

06 Jan 2025

Publication of a report on Interlaboratory Comparison (ILC) conducted jointly with the IAEA

At the request of the Government of Japan (GOJ), the International Atomic Energy Agency (IAEA) has organized Interlaboratory Comparisons (ILCs) since 2014 to assist the GOJ in ensuring that the results of Sea Area Monitoring in Japan are credible and transparent. These ILCs are part of the project which was initiated following recommendations made on sea area monitoring in the report by the IAEA in 2013 related to the decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station.

The IAEA released the report summarizing of the results of ILC 2023, in which IAEA-designated ALMERA^{*1} laboratories from Canada, China and the Republic of Korea also participated.

In the report, the IAEA concludes that the results obtained demonstrate a continued high level of accuracy and competence on the part of the Japanese laboratories involved in the analyses of radionuclides in marine samples as part of the Comprehensive Radiation Monitoring Plan.

In addition to above ILC since 2022, as part of its review of the safety related aspects of handling ALPS treated water stored at TEPCO's FDNPS, ILC to corroborate the results of Sea Area Monitoring undertaken by Japan has been conducted and this report will be published separately.

- Report on ILC 2023 ("Marine Monitoring: Confidence Building and Data Quality Assurance")
 - ◆ Summary report (Provisional translation) (Attachment)
- The ALMERA network (Analytical Laboratories for the Measurement of Environmental Radioactivity) is a network established in 1995 and comprising 202 member laboratories globally that is coordinated by the IAEA to maintain and develop capability

on the determination of radionuclides in environmental samples.

- *² Available in the IAEA website. A video introducing the ILC is also available. (Refer to URLs below).
- • Full report:
https://www.iaea.org/sites/default/files/24/12/japan_ilc_2023_report.pdf
- • Video introducing the ILC:
<https://www.iaea.org/newscenter/multimedia/videos/the-fukushima-data-checkers-monitoring-the-monitors>

Contact information

[Analysis of seawater and sediment]

Mr. Furukawa, Mr. Suzuki, Mr. Kono, Radiation Monitoring Division, Radiation Protection Department, Nuclear Regulation Authority

Phone: +81-3-3581-3352 (Switchboard)
+81-3-5114-2125 (Direct)

Ms. Muto, Mr. Ishikawa Marine Environment Division, Environmental Management Bureau, Ministry of the Environment

Phone: +81-3-3581-3351 (Switchboard)
+81-3-5521-8306 (Direct)

[Analysis of fish]

Mr. Nakayama, Ms. Takano, Mr. Nomura Research and Technological Guidance Division, Resources Enhancement Promotion Department, Fisheries Agency of Japan

Phone: +81-3-3502-8111 (Switchboard) Ext 6782
+81-3-6744-2030 (Direct)

[Cooperation with the IAEA]

Ms. Yamamoto, Mr. Inoue, Mr. Kobayashi, Mr. Yamada International Nuclear Cooperation Division, Disarmament, Non-Proliferation and Science Department, Ministry of Foreign Affairs

Phone: +81-3-5501-8227

(The following is quoted from the IAEA report.)

Interlaboratory comparisons 2023:

Determination of radionuclides in seawater, sediment and fish

Marine Monitoring: Confidence Building and Data Quality Assurance

SUMMARY REPORT

The IAEA Marine Environment Laboratories in Monaco are assisting the Government of Japan in ensuring that its regularly updated Comprehensive Radiation Monitoring Plan (CRMP) is comprehensive, credible and transparent through the project “Marine Monitoring: Confidence Building and Data Quality Assurance”. During the period 2014 – 2022, 12 interlaboratory comparisons (ILCs) and 9 proficiency tests (PTs) were organized within this project to test the sampling and analytical performance of Japanese laboratories monitoring radionuclides in seawater, sediment and fish under this plan.

This report focuses on the ILC which was organized in 2023. As for previous ILCs in this project, a joint sampling campaign to collect seawater, sediment and fish samples was undertaken. In this case, sampling was conducted in October 2023 with observers from the IAEA and Japanese authorities involved in the CRMP. Additionally, four experts from laboratories in Canada, China and the Republic of Korea, both from member laboratories of the IAEA ALMERA network (Analytical Laboratories for the Measurement of Environmental Radioactivity), participated. Seawater and sediment samples were collected at offshore locations close to TEPCO’s Fukushima Daiichi Nuclear Power Station. Several species of fish were sampled from a market in Fukushima Prefecture. The samples were then homogenized, split and sent to each participating laboratory for analysis. The results of the analyses of each participating laboratory – 11 from Japan (participating on behalf of the Japanese authorities); the IAEA Marine Environment Laboratories; and the three ALMERA laboratories from Canada, China and the Republic of Korea – were subsequently collected and evaluated by the IAEA.

Comparisons of the results received for each sample and radionuclide demonstrate that the overwhelming majority are not significantly different from each other. A statistical analysis of the results shows that over 95% of the statistical tests applied passed with a high level of confidence (99%).

It can therefore be concluded with confidence that participating laboratories reported reliable and comparable results for the tested radionuclides in seawater, sediment, and fish samples, prepared and analysed according to each laboratory’s regularly used methods (although levels of ^{134}Cs and ^{238}Pu are close to detection limits in all sample types and thus difficult to intercompare).

On the basis of the results of ILC 2023, the IAEA can report that Japan's sample collection procedures continue to adhere to the appropriate methodological standards required to obtain representative samples. The results, as for those from other ILCs and PTs in this project, demonstrate a continued high level of accuracy and competence on the part of the Japanese laboratories involved in the analyses of radionuclides in marine samples as part of the CRMP.