

## Agenda Item 7

# Updated Maturity at age from Japan

NPFC 2025 TWG CMSA 10

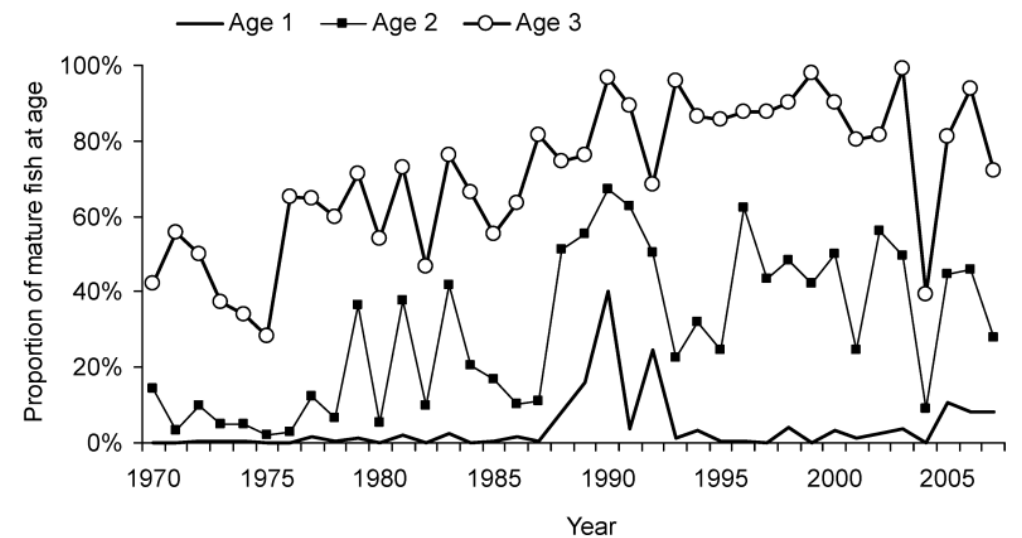
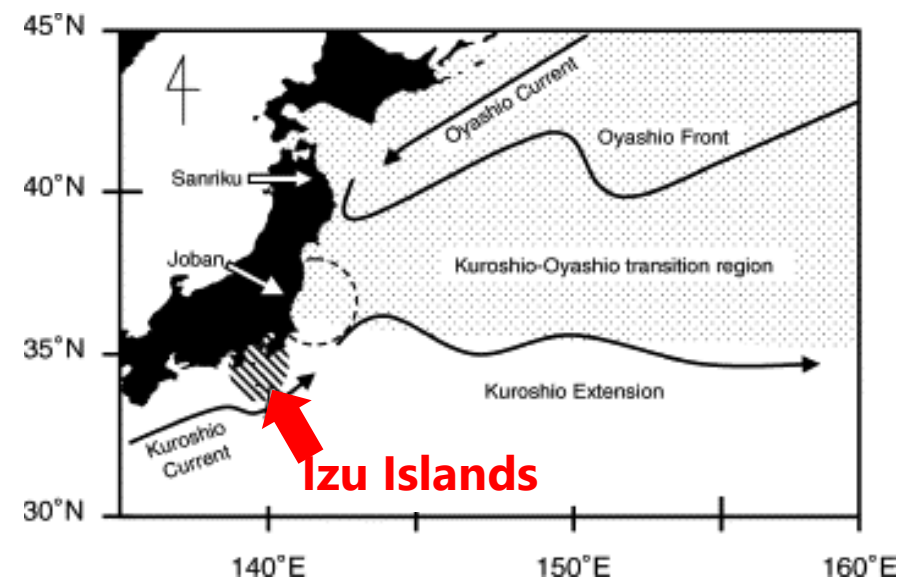
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Japan Fisheries Research and Education Agency

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# Maturity at age

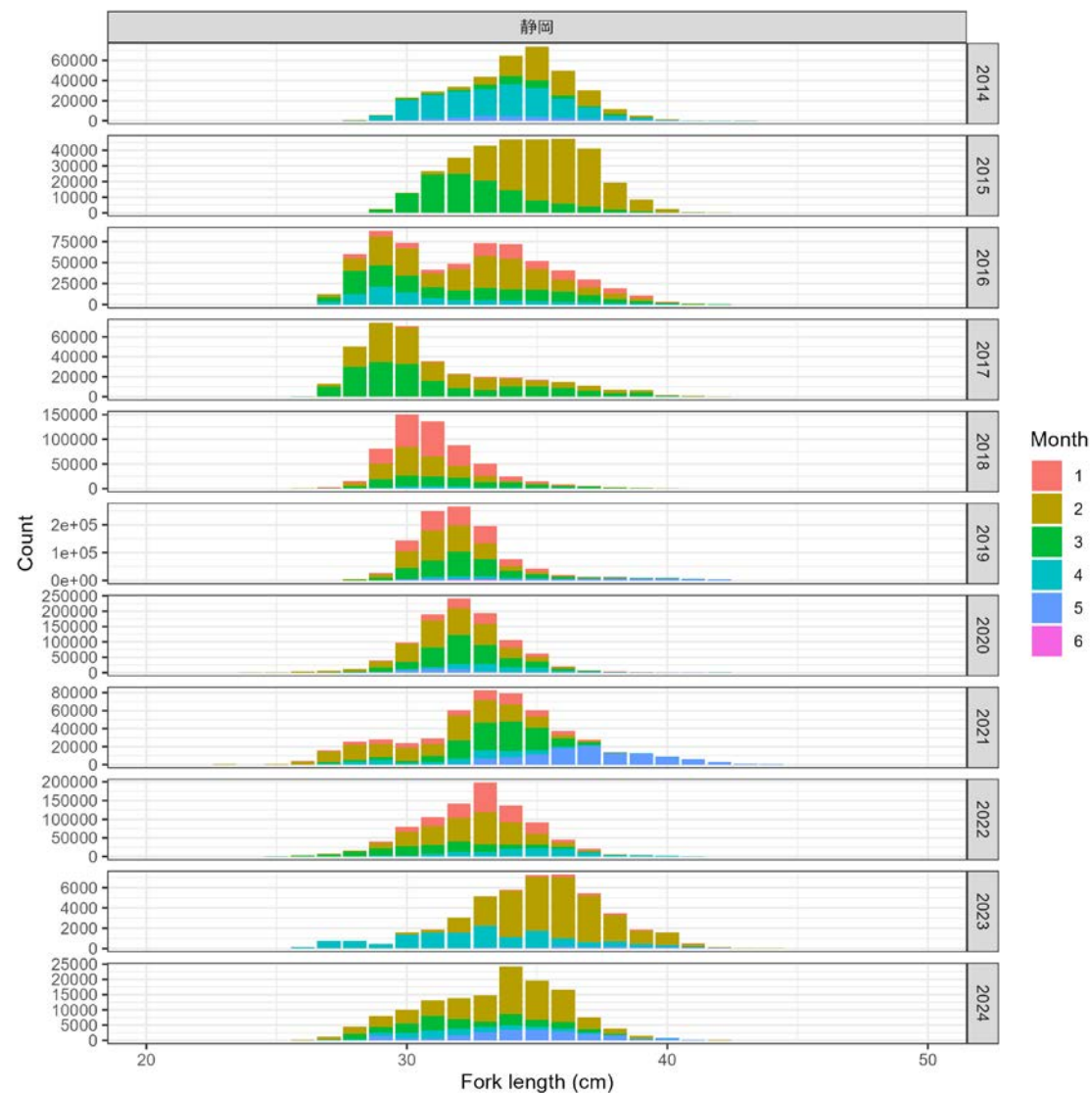
- Water around Izu Islands is considered as the major spawning ground according to egg survey
- Maturity at age is estimated annually
  - KG criteria and stock-status-based maturity (Watanabe and Yatsu 2006 & Watanabe 2010)
  - Observation of aggregating spawning adults in Izu Islands waters



**Figure 5.** Interannual variability in the proportion of mature females of chub mackerel at ages 1–3 between 1970 and 2007 (revised after Watanabe and Yatsu, 2006).

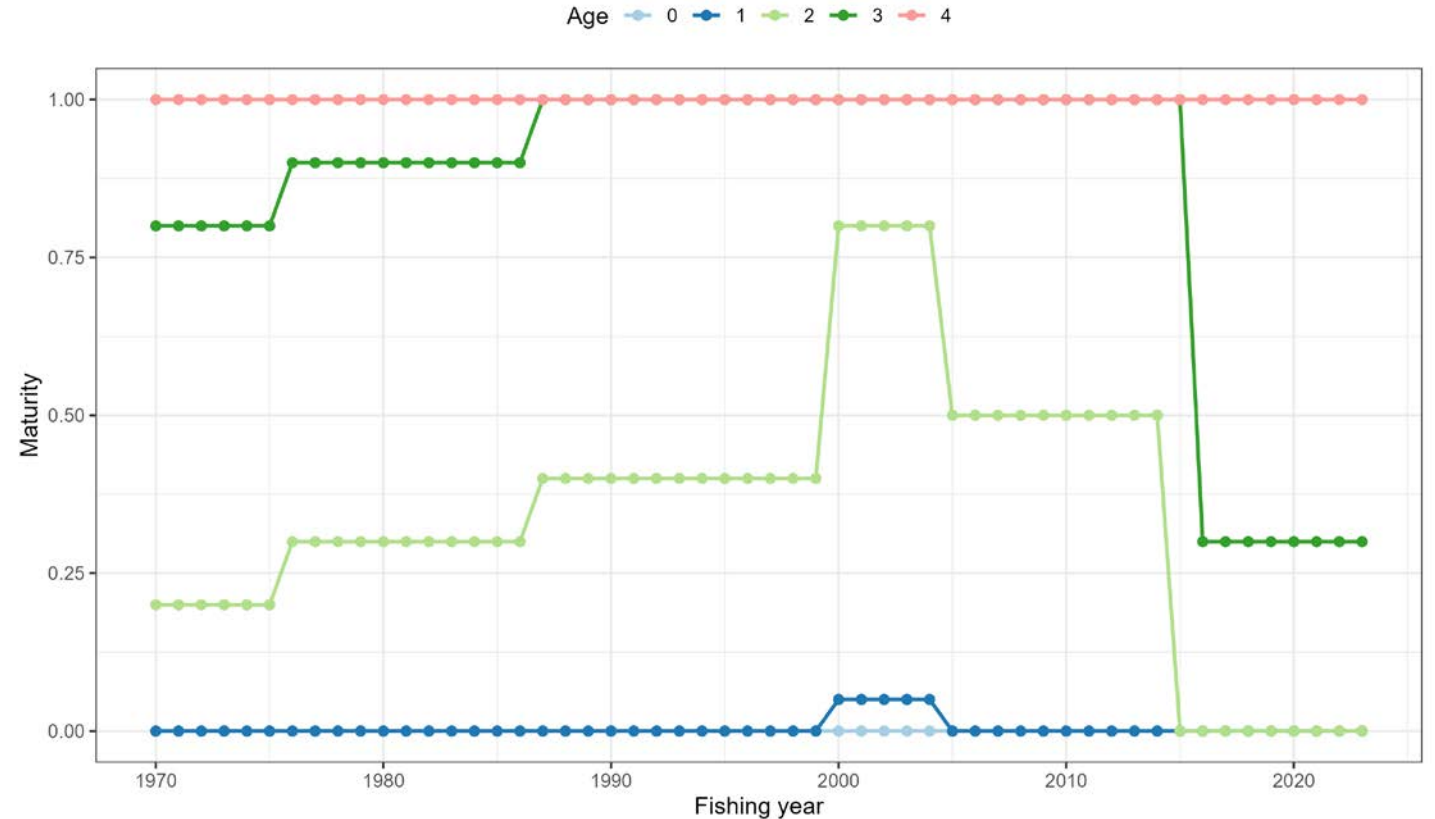
# Length frequency at spawning ground

- Length frequency of dip-net fishery from Shizuoka prefecture
  - Known to target aggregating adults for spawning
- Location of mode shifts
  - CY2014-2015 : 34-36cmFL
  - CY2016-2020 : 29-32cmFL
  - CY2021-2024 : 33-34 cm FL
- With slow growth, aggregating adults are thought to be age 3, with age 4 + as the main group in the recent years



# Maturity at age

Maturity at age FY2023	
Age	Maturity
0	0
1	0
2	0
3	0.3
4+	1.0



- Estimated using Watanabe criterion, sampling, in consideration with spawning aggregation at the major reproductive ground
- Maturity at age in FY2023 is considered unchanged from FY2022
- We acknowledge the necessity of updating maturity at age and Isu-san is working hard!