

Results of ALPS Treated Water Marine Monitoring: Seawater Survey (tritium) (November 2024)

1 Outline of survey

(1) Date of sampling

November 12-14, 2024

(2) Sampling points

27 sampling points on coastal waters in the Fukushima Prefecture, 1 sampling point on coastal waters in the Miyagi Prefecture, and 1 sampling point on coastal waters in the Ibaraki Prefecture.

* Water samples were collected from surface and bottom layers at 23 sampling points within 30 km of ALPS treated water discharge outlet and from surface layer at 6 sampling points beyond 30 km .

(3) Detail of the survey

- The measurement of radioactive material concentrations in seawater. (tritium)

Analysis with target lower limit of detection of 0.1 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.

2 Outline of results

(1) Seawater survey (29 sampling points (52 samples))

Concentrations of tritium in seawater range from 0.043 Bq/L to 0.17 Bq/L.

(Detailed are attached)

(Maps attached)

Sampling points within 3 km of ALPS treated water discharge outlet analysis result for tritium in seawater

Sampling point	Sampling date	Sampling layer	Sampling depth (m)	Nuclide	Radioactivity concentration ^{*1*2}			Unit
E-S1	2024/11/12	Surface layer	1.5	H-3	0.15	±	0.011	Bq/L
E-S1	2024/11/12	Bottom layer	4.0	H-3	0.12	±	0.010	Bq/L
E-S3	2024/11/12	Surface layer	1.5	H-3	0.11	±	0.020	Bq/L
E-S3	2024/11/12	Bottom layer	7.0	H-3	0.064	±	0.019	Bq/L
E-S4	2024/11/12	Surface layer	1.5	H-3	0.12	±	0.011	Bq/L
E-S4	2024/11/12	Bottom layer	6.1	H-3	0.16	±	0.012	Bq/L
E-S5	2024/11/12	Surface layer	1.5	H-3	0.077	±	0.020	Bq/L
E-S5	2024/11/12	Bottom layer	8.5	H-3	0.078	±	0.020	Bq/L
E-S10	2024/11/13	Surface layer	1.5	H-3	0.065	±	0.019	Bq/L
E-S10	2024/11/13	Bottom layer	12.9	H-3	0.066	±	0.020	Bq/L
E-S13	2024/11/12	Surface layer	1.5	H-3	0.077	±	0.016	Bq/L
E-S13	2024/11/12	Bottom layer	9.8	H-3	0.12	±	0.021	Bq/L
E-S14	2024/11/12	Surface layer	1.5	H-3	0.084	±	0.019	Bq/L
E-S14	2024/11/12	Bottom layer	7.0	H-3	0.072	±	0.019	Bq/L
E-S15	2024/11/14	Surface layer	1.5	H-3	0.077	±	0.019	Bq/L
E-S15	2024/11/14	Bottom layer	6.0	H-3	0.094	±	0.019	Bq/L
E-S16	2024/11/13	Surface layer	1.5	H-3	0.081	±	0.019	Bq/L
E-S16	2024/11/13	Bottom layer	4.8	H-3	0.094	±	0.019	Bq/L

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

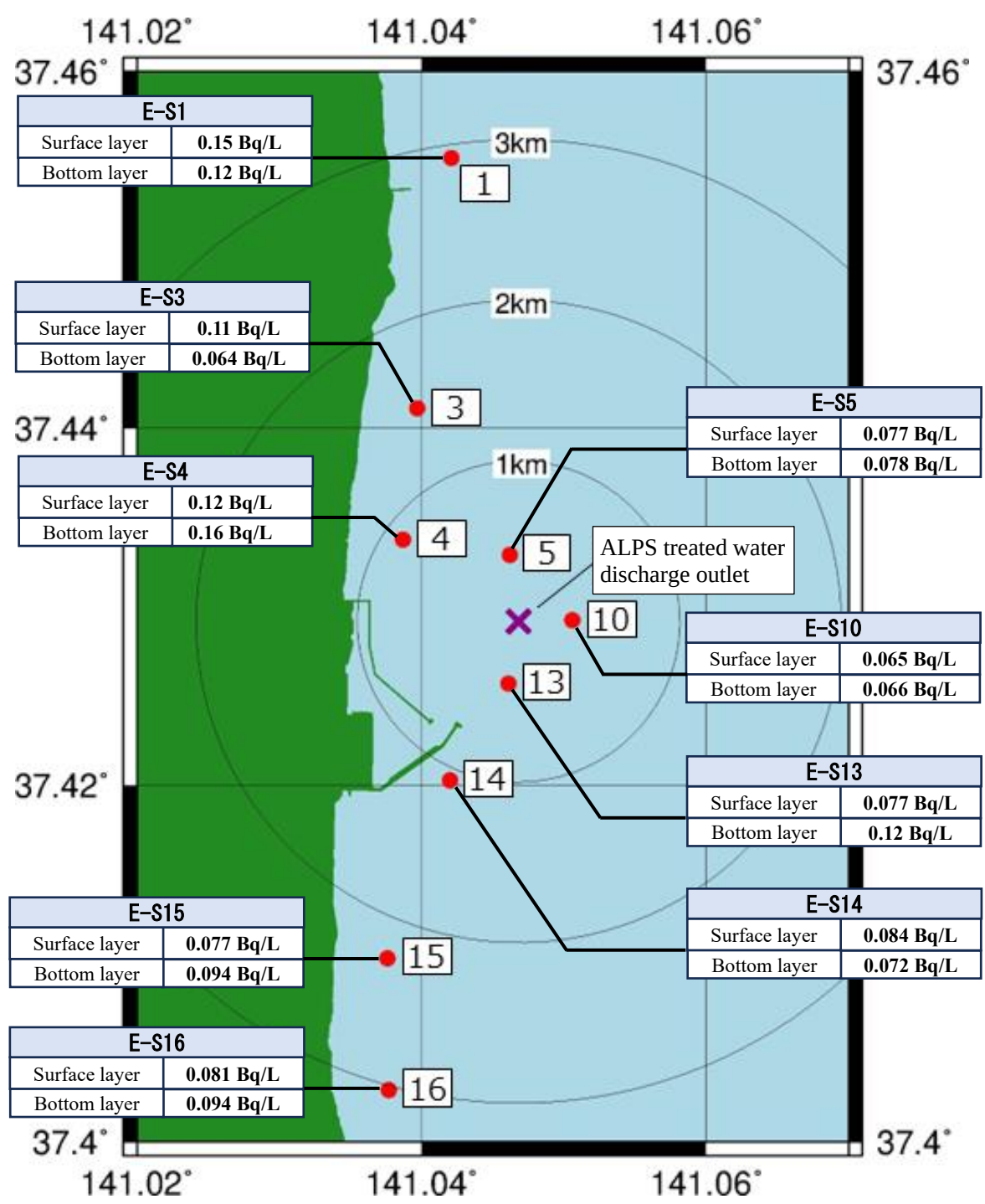
*2 Values below detection limit are shown by lower limit of detection (e.g., “<10 Bq/L” indicates a value below 10 Bq/L).

Sampling points beyond 3 km of ALPS treated water discharge outlet analysis result for tritium in seawater

Sampling point	Sampling date	Sampling layer	Sampling depth (m)	Nuclide	Radioactivity concentration ^{*1*2}			Unit
E-S17	2024/11/12	Surface layer	1.5	H-3	0.076	±	0.0094	Bq/L
E-S18	2024/11/12	Surface layer	1.5	H-3	0.062	±	0.0090	Bq/L
E-S19	2024/11/13	Surface layer	1.5	H-3	0.075	±	0.0094	Bq/L
E-S19	2024/11/13	Bottom layer	9.7	H-3	0.059	±	0.0091	Bq/L
E-S20	2024/11/12	Surface layer	1.5	H-3	0.10	±	0.012	Bq/L
E-S20	2024/11/12	Bottom layer	6.5	H-3	0.12	±	0.013	Bq/L
E-S21	2024/11/14	Surface layer	1.5	H-3	0.079	±	0.012	Bq/L
E-S21	2024/11/14	Bottom layer	22.6	H-3	0.049	±	0.012	Bq/L
E-S22	2024/11/12	Surface layer	1.5	H-3	0.17	±	0.014	Bq/L
E-S22	2024/11/12	Bottom layer	7.7	H-3	0.14	±	0.013	Bq/L
E-S23	2024/11/14	Surface layer	1.5	H-3	0.059	±	0.012	Bq/L
E-S23	2024/11/14	Bottom layer	21.6	H-3	0.056	±	0.011	Bq/L
E-S24	2024/11/14	Surface layer	1.5	H-3	0.052	±	0.012	Bq/L
E-S24	2024/11/14	Bottom layer	24.2	H-3	0.074	±	0.012	Bq/L
E-S25	2024/11/14	Surface layer	1.5	H-3	0.050	±	0.012	Bq/L
E-S25	2024/11/14	Bottom layer	42.5	H-3	0.062	±	0.012	Bq/L
E-S26	2024/11/13	Surface layer	1.5	H-3	0.067	±	0.012	Bq/L
E-S26	2024/11/13	Bottom layer	22.6	H-3	0.074	±	0.012	Bq/L
E-S27	2024/11/13	Surface layer	1.5	H-3	0.087	±	0.012	Bq/L
E-S27	2024/11/13	Bottom layer	9.4	H-3	0.069	±	0.012	Bq/L
E-S28	2024/11/13	Surface layer	1.5	H-3	0.052	±	0.012	Bq/L
E-S28	2024/11/13	Bottom layer	32.0	H-3	0.082	±	0.012	Bq/L
E-S29	2024/11/13	Surface layer	1.5	H-3	0.10	±	0.013	Bq/L
E-S29	2024/11/13	Bottom layer	11.1	H-3	0.12	±	0.013	Bq/L
E-S30	2024/11/14	Surface layer	1.5	H-3	0.055	±	0.012	Bq/L
E-S30	2024/11/14	Bottom layer	11.5	H-3	0.059	±	0.012	Bq/L
E-S31	2024/11/14	Surface layer	1.5	H-3	0.080	±	0.013	Bq/L
E-S32	2024/11/13	Surface layer	1.5	H-3	0.086	±	0.012	Bq/L
E-S33	2024/11/12	Surface layer	1.5	H-3	0.067	±	0.019	Bq/L
E-S34	2024/11/13	Surface layer	1.5	H-3	0.084	±	0.0091	Bq/L
E-S34	2024/11/13	Bottom layer	11.8	H-3	0.077	±	0.0087	Bq/L
E-S35	2024/11/14	Surface layer	1.5	H-3	0.043	±	0.0079	Bq/L
E-S35	2024/11/14	Bottom layer	11.9	H-3	0.045	±	0.0080	Bq/L
E-S36	2024/11/14	Surface layer	1.5	H-3	0.056	±	0.019	Bq/L

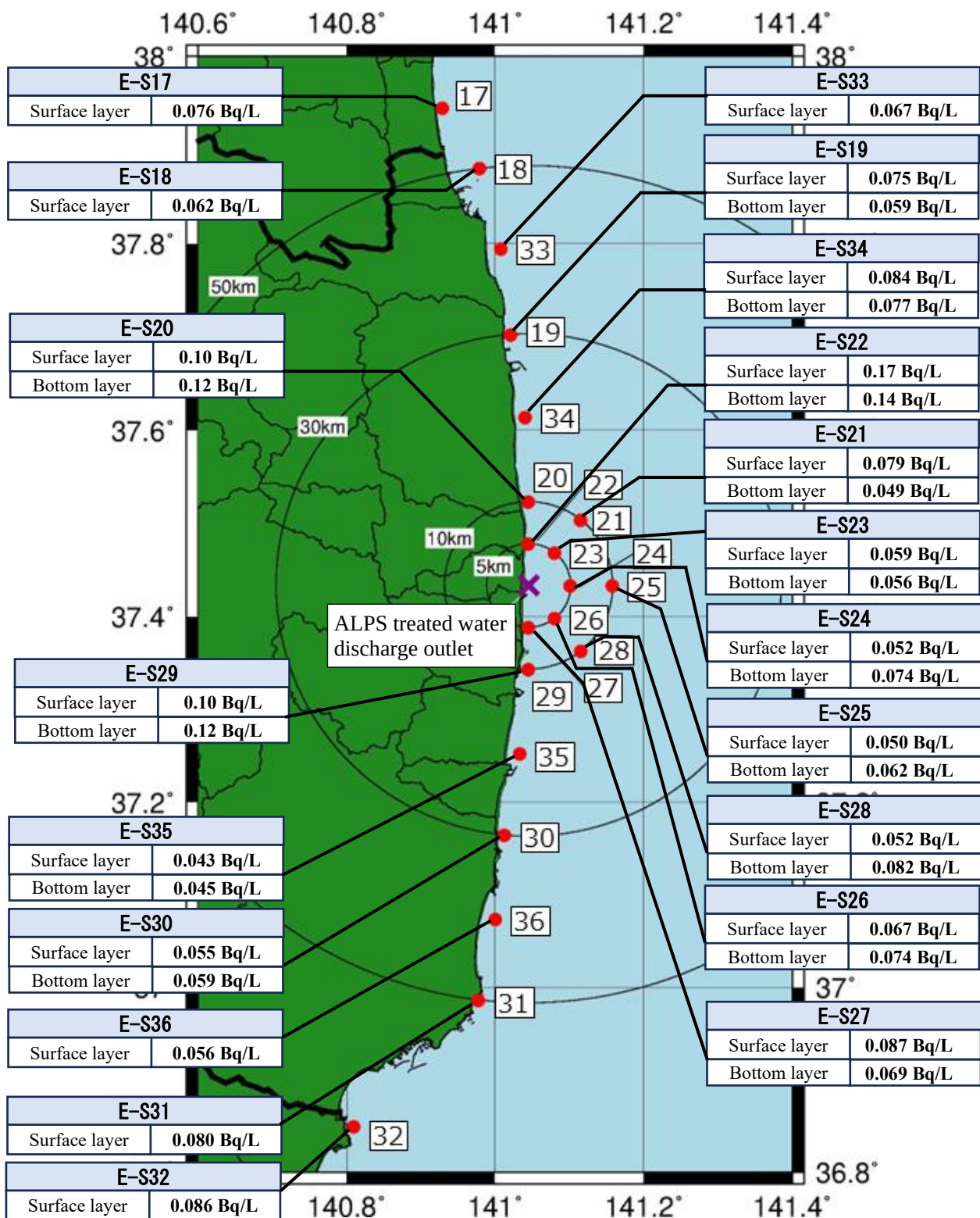
*1 Radioactivity concentrations are presented as radioactivity concentration ± combined standard uncertainty.

*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 are shown with “E-S” omitted from labels in the map (e.g., E-S1 is marked as 1).

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



* Numbers in the map are shown with “E-S” omitted from labels in the map (e.g., E-S17 is marked as 17).

Fig. 2 Sampling points beyond 3 km of ALPS treated water discharge outlet