

Fisheries and the monitoring and inspection in Fukushima during 9 years

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#4 SCIENCE AND SOCIETY

Introduction

- Fisheries product was contaminated by radiocesium ($^{134}+^{137}\text{Cs}$) through seawater and their food after the accident of the Fukushima Daiichi Nuclear Power Plant (FDNPP) on March 2011.
- Fisheries in Fukushima were voluntarily stopped and trial fishing (small-scale) was started with limitation of species, fishing area and fishing methods from Jun 2012.
- After the accident, the monitoring and inspection for the fish caught in Fukushima was conducted by Fukushima prefectural government.
- Here, this presentation described the course of fisheries and the monitoring and inspection in Fukushima until 2020 and discussed about the problems for the reconstruction.

Summary

- The monitoring and inspection revealed safety of fish species and fisheries in Fukushima expanded.
- However, trial fishing production was 3,641 ton in 2019 and still about 14% of before accident level.
- Specific discussion for the full-scale fishing like before the accident was recently started among fisheries industry members in Fukushima. Reconstruction of fisheries have just started.

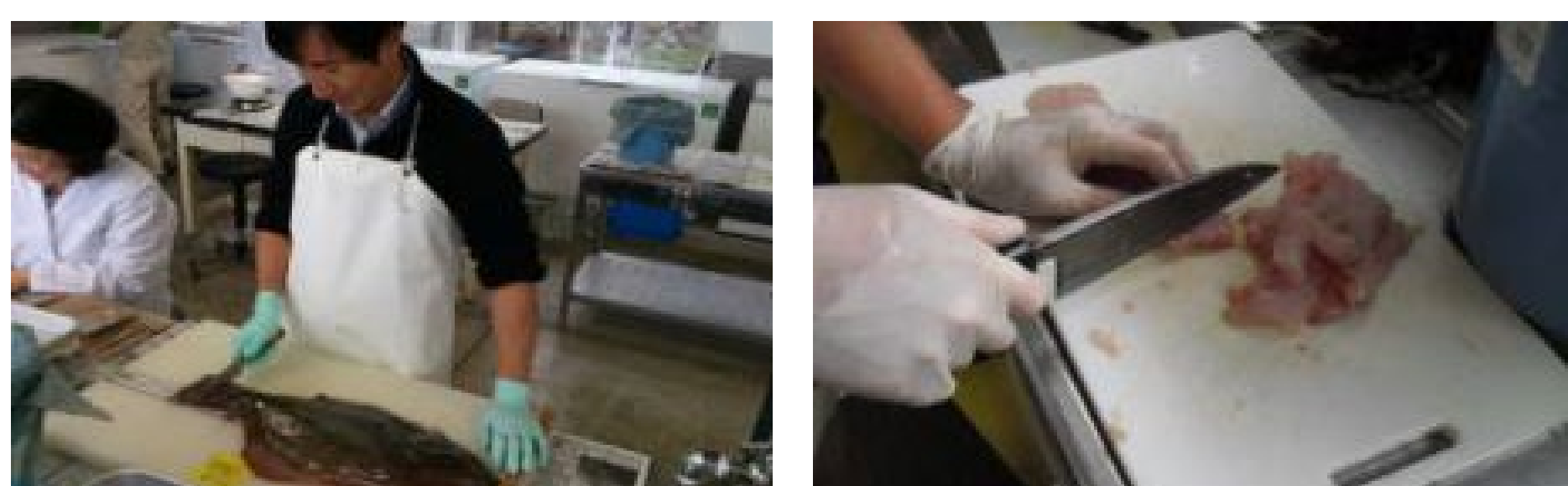
The monitoring and inspection

Sampling



- Fish samples were collected by R/V and fishing boats

Preparation



- Measuring fish total length etc...
- Preparation for inspections

Inspections



- Measuring $^{134}+^{137}\text{Cs}$ concentration by Ge detectors

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Fig. 1 Flowchart of the monitoring and inspection

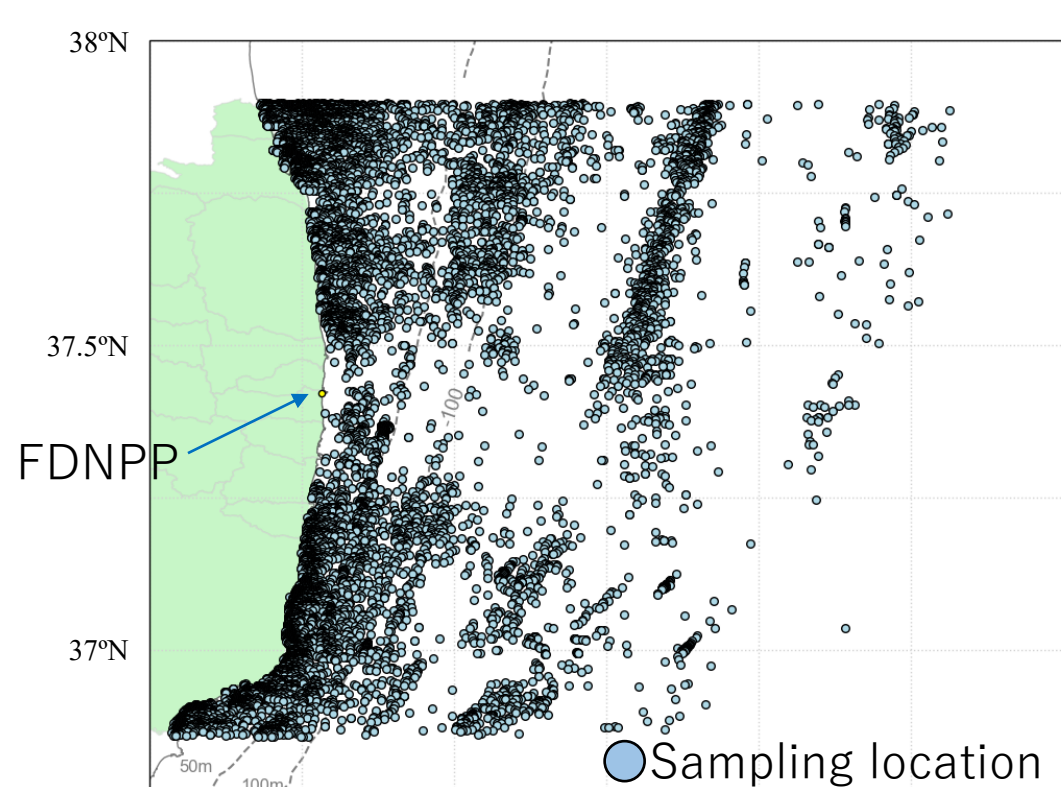


Fig. 2 Sampling location

- Conducting approx. 150 samples/week
- Data are published in website (<https://www.pref.fukushima.lg.jp/site/portal/ps-suisanka-monita-top.html>).
- Total 66,375 samples were inspected until Dec. 2020.

Results

1 $^{134}+^{137}\text{Cs}$ concentration decreased by time (Fig. 3)

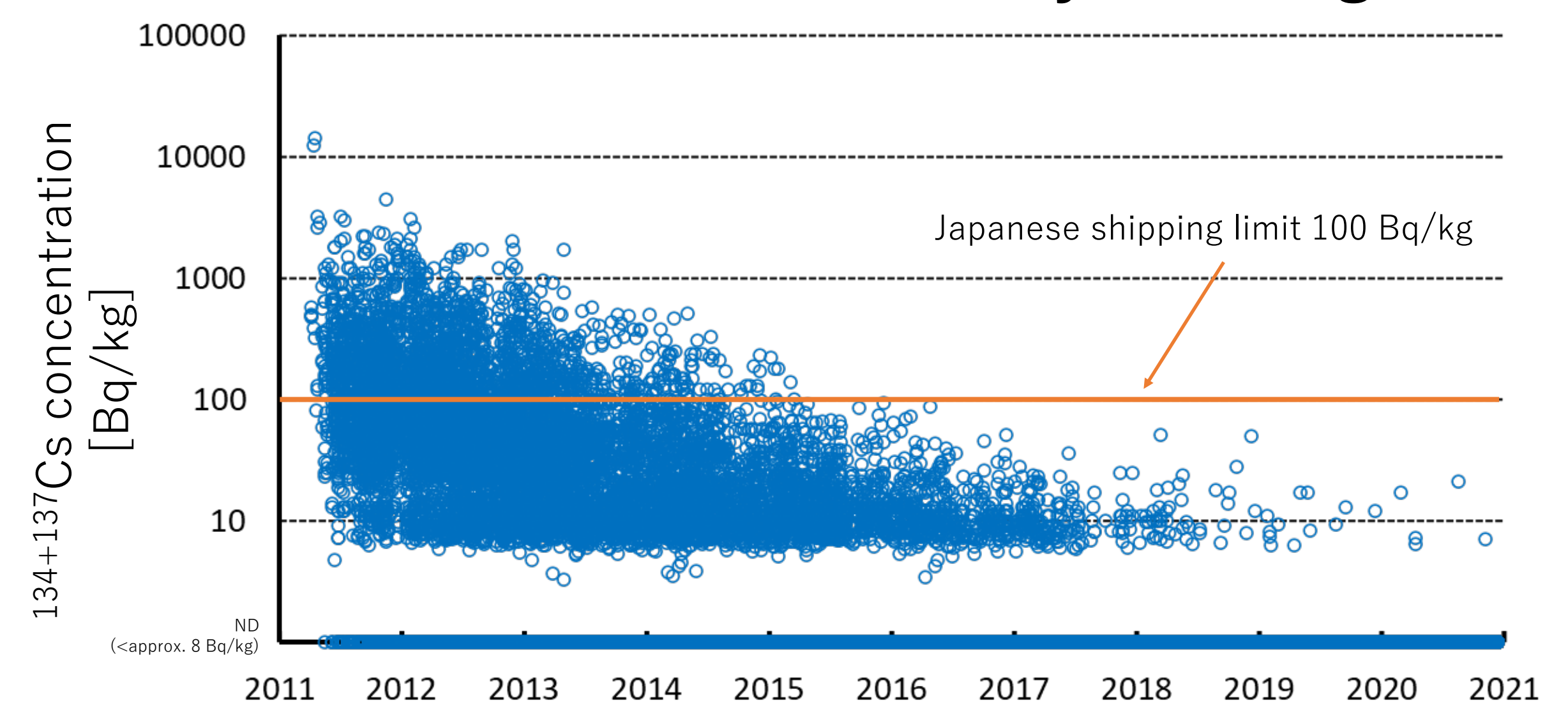


Fig. 3 $^{134}+^{137}\text{Cs}$ concentration in fish samples

2 Ratio of > 100 Bq/kg samples decreased and ratio of ND samples (< approx. 8 Bq/kg) increased by time (Fig. 4)

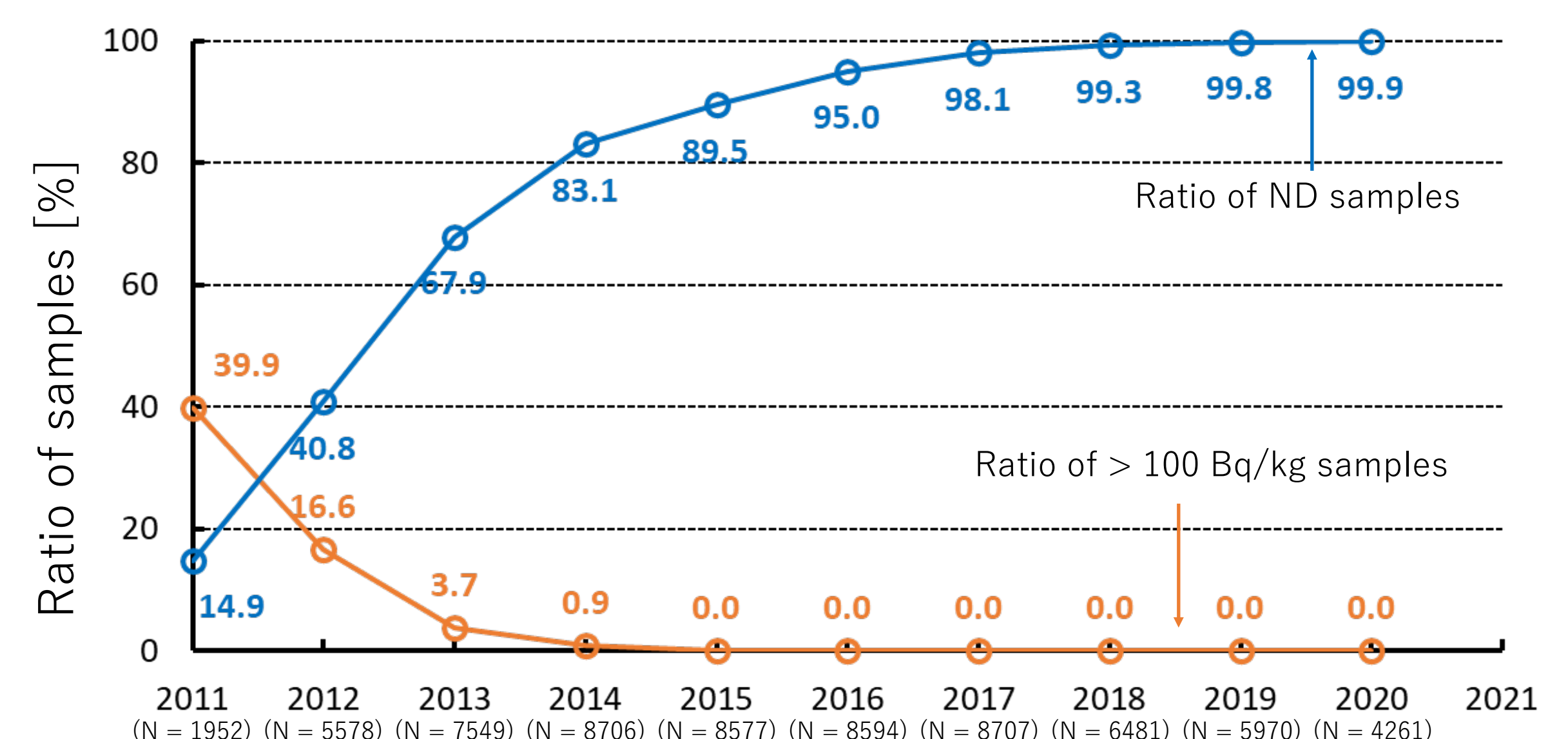


Fig. 4 Ratio of (○) > 100 Bq/kg samples and of (○) ND samples

Reconstruction and problems

1 No fish species restricted on the distribution from Feb. 2020 (Fig. 5) and trial fishing can all fishing ground except within 10 km of FDNPP from Mar. 2017 with target species more than 218 species now.

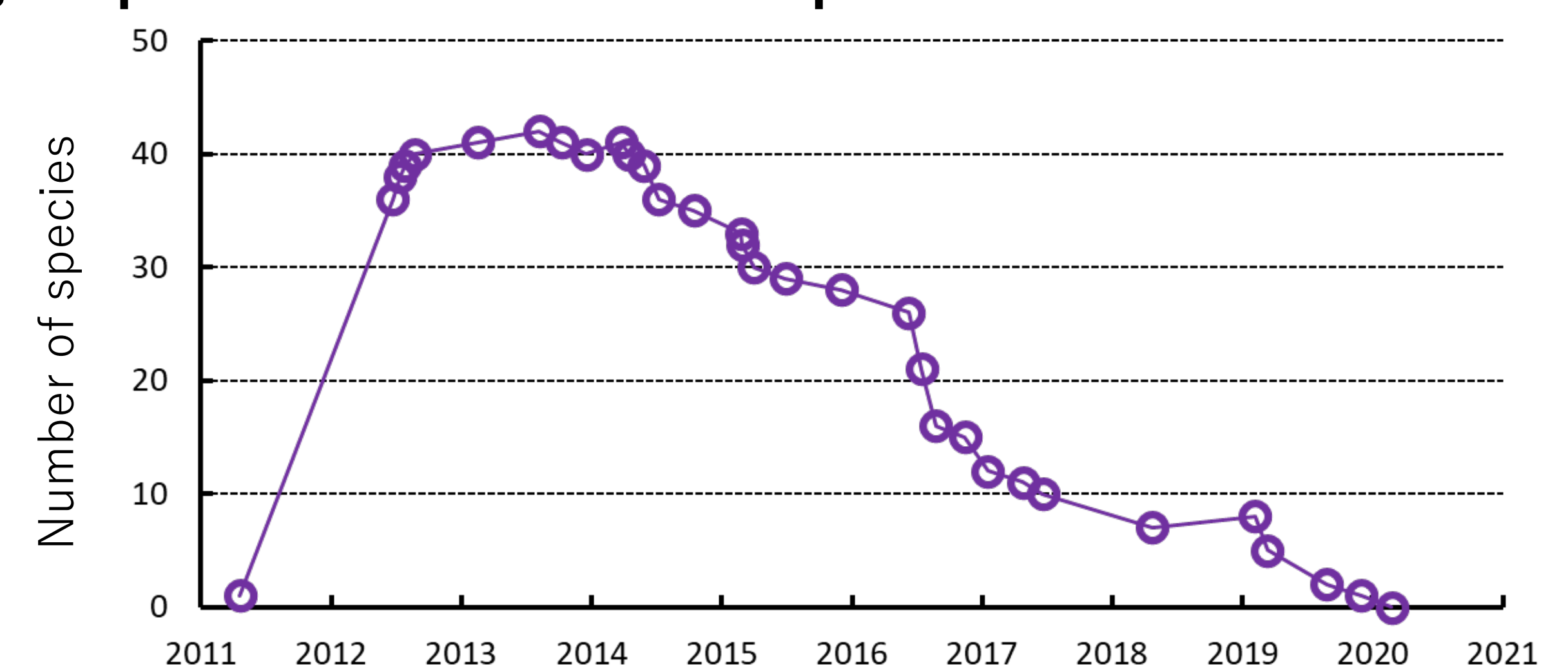


Fig. 5 Number of species restricted on the distribution

2 Trial fishing production increased after the accident, but it is still about 14 % of before accident.

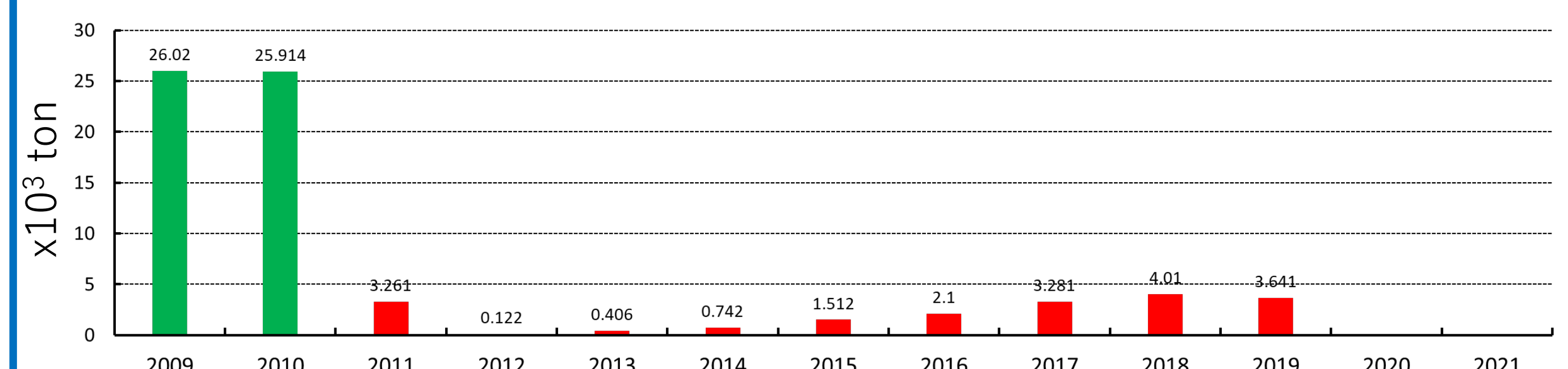


Fig. 6 Annual fisheries production

- Shipping system changed during voluntary ban.
→ Production and distribution system have to be reconstructed.
- There are still harmful rumors to fisheries products.
→ Promotion campaign is more needed.
- The monitoring and inspections has to be continued to confirm safety of fisheries products for reconstruction in the future.