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Ministry of the Environment

Results of 5th Task Force Meeting on Marine Environment Monitoring

Environmental Management Bureau
Marine Environment Division

Deputy Director : Shizuka Muto

Experts Meeting on sea-area monitoring regarding ALPS treated water

- **Before the discharge, the Experts Meeting on sea-area monitoring regarding ALPS treated water has established to discuss the plan of the sea area monitoring plan of MOE and NRA. In this meeting , the relevant agencies to conduct the sea area monitoring attend and show their recent monitoring results.**
- **On December 24, 2024, the monitoring results of MOE and NRA for one year since the start of discharge on August 24, 2023 were compared with the monitoring results of relevant organizations. The experts discussed the results and compiled an evaluation of the results.**

Monitoring Coordination Meeting

The Experts Meeting on sea-area monitoring regarding ALPS treated water (Secretariat : MOE)

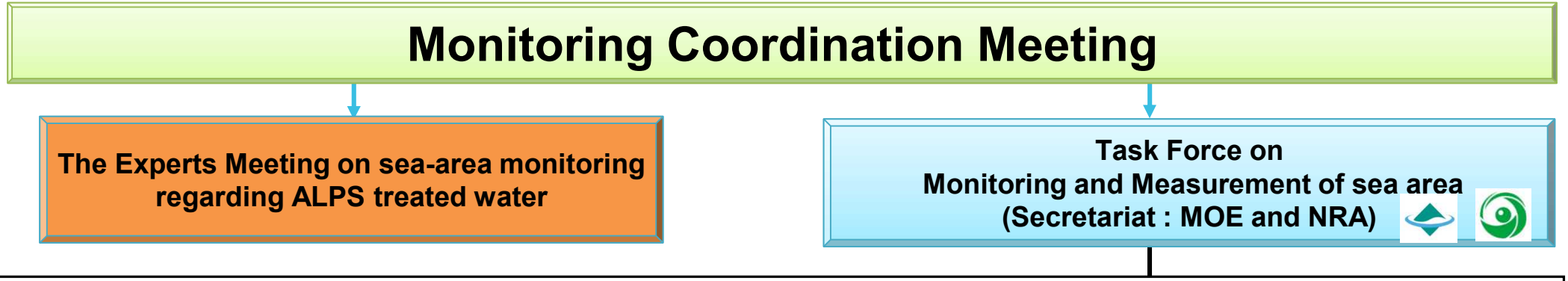
Task Force on Monitoring and Measurement of sea area

（Members）
Chairperson: 1, Deputy Chair: 1 , Other committee： 4
（Specialization：Environmental Engineering, Marine Ecology, Environmental Radiation Dynamics, Radiation Safety, and Radiation Measurement etc.）

（Relevant Organizations）NRA、METI、FAJ、FP、TEPCO

Task Force on Monitoring and Measurement of sea area

- **Task Force on Monitoring and Measurement of sea area has established under the Monitoring Coordination Meeting in 2021 to ensure the sea area monitoring according to “Basic Policy on Handling of ALPS treated water at the Tokyo Electric Power Company Holdings’ Fukushima Daiichi Nuclear Power Station”.**
- **Before the discharge, this task force meeting was held 4 times regarding the details of sea area monitoring related to the ALPS treated water.**
- **On February 27, 2025, the results of sea area monitoring by relevant organizations for one year after the start of discharge was summarized and the experts' evaluation on December 24, 2024 was confirmed as the common understanding among relevant organizations.**



（Members）
MOE：DG, Environmental Management Bureau, NRA： DG for Radiation Protection Strategy and Security
METI：DG for Nuclear Accident Disaster Response, FP, TEPCO
（Observer）FAJ, MLIT, JCG, MOFA

Results of ALPS treated water one year after the start of discharge

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TEPCO started discharge of ALPS-treated water on August 24, 2023, and a total of seven discharges were carried out as planned by July 31st,2024.

Discharge Period	H-3 Concentration of Treated Water before dilution [Bq/L]	H-3 Concentration in Treated Water after dilution（※）[Bq/L]	The amount of discharged treated water [m³]	Total H-3[Bq]
Aug. 24th – Sep. 11th in 2023	About 140 thousands	Max. 220	7,788	About 1.1trillion
Oct. 5th – Oct. 23rd in 2023	About 140 thousands	Max. 189	7,810	About 1.1trillion
Nov. 2nd – Nov. 20th in 2023	About 130 thousands	Max. 200	7,753	About 1.0trillion
Feb. 28th – Mar. 17th in 2024	About 170 thousands	Max. 254	7,794	About 1.3trillion
Apr. 19th – May 7th in 2024	About 190 thousands	Max. 266	7,851	About 1.5trillion
May. 17th – Jun. 4th in 2024	About 170 thousands	Max. 234	7,892	About 1.3trillion
Jun. 28th – Jul. 16th in 2024	About 170 thousands	Max. 276	7,846	About 1.3trillion

※ During the discharge, H-3 concentration of samples taken from the seawater piping is analyzed every day.
Each result is given as "XX±△△Bq/L" taking into account the uncertainty (precision of the analytical data),
but the maximum value of "XX+△△Bq/L" among the results during the period is recorded as "Maximum ▲▲Bq/L."

One year results of the sea-area monitoring related to ALPS treated water(1/2)

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The results for seawater and aquatic organism (marine biota and fishery products) include results below DL, are significantly below the various standards*, or at the same level as the fluctuation range and survey results before the start of the discharge (tritium concentrations in fish are at the same level as the surrounding seawater).

These results are not at a level that would affect people and the environment.

*ex) National Safety Regulation Standard of H-3:60,000 Bq/L、WHO drinking water guidance level:10,000 Bq/L, Basic Policy on Handling of ALPS treated water at the Tokyo Electric Power Company Holdings:1,500Bq/L

Sample	Nuclides	Past Fluctuation Range*1	MOE results before discharge	Results*2 of precise analysis after the start of discharge	
		Apr. in 2015 – Jul. in 2023	Apr. in 2022–Aug. in 2023	Aug. in 2023 – Jul. in 2024	
Seawater	H-3	ND – 20	ND – 0.21	【Discharge】 MOE : ND – 5.0 NRA : ND – 3.5 FP : ND – 1.6 TEPCO : ND – 1	【Suspension】 MOE : ND – 0.15 NRA : ND – 0.13 FP : ND – 0.68 TEPCO : ND – 0.92
	Major seven Cs-134	ND – 0.22	ND	MOE : ND NRA : ND – 0.0010 FP : ND – 0.003 TEPCO : ND – 0.0085	
	Major seven Cs-137	ND – 1.1	0.00026 – 0.033	MOE : 0.00093 – 0.022 NRA : 0.0022 – 0.055 FP : ND – 0.12 TEPCO : ND – 0.48	
	Major seven Sr-90	ND – 0.76	0.00054 – 0.0018	MOE : 0.00058 – 0.0079 NRA : 0.00064 – 0.0021 FP : ND – 0.0071 TEPCO : ND – 0.021	

※ The unit is Bq/L except where otherwise noted. ※ Nuclides for which all results were below the detection limit are excluded from the table.

*1 Refer to the Environmental Radiation Database. Data analyzed by nuclear operators were excluded.

*2 The target lower detection limits : H-3: 0.1 Bq/L (MOE, NRA, FP), 0.1 or 0.4 Bq/L (TEPCO), Cs-134/Cs-137: 0.001 Bq/L (MOE, NRA, TEPCO), 0.002 Bq/L (FP), Sr-90: 0.001 Bq/L (MOE, NRA, TEPCO), 0.0005 Bq/L (FP)

One year results of the sea-area monitoring related to ALPS treated water(2/2)

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The results for seawater and aquatic organism (marine biota and fishery products) include results below DL, are significantly below the various standards*, or at the same level as the fluctuation range and survey results before the start of the discharge (tritium concentrations in fish are at the same level as the surrounding seawater).

These results are not at a level that would affect people and the environment.

*ex) National Safety Regulation Standard of H-3:60,000 Bq/L、WHO drinking water guidance level:10,000 Bq/L, Basic Policy on Handling of ALPS treated water at the Tokyo Electric Power Company Holdings:1,500Bq/L

Sample	Nuclides		Past Fluctuation Range*1	MOE results before discharge	Results*2 of precise analysis after the start of discharge
			Apr. in 2015 – Jul. in 2023	Apr. in 2022–Aug. in 2023	Aug. in 2023 – Jul. in 2024
Seawater	Other nuclides	Ba-137m	ND – 1.0	0.017 – 0.029	MOE：0.0072 – 0.042
		Pu-239+240	ND – 0.000036	0.0000082 – 0.000026	MOE：0.0000022 – 0.0000074 FP:ND – 0.000018 TEPCO:ND – 0.0000077
		Am-241	No Data	0.0000033 – 0.000012	MOE：ND – 0.0000064
		U-234*3	No Data	Not Measured	MOE：0.040 – 0.044
		U-238*3	No Data	Not Measured	MOE：0.036 – 0.040
		Y-90	ND – 0.76	0.00070 – 0.0011	MOE：0.00067 – 0.0079
		C-14	No Data	0.0047 – 0.0061	MOE：0.0051 – 0.0060
Fish		FWT	No Data*4	ND – 0.18	MOE：0.042 – 1.6 FAJ：ND TEPCO：ND – 0.24
		OBT	No Data*4	ND	MOE：ND – 0.11 Bq/kg fresh TEPCO：ND
		C-14	No Data	16 Bq/kg fresh – 28 Bq/kg fresh	MOE：19 Bq/kg fresh～30 Bq/kg fresh

※ The unit is Bq/L, except where otherwise noted. ※ Nuclides for which all results were below the detection limit are excluded from the table.

*1 Refer to the Environmental Radiation Database. Data analyzed by nuclear operators were excluded.

*2 The target lower detection limits : Ba-137m: 0.001 Bq/L (MOE), Pu-239＋240: 0.00002 Bq/L (MOE),0.00001 Bq/L(FP,TEPCO) Am-241: 0.00002 Bq/L (MOE),U-234:0.002 Bq/L (MOE), U-238:0.002 Bq/L, Y-90:0.001 Bq/L(MOE), C-14:0.0005 Bq/L (MOE),FWT:0.1 Bq/L (MOE, TEPCO) , 0.4 Bq/kg fresh (FAJ), OBT:0.5 Bq/L (MOE, TEPCO) , C-14 for fish:2 Bq/L(MOE)

*3 Although past measurement data for U-234 and U-238 in the surrounding areas of Fukushima Prefecture cannot be confirmed, the values were equivalent to those obtained from general uranium element concentrations in seawater.

*4 Tritium data for fish are included, but no description of FWT or OBT.

Precise analysis of seawater for H-3 within 3km of the outlet (Apr. 4, 2022 to Jul. 2024)

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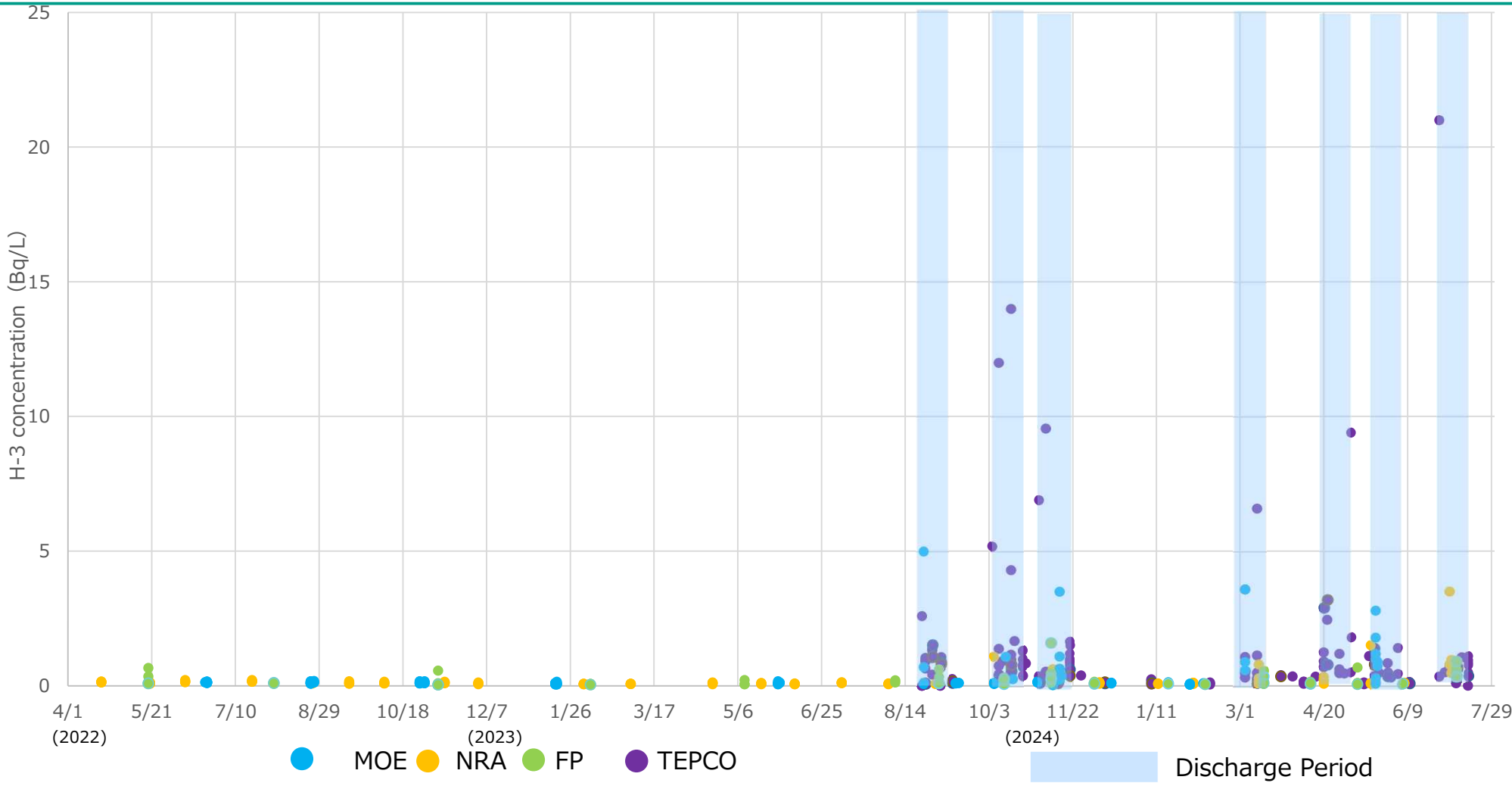
About the tritium concentration in seawater, while there are cases where a slight increase is observed near the discharge outlet during the discharge, in light of the results of the suspension, it shows that the concentration has dropped to the level before the discharge.



Maximum concentration of H-3 at each points (Apr. 4, 2022 to Jul. 2024)

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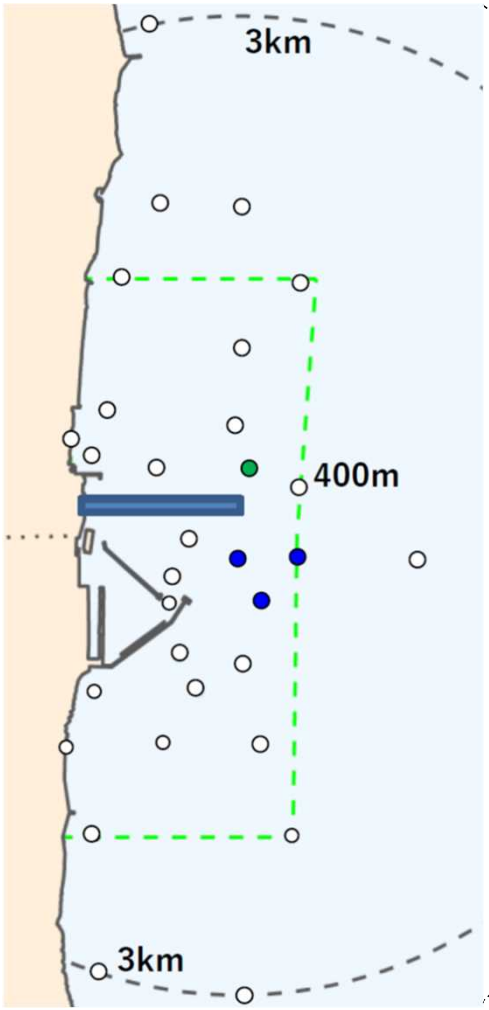
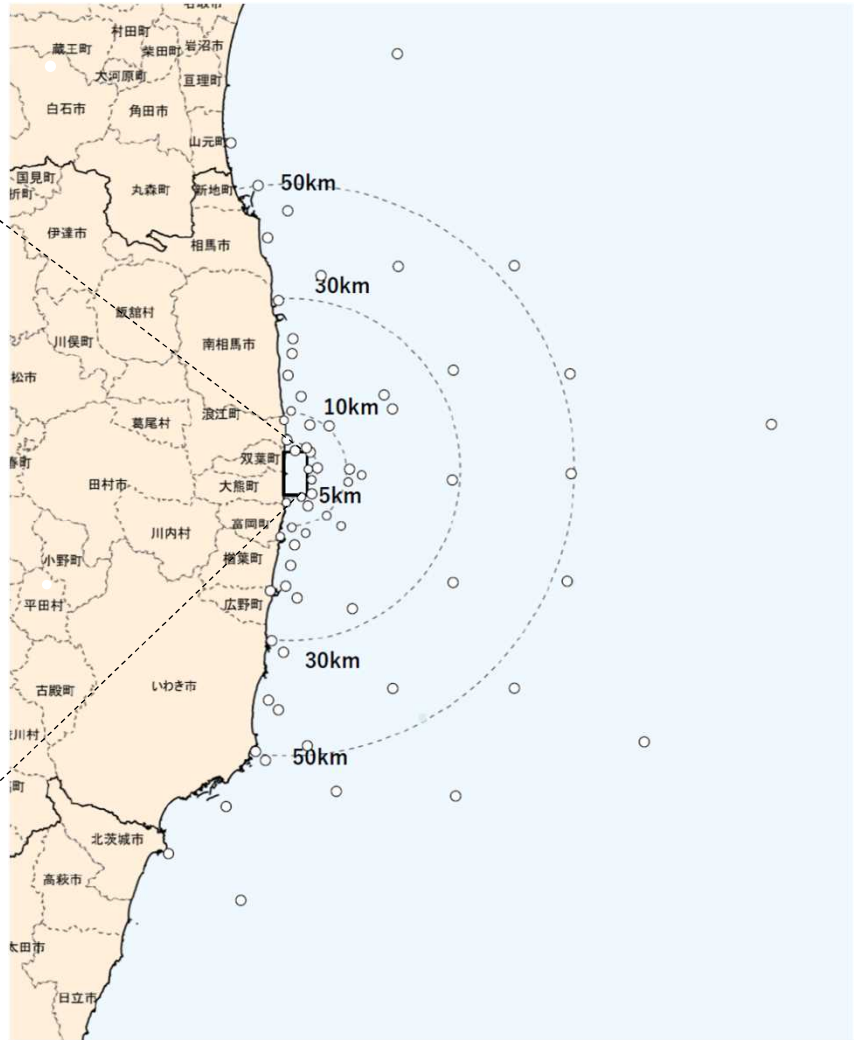
Results from MOE, NRA, FP, and TEPCO are color-coded according to the maximum concentration. When several kilometers away from the discharge outlet, the results show that the concentration is almost the same as before the discharge, even during the discharge period.



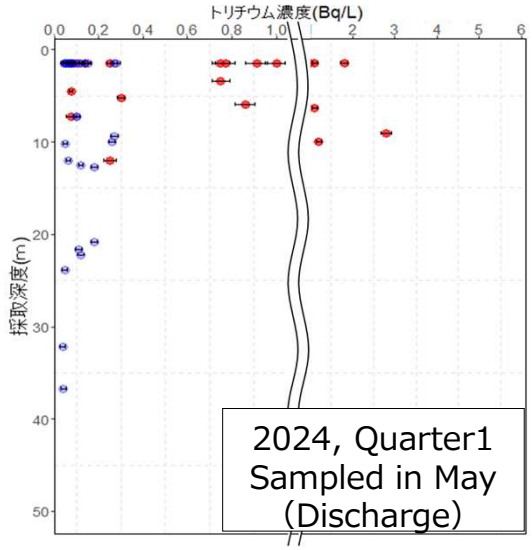


【Legend】Max. 21Bq/L

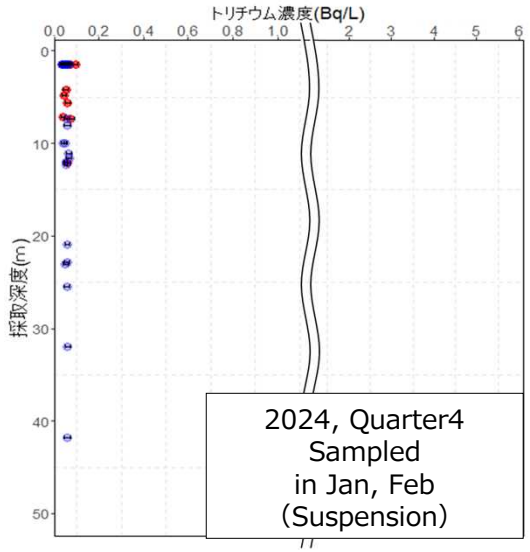
- ●：２０Bq/L －５０ Bq/L
- ●：１Bq/L －２０ Bq/L
- ○：－１Bq/L

Depth distribution of H-3 concentration in seawater

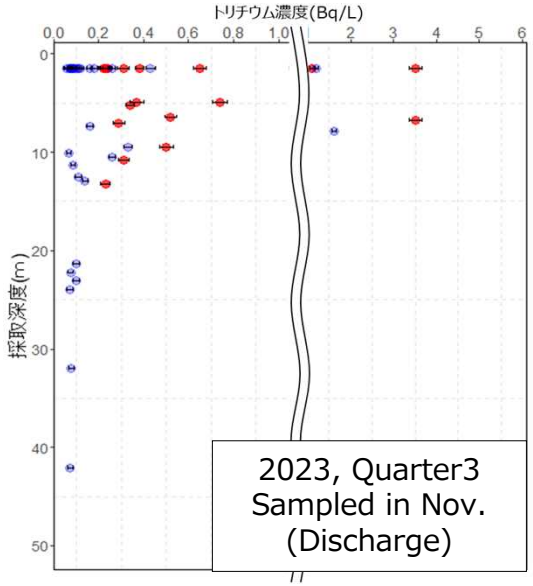
No particular trends or seasonal variations were found in the concentrations in the surface and bottom layers of seawater in nearshore and coastal.



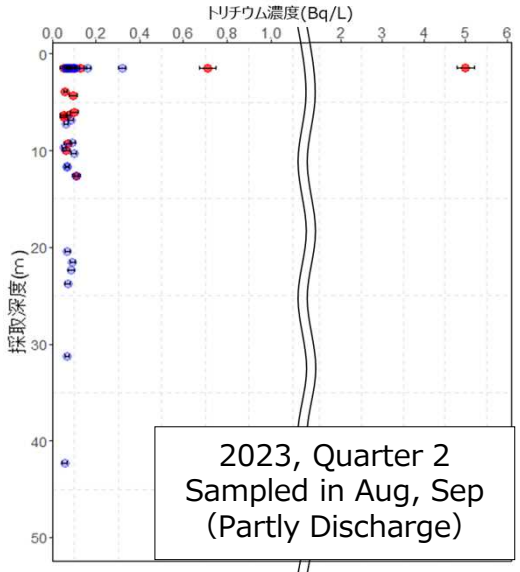
2024, Quarter1
Sampled in May
(Discharge)



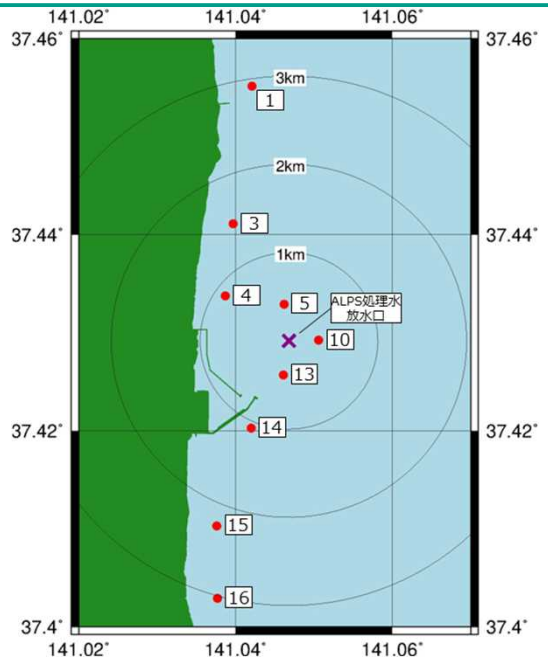
2024, Quarter4
Sampled
in Jan, Feb
(Suspension)

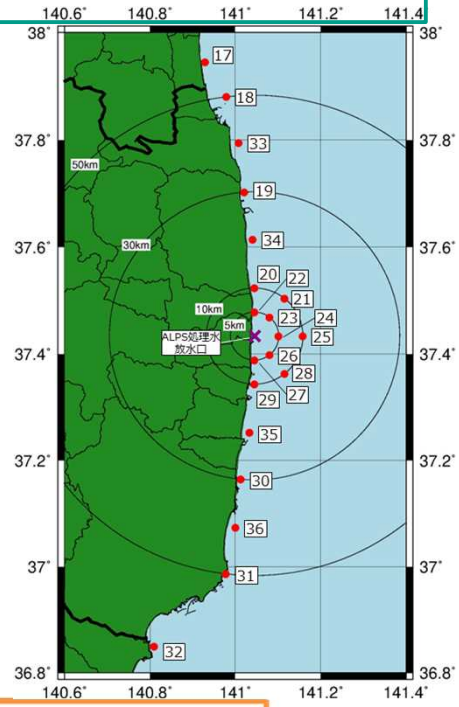


2023, Quarter3
Sampled in Nov.
(Discharge)



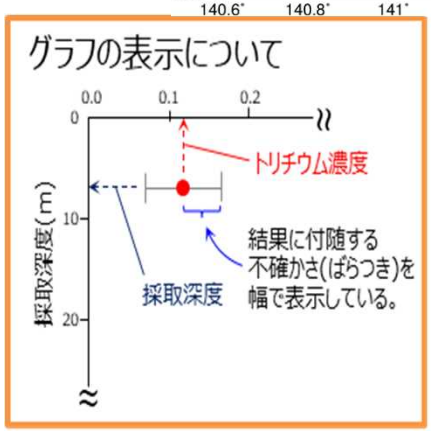
2023, Quarter 2
Sampled in Aug, Sep
(Partly Discharge)





From outlet

- **Within 3km**
- **Without 3km**



Evaluation of the results during the first year after the start of the discharge

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- **The results for seawater and aquatic organism (marine biota and fishery products) include results below DL, which are significantly below the various standards*, or at the same level as the fluctuation range and survey results before the start of the discharge (tritium concentrations in fish are at the same level as the surrounding seawater).**
  These results are not at a level that would affect people and the environment.

  *ex) National Safety Regulation Standard of H-3：60,000 Bq/L、WHO drinking water guidance level：10,000 Bq/L, Basic Policy on Handling of ALPS treated water at the Tokyo Electric Power Company Holdings：1,500Bq/L

- **About the tritium concentration in seawater, while there are cases where a slight increase is observed near the discharge outlet during the discharge, in light of the results of the suspension, it shows that the concentration has dropped to the level before the discharge. In addition, when several kilometers away from the discharge outlet, the results show that the concentration is almost the same as before the discharge, even during the discharge period.**

- **No particular trends or seasonal variations were found in the concentrations in the surface and bottom layers of seawater in nearshore and coastal.**

In addition, as a result of ILC, Japanese analytical institutions are evaluated as having a high level of accuracy and competence. Based on this IAEA evaluation and discussions at expert meetings, we believe that this monitoring produces data with high reliability.

This evaluation was confirmed as the common understanding among relevant organizations.