March 24, 2023

Results of ALPS Treated Water Marine Monitoring:
Seawater survey (tritium) (January, 2023)

1. Outline of survey

(1) Date of sampling
January 17-19, 2023

(2) Sampling points
28 sampling points on coastal waters in the Fukushima Prefecture (14 within 3 km of the proposed location of the ALPS treated water discharge outlet and 14 outside the 3 km range); 1 sampling point on southern coastal waters in the Miyagi Prefecture; and 1 sampling point on northern coastal waters in the Ibaraki Prefecture

(3) Detail of the survey
Measurements of radioactive material concentration in seawater. (tritium)

2. Outline of results

(1) Seawater survey (30 sampling points [60 samples] on coastal waters in the Fukushima Prefecture, southern coastal waters in the Miyagi Prefecture and northern coastal waters in the Ibaraki Prefecture)
Concentrations of tritium in seawater (with a target lower limit of detection of 0.1 Bq/L) range from less than 0.04 Bq/L to 0.14 Bq/L.

*A target lower limit of detection means a value that is set for quality control to assure at least the detection up to the value when analysis is conducted. Each actual lower limit of detection differs according to samples, and is equal to or lower than a target lower limit of detection.

(Detailed are attached)
(Maps attached)

Attachment

Analysis result for tritium in seawater at sampling points within 3 km of the discharge outlet

Sampling point	Sampling date (yyyy/mm/dd)	Sampling layer	Sampling depth (m)	Nuclide	Radioactivity concentration*1,*2	Unit
E-S1	2023/01/18	Surface layer	1.5	H-3	0.048 ± 0.0085	Bq/L
E-S1	2023/01/18	Bottom layer	4.5	H-3	0.041 ± 0.0085	Bq/L
E-S2	2023/01/18	Surface layer	1.5	H-3	0.057 ± 0.0095	Bq/L
E-S2	2023/01/18	Bottom layer	8.4	H-3	0.051 ± 0.0095	Bq/L
E-S4	2023/01/18	Surface layer	1.5	H-3	0.084 ± 0.012	Bq/L
E-S4	2023/01/18	Bottom layer	7.0	H-3	0.070 ± 0.011	Bq/L
E-S5	2023/01/17	Surface layer	1.5	H-3	0.077 ± 0.020	Bq/L
E-S5	2023/01/17	Bottom layer	8.5	H-3	0.095 ± 0.021	Bq/L
E-S6	2023/01/17	Surface layer	1.5	H-3	<0.05	Bq/L
E-S6	2023/01/17	Bottom layer	8.3	H-3	0.085 ± 0.021	Bq/L
E-S7	2023/01/17	Surface layer	1.5	H-3	0.057 ± 0.017	Bq/L
E-S7	2023/01/17	Bottom layer	11.4	H-3	0.085 ± 0.017	Bq/L
E-S8	2023/01/17	Surface layer	1.5	H-3	0.050 ± 0.015	Bq/L
E-S8	2023/01/17	Bottom layer	7.9	H-3	0.071 ± 0.017	Bq/L
E-S9	2023/01/17	Surface layer	1.5	H-3	0.066 ± 0.017	Bq/L
E-S9	2023/01/17	Bottom layer	13.5	H-3	0.10 ± 0.018	Bq/L
E-S11	2023/01/17	Surface layer	1.5	H-3	0.056 ± 0.014	Bq/L
E-S11	2023/01/17	Bottom layer	7.7	H-3	<0.04	Bq/L
E-S12	2023/01/17	Surface layer	1.5	H-3	<0.04	Bq/L
E-S12	2023/01/17	Bottom layer	13.9	H-3	0.049 ± 0.014	Bq/L
E-S13	2023/01/17	Surface layer	1.5	H-3	0.10 ± 0.017	Bq/L
E-S13	2023/01/17	Bottom layer	10.5	H-3	0.087 ± 0.017	Bq/L
E-S14	2023/01/18	Surface layer	1.5	H-3	0.14 ± 0.019	Bq/L
E-S14	2023/01/18	Bottom layer	8.4	H-3	0.13 ± 0.018	Bq/L
E-S15	2023/01/18	Surface layer	1.5	H-3	0.10 ± 0.017	Bq/L
E-S15	2023/01/18	Bottom layer	6.5	H-3	0.062 ± 0.016	Bq/L
E-S16	2023/01/18	Surface layer	1.5	H-3	0.051 ± 0.016	Bq/L
E-S16	2023/01/18	Bottom layer	5.5	H-3	<0.04	Bq/L

*1 Radioactivity concentrations are presented as radioactivity concentration ± combined standard uncertainty.

*2 Values below detection limit are shown by lower limit of detection (e.g., "<10 Bq/L" indicates a value below 10 Bq/L).

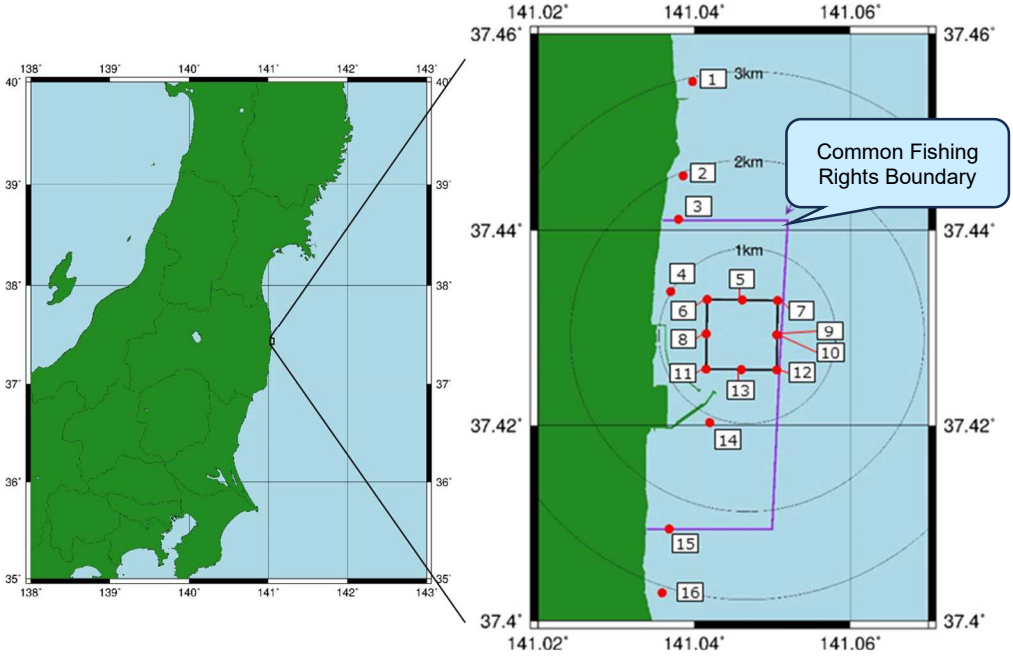
Analysis result for tritium in seawater at sampling points beyond 3 km of the discharge outlet

Sampling point	Sampling date (yyyy/mm/dd)	Sampling layer	Sampling depth (m)	Nuclide	Radioactivity concentration*1,*2	Unit
E-S17	2023/01/17	Surface layer	1.5	H-3	0.056 ± 0.0085	Bq/L
E-S17	2023/01/17	Bottom layer	9.1	H-3	0.056 ± 0.0085	Bq/L
E-S18	2023/01/17	Surface layer	1.5	H-3	0.068 ± 0.0090	Bq/L
E-S18	2023/01/17	Bottom layer	15.6	H-3	0.045 ± 0.0080	Bq/L
E-S19	2023/01/17	Surface layer	1.5	H-3	0.053 ± 0.0085	Bq/L
E-S19	2023/01/17	Bottom layer	10.2	H-3	0.043 ± 0.0080	Bq/L
E-S20	2023/01/19	Surface layer	1.5	H-3	0.059 ± 0.012	Bq/L
E-S20	2023/01/19	Bottom layer	8.1	H-3	0.092 ± 0.013	Bq/L
E-S21	2023/01/19	Surface layer	1.5	H-3	0.088 ± 0.013	Bq/L
E-S21	2023/01/19	Bottom layer	22.7	H-3	0.046 ± 0.012	Bq/L
E-S22	2023/01/18	Surface layer	1.5	H-3	0.074 ± 0.012	Bq/L
E-S22	2023/01/18	Bottom layer	7.9	H-3	0.085 ± 0.013	Bq/L
E-S23	2023/01/19	Surface layer	1.5	H-3	0.093 ± 0.013	Bq/L
E-S23	2023/01/19	Bottom layer	22.0	H-3	0.10 ± 0.017	Bq/L
E-S24	2023/01/19	Surface layer	1.5	H-3	0.073 ± 0.013	Bq/L
E-S24	2023/01/19	Bottom layer	24.3	H-3	0.050 ± 0.012	Bq/L
E-S25	2023/01/19	Surface layer	1.5	H-3	0.070 ± 0.012	Bq/L
E-S25	2023/01/19	Bottom layer	42.9	H-3	0.058 ± 0.012	Bq/L
E-S26	2023/01/18	Surface layer	1.5	H-3	0.067 ± 0.013	Bq/L
E-S26	2023/01/18	Bottom layer	23.5	H-3	0.040 ± 0.012	Bq/L
E-S27	2023/01/18	Surface layer	1.5	H-3	0.046 ± 0.012	Bq/L
E-S27	2023/01/18	Bottom layer	9.8	H-3	0.055 ± 0.012	Bq/L
E-S28	2023/01/18	Surface layer	1.5	H-3	0.045 ± 0.012	Bq/L
E-S28	2023/01/18	Bottom layer	32.5	H-3	0.057 ± 0.013	Bq/L
E-S29	2023/01/18	Surface layer	1.5	H-3	0.045 ± 0.012	Bq/L
E-S29	2023/01/18	Bottom layer	11.0	H-3	0.046 ± 0.012	Bq/L
E-S30	2023/01/18	Surface layer	1.5	H-3	0.047 ± 0.013	Bq/L
E-S30	2023/01/18	Bottom layer	12.2	H-3	0.041 ± 0.012	Bq/L
E-S31	2023/01/18	Surface layer	1.5	H-3	<0.04	Bq/L
E-S31	2023/01/18	Bottom layer	8.8	H-3	0.053 ± 0.012	Bq/L
E-S32	2023/01/19	Surface layer	1.5	H-3	0.060 ± 0.012	Bq/L
E-S32	2023/01/19	Bottom layer	16.5	H-3	0.079 ± 0.012	Bq/L

*1 Radioactivity concentrations are presented as radioactivity concentration ± combined standard uncertainty.

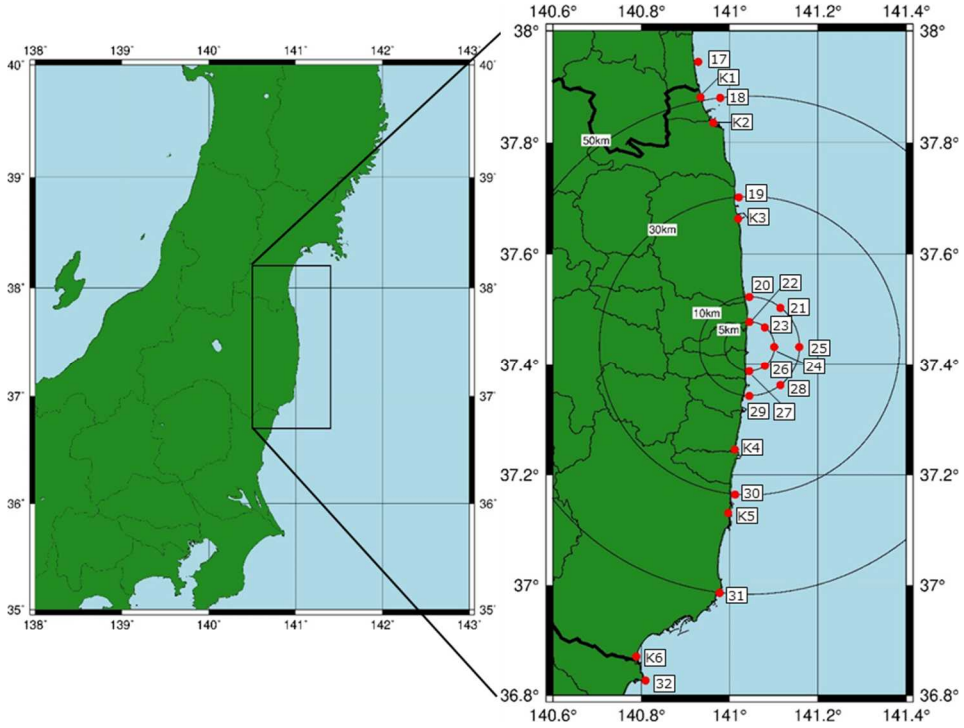
*2 Values below detection limit are shown by lower limit of detection (e.g., “<10 Bq/L” indicates a value below 10 Bq/L).

(Attachment)



*Numbers in the map show sampling points this time, and "E-S" is omitted from labels in the map (e.g., E-S1 is marked as 1).

Fig. 1 Sampling points within 3 km of the proposed location of the ALPS treated water discharge outlet



*Numbers in the map show sampling points this time, and "E-S" is omitted from labels in the map (e.g., E-S17 is marked as 17 and E-SK1 is marked as K1).

Fig. 2 Sampling points beyond 3 km of the proposed location of the ALPS treated water discharge outlet (including sampling points on southern coastal waters in the Miyagi Prefecture and northern coastal waters in the Ibaraki Prefecture, and six sampling points at swimming beaches)