# Monitoring of seafoods related to the discharge of ALPS treated water

Fisheries Agency
Research and Technological Guidance Division

# Overview of Tritium Analysis ①

**Purpose** :

Implemented for fisher/consumer's confidence

**Target** :

Seafoods caught and produced on the Pacific side of the eastern Japan

# Overview of Tritium Analysis ②

**Target species** : about 200 samples/year (FY2025)

Fish, Seaweeds, Shellfishes, Cephalopods, Crustacean

(based on the opinions of fishery-related organizations, etc)

① Common species : Olive flounder

(The most common fish species in coastal waters)

② Other species : a representative in local area

(a large volume of distribution/catch, etc)

**Analytical Methodology** :

Measurement based on internationally recognized methods(Detection Limit: around 0.4 Bq/kg)

# Results of Tritium Analysis ①

So far, JFA has published results for 636 samples taken from seafood. All the results were "Not Detectable".

Tritium in Seafood (Tissue Free Water Tritium) (June 2022 – March 2025)

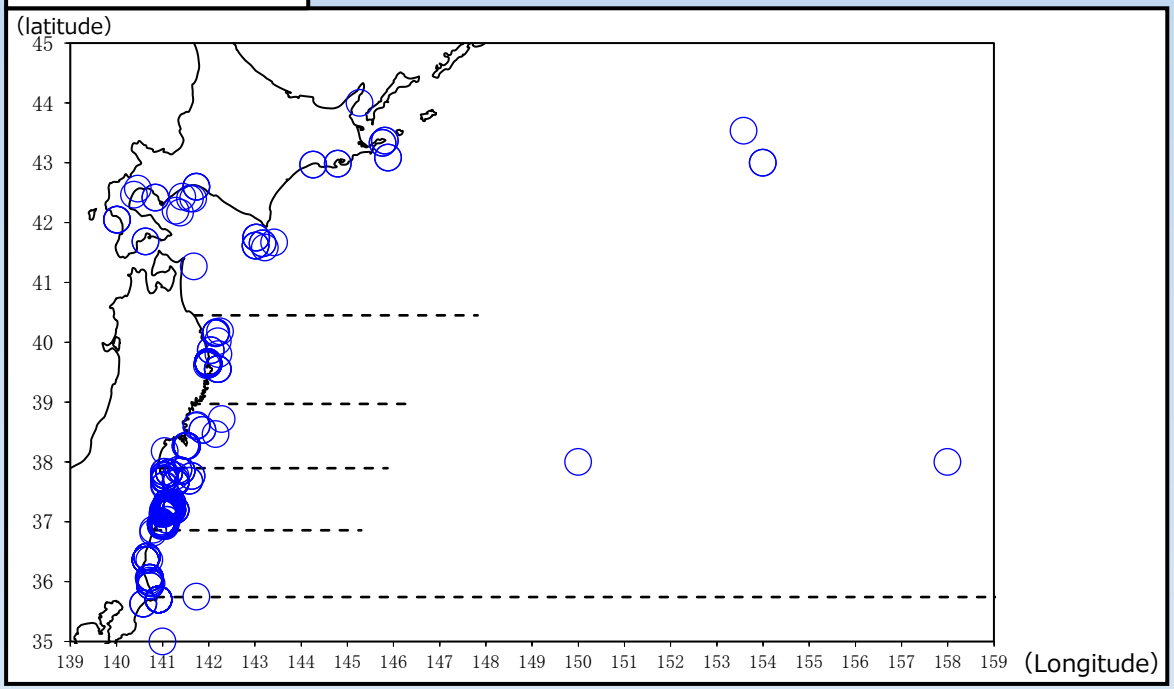
https://www.jfa.maff.go.jp/e/inspection/index.html#a1

(Detection Limit: around 0.4 Bq/kg)

| No. | Item | Name of sampling area on food labeling | Landing port or area | Date of collection | (unit : Bq/kg) (Detection limit value) | | Facility that conducted the analysis |
|---|---|---|---|---|---|---|---|
| 1 | Willowy flounder | Offshore Fukushima | Offshore Ena | 2022/6/29 | Not detectable | <0.289 | Kyushu Environmental Evaluation Association |
| 2 | Olive flounder | Offshore Ibaraki | Offshore Kashima | 2022/6/20 | Not detectable | <0.273 | Kyushu Environmental Evaluation Association |
| 3 | Olive flounder | Offshore Ibaraki | Offshore Hitachinaka | 2022/7/5 | Not detectable | <0.272 | Kyushu Environmental Evaluation Association |
| 4 | Olive flounder | Offshore Fukushima | Offshore Ena | 2022/6/29 | Not detectable | <0.229 | KANSO Technos Co., LTD. |
| ～ | ～ | ～ | ～ | ～ | ～ | ～ | ～ |
| 633 | Olive flounder | Offshore Miyagi | Offshore Minamisanriku Town | 2024/12/17 | Not detectable | <0.248 | KANSO Technos Co., LTD. |
| 634 | Splendid alfonsino | Offshore Chiba | Offshore Katsuura | 2024/12/15 | Not detectable | <0.257 | KANSO Technos Co., LTD. |
| 635 | Surf clam | Offshore Aomori | Offshore Oirase Town | 2025/2/14 | Not detectable | <0.235 | Marine Ecology Research Institute |
| 636 | Wakame seaweed (farmed) | Offshore Iwate | cultivation area of Chikei and Ishinohama | 2025/2/26 | Not detectable | <0.299 | Marine Ecology Research Institute |

# Results of Tritium Analysis ②

## Sampling point




## Spiecies

| | |
|---|---|
| **Fish (42 species)** | Fat greenling, Dusky sole, Stone flounder, Longnose eel, Skipjack tuna, Redwing searobin, Monkfish, Fox jacopever, Coho salmon, Splendid alfonsino, Southern mackerel, Chum salmon, Japanese Spanish mackerel Pacific sanury, Dolphinfish, Whitebait, Drum, Rockfish, Vermiculated puffer, Alaska pollock, Seabass, Crimson seabream, Tiger puffer, Slime flounder, Olive flounder , Albacore, Japanese amberjack , Gurnard, Chub mackerel, Conger eel, Littlemouth flounder, Marbled flounder, Chub mackerel, Red seabream, Pacific cod, Barfin flounder, John Dory, Rikuzen flounder, Shotted halibut, Bigeye scad, Ridged-eye flounder , Willowy flounder |
| **Crustacean (2 species)** | Japanese spiny lobster, Swimming crab |
| **Shellfish (7 species)** | Bloody clam , Japanese littleneck clam, Surf clam, Ezo abalone, Clam, Scallop, Pacific oyster |
| **Cephalopods (4 species)** | Japanese flying squid , Chestnut octopus, Spear squid, Common octopus |
| **Seaweed (4 species)** | Laver, Green laver, Sea tangle, Wakame seaweed |
| **Others (3 species)** | Short-spined sea urchin, Japanese common sea cucumber, Common sea squirt |

# Tritium analysis enhanced after discharge ①

- After discharge, JFA newly introduced a rapid analysis method (※) for tritium intensive monitoring.
- This method can provide results the day or two after sampling. (Detection Limit: around 10 Bq/kg)

(※) https://www.jstage.jst.go.jp/article/jhps/59/2/59_88/_pdf/-char/en

**Purpose** :

- Implemented for fisher/consumer's confidence
- provide information with fisher/consumers quickly

Results to be published on the Fisheries Agency website quickly

# Tritium analysis enhanced after discharge ②

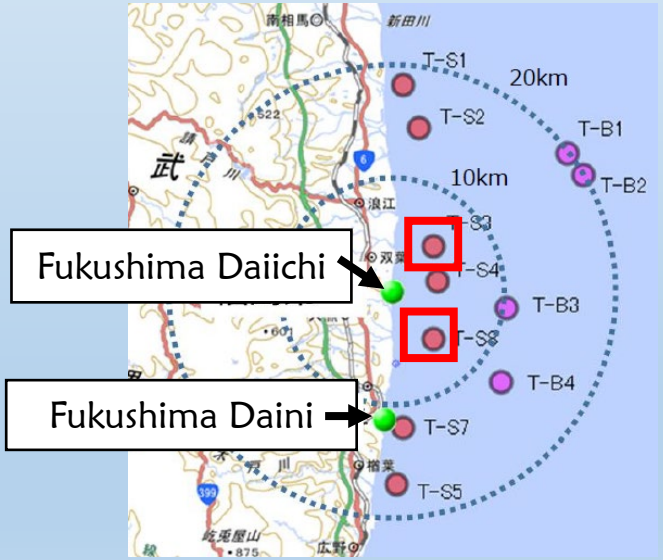
## Analysis period and frequency :

During the discharge period : 4 times a week
During no discharge period : 1 time a week

## Sampling location :

Samples will be collected from two locations.

(North and south sides of Fukushima Daiichi Nuclear Power Plant)



# Results of Tritium Analysis (Rapid method)

All the results were “Not Detectable” even after discharging the ALPS treated water.

https://www.jfa.maff.go.jp/e/inspection/index.html#rapid

Detection limit (<10 Bq/kg fresh)

| No. | Item | sampling area | Place of collection | Fishing gear setting | | Fishing gear collection | | Press release Date | Analysis site | (unit：Bq/kg) (Detection limit value) | | Facility that conducted the analysis |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | date | time | date | time | | | | | |
| 391 | Olive flounder | Offshore Fukushima | T-S3 | 2025/4/17 | JST around 5:00 | 2025/4/18 | JST around 5:00 | 2025/4/21 | muscle | Not detectable | <7.83 | Marine Ecology Research Institute |
| 392 | Olive flounder | Offshore Fukushima | T-S8 | 2025/4/17 | JST around 5:00 | 2025/4/18 | JST around 4:40 | 2025/4/21 | muscle | Not detectable | <7.79 | Marine Ecology Research Institute |
| 393 | Olive flounder | Offshore Fukushima | T-S3 | 2025/4/21 | JST around 5:00 | 2025/4/22 | JST around 5:00 | 2025/4/23 | muscle | Not detectable | <8.63 | Marine Ecology Research Institute |
| 394 | Olive flounder | Offshore Fukushima | T-S8 | 2025/4/21 | JST around 3:00 | 2025/4/22 | JST around 4:00 | 2025/4/23 | muscle | Not detectable | <8.76 | Marine Ecology Research Institute |
| 395 | Olive flounder | Offshore Fukushima | T-S3 | 2025/4/22 | JST around 5:00 | 2025/4/23 | JST around 5:00 | 2025/4/24 | muscle | Not detectable | <7.26 | Marine Ecology Research Institute |
| 396 | Olive flounder | Offshore Fukushima | T-S8 | 2025/4/22 | JST around 4:00 | 2025/4/23 | JST around 4:30 | 2025/4/24 | muscle | Not detectable | <7.26 | Marine Ecology Research Institute |
| 397 | Olive flounder | Offshore Fukushima | T-S3 | 2025/4/23 | JST around 5:00 | 2025/4/24 | JST around 5:00 | 2025/4/25 | muscle | Not detectable | <7.85 | Marine Ecology Research Institute |
| 398 | Olive flounder | Offshore Fukushima | T-S8 | 2025/4/23 | JST around 5:00 | 2025/4/24 | JST around 4:40 | 2025/4/25 | muscle | Not detectable | <7.99 | Marine Ecology Research Institute |
| 399 | Olive flounder | Offshore Fukushima | T-S3 | 2025/4/24 | JST around 5:00 | 2025/4/25 | JST around 5:00 | 2025/4/28 | muscle | Not detectable | <7.78 | Marine Ecology Research Institute |
| 400 | Olive flounder | Offshore Fukushima | T-S8 | 2025/4/24 | JST around 5:00 | 2025/4/25 | JST around 4:40 | 2025/4/28 | muscle | Not detectable | <7.75 | Marine Ecology Research Institute |
| 401 | Olive flounder | Offshore Fukushima | T-S3 | 2025/4/27 | JST around 4:30 | 2025/4/28 | JST around 4:40 | 2025/4/30 | muscle | Not detectable | <8.19 | Marine Ecology Research Institute |
| 402 | Olive flounder | Offshore Fukushima | T-S8 | 2025/4/27 | JST around 4:50 | 2025/4/28 | JST around 4:00 | 2025/4/30 | muscle | Not detectable | <8.10 | Marine Ecology Research Institute |

# (Reference)

# Methods of Tritium Analysis (internationally recognized methods)


Receive the samples

Measure the samples


Pouch the sample

Identify the samples

Prepare the samples

# Methods of Tritium Analysis (internationally recognized methods)

Freeze minced sample into thin plates

Collect moisture as ice

Let samples stand to prevent chemiluminescence

Extract moisture from sample

Remove impurities (e.g. oil, protein, etc.) from the collected moisture

Measure the radiation with Liquid scintillation counter

# Methods of Tritium Analysis (rapid analysis methods)

Measure the samples

Burn the sample and collect vapor

Let samples stand to prevent chemiluminescence

Cut off the edible part (about 10g) from the sample

Cool the vapor and collect moisture as water

Measure the radiation with Liquid scintillation counter