

Fukushima Power Plant Accident and Food Safety in Japan

Mar. 2014
Fisheries Agency of Japan

1. Food safety standard of Japan

- ▶ Based on the requirement by the Food Sanitation Act, the Ministry of Health, Labor and Welfare of Japan has set the Standard Limits of radioactive Cesium as following for distribution of foods in Japan;

Foods in general: 100 Bq/kg

Milk : 50 Bq/kg

Drinking Water : 10 Bq/kg

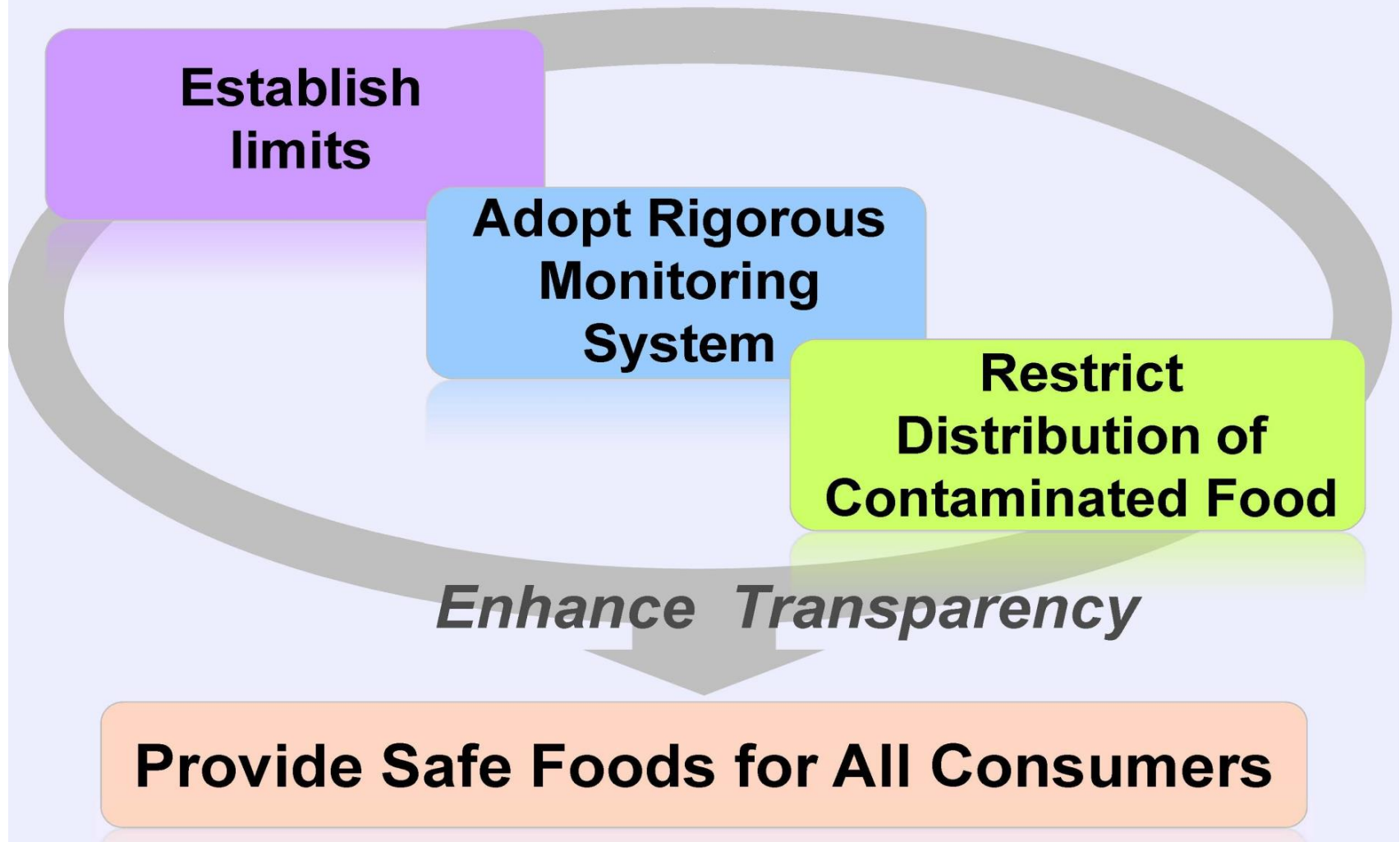
Infants Foods : 50 Bq/kg

(The limits for radioactive Cesium are established for effective dose of radionuclides (including Strontium and Plutonium) not to exceed 1mSv/year , which is consistent with the level adopted by CODEX.)

- ▶ In advance of the establishment of the standard, the MHLW consulted the Food Safety Commission for Risk Assessment. The effective dose above is based on the risk assessment by the Food Safety Commission, which sets the intervention exemption level in the whole life to be 100msv.

2. Image of Food Safety in Japan

■ Four Actions for Safety



3. Framework of food monitoring in Japan

- ▶ The Nuclear Emergency Response Headquarters(*1) set the guideline for food monitoring(*2) in March 2013.
 - ▶ *1: Established by the "Act on Special Measures Concerning Nuclear Emergency Preparedness" after Fukushima Accident.
 - ▶ *2 Official name for the guideline is ""Concepts of Inspection Planning and the Establishment and Cancellation of Items and Areas to which Restriction of Distribution and/or Consumption of Foods concerned Applies".
- ▶ This guideline determines the fundamental framework with regard to the local governments' monitoring scheme.
- ▶ The objective of the guidelines is to ensure that the level of the radioactive materials in food distributed to the market shall be below the legal standard set by Food Sanitation Act.



- ▶ The inspection is carried out in accordance with the guideline, and with the support of the MAFF and MHLW.
- ▶ IAEA understood that "the measures taken to monitor and rapidly respond to any issues in the food system regarding radionuclide contamination are appropriate and that the public food supply is safe."

4. Control of radioactive materials in foods.

- ▶ Establish the limits on radioactive materials in foods.



- ▶ Monitor radioactive materials in foods.



- ▶ Recall and dispose of the food from which radioactive materials are detected above the limits.



- ▶ Restrict distribution of foods.



- ▶ Lift the restriction of distribution if monitoring results meet certain criteria.

5. Thorough measures to reduce radioactive

■ Restriction of Distribution and/or Consumption of Foods which exceed the limits

Order by Act on Special Measures Concerning Nuclear Emergency Preparedness

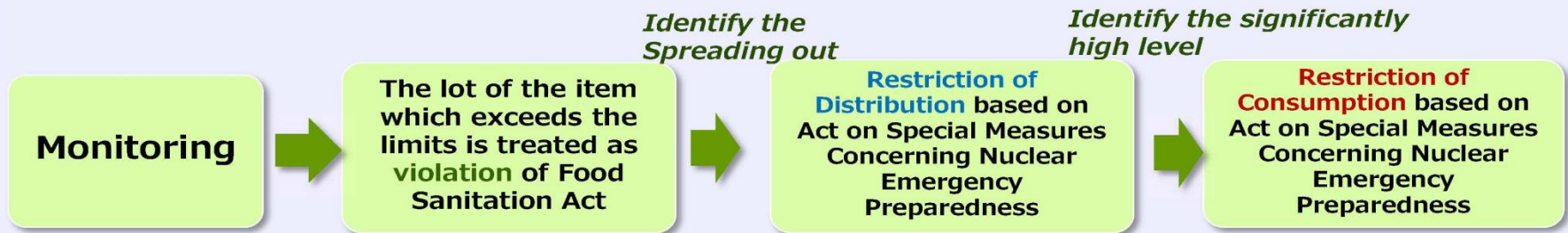
- "Restriction of Distribution"** : When areas producing the items exceeding the limits have been spread out, relevant areas and items become subject to restriction.
- "Restriction of Consumption"** : When significantly high level of concentration is detected in items, the restriction of consumption is immediately established.

■ The requirements for establishing items and areas of restriction

- When it is considered that areas producing the items exceeding the limits have been spread out, relevant areas and items become to restriction.
- Unit of Restriction is prefecture basis. Prefectures can be divided into multiple number of areas if they can be administered by prefectures and municipalities.

■ The requirements for cancellation of restriction

- Based on the application of the relevant prefecture.
- Prefectures can be divided into a multiple zones, in the light of the actual situations of the shipments of the items.
- As a general rule, the results of radioactive cesium inspections conducted at 3 or more locations per municipality within the last month must all fall below the limits.



6. Monitoring results for agriculture and livestock products (1)

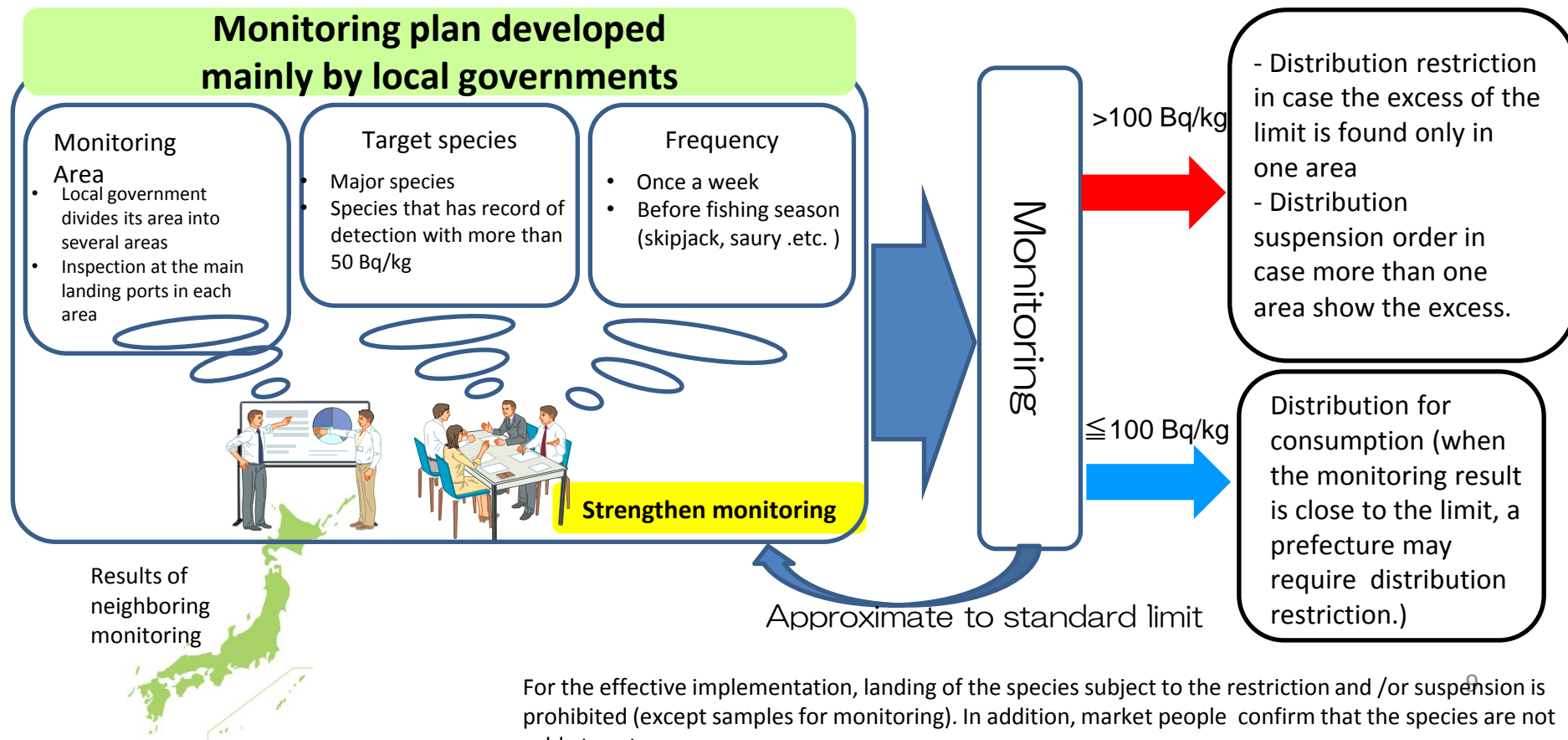
- ▶ Measures taken to reduce radioactive Cs in production site:
 - Decontamination of farmland(e.g. Removal of topsoil, inversion tillage).
 - Application of potassium fertilizer to reduce the uptake of radioactive Cs by rice.
 - Cleaning the surface of fruit trees(e.g. shaving outer-cortex and high-pressure washing).
 - Establishing the provisional tolerance of radioactive Cs level for feed in order to meet the limits for foods of animal origin.

7. Monitoring results for agriculture and livestock products (2)

	Apr 2013 – Dec 2013			Apr2012-Mar2013 Excess ratio (%)	Up to Mar 2012 Excess ratio (%)
	Excess ratio(%)	Sample No.	No. >Limit		
Rice	0.0003	10.8 million	28	0.0008	2.2
Wheat & Barley	0	591	0	0	4.8
Pulse	0.2	3,018	5	1.1	2.3
Vegetables	0	16,047	0	0.03	3.0
Fruits	0	3,985	0	0.3	7.7
Tea	0	427	0	1.5	8.6
Other cultivated plants	0	1,572	0	0.5	3.2
Milk	0	1,561	0	0	0.4
Meat and Eggs	0	150,656	0	0.003	1.3
Mushrooms and Wild Edible Plants	2.9	6,709	194	9.2	20
Total	0.002	10.9million	227	0.008	2.5

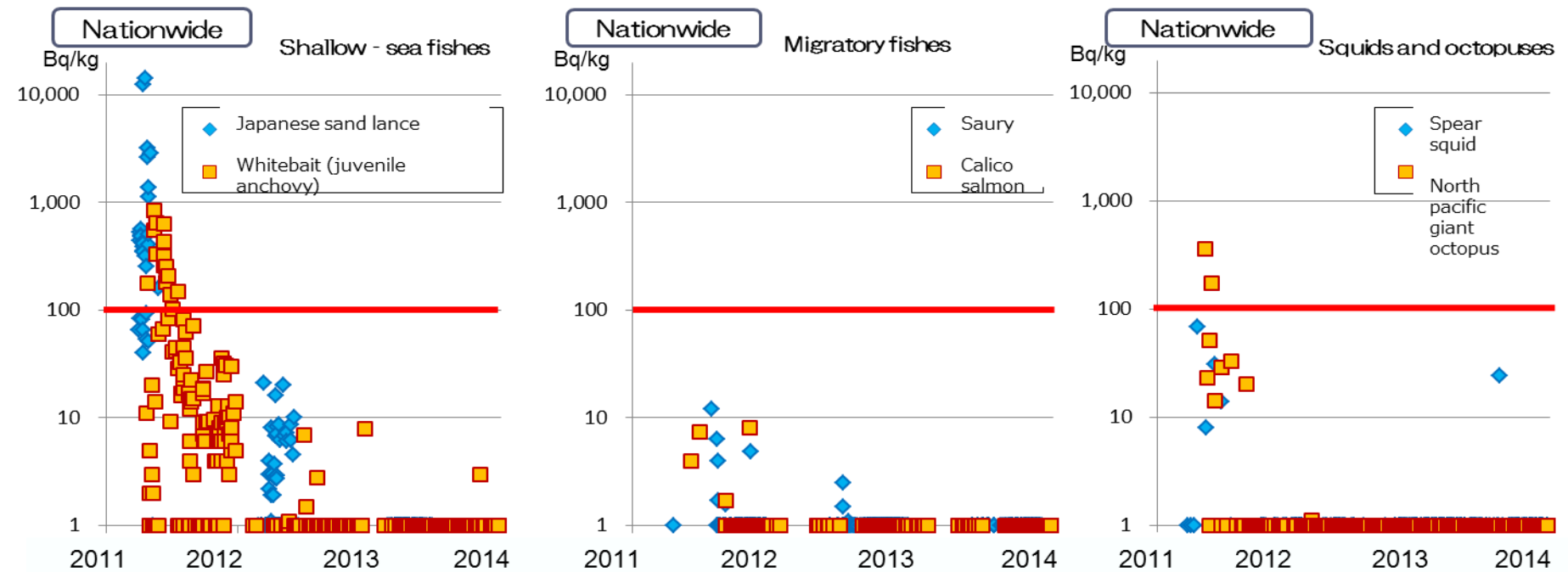
8. Monitoring framework for fishery products

- Target species : Major commercial species and species that have record of detection with more than 50 Bq/kg in the past. Due consideration is given to, inter alia: (a) living layers of species (surface, mid water and bottom), (b) fishing season and (c) results of neighboring prefectures' monitoring.



9. Monitoring results for fishery products (1) – according to species-

- Nowadays, shallow-sea fishes (e.g. whitebait and Japanese sand lance), migratory fishes (e.g. skipjack, tunas, chum salmon, and Pacific saury), molluscs (squids and octopuses, and shellfish), crustacean (shrimps and crabs), and seaweeds have radiation levels below the standard limit throughout the country. However, some bottom fishes including flounders still have radiation level higher than the standard limit in several areas.
- The environment and food habits may contribute to the such high levels.

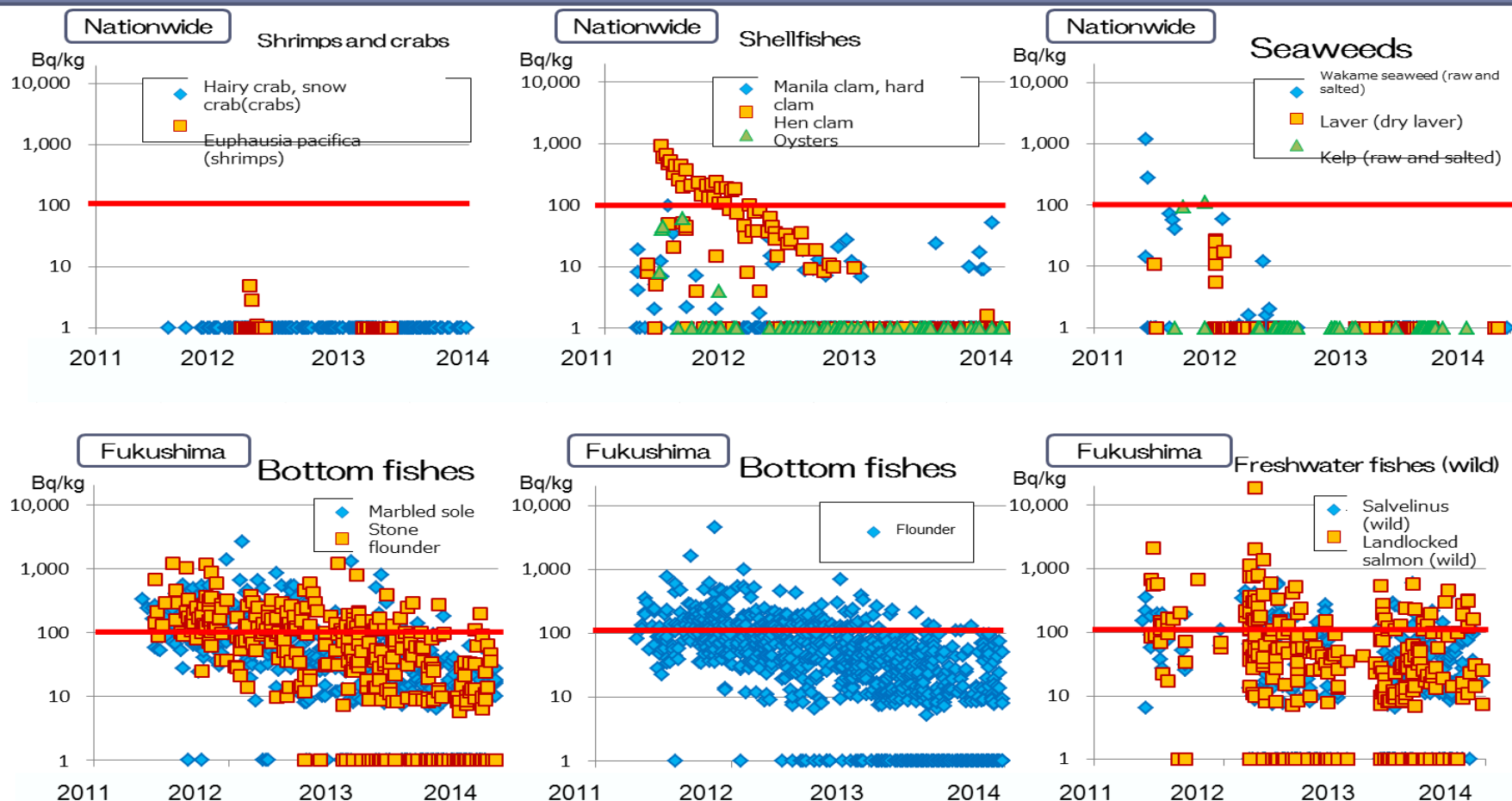


Note: All the coastal and trawl fishing operations are voluntarily suspended across the offshore of Fukushima, excluding the trial fishing on 31 fish species.

Note: See the "9 Fish species subject to distribution restrictions or voluntary fishing suspension" for the measures on the fishes for which the standard limit was exceeded.

Note: See the Japan Fisheries Agency's website for the detailed monitoring results in prefectures at <http://www.jfa.maff.go.jp/j/housyanou/kekka.html>.

10. Monitoring results for fishery products (2) – according to species -



Note: All the coastal and trawl fishing operations are voluntarily suspended across the offshore of Fukushima, excluding the trial fishing on 31 fish species.

Note: See the "9 Fish species subject to distribution restrictions or voluntary fishing suspension" for the measures on the fishes for which the standard limit was exceeded.

Note: See the Japan Fisheries Agency's website for the detailed monitoring results in prefectures at <http://www.jfa.maff.go.jp/j/housyanou/kekka.html>.

11. Trial Fishing Operation in Fukushima

1. Monitoring results of radiation level for each species during the last 12 months (since January 2013).

○Bottom fish

Marbled sole, Stone flounder, flounder etc.:

Rarely exceeded the standard limit (100bq/kg)

○Mollusk

Octopuses, Squids : Not exceeded the standard limit

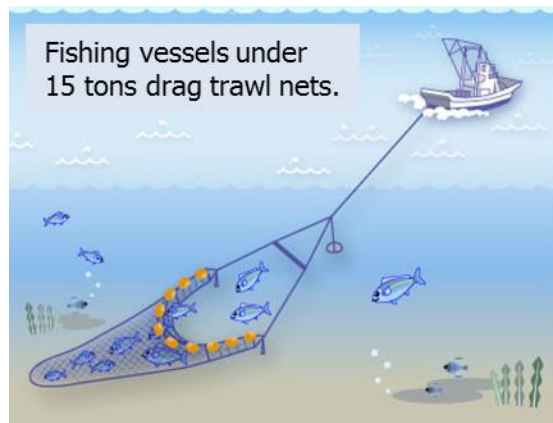
○Surface/ Pelagic fish

Anchovy, Japanese sandlance, sardine: Not exceeded the standard limit

2. Trial fishing operations off the coast of Fukushima

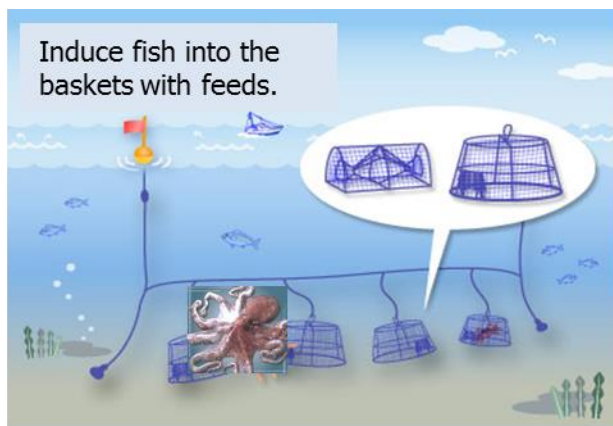
Bottom trawlers

→ Octopuses, Squids,
Willow flounder etc.



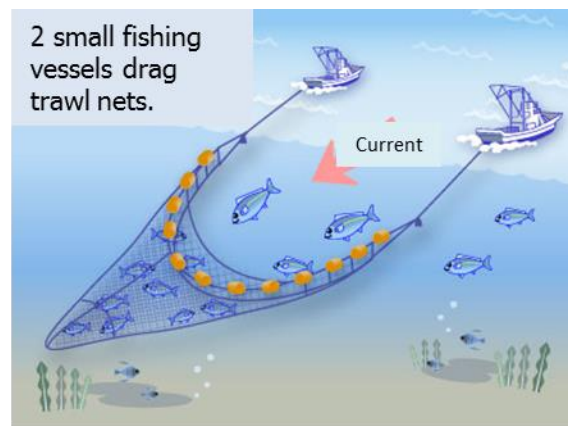
Octopus pot fishery

→ Octopuses



Coastal pelagic/surface trawl fishery

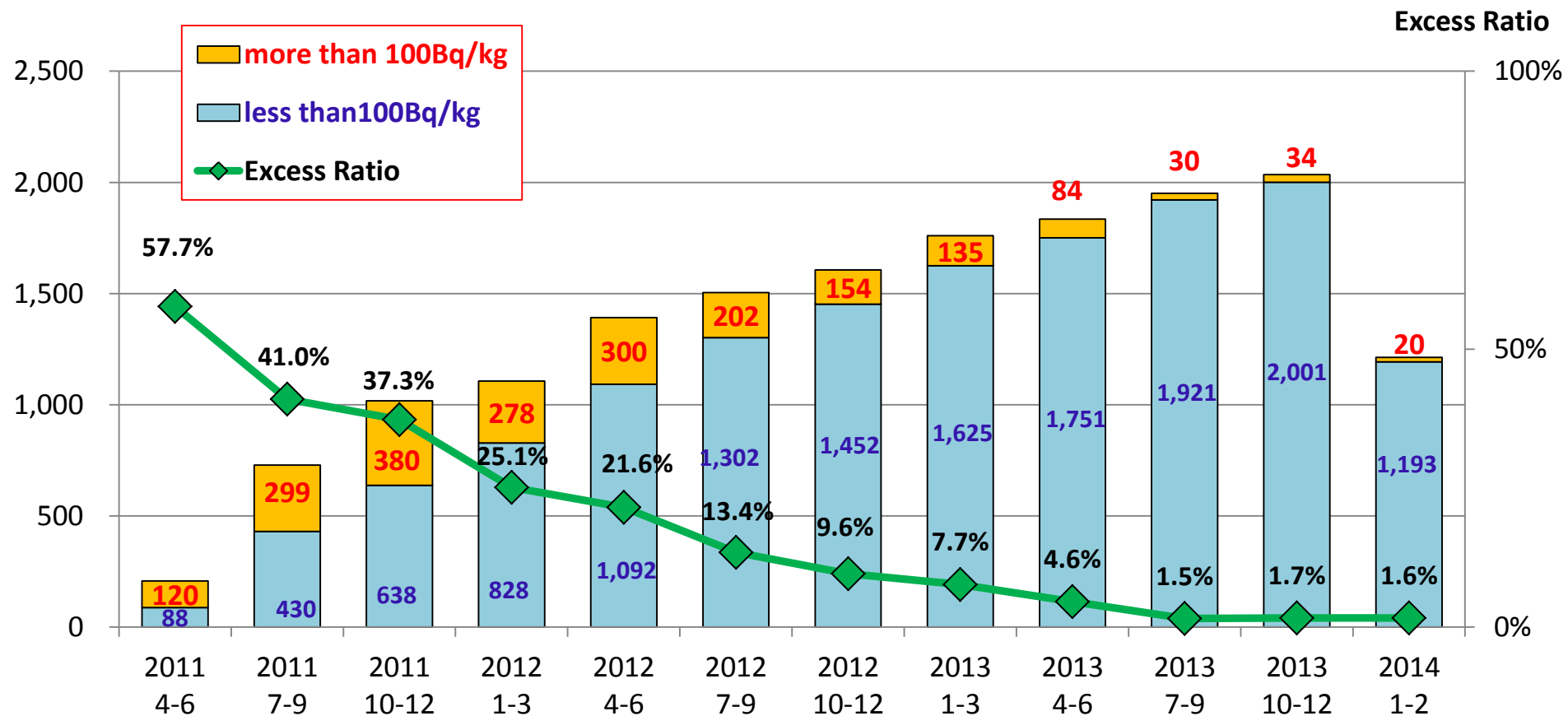
→ Anchovy etc.



12. Monitoring results for marine fishery products (3)

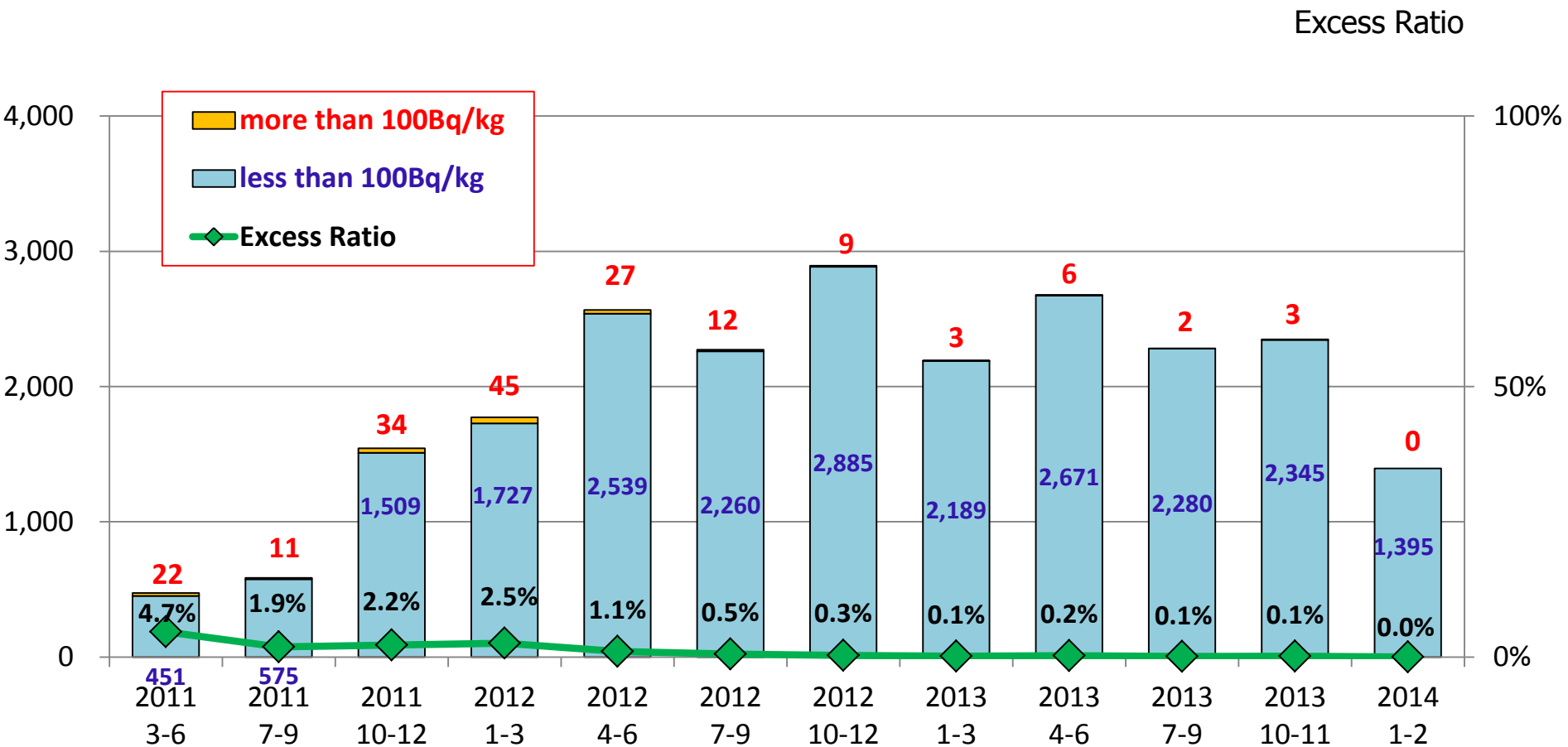
- Fukushima prefecture-

- ▶ The excess ratio shows constant decrease, and it was 1.6% in the period of January to February, 2014.
- ▶ Coastal fishing and trawl fishing off Fukushima have been suspended except for trial fishing.



13. Monitoring results for marine fishery products(4) -the other prefectures-

- ▶ In prefectures other than Fukushima, excess ratio has been gradually decreasing to under 1% in 3rd quarter of 2012.
- ▶ No sample was exceeded the limit from January to February, 2014.



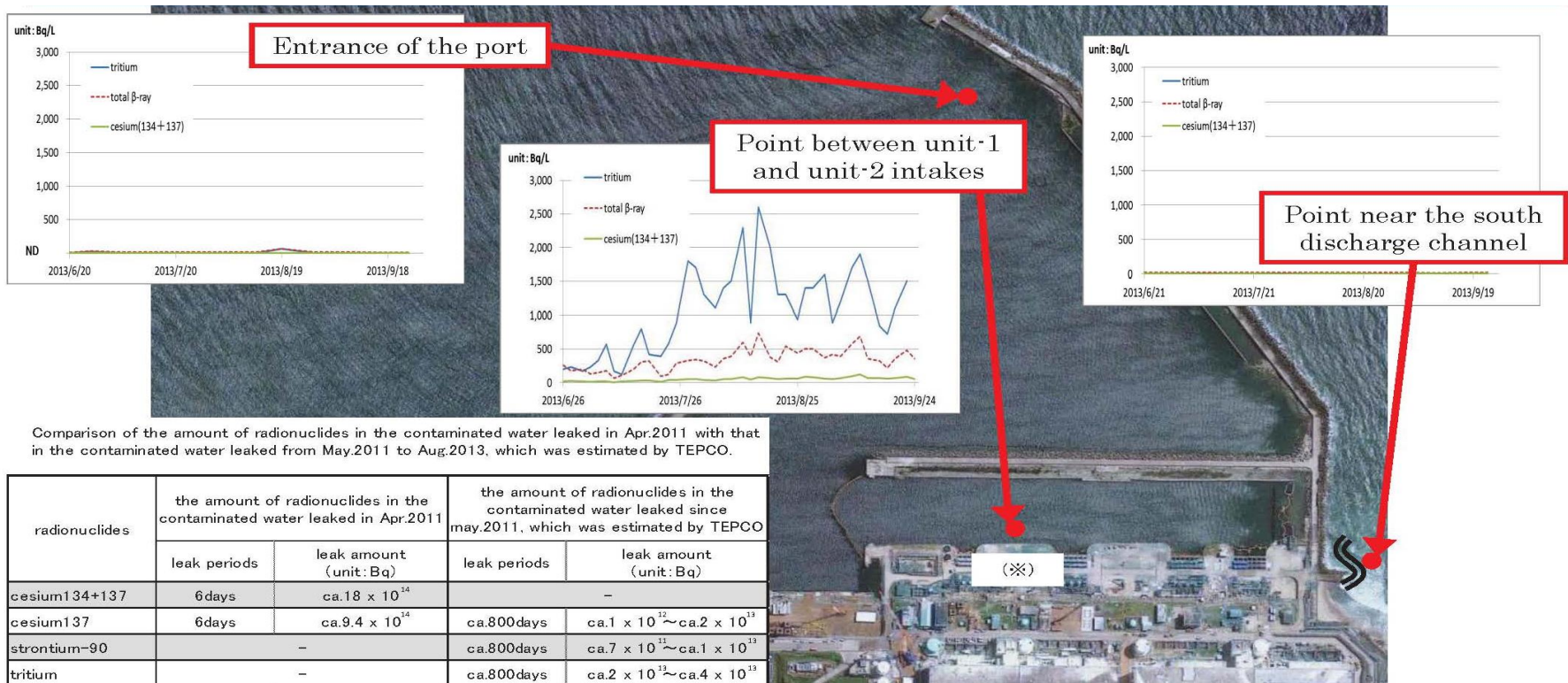
14. Countermeasures against contaminated water issue

- ▶ Three principles of countermeasures against contaminated water issue in Fukushima power plant incident:
 - 1) Removing the source of the contamination
 - 2) Isolating ground water from the contamination source
 - 3) Preventing leakage of the contaminated water

- ▶ Examples of actions:
 - 1) Pumping out the ground water from sub-drain before reaching the reactor building.
 - 2) Installation of sea-side impermeable wall.
 - 3) Installation of high performance contaminated water treatment equipment.

15. Measures taken for monitoring and prevention of water leakage in response to contaminated water leakage issue

Impact of the leakage of contaminated water is investigated by various organizations, including TEPCO, “Ministry of Education, Culture, Sports, Science and Technology” of Japan and prefectural government of Fukushima.



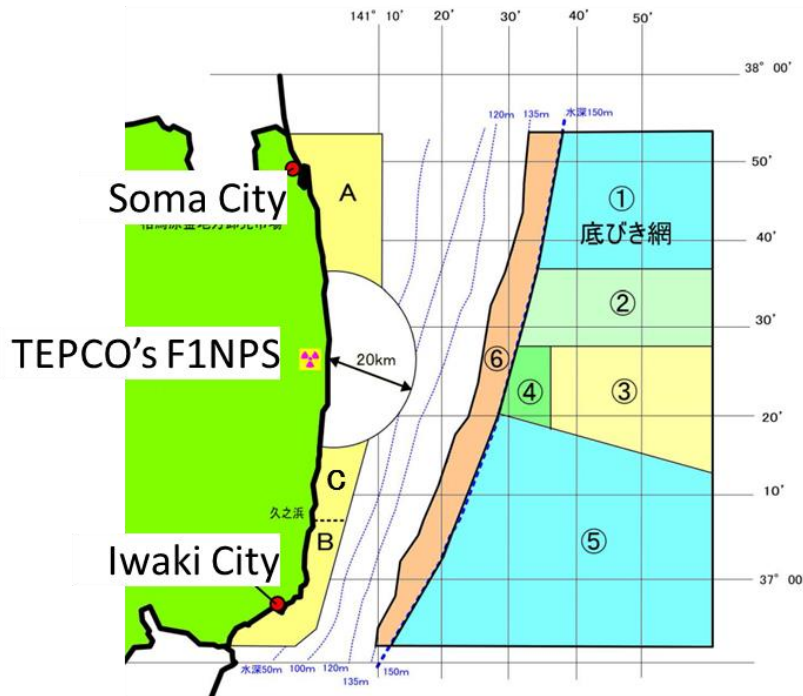
Note: 3.5 Bq/L (6/20 sampling) and 0.36 Bq/L (6/26) for strontium-90 were detected at the entrance of the port and the point near the south discharge channel, respectively.

(prepared by Fisheries Agency based on information from TEPCO)

16. Safety measures taken for fishery products in response to contaminated water leakage issue

The area of trial fishing operation

as of 1 March 2014



the area of offshore bottom trawlers : ①～⑥
the area of octopus pot fishery : ①～④
the area of coastal pelagic trawlers : A～C
The area of coastal gillnet fishery : A,C

- ▶ Fishing operation in general has not been conducted since March 2011.
- ▶ In addition, even trial operations has not been conducted within a 20km radius of Fukushima Dai-ichi Power Plant.
- ▶ The species of fish caught in trial operations are limited to those that are confirmed to be safe based on the results of monitoring.
- ▶ In order to prevent contaminated fish from being distributed in the market, cumulative measures are taken, namely, mutual surveillance among fishermen, monitoring of radioactive materials and filtering of products sold.

17. IAEA international peer review mission

- ▶ IAEA dispatched international peer review mission on decommissioning of Fukushima Daiichi Nuclear Power Station from Nov. 25 to Dec. 4, 2013, and reported that systematic approach of Japan ensures the safety of marine fisheries products in the markets.

IAEA mission report (excerpt)

“ Japan adopted a limit of 100 Bq/kg in combined Cs-134 and Cs-137 for food products in 2012, which also applies for marine fishery products, to keep public dose below the international standard level (1mSv/year, the Codex Alimentarius, <http://www.codexalimentarius.org/codex-home/en/>). Accordingly, the comprehensive monitoring system has been developed by Japan, both for seawater and for the products in the food chain. Additionally, Japan has introduced limits for food controls that are based on the international standard level. This systematic approach, together with the distribution restrictions by relevant local governments, ensures the safety of the marine fishery products in the market. “