

2024 Joint longline CPUE indices (Japan, Korea and Taiwan, China) Matsumoto et al. (2024)

- Quarterly time step
- Aggregated data (not operational)
- R1 includes data in Arabian Sea (R1a)
- Recent increase in R1, R3 and R4
- Drives abundance trend in SA

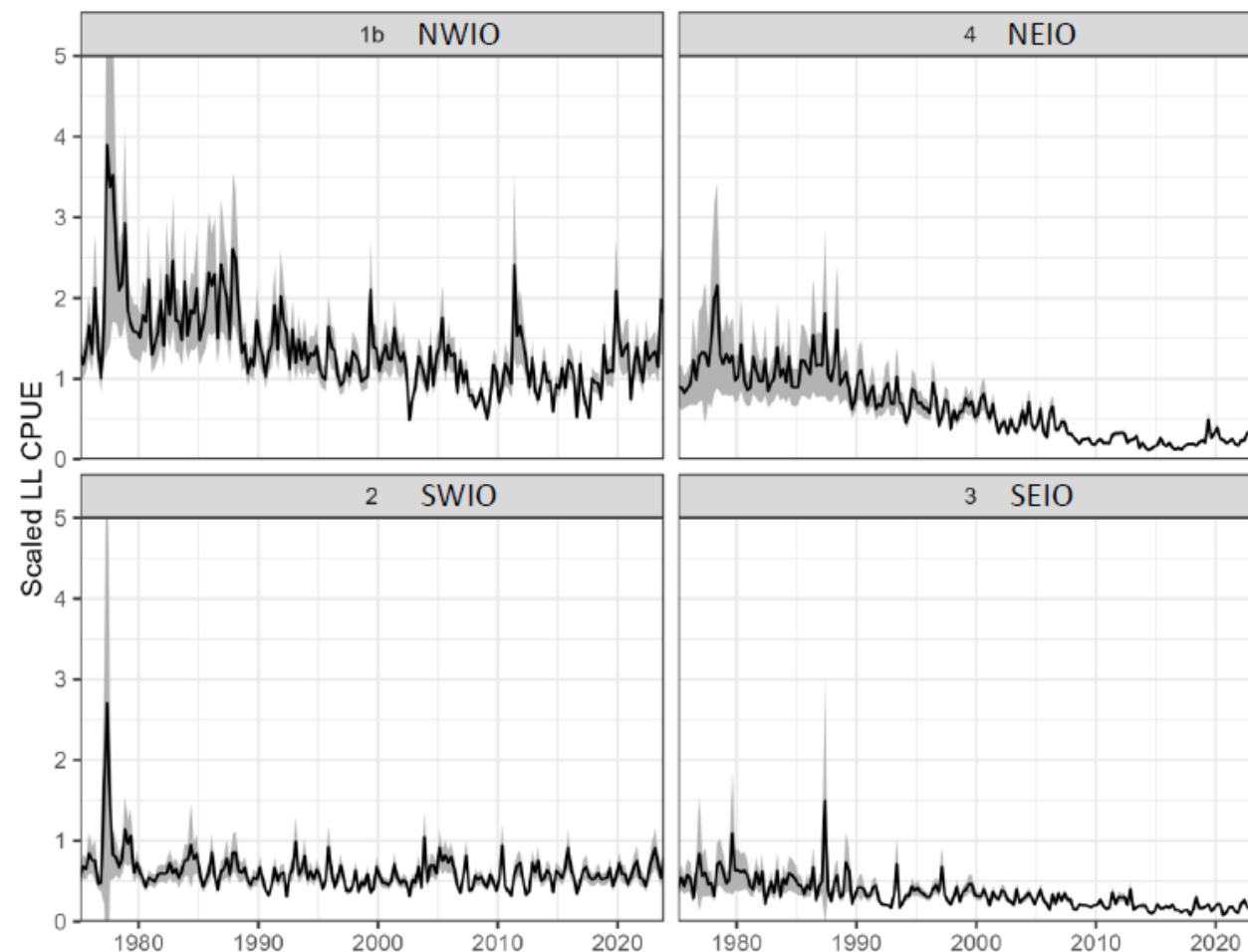
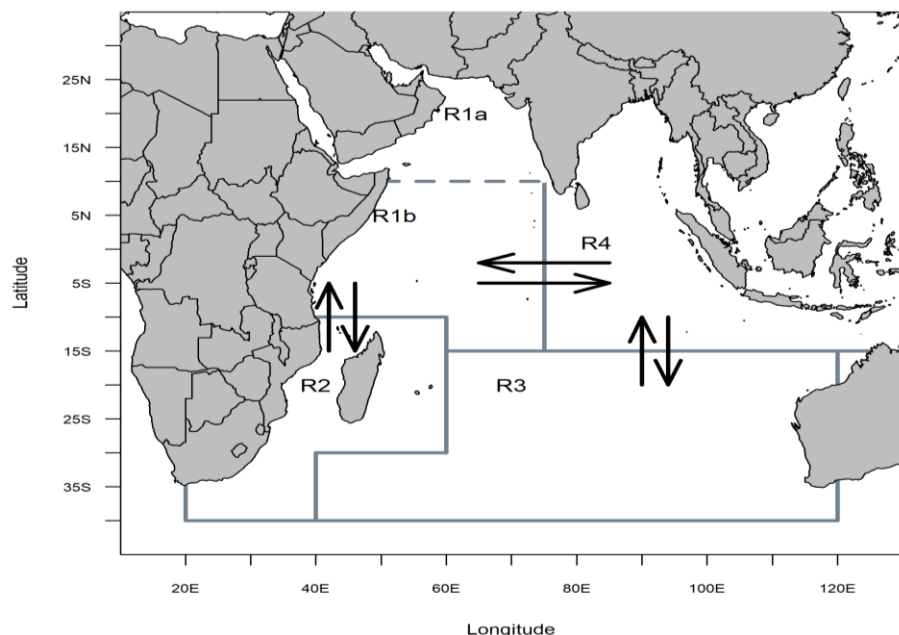
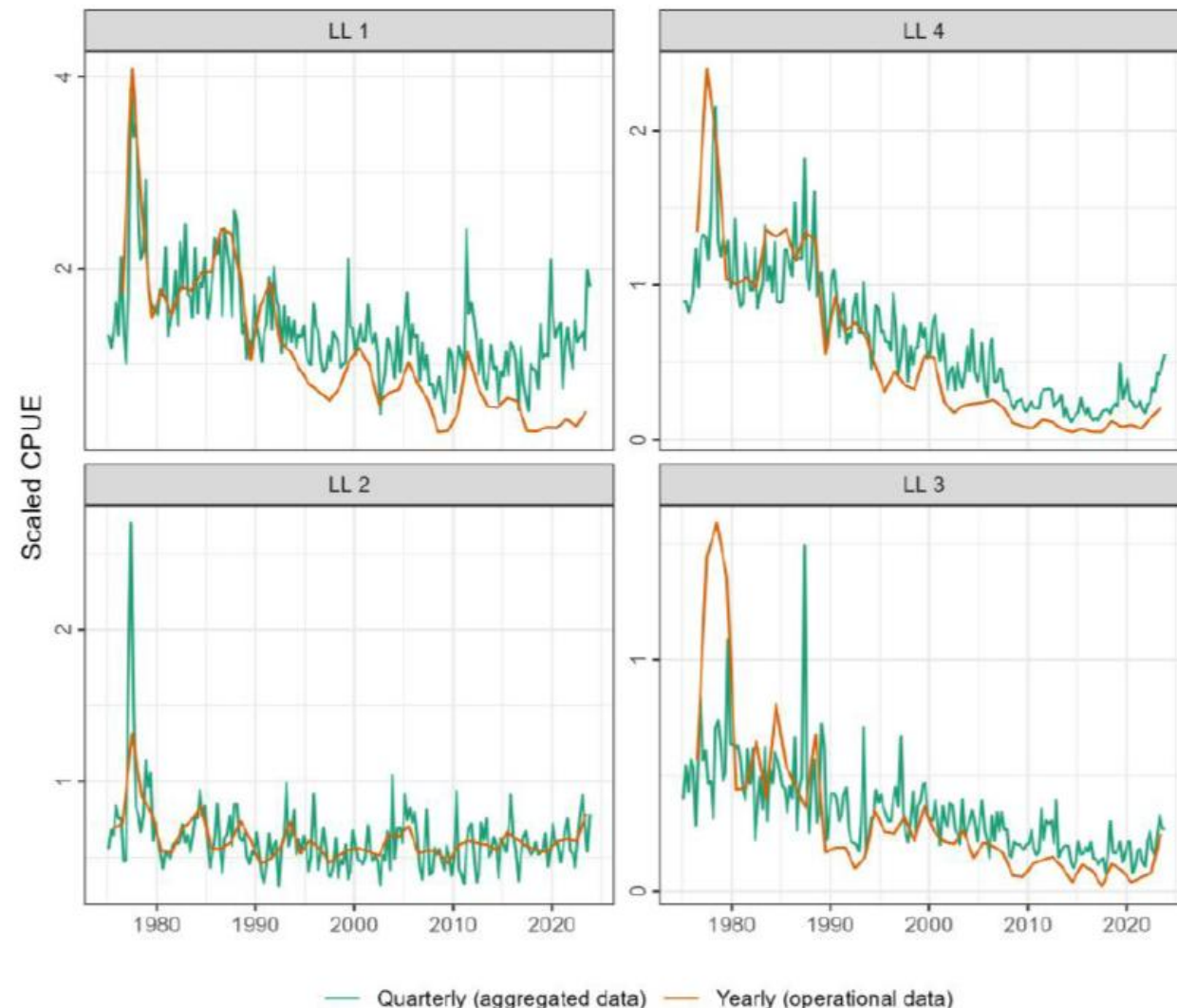


Figure 15: Scaled LL CPUE time series per region. The shaded area represents the 95% confidence interval.

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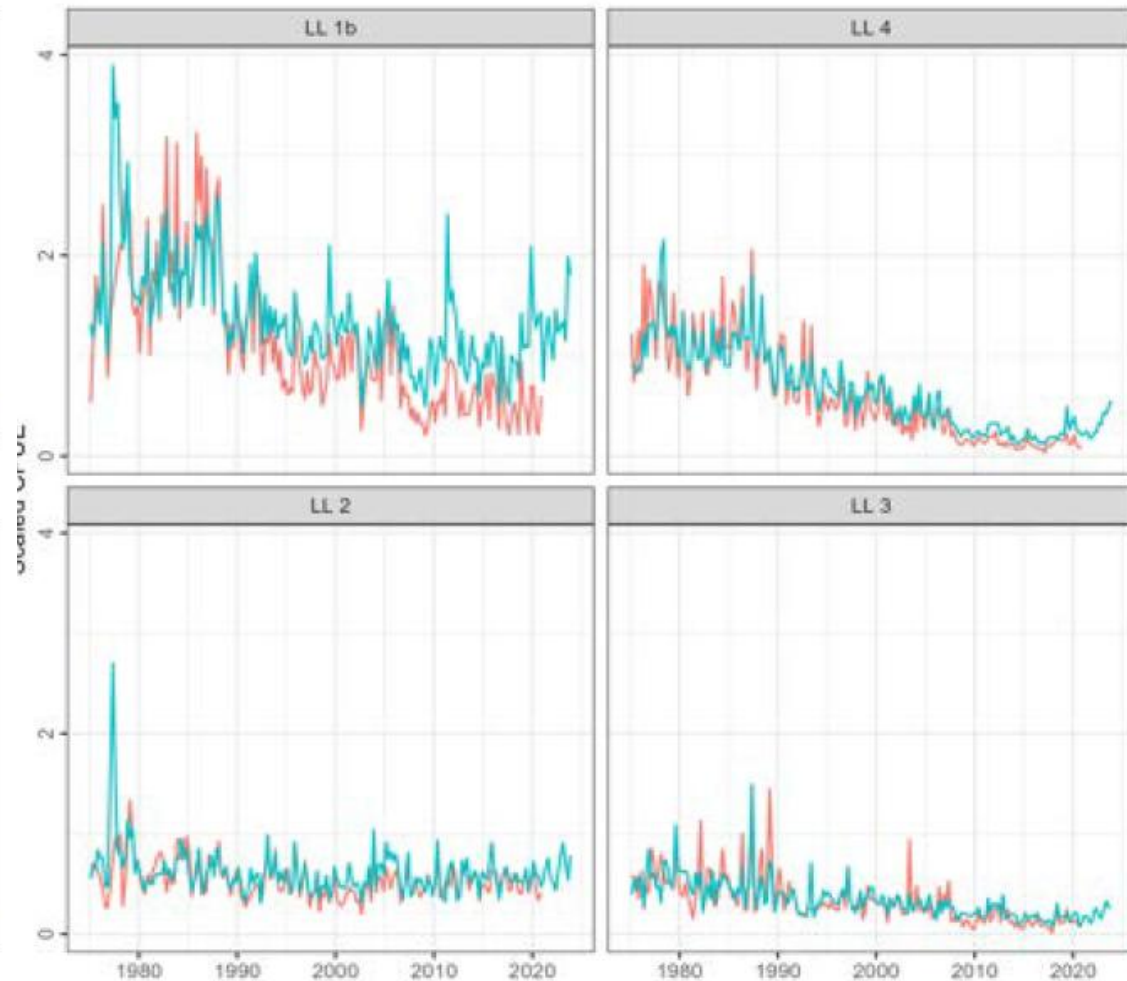
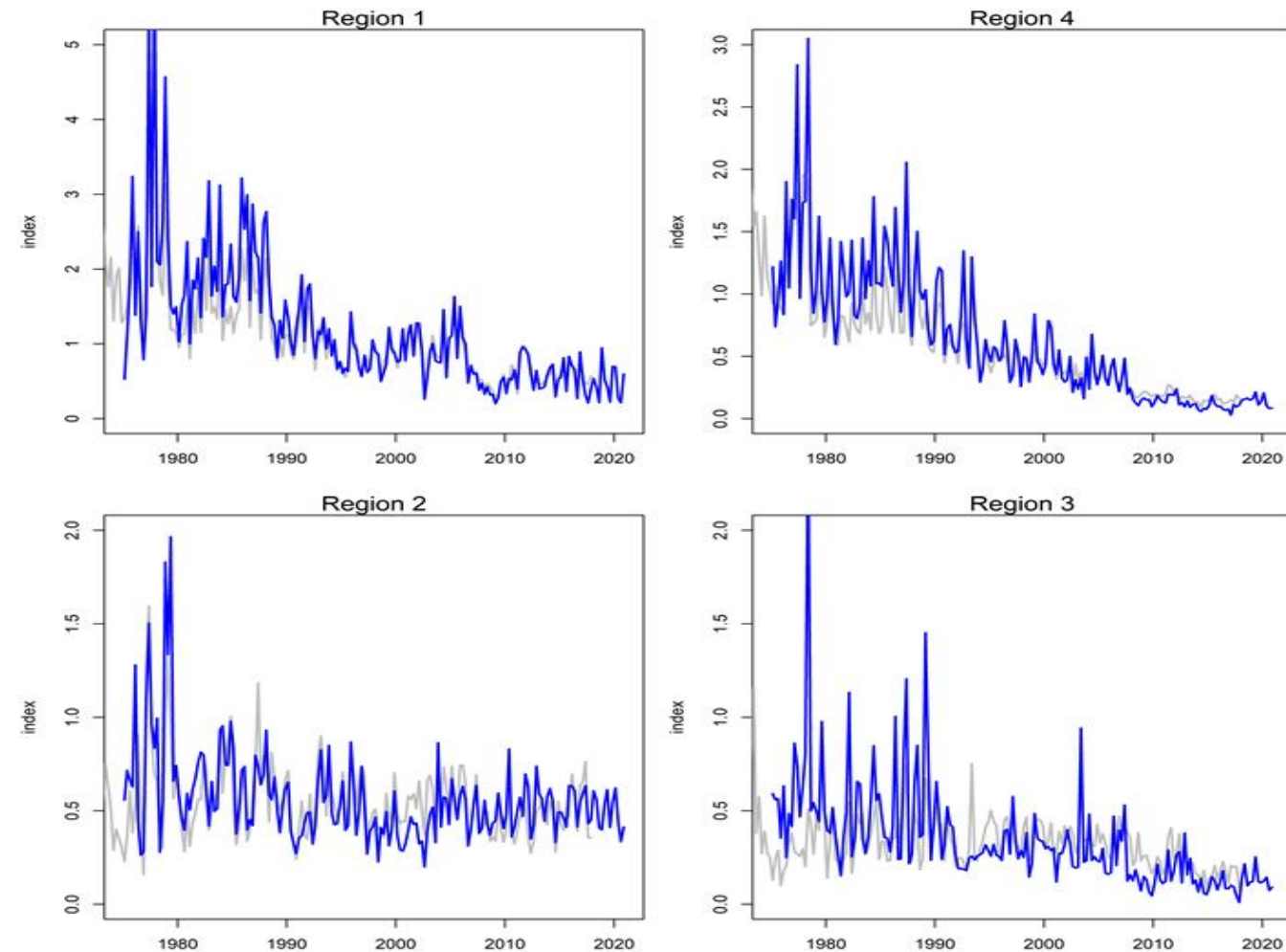
	Regions	Data source	Time resolution
➡	R1/R2/R3/R4	Operational	Yearly
➡	R1/R2/R3/R4	Aggregated	Quarterly
	R1+R2/R3+R4	Operational	Yearly
	R1+R2+R3/R4	Operational	Yearly
	R1+R2+R3/R4	Operational	Quarterly



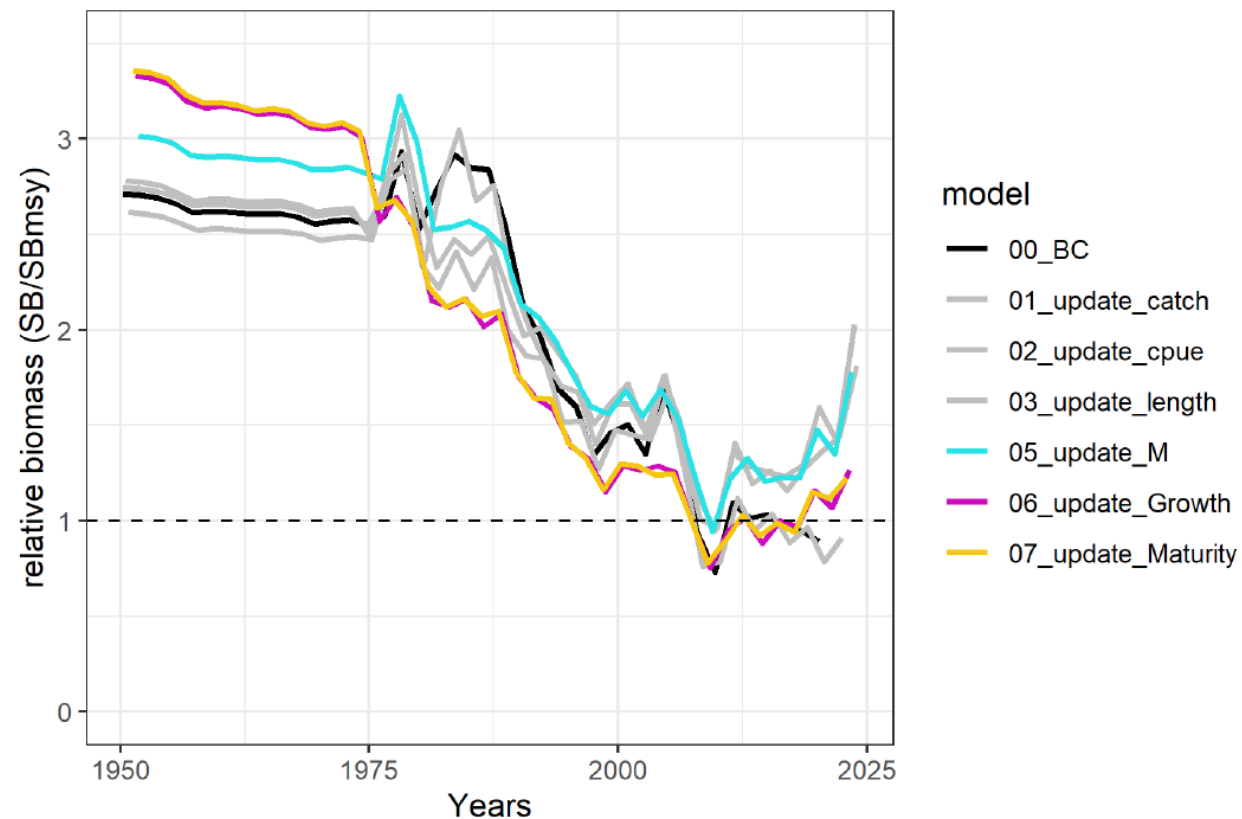
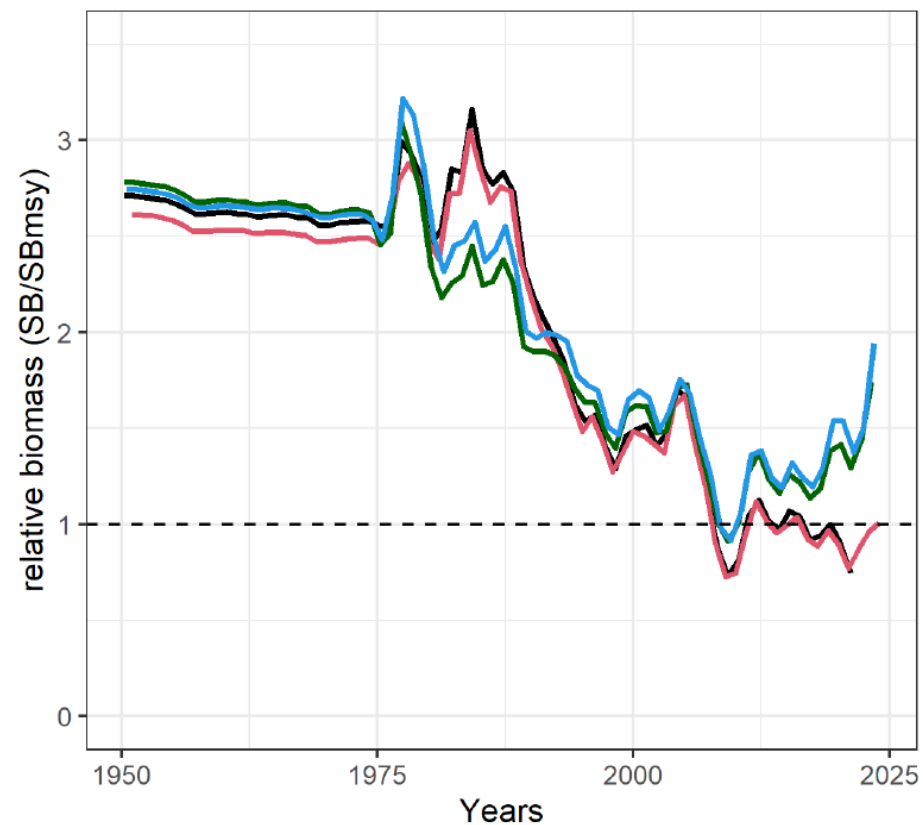
YELLOWFIN CPUE ISSUES

Gray 2018 (Hoyle et al. 2018) Operational
Blue 2021 (Kitakado et al. 2021) Aggregated

Red 2021 (Kitakado et al. 2021)
Green 2024 (Matsumoto et al. 2024)
Operational (aggregated)



IMPACT OF UPDATED DATA/ASSUMPTIONS



- **2024 CPUE (quarterly based on aggregated data)**
 - Included data of Region 1a, Arabian sea (not included in the previous CPUE works)
 - Used cluster results for accounting for target in tropical areas (HBF was used previously)
 - Used aggregated data (as was done in 2021) for quarterly CPUE
 - Used operational data for annual CPUE (trend was different from quarterly CPUE with aggregated data)
- the SC **REQUESTED** that the joint CPUE working group revise and update the yellowfin tuna CPUE in 2025 in time to be reviewed by WPTT27 assessment meeting, in accordance with the “Recommended action points related to Joint CPUE standardizations” in Appendix IX of the WPTT26 report.
- The SC **NOTED** that this will enable the WPTT and SC to review the CPUE standardisation and to provide clear advice to the 2026 Commission meeting on the need, if any, to update the yellowfin tuna stock assessment in 2026 to include the revised CPUE.

Recommended action points related to Joint CPUE standardizations

- (1) Prioritization of key sets of analyses/indices required for specific assessments and management procedures. Improved coordination with the relevant stock assessment team.
- (2) Increased transparency in the data modeling process, including dissemination of scripts used in data processing and modeling, participation of an external observer in the data workshop (IOTC secretariat participation), improved documentation and dissemination of results (including data description, key model diagnostics).
- (3) Improved resourcing of current data modeling team. Currently constrained by available hardware and constraints of data confidentiality.

- (4) Investigate the potential to undertake analysis of logsheet data outside the current workshop structure. For example, it may be possible to conduct external analyses of the logsheet data excluding the more recent data (last 10 years).
- (5) Ongoing development of the spatial temporal modeling of longline catch and effort data. Initially, these approaches can be developed using aggregated catch and effort data (rather than relying on operational logsheet data). The modeling results are likely to inform the conceptual model for the yellowfin tuna stock and structural assumptions of the current stock assessment model (especially spatial structure and movement).
- (6) Characterisation of potential factors influencing changes in fishing efficiency for key species (temporally and spatially) to improve consideration of the likely extent of “effort creep” for longline fisheries.

- **Produce** joint CPUE for **bigeye tuna** using LL data from Japan, Korea and Taiwan up to 2024 data for 2025 assessment
- **Produce** joint CPUE for **albacore** by using corrected data set
- **Review** joint CPUE for **yellowfin tuna** submitted in 2024 WPTT and SC

Remote session with external experts (subject to cancellation depending on progress)

- April 24, PM2-4 (Korean time)
- April 25, PM2-4 (Korean time)
- April 30, PM2-4 (Korean time)

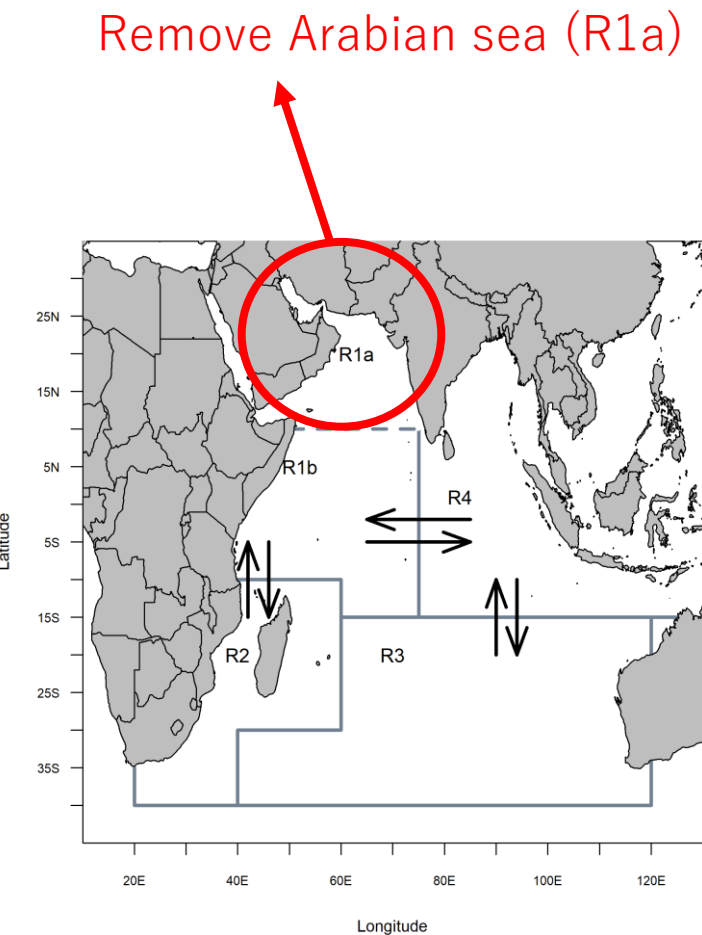
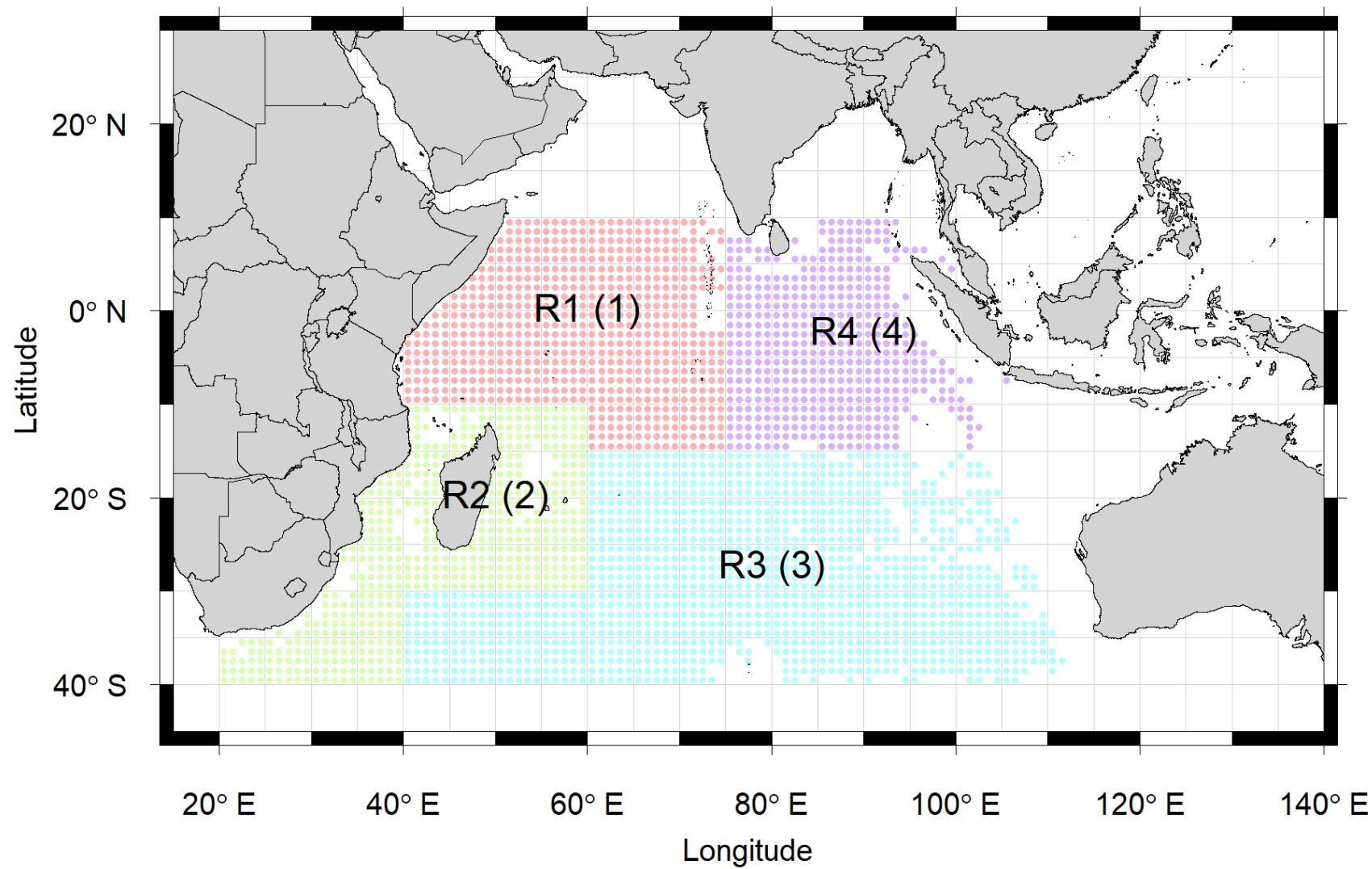
SOME ISSUES IDENTIFIED

Issues in the 2024 CPUE

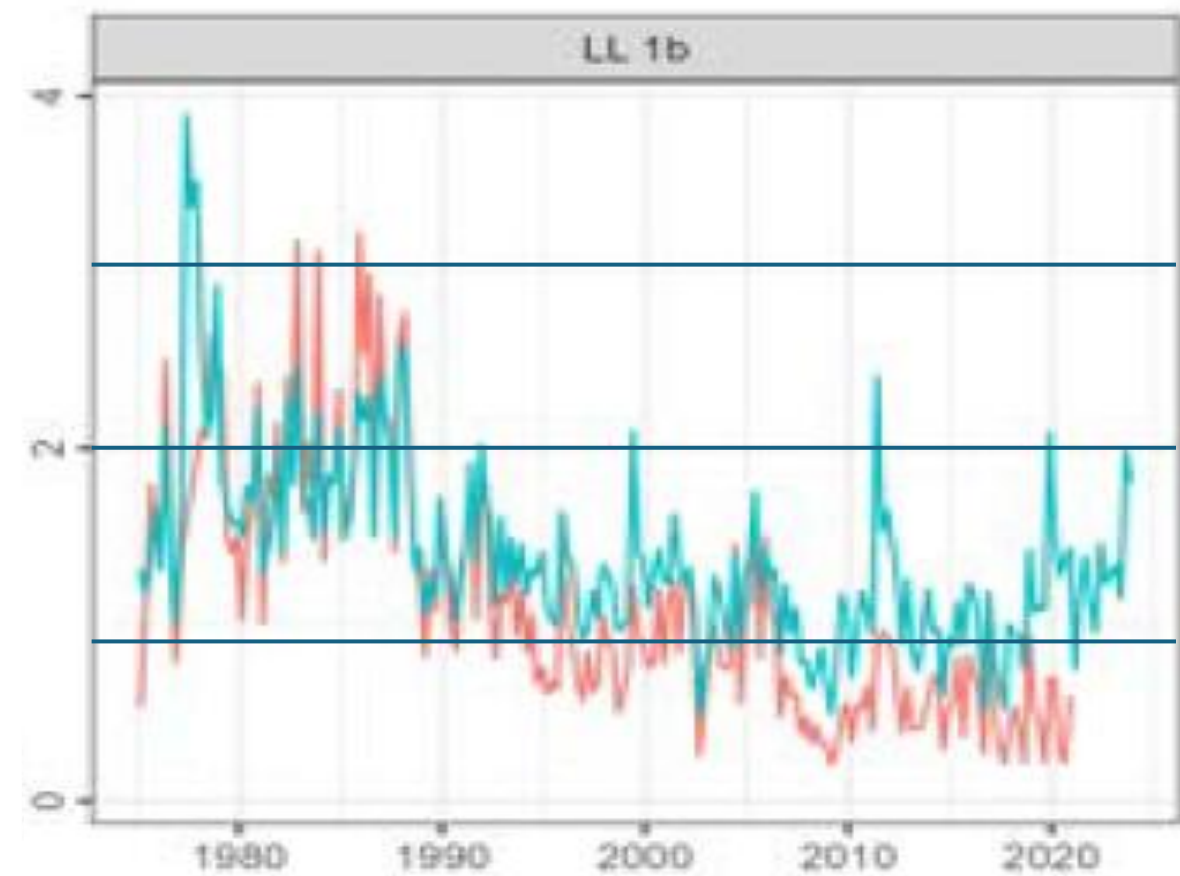
- Based on aggregated data
- R1a data was used for calculating R1 std-CPUE (Not big impact)
- Cluster outcomes were used for accounting for targeting (not HBF even in R1b and R4)
- Vessel ID was not used in the positive component in the delta-LN model (Not big impact)
- Delta component was not well extracted for producing std-CPUE in R1b
(the final result is almost same as the std-CPUE in the positive component, which means 0 data were not essential used even though proportion of 0 data is smaller in R1b)

=> need to rerun.

Area definition - YFT

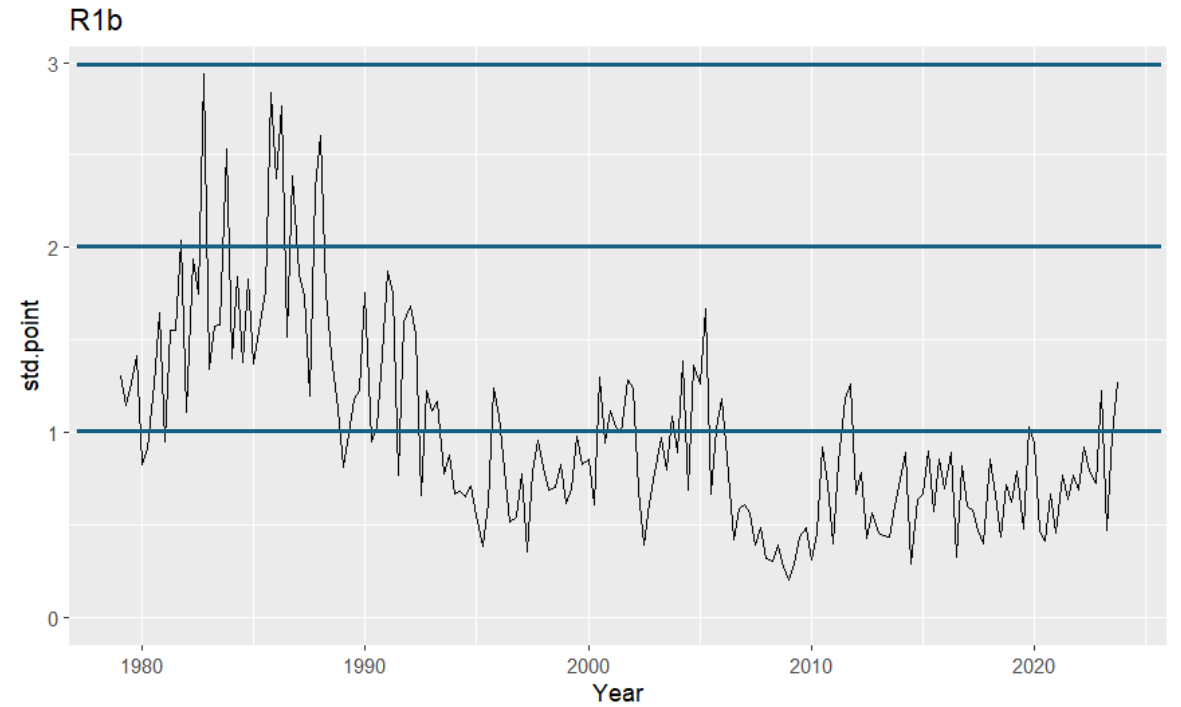


Matsumoto et al. (2024)

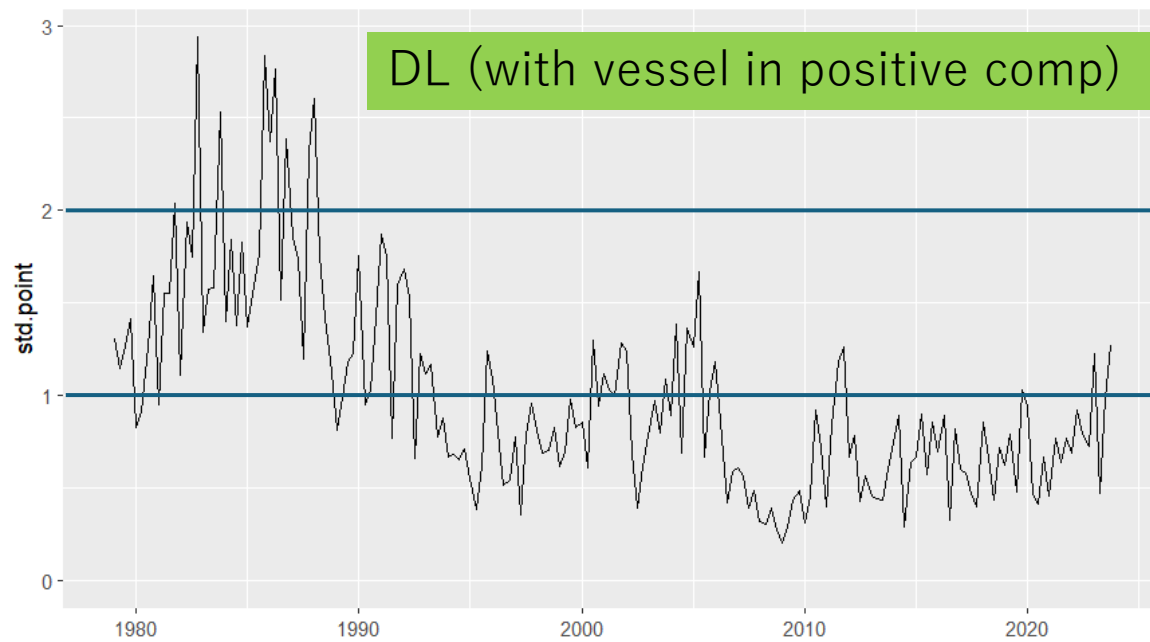


VERY PRELIMINARY

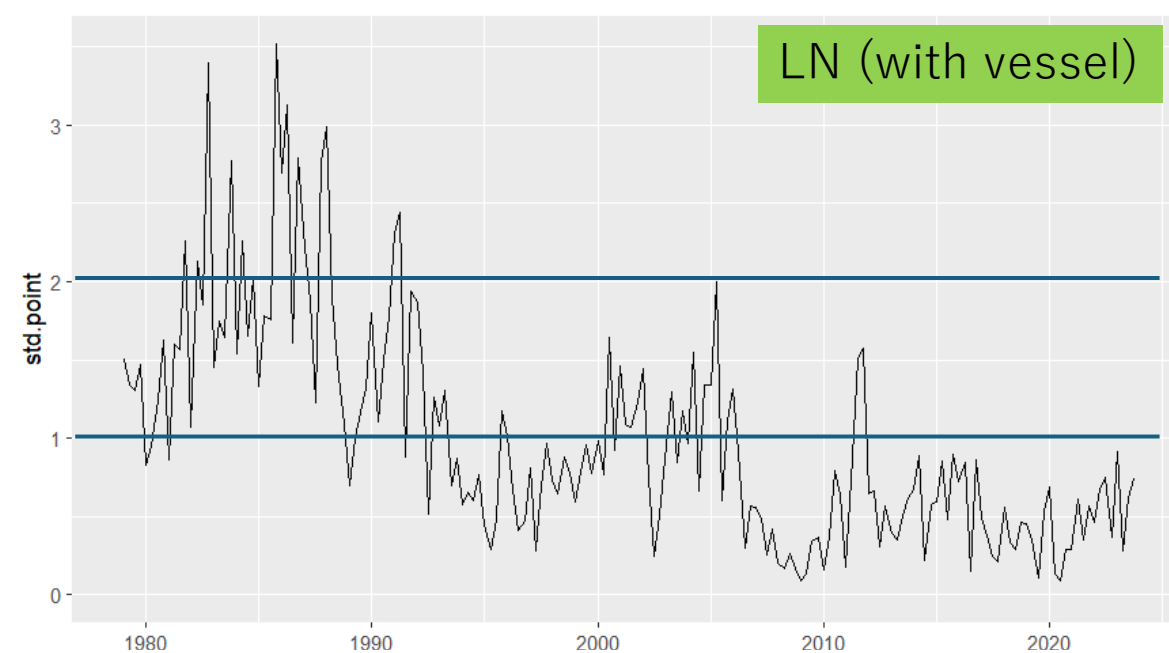
Trial in 2025 April
DL (with vessel in positive comp)



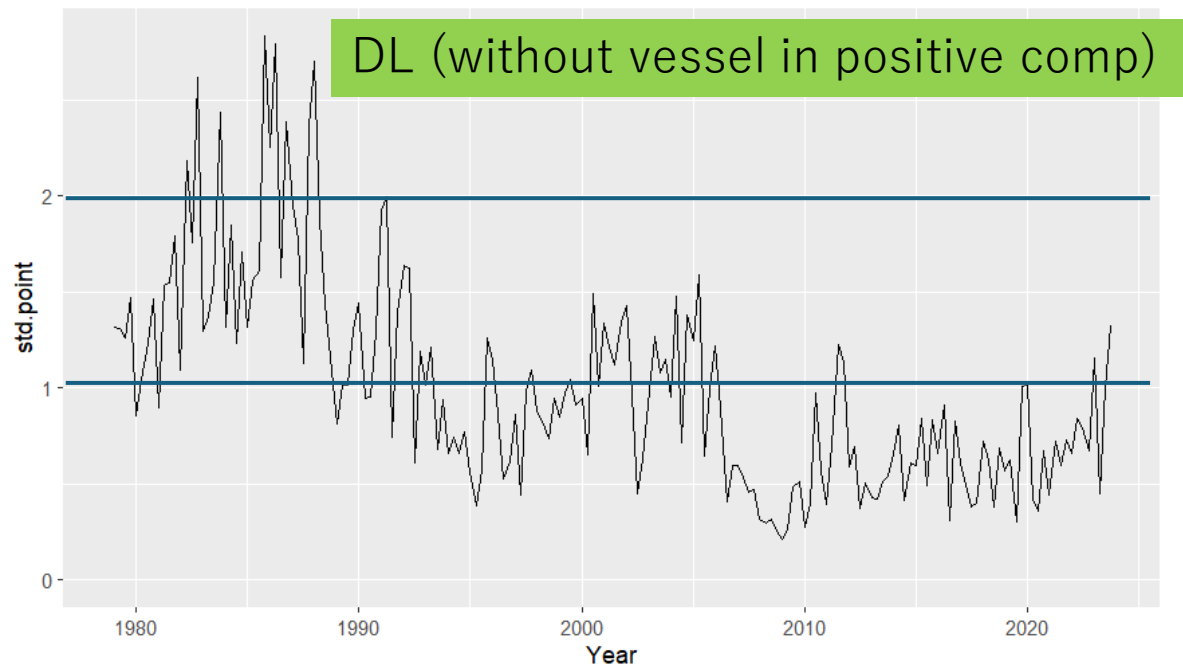
R1b



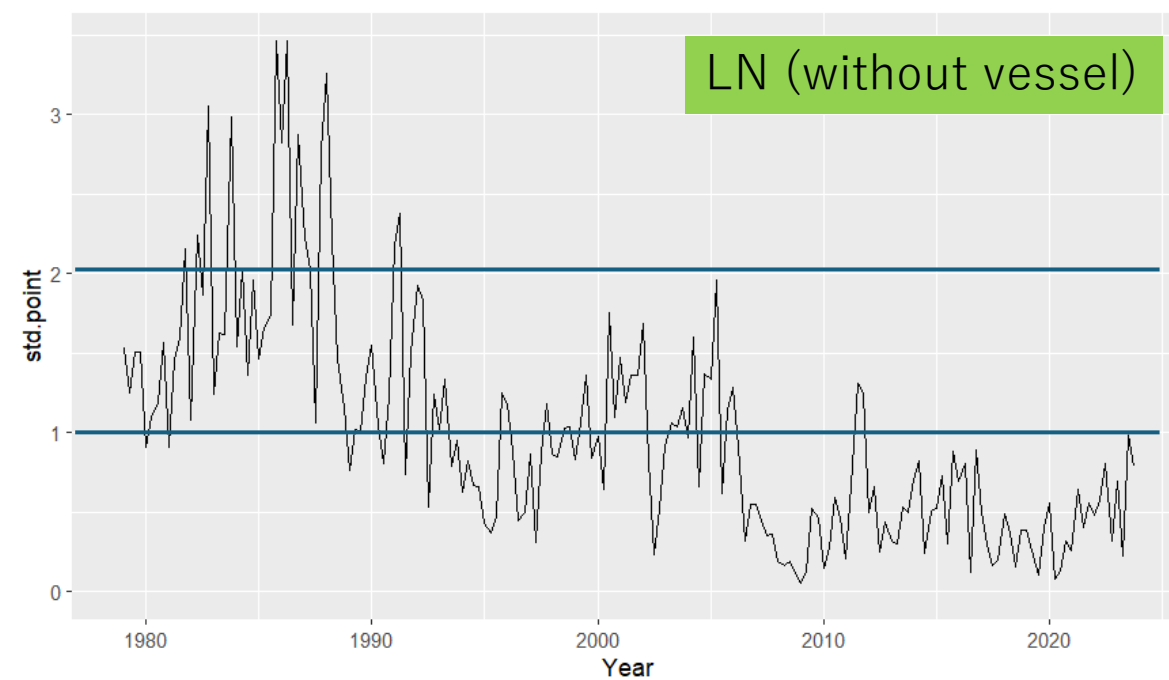
R1b

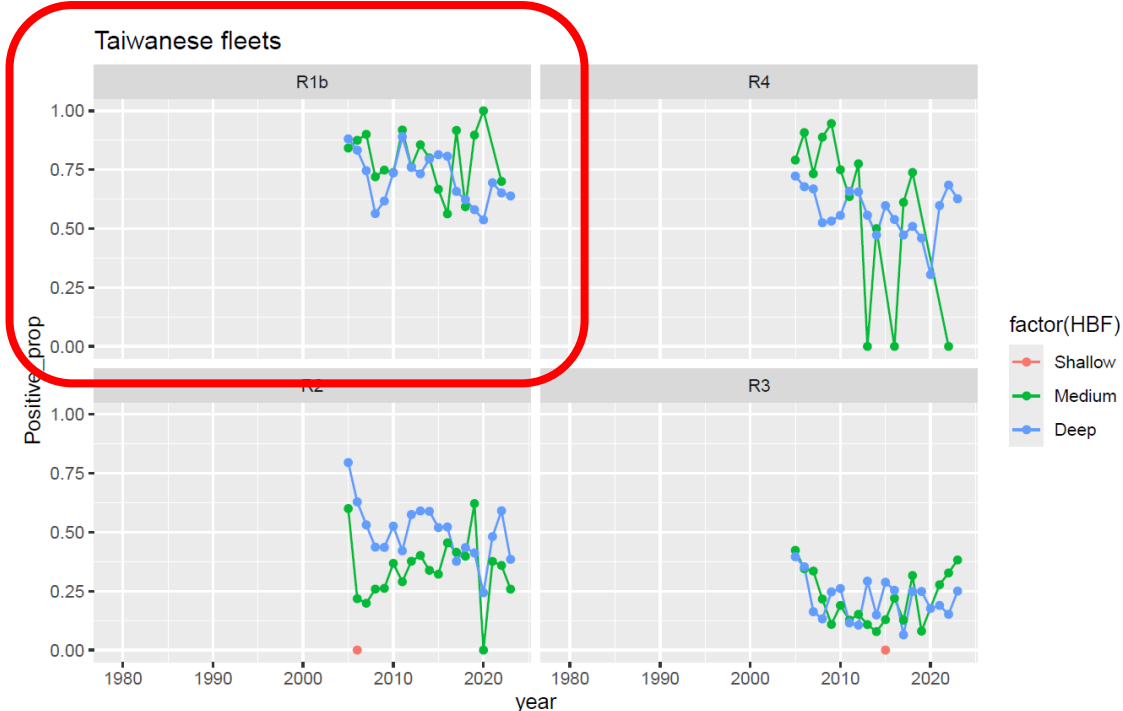
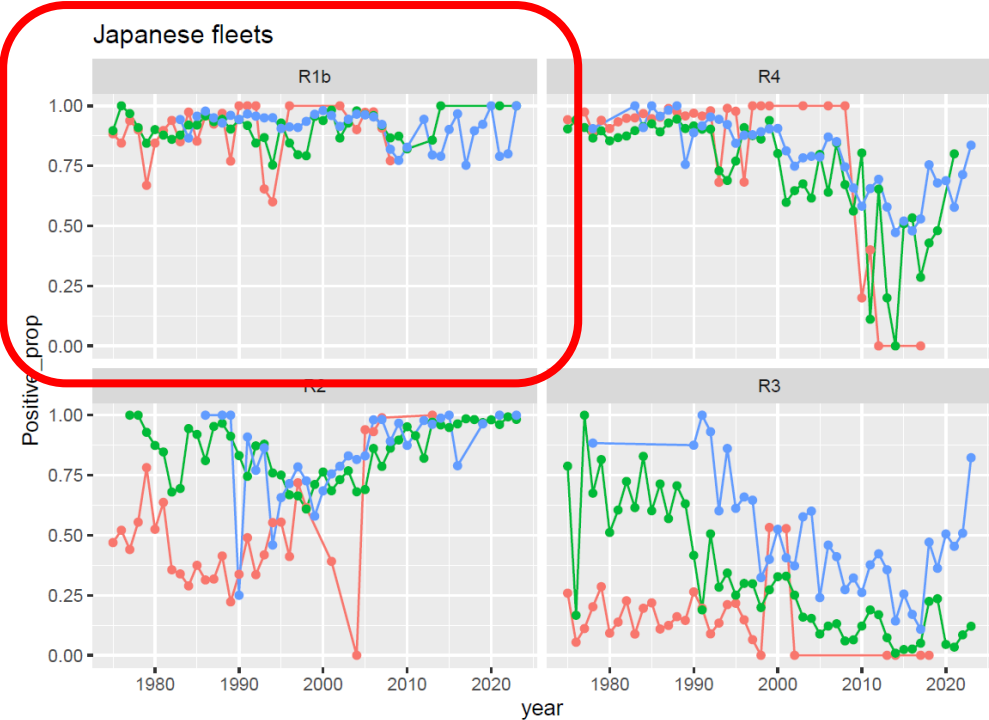


R1b

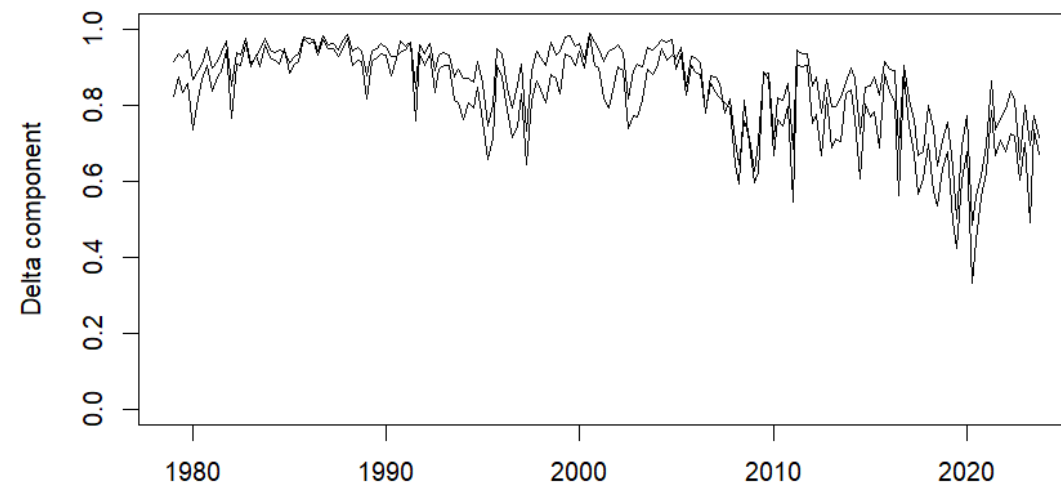


R1b



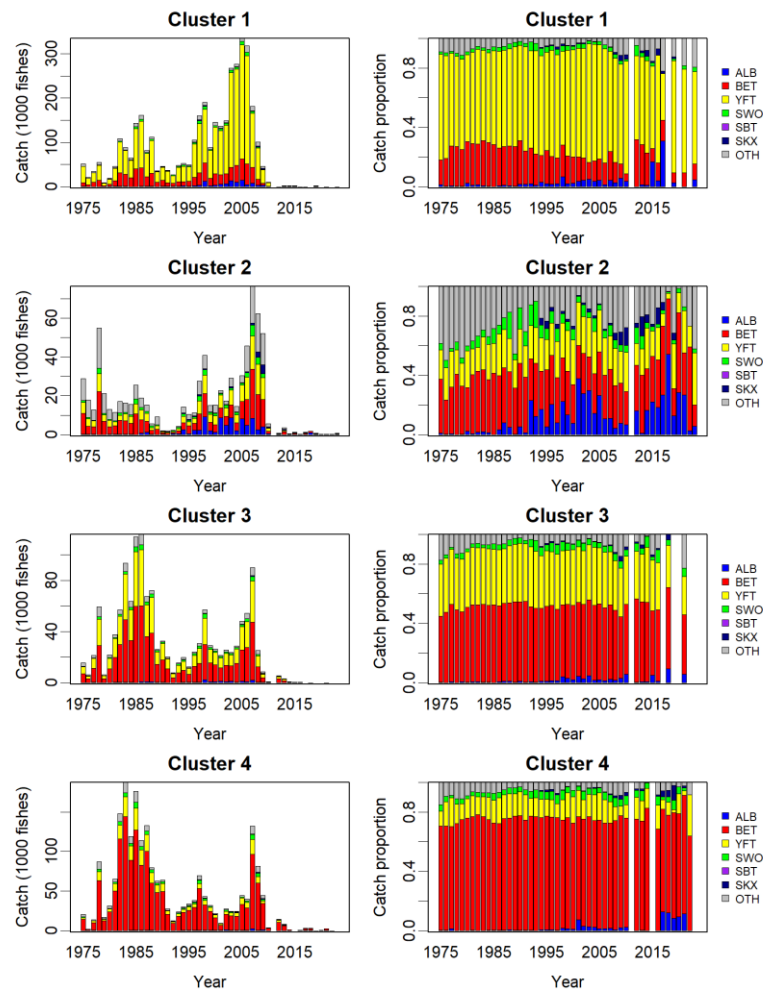


- Lower probabilities of 0 catch in R1b
- Decreasing “p” in recent years (which was accounted)

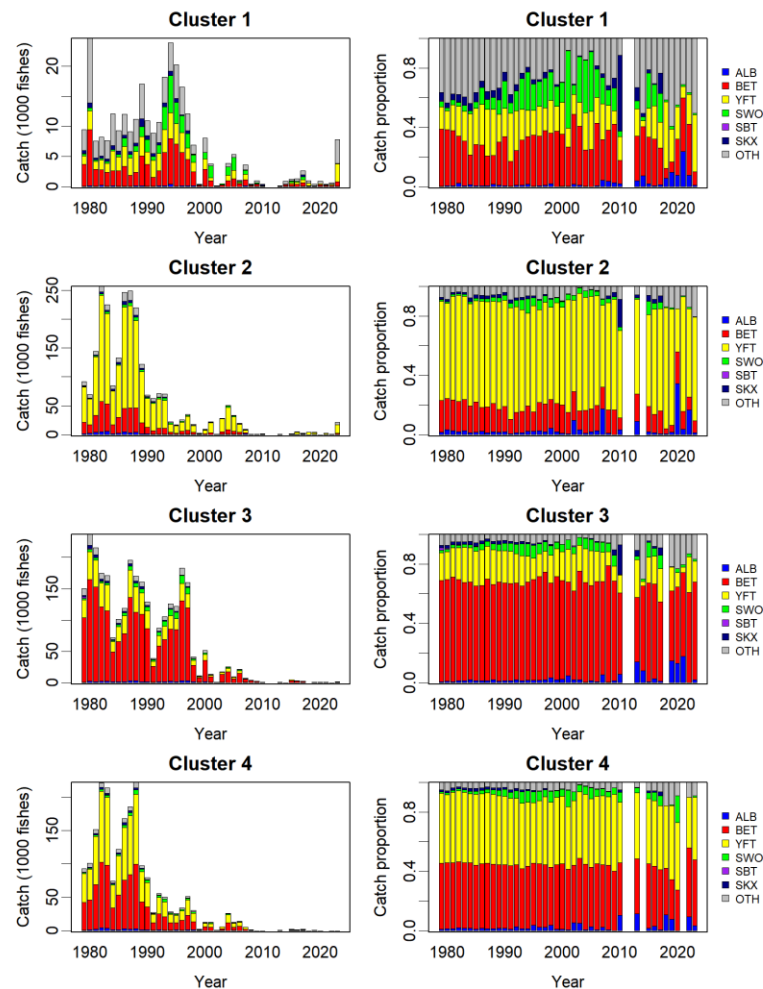


[R1] Species compositions by clusters

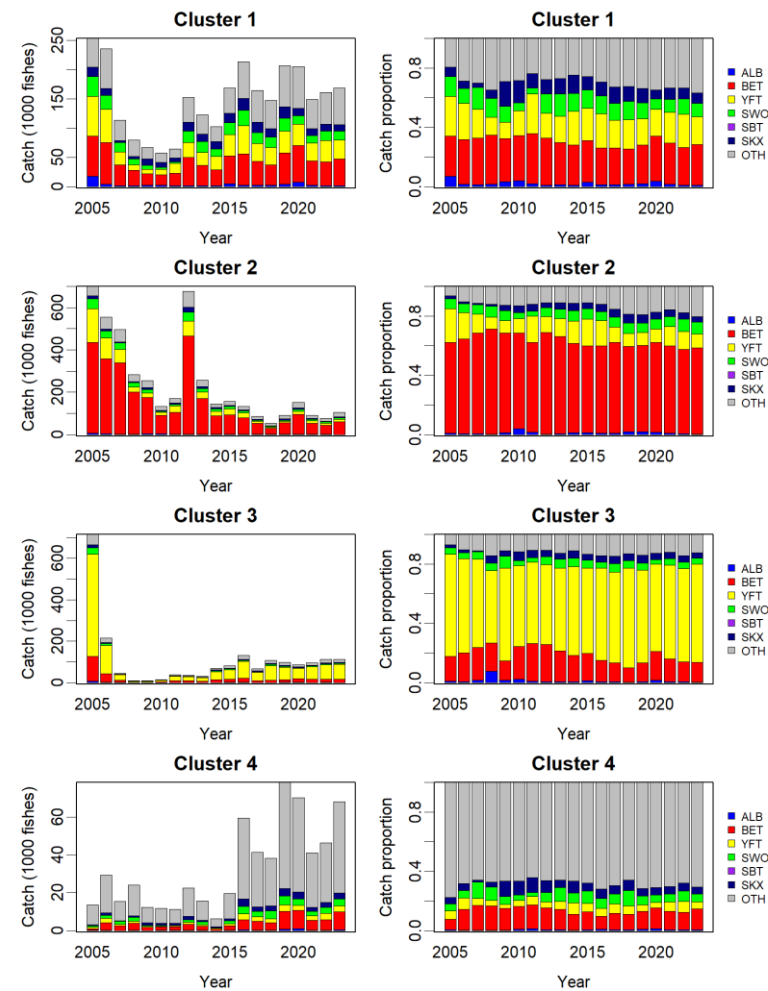
JPN



KOR

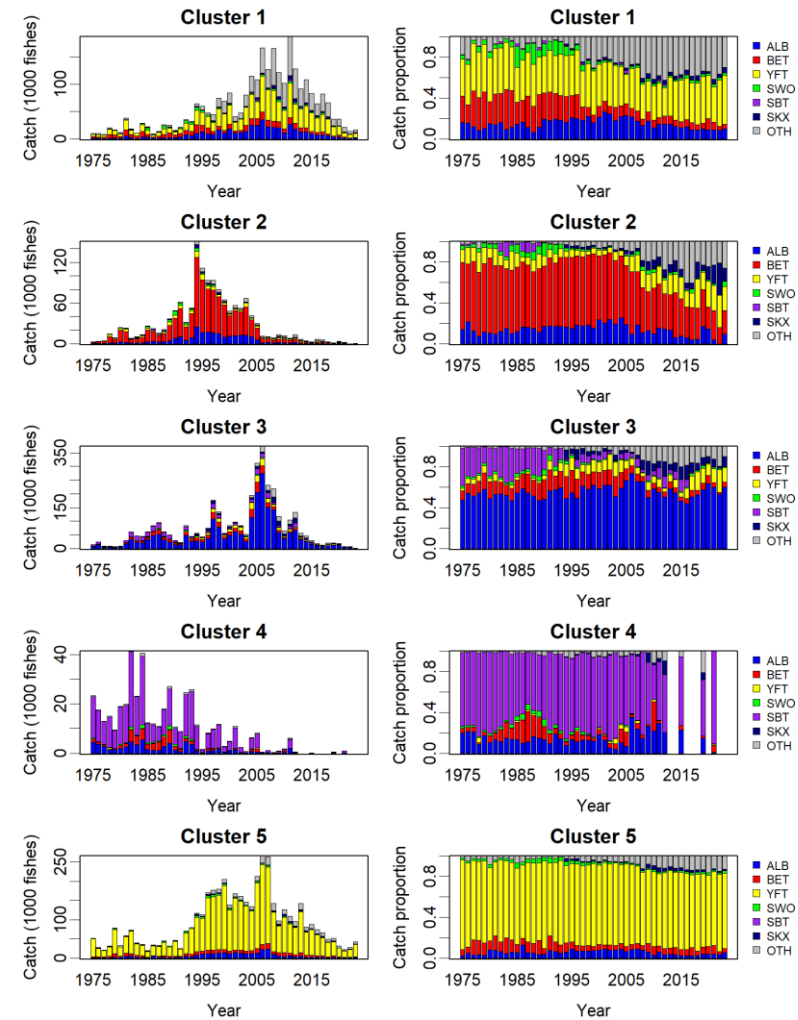


TWN

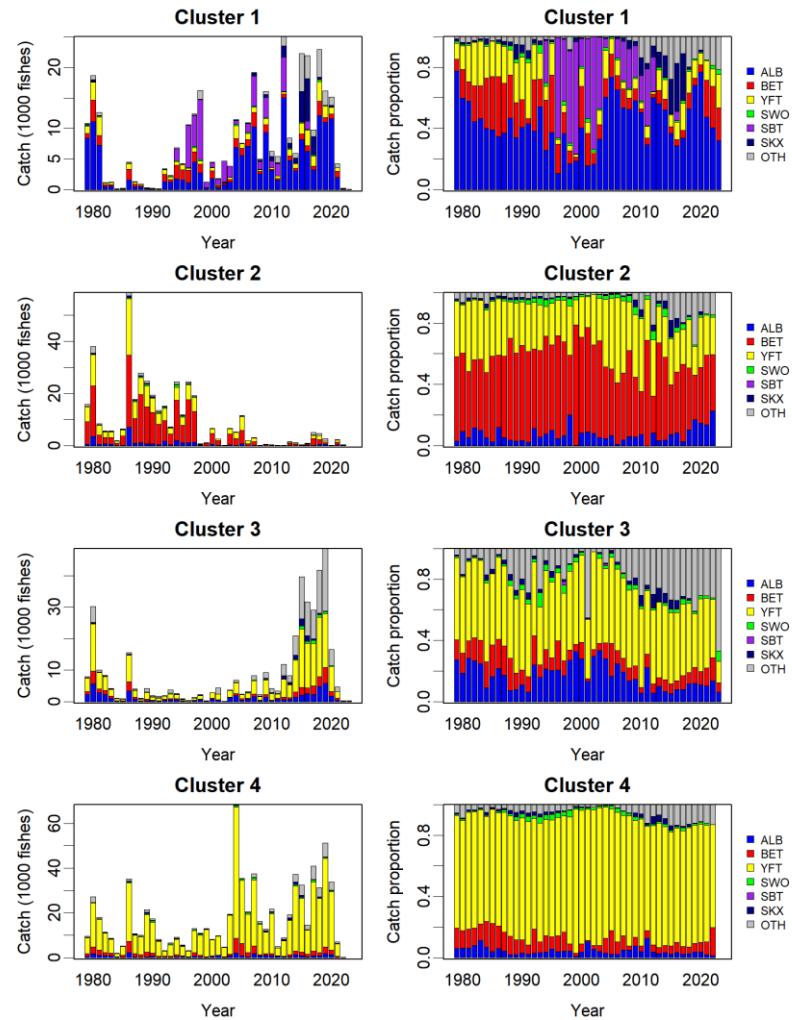


[R2] Species compositions by clusters

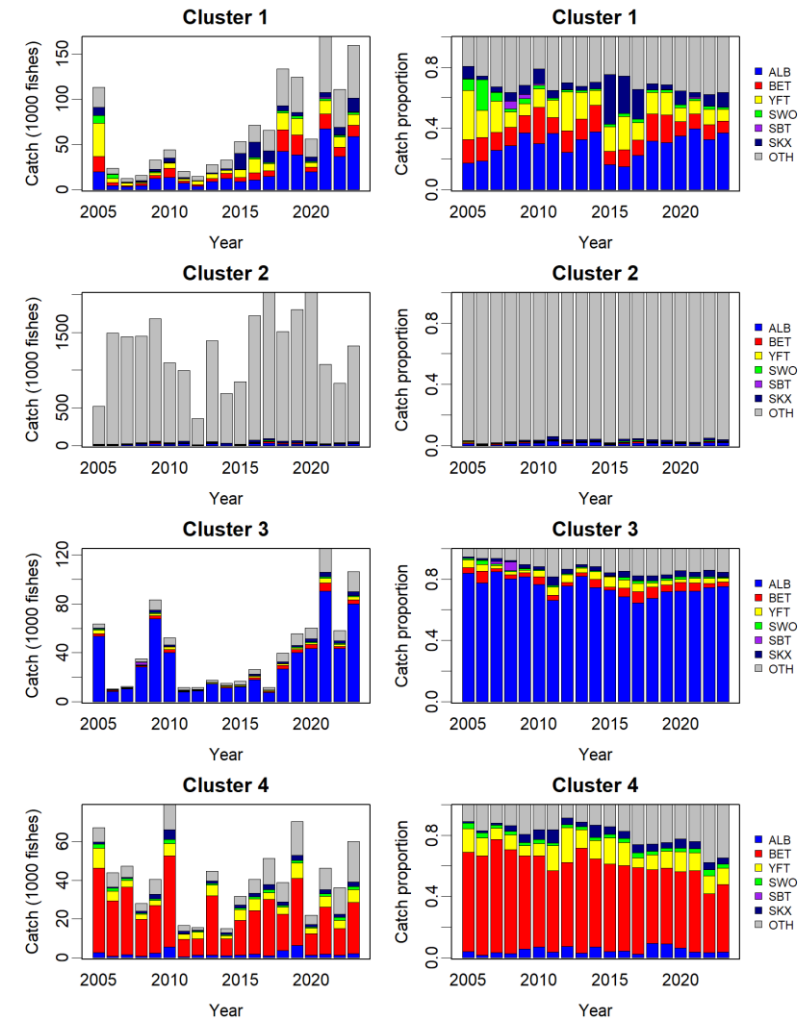
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KOR

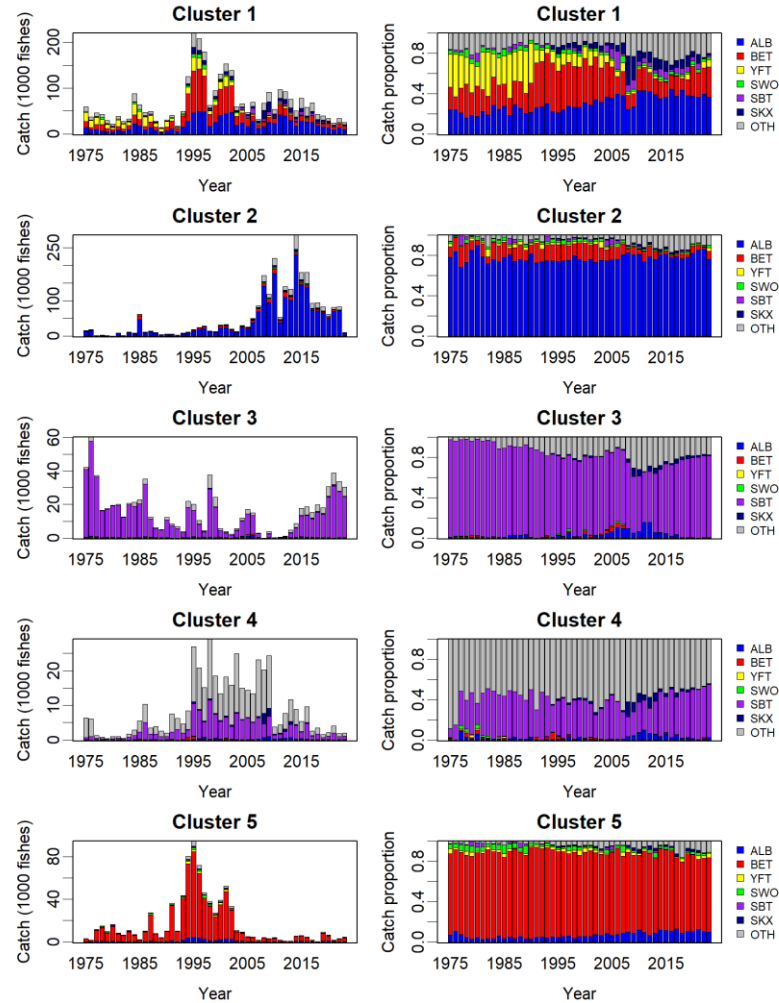


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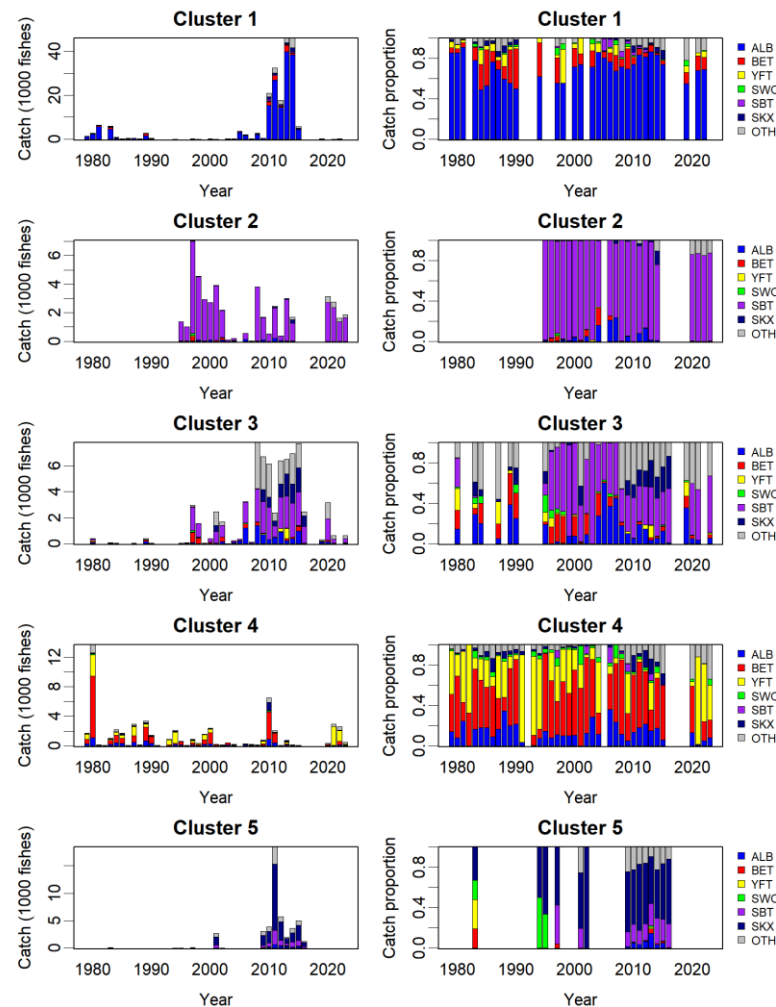


[R3] Species compositions by clusters

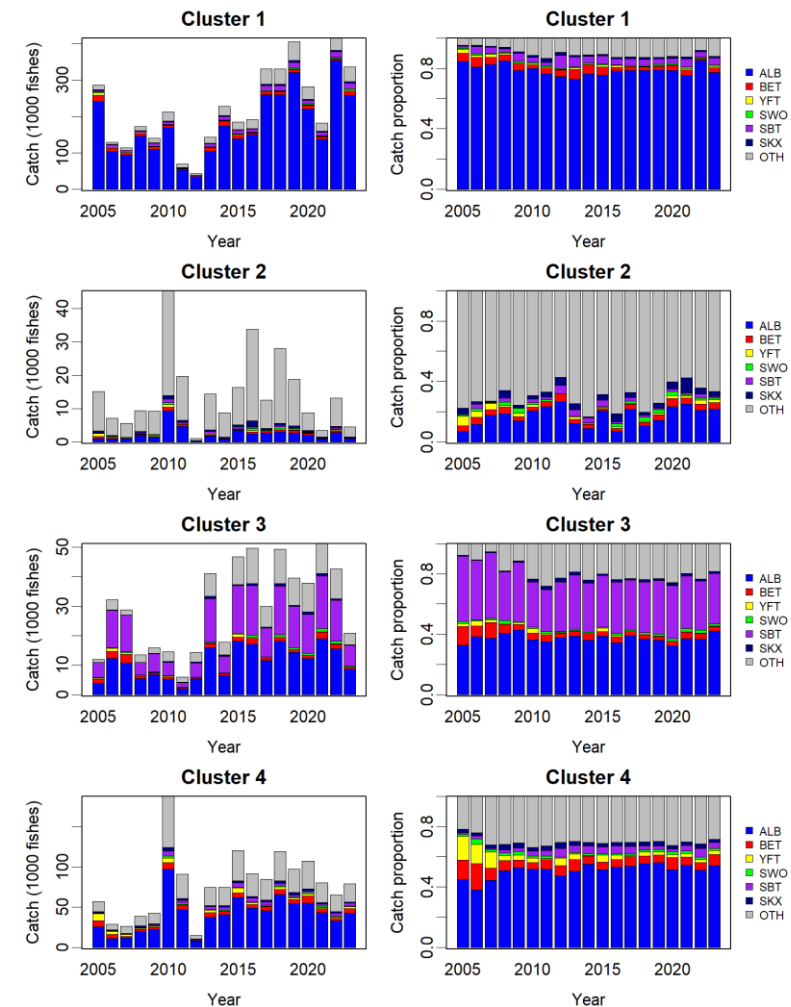
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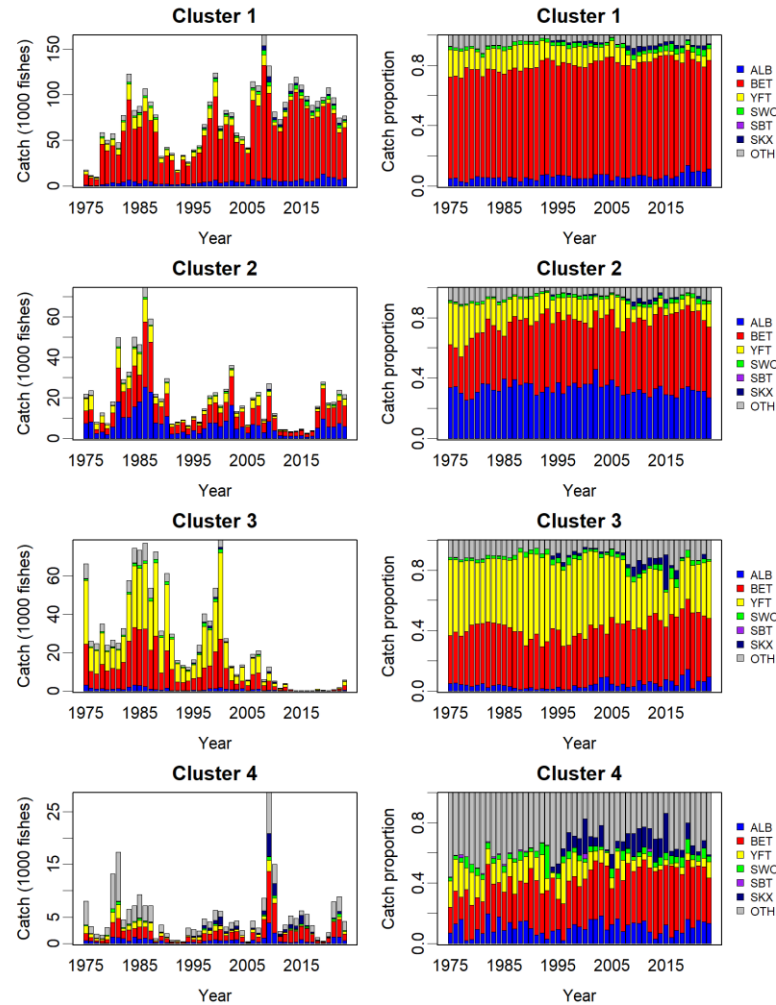


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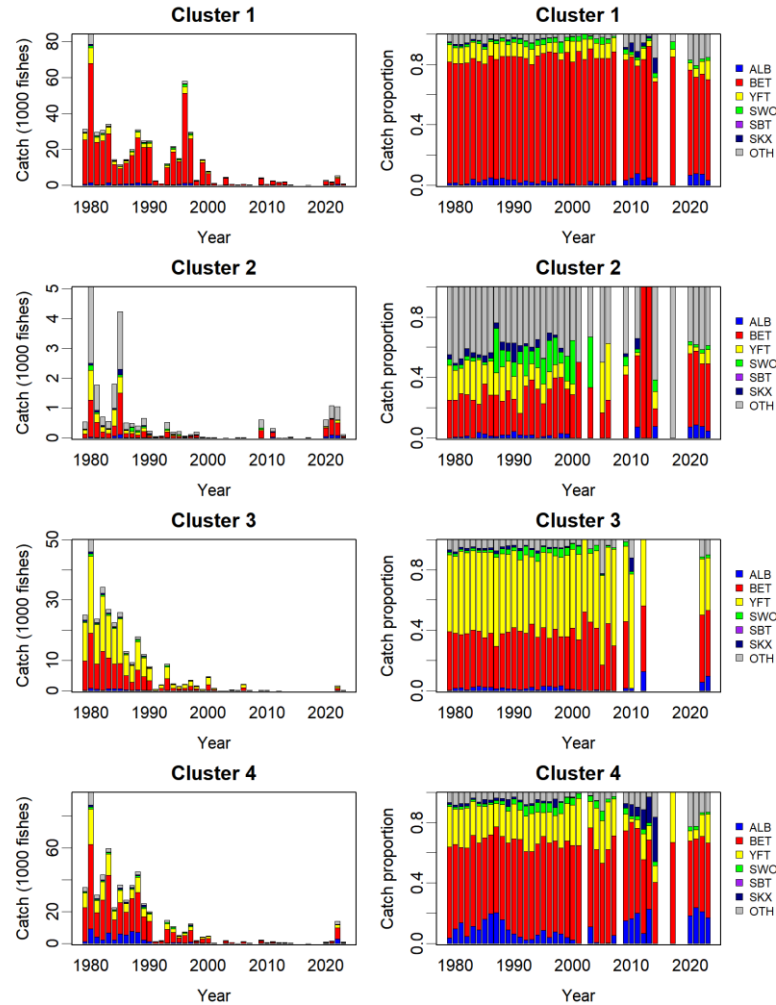


[R4] Species compositions by clusters

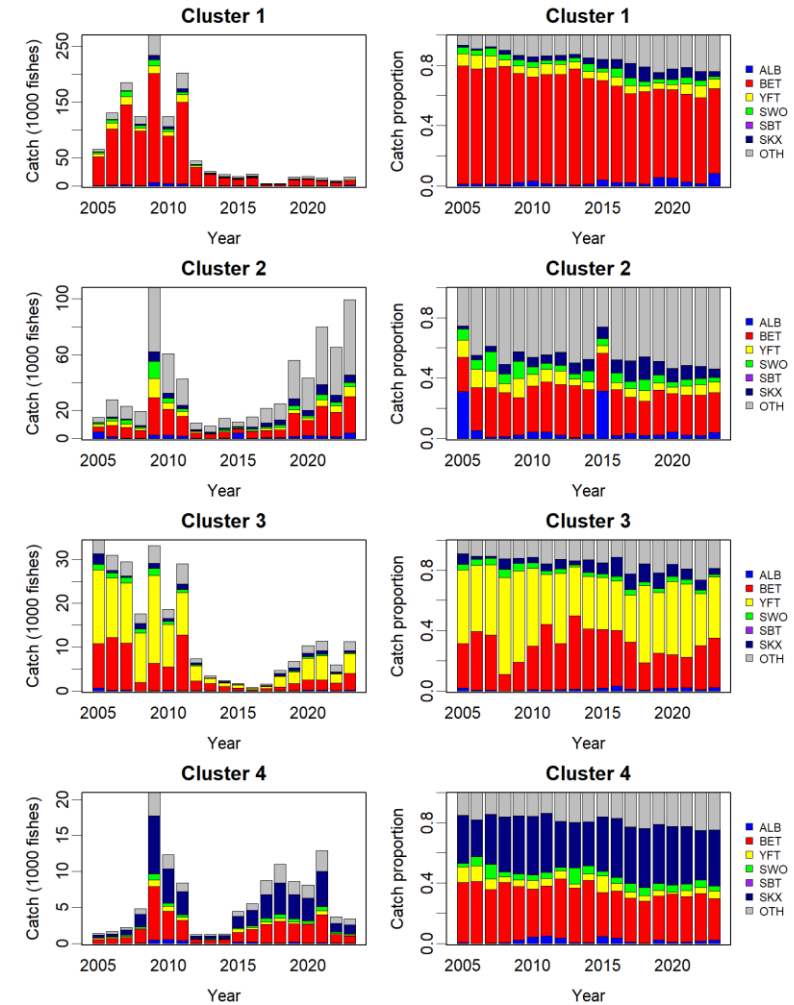
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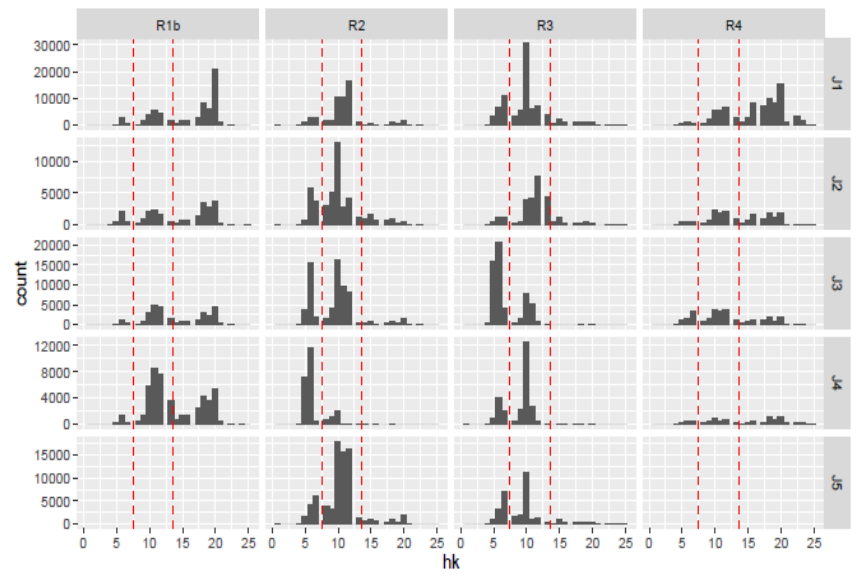


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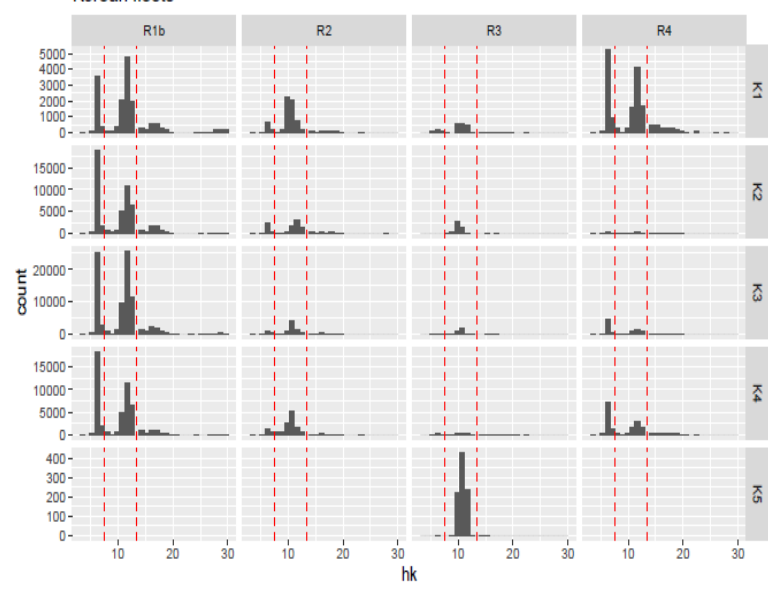


RELATIONSHIP BETWEEN CLUSTERS AND HBF

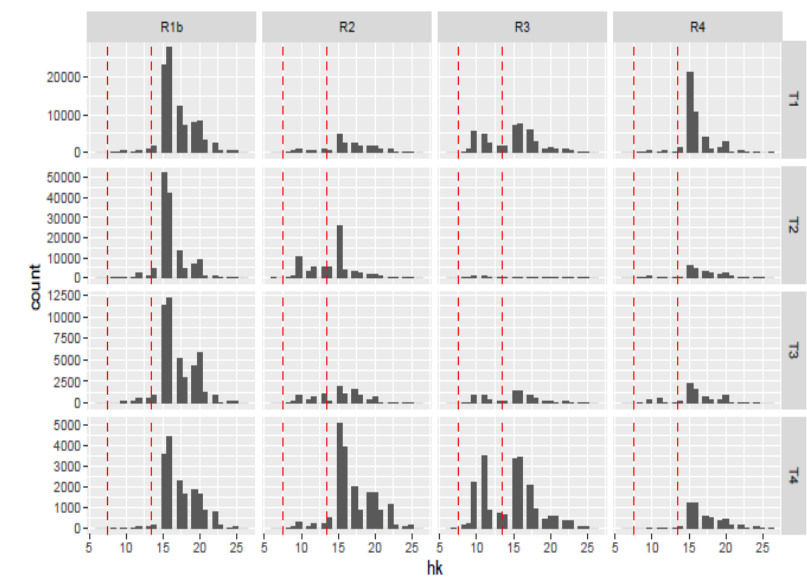
Japanese fleets



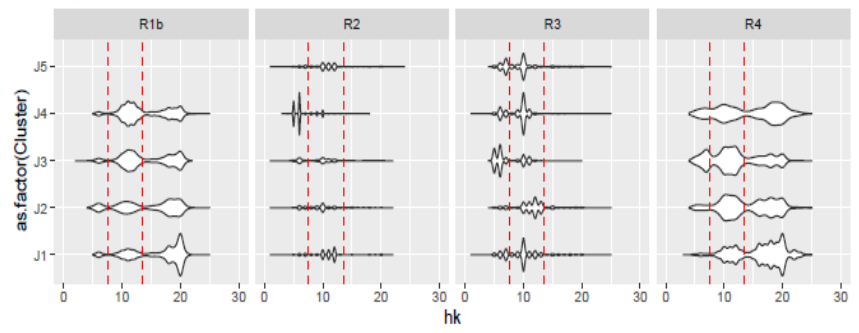
Korean fleets



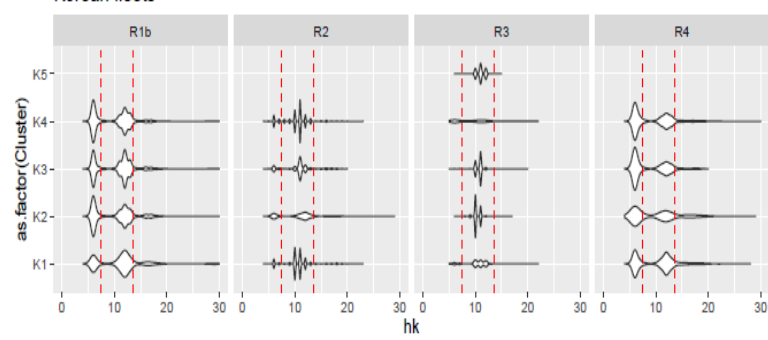
Taiwanese fleets



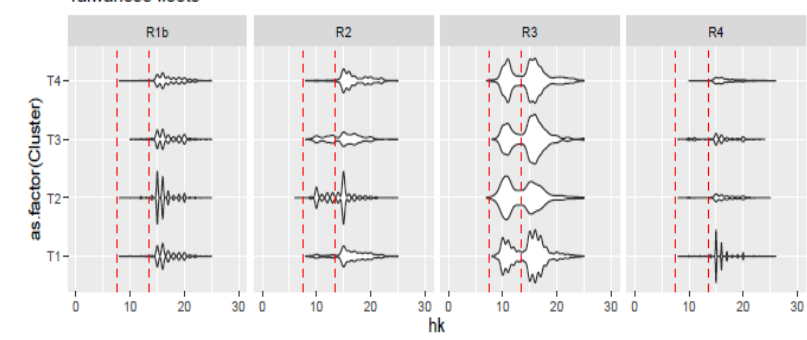
Japanese fleets



Korean fleets

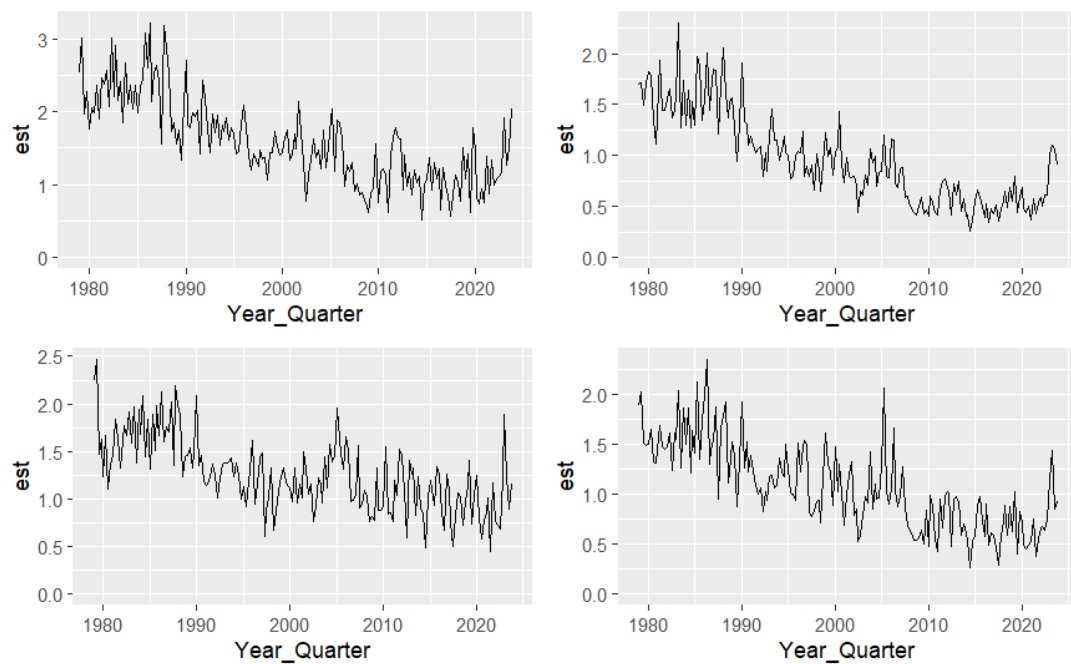
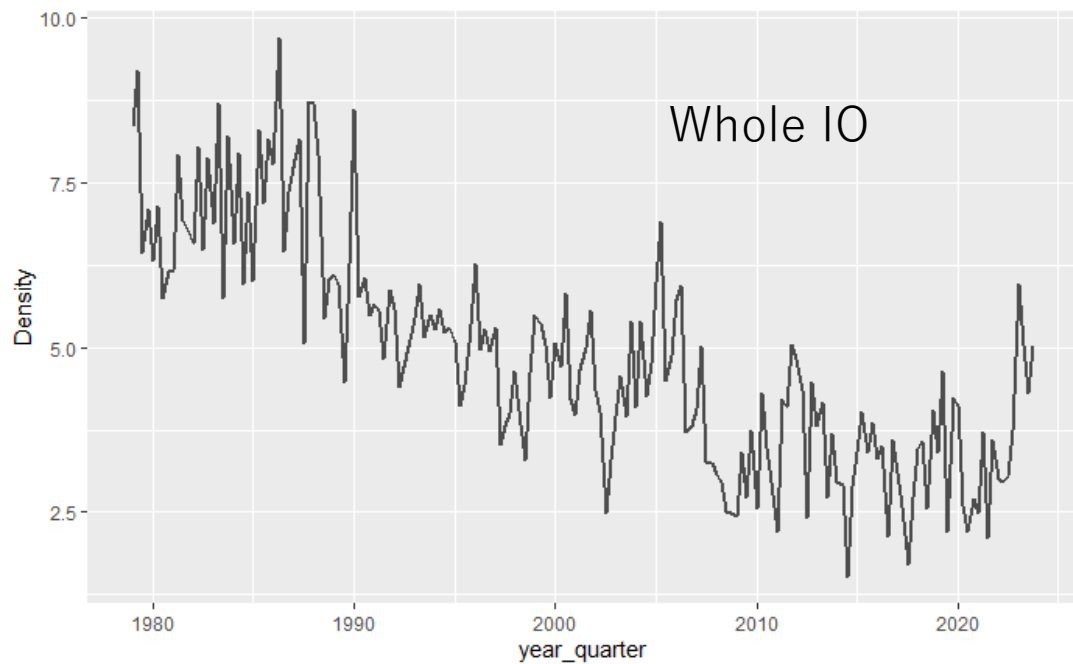
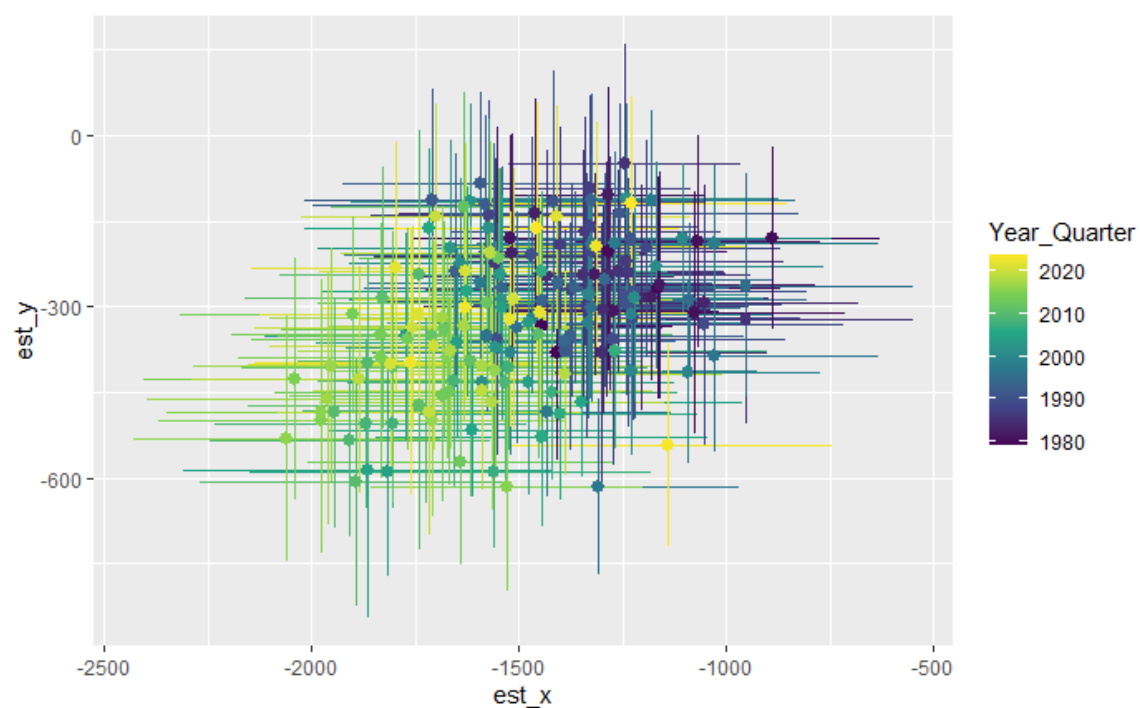
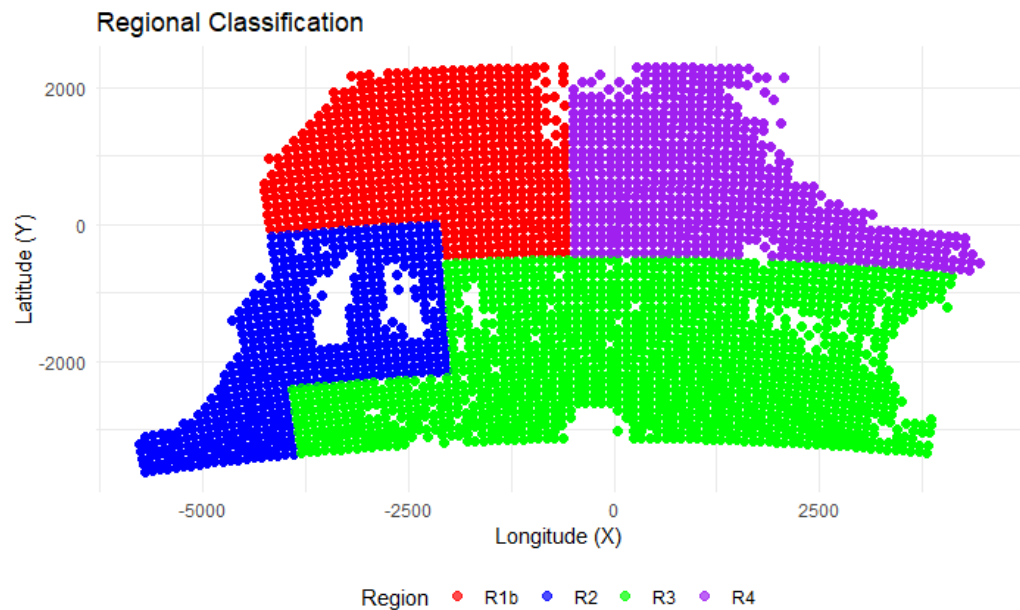


Taiwanese fleets



2024 joint CPUE

- need to re-analyze but the difference and its impact remains unclear yet
 - the SC **REQUESTED** that the joint CPUE working group revise and update the yellowfin tuna CPUE in 2025 in time to be reviewed by WPTT27 assessment meeting, in accordance with the “Recommended action points related to Joint CPUE standardizations” in Appendix IX of the WPTT26 report.
 - The SC **NOTED** that this will enable the WPTT and SC to review the CPUE standardisation and to provide clear advice to the 2026 Commission meeting on the need, if any, to update the yellowfin tuna stock assessment in 2026 to include the revised CPUE.
- Joint CPUE will be reproduced with data up to 2023 [as was used in 2024 SA] by WPTT
 - Before WPTT in OCT, base case analyses will be conducted to review in WPTT if possible



COMPARISON OF DELTA-LN AND SDM TMB (INITIAL RUN)

