

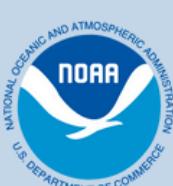
**NOAA
FISHERIES**



Pacific Ocean Perch GOA Plan Team

Nov 2023

Maia Sosa Kapur
Pete Hulson
Ben Williams
Bridget Ferriss



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Stock Overview

GOA
Pacific Ocean Perch
(*Sebastes alutus*)

Tier

3a

Area

GOA (mostly central & western)

Status

Not overfished/not overfishing

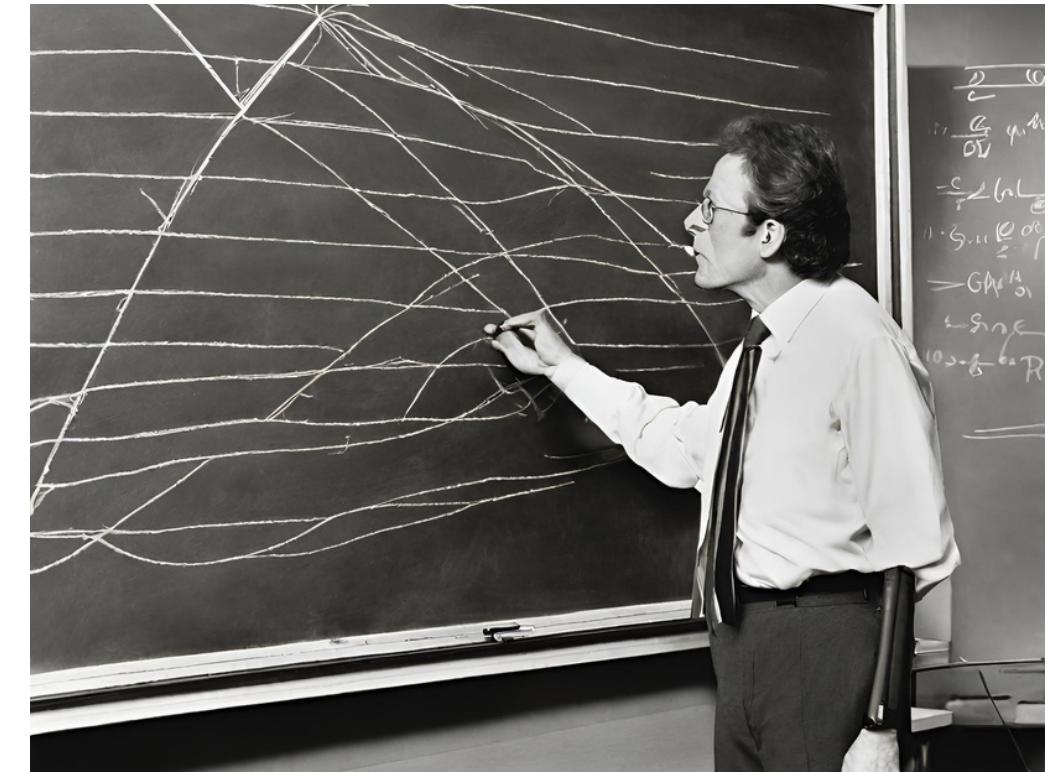
**Assessment
Type**

Operational Update



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SSC/CIE Comments



Explore Selex

Explore M

Think about...

Compositional data weights
Design vs. Model-Based
Surveys
Weight-at-age inputs

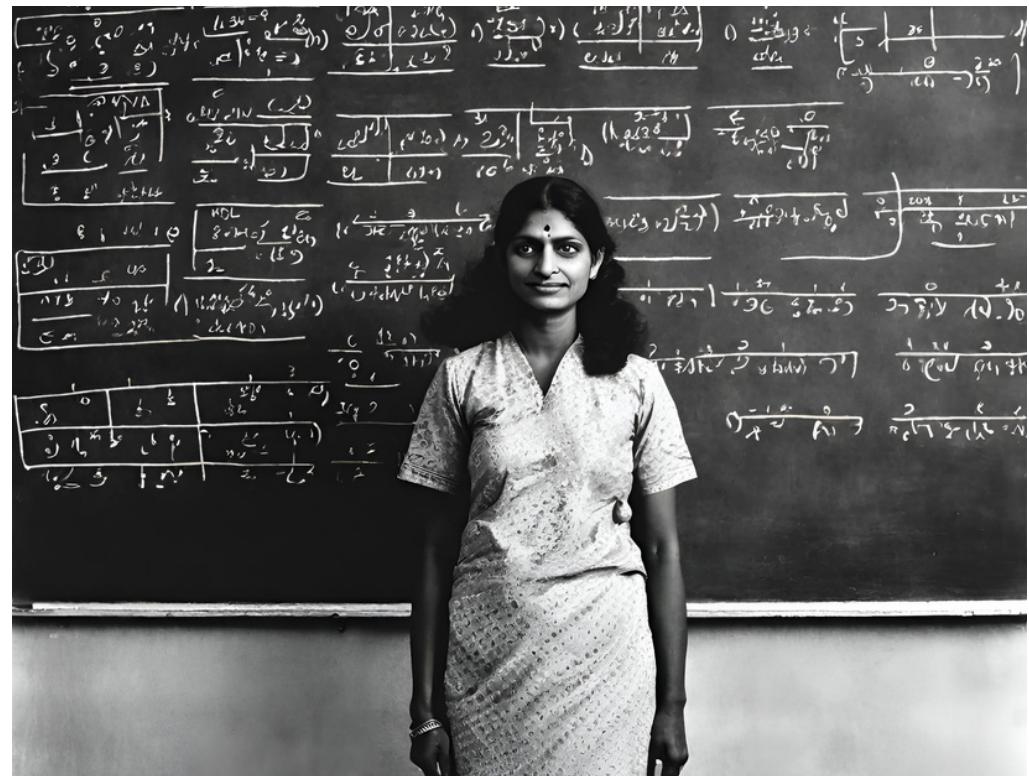


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highlighting reproducibility



afscassess package(s)



standalone
2023_analysis.R

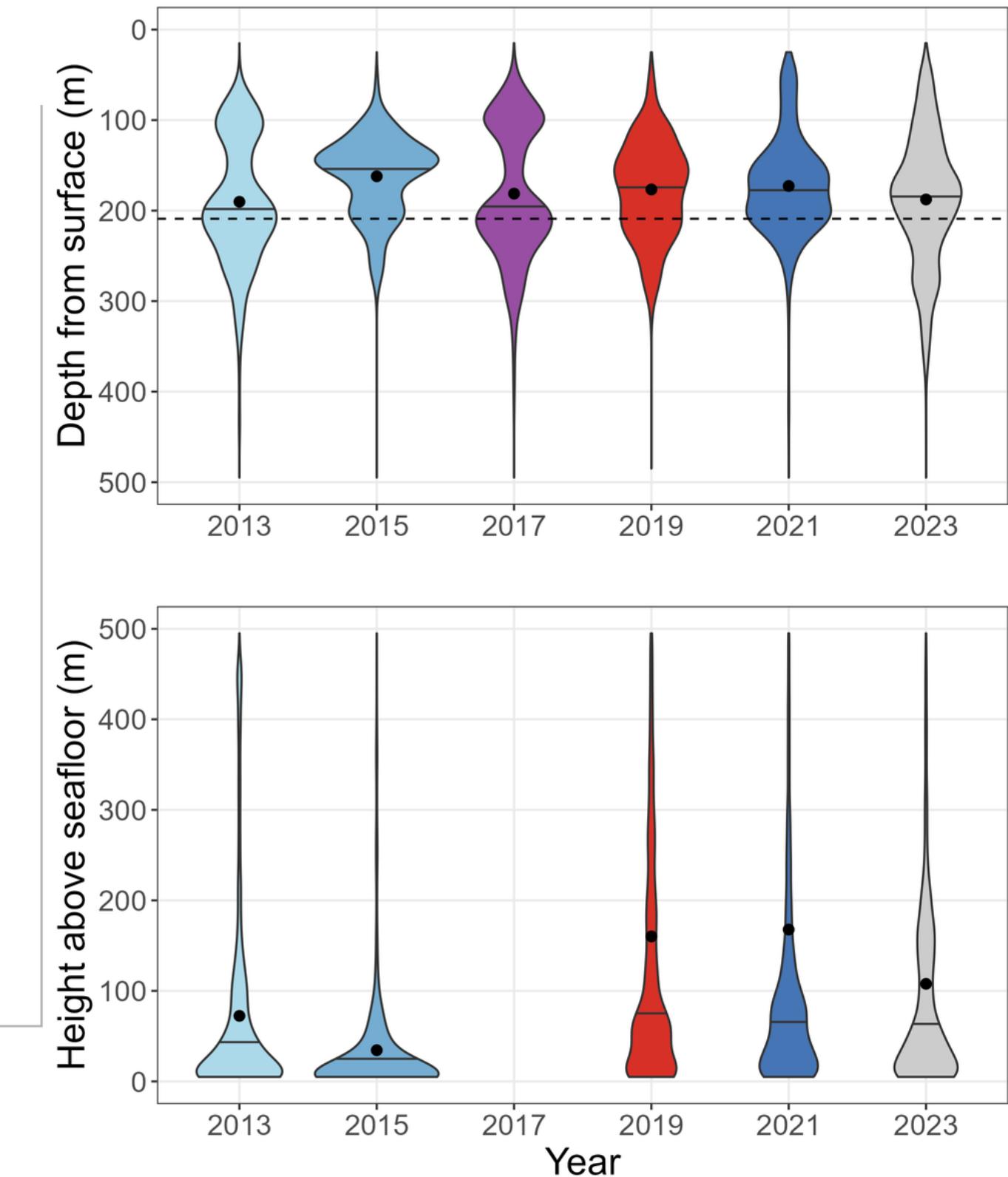
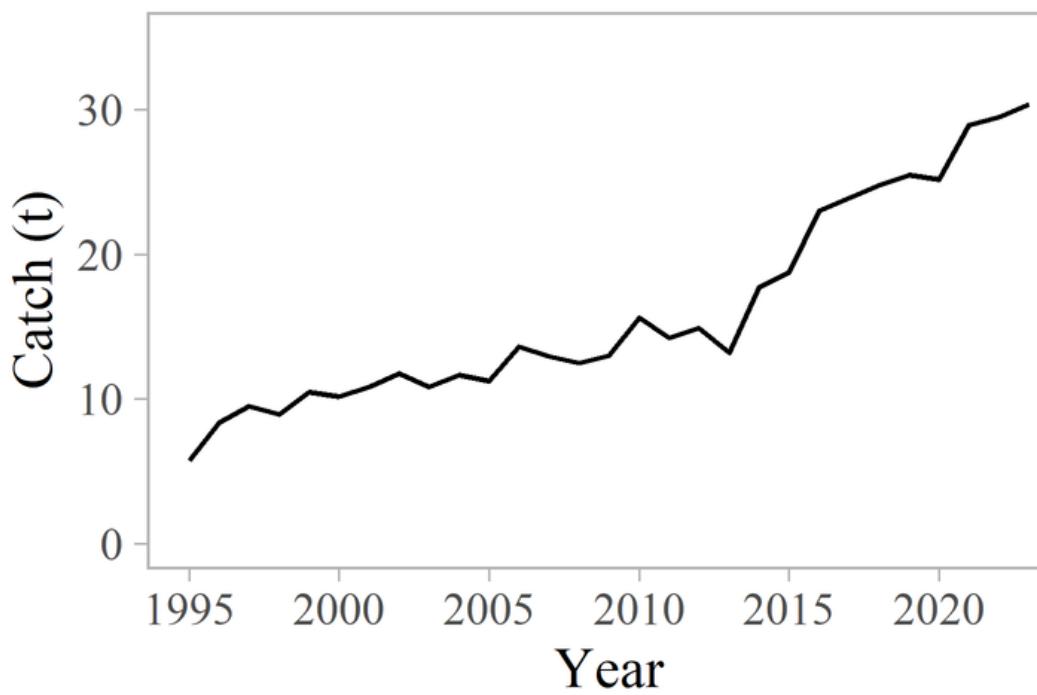
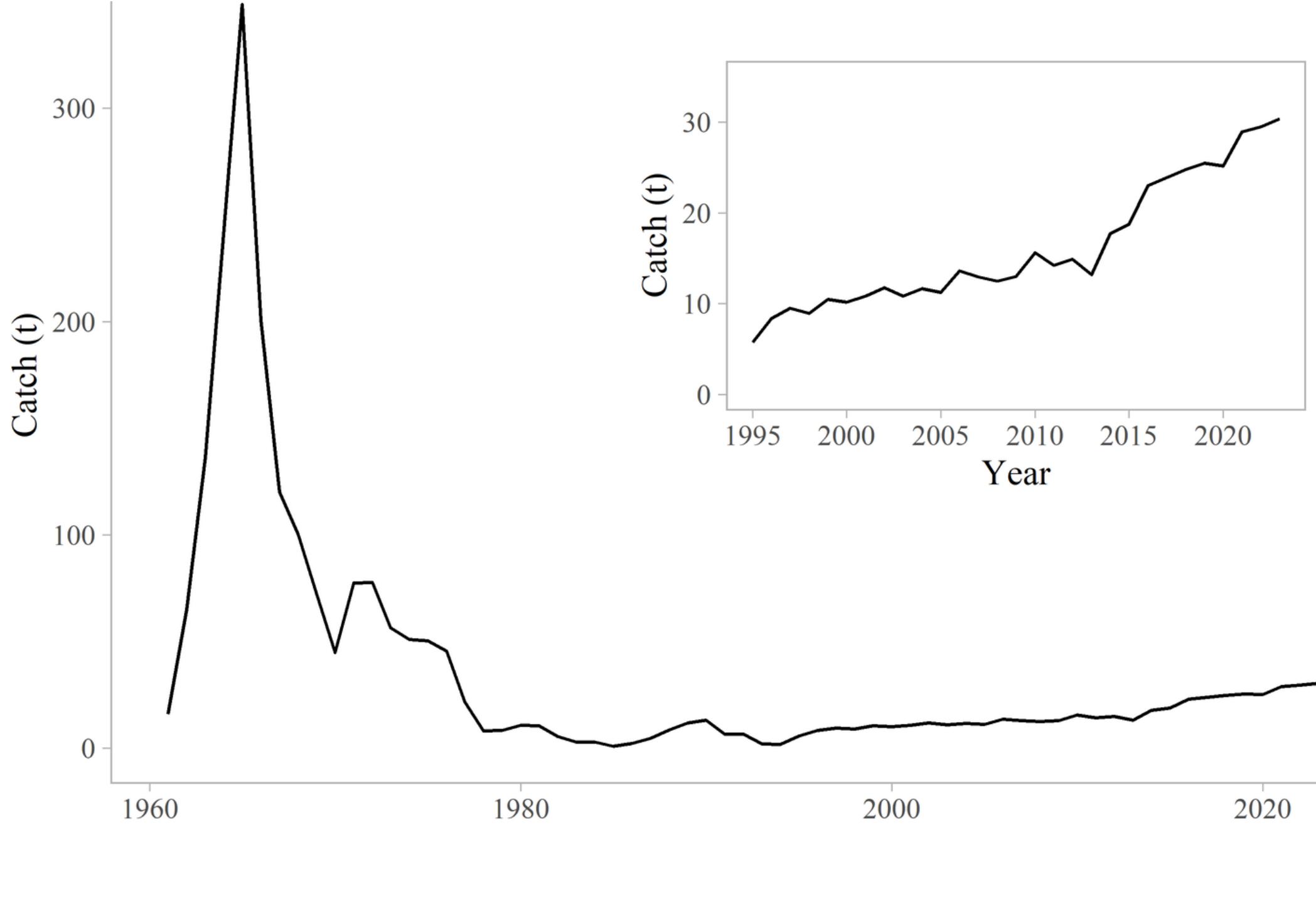


templated .Rmd

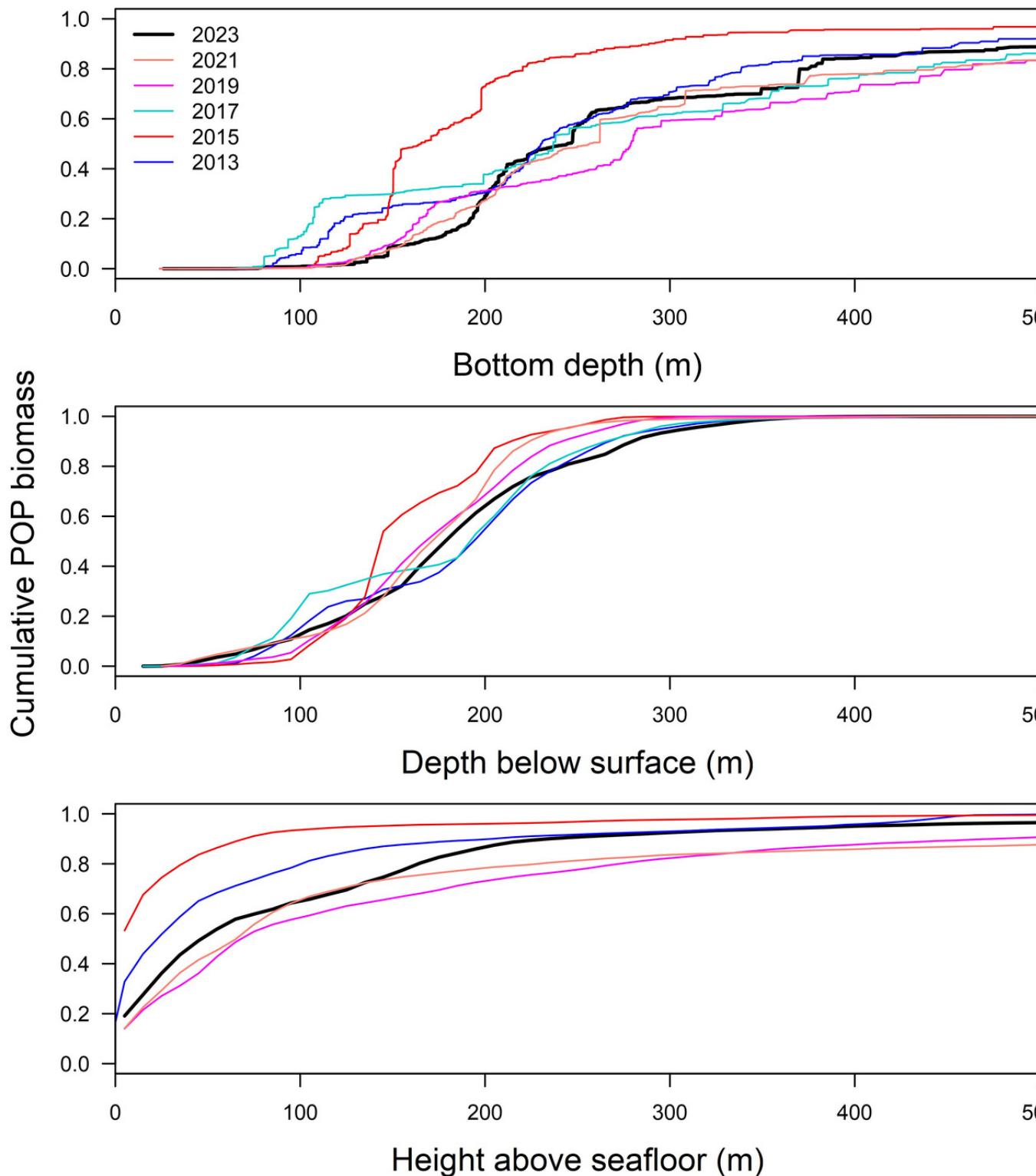
Data Summary

Source	Data	Years
U.S. trawl fishery	Catch biomass	1977- 2023
	Catch length composition	1963-1977, 1991-1997
	Catch age composition	1990, 1998-2002, 2004, 2005, 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020, 2022
GOA bottom trawl survey	Survey biomass (design-based)	1990-1999 (triennial), 2001- 2023 (biennial)
	Survey age composition	1990, 1993, 1996, 1999, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2021

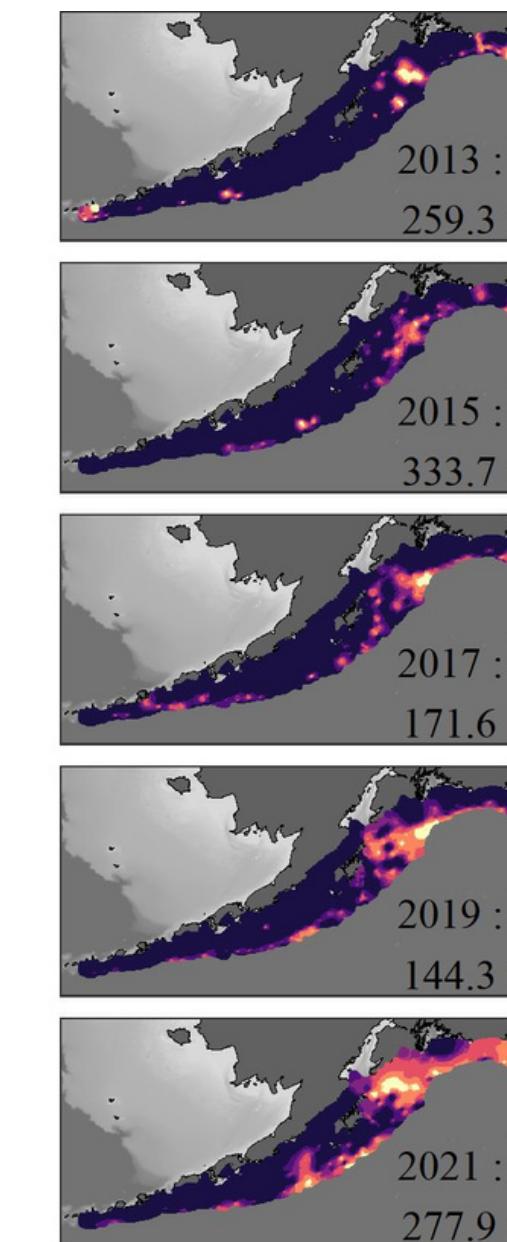
Catches - low but rising



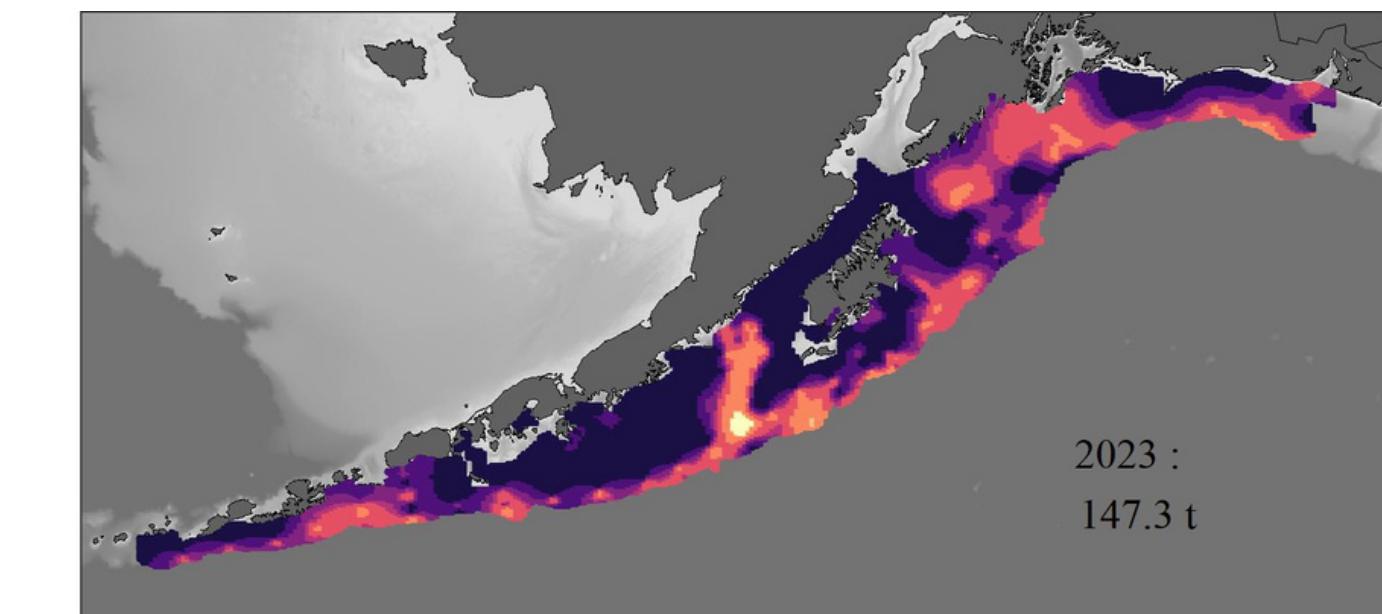
Acoustic Trawl Survey*



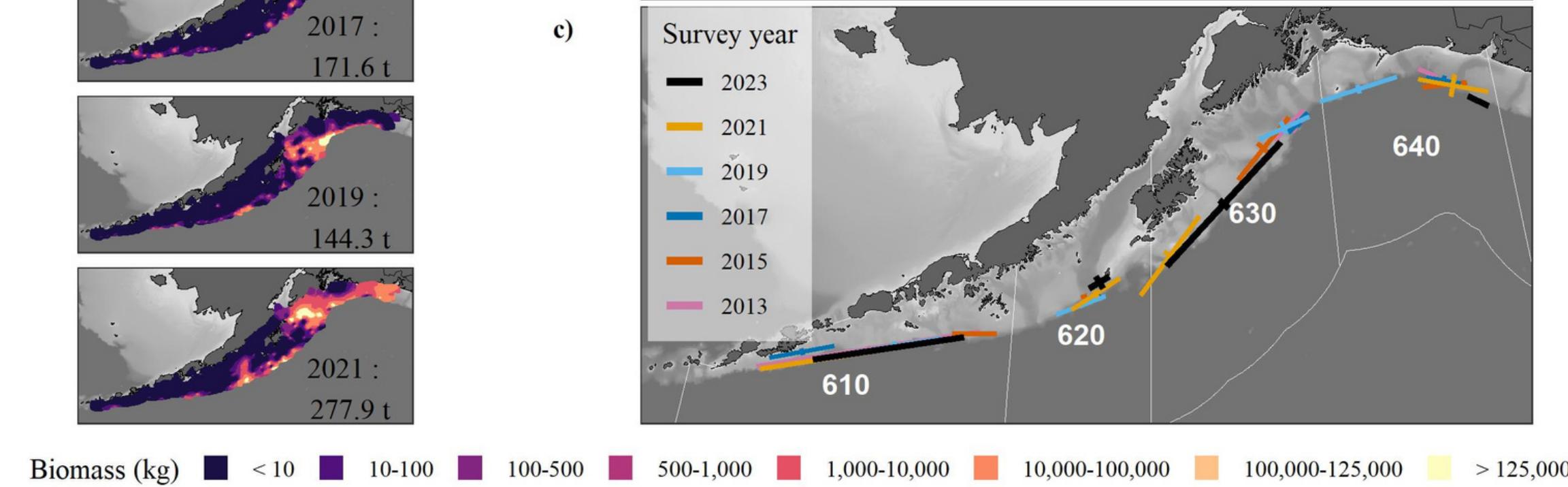
a)



b)



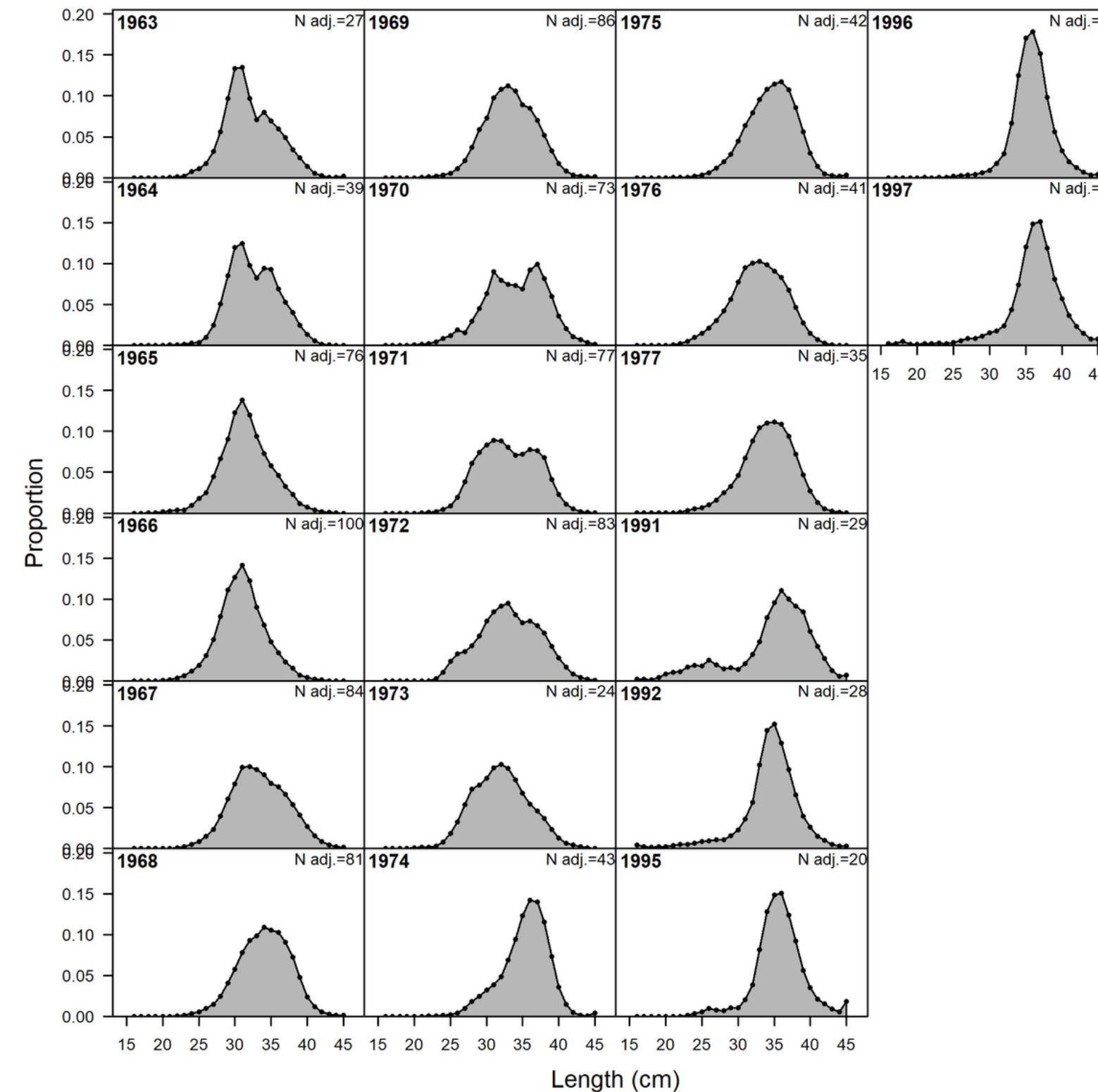
c)



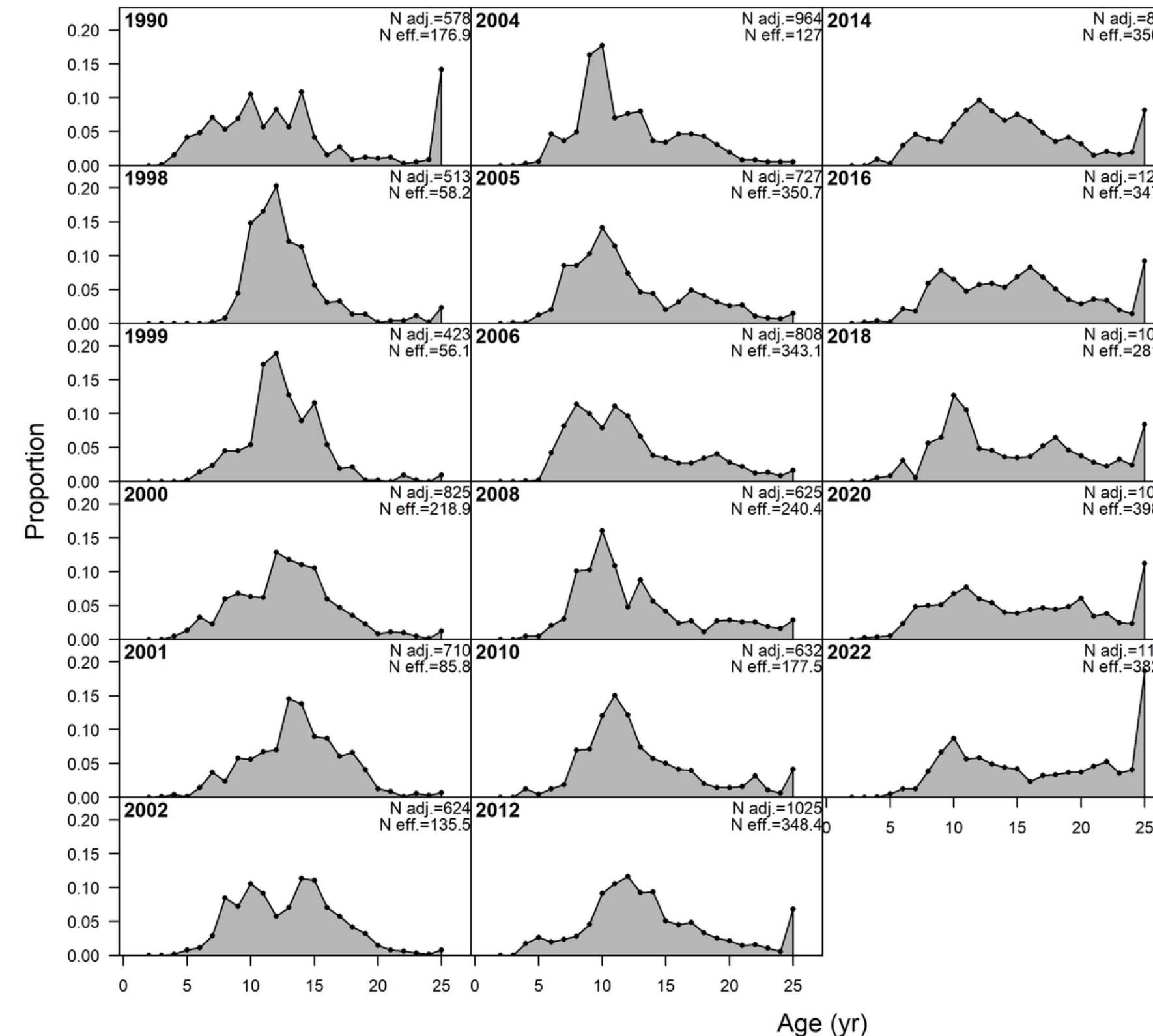
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*these data are not in the assessment

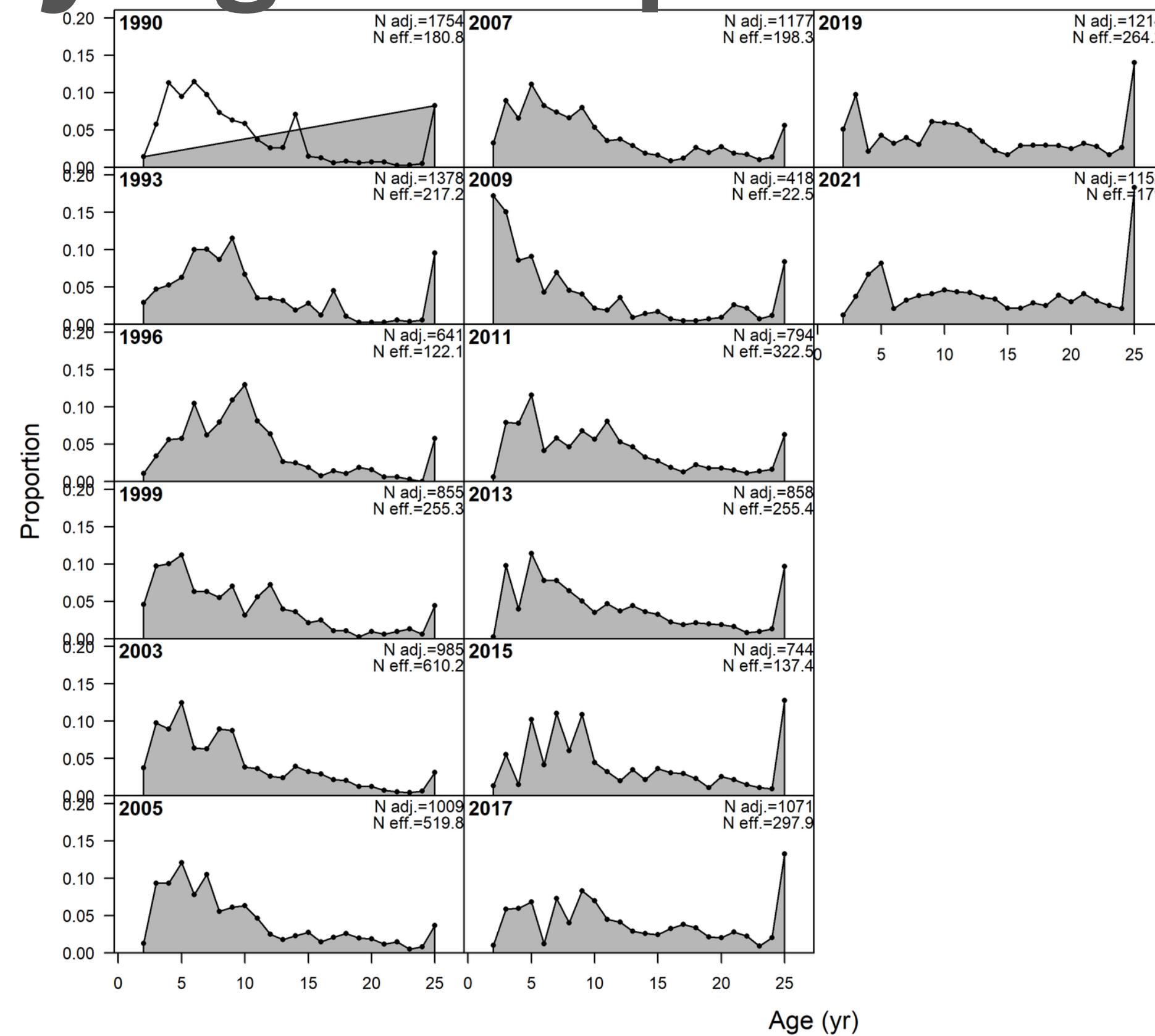
Fishery Length Composition Data



Fishery Age Composition Data

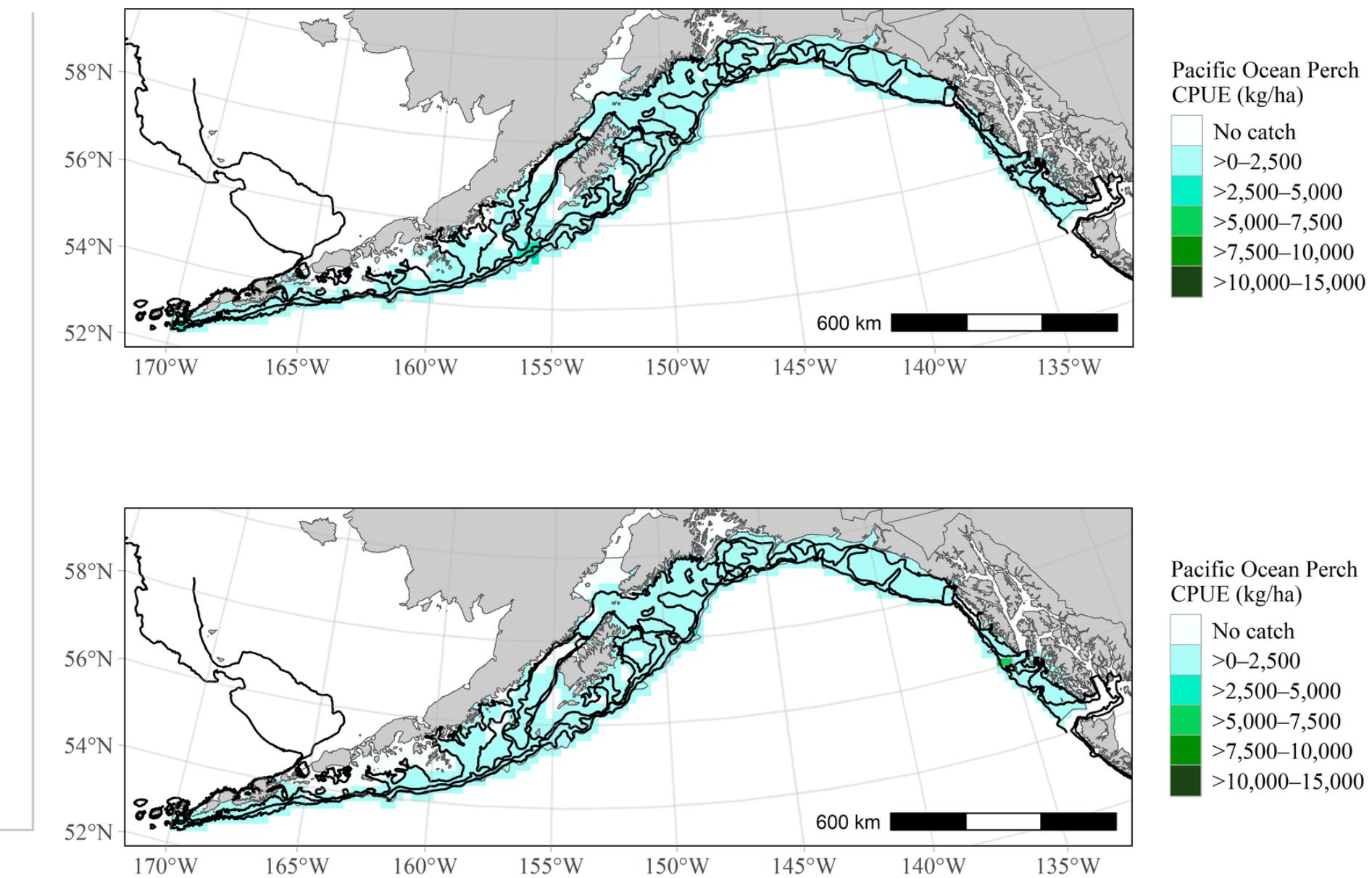
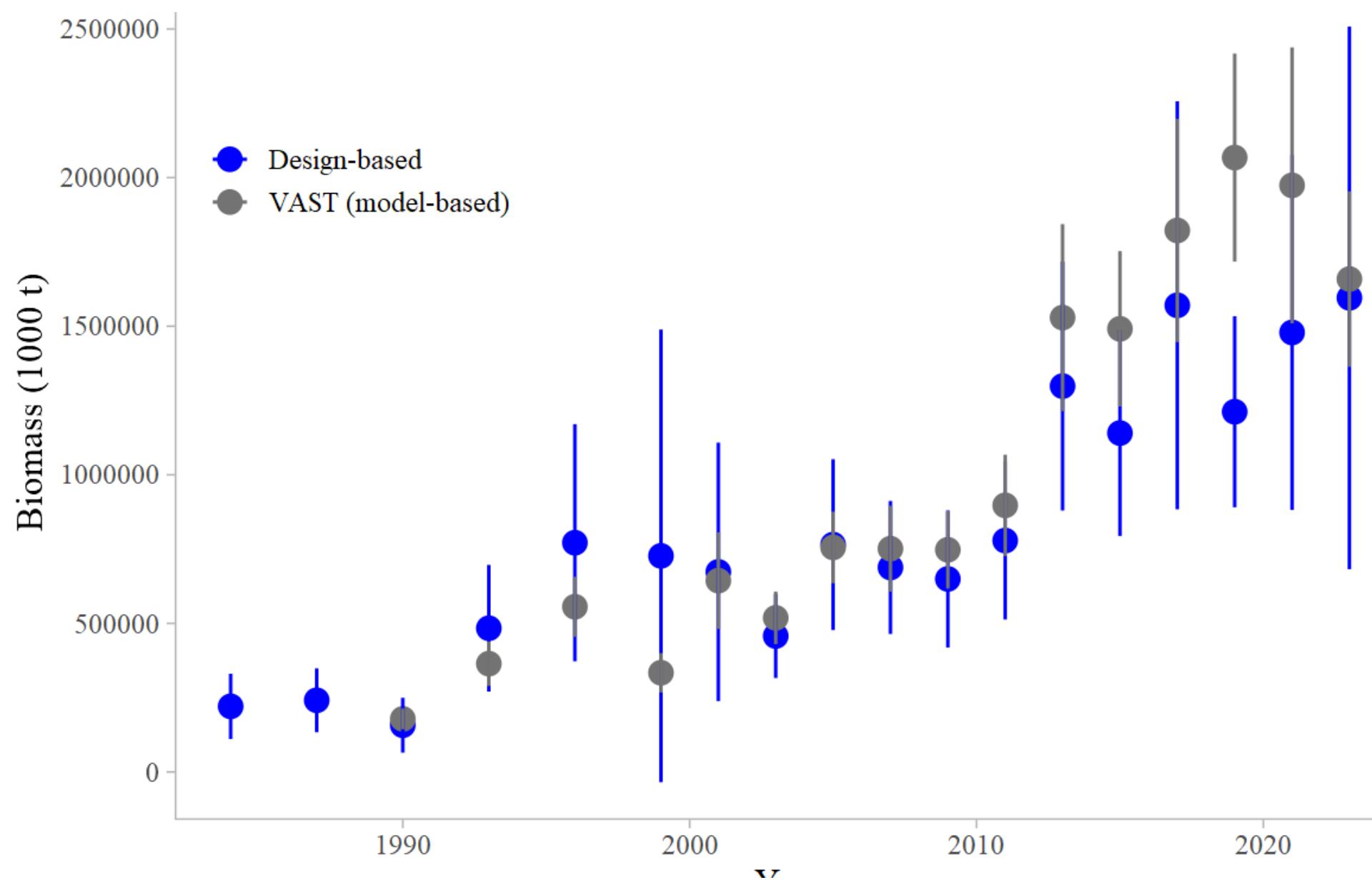


Survey Age Composition Data



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GOA Trawl Survey Data



Model Summary

No changes
from 2021
(Hulson et. al)

Software

Bespoke ADMB Model

Single-sex, age
structured (29+)

Logistic maturity, fit to
data

Time blocked fishery
selex

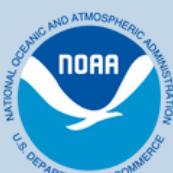
General

Operational update

Size-age matrices
updated

Approach

Time on SS explorations



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Model Results

Model fits

Parameters & Derived Quants

Retrospectives, sensitivities

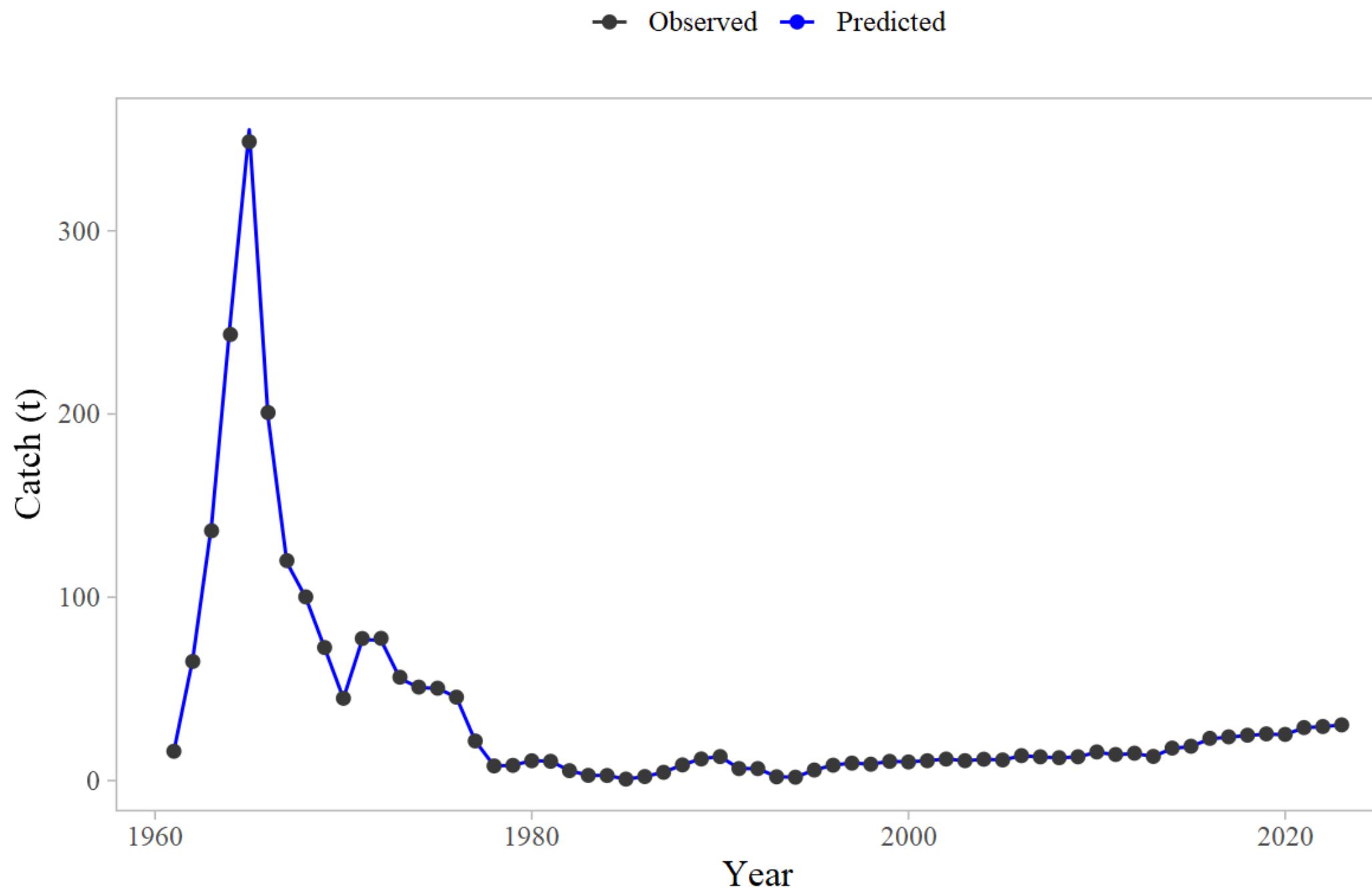
Projections &
Risk Table

Gaps/Research

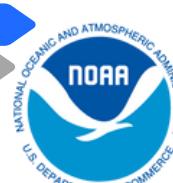
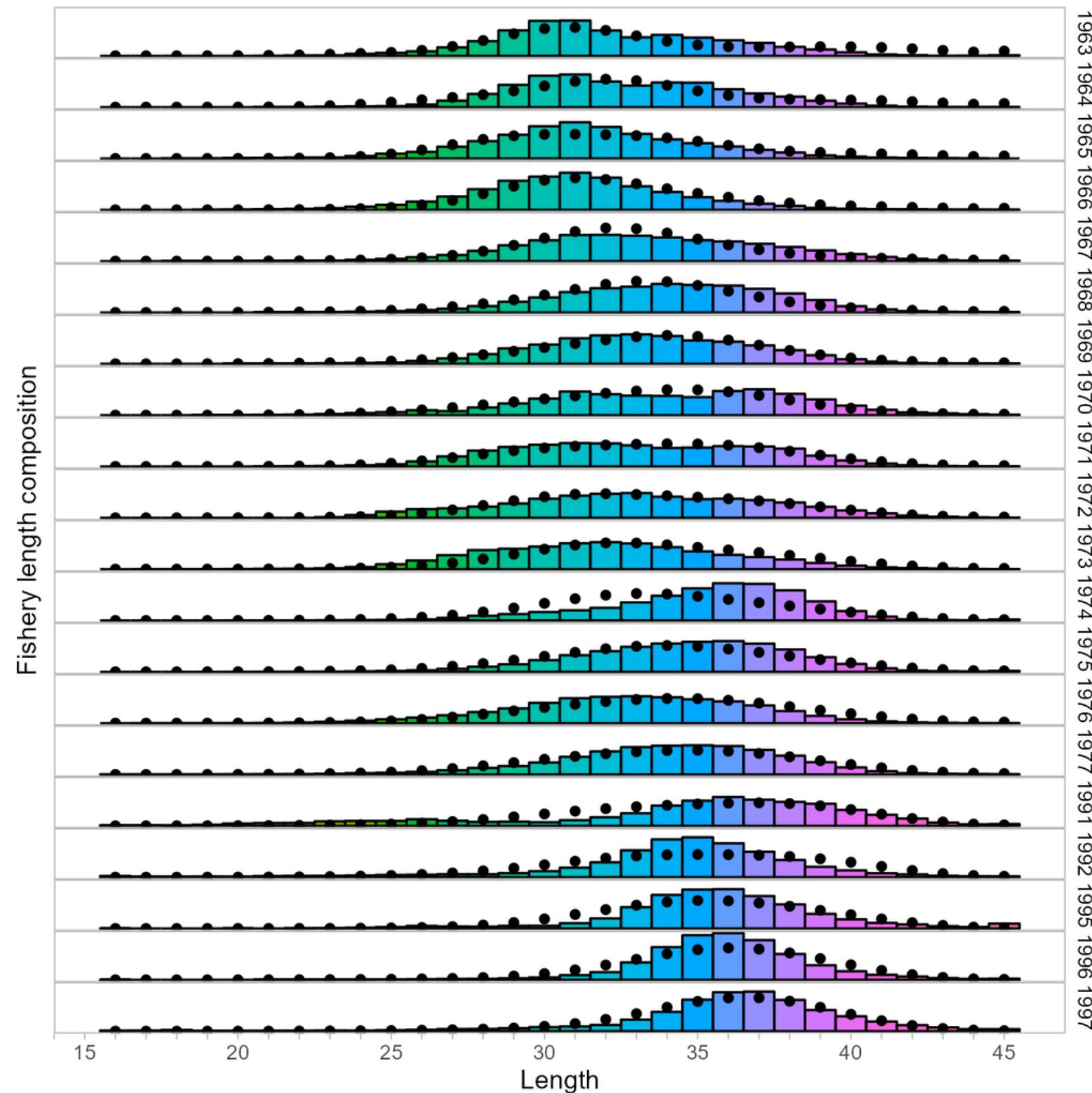


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Model Fit: Catches

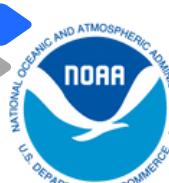
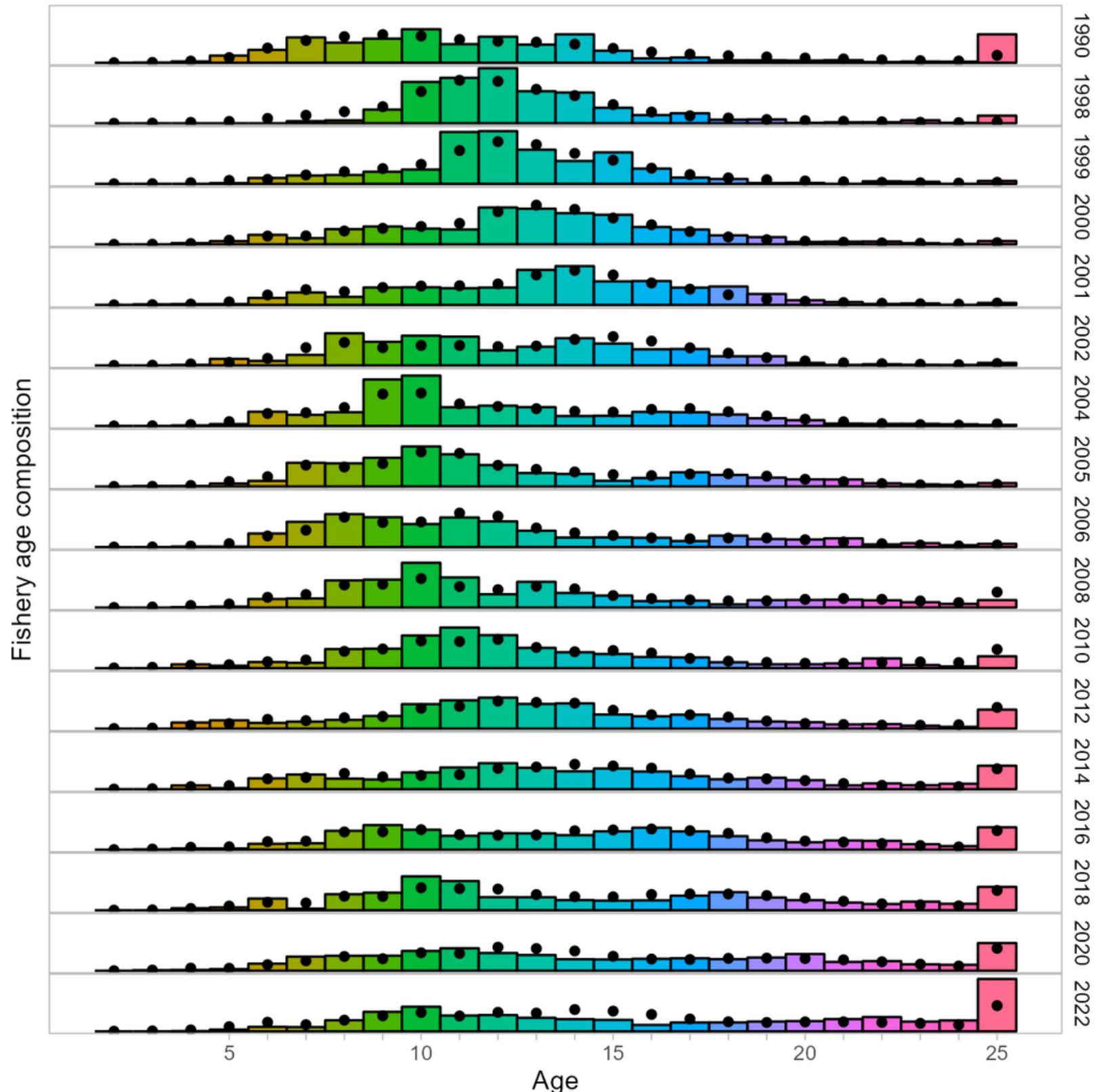


Model Fit: Fishery Lengths



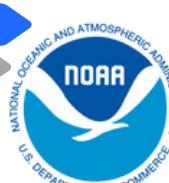
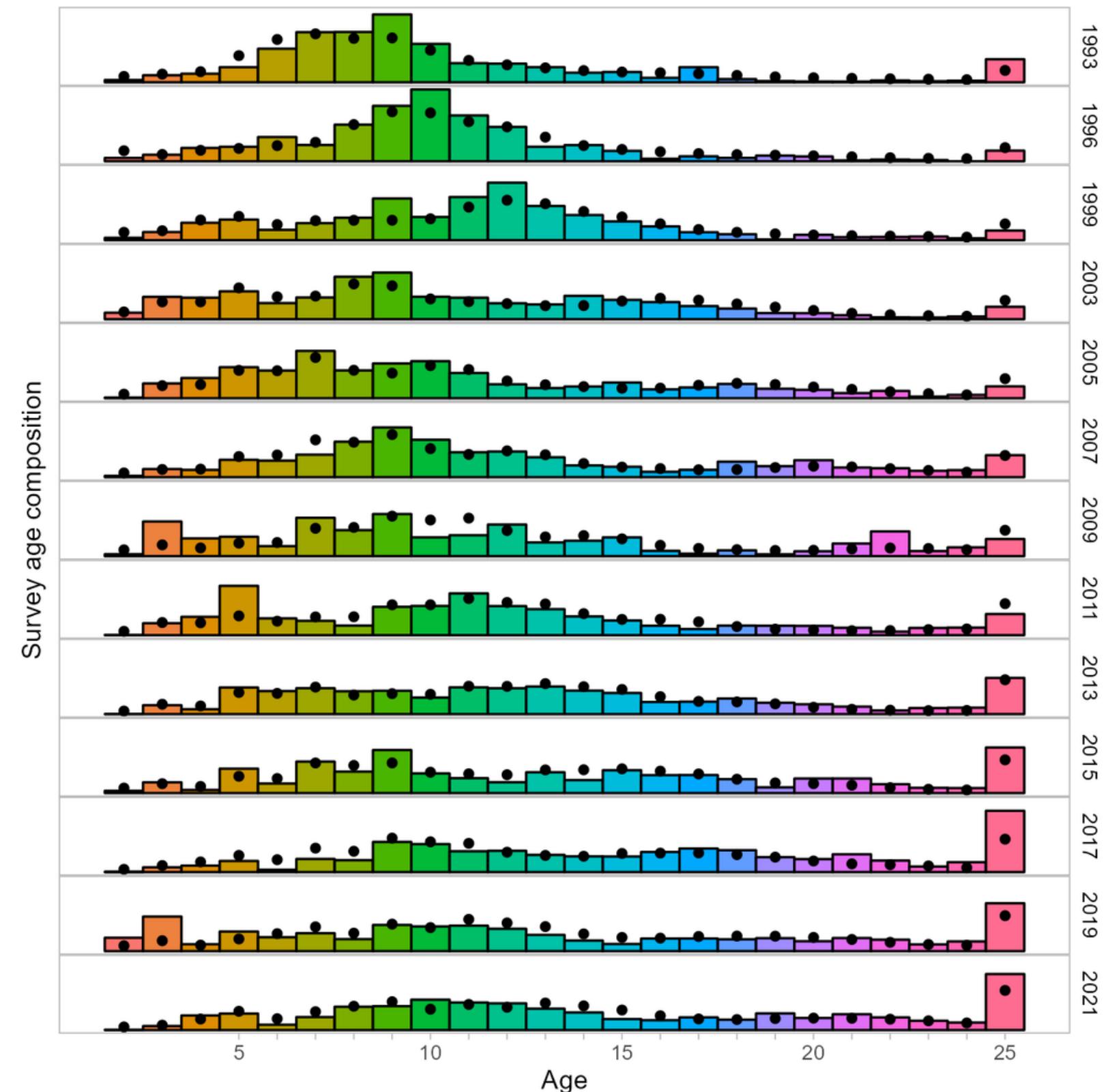
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Model Fit: Fishery Ages



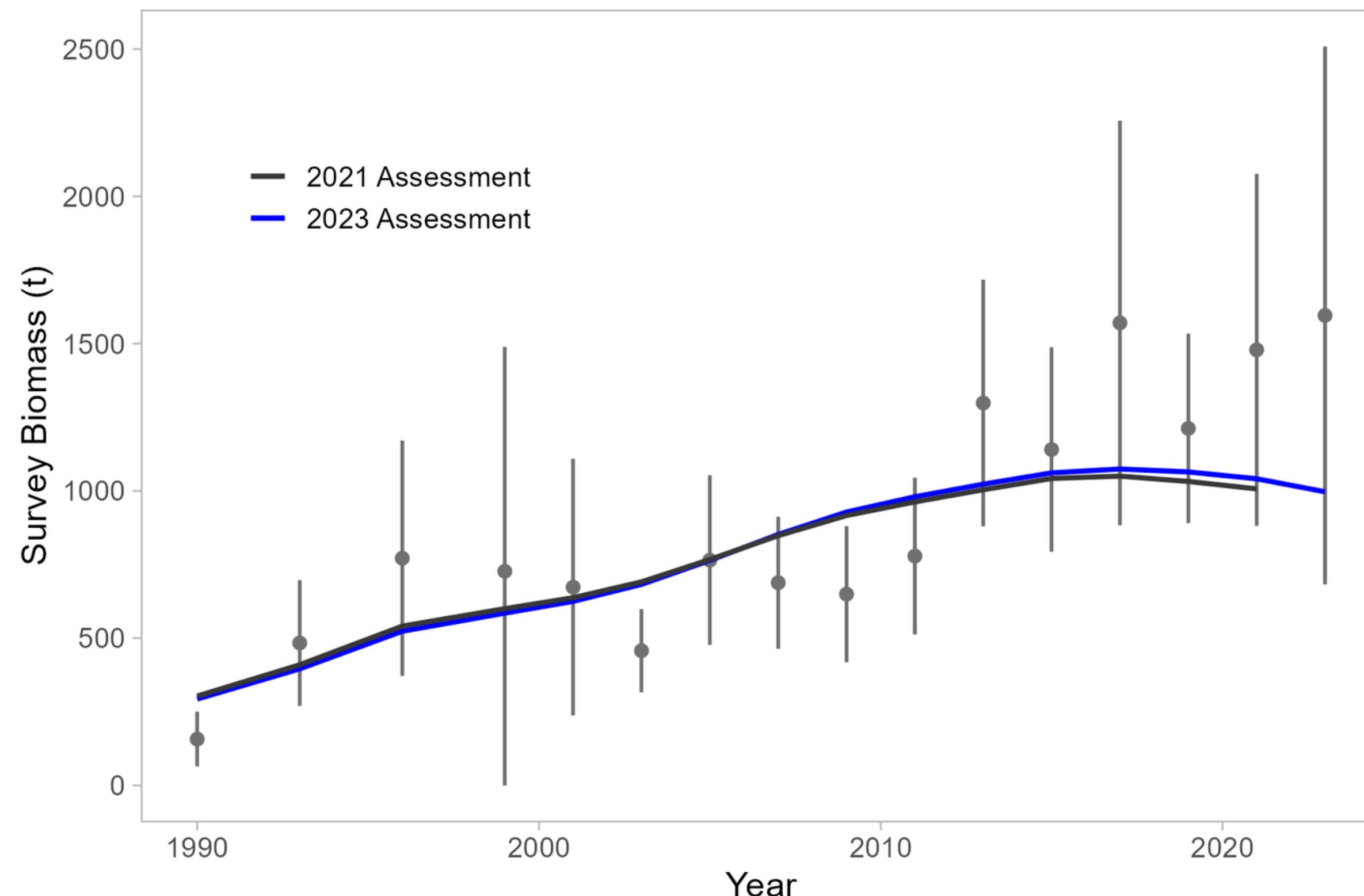
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Model Fit: Survey Ages

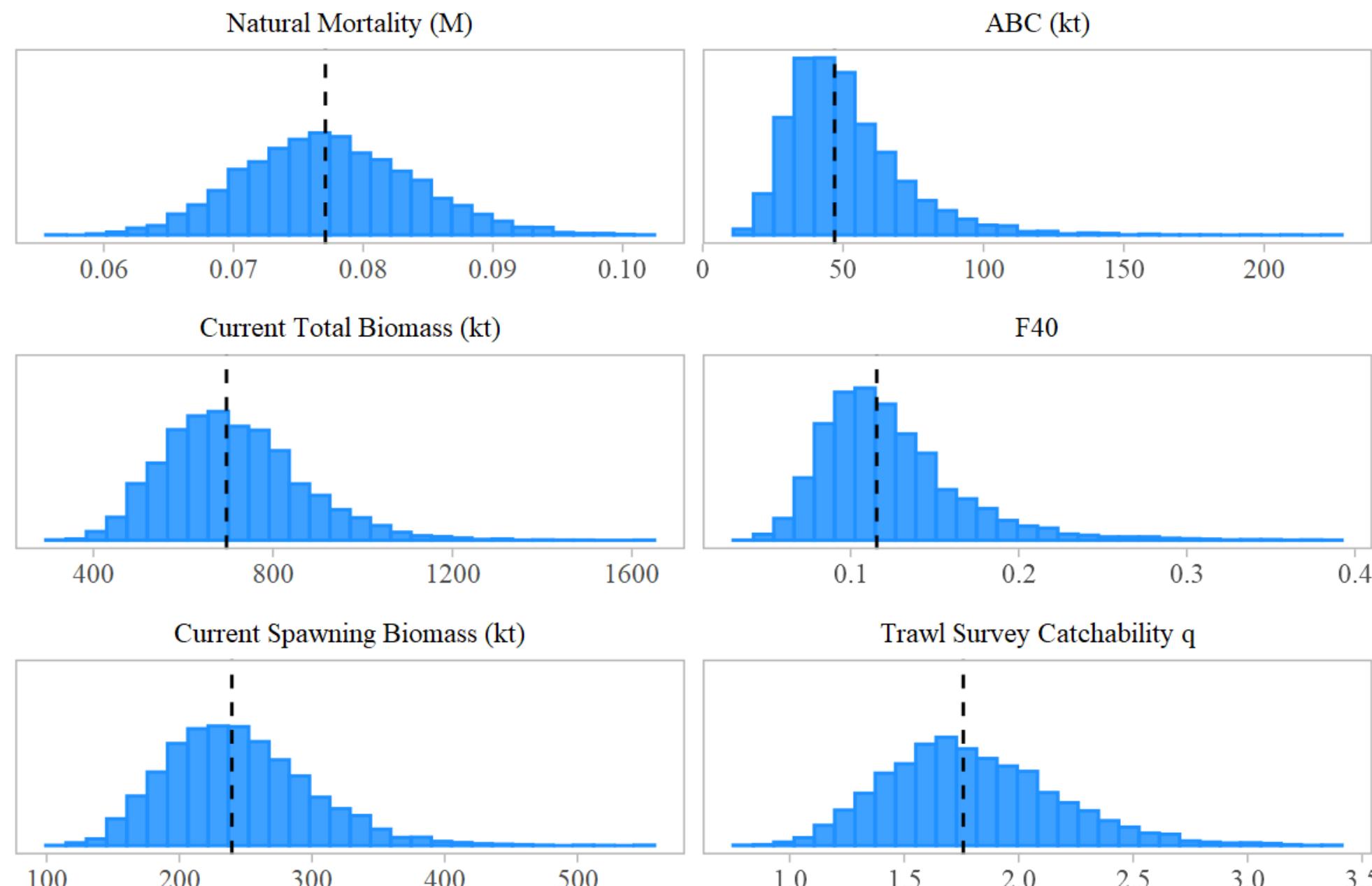


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Model Fit: Survey Biomass

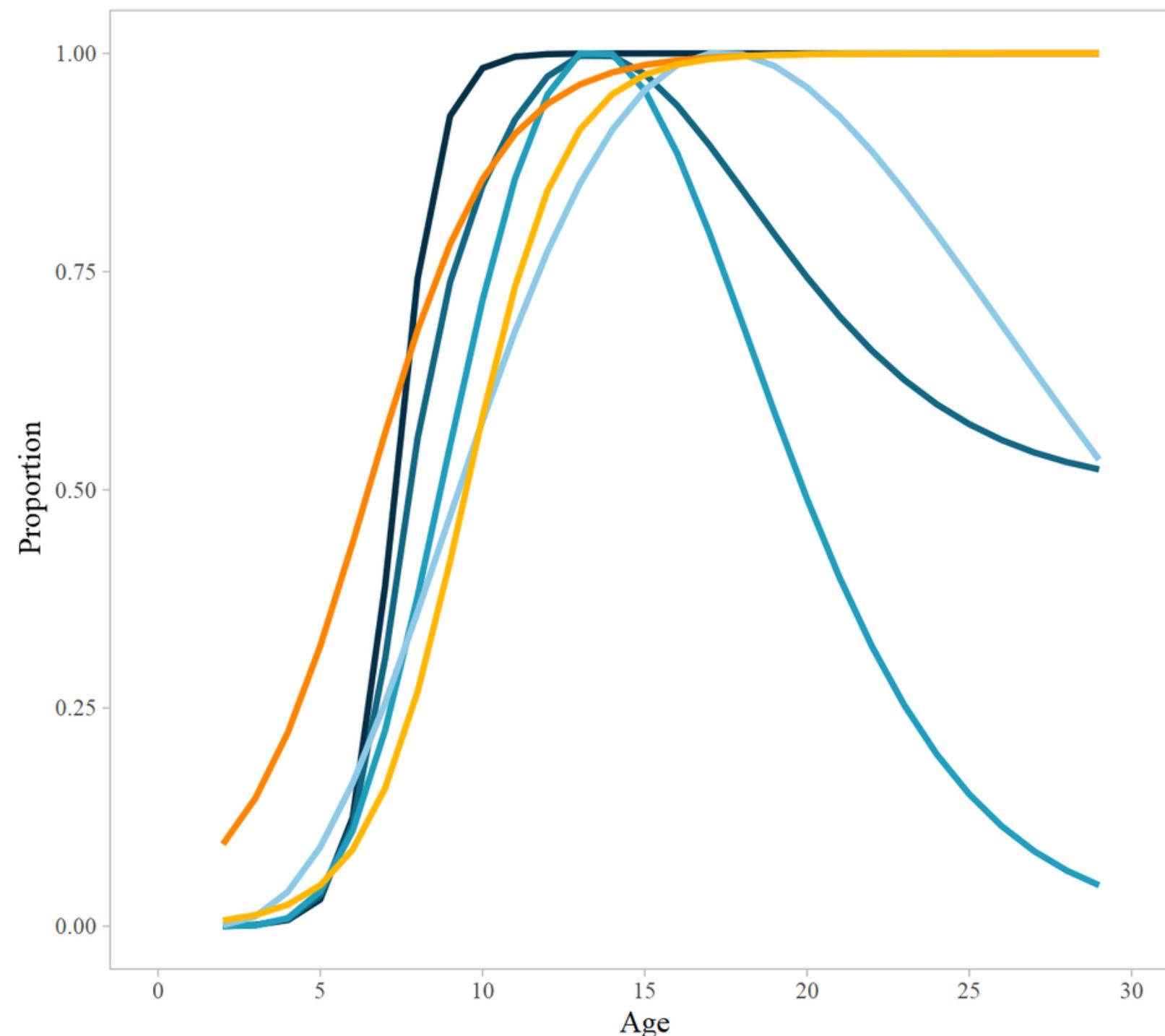


Key Parameters

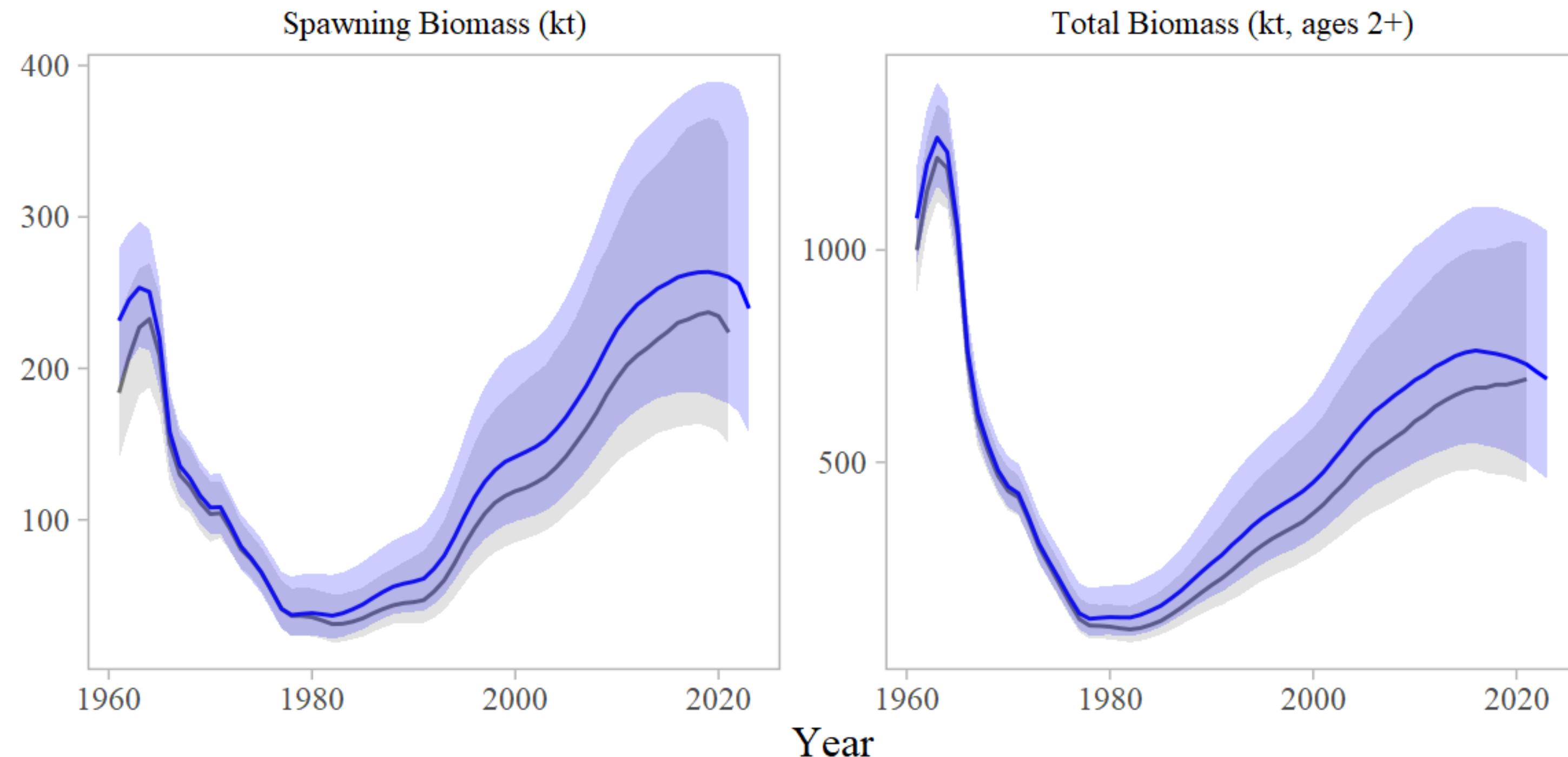


Selectivity Curves

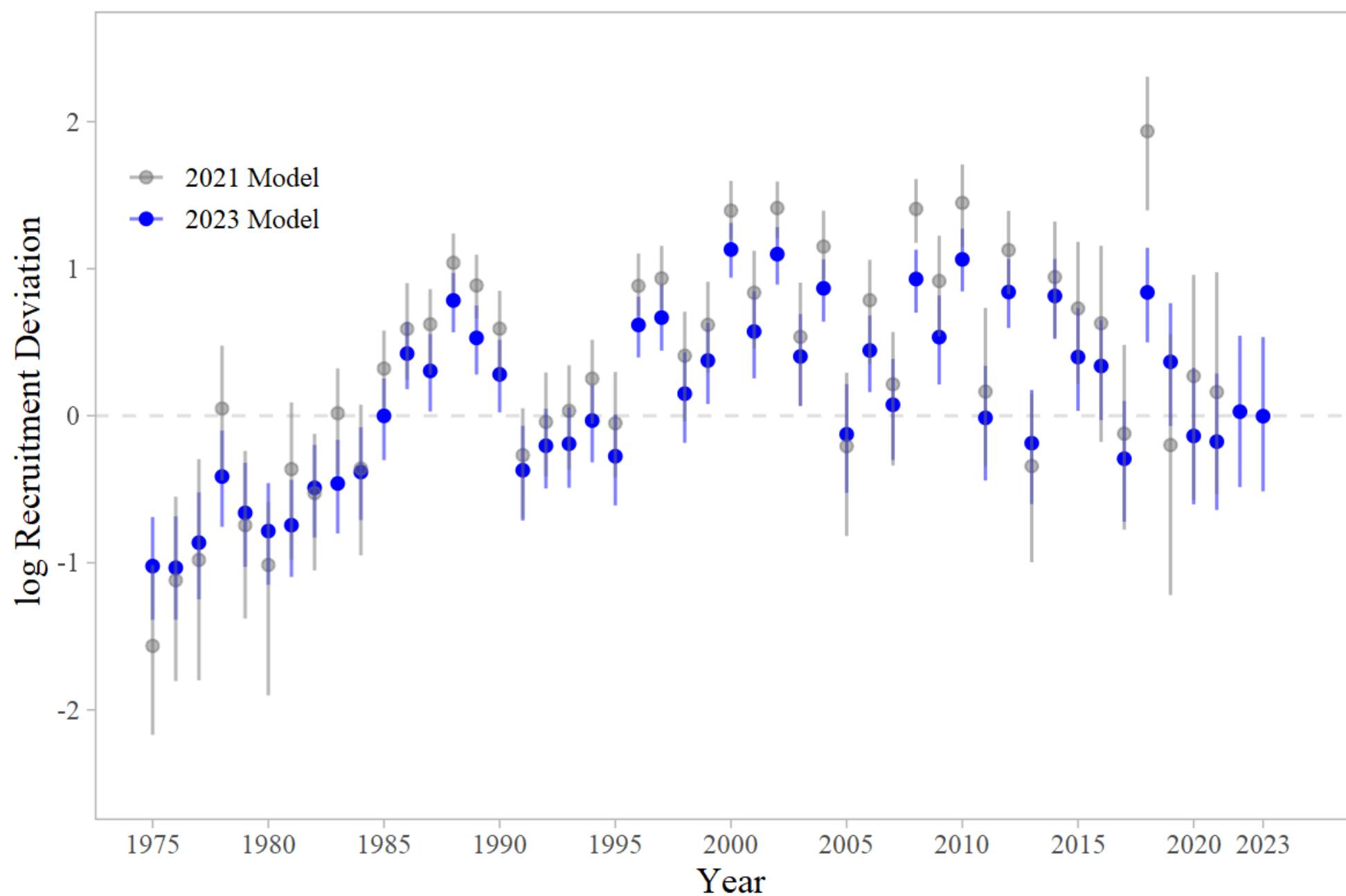
— Fishery 1967-1976 — Fishery 1996-2006 — Survey
— Fishery 1977-1995 — Fishery 2007-2023 — Maturity



Time Series: SSB & Total Biomass

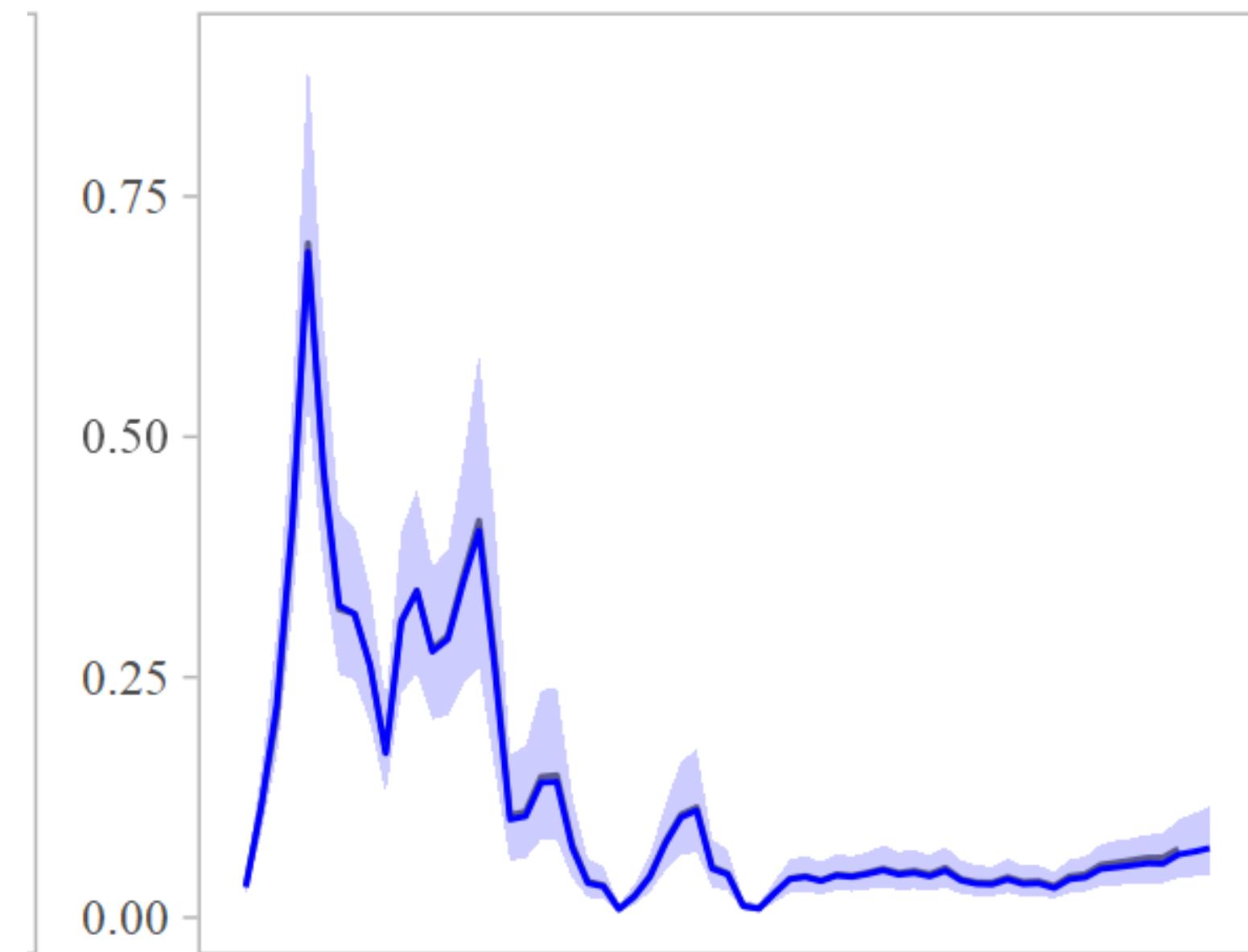


Time Series: Recruitment

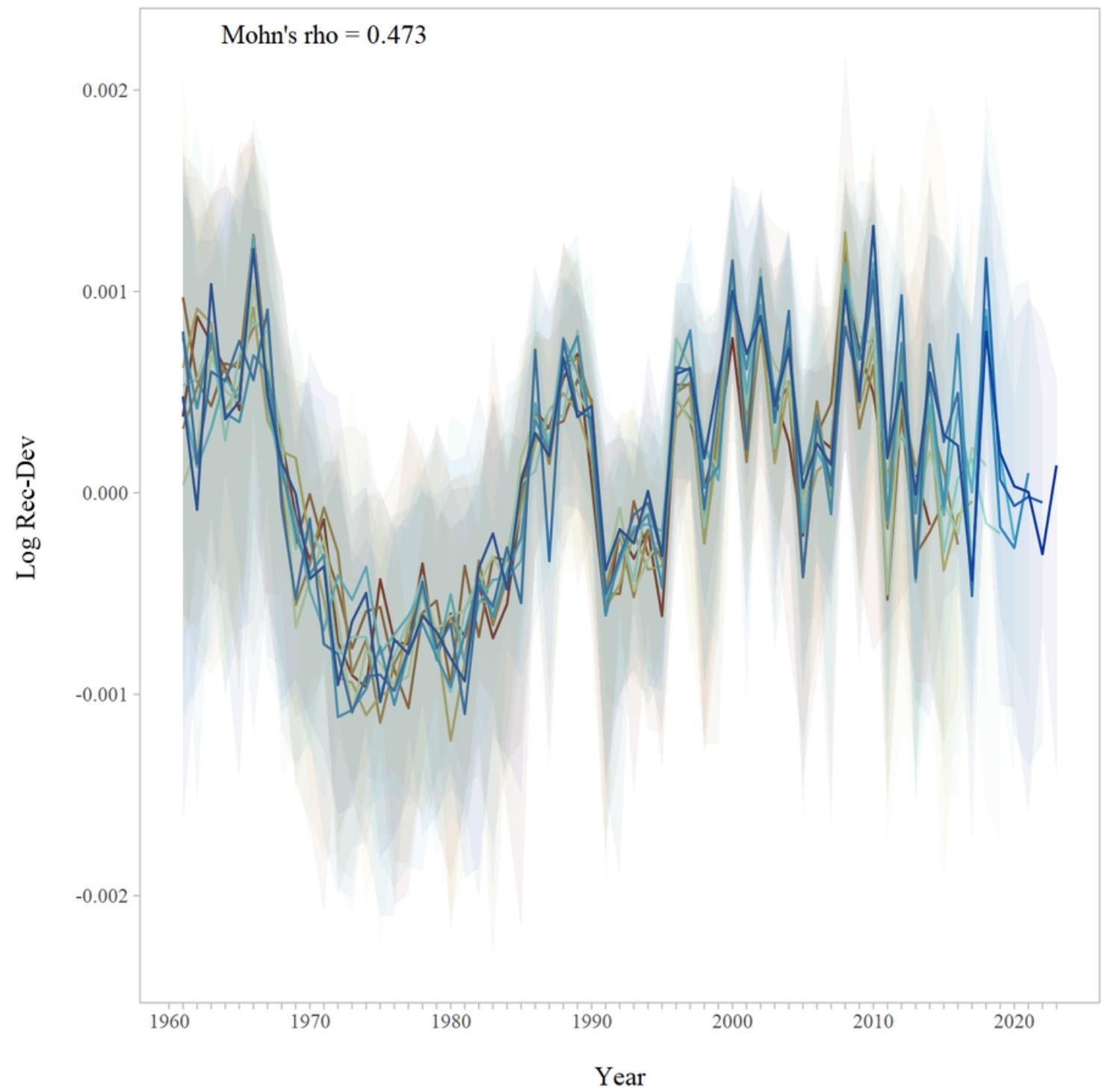
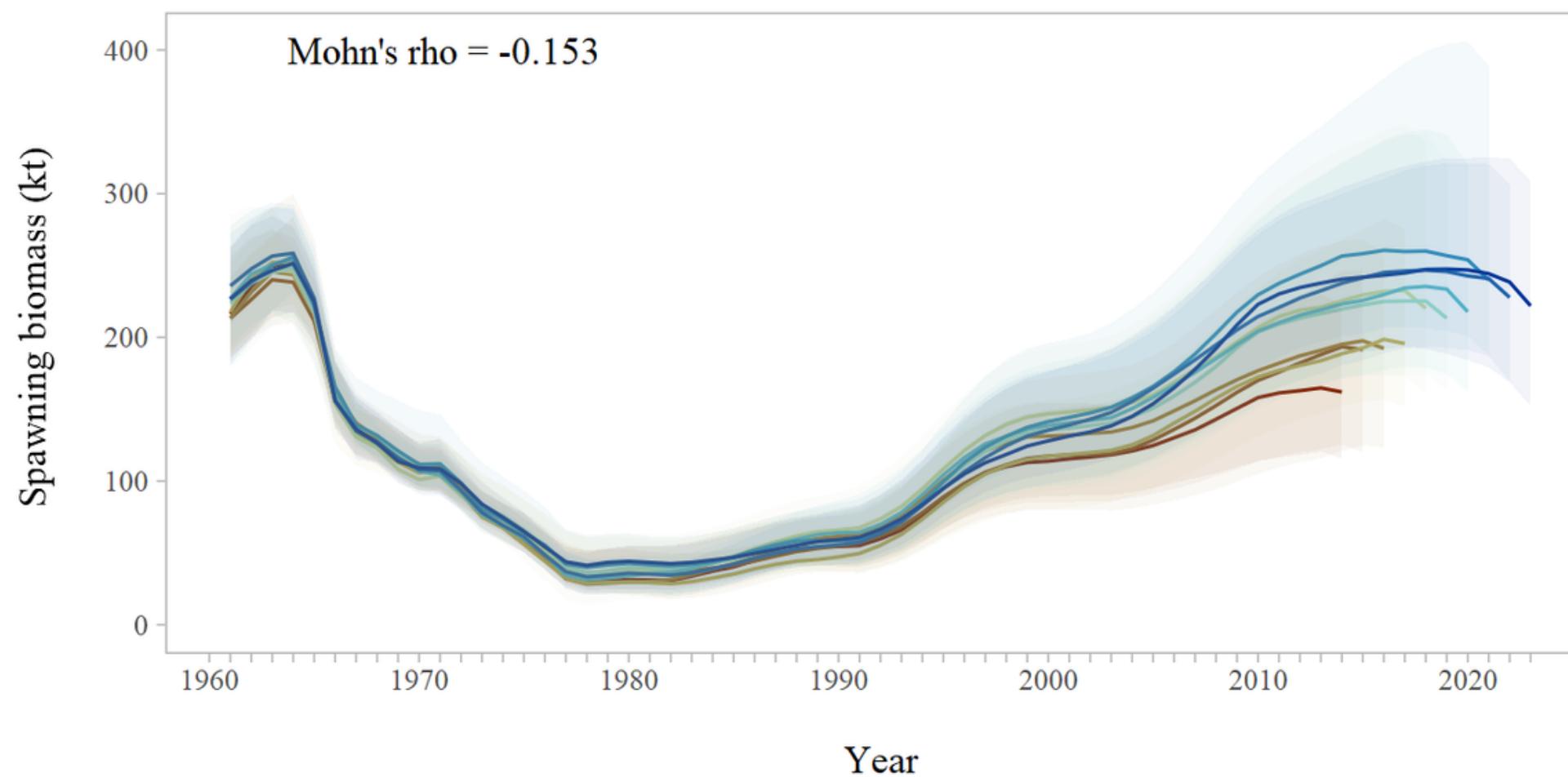


Time Series: Fishing Mortality

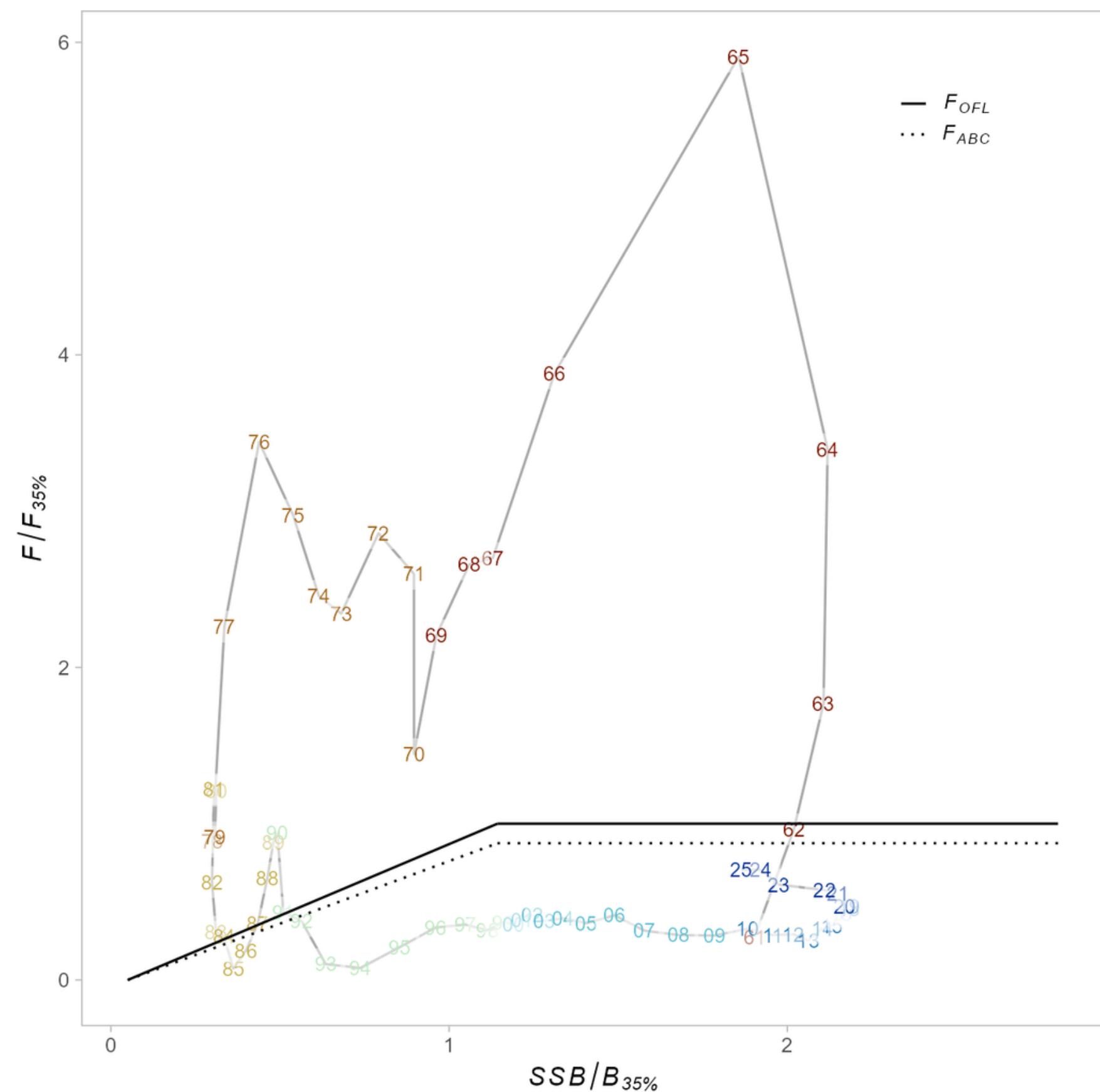
Fishing Mortality



10-year Retrospectives



Phase Plane



Risk Table



Assessment

Level 2

strong, negative retro



PopDy & Fishery

Level 2

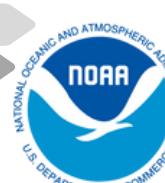
above-avg. recruitment,
underfit surveys



Environment

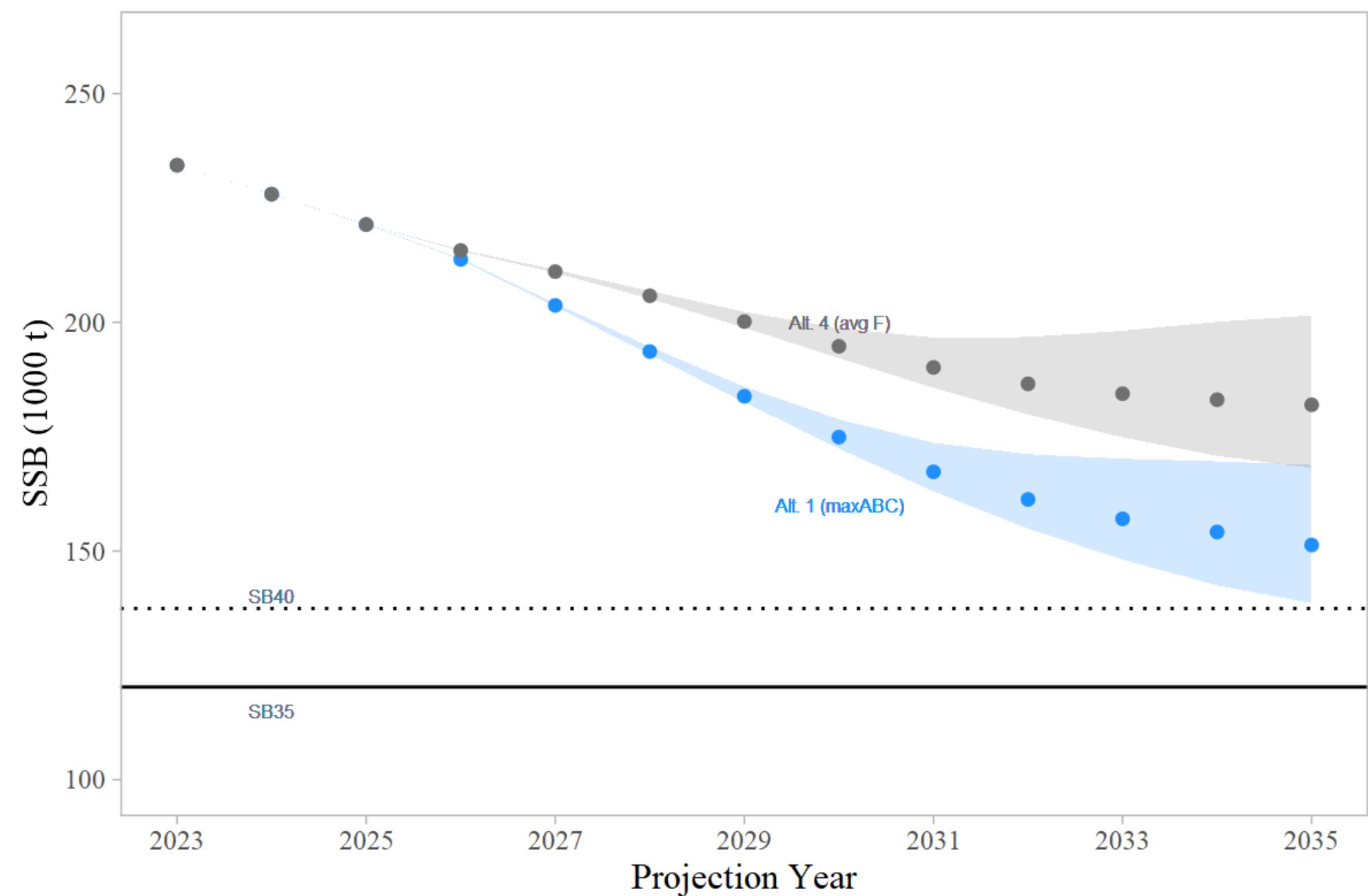
Level 1

moderate thermal conditions



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Projection



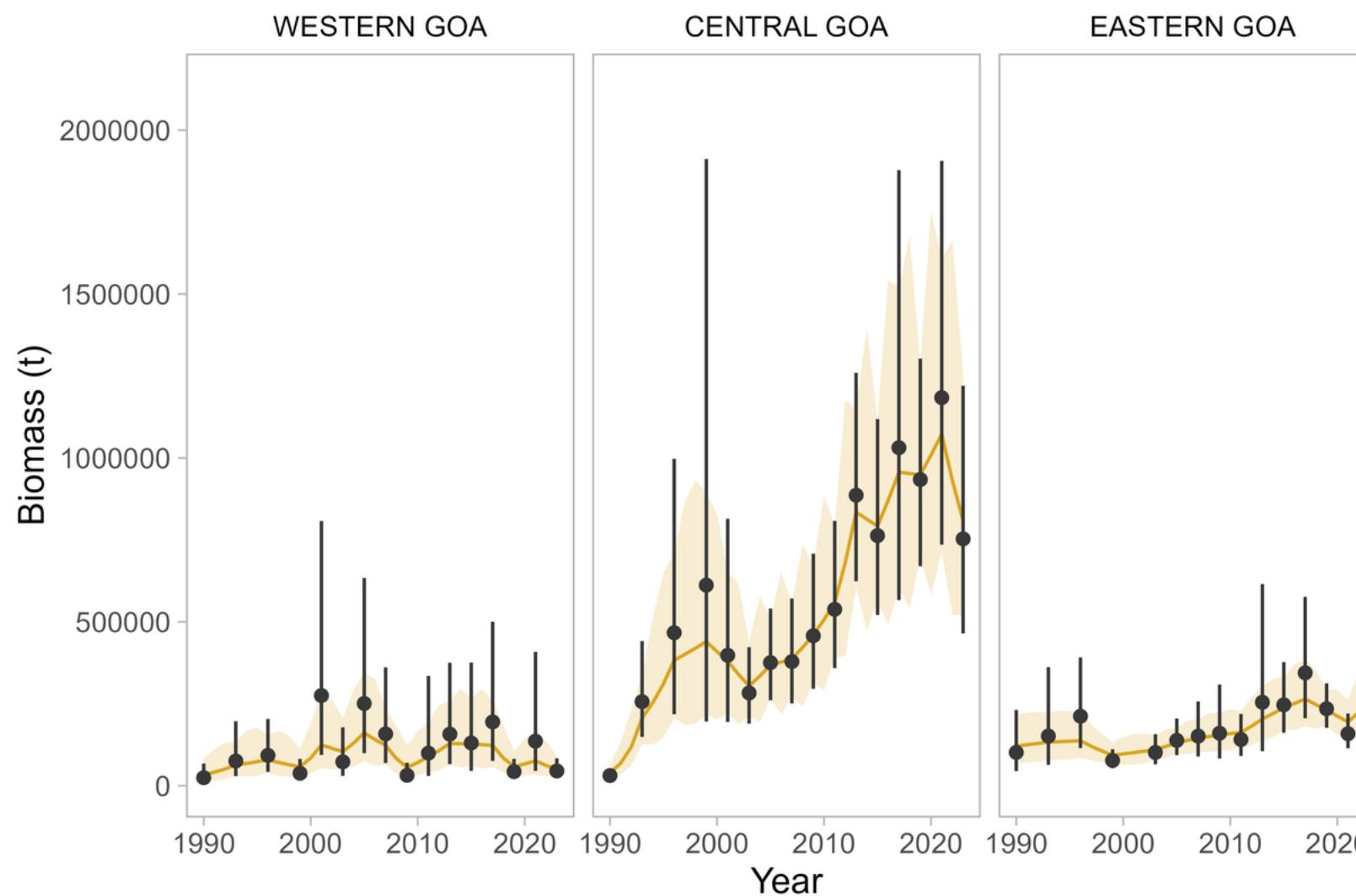
Harvest Recommendation

Quantity/Status	As estimated or specified <i>last</i> year for:		As estimated or recommended <i>this</i> year for:	
	2023	2024	2024*	2025*
M (natural mortality)	0.075	0.075	0.074	0.074
Tier	3a	3a	3a	3a
Projected total (age 2+) biomass (t)	636,129	621,249	650,027	628,753
Projected female spawning biomass (t)	210,795	205,713	228,030	221,384
B _{100%}	331,917	331,917	343,618	343,618
B _{40%}	132,767	132,767	137,447	137,447
B _{35%}	116,171	116,171	120,266	120,266
F _{OFL}	0.12	0.12	0.12	0.12
maxF _{ABC}	0.10	0.10	0.10	0.10
F _{ABC}	0.10	0.10	0.10	0.10
OFL (t)	44,302	43,117	47,466	45,835
maxABC (t)	37,193	36,196	39,719	38,354
ABC (t)	37,193	39,196	39,719	38,354
Status		As determined <i>last</i> year for:	As determined <i>this</i> year for:	
		2022	2023	2023
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No



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Apportionment



REMA-derived apportionment (%)		4.5	72.4	23.1	100	
Year	Quantity	Western	Central	W. Yakutat	E. Yakutat/ SEO	Total
2024	ABC (t)	1,787	28,757	2,110	7,065	39,719
2025	ABC (t)	1,726	27,768	2,038	6,822	38,354
2024	OFL (t)		39,023		8,443	47,466
2025	OFL (t)		37,682		8,153	45,835

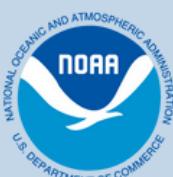


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github.com/afsc-assessments/rema

Data Gaps & Future Research

- Transition to SS Model
- Deeper exploration of selex & data weighting



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Thank you
maia.kapur@noaa.gov

