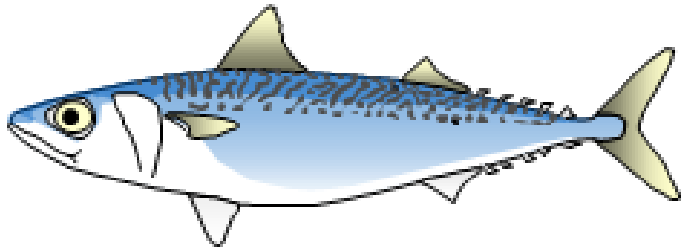
Recent fishery and stock status of chub mackerel from Japan

Up to Oct 2024



NPFC-2025-TWG CMSA10, Virtual

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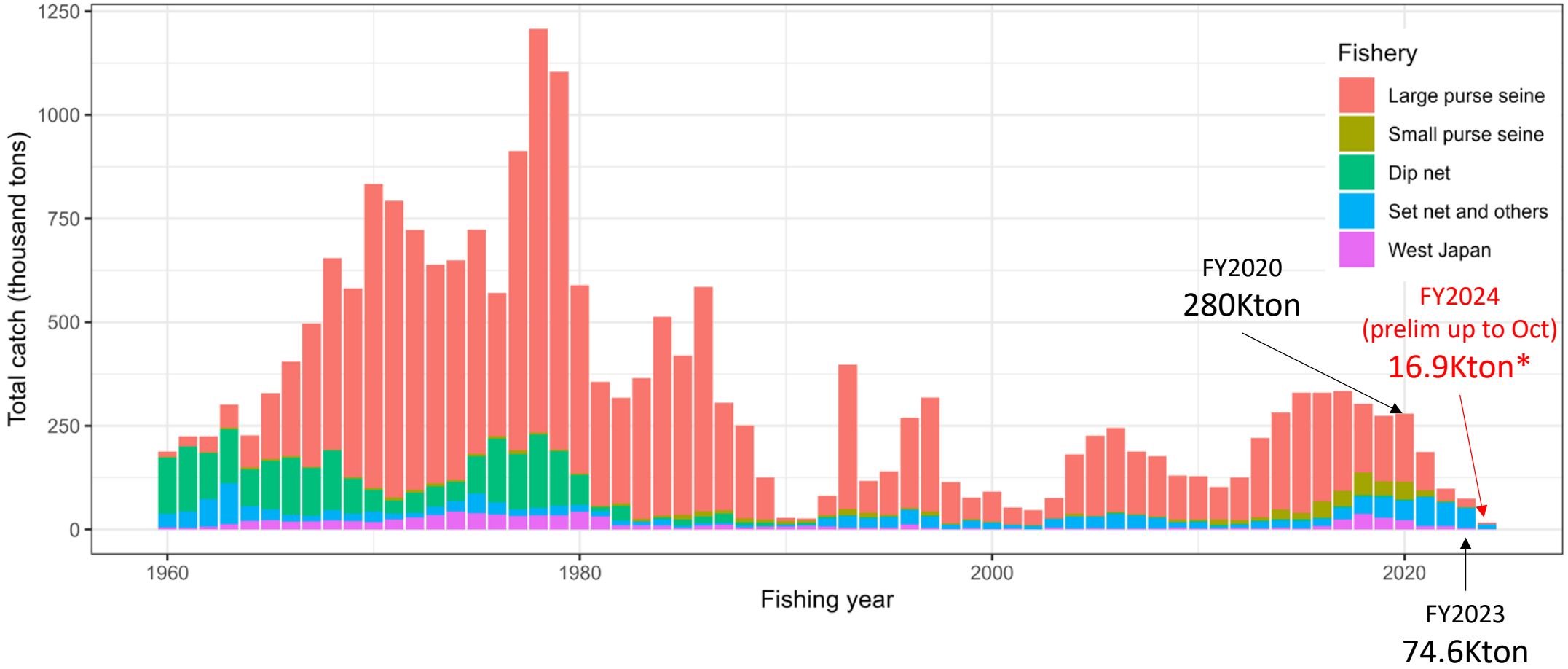
Fisheries Research Agency (FRA) JAPAN

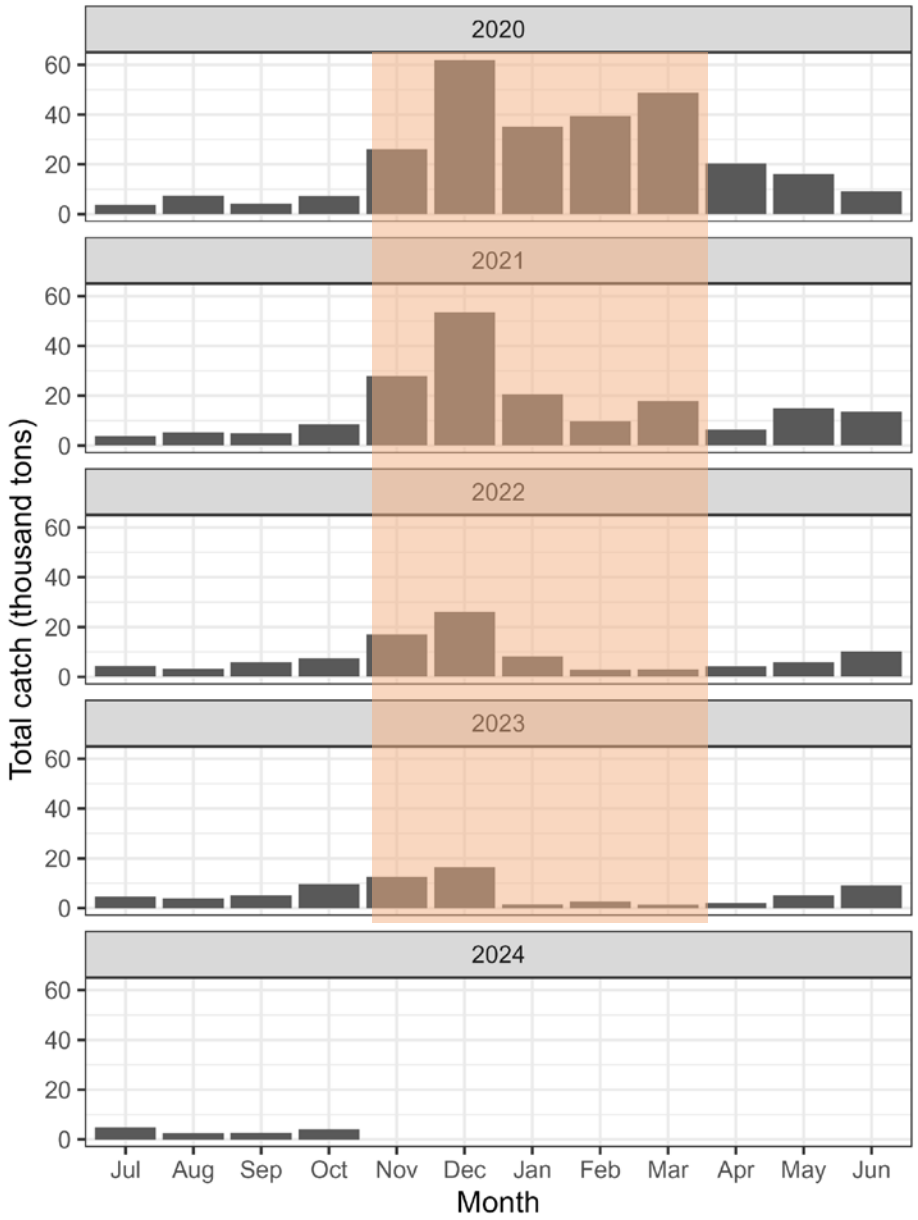
Catch by Japanese fisheries (up to Oct 2024)



- Fishing year-based catch data (July – following June)
- **Large purse seine** as the primary catch – 20.4 thousand tons in FY2023
- Catch in FY2024 (up to Feb 2024) is 16.9 thousand tons* so far

* Preliminary result up to Octber, number may change

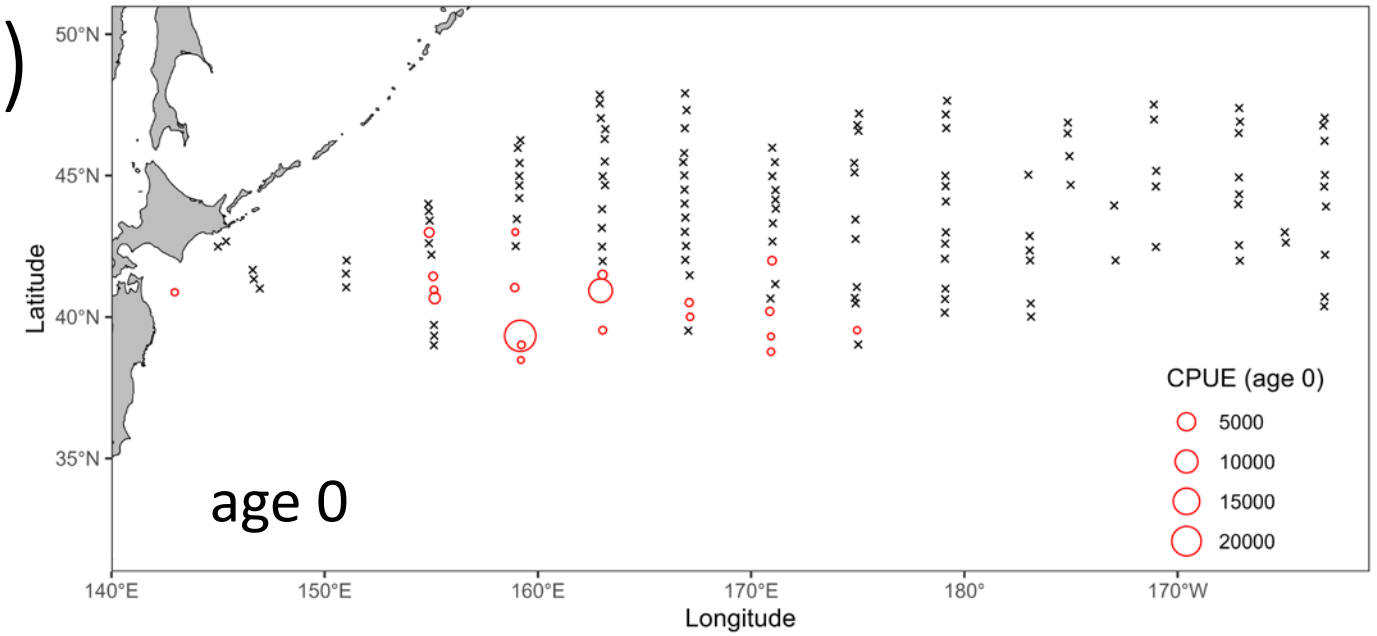
Monthly catch up to FY2023

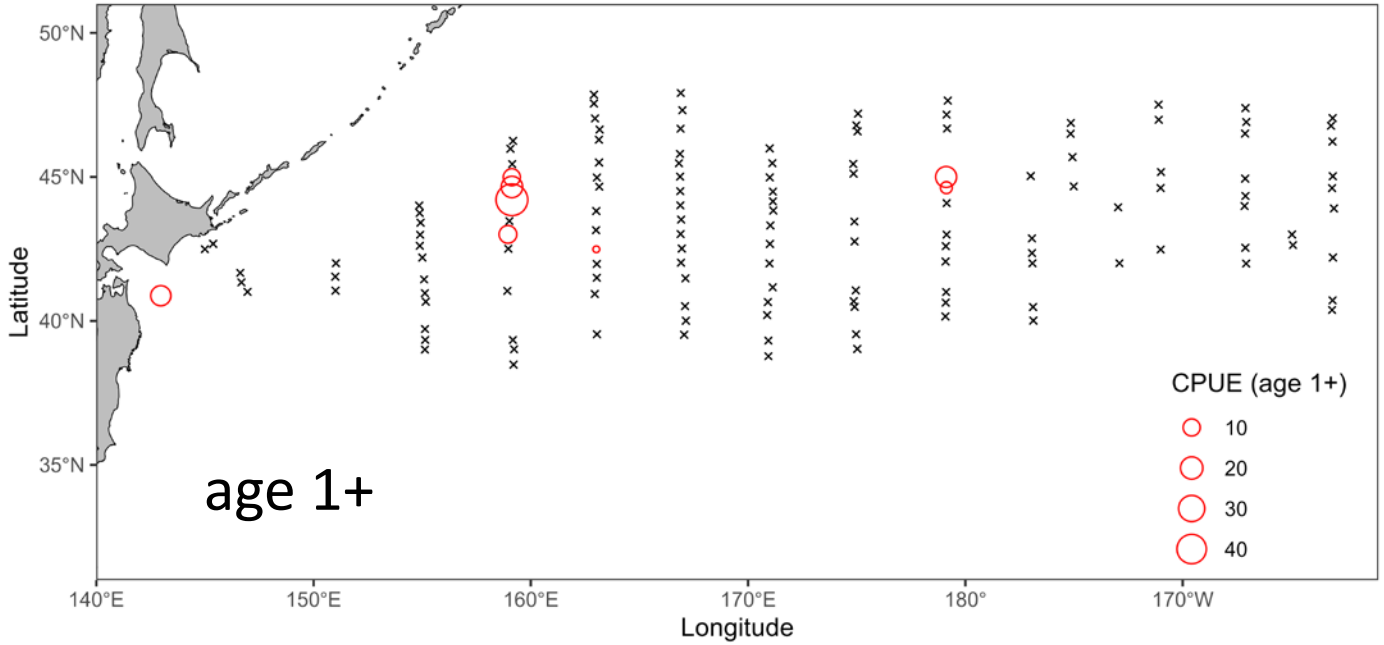


- Substantial catch between November and March
- Highest catch tends to be observed in December
- The peak catch is decreasing -> 16.4 thousand tons in FY2023

Research survey (Summer)

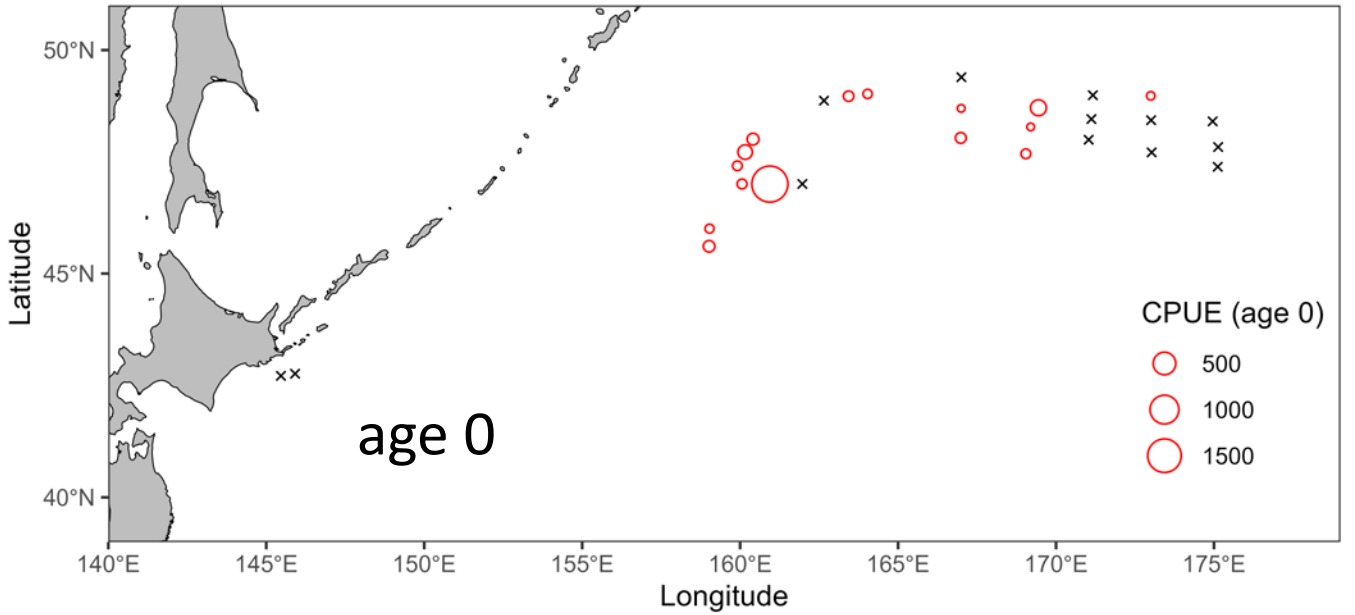
- Age 0 fish appeared between 150E-170E
- Small number of age 1 fish was observed around 160 E
- Nominal CPUE was generally low during the summer survey of the 2024 CY

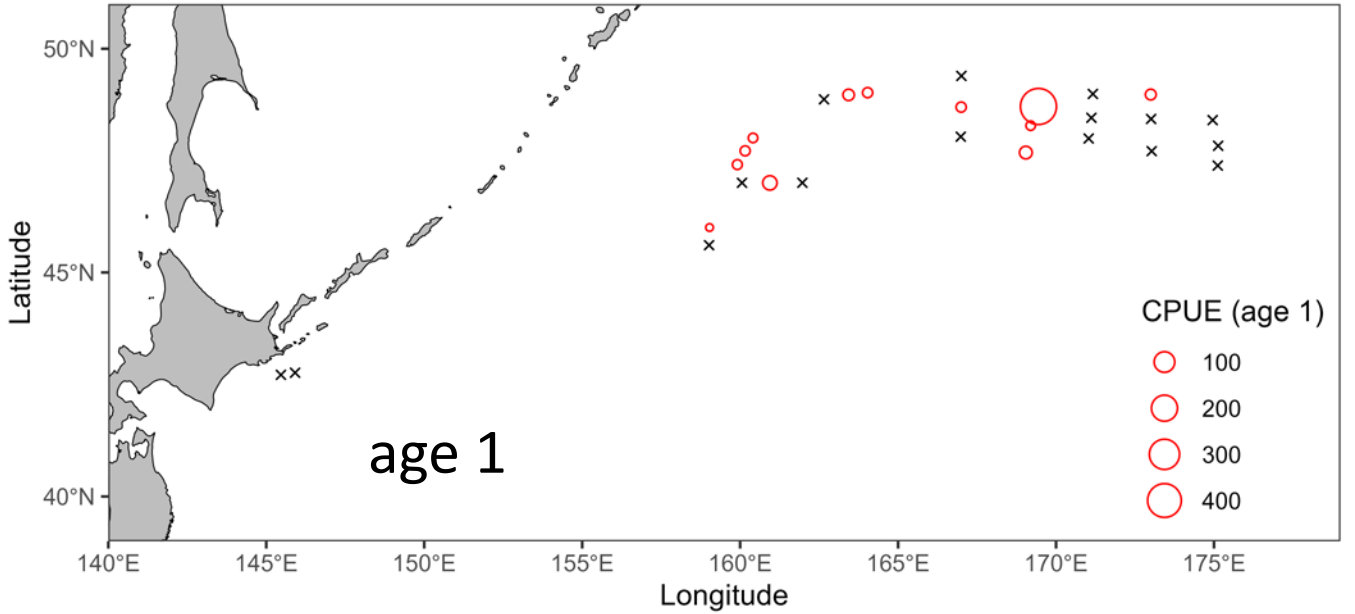




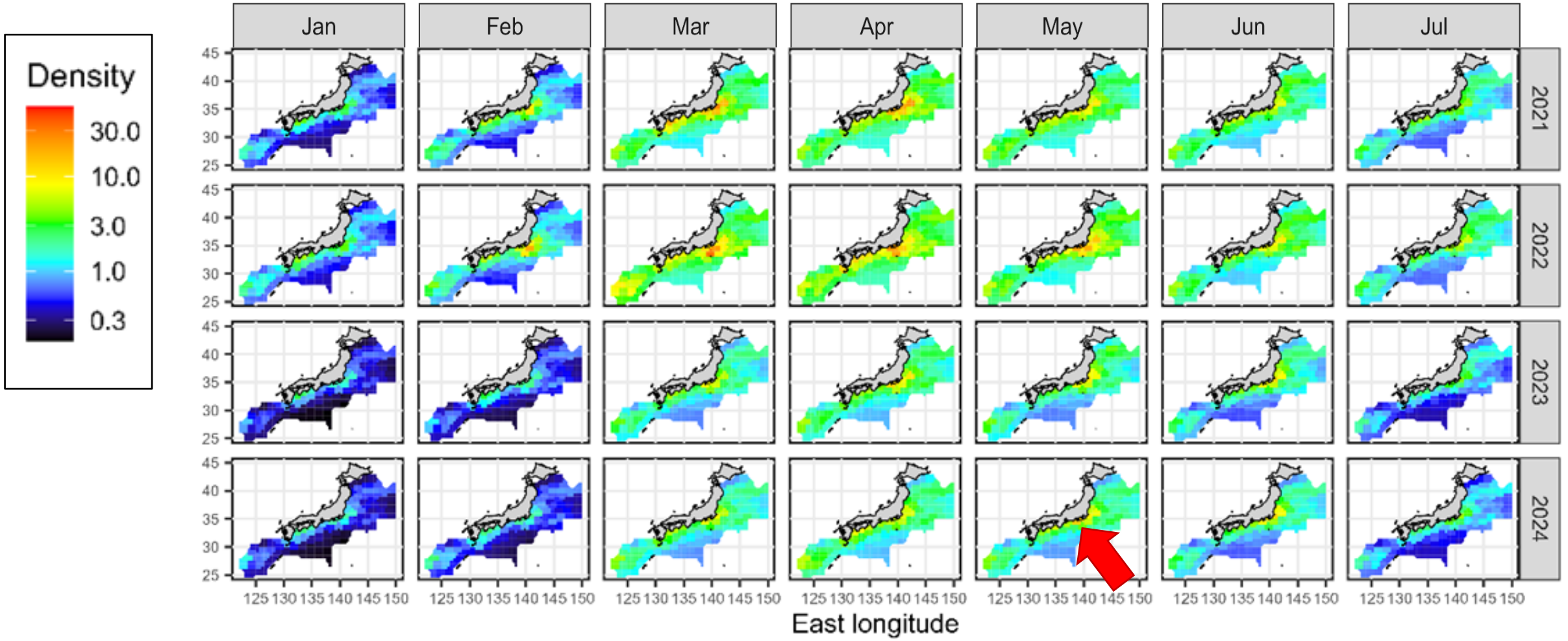
Research survey (Autumn)

- Limited survey point for west of 160E
- Still showing broad distribution to 170E
- Due to adverse weather conditions, the survey in the coastal area was not conducted



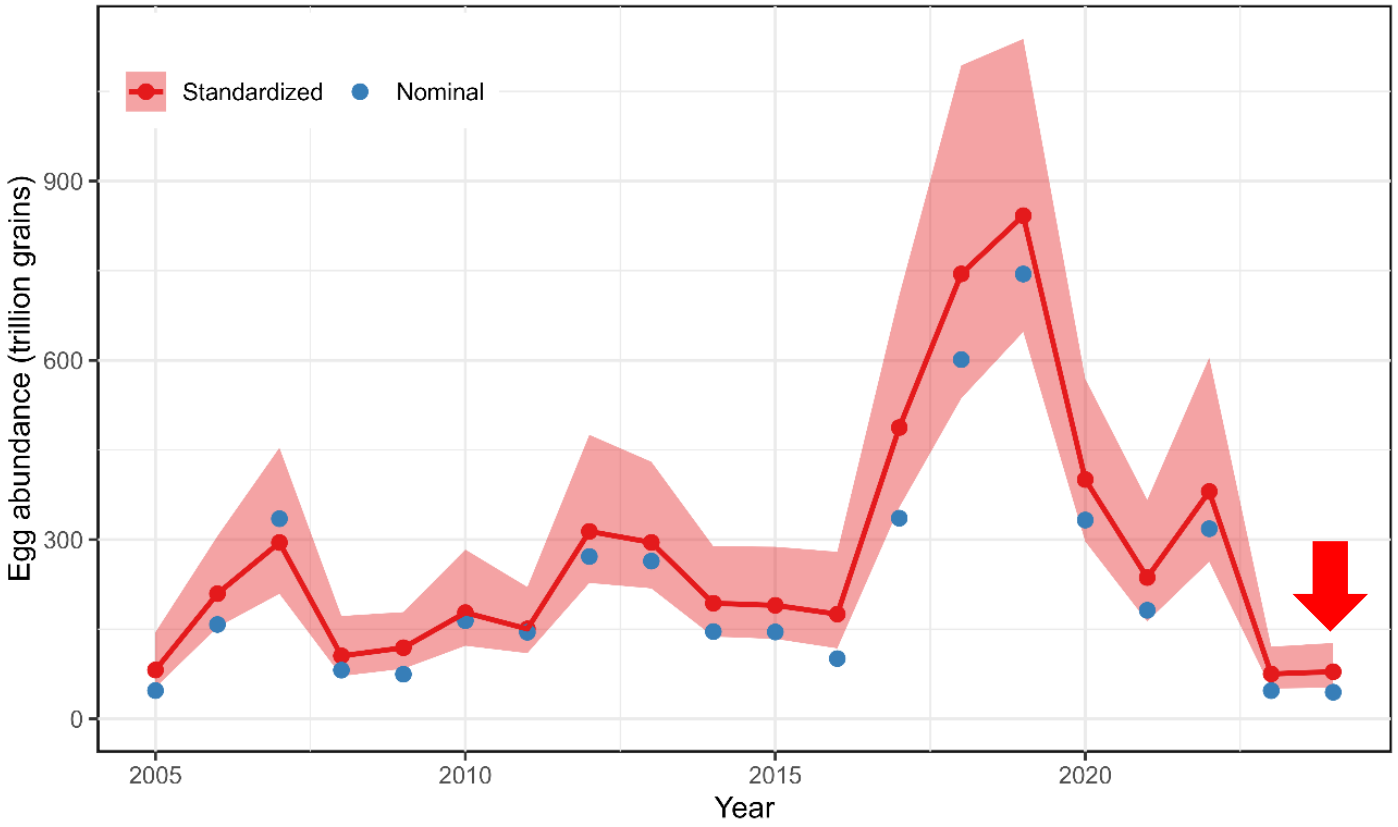


Egg survey



- Egg density of 2024 exhibited the center of egg density exists around Izu Islands
- Egg density has remained low since 2023

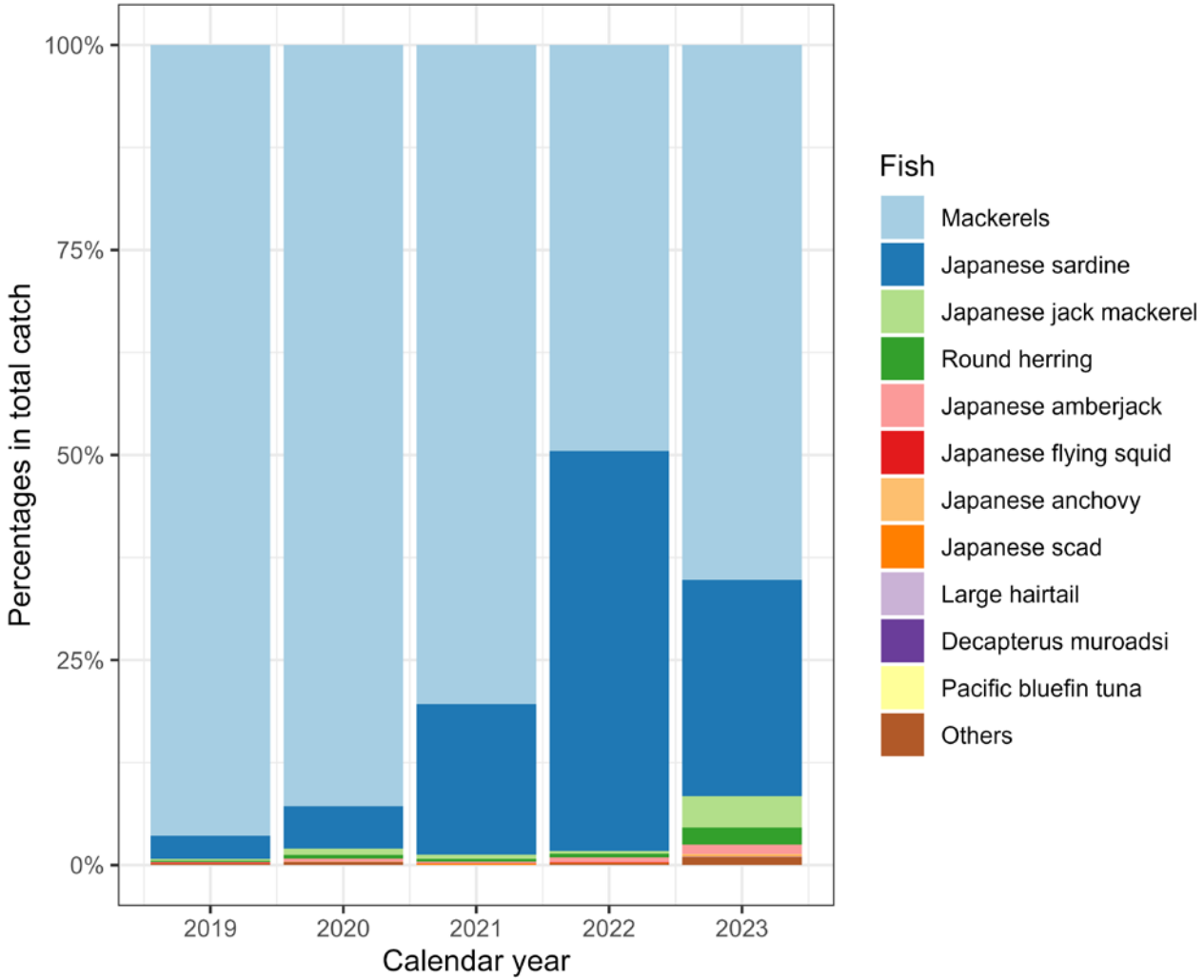
Egg survey



- Egg abundance has been low since 2023 CY
- Suggests the level of reproductive event was low in 2024 CY

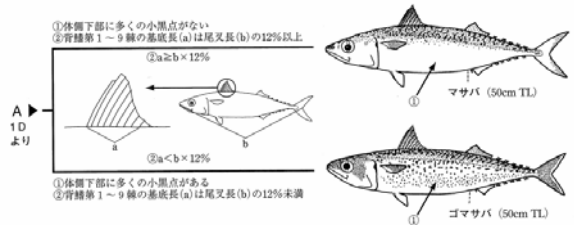
Bycatch information (Large purse seine)

Agenda item 14.2.1



- Significant proportion of the CM catch coming from large purse seine
- Catch records including mackerels catch were extracted from logbook
  ->Species composition was examined
- Statistics only reported the combined total catch of CM and blue mackerel
- Japanese sardine is the most commonly caught species

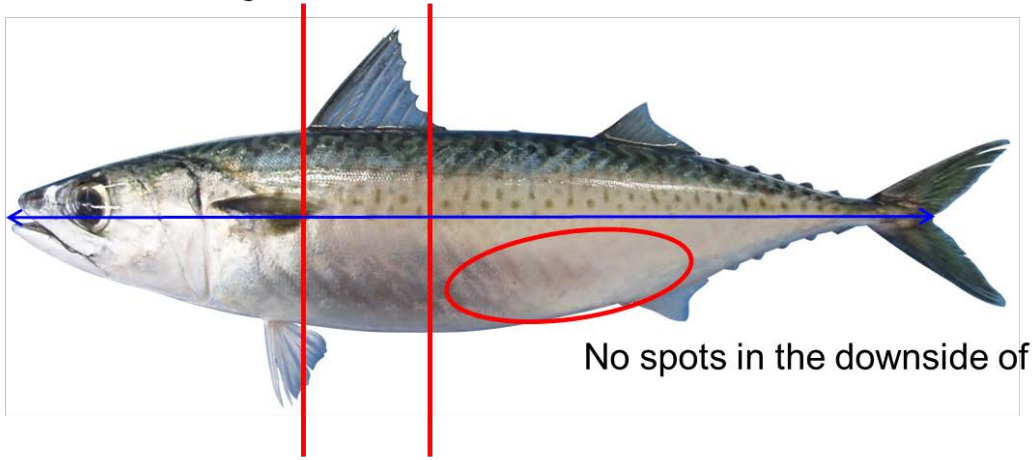
Distinguishing between Chub and Blue Mackerel



Search for Japanese Fishes, 3rd ed. (2013)

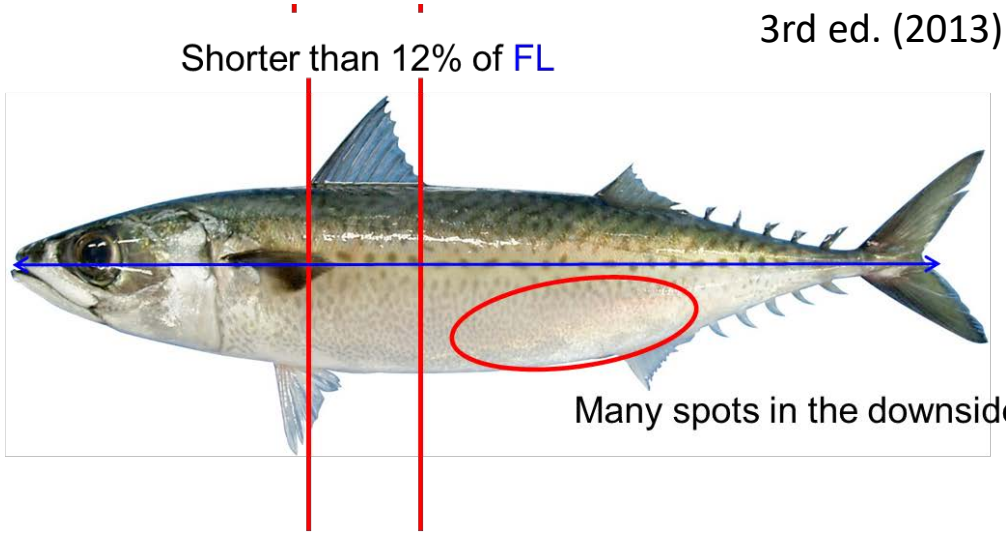
Chub mackerel

Longer than 12% of FL



Blue mackerel

Shorter than 12% of FL



Chub mackerel

① No small black spots in the downside of body

② **Basal length between 1st and 9th spines of dorsal fins is equal to or longer than 12% of fork length**

Blue mackerel

① Many small black spots in the downside of body

② **Basal length between first and ninth spines of dorsal fins is shorter than 12% of fork length**

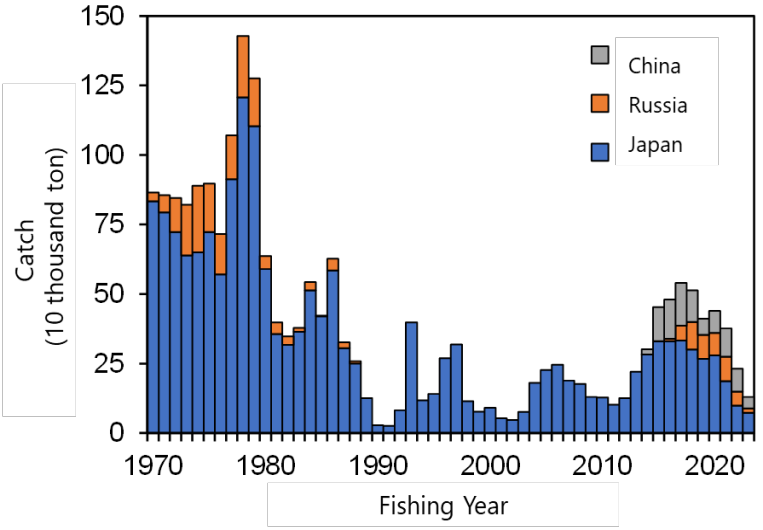
Estimation of chub–blue mackerel ratio

- Prefectural officers sample mackerels at major ports in each prefecture on randomly selected dates
- The sampled mackerels are identified by species, and chub/blue mackerel ratio is estimated for each month, port and fishing gear
- Catch tons and the ratio are reported to the FRA, which then estimates the total catch for chub and blue mackerels
- The ratio is calculated by dividing the total catch of each species by the total mackerel catch

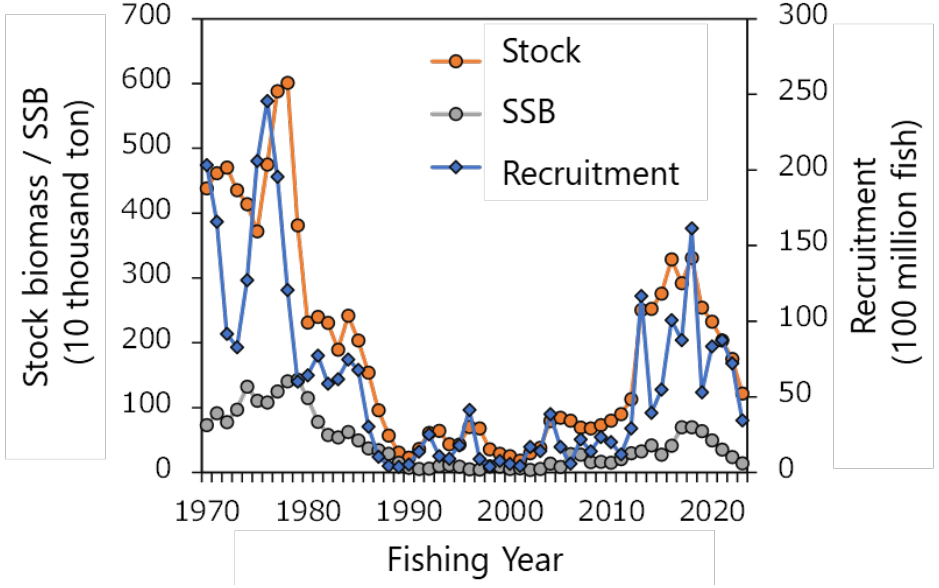
Fishing year	Total catch	Analyzed	Proportion
2021	881,886,380	27,510	0.0031%
2022	501,412,011	27,789	0.0055%
2023	485,845,934	24,129	0.0050%

Japanese domestic assessment for CM

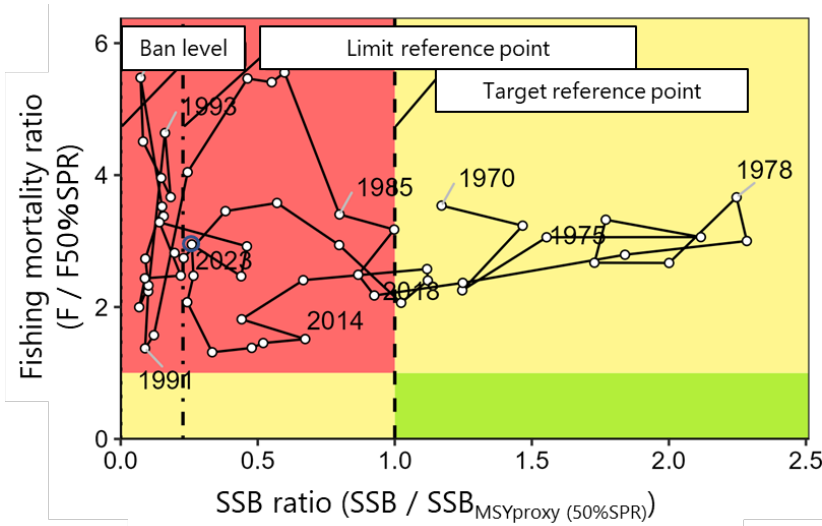
Time series of catch



Time series of biomass, SSB, and recruits



Kobe plot



- Data from 1970 FY to 2023 FY was used
- Data from China and Russia used (CAA, WAA, abundance indices)

- Total biomass, SSB and recruitment is decreasing in recent years

- Fishing mortality (*F*) exceeded the F50%SPR
- SSB was below $SSB_{MSY\ proxy}$

TRP	LRP	Ban level	SSB in 2023 FY	MSY proxy	Total catch in 2023
626,000 mt	142,000 mt	0 mt	144,000 mt	194,000 mt	130,000 mt

A proxy of Fmsy: F50%SPR

MSY-based reference points were not applied -> high uncertainty in biological parameters

Target reference point (TRP): SSB under F50%SPR fishing scenario (MSY proxy: 196,000 tons)

Limit reference point (LRP): 10% of the pristine SSB under a no-fishing scenario (SSB0)

Ban level : tentatively set at 0 tons.