

**Results of ALPS Treated Water Marine Monitoring:
Seawater survey (tritium) (August, 2022)**

1. Outline of survey

- (1) Date of sampling
August 23-30, 2022
- (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 0.058 Bq/L to 0.17 Bq/L.
- (2) Seawater survey (rapid analysis)
(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 10 Bq/L) correspond to below the lower limit of detection in all samples.

*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	2022/08/24	Surface layer	1.5	H-3	0.078	±	0.010	Bq/L
E-S1	2022/08/24	Bottom layer	7.4	H-3	0.076	±	0.010	Bq/L
E-S2	2022/08/24	Surface layer	1.5	H-3	0.12	±	0.011	Bq/L
E-S2	2022/08/24	Bottom layer	8.0	H-3	0.10	±	0.011	Bq/L
E-S4	2022/08/24	Surface layer	1.5	H-3	0.16	±	0.012	Bq/L
E-S4	2022/08/24	Bottom layer	5.8	H-3	0.099	±	0.0095	Bq/L
E-S5	2022/08/24	Surface layer	1.5	H-3	0.089	±	0.016	Bq/L
E-S5	2022/08/24	Bottom layer	9.1	H-3	0.078	±	0.025	Bq/L
E-S6	2022/08/24	Surface layer	1.5	H-3	0.17	±	0.018	Bq/L
E-S6	2022/08/24	Bottom layer	9.3	H-3	0.12	±	0.017	Bq/L
E-S7	2022/08/24	Surface layer	1.5	H-3	0.10	±	0.025	Bq/L
E-S7	2022/08/24	Bottom layer	10.3	H-3	0.074	±	0.015	Bq/L
E-S8	2022/08/24	Surface layer	1.5	H-3	0.15	±	0.026	Bq/L
E-S8	2022/08/24	Bottom layer	8.1	H-3	0.058	±	0.015	Bq/L
E-S9	2022/08/24	Surface layer	1.5	H-3	0.087	±	0.019	Bq/L
E-S9	2022/08/24	Bottom layer	12.1	H-3	0.066	±	0.015	Bq/L
E-S11	2022/08/24	Surface layer	1.5	H-3	0.14	±	0.024	Bq/L
E-S11	2022/08/24	Bottom layer	8.5	H-3	0.083	±	0.022	Bq/L
E-S12	2022/08/24	Surface layer	1.5	H-3	0.083	±	0.016	Bq/L
E-S12	2022/08/24	Bottom layer	11.6	H-3	0.081	±	0.016	Bq/L
E-S13	2022/08/24	Surface layer	1.5	H-3	0.076	±	0.022	Bq/L
E-S13	2022/08/24	Bottom layer	10.0	H-3	0.069	±	0.022	Bq/L
E-S14	2022/08/26	Surface layer	1.5	H-3	0.17	±	0.023	Bq/L
E-S14	2022/08/26	Bottom layer	6.1	H-3	0.13	±	0.021	Bq/L
E-S15	2022/08/26	Surface layer	1.5	H-3	0.13	±	0.021	Bq/L
E-S15	2022/08/26	Bottom layer	5.4	H-3	0.12	±	0.022	Bq/L
E-S16	2022/08/26	Surface layer	1.5	H-3	0.11	±	0.019	Bq/L
E-S16	2022/08/26	Bottom layer	3.8	H-3	0.12	±	0.020	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	2022/08/23	Surface layer	1.5	H-3	0.090	±	0.010	Bq/L
E-S17	2022/08/23	Bottom layer	9.1	H-3	0.082	±	0.010	Bq/L
E-S18	2022/08/24	Surface layer	1.5	H-3	0.11	±	0.010	Bq/L
E-S18	2022/08/24	Bottom layer	14.9	H-3	0.072	±	0.0090	Bq/L
E-S19	2022/08/24	Surface layer	1.5	H-3	0.093	±	0.0095	Bq/L
E-S19	2022/08/24	Bottom layer	11.3	H-3	0.099	±	0.0095	Bq/L
E-S20	2022/08/30	Surface layer	1.5	H-3	0.11	±	0.017	Bq/L
E-S20	2022/08/30	Bottom layer	7.2	H-3	0.074	±	0.016	Bq/L
E-S21	2022/08/30	Surface layer	1.5	H-3	0.11	±	0.017	Bq/L
E-S21	2022/08/30	Bottom layer	20.2	H-3	0.092	±	0.012	Bq/L
E-S22	2022/08/30	Surface layer	1.5	H-3	0.12	±	0.012	Bq/L
E-S22	2022/08/30	Bottom layer	7.3	H-3	0.078	±	0.012	Bq/L
E-S23	2022/08/30	Surface layer	1.5	H-3	0.079	±	0.012	Bq/L
E-S23	2022/08/30	Bottom layer	20.4	H-3	0.082	±	0.012	Bq/L
E-S24	2022/08/30	Surface layer	1.5	H-3	0.11	±	0.013	Bq/L
E-S24	2022/08/30	Bottom layer	20.0	H-3	0.11	±	0.013	Bq/L
E-S25	2022/08/30	Surface layer	1.5	H-3	0.11	±	0.014	Bq/L
E-S25	2022/08/30	Bottom layer	38.2	H-3	0.082	±	0.012	Bq/L
E-S26	2022/08/30	Surface layer	1.5	H-3	0.12	±	0.013	Bq/L
E-S26	2022/08/30	Bottom layer	23.0	H-3	0.091	±	0.012	Bq/L
E-S27	2022/08/30	Surface layer	1.5	H-3	0.10	±	0.013	Bq/L
E-S27	2022/08/30	Bottom layer	9.8	H-3	0.073	±	0.012	Bq/L
E-S28	2022/08/30	Surface layer	1.5	H-3	0.091	±	0.013	Bq/L
E-S28	2022/08/30	Bottom layer	31.7	H-3	0.082	±	0.012	Bq/L
E-S29	2022/08/30	Surface layer	1.5	H-3	0.11	±	0.018	Bq/L
E-S29	2022/08/30	Bottom layer	10.5	H-3	0.070	±	0.016	Bq/L
E-S30	2022/08/25	Surface layer	1.5	H-3	0.066	±	0.012	Bq/L
E-S30	2022/08/25	Bottom layer	10.9	H-3	0.058	±	0.011	Bq/L
E-S31	2022/08/25	Surface layer	1.5	H-3	0.067	±	0.011	Bq/L
E-S31	2022/08/25	Bottom layer	8.7	H-3	0.083	±	0.012	Bq/L
E-S32	2022/08/26	Surface layer	1.5	H-3	0.11	±	0.017	Bq/L
E-S32	2022/08/26	Bottom layer	17.1	H-3	0.088	±	0.017	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
within 3 km of the discharge outlet
(rapid analysis)

Sampling point	Sampling date (yyyy/mm/dd)	Sampling layer	Sampling depth (m)	Nuclide	Radioactivity concentration ^{*1,*2}	Unit
E-S1	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S1	2022/08/24	Bottom layer	7.4	H-3	< 6	Bq/L
E-S2	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S2	2022/08/24	Bottom layer	8.0	H-3	< 6	Bq/L
E-S4	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S4	2022/08/24	Bottom layer	5.8	H-3	< 6	Bq/L
E-S5	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S5	2022/08/24	Bottom layer	9.1	H-3	< 7	Bq/L
E-S6	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S6	2022/08/24	Bottom layer	9.3	H-3	< 7	Bq/L
E-S7	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S7	2022/08/24	Bottom layer	10.3	H-3	< 6	Bq/L
E-S8	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S8	2022/08/24	Bottom layer	8.1	H-3	< 7	Bq/L
E-S9	2022/08/24	Surface layer	1.5	H-3	< 7	Bq/L
E-S9	2022/08/24	Bottom layer	12.1	H-3	< 6	Bq/L
E-S11	2022/08/24	Surface layer	1.5	H-3	< 7	Bq/L
E-S11	2022/08/24	Bottom layer	8.5	H-3	< 7	Bq/L
E-S12	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S12	2022/08/24	Bottom layer	11.6	H-3	< 7	Bq/L
E-S13	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S13	2022/08/24	Bottom layer	10.0	H-3	< 6	Bq/L
E-S14	2022/08/26	Surface layer	1.5	H-3	< 6	Bq/L
E-S14	2022/08/26	Bottom layer	6.1	H-3	< 6	Bq/L
E-S15	2022/08/26	Surface layer	1.5	H-3	< 6	Bq/L
E-S15	2022/08/26	Bottom layer	5.4	H-3	< 6	Bq/L
E-S16	2022/08/26	Surface layer	1.5	H-3	< 6	Bq/L
E-S16	2022/08/26	Bottom layer	3.8	H-3	< 6	Bq/L

*1 Radioactivity concentrations are presented as radioactivity concentration $\pm$ combined standard uncertainty.

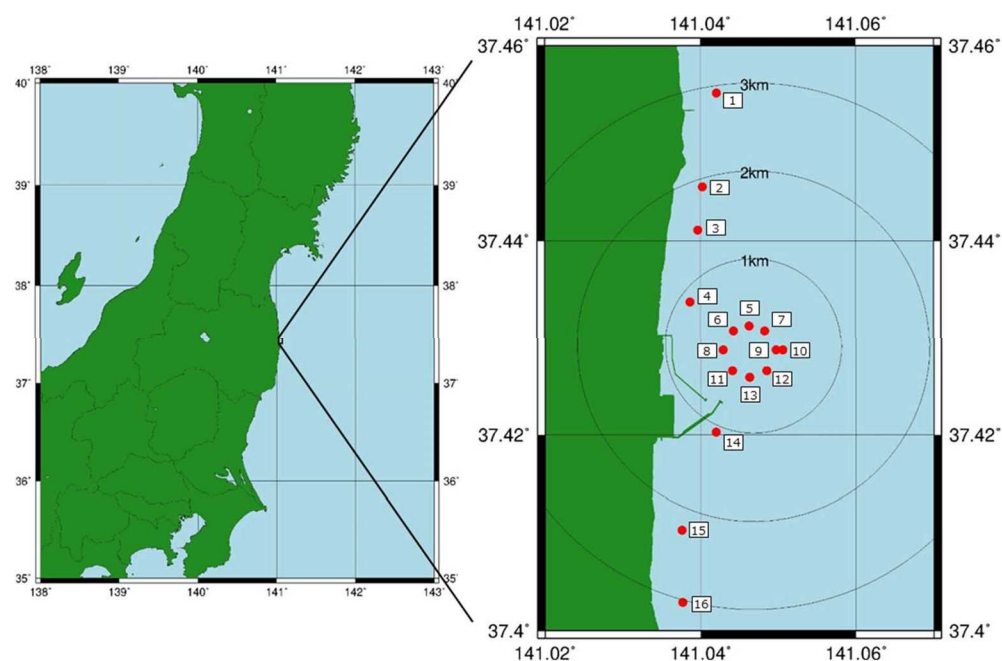
*2 Values below detection limit are shown by lower limit of detection (e.g., “<10 Bq/L” indicates a value below 10 Bq/L).

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

Sampling point	Sampling date (yyyy/mm/dd)	Sampling layer	Sampling depth (m)	Nuclide	Radioactivity concentration ^{*1,*2}	Unit
E-S17	2022/08/23	Surface layer	1.5	H-3	< 6	Bq/L
E-S17	2022/08/23	Bottom layer	9.1	H-3	< 6	Bq/L
E-S18	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S18	2022/08/24	Bottom layer	14.9	H-3	< 6	Bq/L
E-S19	2022/08/24	Surface layer	1.5	H-3	< 6	Bq/L
E-S19	2022/08/24	Bottom layer	11.3	H-3	< 6	Bq/L
E-S20	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S20	2022/08/30	Bottom layer	7.2	H-3	< 2	Bq/L
E-S21	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S21	2022/08/30	Bottom layer	20.2	H-3	< 2	Bq/L
E-S22	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S22	2022/08/30	Bottom layer	7.3	H-3	< 2	Bq/L
E-S23	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S23	2022/08/30	Bottom layer	20.4	H-3	< 1	Bq/L
E-S24	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S24	2022/08/30	Bottom layer	20.0	H-3	< 2	Bq/L
E-S25	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S25	2022/08/30	Bottom layer	38.2	H-3	< 2	Bq/L
E-S26	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S26	2022/08/30	Bottom layer	23.0	H-3	< 2	Bq/L
E-S27	2022/08/30	Surface layer	1.5	H-3	< 1	Bq/L
E-S27	2022/08/30	Bottom layer	9.8	H-3	< 1	Bq/L
E-S28	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S28	2022/08/30	Bottom layer	31.7	H-3	< 2	Bq/L
E-S29	2022/08/30	Surface layer	1.5	H-3	< 2	Bq/L
E-S29	2022/08/30	Bottom layer	10.5	H-3	< 2	Bq/L
E-S30	2022/08/25	Surface layer	1.5	H-3	< 2	Bq/L
E-S30	2022/08/25	Bottom layer	10.9	H-3	< 2	Bq/L
E-S31	2022/08/25	Surface layer	1.5	H-3	< 2	Bq/L
E-S31	2022/08/25	Bottom layer	8.7	H-3	< 2	Bq/L
E-S32	2022/08/26	Surface layer	1.5	H-3	< 2	Bq/L
E-S32	2022/08/26	Bottom layer	17.1	H-3	< 2	Bq/L

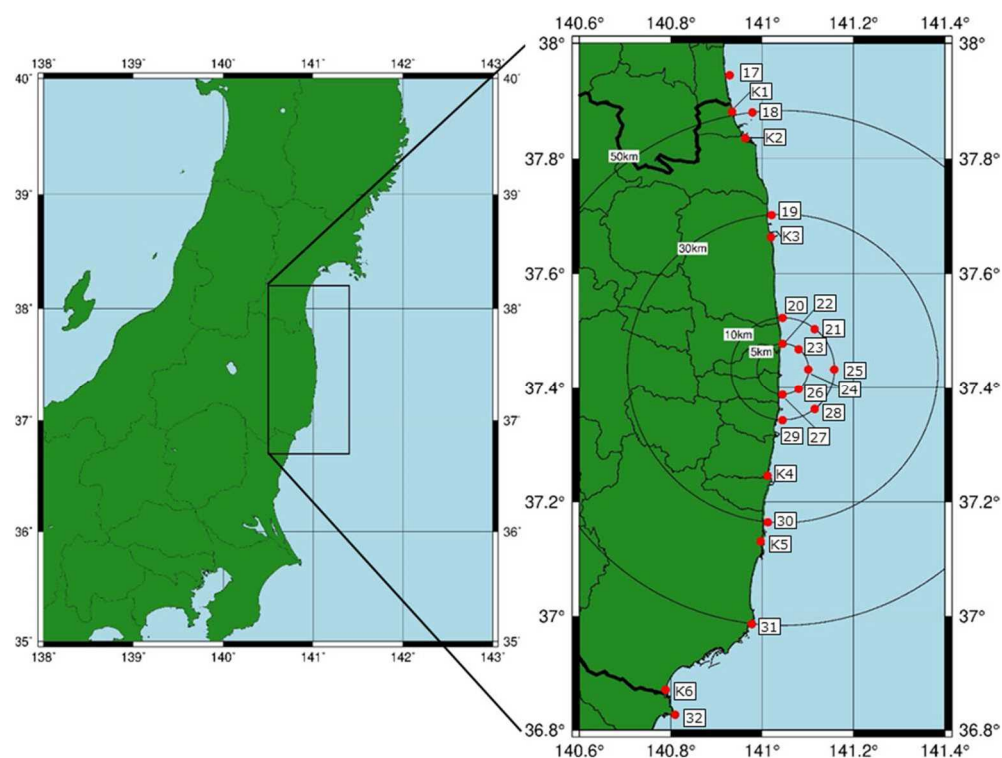
*1 Radioactivity concentrations are presented as radioactivity concentration ± combined standard uncertainty.

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



*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)