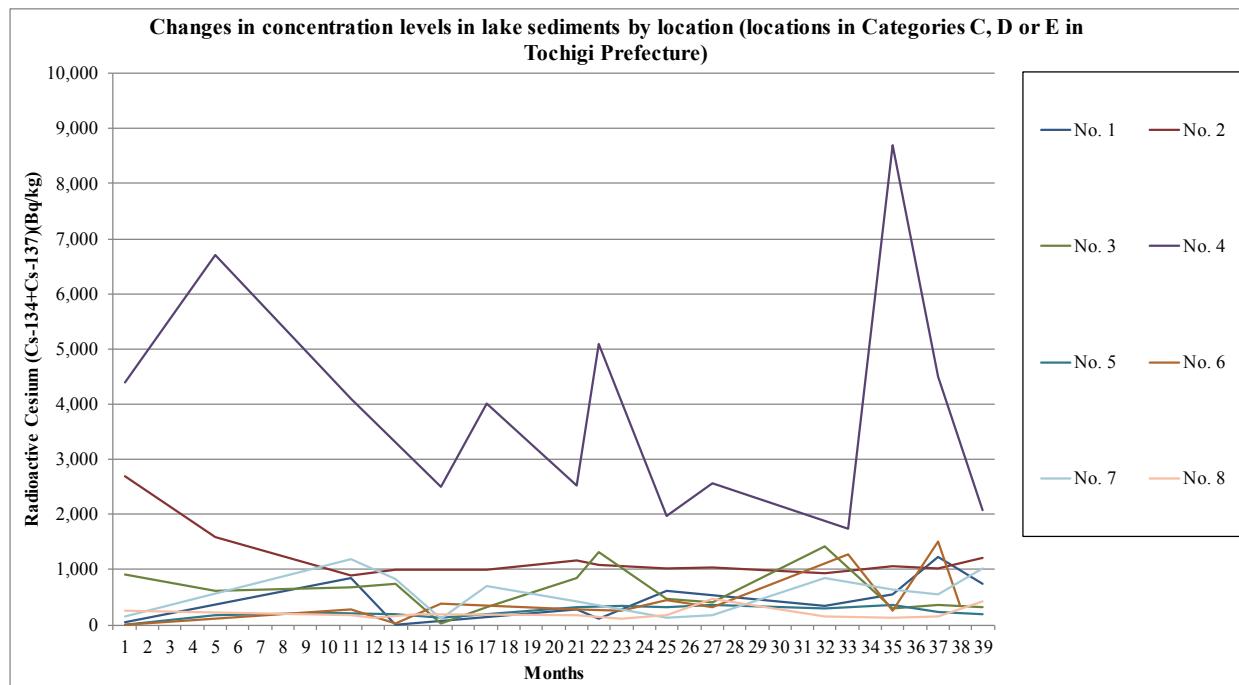
In Tochigi Prefecture, surveys were conducted 10 to 14 times from October 2011 to December 2014 for lake sediment samples collected at eight locations.

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 4.3-29 and Table 4.3-30).

Concentration levels were generally decreasing at one location, generally unchanged or varying at four locations, and generally increasing at three locations.

**Table 4.3-29 Categorization of detected values at respective locations
(Tochigi Prefecture: lake sediments)**

Category	Percentile (percentile in all detected values)	Number of locations	Locations
A	Upper 5 percentile	0	(None)
B	Upper 5 to 10 percentile	0	(None)
C	Upper 10 to 25 percentile	1	No.4
D	Upper 25 to 50 percentile	1	No.2
E	Lower than upper 25 to 50 percentile (lower 50%)	6	No.1, No.3, No.5, No.6, No.7, 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 sediments)

No.	River System	Location		Municipality	Lake Sediments/Radioactive Cesium (Cs-134+Cs-137)/Concentration(Bq/kg)(^{a1})																									Changes	average (*2)	No.	coefficient of variation	Trends (*3)			
					FY2011						FY2012						FY2013						FY2014														
		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 River System	Miyana Dam Reservoir	Center	Nasushiobara City		48																												478	1	0.82	↗
2		Shiobara Dam Reservoir	Center		2,700		1,590																										1,194	2	0.39	↘	
3	Kinugawa River System	Kawai Dam Reservoir	Center	Nikko City	920		610																										626	3	0.64	▲▼▲	
4		Ikari Dam Reservoir	Center		4,400		6,700																									3,871	4	0.51	▲▼▲		
5		Kawamata Dam Reservoir	Center		0		176																									243	5	0.44	↗		
6		Lake Yuno	Center		0																											445	6	1.03	↗		
7		Lake Chuzenji	Center		153																											539	7	0.67	▲▼▲		
8	Watarase River System	Watarase Reservoir	Center	Tochigi City		251																										209	8	0.55	▲▼▲		
					total number of samples	102	Detection times	100																									951	average			

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

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

A B C D E

*3: Results of the analysis of trends at respective locations
using the method explained on P.60
↘ Decreasing ↗ Increasing ~~~ Unchanged ▲▼ Varying

↘ Decreasing ↗ Increasing

~~~~ Unchanged

▲▼ Varying

using the method explained on P.60

~~~~ Unchanged

▲▼ Varying

using the method explained on P.60

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5) Gunma Prefecture

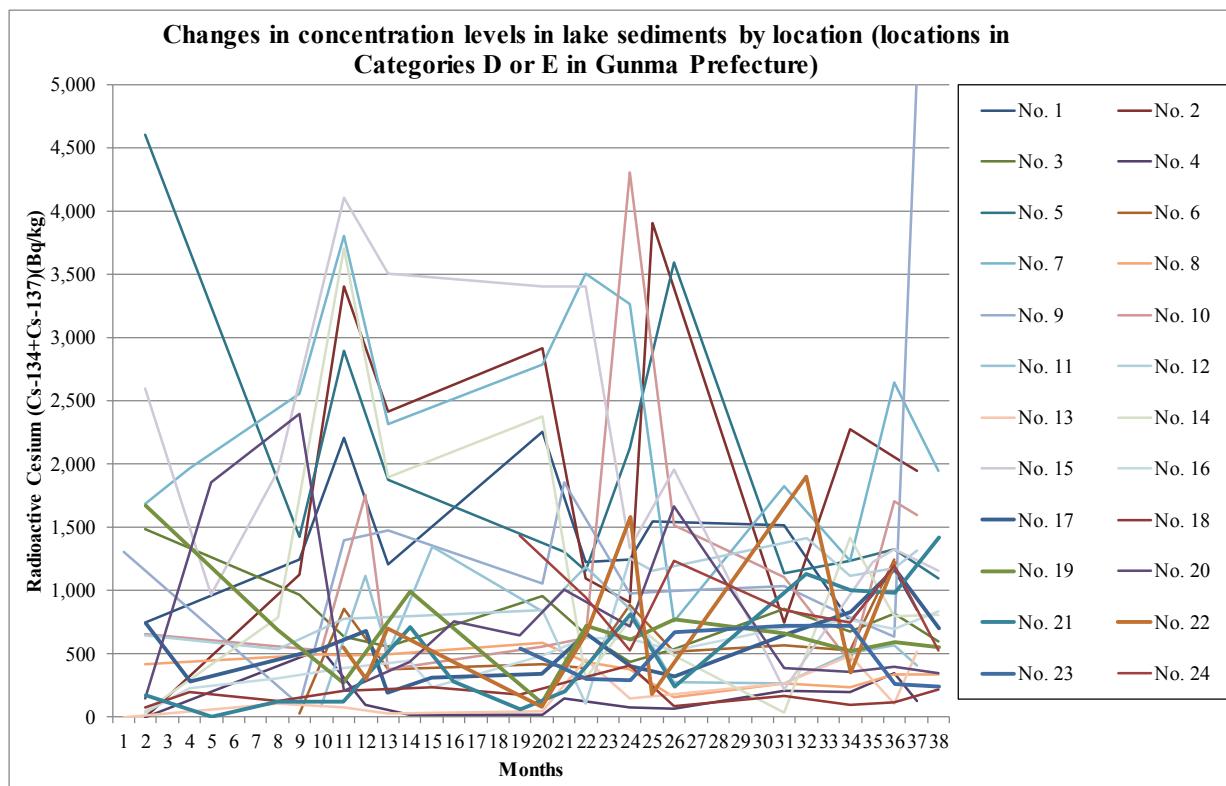
In Gunma Prefecture, surveys were conducted 8 to 14 times from November 2011 to December 2014 for lake sediment samples collected at 24 locations.

Regarding concentration levels of detected values, 11 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 four locations, generally unchanged or varying at 15 locations, and generally increasing at five 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 |
|----------|--|---------------------|---|
| A | Upper 5 percentile | 0 | (None) |
| B | Upper 5 to 10 percentile | 0 | (None) |
| C | Upper 10 to 25 percentile | 0 | (None) |
| D | Upper 25 to 50 percentile | 11 | No.1, No.2, No.5, No.7, No.9, No.10, No.12, No.14, No.15, No.20, No.24 |
| E | Lower than upper 25 to 50 percentile (lower 50%) | 13 | No.3, No.4, No.6, No.8, No.11, No.13, No.16, No.17, No.18, No.19, No.21, No.22, No.23 |



**Figure 4.3-17 Changes in concentration levels over the years at respective locations
(Gunma Prefecture: lake sediments)**

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

| No. | Water area | Location | Municipality | Lake Sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg) ^{(*)1} | | | | | | | | | | | | | | | | | | | | | | | | | Changes | average
(*2) | No. | coefficient of variation | Trends (*3) | | | | |
|-----|---------------------|--------------------------------------|-------------------------------------|--|---------------------------|-----|-------|-------|-------|--------|-----|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|--------|---|-----|-------|-------|-------|-------|---------|-----------------|-------|--------------------------|-------------|------|------|------|------|
| | | | | FY2011 | | | | | | FY2012 | | | | | | FY2013 | | | | | | FY2014 | | | | | | | | | | | | | | | |
| | | | | 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 | | Lake Okutone (Yagisawa Dam) Center | Minakami Town | | | | 750 | | | | | 1,250 | 2,210 | 1,210 | | | | 2,260 | 1,230 | 1,250 | 1,550 | | | | 1,520 | | 760 | 1,170 | 850 | | | 1,334 | 1 | 0.37 | ▲▲▲ | | |
| 2 | | Lake Narumata (Narumata Dam) Center | | | | | 0 | | | | | 1,130 | 3,400 | 2,420 | | | | 2,920 | 1,100 | 910 | 3,900 | | | | 750 | | 2,280 | 2,060 | 1,950 | | | 1,902 | 2 | 0.61 | ▲▲ | | |
| 3 | | Lake Dogen (Sudagai Dam) Center | | | | | 1,490 | | | | | 970 | 640 | 560 | | | | 960 | 660 | 440 | 540 | | | | 860 | | 680 | 820 | 600 | | | 768 | 3 | 0.37 | ▲▲▲ | | |
| 4 | Tonegawa River | Lake Marunuma (Marunuma Dam) Center | Katashina Village | | | | 0 | | | | | 540 | 98 | 16 | | | | 21 | 151 | 81 | 74 | | | | 211 | | 201 | 349 | 127 | | | 156 | 4 | 1.00 | ▲▲▲ | | |
| 5 | | Lake Fujiwara (Fujiwara Dam) Center | | Minakami Town | | | 4,600 | | | | | 1,430 | 2,900 | 1,880 | | | | | 1,310 | 1,160 | 2,130 | 3,590 | | | | 1,140 | | 1,240 | 1,330 | 1,100 | | | 1,984 | 5 | 0.57 | ▲▲▲ | |
| 6 | | Lake Tanbara (Tanbara Dam) Center | | Numata City | | | | | | | | 33 | 860 | 380 | | | | 420 | 390 | 890 | 520 | | | | 570 | | 530 | 1,250 | | | 584 | 6 | 0.58 | ▲▲▲ | | | |
| 7 | | Lake Akaya (Akita Dam) Center | Minakami Town | | | | 1,690 | 1,970 | | | | 2,560 | 3,800 | 2,320 | | | | 2,790 | 3,500 | 3,260 | 760 | | | | 1,830 | | 1,240 | 2,650 | 1,950 | | | 2,332 | 7 | 0.38 | ▲▲▲ | | |
| 8 | | Lake Sonohara (Sonohara Dam) Center | | Numata City | | | | | | | 420 | | | 500 | 490 | 500 | | | 590 | 440 | 380 | 164 | | | | 266 | | 237 | 342 | 336 | | | 389 | 8 | 0.32 | ▲▲▲ | |
| 9 | | Lake Akagioura Center | | Maebashi City | | | 1,310 | | | | | 104 | 1,400 | 1,480 | | | | 1,060 | 1,860 | | 980 | 1,000 | | | | 1,040 | | 790 | 640 | 5,100 | | | 1,397 | 9 | 0.89 | ▲▲▲ | |
| 10 | Agatsuma River Area | Lake Oshimura (Shimugawa Dam) Center | Nakanjo Town | | | | | | | | 660 | | | 530 | 1,760 | 380 | | | 560 | 630 | 4,300 | 1,520 | | | | 1,110 | | 438 | 1,710 | 1,600 | | | 1,267 | 10 | 0.86 | ▲▲▲ | |
| 11 | | Lake Shimako (Nakanjo Dam) Center | | | | | | | | | 94 | 1,120 | 510 | 1,350 | | | | 840 | 1,190 | 860 | 278 | | | | 266 | | 510 | 570 | 410 | | | 667 | 11 | 0.60 | ▲▲▲ | | |
| 12 | | Lake Tashiro (Kazawa Dam) Center | | Tsumagoi Village | | | | | | | 650 | | | 540 | 780 | 800 | | | 850 | 110 | 1,260 | 1,160 | | | | 1,420 | | 1,120 | 1,180 | 1,320 | | | 933 | 12 | 0.41 | ▲▲ | |
| 13 | | Lake Haruna Center | Takesaki City/Higashi-Agatsuma Town | | | | 0 | | | | | 114 | 76 | 30 | | | | 47 | 460 | 148 | | | | | 266 | | 490 | 112 | 520 | | | 206 | 13 | 0.95 | ▲▲ | | |
| 14 | | Lake Kirinumi (Kirinumi Dam) Center | | Annaka City | | | 49 | | | | | 790 | 3,700 | 1,900 | | | | 2,380 | 310 | 770 | 490 | | | | 38 | | 1,420 | 800 | 810 | | | 1,121 | 14 | 0.96 | ▲▲▲ | | |
| 15 | | Lake Usui (Sakamoto Dam) Center | | | | | 2,600 | 970 | 1,950 | | | 4,100 | 3,500 | | | | 3,400 | 3,400 | 1,340 | 1,960 | | | | 215 | | 1,230 | 1,330 | 1,160 | | | 2,089 | 15 | 0.57 | ▲▲▲ | | | |
| 16 | Kanase River | Lake Arafunie (Dodaigawa Dam) Center | Shimona Town | | | | 37 | 233 | | | 310 | 390 | 450 | 239 | | | 490 | 630 | 620 | 530 | | | | 710 | | 770 | 700 | 840 | | | 496 | 16 | 0.47 | ▲▲▲ | | | |
| 17 | | Lake Oshio (Oshio Dam) Center | | Tomoka City | | | 740 | 280 | | | | 540 | 680 | 196 | 310 | | | 340 | 660 | 400 | 320 | | | | 650 | | 830 | 1,170 | 700 | | | 558 | 17 | 0.48 | ▲▲▲ | | |
| 18 | | Lake Kanna (Shimokubo Dam) Center | | | Fujoka City/Kamikawa Town | | | 75 | 197 | | 128 | | 213 | 228 | 242 | | | 178 | 320 | 410 | 93 | | | | 173 | | 100 | 119 | 222 | | | 193 | 18 | 0.48 | ▲▲▲ | | |
| 19 | | Lake Hebkami (Shiozawa Dam) Center | Kanna Town | | | | 1,670 | | | | | 690 | 270 | 990 | | | | 111 | 720 | 610 | 770 | | | | 660 | | 520 | 590 | 550 | | | 679 | 19 | 0.57 | ▲▲▲ | | |
| 20 | Watarase River Area | Lake Kusaki (Kusaki Dam) Center | Midori City | | | | | | | | 147 | 1,860 | 2,400 | 207 | | | 440 | 760 | 650 | 1,010 | | | | 720 | | 1,670 | 390 | 361 | 400 | 345 | | | 811 | 20 | 0.85 | ▲▲▲ | |
| 21 | | Lake Umeda (Kiriyugawa Dam) Center | | Kiryu City | | | 179 | | 0 | 123 | | 129 | 710 | 280 | | | 62 | 203 | | 810 | 245 | | | | 1,130 | | 1,000 | 980 | 1,420 | | | 519 | 21 | 0.91 | ▲▲ | | |
| 22 | Nakatsu River | Lake Nozori (Nozori Dam) Center | Nakanjo Town | | | | | | | | 550 | 300 | 700 | | | | | 82 | 660 | 1,580 | 181 | | | | | | 1,900 | | 358 | 1,220 | | | 753 | 22 | 0.82 | ▲▲▲ | |
| 23 | | Lake Jonemu Center | Tatebayashi City | | | | | | | | | | | | | | 540 | | 301 | 291 | 670 | | | | | | 720 | | 720 | 260 | 241 | | | 468 | 23 | 0.46 | ▲▲▲ |
| 24 | Watarase River Area | Lake Tatanauma Center | | | | | | | | | | | | | | | | 1,440 | | 950 | 530 | 1,240 | | | | | | 850 | | 750 | 1,200 | 530 | | | 936 | 24 | 0.36 |
| | | total number of samples | | 287 | Detection times | 283 | | | | | | | | | | | | | | | | | | | | | | | | | 939 | average | | | | | |

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

*3: Results of the analysis of trends at respective locations using the Decreasing Increasing Unchanged Varying method explained on P.60

A B C D E

6) Chiba Prefecture

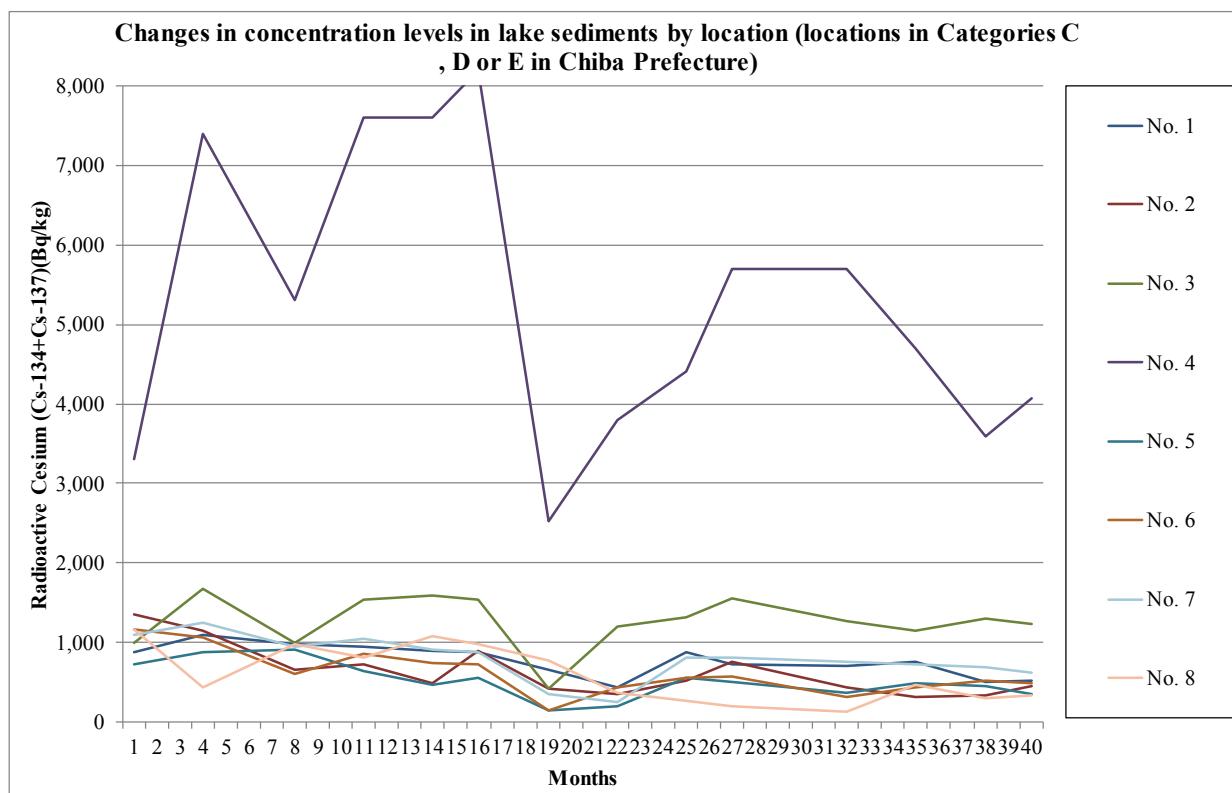
In Chiba Prefecture, surveys were conducted 14 times from November 2011 to February 2015 for lake sediment samples collected at eight locations.

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 but were generally unchanged or varying at two locations.

**Table 4.3-33 Categorization of detected values at respective locations
(Chiba Prefecture: lake sediments)**

| Category | Percentile (percentile in all detected values) | Number of locations | Locations |
|----------|--|---------------------|------------------------------------|
| A | Upper 5 percentile | 0 | (None) |
| B | Upper 5 to 10 percentile | 0 | (None) |
| C | Upper 10 to 25 percentile | 1 | No.4 |
| D | Upper 25 to 50 percentile | 1 | No.3 |
| E | Lower than upper 25 to 50 percentile (lower 50%) | 6 | No.1, No.2, No.5, No.6, No.7, No.8 |



**Figure 4.3-18 Changes in concentration levels over the years at respective locations
(Chiba Prefecture: lake sediments)**

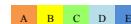
Table 4.3-34 Detection of radioactive cesium at respective locations (Chiba Prefecture: lake sediments)

| No. | Location | Municipality | Lake Sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)(*1) | | | | | | | | | | | | | | | | | | | | | | | | | Changes | average (*2) | No. | coefficient of variation | Trends (*3) | | | | | | | |
|-----|-------------------------------------|--------------------------|--|-----|-----------------|-------|-------|-------|--------|-----|-------|-------|-------|-------|--------|-----|-------|-----|-------|-----|--------|-----|-------|-----|---|---|-------|---------|--------------|-----|--------------------------|-------------|-------|---|---|-----|------|---|---|
| | | | FY2011 | | | | | | FY2012 | | | | | | FY2013 | | | | | | FY2014 | | | | | | | | | | | | | | | | | | |
| | | | 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 | Fusashita | Inzai City | | | 870 | | 1,090 | | 980 | | 940 | | 900 | | 880 | | 660 | | 440 | | 880 | | 730 | | | | 710 | | 750 | | 500 | | 520 |  | 775 | 1 | 0.25 |  | |
| 2 | Shimoteganuma Chuo | | | | 1,350 | | 1,140 | | 650 | | 720 | | 490 | | 900 | | 420 | | 349 | | 520 | | 760 | | | | 440 | | 320 | | 325 | | 443 |  | 631 | 2 | 0.50 |  | |
| 3 | Teganuma Chuo | | | | 990 | | 1,670 | | 990 | | 1,540 | | 1,580 | | 1,540 | | 420 | | 1,200 | | 1,320 | | 1,550 | | | | 1,270 | | 1,150 | | 1,300 | | 1,230 |  | 1,268 | 3 | 0.26 |  | |
| 4 | Nedoshita | Ashiko City/Kashiwa City | | | 3,300 | | 7,400 | | 5,300 | | 7,600 | | 7,600 | | 8,200 | | 2,530 | | 3,800 | | 4,400 | | 5,700 | | | | 5,700 | | 4,700 | | 3,600 | | 4,060 |  | 5,278 | 4 | 0.35 |  | |
| 5 | Kita-Inbanuma Chuo | Inzai City/Narita City | | | | 730 | | 880 | | 910 | | 630 | | 460 | | 560 | | 151 | | 195 | | 550 | | 500 | | | | 360 | | 480 | | 450 | | 350 |  | 515 | 5 | 0.43 |  |
| 6 | Ipponmatsu Shita | Inzai City | | | | 1,160 | | 1,070 | | 600 | | 860 | | 740 | | 730 | | 152 | | 440 | | 560 | | 570 | | | | 313 | | 430 | | 520 | | 490 |  | 617 | 6 | 0.45 |  |
| 7 | Lower area of Jossidao water intake | Sakura City | | | | 1,100 | | 1,250 | | 940 | | 1,050 | | 910 | | 880 | | 340 | | 251 | | 800 | | 800 | | | | 760 | | 730 | | 690 | | 620 |  | 794 | 7 | 0.34 |  |
| 8 | Asobashi Bridge | Yachio City | | | | 1,160 | | 440 | | 980 | | 800 | | 1,080 | | 970 | | 770 | | 360 | | 266 | | 202 | | | | 121 | | 460 | | 304 | | 338 |  | 589 | 8 | 0.60 |  |
| | | | total number of samples | 112 | Detection times | 112 | | | | | | | | | | | | | | | | | | | | | | | | | 1,308 | average | | | | | | | |

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

*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 P.60
 Decreasing  Increasing  Unchanged  Varying



(2)-3 Coastal areas

1) Iwate Prefecture

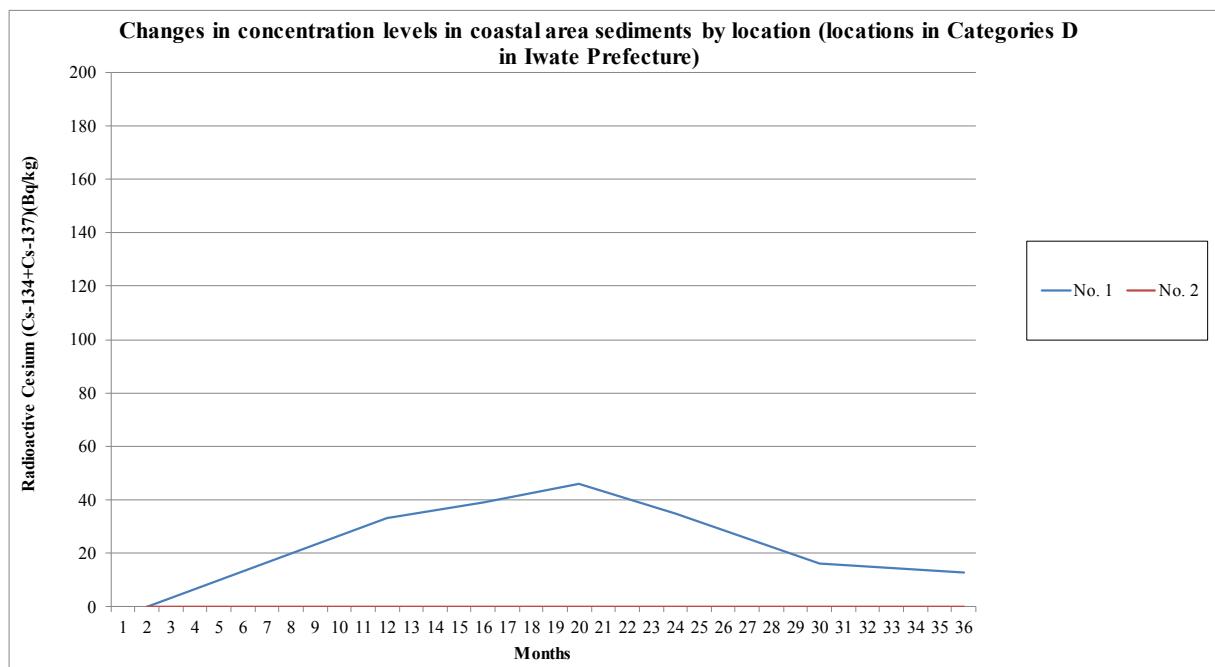
In Iwate Prefecture, surveys were conducted 7 times from January 2012 to November 2014 for coastal area sediment samples collected at two locations.

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 or varying at these two locations.

**Table 4.3-35 Categorization of detected values at respective locations
(Iwate Prefecture: coastal area sediments)**

| Category | Percentile (percentile in all detected values) | Number of locations | Locations |
|----------|--|---------------------|------------|
| A | Upper 5 percentile | 0 | (None) |
| B | Upper 5 to 10 percentile | 0 | (None) |
| C | Upper 10 to 25 percentile | 0 | (None) |
| D | Upper 25 to 50 percentile | 0 | (None) |
| E | Lower than upper 25 to 50 percentile (lower 50%) | 2 | No.1, No.2 |



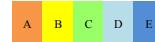
**Figure 4.3-19 Changes in concentration levels over the years at respective locations
(Iwate Prefecture: coastal area sediments)**

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

| No. | Location | Coastal area sediments/Radioactive Cesium (Cs-134+Cs-137)/Concentration(Bq/kg)(*1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Changes | average(*2) | No. | coefficient of variation | Trend(*3) | | | | | |
|-----|-------------------------|--|-----------------|----|----|--------|---|---|---|--------|---|---|---|--------|----|----|----|----|----|---|---|---|----|---|---|---|----|----|----|----|---|---------|-------------|-----|--------------------------|-----------|---------|------|------|--|--|
| | | FY2011 | | | | FY2012 | | | | FY2013 | | | | FY2014 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 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 | Ofunato Bay (A) | | | | | 0 | | | | | | | | | 33 | | | | 39 | | | | 46 | | | | 35 | | | | | | | | | 26 | 1 | 0.64 | W\W | | |
| 2 | Hirota Bay | | | | | 0 | | | | | | | | | 0 | | 0 | | | 0 | | | 0 | | | | 0 | | | | | | | | | 0 | 2 | - | ~\~▲ | | |
| | total number of samples | 14 | Detection times | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 13 | average | | | | |

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

*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 P.60

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Method explained on P.60

Decreasing ↘ Increasing ↗

Unchanged ~\~

Varying \W

Method explained on P.60

Decreasing ↘ Increasing ↗

2) Miyagi Prefecture

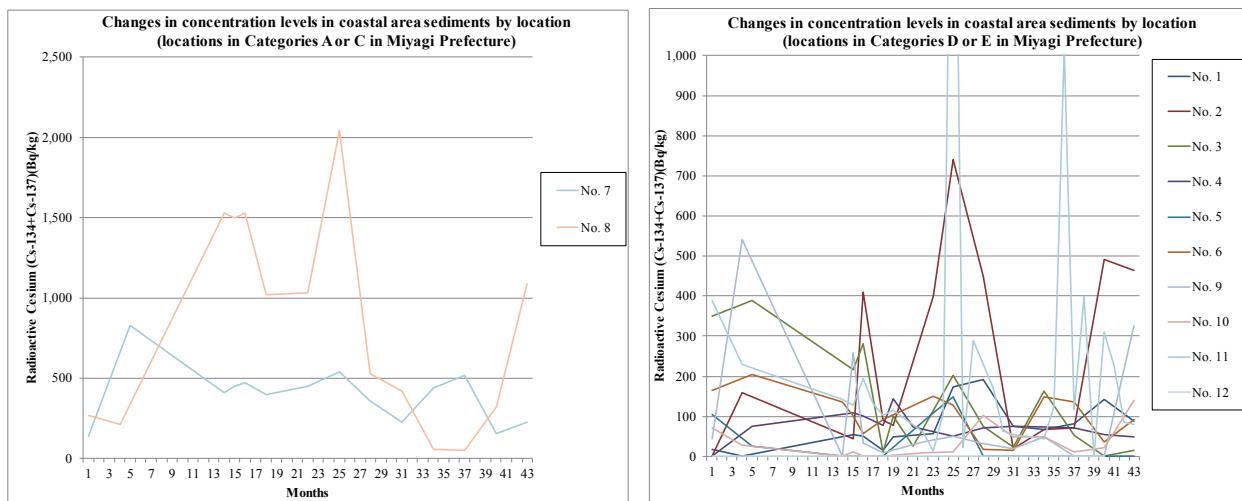
In Miyagi Prefecture, surveys were conducted 7 to 27 times from October 2011 to February 2015 for coastal area sediment samples collected at 12 locations.

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

Concentration levels were generally decreasing at three locations, generally unchanged or varying at eight locations, and generally increasing at one location.

**Table 4.3-37 Categorization of detected values at respective locations
(Miyagi Prefecture: coastal area sediments)**

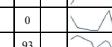
| Category | Percentile (percentile in all detected values) | Number of locations | Locations |
|----------|--|---------------------|--------------------------------|
| A | Upper 5 percentile | 1 | No.8 |
| B | Upper 5 to 10 percentile | 0 | (None) |
| C | Upper 10 to 25 percentile | 1 | No.7 |
| D | Upper 25 to 50 percentile | 5 | No.2, No.3, No.6, No.9, No.11 |
| E | Lower than upper 25 to 50 percentile (lower 50%) | 5 | No.1, No.4, No.5, No.10, No.12 |



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

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

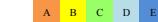
Table 4.3-38 Detection of radioactive cesium at respective locations (Miyagi Prefecture: coastal area sediments)

| No. | Location | Coastal area sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)(*1) | | | | | | | | | | | | | | | | | | | | | | | | | | Changes | average (*2) | No. | coefficient of variation | Trends (*3) | | | | | | | | | | | | |
|-----|--|--|-----|-----------------|-----|--------|---|---|---|--------|---|---|---|--------|-------|-------|-------|-----|-----|---|-------|-------|-----|-------|-----|-----|-----|---------|--------------|-----|--------------------------|-------------|-------|---|---|---|------|---|---|---|-----|----|------|---|
| | | FY2011 | | | | FY2012 | | | | FY2013 | | | | FY2014 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 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 | 16 | 48 | | | | 57 | 174 | | 191 | | 76 | | 67 | | 82 | | 141 | | 87 |  | 76 | 1 | 0.75 |  | | | | | |
| 2 | Kesennuma Bay (C)
Offshore of Oshimakita | | | 0 | | 158 | | | | | | | | 44 | 410 | 91 | 78 | | | | 400 | 740 | | 450 | | 19 | | 68 | | 72 | | 490 | | 464 |  | 249 | 2 | 0.94 |  | | | | | |
| 3 | All other neighboring sea areas
Oppa Bay (Jyusanhamama Beach) | | | 350 | | 390 | | | | | | | | 216 | 281 | 12 | 101 | 26 | | | 203 | | 76 | | 23 | | 163 | | 52 | | 0 | | 15 | | 136 | 3 | 0.97 |  | | | | | | |
| 4 | Neighboring sea area of Ishinomaki (C)
Lake Mangokura, M-6 (center) | | | 0 | | 75 | | | | | | | | 109 | 101 | 77 | 145 | 74 | | | 51 | | 71 | | 76 | | 74 | | 71 | | 54 | | 48 |  | 73 | 4 | 0.45 |  | | | | | | |
| 5 | Neighboring sea area of Ishinomaki (B-3)
Offshore of Kikakami River Estuary | | | 105 | | 25 | | | | | | | | 0 | 0 | 0 | 0 | | | | 109 | 148 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 28 | 5 | 1.87 |  | | | | | |
| 6 | Neighboring sea area of Ishinomaki (C)
Offshore of Naruse | | | 165 | | 205 | | | | | | | | 136 | 101 | 56 | 93 | | | | 151 | 128 | | 17 | | 16 | | 149 | | 136 | | 36 | | 93 |  | 106 | 6 | 0.54 |  | | | | | |
| 7 | Matsushima Bay (B)
Nishihama Beach | | | 139 | | 830 | | | | | | | | 410 | 450 | 470 | 400 | | | | 450 | | 540 | | 360 | | 229 | | 440 | | 520 | | 155 | | 230 |  | 402 | 7 | 0.45 |  | | | | |
| 8 | Neighboring sea area of Sendai Port (A)
Naiko Inner Port, 4-Nai | | | 270 | | 213 | | | | | | | | 1,530 | 1,500 | 1,530 | 1,020 | | | | 1,030 | 2,040 | | 530 | | 420 | | 55 | | 54 | | 322 | | 1,090 |  | 829 | 8 | 0.78 |  | | | | | |
| 9 | Neighboring sea area of Sendai Port (B)
Gamo-3 | | | 44 | | 540 | | | | | | | | 0 | 258 | 33 | 10 | | | | 35 | | 50 | | 31 | | 19 | | 49 | | 0 | | 0 | | 327 | 9 | 1.61 |  | | | | | | |
| 10 | All other neighboring sea areas
Ido-5 | | | 71 | | 28 | | | | | | | | 0 | 12 | 0 | 0 | | | | 10 | | 12 | | 102 | | 48 | | 49 | | 11 | | 21 | | 140 | | 36 | 10 | 1.18 |  | | | | |
| 11 | Offshore of Abukuma River Estuary | | | 390 | | 230 | | | | | | | | 142 | 128 | 193 | 131 | 103 | 115 | | 61 | 13 | 108 | 2,030 | 21 | 290 | 170 | 62 | 55 | | 45 | 126 | 1,020 | 118 | 400 | 0 | 311 | 226 | 86 | 80 | 246 | 11 | 1.66 |  |
| 12 | Offshore of Tsuyagawa River Estuary | | | 0 | | | | | | | | | | 0 | 0 | | | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 12 | - |  | | | | | |
| | | total number of samples | 174 | Detection times | 146 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 190 | average | | | | | | | | |

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

*3: Results of the analysis of trends at respective locations using the method explained on P.60
 Decreasing  Increasing  Unchanged  Varying

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



3) Fukushima Prefecture

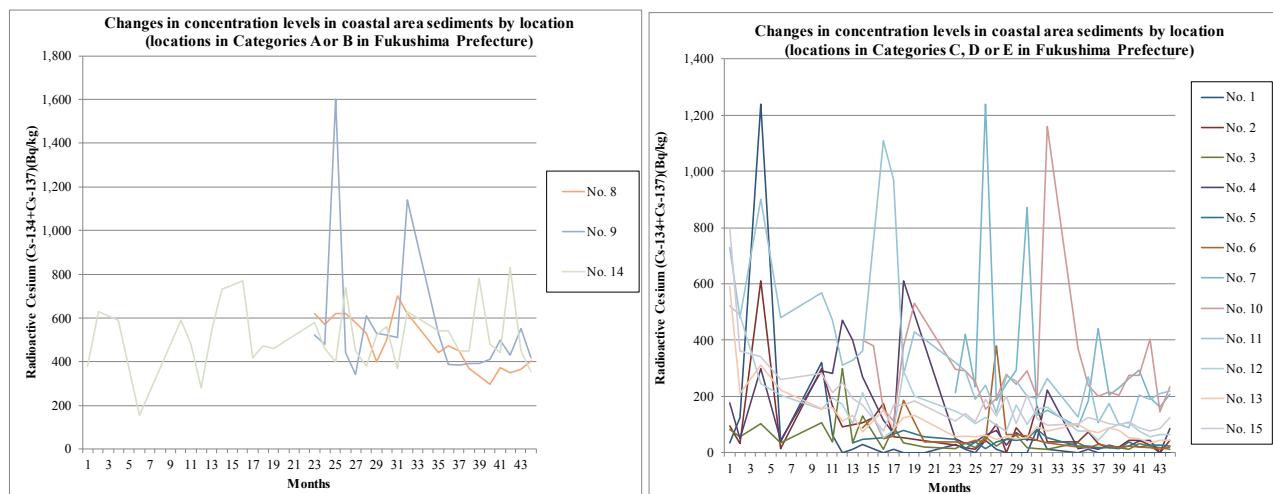
In Fukushima Prefecture, surveys were conducted 20 to 33 times from October 2011 to February 2015 for coastal area sediment samples collected at 15 locations (this analysis excludes the survey results at eight locations where the survey was conducted only once in 2011).

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

Concentration levels were generally decreasing at 11 locations but were generally unchanged or varying at four locations. There was no location where an increasing trend was observed.

**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 |
|----------|--|---------------------|---------------------------------|
| A | Upper 5 percentile | 1 | No.9 |
| B | Upper 5 to 10 percentile | 2 | No.8, No.14 |
| C | Upper 10 to 25 percentile | 3 | No.7, No.10, No.11 |
| D | Upper 25 to 50 percentile | 5 | No.2, No.4, No.12, No.13, No.15 |
| E | Lower than upper 25 to 50 percentile (lower 50%) | 4 | No.1, No.3, No.5, No.6 |



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

**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 (Fukushima Prefecture: coastal area sediments)

| Location | | Coastal area sediments/Radioactive Cesium (Cs-134+Cs-137)/Concentration(Bq/kg)(*) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | average
(#2) | No. | coefficient of variation | Trends (#3) | | | | | | | | | | | | | | | | | |
|----------|---|---|-----|-----------------|-----|-----|-------|--------|-----|-----|-----|-----|-----|--------|-----|-----|-----|-----|-----|--------|-----|-------|-----|-------|-----|---------|-----|-----|-------|-----|-----|-----------------|-----|--------------------------|-------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|-----|------|-----|----|------|----|
| No. | Location | FY2011 | | | | | | FY2012 | | | | | | FY2013 | | | | | | FY2014 | | | | | | Changes | | | | | | Changes | No. | coefficient of variation | Trends (#3) | | | | | | | | | | | | | | | | | |
| | | 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 | Changes | | | | | | | | | | | | | | | | | | |
| 1 | Neighboring sea area of Soso | Approx. 2,000 m offshore of Tsunashikama Fishing Port | | 35 | 123 | | 1,240 | | 38 | | | 320 | 62 | 0 | 11 | 30 | 0 | 11 | 0 | 0 | | 28 | 12 | 0 | 44 | 10 | 0 | 0 | 0 | 81 | 11 | | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 1 | 3.50 | ↘↗ | | | | | | | | |
| 2 | Matsukawama sea area | Around center of Fishing Right Area 1 in Matsukawama 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 | | 38 | 73 | 32 | 17 | 19 | 43 | 45 | 26 | 0 | 44 | | 83 | 2 | 1.36 | ↘↗ | | | | | | |
| 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 | 35 | 19 | | 15 | 36 | 17 | 55 | 23 | 48 | 61 | 16 | 13 | 11 | | 35 | 18 | 17 | 20 | 17 | 10 | 31 | 24 | 17 | 12 | | 47 | 3 | 1.18 | ↘↗ | | | | | | | |
| 4 | Neighboring sea area of Haramachi City | Approx. 1,000 m offshore of Nida River | | 177 | 49 | 300 | 44 | | | 290 | 280 | 470 | 400 | 268 | 114 | 67 | 610 | | | 51 | 33 | 38 | 61 | 79 | 27 | 70 | 48 | 43 | 221 | | 13 | 20 | 12 | 27 | 18 | 22 | 41 | 43 | 0 | 85 | | 126 | 4 | 1.21 | ↘↗ | | | | | | | |
| 5 | Approx. 1,000 m offshore of Ota River | | | | | | | | | | | | | | | | 36 | 48 | 53 | | 78 | 57 | | 47 | 14 | 38 | 15 | 38 | 47 | 44 | 51 | 81 | 54 | | 24 | 22 | 18 | 17 | 15 | 38 | 21 | 26 | 26 | 24 | | 37 | 5 | 0.50 | ℳℳ | | | |
| 6 | Approx. 1,000 m offshore of Odaka River | | | | | | | | | | | | | | | | 88 | 127 | 50 | 59 | 187 | 37 | | 38 | 31 | 44 | 39 | 380 | 64 | 64 | 59 | 45 | 35 | | 20 | 18 | 28 | 22 | 18 | 22 | 21 | 16 | 10 | 21 | | 59 | 6 | 1.28 | ℳℳ | | | |
| 7 | Approx. 2,000 m offshore of Ukedo River | | | | | | | | | | | | | | | | | | | | 214 | 420 | 234 | 1,240 | 187 | 243 | 294 | 870 | 133 | 152 | | | 90 | 182 | 440 | 205 | 230 | 263 | 293 | 194 | 163 | 206 | | 313 | 7 | 0.88 | ↘↗ | | | | | |
| 8 | Neighboring sea area of Soso District | Approx. 1,000 m offshore of Kurnigawa River | | | | | | | | | | | | | | | | | | | 620 | 570 | 620 | 620 | 580 | 530 | 400 | 500 | 700 | 620 | | | 440 | 470 | 450 | 368 | 333 | 297 | 374 | 350 | 365 | 403 | | 481 | 8 | 0.25 | ↘↗ | | | | | |
| 9 | Approx. 1,000 m offshore of Tomioka River | | | | | | | | | | | | | | | | | | | 520 | 480 | 1,600 | 440 | 340 | 610 | 530 | 520 | 510 | 1,140 | | | 530 | 388 | 385 | 390 | 390 | 410 | 500 | 430 | 550 | 417 | | 554 | 9 | 0.54 | ↘↗ | | | | | | |
| 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 | | | 370 | 240 | 201 | 215 | 203 | 274 | 275 | 404 | 144 | 234 | | 303 | 10 | 0.66 | ℳℳ |
| 11 | Approx. 1,000 m offshore 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 | | | 127 | 268 | 105 | 173 | 100 | 88 | 205 | 188 | 209 | 219 | | 347 | 11 | 0.73 | ↘↗ | | | | | | |
| 12 | Approx. 1,000 m offshore 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 | | | 75 | 76 | 43 | 84 | 101 | 105 | 76 | 55 | 64 | 65 | | 149 | 12 | 0.74 | ↘↗ | | | | | | |
| 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 | | | 101 | 80 | 70 | 89 | 78 | 54 | 50 | 35 | 45 | 44 | | 113 | 13 | 0.93 | ↘↗ | | | | | | |
| 14 | Ohanama Port | Approx. 400 m north of Nishibourahei 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 | | | 540 | 540 | 450 | 450 | 780 | 480 | 440 | 830 | 449 | 354 | | 512 | 14 | 0.29 | ℳℳ | | | | | | |
| 15 | Joban coastal sea area | Approx. 1,000 m offshore of Bindai River | 800 | 360 | 340 | 260 | | | 280 | 214 | 249 | 193 | 167 | 77 | 168 | 169 | 184 | | | 112 | 139 | 108 | 189 | 129 | 200 | 104 | 205 | 122 | 98 | | | 104 | 124 | 114 | 102 | 96 | 108 | 88 | 75 | 84 | 125 | | 178 | 15 | 0.75 | ↘↗ | | | | | | |
| | | total number of samples | 433 | Detection times | 413 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 224 | average | | | | | | | | | | | | | | | | | | |

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0".

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

A B C D E

*3: Results of the analysis of trends at respective locations using the method explained on P.60

4) Ibaraki Prefecture

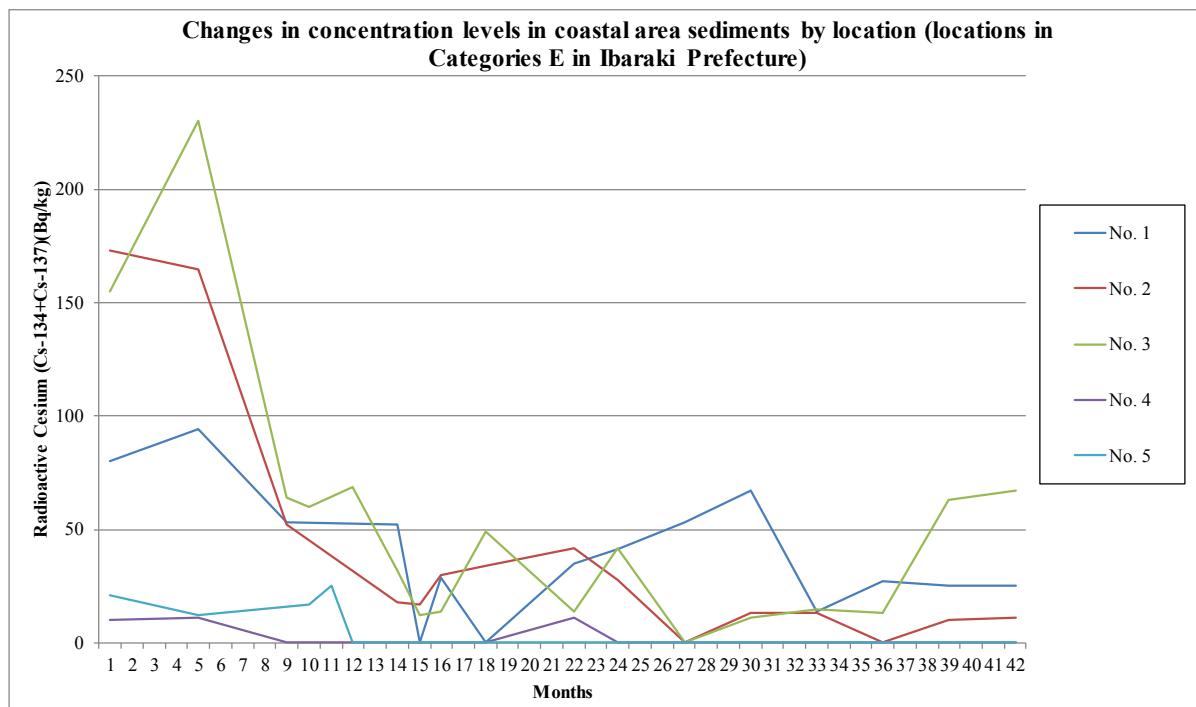
In Ibaraki Prefecture, surveys were conducted 15 to 17 times from October 2011 to February 2015 for coastal area sediment samples collected at five locations.

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 four locations but were generally varying at one location.

**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 |
|----------|--|---------------------|------------------------------|
| A | Upper 5 percentile | 0 | (None) |
| B | Upper 5 to 10 percentile | 0 | (None) |
| C | Upper 10 to 25 percentile | 0 | (None) |
| D | Upper 25 to 50 percentile | 0 | (None) |
| E | Lower than upper 25 to 50 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 (Ibaraki Prefecture: coastal area sediments)

| No. | Location | Coastal area sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg) ^(*1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Changes | average (*2) | No. | coefficient of variation | Trends (*3) | | | | |
|-----|--|--|-----|-----------------|----|----|-----|--------|---|----|----|----|----|--------|----|----|----|----|----|--------|----|---|----|---|----|---|----|----|----|----|---------|--------------|------|--------------------------|-------------|------|--|--|--|
| | | FY2011 | | | | | | FY2012 | | | | | | FY2013 | | | | | | FY2014 | | | | | | | | | | | | | | | | | | | |
| | | 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 | | 14 | | 27 | | 25 | | 25 | | | 40 | 1 | 0.69 | | | |
| 2 | Offshore of Okita River Estuary | | 173 | | | | 165 | | | 52 | | | 18 | 17 | 30 | 34 | | 42 | 28 | 0 | 13 | | 13 | | 0 | | 10 | | 11 | | | 40 | 2 | 1.34 | | | | | |
| 3 | Offshore of Momoya River/Kujigawa River Estuaries | | 155 | | | | 230 | | | 64 | 60 | 69 | 32 | 12 | 14 | 49 | | 14 | 42 | 0 | 11 | | 15 | | 13 | | 63 | | 67 | | | 54 | 3 | 1.10 | | | | | |
| 4 | Neighboring water body of Ken-o Offshore of Nakagawa River | | 10 | | | | 11 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 2 | 4 | 2.23 | | | | | |
| 5 | Offshore of Tonegawa River Estuary | | 21 | | | | 12 | | | 17 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 4 | 5 | 1.94 | | | | | | |
| | | total number of samples | 81 | Detection times | 49 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 28 | average | | | | | |

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

*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 P.60

Decreasing ↘ Increasing ↗

Unchanged ▲▼ Varying ▲▼▲▼

5) Chiba Prefecture and Tokyo Metropolis

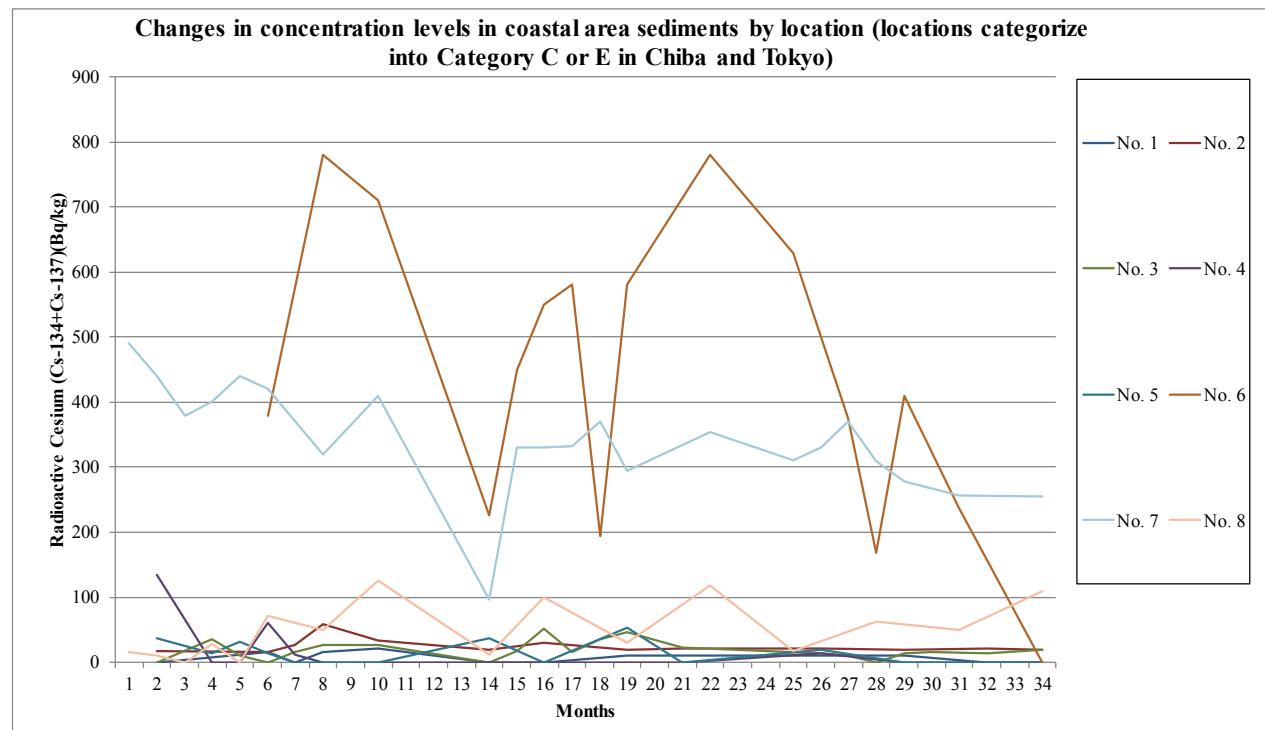
In Chiba Prefecture and Tokyo Metropolis, surveys were conducted 13 to 22 times from May 2012 to February 2015 for coastal area sediment samples collected at eight locations in total.

Regarding concentration levels of detected values, two locations were categorized into Category C and six locations were categorized into Category E (see Table 4.3-43 and Table 4.3-44).

Concentration levels were generally decreasing at two locations but were generally unchanged or varying at six locations.

**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 |
|----------|--|---------------------|------------------------------------|
| A | Upper 5 percentile | 0 | (None) |
| B | Upper 5 to 10 percentile | 0 | (None) |
| C | Upper 10 to 25 percentile | 2 | No.6, No.7 |
| D | Upper 25 to 50 percentile | 0 | (None) |
| E | Lower than upper 25 to 50 percentile (lower 50%) | 6 | No.1, No.2, No.3, No.4, No.5, No.8 |



**Figure 4.3-23 Changes in concentration levels over the years at respective locations
(Chiba Prefecture and Tokyo Metropolis: coastal area sediments)**

Table 4.3-44 Detection of radioactive cesium at respective locations (Chiba Prefecture and Tokyo Metropolis: coastal area sediments)

| No. | Prefecture | Location | Coastal area sediments/Radioactive Cesium (Cs-134+Cs-137) Concentration(Bq/kg)(*1) | | | | | | | | | | | | | | | | | | | | | | | | | average (*2) | No. | coefficient of variation | Trends (*3) | | | | | | | | | |
|-----|------------------|--|--|-----------------|-----|----|----|---|--------|---|-----|-----|-----|-----|--------|-----|-----|-----|-----|-----|--------|-----|-----|-----|-----|----|---------|--------------|-----|--------------------------|-------------|-----|---------|------|-----|-----|-----|------|------|--|
| | | | FY2011 | | | | | | FY2012 | | | | | | FY2013 | | | | | | FY2014 | | | | | | Changes | | | | | | | | | | | | | |
| | | | 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 | Chiba Prefecture | Tokyo Bay 7
Offshore of Yorogawa River Estuary | | | | | | | | | 0 | | | 15 | 0 | 15 | 21 | | | 0 | 0 | | 11 | 11 | | | 11 | 11 | 0 | 0 | 0 | 7 | 1 | 1.03 | | | | | | |
| 2 | | Tokyo Bay 5
Offshore of Miyako River Estuary | | | | | | | | | 17 | | | 15 | 27 | 59 | 33 | | | 19 | 30 | | 19 | 21 | | | 21 | 20 | 21 | 20 | 20 | 25 | 2 | 0.46 | | | | | | |
| 3 | | Coastal sea area of Makuhari
Offshore of Inbanuma Discharge Channel | | | | | | | | | 0 | 35 | 10 | 0 | 16 | 27 | 26 | | | 0 | 17 | 52 | 15 | 36 | 47 | 23 | | | 14 | 11 | 0 | 14 | 16 | 14 | 19 | 19 | 19 | 3 | 0.78 | |
| 4 | | Approx. 1 km offshore of Ebigawa River Estuary
Coastal area of Keijo Port (Ebigawa River Estuary) | | | | | | | | | 134 | 0 | 0 | 60 | 12 | 0 | 0 | | | 0 | 0 | | 0 | 0 | | | 13 | 0 | 0 | 0 | 0 | 15 | 4 | 2.50 | | | | | | |
| 5 | | Approx. 1 km offshore of Edogawa River Estuary | | | | | | | | | 37 | 14 | 31 | 13 | 0 | 0 | 0 | | | 38 | 0 | | 54 | 0 | | | 19 | 0 | 0 | 0 | 0 | 14 | 5 | 1.32 | | | | | | |
| 6 | Tokyo Metropolis | Approx. 1 km offshore of Kyu-Edogawa River Estuary | | | | | | | | | | | | 380 | 780 | 710 | | | 226 | 450 | 550 | 580 | 193 | 580 | | | 780 | | 630 | 500 | 375 | 168 | 409 | 237 | 0 | 444 | 6 | 0.51 | | |
| 7 | | St-8
Offshore of Ankawa River/Kyu-Edogawa River Estuaries | | | | | | | | | 490 | 440 | 380 | 400 | 440 | 420 | 320 | 410 | | 97 | 330 | 330 | 332 | 370 | 294 | | | 354 | | 311 | 330 | 370 | 309 | 278 | 257 | 255 | 342 | 7 | 0.24 | |
| 8 | | Southwestern area of Toyosu Wharf
Offshore of Sumida River Estuary | | | | | | | | | 16 | 11 | 0 | 29 | 0 | 72 | 49 | 126 | | 12 | 100 | | 30 | | 118 | | 18 | 62 | 49 | 109 | 50 | 8 | 0.86 | | | | | | | |
| | | total number of samples | 132 | Detection times | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | 114 | average | | | | | | | |

*1: Blank cells are locations where samples were not collected. The result "Not detectable" is indicated as "0."

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

A B C D E

*3: Results of the analysis of trends at respective locations
using the method explained on P.60

↘ Decreasing ↗ Increasing ↘ Unchanged ↙ Varying

(3) Conclusion

Concentration levels of detected values for sediment samples from public water areas (rivers, lakes, and coastal areas) 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

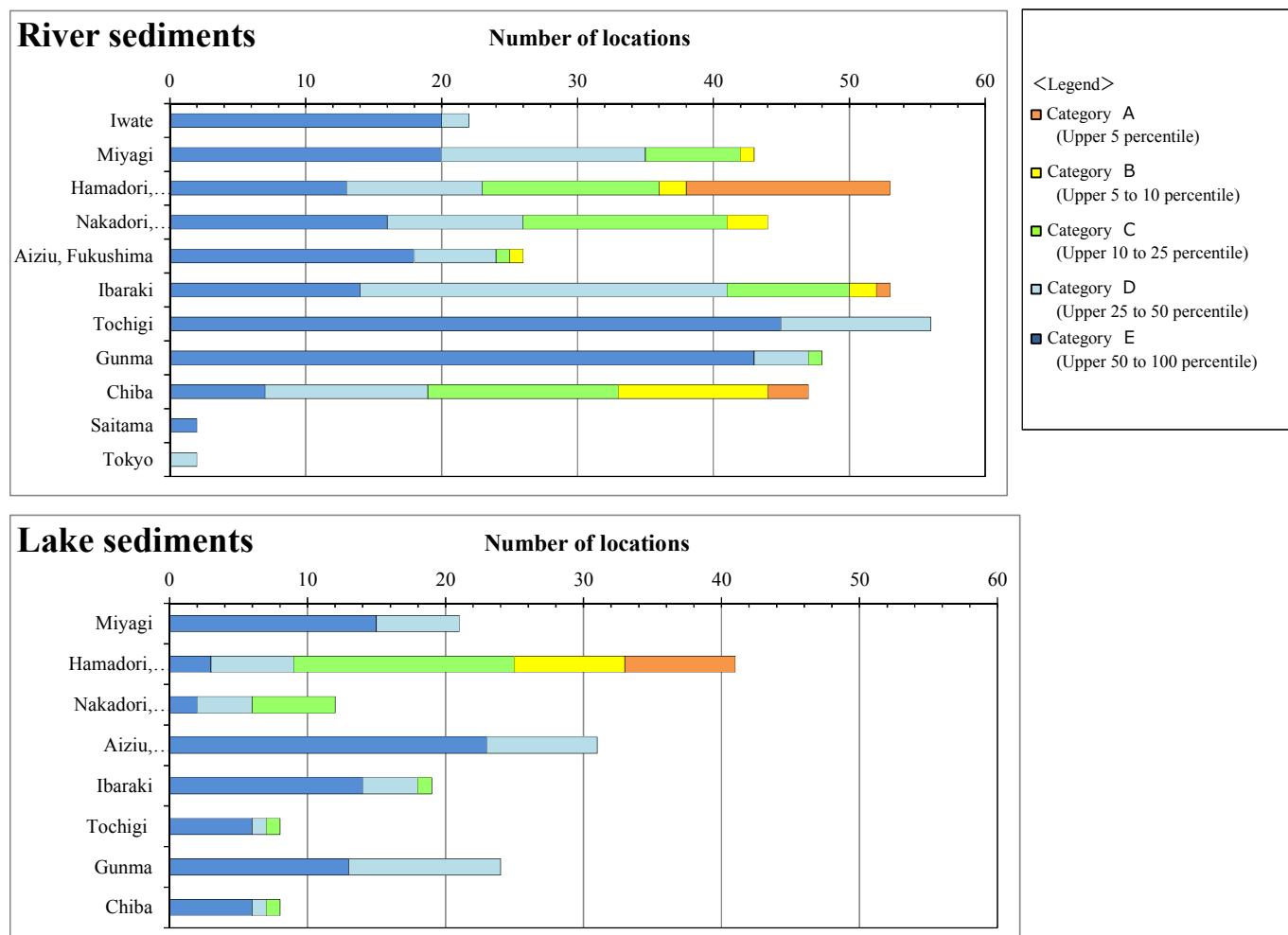
Within all surveyed locations (396 locations in total), the number of locations categorized into Category A or B, which fall under the upper 10%, was the largest in Hamadori in Fukushima Prefecture (17 locations). Such locations were also found in Miyagi Prefecture, Nakadori and Aizu in Fukushima Prefecture, Ibaraki Prefecture and Chiba Prefecture.

- Lakes

Locations categorized into Category A or B were found in Hamadori in Fukushima Prefecture.

- Coastal areas

Locations categorized into Category A or B were found in Miyagi and Fukushima Prefectures.



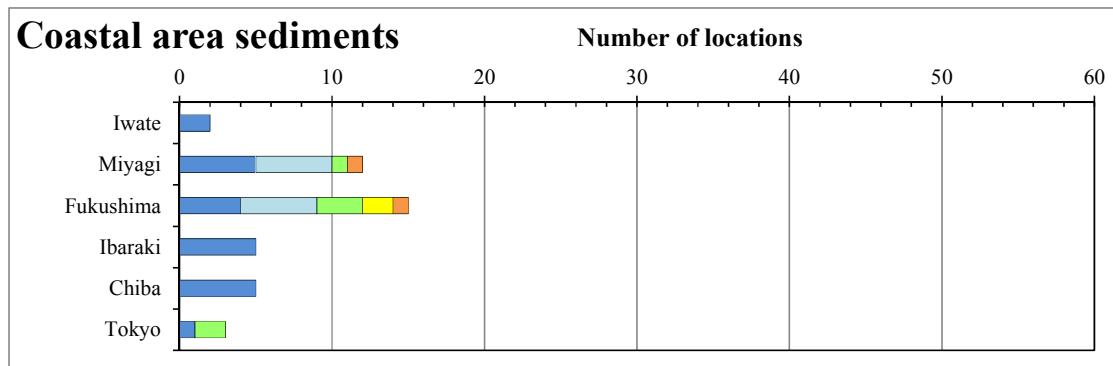


Figure 4.3-24 Categorization by concentration levels of detected values for sediment samples
 (upper: rivers; middle: lakes; lower: coastal areas)
 (* Figure 4.3-24 shows the aforementioned Table 3.1-1 graphically.)

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 except for some locations showing fluctuations. An increasing trend was also observed at several locations.

- 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>

| Trends | Number of locations | | | | | | | | | | | Total | |
|------------|---------------------|--------|---------------|---------------|------|---------|---------|-------|-------|---------|---------------------|------------|-------|
| | Iwate | Miyagi | Fukushima | | | Ibaraki | Tochigi | Gunma | Chiba | Saitama | Tokyo | | |
| | | | Hamadori Area | Nakadori Area | Aizu | | | | | | Number of locations | Percentage | |
| Decreasing | 17 | 34 | 41 | 40 | 18 | 45 | 38 | 33 | 34 | 2 | 1 | 303 | 76.5 |
| Unchanged | 0 | 1 | 2 | 1 | 4 | 4 | 1 | 1 | 6 | 0 | 1 | 21 | 5.3 |
| Varying | 5 | 8 | 10 | 3 | 4 | 4 | 17 | 14 | 7 | 0 | 0 | 72 | 18.2 |
| 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>

| Trends | Number of locations | | | | | | | | Total | |
|------------|---------------------|---------------|---------------|------|---------|---------|-------|---------------------|------------|-------|
| | Miyagi | Fukushima | | | Ibaraki | Tochigi | Gunma | Chiba | | |
| | | Hamadori Area | Nakadori Area | Aizu | | | | Number of locations | Percentage | |
| Decreasing | 12 | 21 | 4 | 4 | 11 | 1 | 4 | 6 | 63 | 38.4 |
| Unchanged | 2 | 4 | 1 | 9 | 3 | 0 | 7 | 2 | 28 | 17.1 |
| Varying | 7 | 13 | 5 | 15 | 4 | 4 | 8 | 0 | 56 | 34.1 |
| Increasing | 0 | 3 | 2 | 3 | 1 | 3 | 5 | 0 | 17 | 10.4 |
| Total | 21 | 41 | 12 | 31 | 19 | 8 | 24 | 8 | 164 | 100.0 |

<Coastal areas>

| Trends | Number of locations | | | | | | | Total | |
|------------|---------------------|--------|-----------|---------|-------|---------------------|----|------------|-------|
| | Iwate | Miyagi | Fukushima | Ibaraki | Chiba | Tokyo | | | |
| | | | | | | Number of locations | | Percentage | |
| Decreasing | 0 | 3 | 11 | 4 | 1 | 1 | 20 | | 47.6 |
| Unchanged | 1 | 2 | 1 | 0 | 1 | 0 | 5 | | 11.9 |
| Varying | 1 | 6 | 3 | 1 | 3 | 2 | 16 | | 38.1 |
| Increasing | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 2.4 |
| 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 all categorized into Category D or E. Concentration levels were relatively low as a whole, and a decreasing trend was observed at most locations.
- Surveyed locations for coastal areas were all categorized into Category E. Concentration levels were relatively low as a whole, and were generally unchanged or varying at all locations.

ii. Miyagi Prefecture

- Over 80% of surveyed locations for rivers were categorized into Category D or E, and concentration levels were relatively low as a whole. Some locations in the lower reaches were categorized into Category B or C. A decreasing trend was observed at most locations.
- Surveyed locations for lakes were all categorized into Category D or E, and concentration levels were relatively low as a whole. A decreasing trend was observed at most locations except for several locations showing fluctuations.
- Over 80% of surveyed locations for coastal areas were categorized into Category D or E, and concentration levels were relatively low as a whole. There was a location categorized into Category A in the Sendai Port. Concentration levels were generally decreasing or unchanged at most locations except for several locations showing fluctuations.

iii. Hamadori, Fukushima Prefecture

- Approximately 60% of surveyed locations for rivers were categorized into Category A, B, or C, and concentration levels were relatively high as a whole. Locations categorized into Category A or B were found in the north and northwest of the Fukushima Daiichi NPS, and locations categorized into Category C were in the northern part and in the southern part of the prefecture. A decreasing trend was observed at most locations.
- Approximately 80% of surveyed locations for lakes were categorized into Category A, B, or C, and concentration levels were relatively high as a whole. Locations categorized into Category A or B were found in the northwest of the Fukushima Daiichi NPS. A decreasing trend was observed generally at most locations except for several locations showing fluctuations.
- 60% of surveyed locations for coastal areas were categorized into Category D or E and the rest were categorized into Category A, B, or C. Locations categorized into Category A or B were found in coastal areas within 10 km from the Fukushima Daiichi NPS and off the Onahama Port located in the southern part of the prefecture. Concentration levels were mostly decreasing with some fluctuations.

iv. Nakadori, Fukushima Prefecture

- Approximately 60% of surveyed locations for rivers were categorized into Category D or E and the rest were categorized into Category B or C. Locations categorized into Category B or C were found from the center of the Abukuma River to the northern part of its tributaries. A decreasing trend was observed at

most locations.

- 50% of surveyed locations for lakes were categorized into Category D or E and the rest were categorized into Category C. Locations categorized into Category C were found from the upper to the lower reaches of the Abukuma River. Concentration levels were generally increasing at two locations and were generally decreasing or unchanged at five other locations with some fluctuations observed at several locations.

v. Aizu, Fukushima Prefecture

- Over 90% of surveyed locations for rivers were categorized into Category D or E, and concentration levels were relatively low as a whole. A location categorized into Category B was found in the northwestern part of the prefecture. Concentration levels were mostly decreasing with some fluctuations.
- Surveyed locations for lakes were all categorized into Category D or E, and concentration levels were relatively low as a whole. Many locations showed fluctuations, but concentration levels were generally increasing at three locations and were generally unchanged or decreasing at 13 other locations.

vi. Ibaraki Prefecture

- Over 70% of surveyed locations for rivers were categorized into Category D or E and the rest were categorized into Category A, B, or C. Locations categorized into Category A or B were found in rivers flowing into Lake Kasumigaura. A decreasing trend was observed at most locations.
- Over 90% of surveyed locations for lakes were categorized into Category D or E, and concentration levels were relatively low as a whole. A location categorized into Category C was found in the northern part of the prefecture. Concentration levels were mostly decreasing or unchanged with some fluctuations.
- Surveyed locations for coastal areas were all categorized into Category E, and concentration levels were relatively low as a whole. A decreasing trend was observed at most locations.

vii. Tochigi Prefecture

- Surveyed locations for rivers were all categorized into Category D or E, and concentration levels were relatively low as a whole. Concentration levels were mostly decreasing with some fluctuations.
- Over 80% of surveyed locations for lakes were categorized into Category D or E, and concentration levels were relatively low as a whole. A location categorized into Category C was found in the northern part of the prefecture. Concentration levels were generally increasing at three locations and were generally decreasing at one location with some fluctuations observed at several locations.

viii. Gunma Prefecture

- Over 90% of surveyed locations for rivers were categorized into Category D or E, and concentration levels were relatively low as a whole. A location categorized into Category C was found in the lower reaches of the Watarase River area. Concentration levels were mostly decreasing with some fluctuations observed at several locations.
- Surveyed locations for lakes were all categorized into Category D or E, and concentration levels were relatively low as a whole. Concentration levels were generally increasing at five locations and were generally unchanged or decreasing at 11 locations with some fluctuations observed at several locations.

ix. Chiba and Saitama Prefectures and Tokyo Metropolis

- Over 50% of surveyed locations for rivers were categorized into Category A, B, or C, and concentration levels were relatively high as a whole. Locations categorized into Category A or B were found in rivers flowing into Lake Teganuma or Lake Inbanuma and in part of the tributaries to the Edogawa River. Concentration levels were mostly decreasing with some fluctuations.
- Over 80% of surveyed locations for lakes were categorized into Category D or E, and concentration levels were relatively low as a whole. A location categorized into Category C was found in Lake Teganuma. A decreasing trend was observed at most locations.
- Over 70% of surveyed locations for coastal areas were categorized into Category E and the rest were categorized into Category C. Locations categorized into Category C were found off the mouths of the Arakawa River, Kyuedogawa River, and Sumida River. Concentration levels were generally decreasing or unchanged at most locations except for several locations showing fluctuations.

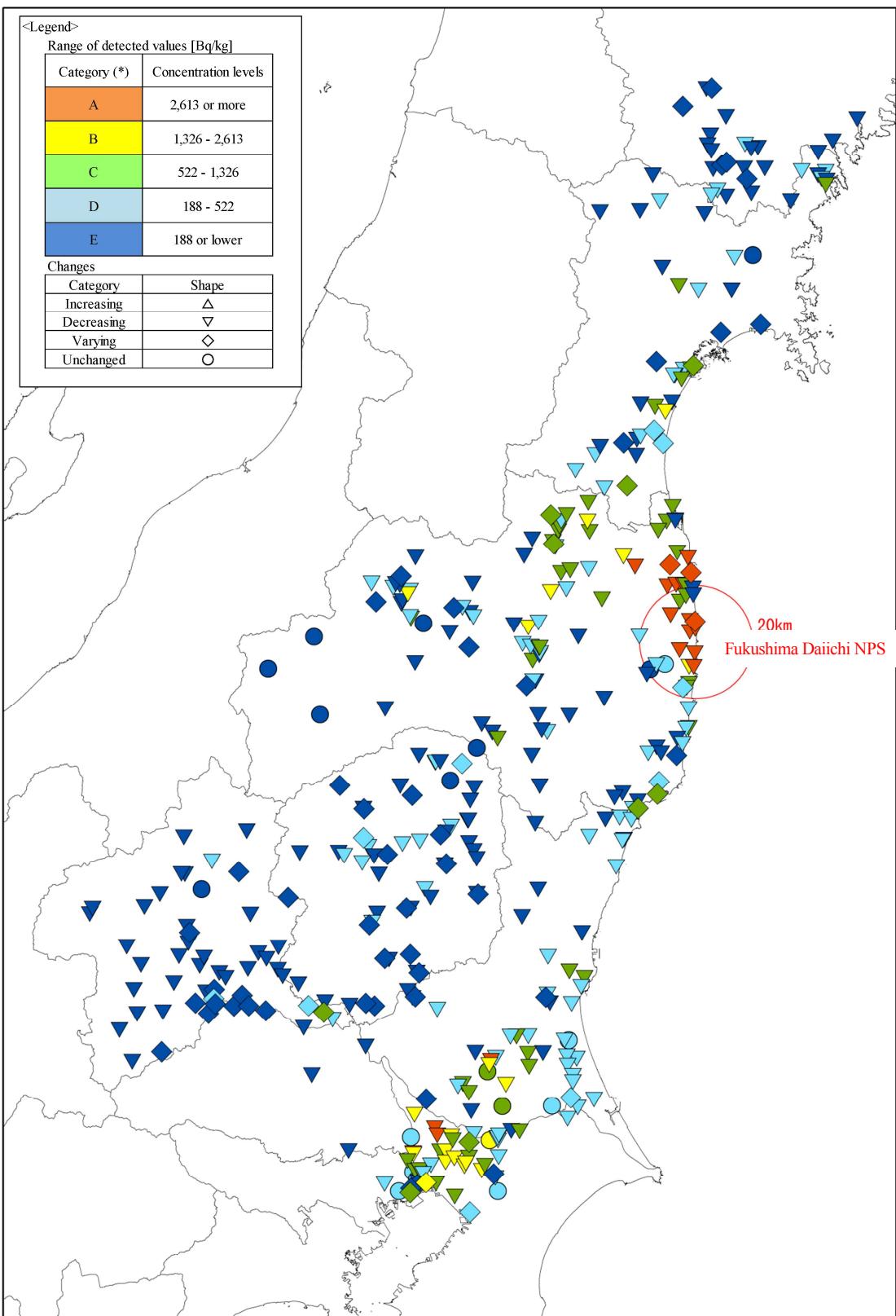


Figure 4.3-25 Categorization of and changes in concentration levels for river sediment samples from public water areas

(*) 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.

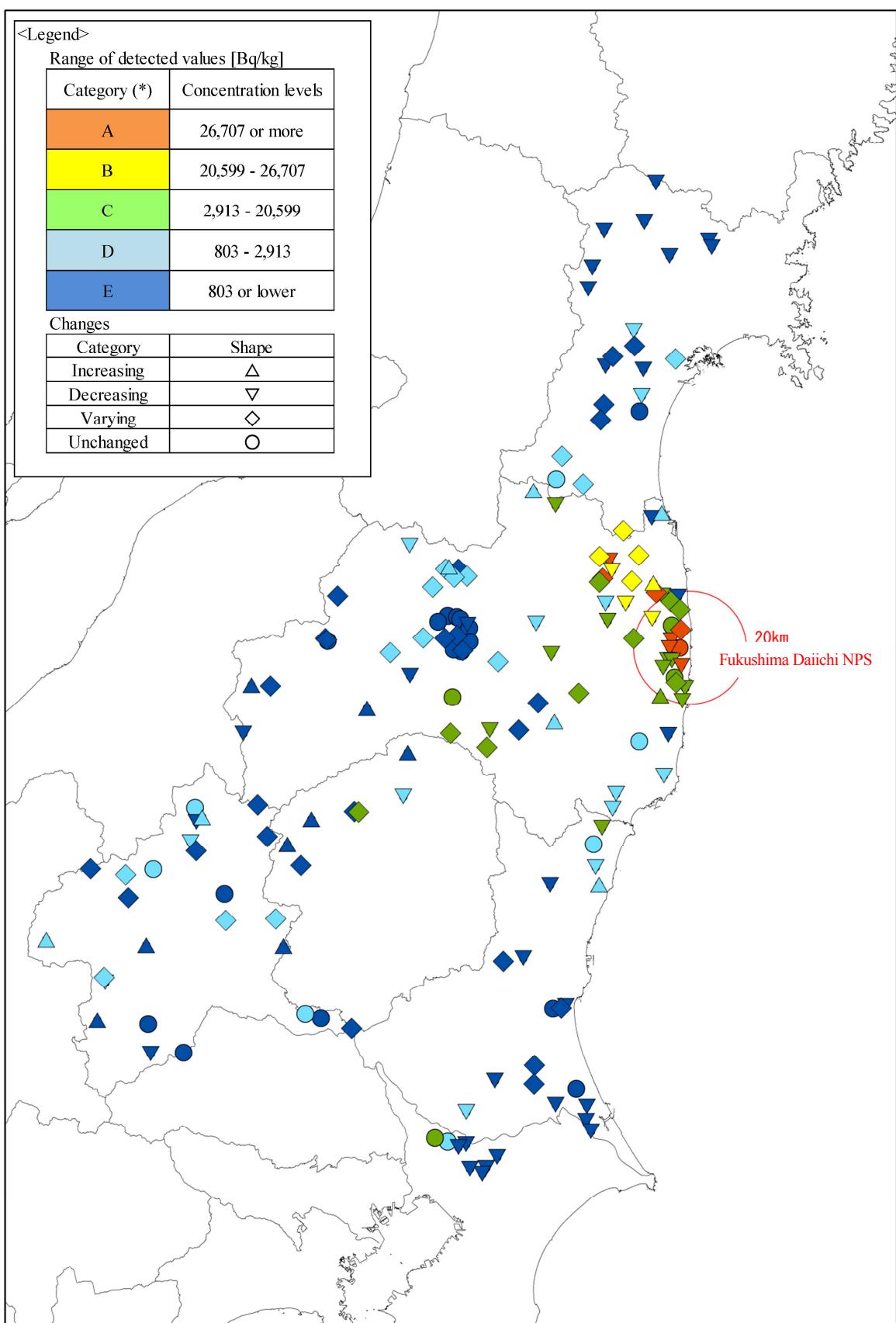


Figure 4.3-26 Categorization of and changes in concentration levels for lake sediment samples from public water areas

(*) 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.

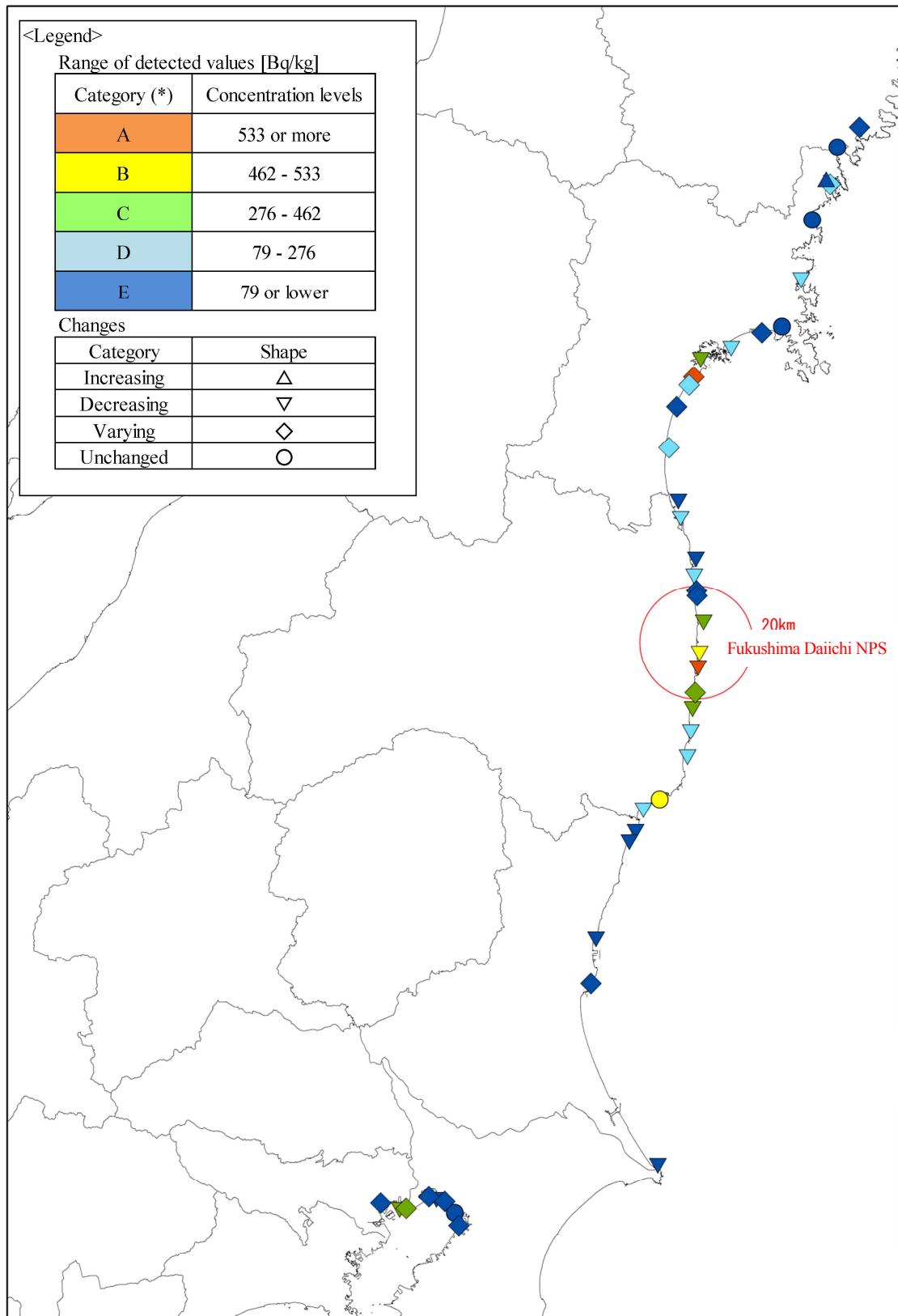


Figure 4.3-27 Categorization of and changes in concentration levels for coastal area sediment samples from public water areas

(*) 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 iodine (I-131)

(1) Water

1) Public water areas

Detection of radioactive iodine (I-131) in water samples from public water areas (rivers, lakes, and coastal areas) were as shown in Table 5.1-1.

Surveys were conducted for public water areas with regard to approx. 3,000 river water samples, approx. 1,400 lake water samples, and approx. 700 coastal area water samples in total in FY2011 and FY2012, but I-131 was not detectable at any surveyed locations (detection limit: 1 Bq/L).

2) Groundwater

Detection of radioactive iodine (I-131) in groundwater samples was as shown in Table 5.1-2.

Surveys were conducted with regard to approx. 3,800 groundwater samples from FY2011 to FY2014, but I-131 was not detectable at any surveyed locations (detection limit: 1 Bq/L).

(2) Sediments

Detection of radioactive iodine (I-131) in sediment samples from public water areas (rivers, lakes, and coastal areas) were as shown in Table 5.1-3.

Surveys were conducted for public water areas with regard to approx. 3,000 river sediment samples, approx. 900 lake sediment samples, and approx. 400 coastal area sediment samples in total in FY2011 and FY2012, but I-131 was not detectable at any surveyed locations (detection limit: 10 Bq/kg).

Table 5.1-1 Detection of I-131 in water samples from public water areas (rivers, lakes, and coastal areas)

| Property | Prefecture | FY2011 | | FY2012 | | Total | |
|---------------|------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | | Number of samples | Detection times | Number of samples | Detection times | Number of samples | Detection times |
| Rivers | Iwate | 18 | 0 | 64 | 0 | 82 | 0 |
| | Miyagi | 114 | 0 | 204 | 0 | 318 | 0 |
| | Yamagata | 10 | 0 | 0 | - | 10 | 0 |
| | Fukushima | 452 | 0 | 854 | 0 | 1,306 | 0 |
| | Ibaraki | 128 | 0 | 214 | 0 | 342 | 0 |
| | Tochigi | 161 | 0 | 277 | 0 | 438 | 0 |
| | Gunma | 90 | 0 | 216 | 0 | 306 | 0 |
| | Saitama | 2 | 0 | 8 | 0 | 10 | 0 |
| | Chiba | 82 | 0 | 202 | 0 | 284 | 0 |
| | Tokyo | 3 | 0 | 12 | 0 | 15 | 0 |
| Total | | 1,060 | 0 | 2,051 | 0 | 3,111 | 0 |
| Lakes | Miyagi | 34 | 0 | 90 | 0 | 124 | 0 |
| | Yamagata | 4 | 0 | 0 | - | 4 | 0 |
| | Fukushima | 211 | 0 | 581 | 0 | 792 | 0 |
| | Ibaraki | 48 | 0 | 93 | 0 | 141 | 0 |
| | Tochigi | 24 | 0 | 54 | 0 | 78 | 0 |
| | Gunma | 51 | 0 | 144 | 0 | 195 | 0 |
| | Chiba | 32 | 0 | 50 | 0 | 82 | 0 |
| | Total | 404 | 0 | 1,012 | 0 | 1,416 | 0 |
| Coastal areas | Iwate | 5 | 0 | 8 | 0 | 13 | 0 |
| | Miyagi | 94 | 0 | 96 | 0 | 190 | 0 |
| | Fukushima | 116 | 0 | 189 | 0 | 305 | 0 |
| | Ibaraki | 45 | 0 | 62 | 0 | 107 | 0 |
| | Chiba | 0 | - | 62 | 0 | 62 | 0 |
| | Tokyo | 0 | - | 38 | 0 | 38 | 0 |
| | Total | 260 | 0 | 455 | 0 | 715 | 0 |

Table 5.1-2 Detection of I-131 in groundwater samples

| Prefecture | FY2011 | | FY2012 | | FY2013 | | FY2014 | | Total | |
|------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | Number of samples | Detection times |
| Iwate | 42 | 0 | 44 | 0 | 44 | 0 | 22 | 0 | 152 | 0 |
| Miyagi | 79 | 0 | 44 | 0 | 48 | 0 | 24 | 0 | 195 | 0 |
| Yamagata | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 0 |
| Fukushima | 540 | 0 | 543 | 0 | 766 | 0 | 771 | 0 | 2,620 | 0 |
| Ibaraki | 89 | 0 | 54 | 0 | 54 | 0 | 27 | 0 | 224 | 0 |
| Tochigi | 76 | 0 | 54 | 0 | 54 | 0 | 27 | 0 | 211 | 0 |
| Gunma | 40 | 0 | 40 | 0 | 42 | 0 | 21 | 0 | 143 | 0 |
| Chiba | 54 | 0 | 46 | 0 | 46 | 0 | 23 | 0 | 169 | 0 |
| Total | 999 | 0 | 825 | 0 | 1,054 | 0 | 915 | 0 | 3,793 | 0 |

Table 5.1-3 Detection of I-131 in sediment samples from public water areas (rivers, lakes, and coastal areas)

| Property | Prefecture | FY2011 | | FY2012 | | Total | |
|---------------|------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | | Number of samples | Detection times | Number of samples | Detection times | Number of samples | Detection times |
| Rivers | Iwate | 18 | 0 | 64 | 0 | 82 | 0 |
| | Miyagi | 113 | 0 | 199 | 0 | 312 | 0 |
| | Yamagata | 10 | 0 | 0 | - | 10 | 0 |
| | Fukushima | 441 | 0 | 847 | 0 | 1,288 | 0 |
| | Ibaraki | 128 | 0 | 214 | 0 | 342 | 0 |
| | Tochigi | 159 | 0 | 275 | 0 | 434 | 0 |
| | Gunma | 88 | 0 | 211 | 0 | 299 | 0 |
| | Saitama | 2 | 0 | 8 | 0 | 10 | 0 |
| | Chiba | 83 | 0 | 199 | 0 | 282 | 0 |
| | Tokyo | 2 | 0 | 12 | 0 | 14 | 0 |
| Lakes | Total | 1,044 | 0 | 2,029 | 0 | 3,073 | 0 |
| | Miyagi | 24 | 0 | 58 | 0 | 82 | 0 |
| | Yamagata | 2 | 0 | 0 | - | 2 | 0 |
| | Fukushima | 147 | 0 | 389 | 0 | 536 | 0 |
| | Ibaraki | 24 | 0 | 48 | 0 | 72 | 0 |
| | Tochigi | 12 | 0 | 27 | 0 | 39 | 0 |
| | Gunma | 26 | 0 | 72 | 0 | 98 | 0 |
| Coastal areas | Chiba | 16 | 0 | 32 | 0 | 48 | 0 |
| | Total | 251 | 0 | 626 | 0 | 877 | 0 |
| | Iwate | 3 | 0 | 4 | 0 | 7 | 0 |
| | Miyagi | 52 | 0 | 48 | 0 | 100 | 0 |
| | Fukushima | 80 | 0 | 97 | 0 | 177 | 0 |
| | Ibaraki | 28 | 0 | 31 | 0 | 59 | 0 |
| | Chiba | 0 | - | 31 | 0 | 31 | 0 |
| | Tokyo | 0 | - | 19 | 0 | 19 | 0 |
| | Total | 163 | 0 | 230 | 0 | 393 | 0 |

5.2 Radioactive strontium (Sr-90 and Sr-89)

(1) Public water areas

1) Outline

Regarding radioactive strontium, surveys of Sr-90 were conducted with regard to sediment samples from public water areas (rivers, lakes, and coastal areas) from FY2011 to FY2014, while a survey of Sr-89 was conducted with regard to sediment samples from public water areas (rivers and lakes) in FY2011. Details and results of these surveys are as shown in Table 5.2-1 (detection limit: approx. 1 Bq/kg (dry) for Sr-90 and approx. 2 Bq/kg (dry) for Sr-89).

Sr-90 was detected as detailed below.

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

Surveys of Sr-90 were conducted with regard to approx. 120 river sediment samples in four years and Sr-90 was detected in 67 samples (detection rate: approx. 55%).

The detection rate was high for Fukushima Prefecture and was also relatively high for other prefectures. Detected values in FY2014 were below 1 Bq/kg (dry) except for Fukushima Prefecture (see Table 5.2-1).

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 5.2-1).

ii. Lake sediments

Surveys of Sr-90 were conducted with regard to approx. 180 lake sediment samples in four years and Sr-90 was detected in 168 samples (detection rate: approx. 90%) (see Table 5.2-1).

Sr-90 was continuously detected in all surveyed prefectures until FY2014.

In agricultural reservoirs in the Soso district in Fukushima Prefecture, Sr-90 was detected at levels exceeding 40 Bq/kg (dry) at the maximum. However, detected values were gradually decreasing (see Figure 5.2-1).

iii. Coastal area sediments

Surveys of Sr-90 were conducted with regard to approx. 80 coastal area sediment samples in four years and Sr-90 was detected three times in Fukushima Prefecture (see Table 5.2-1). Detected values were from 0.3 to 0.6 Bq/kg (dry): lower than in the cases of river sediment samples and lake sediment samples.

Table 5.2-1 Detection of Sr-90 and Sr-89 in river sediment samples, lake sediment samples, and coastal area sediment samples

○ Sr-90

| Property | Prefecture | FY2011 | | | | | | FY2012 | | | | | | FY2013 | | | | | | FY2014 | | | | | | Total | | |
|---------------|------------------|-----------------------|--------------------------|--------------------------|---------------------------------------|-----------------------|--------------------------|--------------------------|---------------------------------------|-----------------------|--------------------------|--------------------------|---------------------------------------|-----------------------|--------------------------|--------------------------|---------------------------------------|-----------------------|--------------------------|--------------------------|---------------------------------------|-----------------------|--------------------------|--------------------------|---------------------------------------|-------|--|--|
| | | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | Range of measured values [Bq/kg(dry)] | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | Range of measured values [Bq/kg(dry)] | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | Range of measured values [Bq/kg(dry)] | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | Range of measured values [Bq/kg(dry)] | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | Range of measured values [Bq/kg(dry)] | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | Range of measured values [Bq/kg(dry)] | | | |
| Rivers | 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 | 18 | 9 | 50.0 | 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 | 62 | 41 | 66.1 | 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 | 17 | 8 | 47.1 | ND - 1.8 | | | | | | | |
| | Tochigi | 1 | 1 | 100.0 | 1.3 - 1.3 | 2 | 0 | 0.0 | - | 2 | 1 | 50.0 | ND - 0.23 | 2 | 1 | 50.0 | ND - 0.53 | 7 | 3 | 42.9 | ND - 1.3 | | | | | | | |
| | Gunma | 1 | 1 | 100.0 | 0.70 - 0.70 | 2 | 0 | 0.0 | - | 2 | 1 | 50.0 | ND - 0.44 | 1 | 0 | 0.0 | - | 6 | 2 | 33.3 | ND - 0.70 | | | | | | | |
| | Chiba | 1 | 1 | 100.0 | 1.1 - 1.1 | 4 | 0 | 0.0 | - | 4 | 2 | 50.0 | ND - 0.49 | 4 | 1 | 25.0 | ND - 0.40 | 13 | 4 | 30.8 | ND - 1.1 | | | | | | | |
| | Total | 13 | 13 | 100.0 | 0.4 - 4.1 | 44 | 17 | 38.6 | ND - 12 | 35 | 21 | 60.0 | ND - 2.9 | 31 | 16 | 51.6 | ND - 1.5 | 123 | 67 | 54.5 | ND - 12 | | | | | | | |
| Lakes | 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 | 15 | 13 | 86.7 | 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 | 123 | 123 | 100.0 | 0.7 - 93 | | | | | | | |
| | 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 | 20 | 14 | 70.0 | ND - 7.0 | | | | | | | |
| | 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 | 7 | 6 | 85.7 | ND - 1.6 | | | | | | | |
| | Gunma | 1 | 1 | 100.0 | 2.0 - 2 | 2 | 2 | 100.0 | 1.9 - 2.2 | 2 | 1 | 50.0 | ND - 1.7 | 2 | 2 | 100.0 | 1.5 - 1.7 | 7 | 6 | 85.7 | ND - 2.2 | | | | | | | |
| | 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 | 11 | 6 | 54.5 | ND - 4.4 | | | | | | | |
| | Total | 9 | 9 | 100.0 | 0.7 - 6.8 | 58 | 48 | 82.8 | ND - 93 | 57 | 54 | 94.7 | ND - 55 | 59 | 57 | 96.6 | ND - 50 | 183 | 168 | 91.8 | ND - 93 | | | | | | | |
| Coastal areas | Miyagi | 0 | 0 | - | - | 2 | 0 | 0.0 | - | 4 | 0 | 0.0 | - | 2 | 0 | 0.0 | - | 8 | 0 | 0.0 | - | | | | | | | |
| | Fukushima | 0 | 0 | - | - | 21 | 0 | 0.0 | - | 30 | 1 | 3.3 | ND - 0.33 | 30 | 2 | 6.7 | ND - 0.58 | 81 | 3 | 3.7 | ND - 0.58 | | | | | | | |
| | Tokyo Metropolis | 0 | 0 | - | - | 2 | 0 | 0.0 | - | 0 | 0 | - | - | 0 | 0 | - | - | 2 | 0 | 0.0 | - | | | | | | | |
| | Total | 0 | 0 | - | - | 25 | 0 | 0.0 | - | 34 | 1 | 2.9 | ND - 0.33 | 32 | 2 | 6.3 | ND - 0.58 | 81 | 3 | 3.7 | ND - 0.58 | | | | | | | |

ND = Not detectable

○ Sr-89 (FY2011)

| Prefecture | Rivers | | Lake | |
|------------|-------------------|-----------------|-------------------|-----------------|
| | Number of samples | Detection times | Number of samples | Detection times |
| 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 |

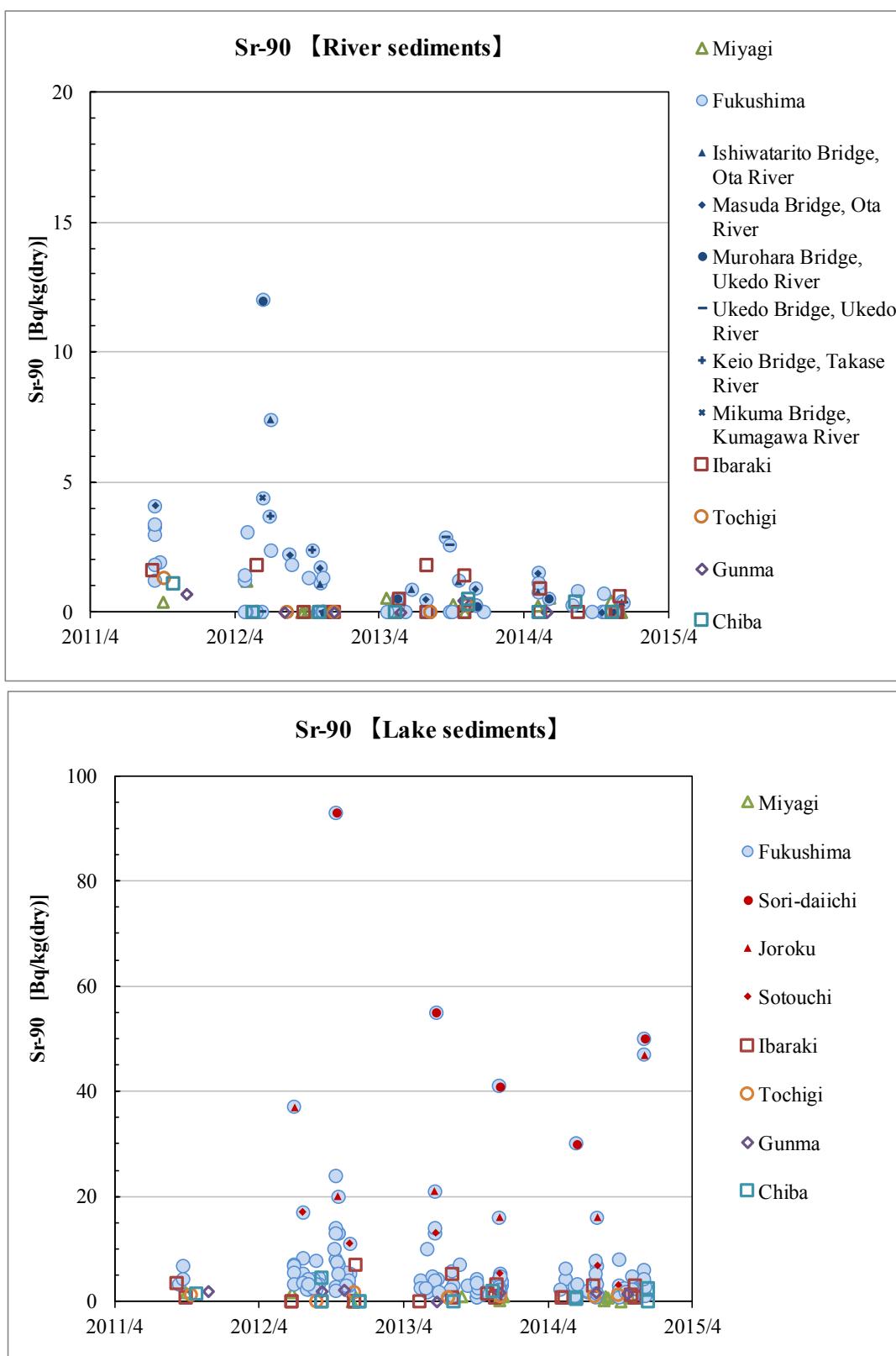


Figure 5.2-1 Detection of Sr-90 in sediment samples from public water areas
(upper: rivers; lower: lakes)

(2) Groundwater

Surveys of Sr-89 and Sr-90 were conducted with regard to approx. 190 groundwater samples collected in Fukushima Prefecture from January 2012 to January 2015.

The outline of the results of these surveys is as shown in Table 5.2-2. Detected values of Sr-89 and Sr-90 were all below the detection limit (1 Bq/L).

The detection limit for Sr-90 was set at 0.0002 Bq/L for the FY2011 survey (for calendar year 2012) and Sr-90 was detected in all of the eight samples at levels between 0.0004 and 0.0029 Bq/L. The detection limit for Sr-89 was set at 0.001 Bq/L for the FY2011 survey (for calendar year 2012) and detected values for all of the eight samples were below the detection limit.

Table 5.2-2 Detection of Sr-89 and Sr-90 in groundwater samples (all collected in Fukushima Prefecture)

| Financial year | Sr-90 | | | | Sr-89 | | | |
|----------------|-----------------------|--------------------------|--------------------------|-------------------------------------|-----------------------|--------------------------|--------------------------|-------------------------------------|
| | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | Range of measured values [Bq/L](*1) | Number of samples [A] | Number of detections [B] | Detection rate (B/A) (%) | 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 | - |
| Total | 193 | 0 | 0.0 | - | 193 | 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 (see the main text).

5.3 Other γ -ray emitting radionuclides

Apart from the aforementioned radionuclides (Cs-134, Cs-137, I-131, Sr-89, and Sr-90), measurement results for water samples and sediment samples using a germanium semiconductor detector were analyzed from 2011 to 2013 to obtain activity concentrations of accident-derived radionuclides (Ag-110m, Te-129m, Nb-95, Sb-125, and Ce-144, etc.) and major naturally occurring radionuclides such as K-40.

The outline of the analysis results are as shown in Table 5.3-1. Artificial radionuclides were not detectable in water samples, but Ag-110m and Sb-125 were detected in sediment samples at detection rates as low as below 1%. In 2013, neither of these two types of radionuclides were detectable.

Six types of naturally occurring radionuclides (K-40, Pb-212, Pb214, Tl-208, Ac-228, and Bi-214) were detected as shown in Table 5.3-1. However, K-40 is a naturally occurring radionuclide first incorporated at the time of the formation of the earth, and the other five are all uranium or thorium series naturally occurring radionuclides existing widely within the earth's crust.

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

Table 5.3-1 Detection of other radionuclides

<Water>

| Fiscal year | Number of samples | Major detected artificial radionuclide | | Major detected naturally occurring radionuclide | |
|-------------|-------------------|--|------------------------------------|---|----------------|
| | | Type | Detection rate and detected values | Type | 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% |

<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 | |
|-------------|-------------------|--|---------------------------------------|--|--|
| | | Type | Detection rate and detected values | Type | Detection rate |
| FY2011 | 1,559 | Ag-110m | 4 samples (0.26%)
46 - 170 Bq/kg | K-40
Pb-212
Pb-214
Tl-208 | 79%
41%
16%
14% |
| FY2012 | 2,885 | Ag-110m | 26 samples (0.90%)
7.9 - 350 Bq/kg | Ac-228
Bi-214
K-40 | 41%
43%
97% |
| | | Sb-125 | 3 samples (0.10%)
140 - 420 Bq/kg | Pb-212
Pb-214
Tl-208 | 75%
44%
39% |
| FY2013 | 3,062 | — | — | Ac-228
Bi-214
K-40
Pb-212
Pb-214
Tl-208 | 25%
25%
91%
49%
23%
23% |
| FY2014 | 3,035 | — | — | Ac-228
Bi-214
K-40
Pb-212
Pb-214
Tl-208 | 24%
24%
91%
48%
24%
24% |