

Results of ALPS Treated Water Marine Monitoring: Seawater survey (seven major nuclides) (October-November, 2022)

1. Outline of survey

(1) Date of sampling

October 28-November 1, 2022

(2) Sampling points

3 sampling points on the coastal waters in the Fukushima Prefecture (within 3 km of the proposed location of the ALPS treated water discharge outlet)

(3) Detail of the survey

Measurements of radioactive material concentration (seven major nuclides) in seawater

2. Outline of results

(1) Seawater survey (3 sampling points [6 samples] in coastal waters in the Fukushima Prefecture)

Three of the seven major nuclides were detected in the seawater, cesium-134, cesium-137 and strontium-90.

Concentrations of cesium-134 in seawater (with a target lower limit of detection of 0.001 Bq/L) range from less than 0.0008 Bq/L to 0.00097 Bq/L.

Concentrations of cesium-137 in seawater (with a target lower limit of detection of 0.001 Bq/L) range from 0.018 Bq/L to 0.031 Bq/L.

Concentrations of strontium-90 in seawater (with a target lower limit of detection of 0.001 Bq/L) range from 0.00070 Bq/L to 0.0011 Bq/L.

Concentrations of ruthenium-106, antimony-125, cobalt-60 and iodine-129 in seawater correspond to below the lower limits of detection in all samples. The target lower limits of detection of the nuclides are shown below.

Nuclide	Target lower limit of detection (Bq/L)
Cesium-134	0.001
Cesium-137	0.001
Ruthenium-106	1.2
Antimony-125	0.5
Cobalt-60	0.3
Strontium-90	0.001
Iodine-129	0.01

*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)

Analysis results for the seven major nuclides 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-S3	2022/11/01	Surface layer	1.5	Cs-134	0.00097 ± 0.00030	Bq/L
E-S3	2022/11/01	Surface layer	1.5	Cs-137	0.026 ± 0.0019	Bq/L
E-S3	2022/11/01	Surface layer	1.5	Ru-106	< 0.6	Bq/L
E-S3	2022/11/01	Surface layer	1.5	Sb-125	< 0.2	Bq/L
E-S3	2022/11/01	Surface layer	1.5	Co-60	< 0.07	Bq/L
E-S3	2022/11/01	Surface layer	1.5	Sr-90	0.00073 ± 0.00015	Bq/L
E-S3	2022/11/01	Surface layer	1.5	I-129	< 0.002	Bq/L
E-S3	2022/11/01	Bottom layer	7.7	Cs-134	< 0.0009	Bq/L
E-S3	2022/11/01	Bottom layer	7.7	Cs-137	0.031 ± 0.0022	Bq/L
E-S3	2022/11/01	Bottom layer	7.7	Ru-106	< 0.6	Bq/L
E-S3	2022/11/01	Bottom layer	7.7	Sb-125	< 0.2	Bq/L
E-S3	2022/11/01	Bottom layer	7.7	Co-60	< 0.07	Bq/L
E-S3	2022/11/01	Bottom layer	7.7	Sr-90	0.0011 ± 0.00018	Bq/L
E-S3	2022/11/01	Bottom layer	7.7	I-129	< 0.002	Bq/L
E-S10	2022/10/28	Surface layer	1.5	Cs-134	0.00087 ± 0.00025	Bq/L
E-S10	2022/10/28	Surface layer	1.5	Cs-137	0.026 ± 0.0018	Bq/L
E-S10	2022/10/28	Surface layer	1.5	Ru-106	< 0.6	Bq/L
E-S10	2022/10/28	Surface layer	1.5	Sb-125	< 0.2	Bq/L
E-S10	2022/10/28	Surface layer	1.5	Co-60	< 0.08	Bq/L
E-S10	2022/10/28	Surface layer	1.5	Sr-90	0.00088 ± 0.00016	Bq/L
E-S10	2022/10/28	Surface layer	1.5	I-129	< 0.002	Bq/L
E-S10	2022/10/28	Bottom layer	12.2	Cs-134	< 0.0008	Bq/L
E-S10	2022/10/28	Bottom layer	12.2	Cs-137	0.029 ± 0.0021	Bq/L
E-S10	2022/10/28	Bottom layer	12.2	Ru-106	< 0.6	Bq/L
E-S10	2022/10/28	Bottom layer	12.2	Sb-125	< 0.2	Bq/L
E-S10	2022/10/28	Bottom layer	12.2	Co-60	< 0.07	Bq/L
E-S10	2022/10/28	Bottom layer	12.2	Sr-90	0.00073 ± 0.00016	Bq/L
E-S10	2022/10/28	Bottom layer	12.2	I-129	< 0.002	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 results for the seven major nuclides 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-S15	2022/10/31	Surface layer	1.5	Cs-134	< 0.0008	Bq/L
E-S15	2022/10/31	Surface layer	1.5	Cs-137	0.018 ± 0.0013	Bq/L
E-S15	2022/10/31	Surface layer	1.5	Ru-106	< 0.6	Bq/L
E-S15	2022/10/31	Surface layer	1.5	Sb-125	< 0.2	Bq/L
E-S15	2022/10/31	Surface layer	1.5	Co-60	< 0.07	Bq/L
E-S15	2022/10/31	Surface layer	1.5	Sr-90	0.00073 ± 0.00016	Bq/L
E-S15	2022/10/31	Surface layer	1.5	I-129	< 0.002	Bq/L
E-S15	2022/10/31	Bottom layer	6.4	Cs-134	< 0.0008	Bq/L
E-S15	2022/10/31	Bottom layer	6.4	Cs-137	0.018 ± 0.0013	Bq/L
E-S15	2022/10/31	Bottom layer	6.4	Ru-106	< 0.6	Bq/L
E-S15	2022/10/31	Bottom layer	6.4	Sb-125	< 0.2	Bq/L
E-S15	2022/10/31	Bottom layer	6.4	Co-60	< 0.07	Bq/L
E-S15	2022/10/31	Bottom layer	6.4	Sr-90	0.00070 ± 0.00015	Bq/L
E-S15	2022/10/31	Bottom layer	6.4	I-129	< 0.002	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)

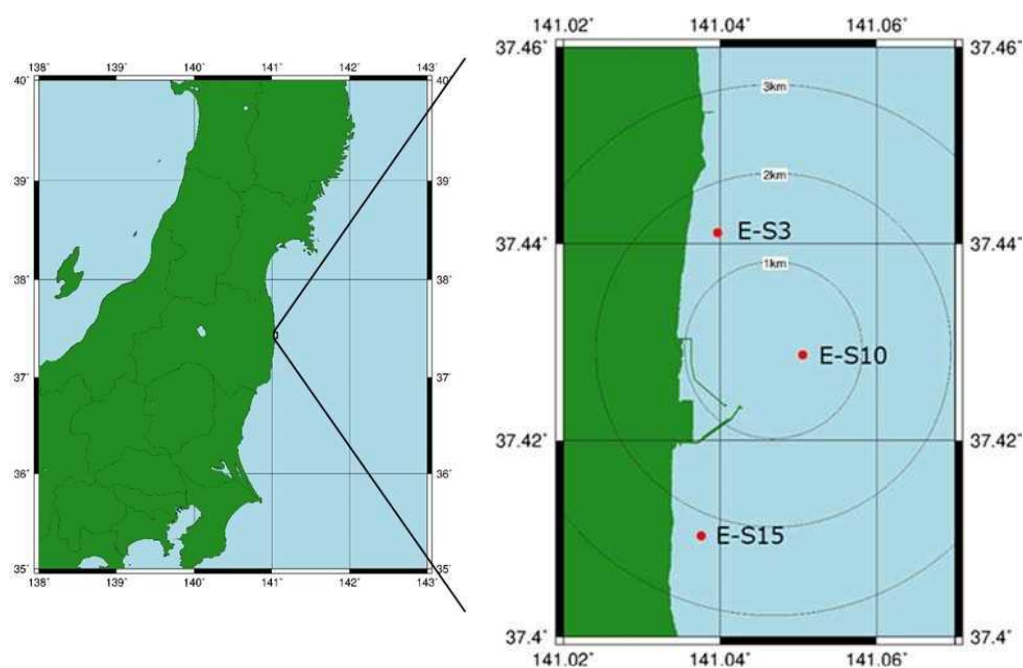


Fig. 1 Sampling points within 3 km of the proposed location of the ALPS treated water discharge outlet