Eastern Bering Sea pollock

2026 assessment

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https://noaa-afsc.github.io/EBS_pollock/2026/assessment.html

Assessment chronology

2024 full assessment provides the accepted comparison

2025 catch-only report retains 2024 assessment projections

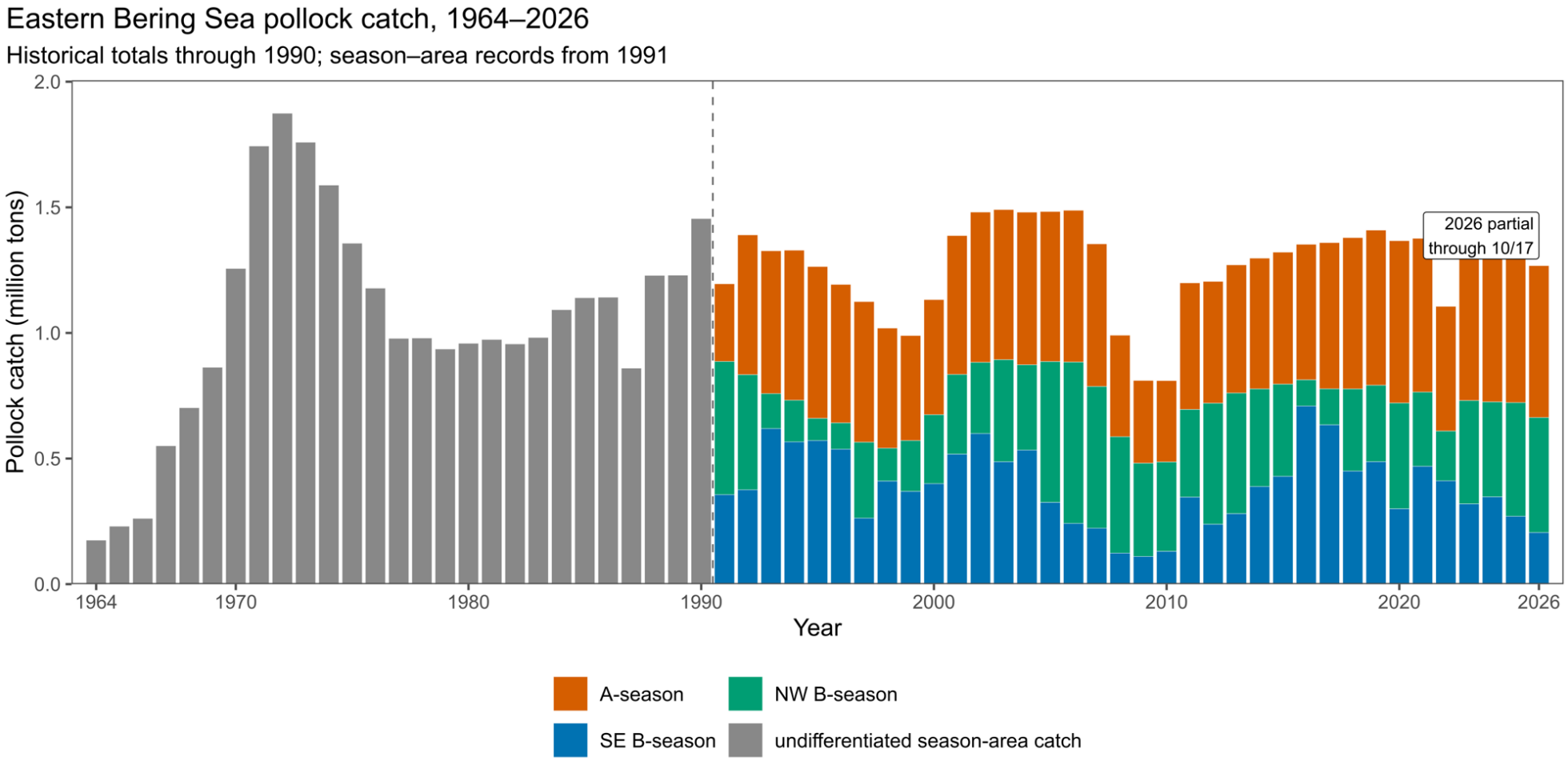
2026 adds two-years of fishery and survey information and a model bridge

Main results use proposed Model 26.0

EBS pollock data

Source	Type	Years
Fishery	Catch biomass	1964–2025; 2026 year to date and projected annual input
Fishery	Catch age composition	1964–2025
Fishery	Historical trawl CPUE	1965–1976
Bottom-trawl survey	Biomass index and age-specific proportions	1982–2019, 2021–2026
Acoustic-trawl survey	Biomass index and age-specific proportions	1994, 1996, 1997, 1999, 2000, 2002, 2004, 2006–2010, 2012, 2014, 2016, 2018, 2020, 2022, 2024, 2026
Acoustic vessels of opportunity (AVO)	Relative backscatter index	2006–2019, 2021–2026

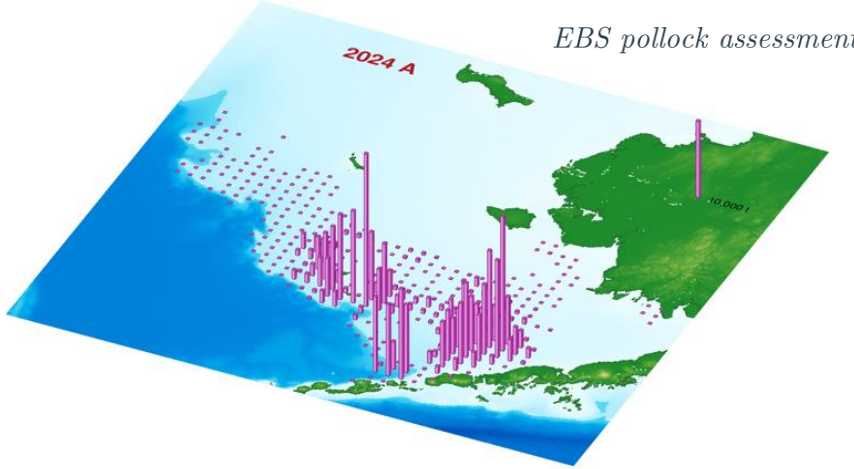
Catch history

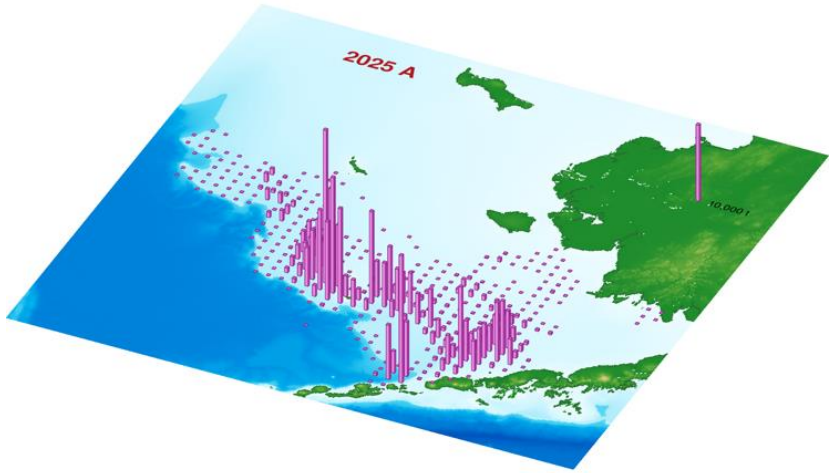


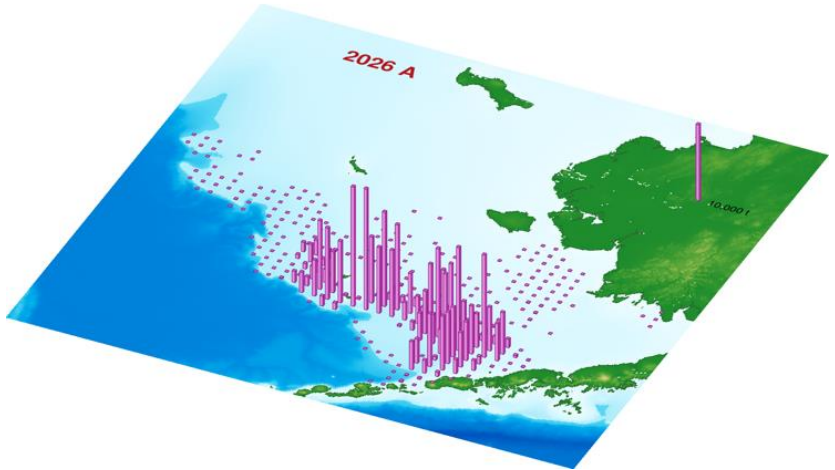
2026 catch is partial through October 17; the annual completion forecast is excluded.

2026 EBS pollock SAFE, Figure 11

A-season spatial distribution of fishery

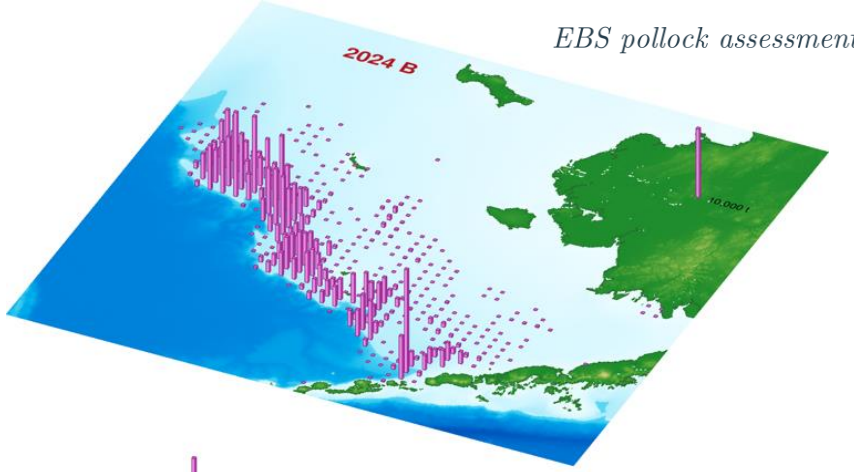


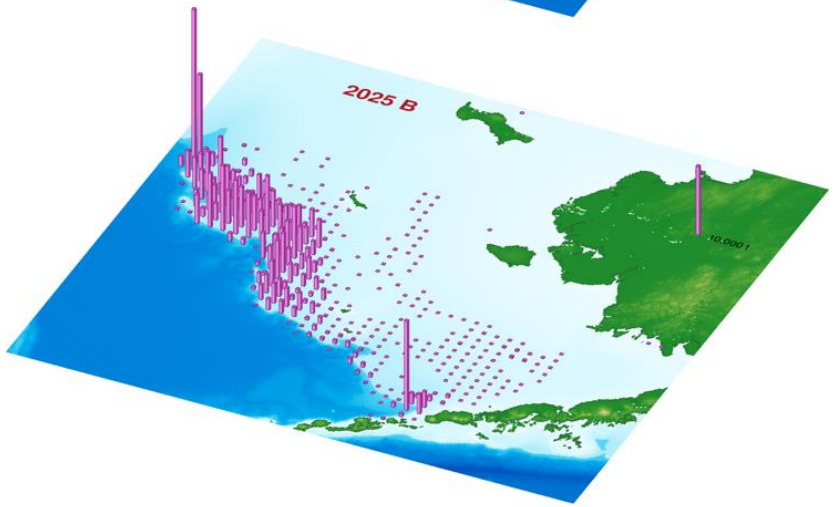


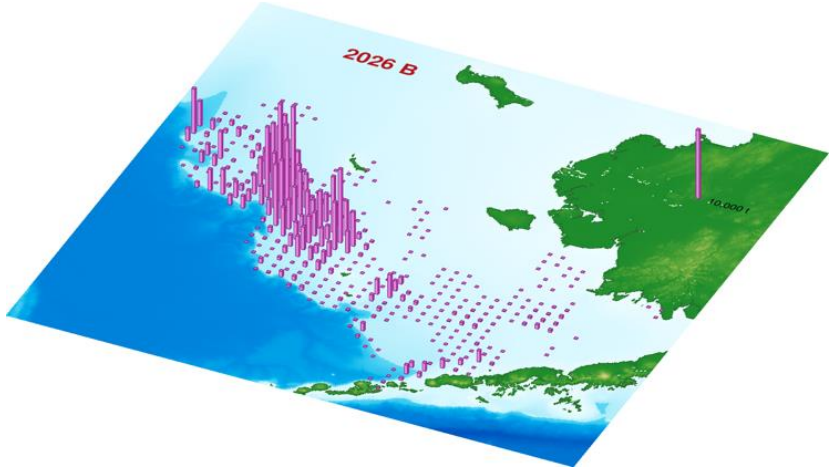


2026 EBS pollock SAFE, Figure 5

B-season spatial distribution of fishery



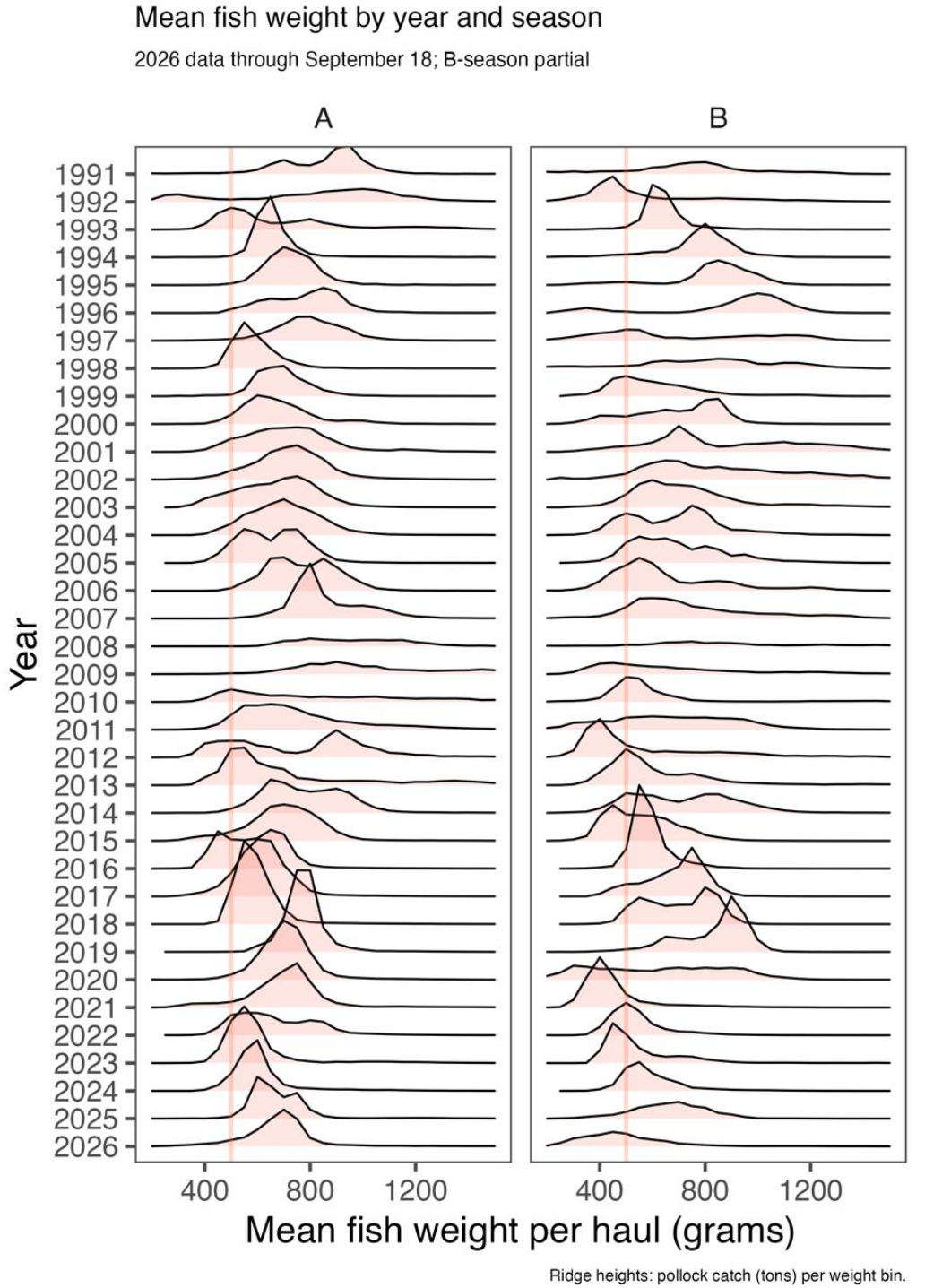




2026 EBS pollock SAFE, Figure 6

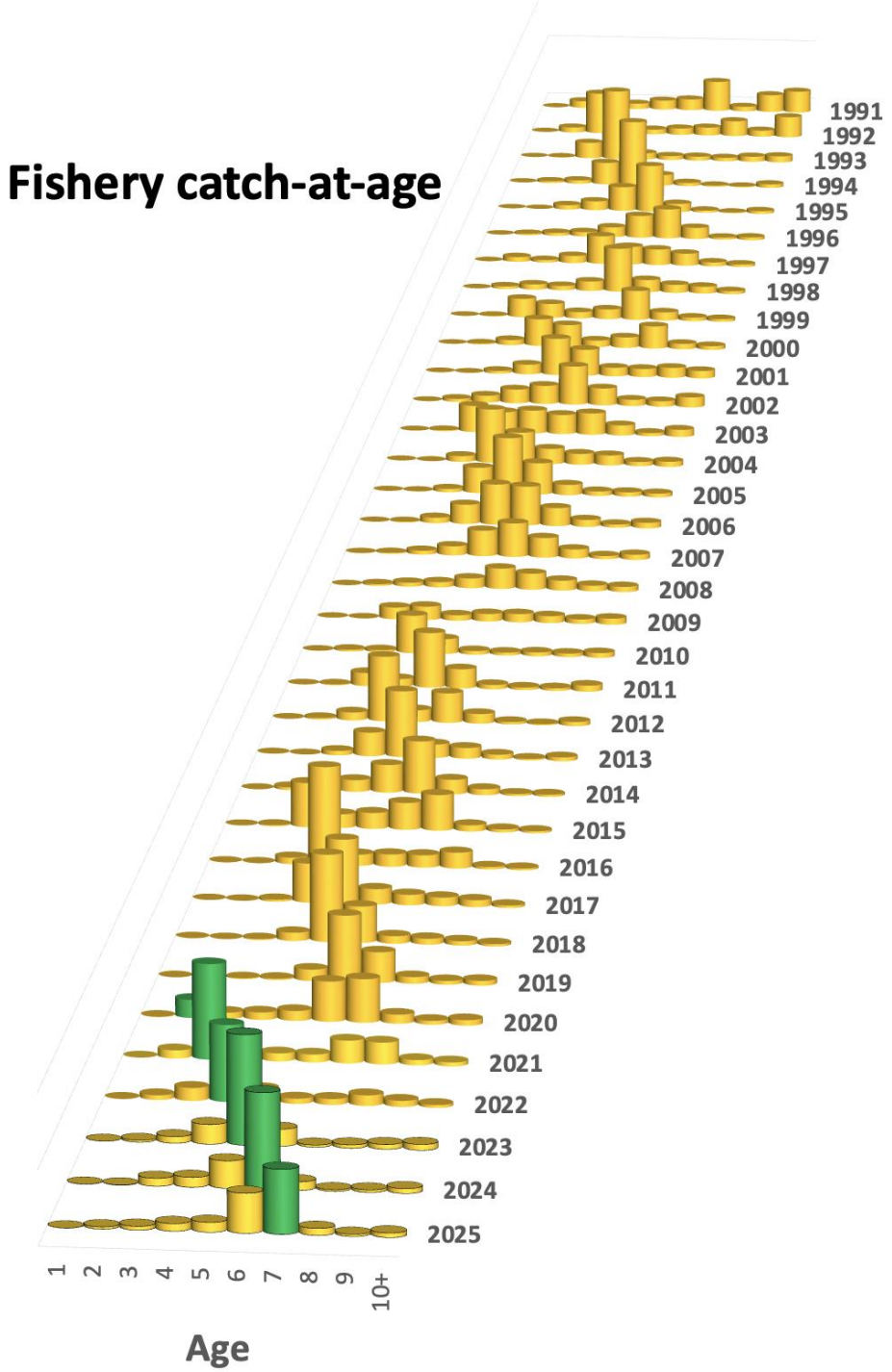
Seasonal fish size

Frequency of mean weights of trawl hauls

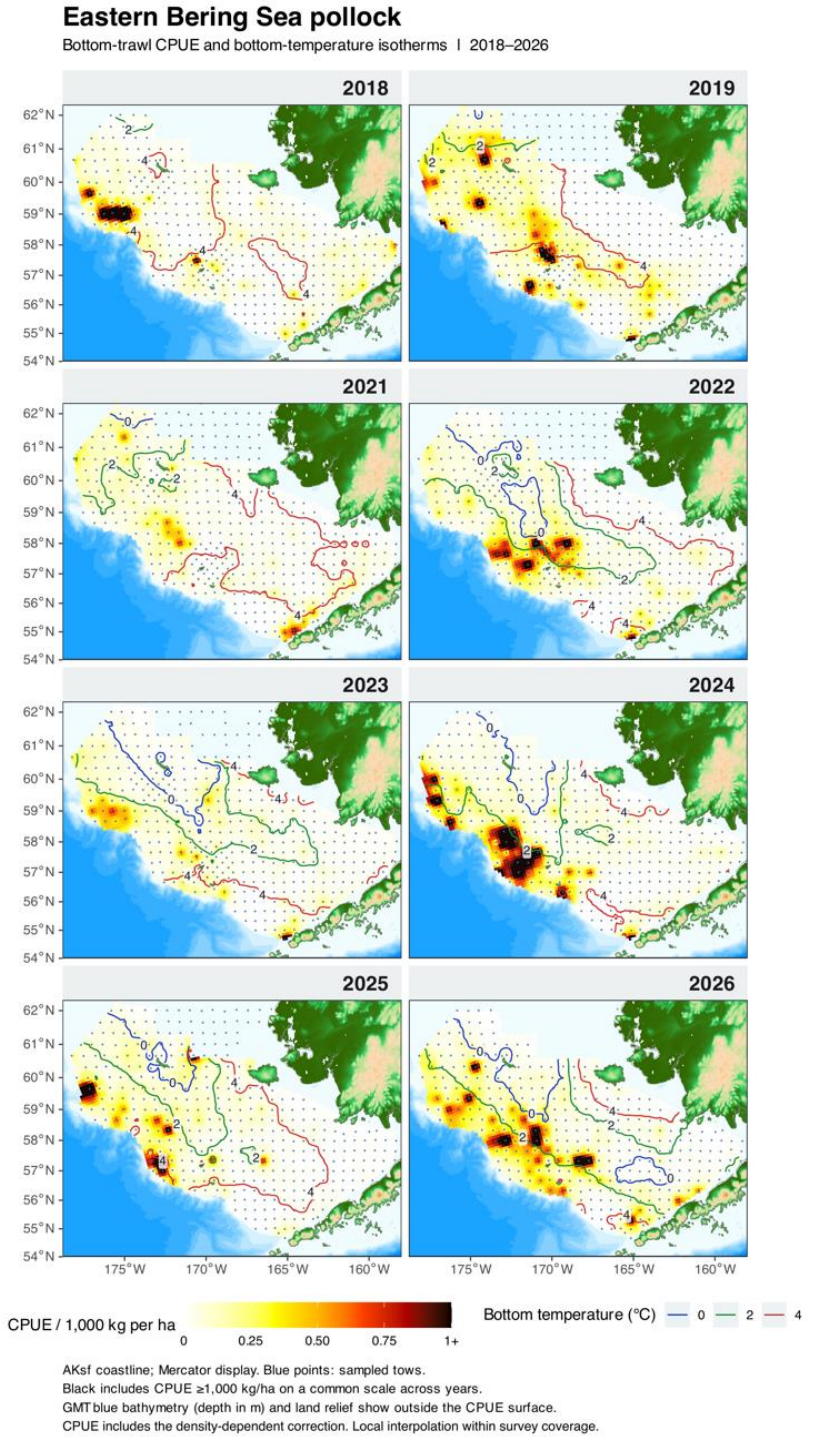


2026 EBS pollock SAFE, Figure 8

Fishery data

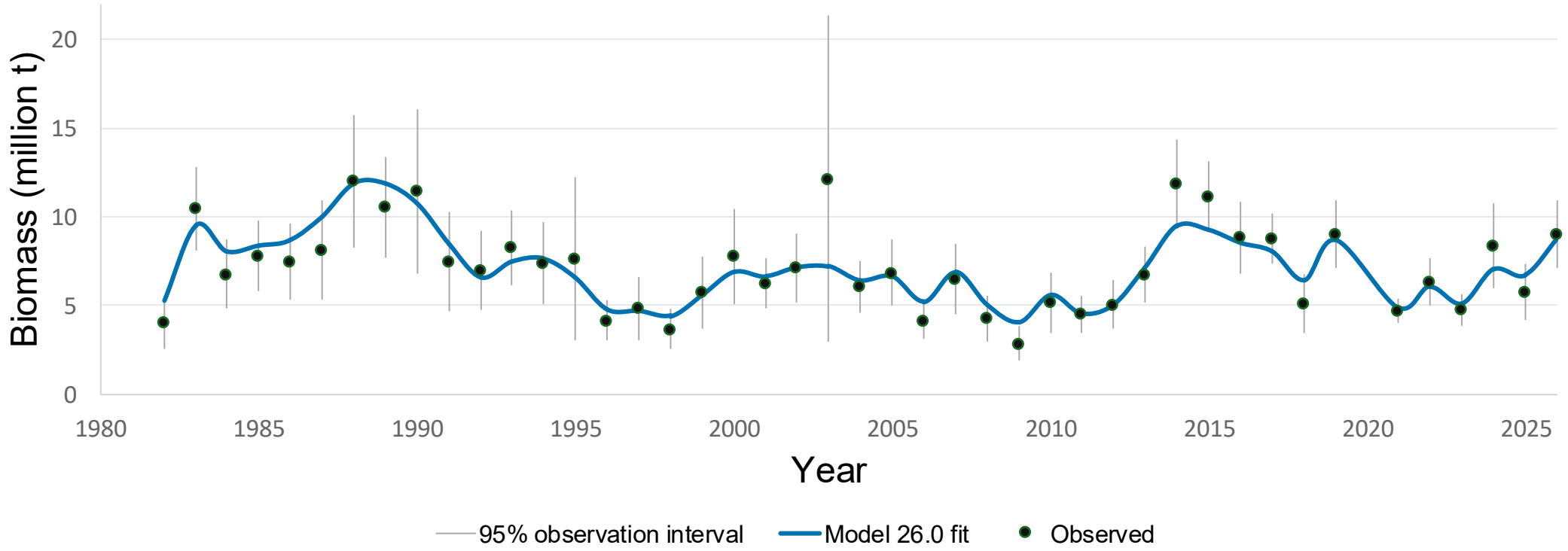


BTS distribution and temperature



2026 EBS pollock SAFE, Figure 12

BTS biomass: Model 26.0 fit, 1982–2026



Observed survey biomass and fitted predictions, 1982–2026
Observation errors include covariance among survey years



FV *Alaska Knight*



FV *Northwest Explorer*

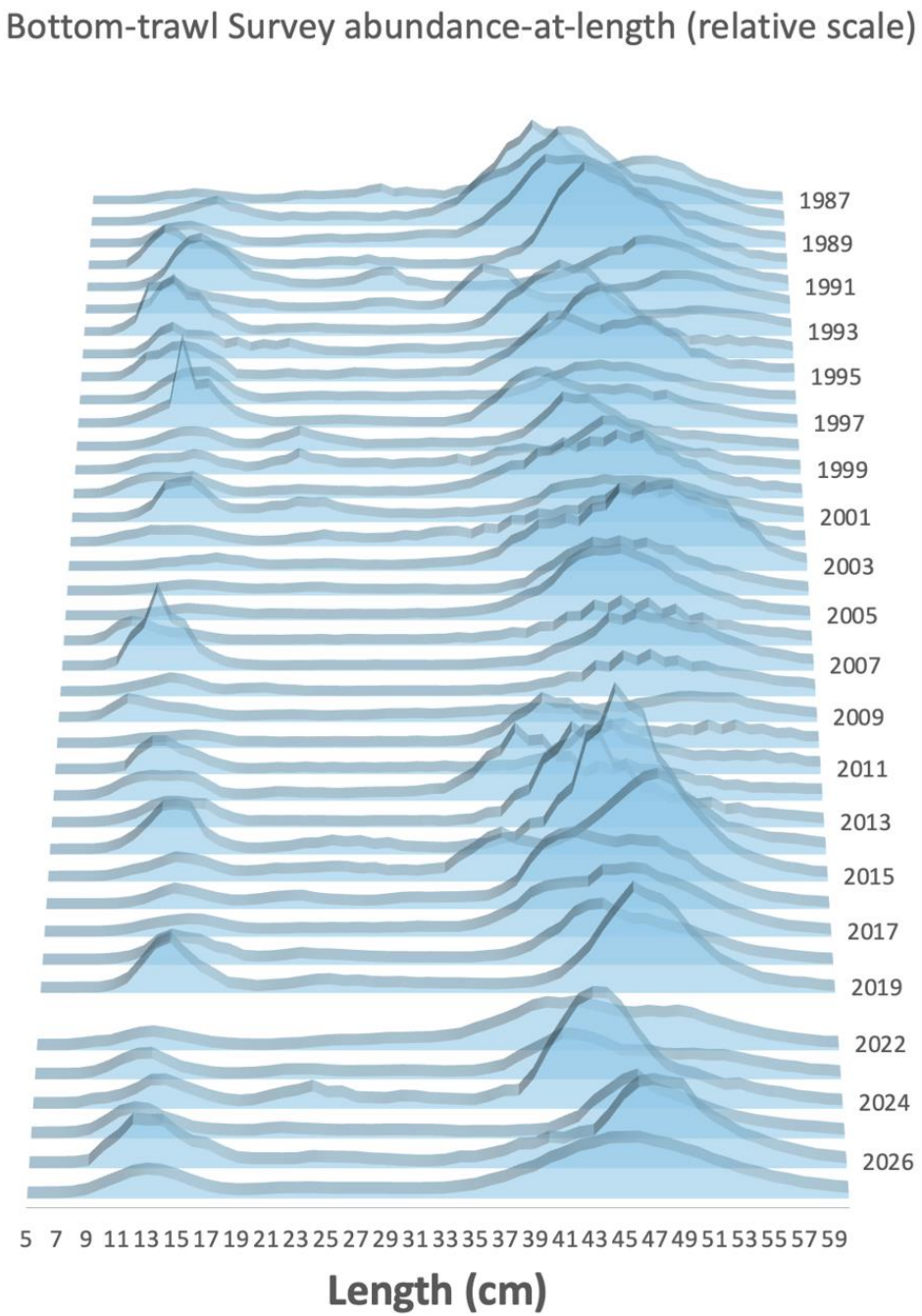
BTS length distribution



FV *Alaska Knight*



FV *Northwest Explorer*



2026 EBS pollock SAFE, Figure 13

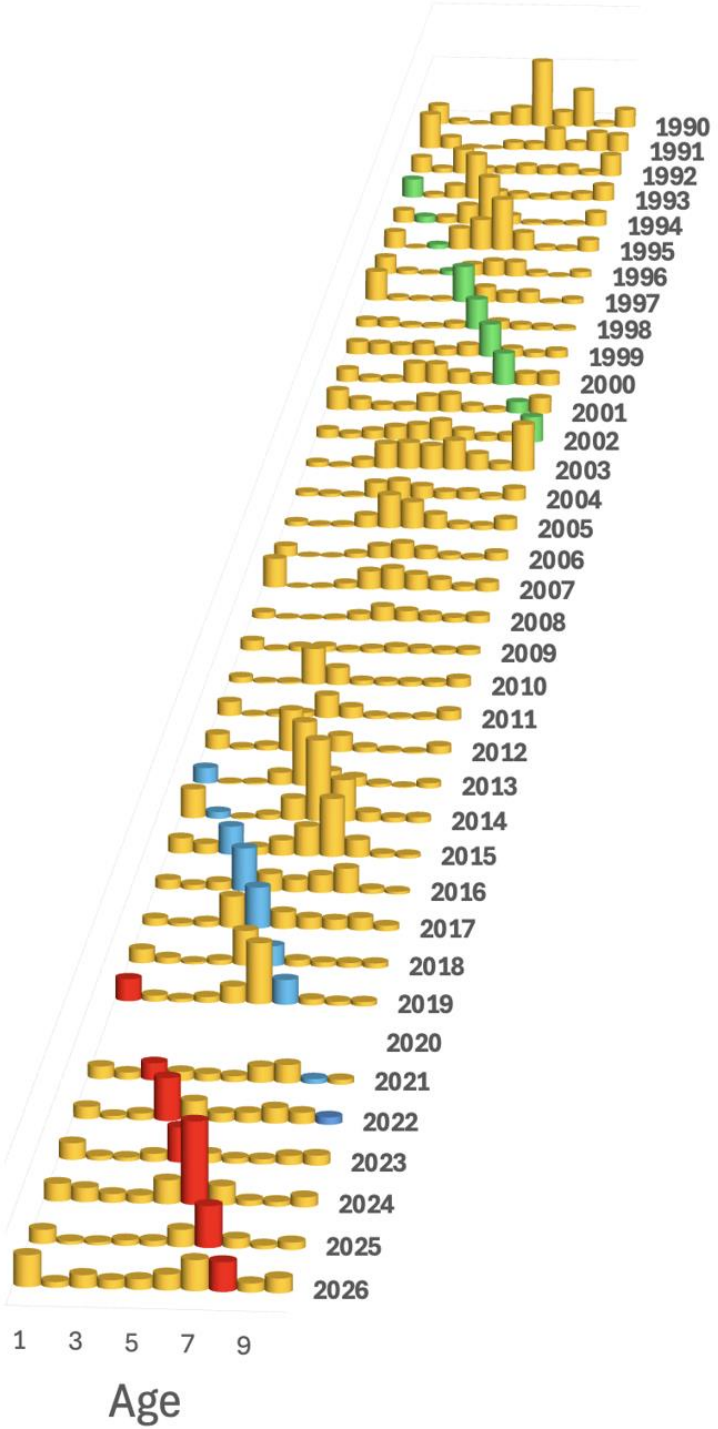
BTS age composition



FV *Alaska Knight*

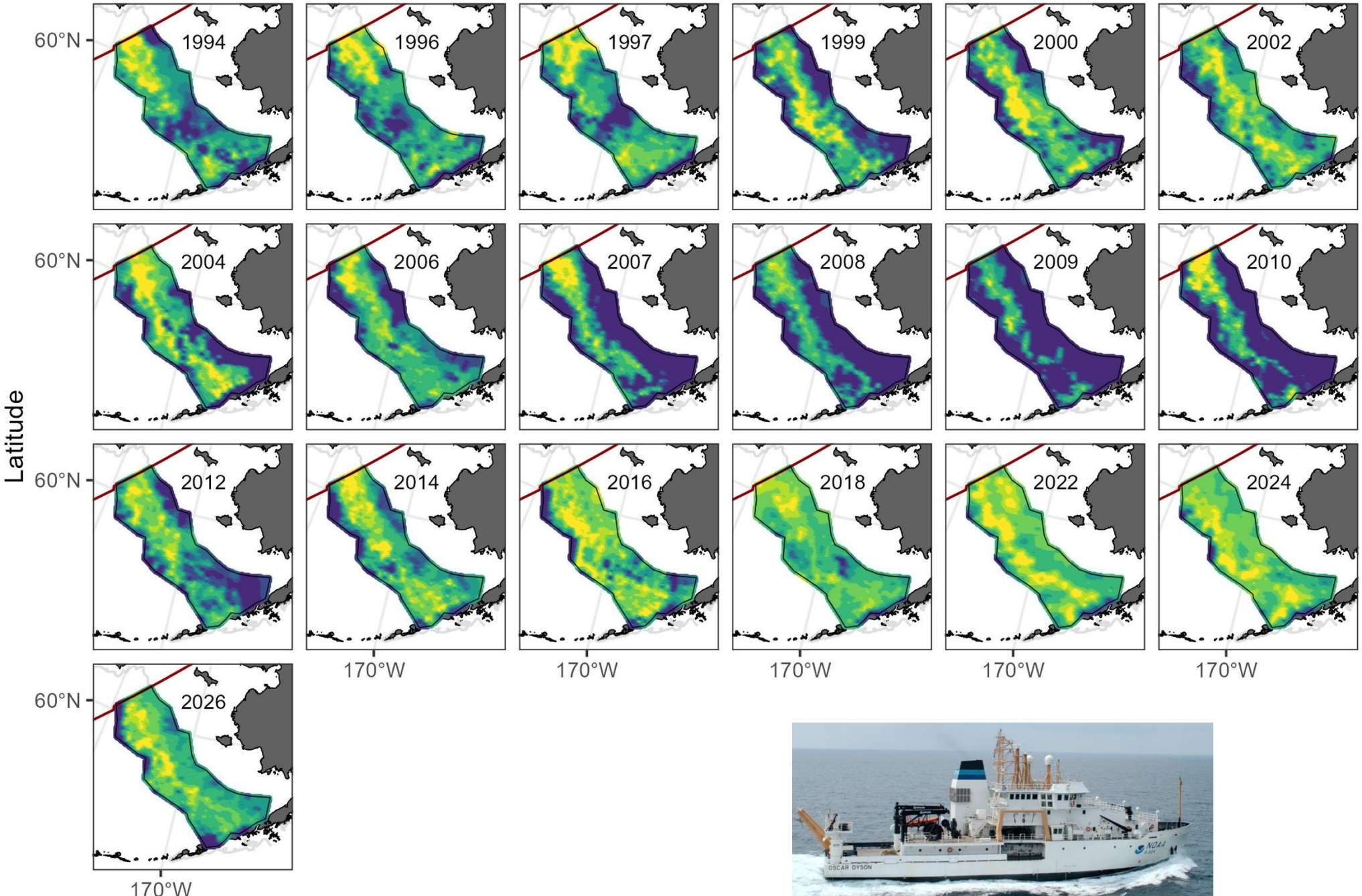


FV *Northwest Explorer*



2026 EBS pollock SAFE, Figure 14

ATS Density 1994–2026



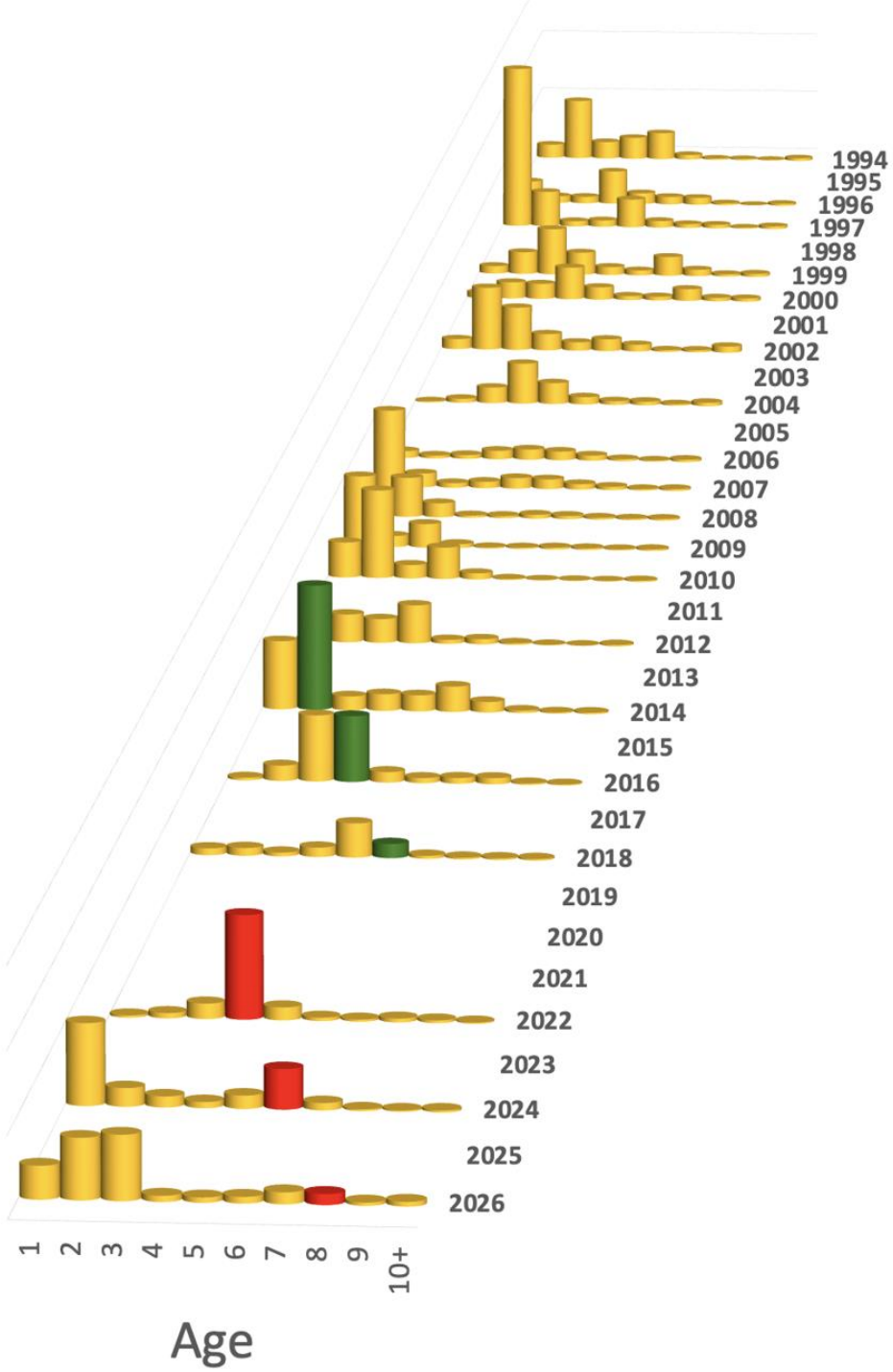
ATS biomass: Model 26.0 1994–2026

Observed survey biomass and fitted predictions, 1994–2026
The 2020 USV biomass observation remains in the fit



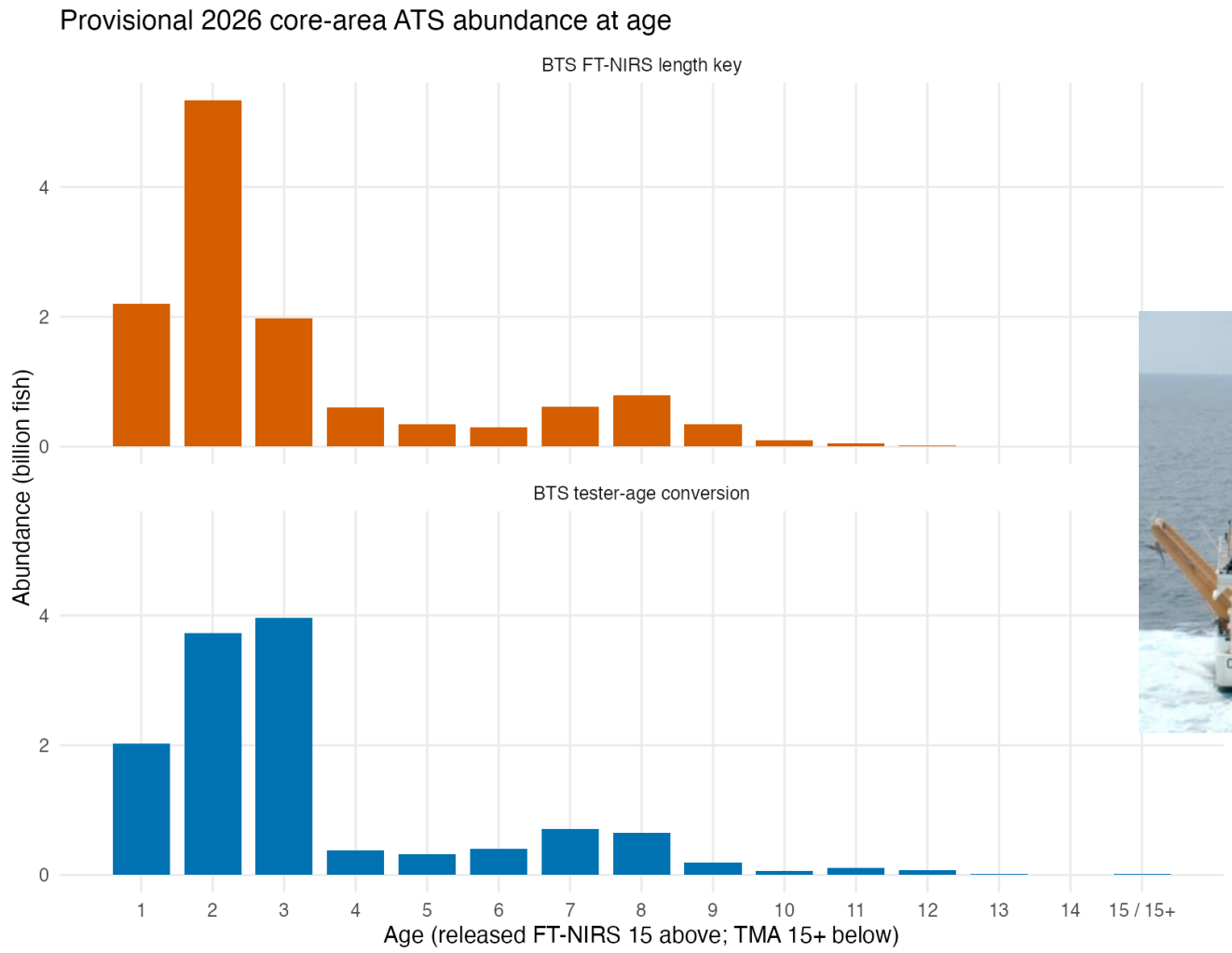
ATS age-composition history





2026 EBS pollock SAFE, Figure 15

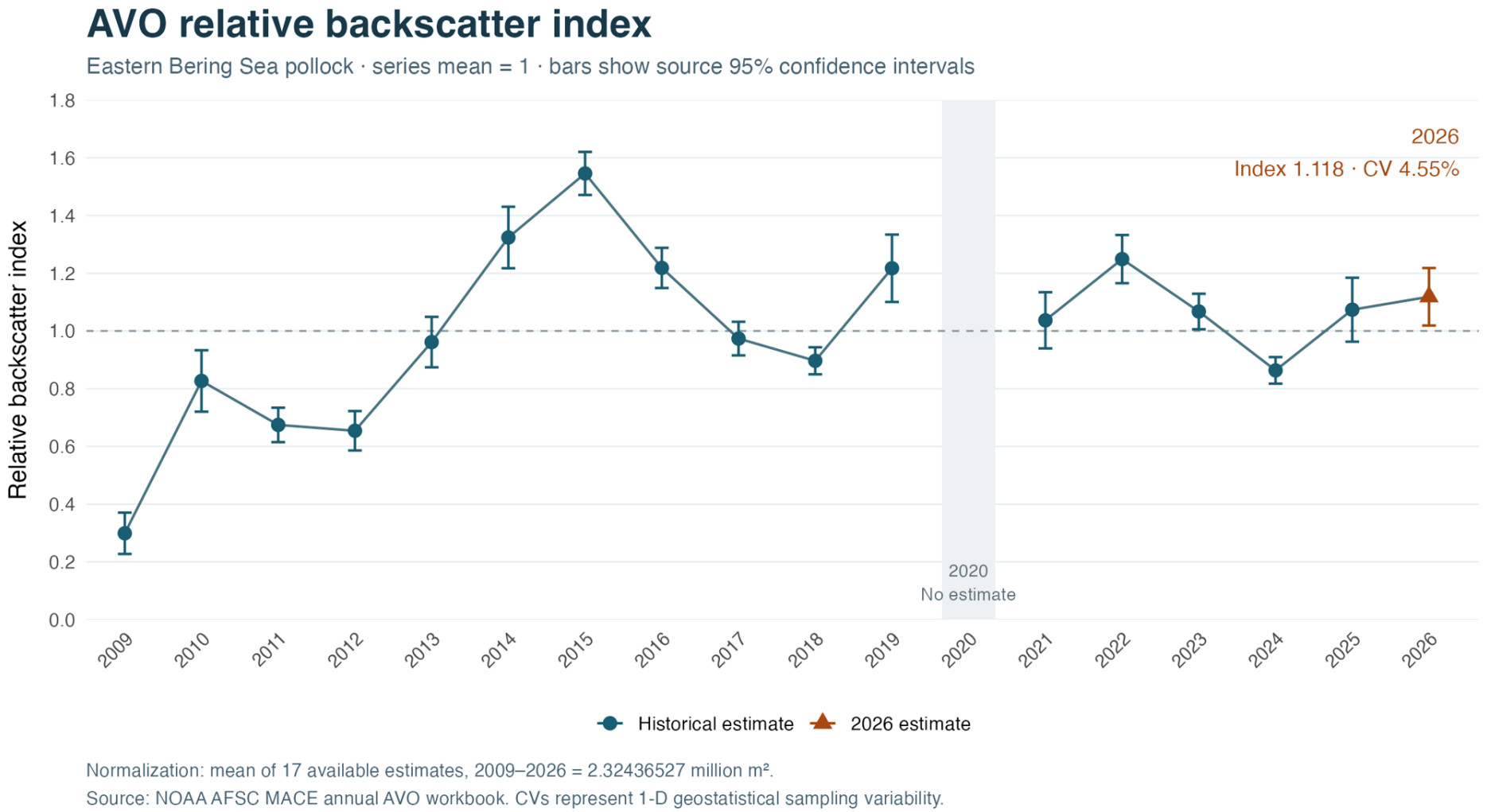
2026 ATS age conversion





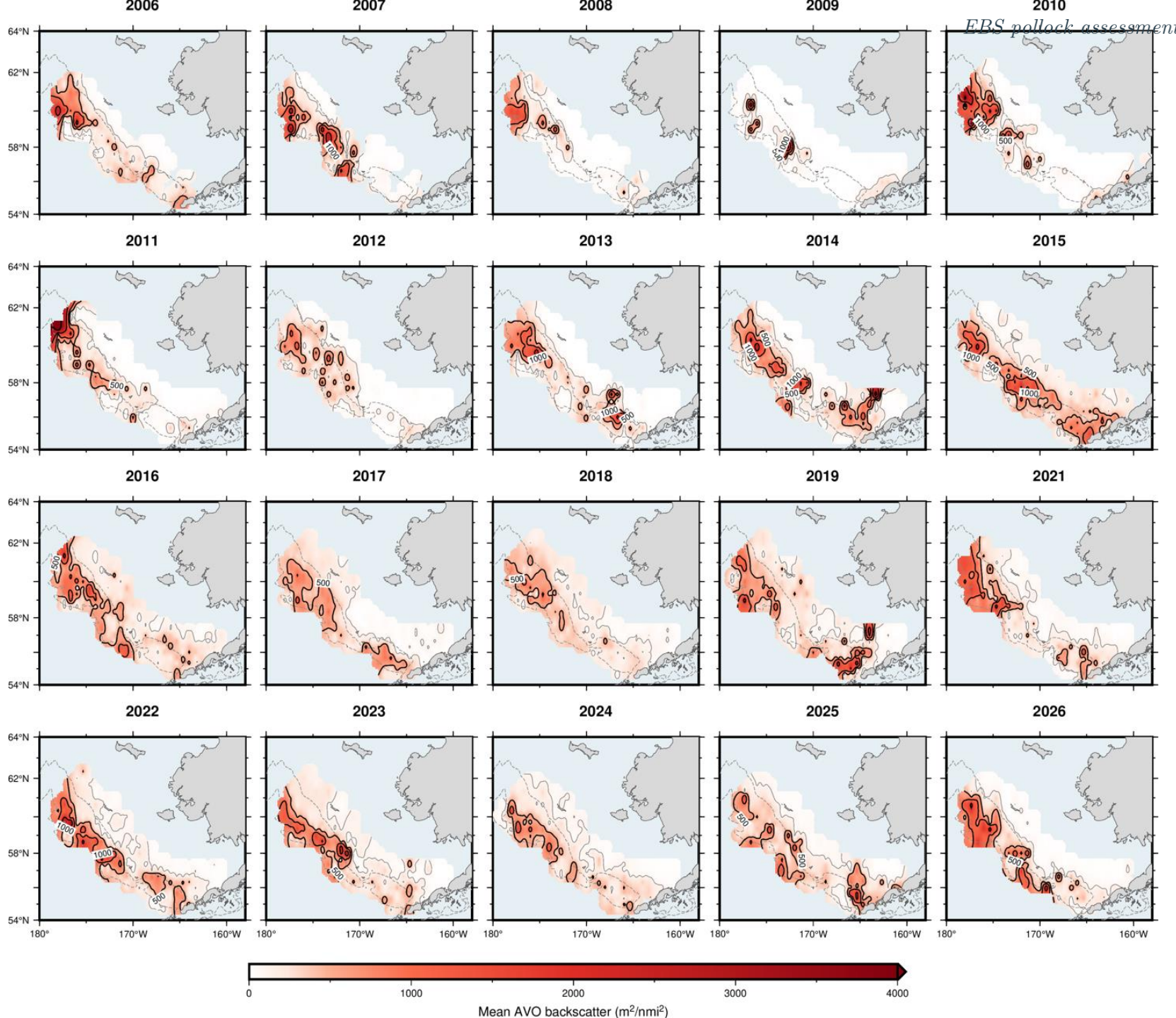
2026 EBS pollock SAFE, Figure 16

Annual AVO index



2026 EBS pollock SAFE, Figure 21

AVO spatial observations



2026 EBS pollock SAFE, Figure 22

Weight-at-age assumptions

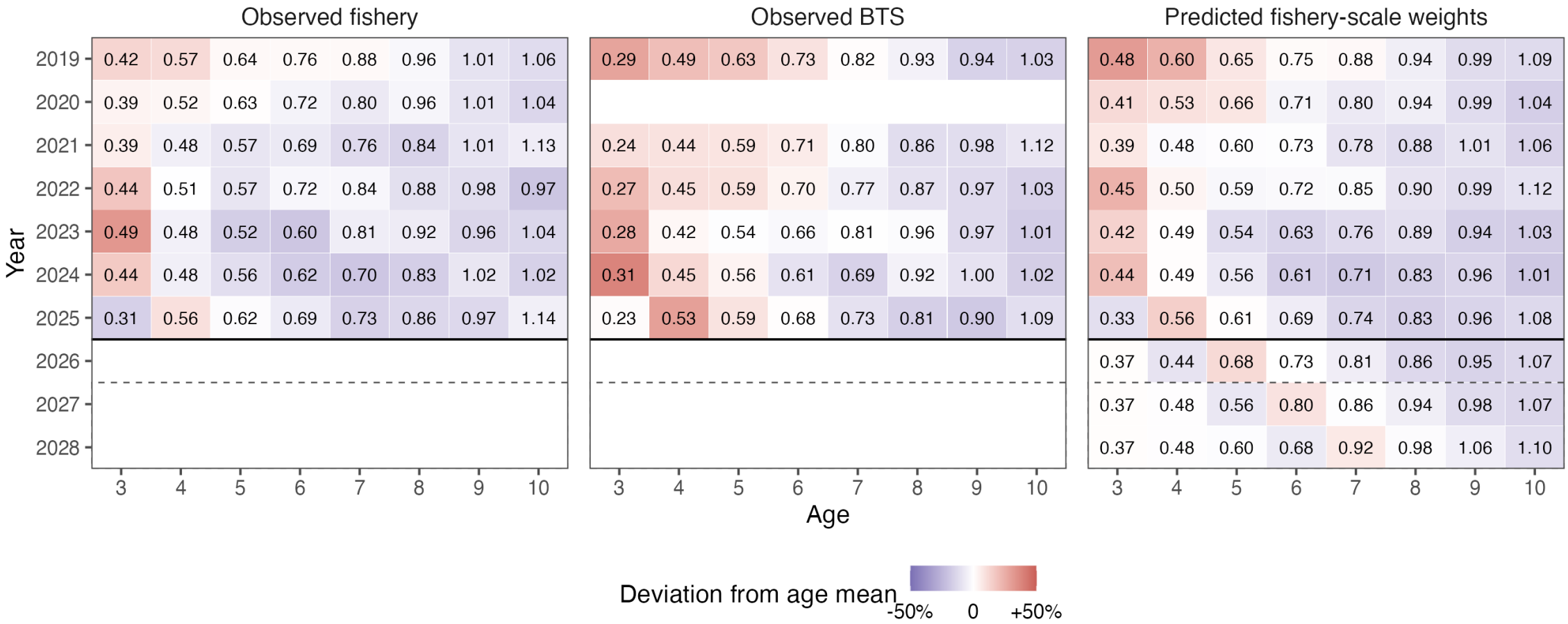
Fishery weights convert catch numbers to catch biomass

BTS weights define population biomass

A-season weights define spawning biomass

Random-effects weight model supplies projection schedules

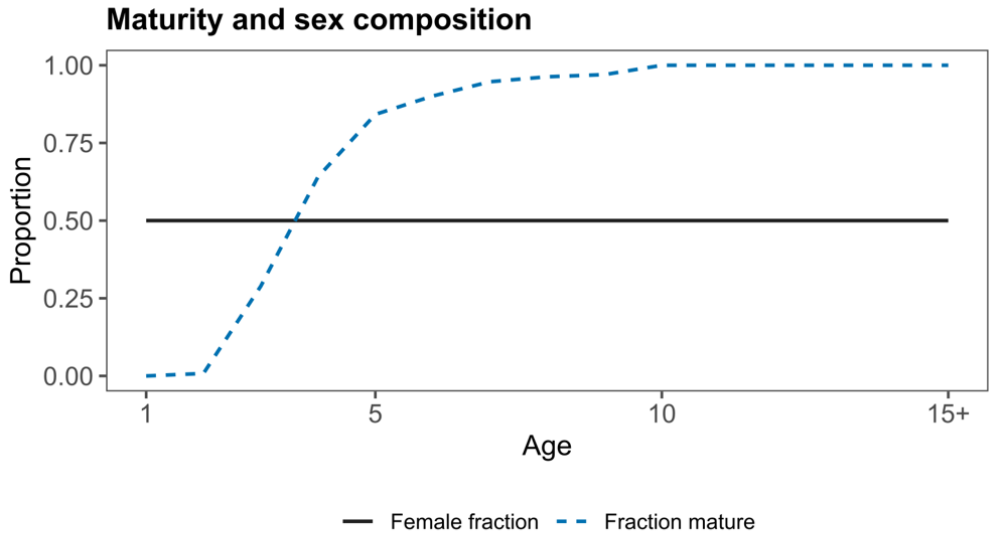
Weights connect fish numbers to tons

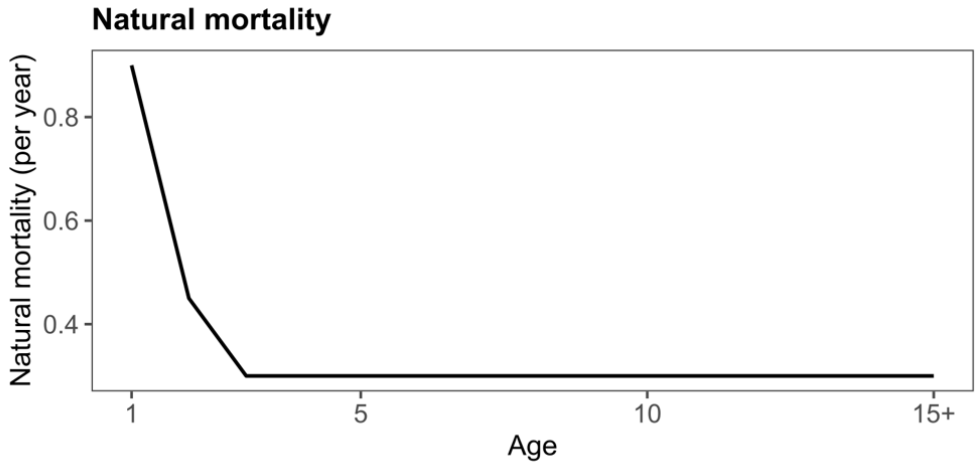


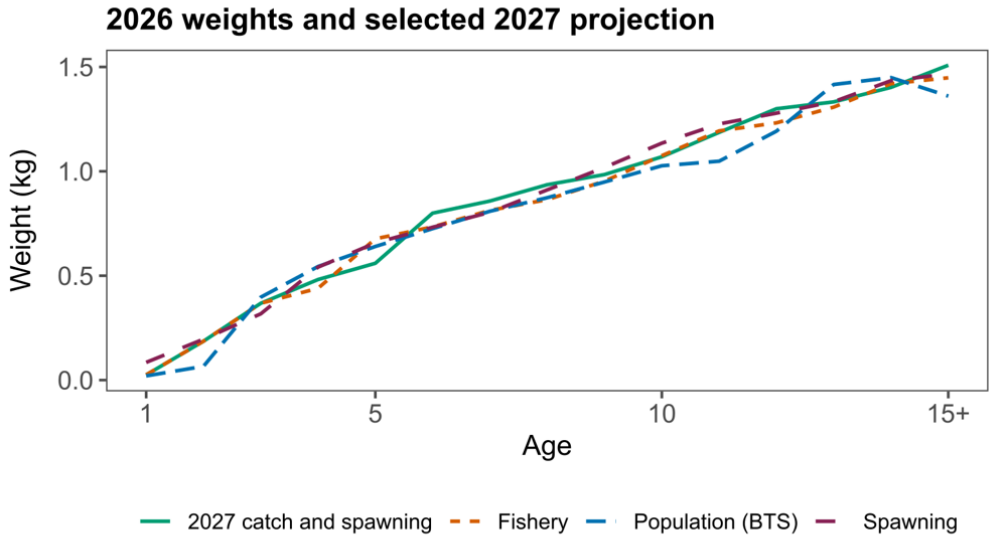
Observed weights through 2025 • predicted 2026–2028 weights-at-age

Age composition gives the counts; therefore weight-at-age supplies the conversion to biomass.

Biology and selectivity schedules







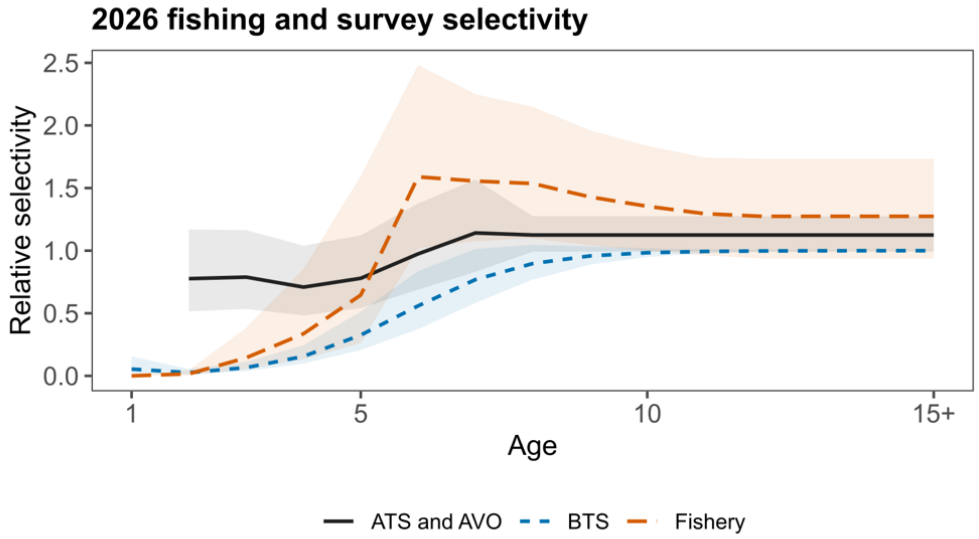


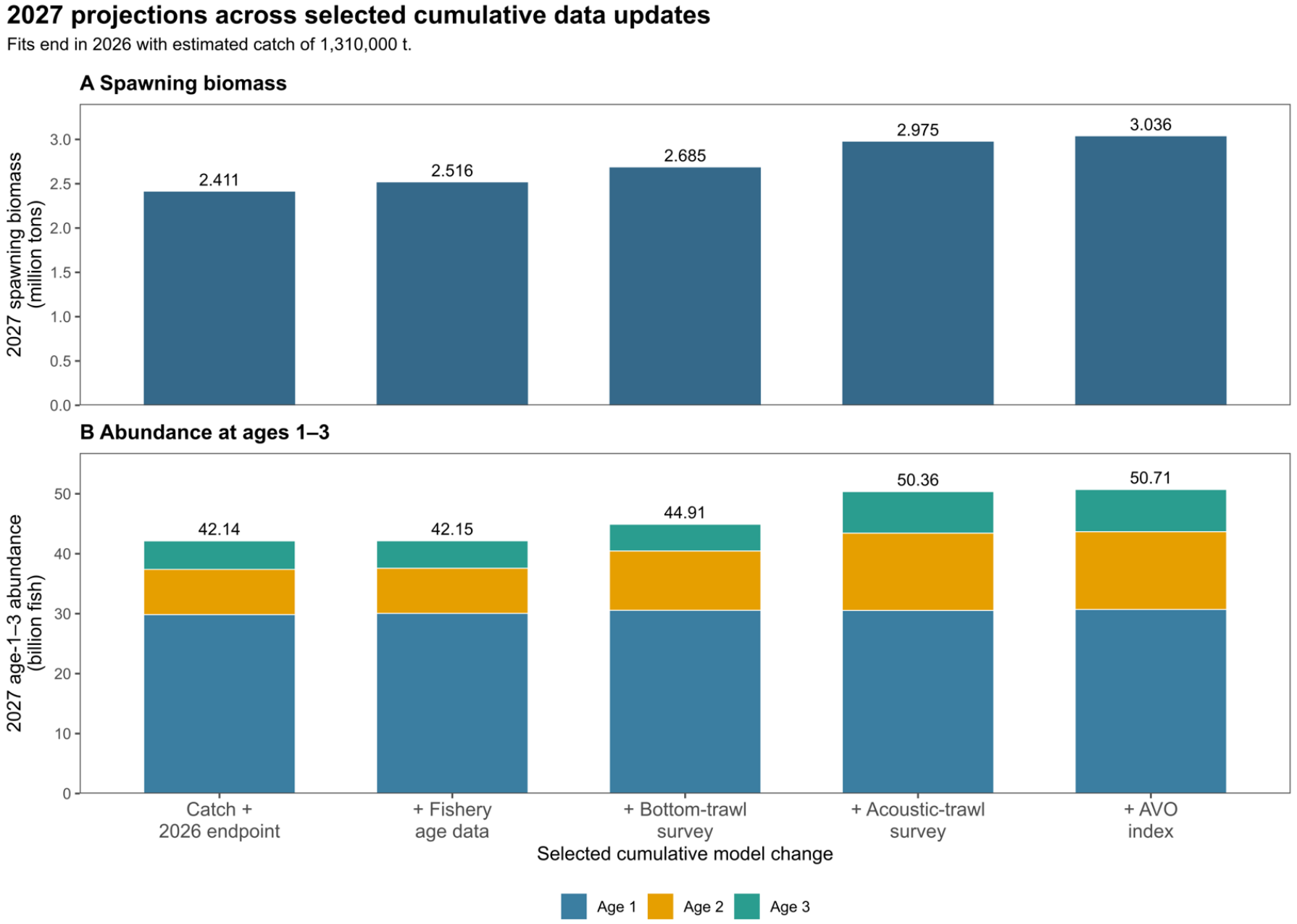
Figure 35

Mortality, maturity, sex proportions and weights are inputs. The 2027 projection uses the selected WtAgeRE fishery forecast for catch and spawning. Shaded selectivity bands show 95% uncertainty ranges.

Model numbers

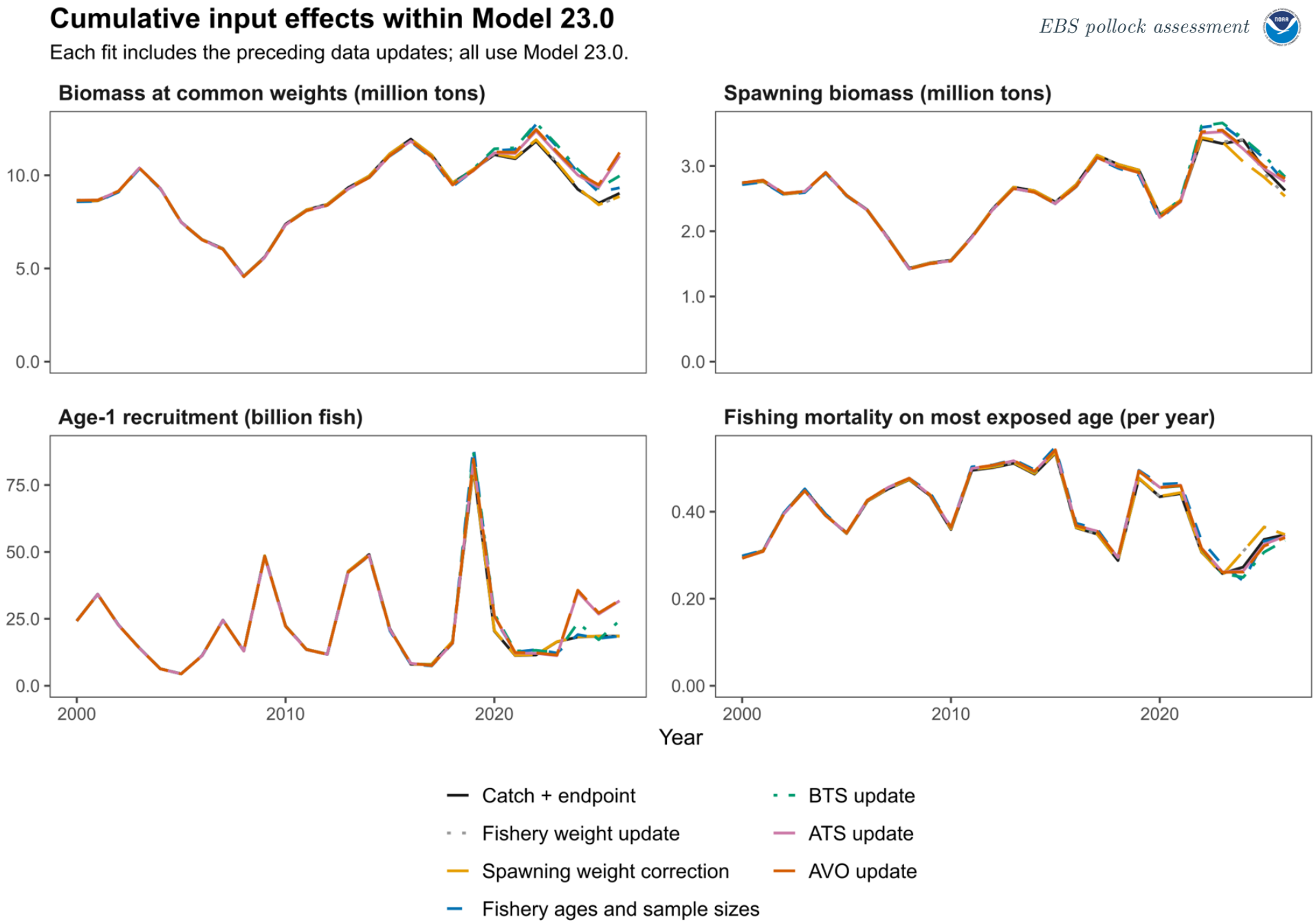
Model	Role
23.0	Legacy assessment, updated inputs
23.2	Bridge formulation
26.0	Proposed base in Rceattle
26.1.2	Split-fishery conditional sensitivity

Bridge to new data



2026 EBS pollock SAFE, Figure 25

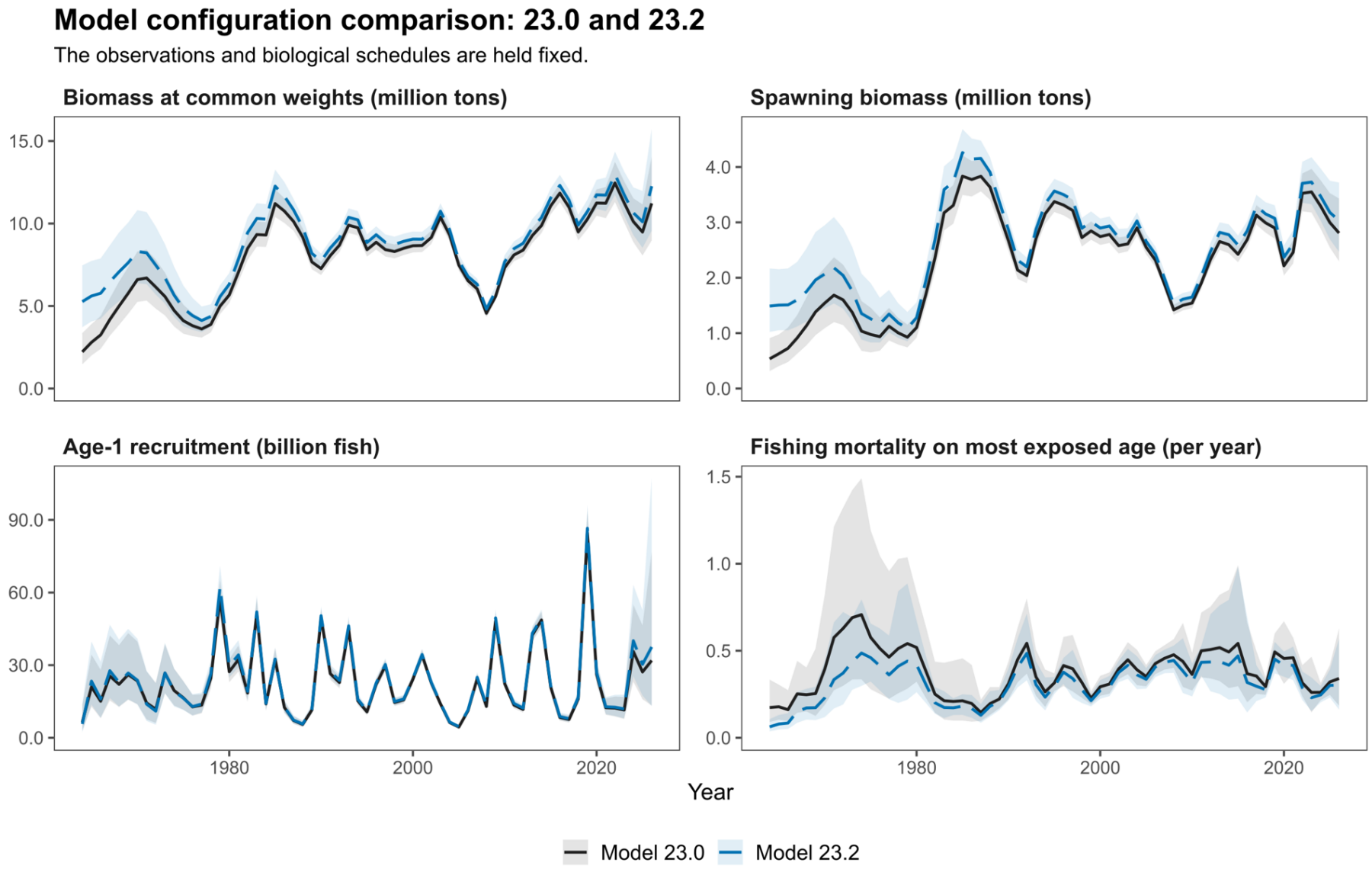
Cumulative data-update bridge



2026 EBS pollock SAFE, Figure 24

Biomass uses the same reference population weight schedule in every comparison.
Data updates include new observations, historical revisions and revised observation errors. Lines show point estimates.

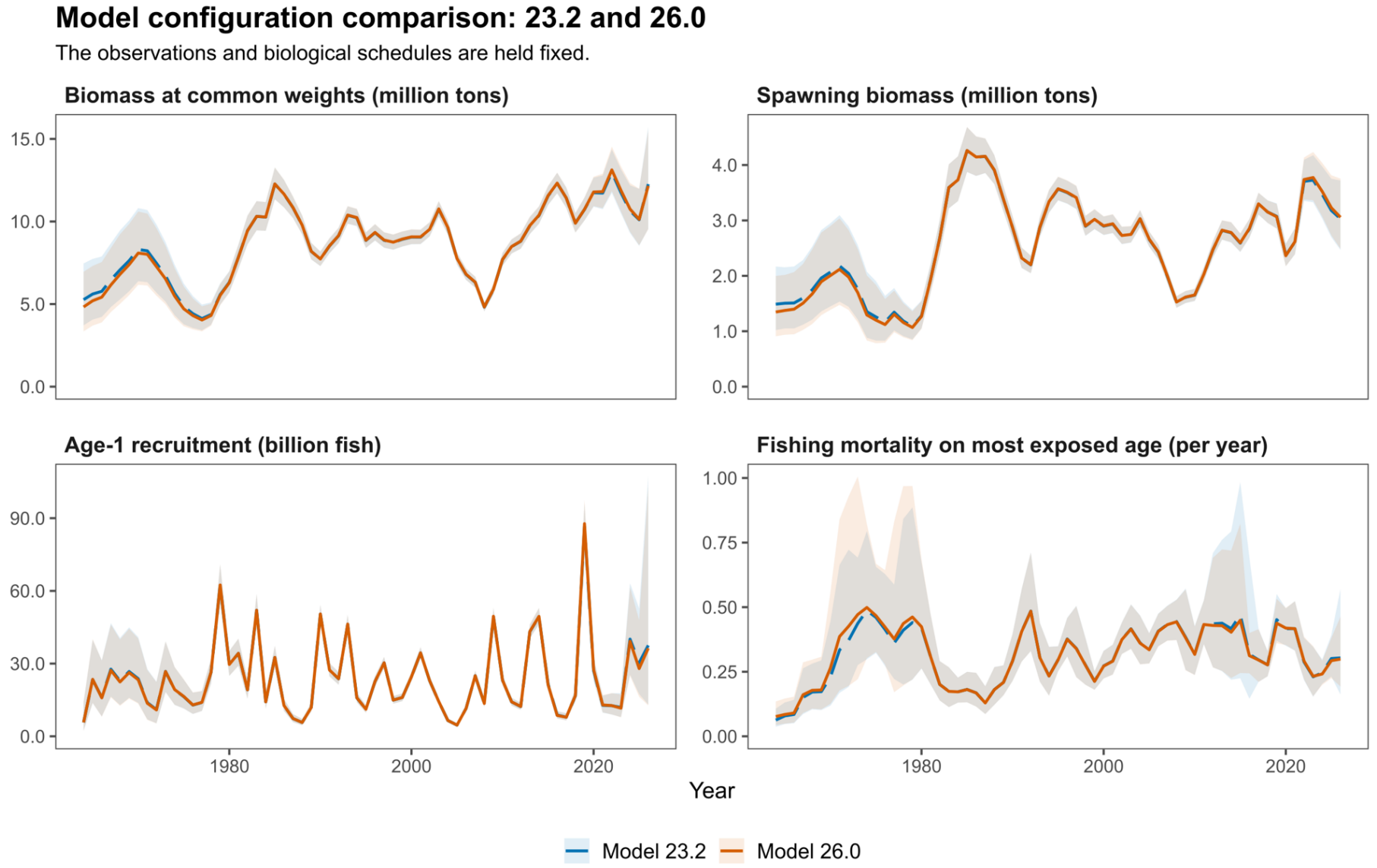
Same observations: 23.0 versus 23.2



2026 EBS pollock SAFE, Figure 28

Lines: estimates; shading: approximate 95% uncertainty ranges conditional on each model.
Biomass uses common population weights; fishing mortality uses the most exposed age.

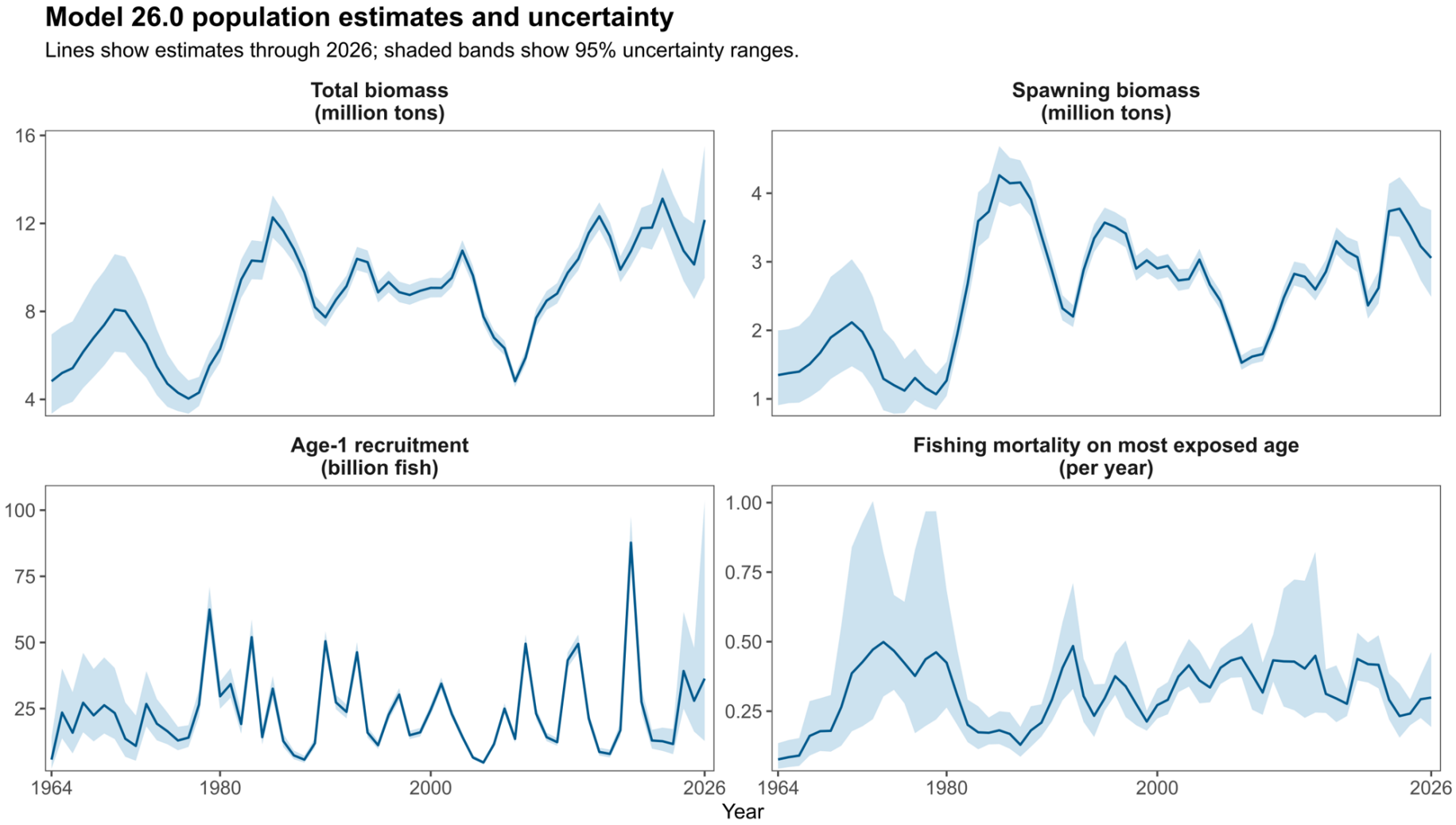
Same observations: 23.2 versus 26.0



2026 EBS pollock SAFE, Figure 29

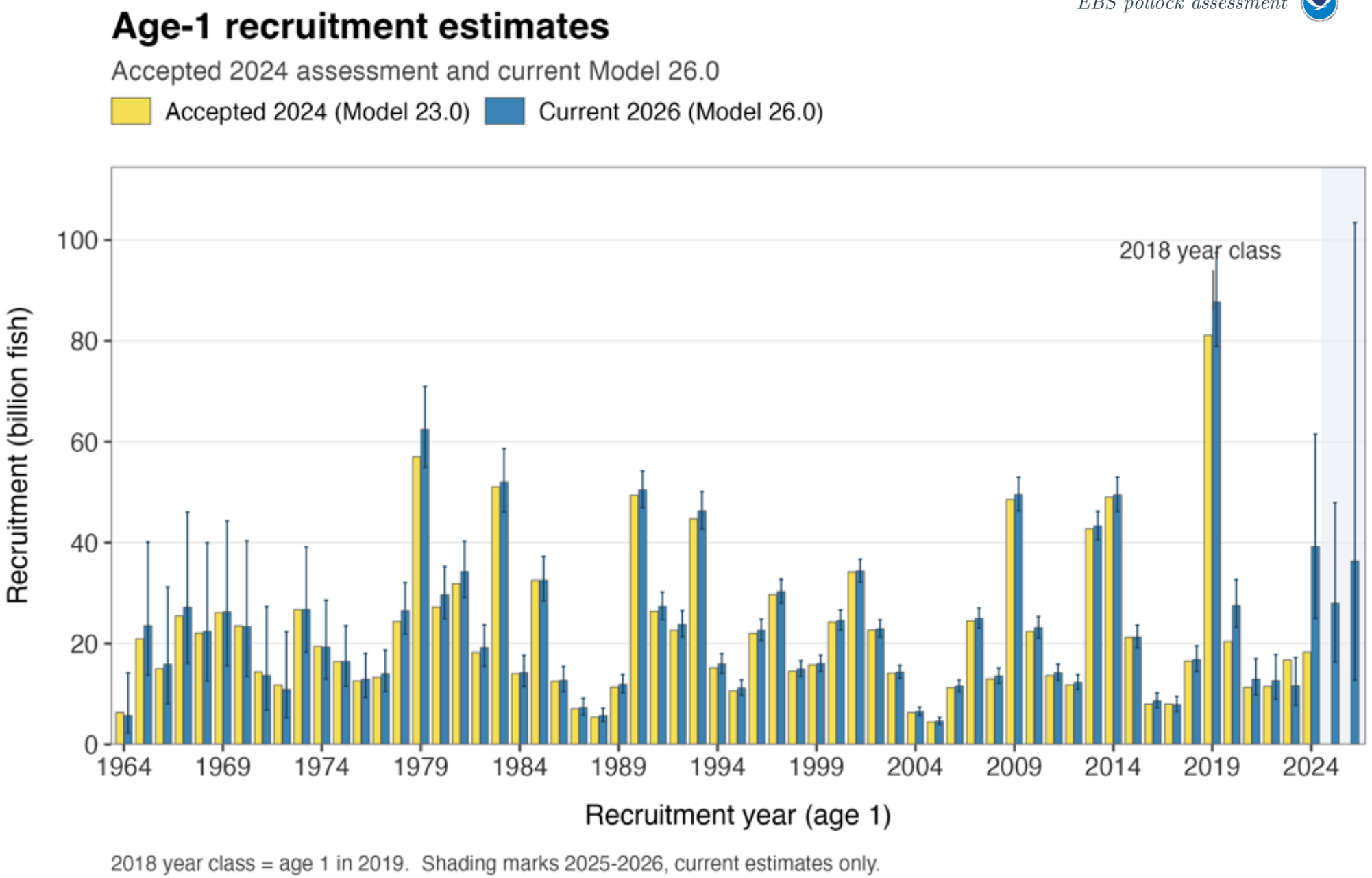
Lines: estimates; shading: approximate 95% uncertainty ranges conditional on each model.
Biomass uses common population weights; fishing mortality uses the most exposed age.

Model 26.0 trajectories



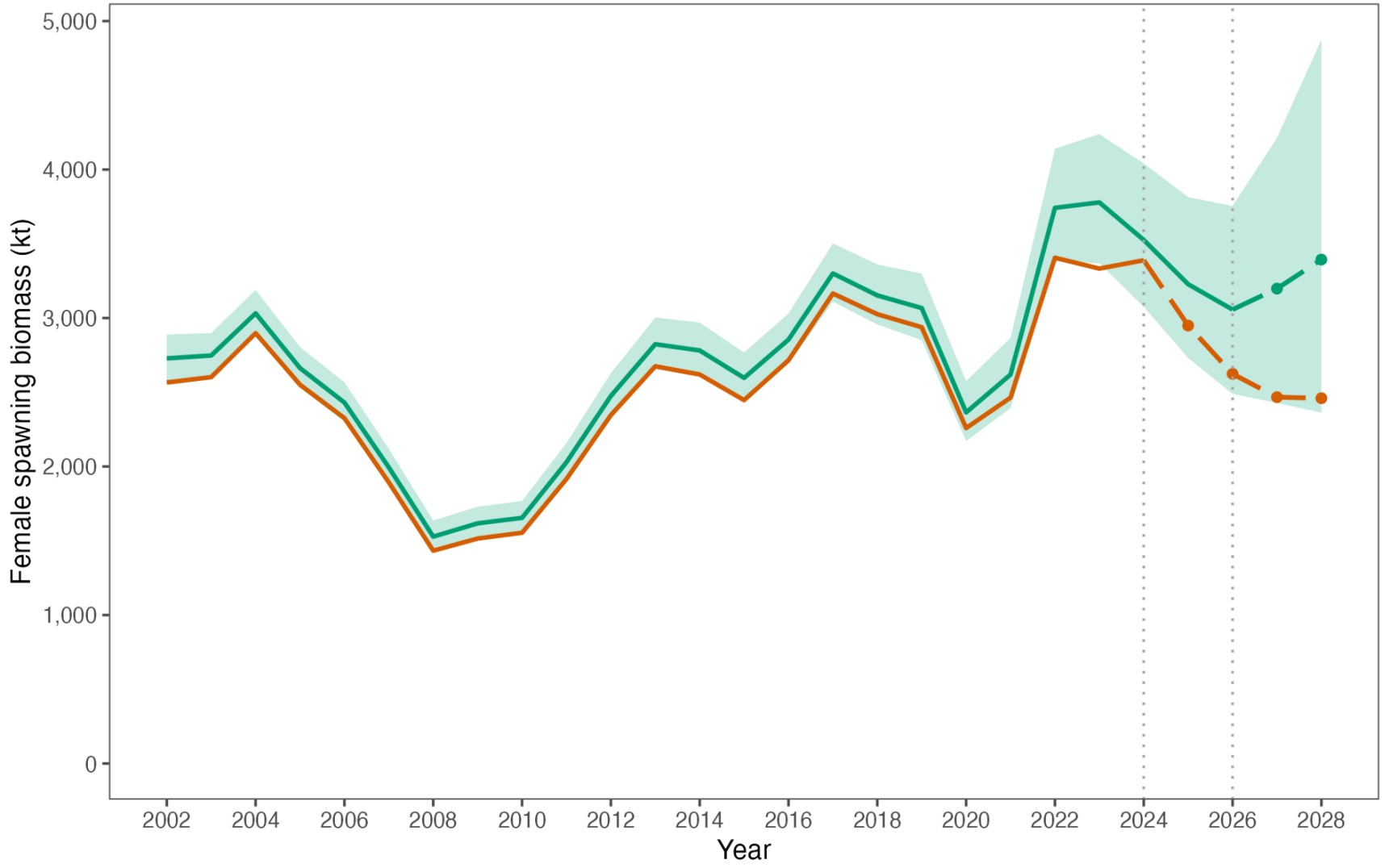
2026 EBS pollock SAFE, Figure 30

Recruitment revisions



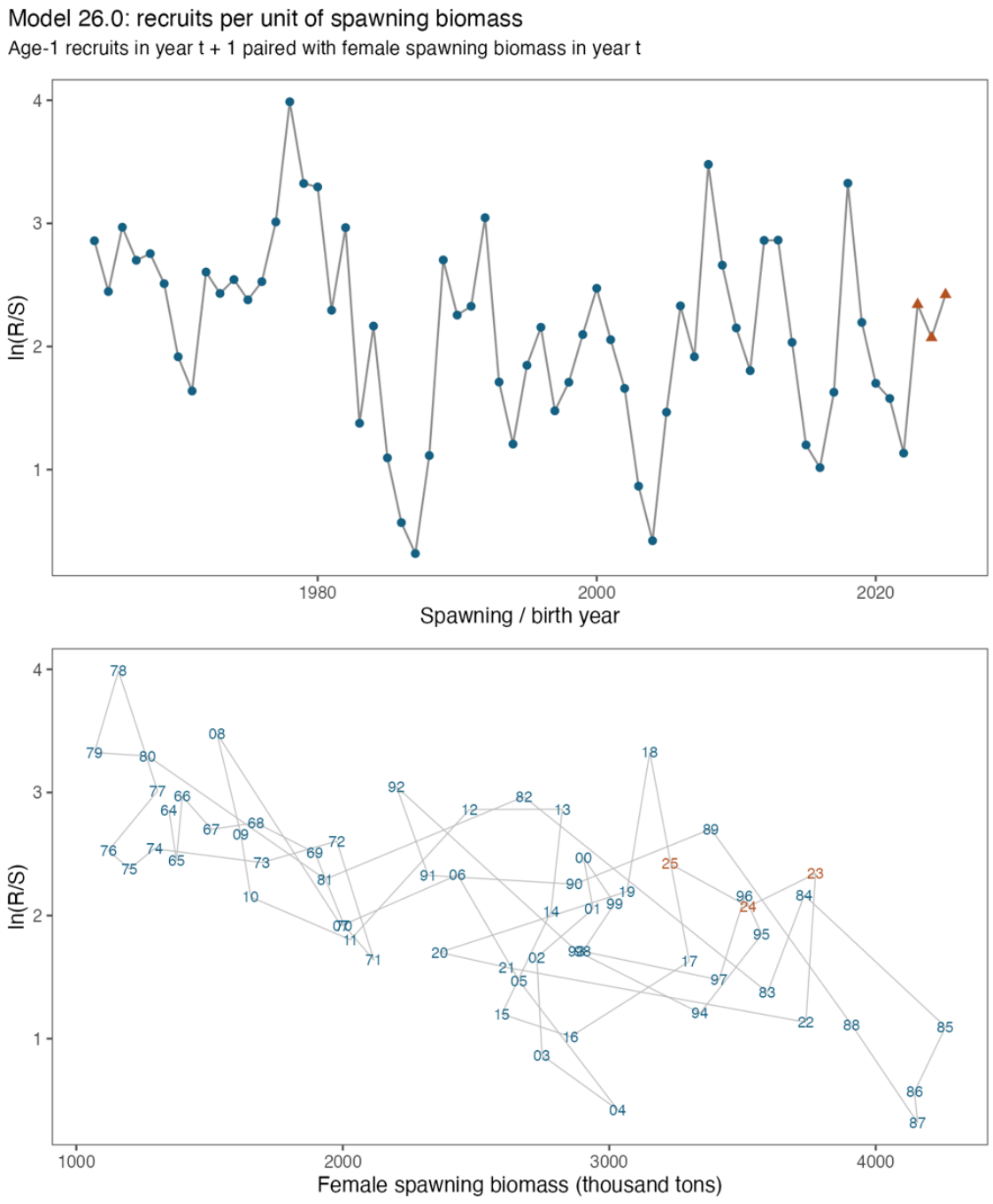
2026 EBS pollock SAFE, Figure 32

Spawning biomass across assessment vintages



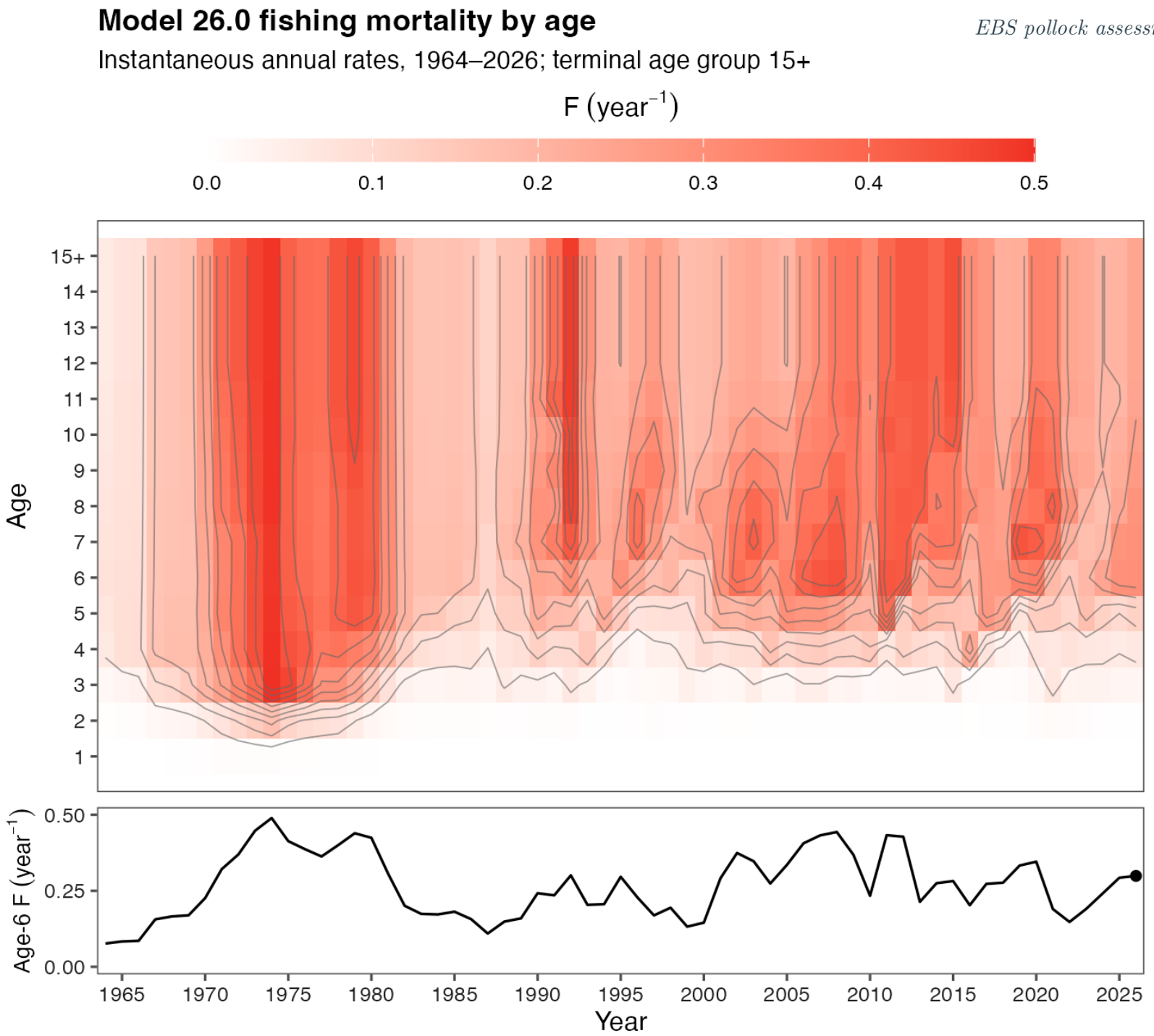
2026 EBS pollock SAFE, Figure 33

Recruits per spawner



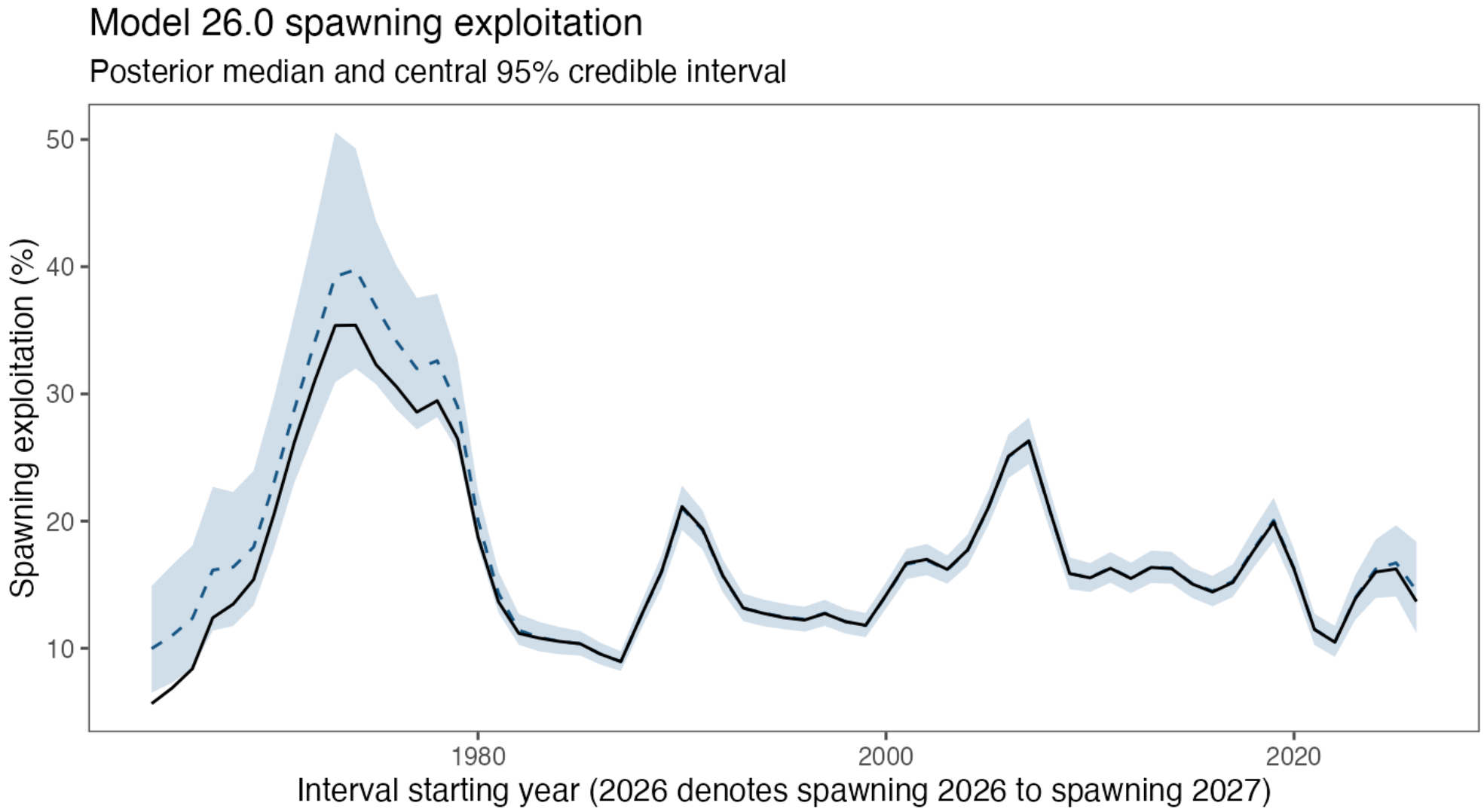
2026 EBS pollock SAFE, Figure 34

Fishing mortality by age



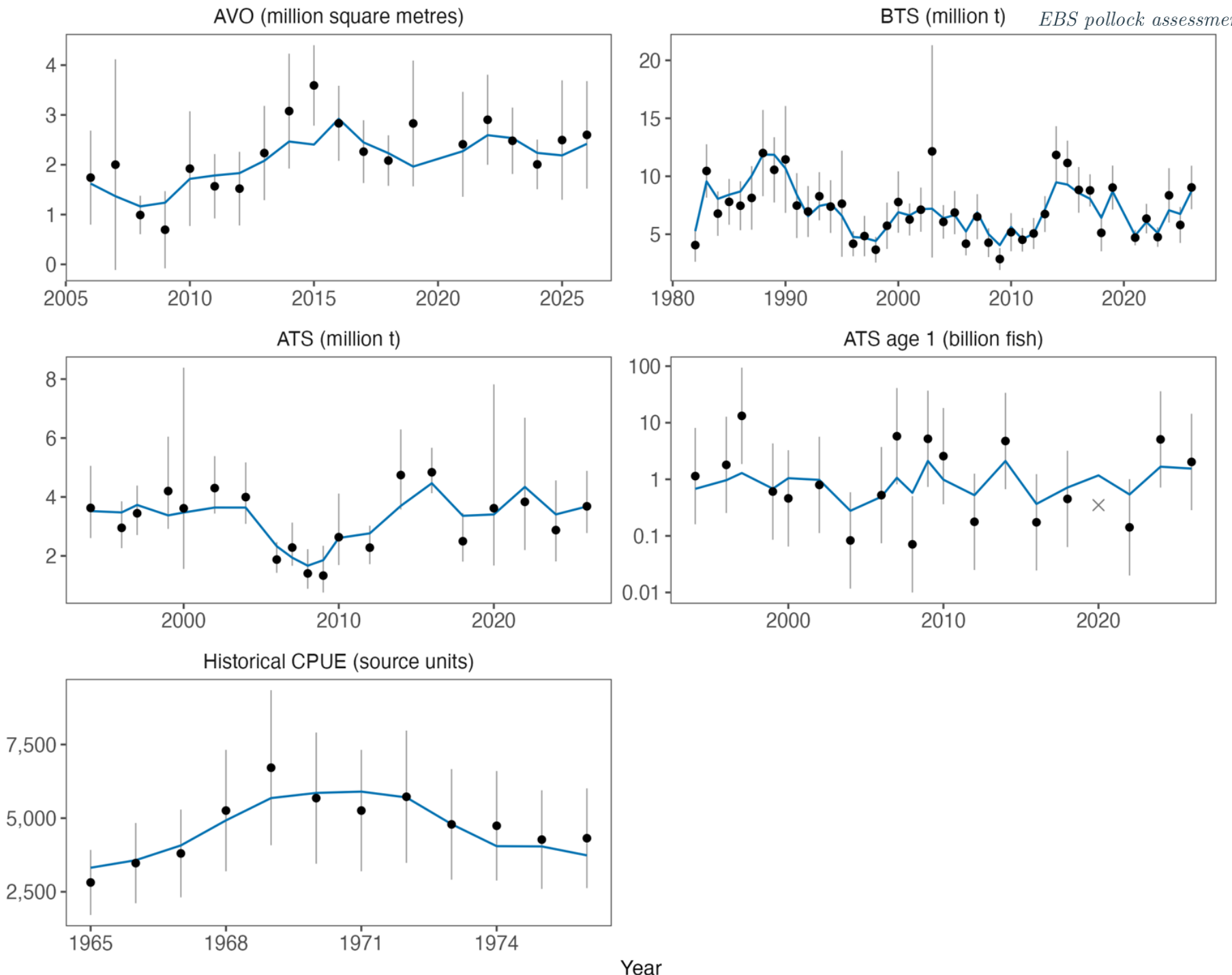
2026 EBS pollock SAFE, Figure 36

Spawning exploitation



2026 EBS pollock SAFE, Figure 37

Observed indices and fitted predictions



2026 EBS pollock SAFE, Figure 38

Fishery selectivity through time

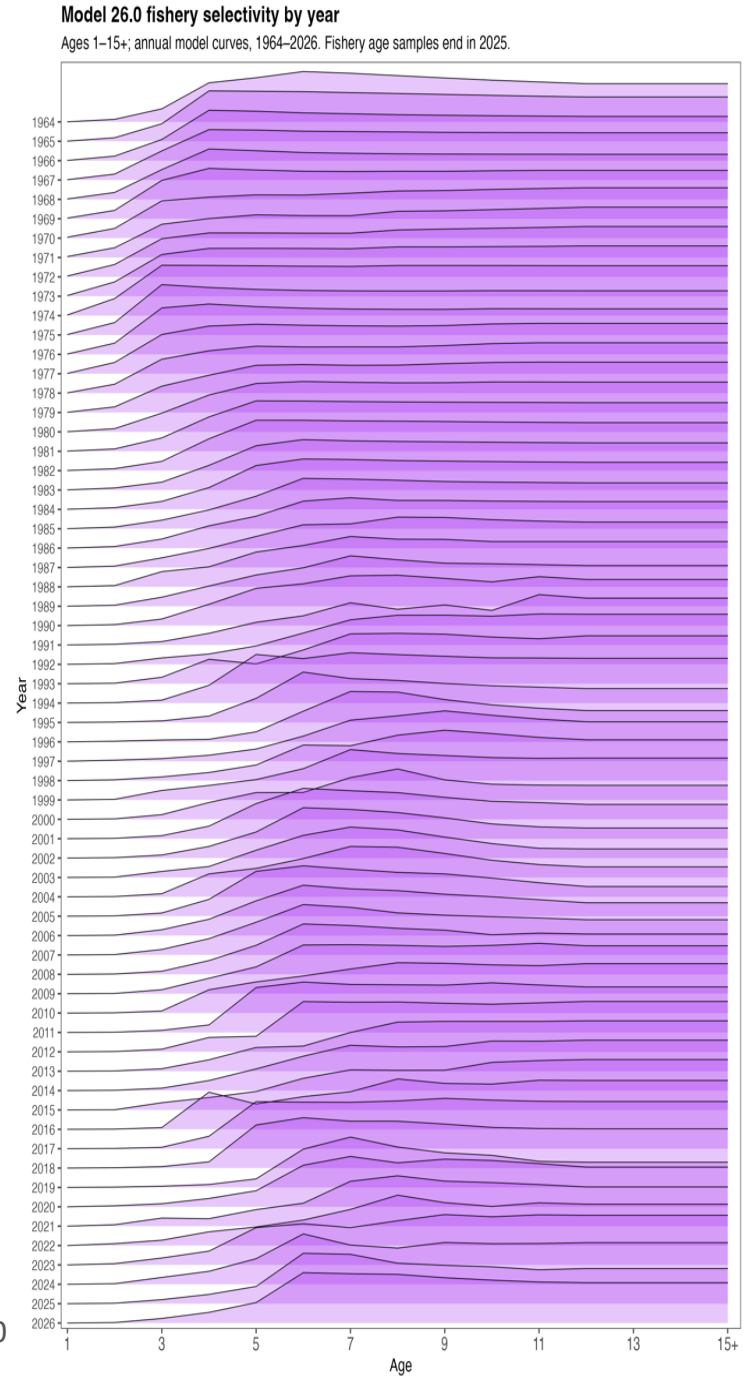


Figure 40

BTS selectivity through time

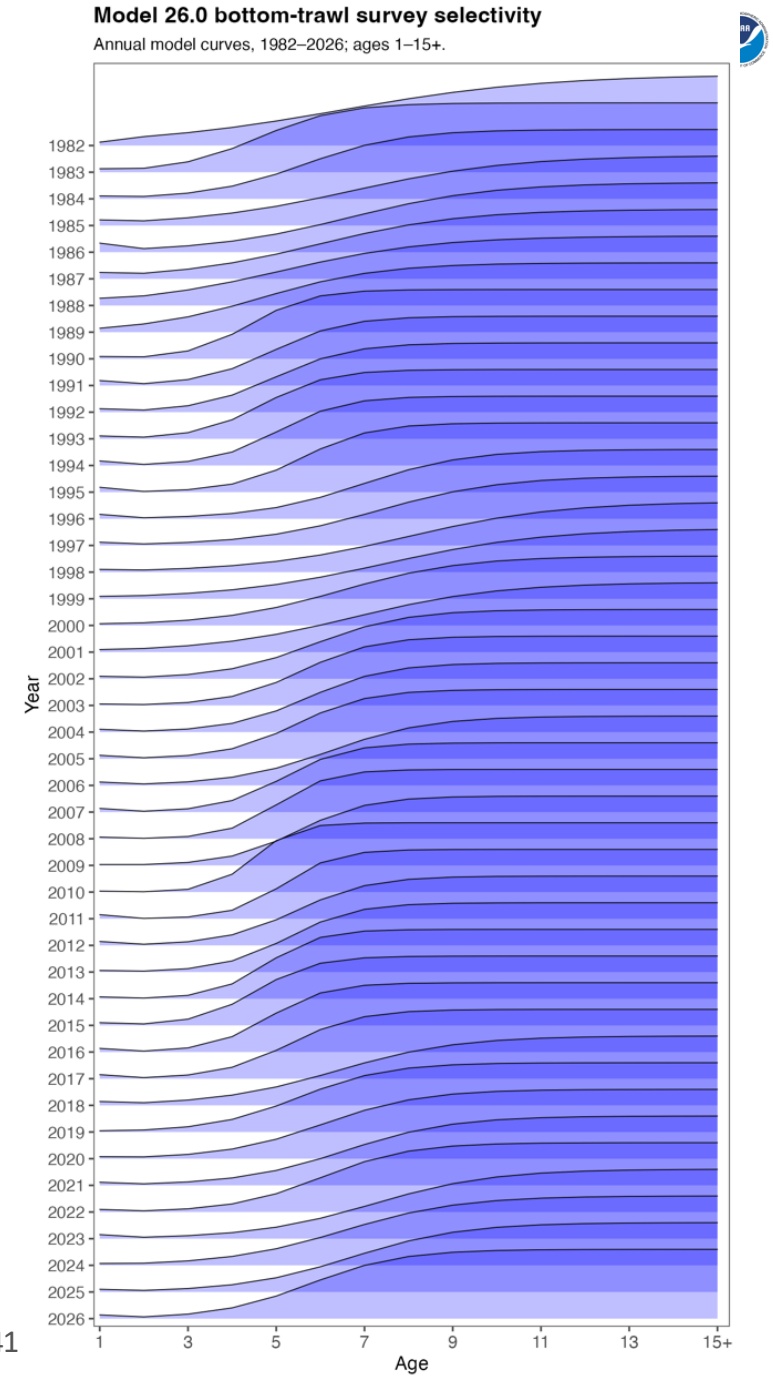
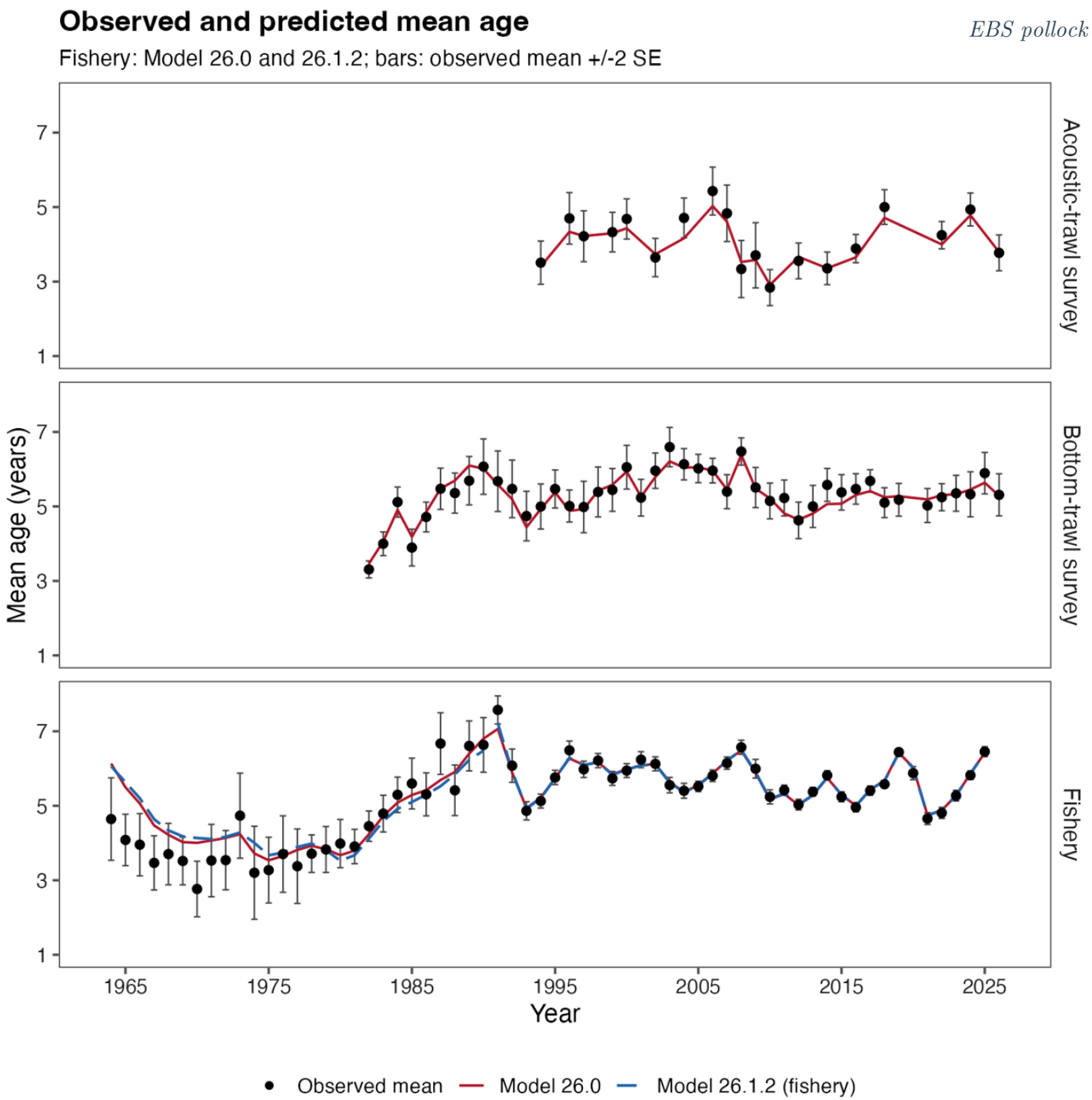


Figure 41

Mean-age diagnostics



2026 EBS pollock SAFE, Figure 43

Recent fishery age-composition fits

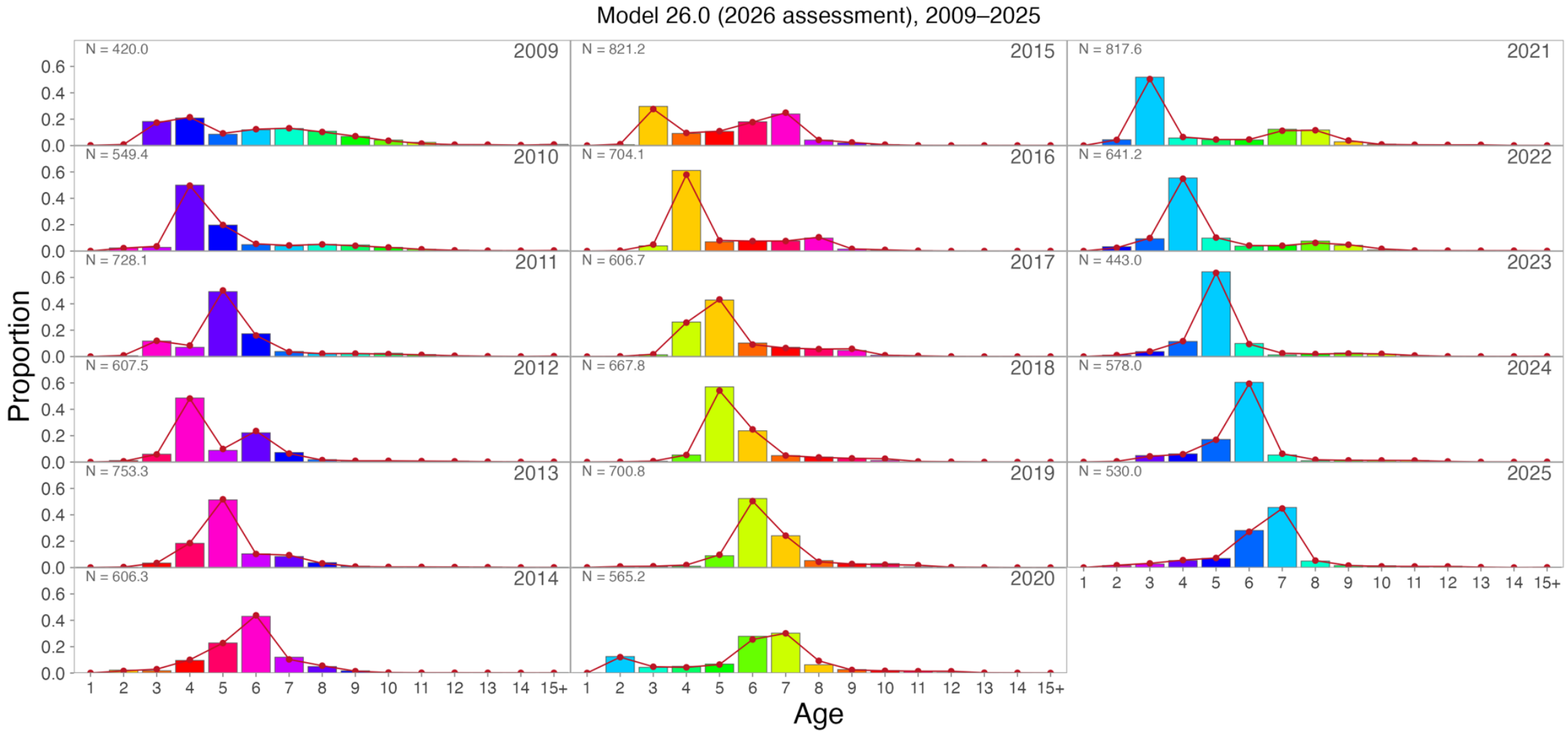
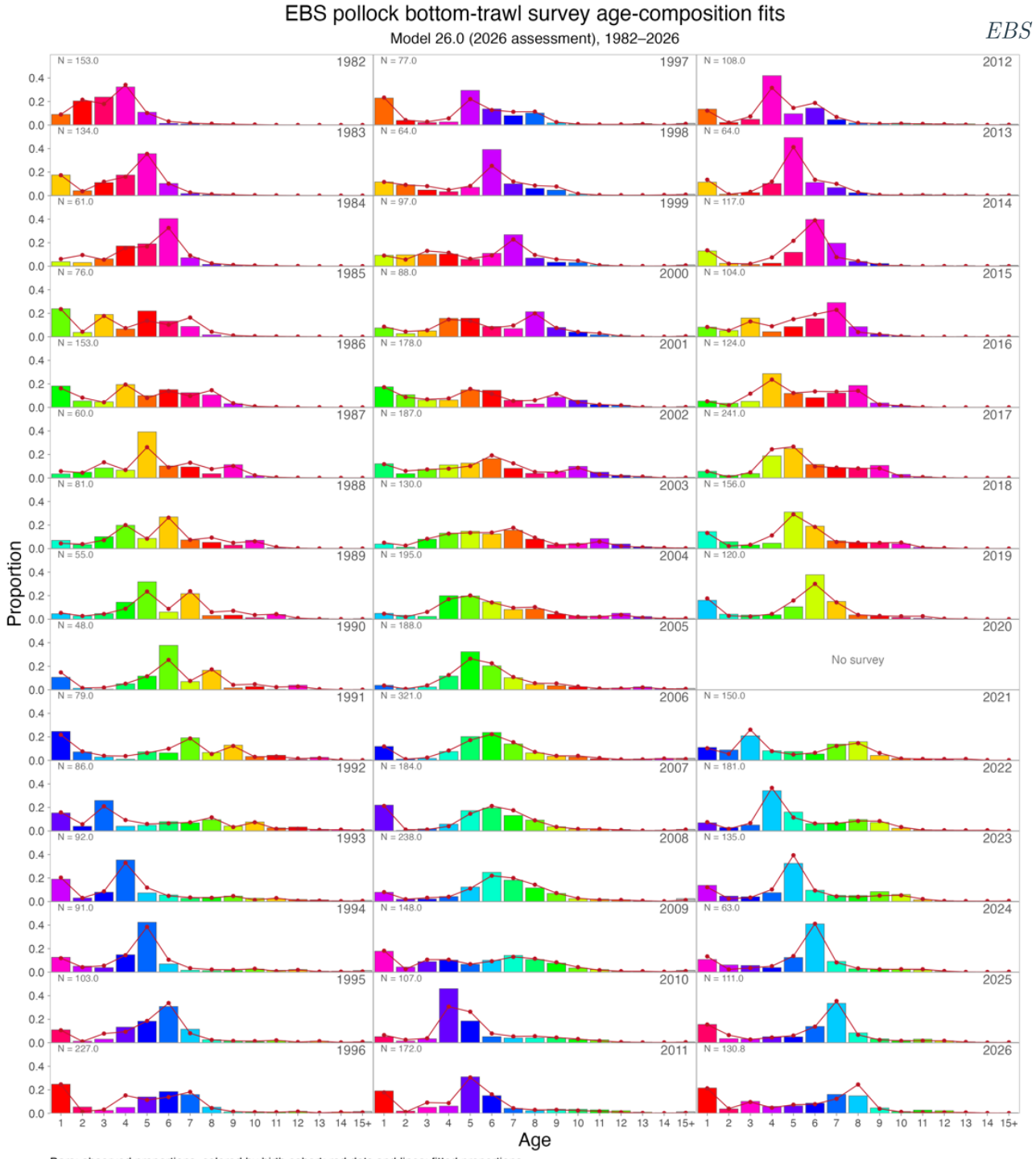


Figure 45

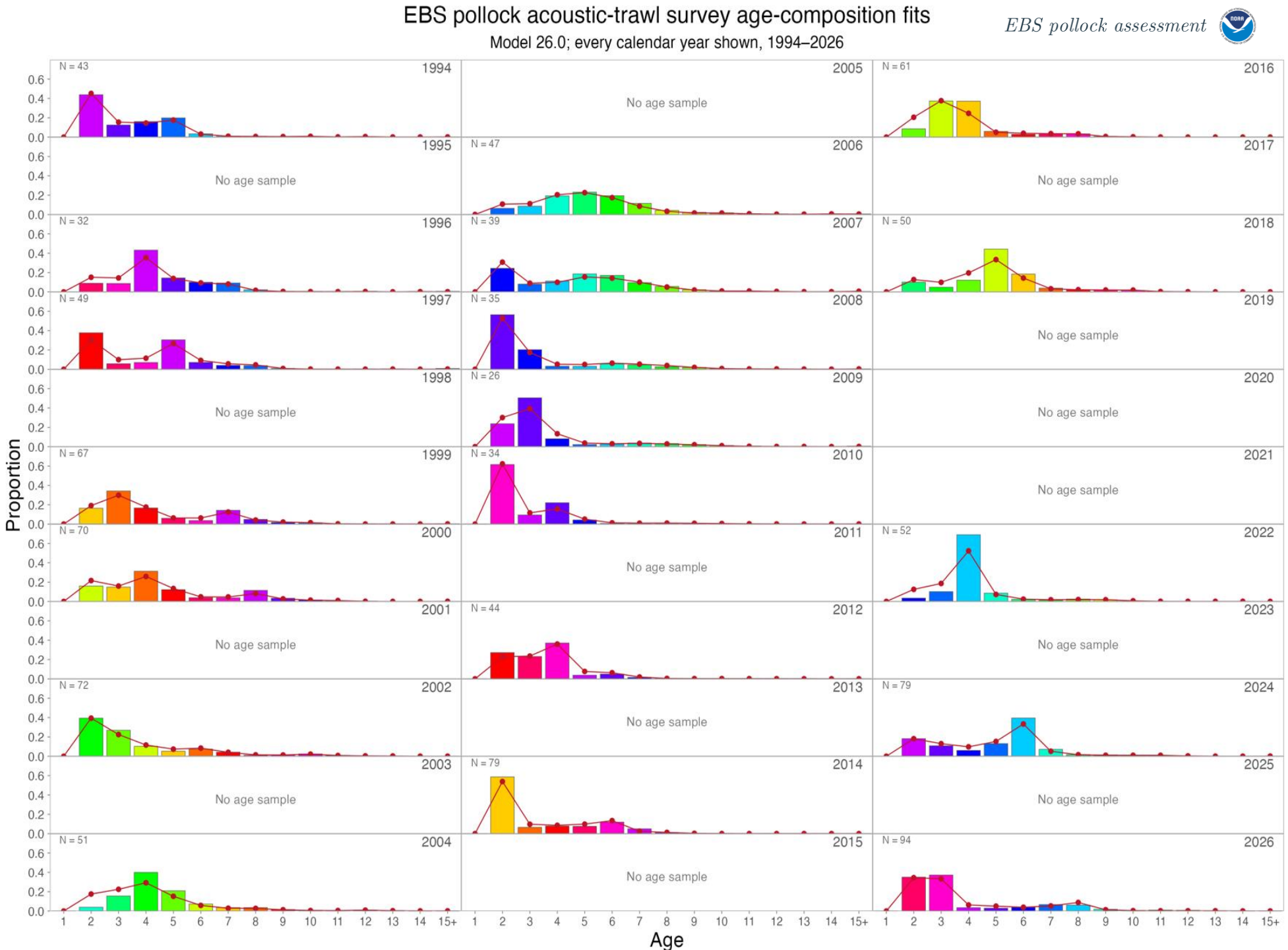
Bars: observed proportions, colored by birth cohort; red dots and lines: fitted proportions.
Cohort colors repeat every 15 birth years. Gray bars: age 15+, a mixture of cohorts. N: selected input sample size.
The same vertical scale is used in both fishery sheets; year panels read downward, then across.

BTS age-composition fits



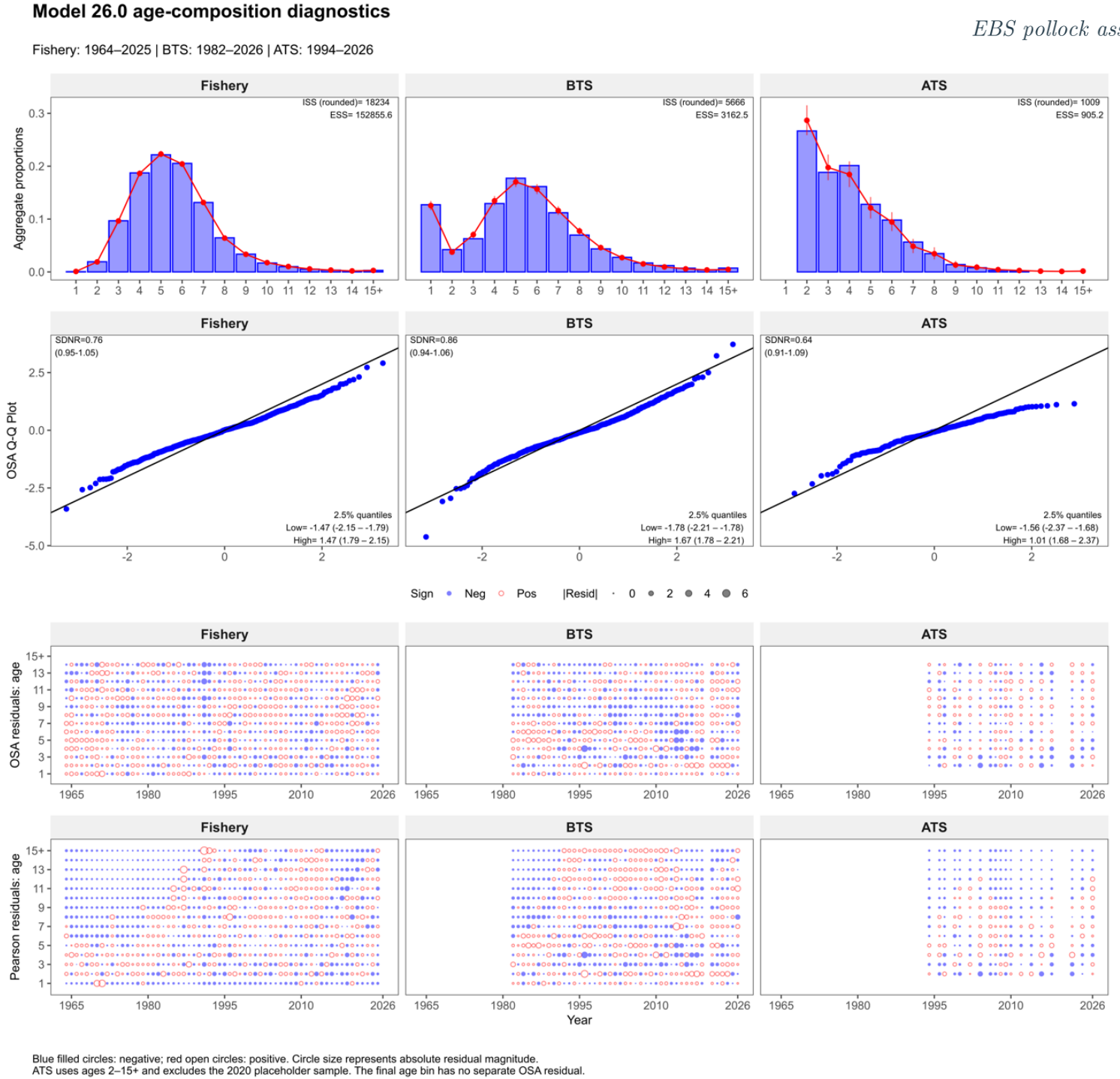
2026 EBS pollock SAFE, Figure 46

ATS age-composition fits



2026 EBS pollock SAFE, Figure 47

One-step-ahead composition diagnostics



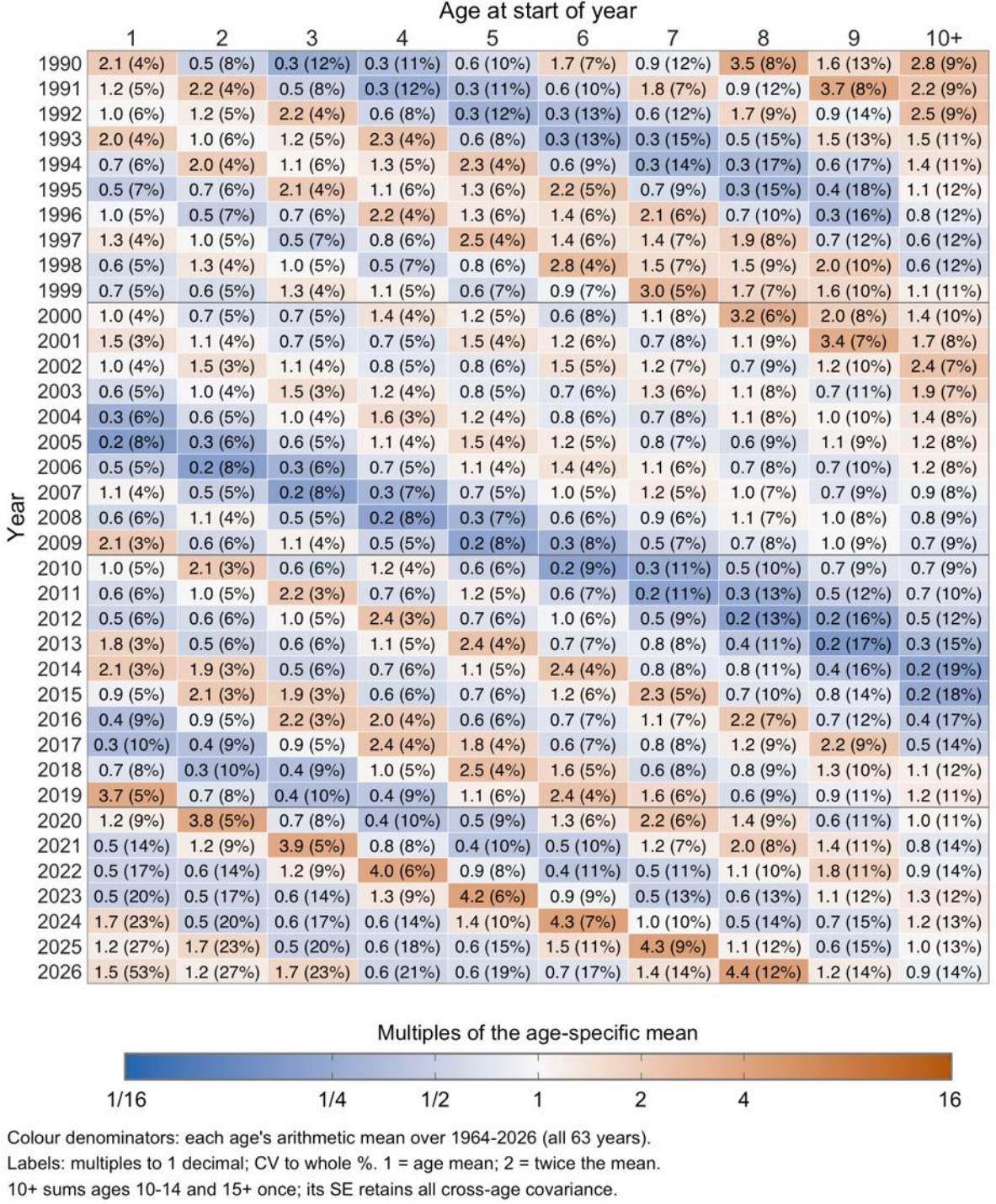
Blue filled circles: negative; red open circles: positive. Circle size represents absolute residual magnitude.
ATS uses ages 2–15+ and excludes the 2020 placeholder sample. The final age bin has no separate OSA residual.

2026 EBS pollock SAFE, Figure 48

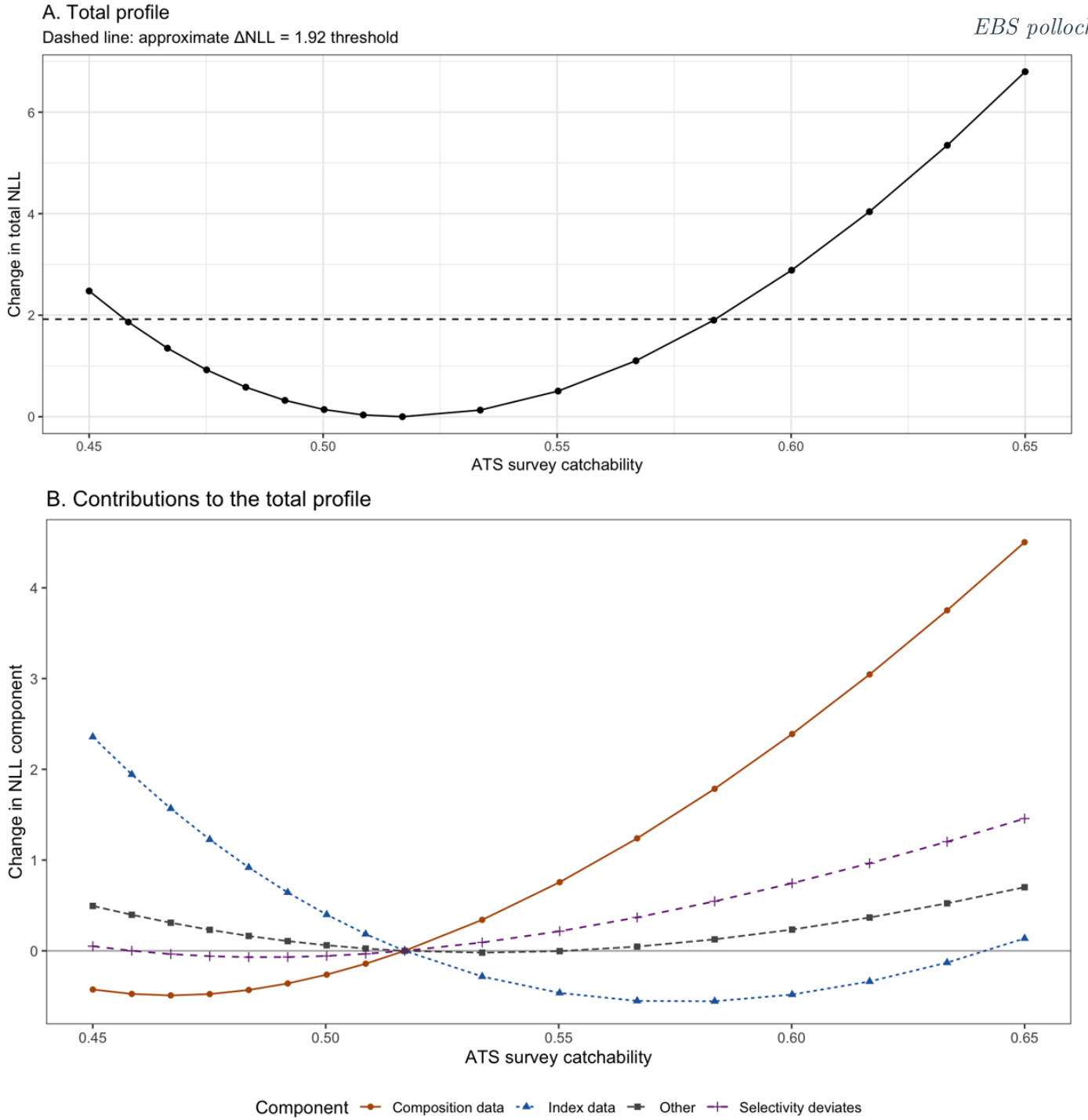
Estimated abundance-at-age…

Take aways

- The 2018 year-class enters at 3.7× in 2019 and is still at 4.4× as 8-year-olds in 2026
- The 1992 year-class persists for years, peaking above 3× at ages 7–9
- The 2012–2013 year-classes carried the mid-2010s stock.
- Mid-2000s recruitment was weak
- Possible new strong cohorts from 2023 (1.7×) and 2025 (1.5×), but the estimates are uncertain

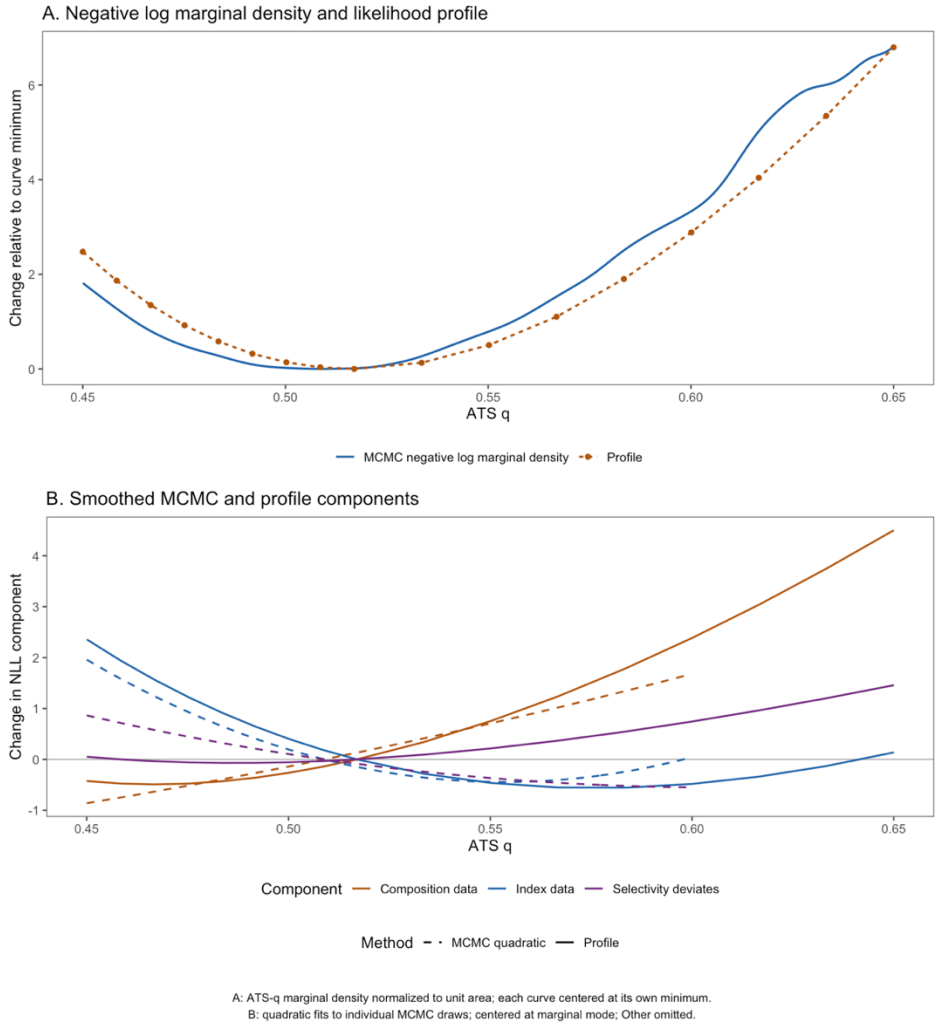


ATS catchability profile



2026 EBS pollock SAFE, Figure 49

Profile and marginal posterior

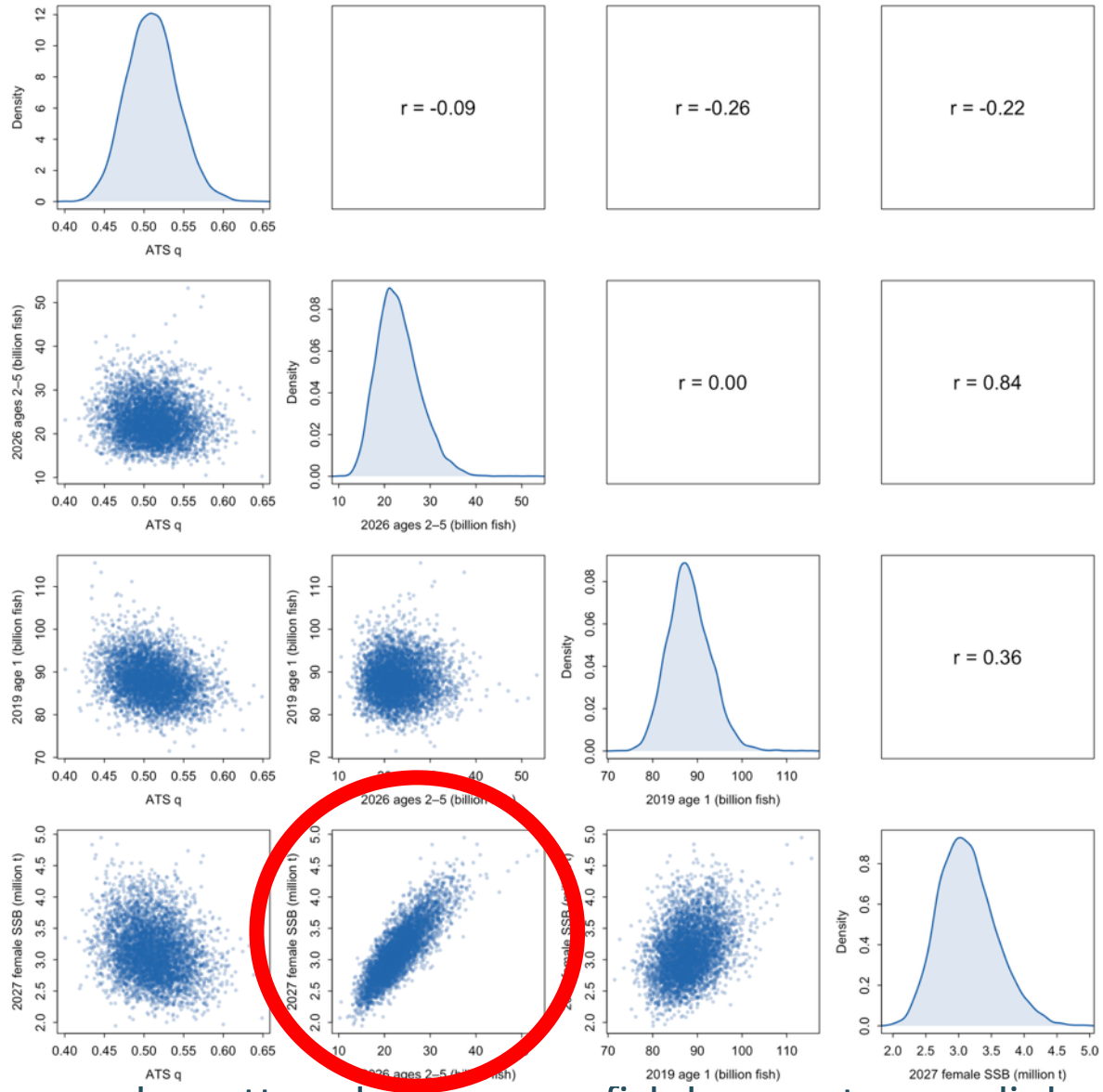


2026 EBS pollock SAFE, Figure 50

Posterior diagnostics and fit

Diagnostic	Reported result
Retained draws	5,000 across four chains
Maximum R-hat, all parameters	1.024
Minimum bulk ESS, all parameters	242
Divergences / tree-depth hits	0 / 0
Population quantities max R-hat	1.0013
Population quantities min ESS	3,914

Younger fish shape the near-term outlook

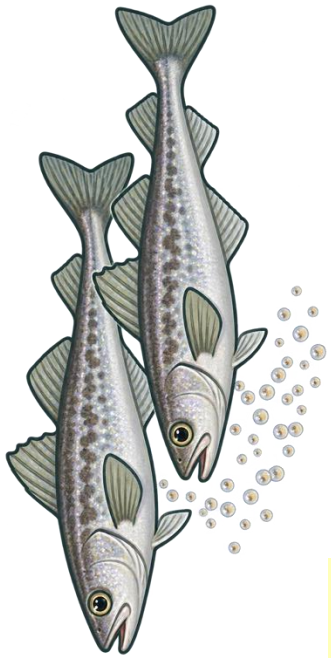


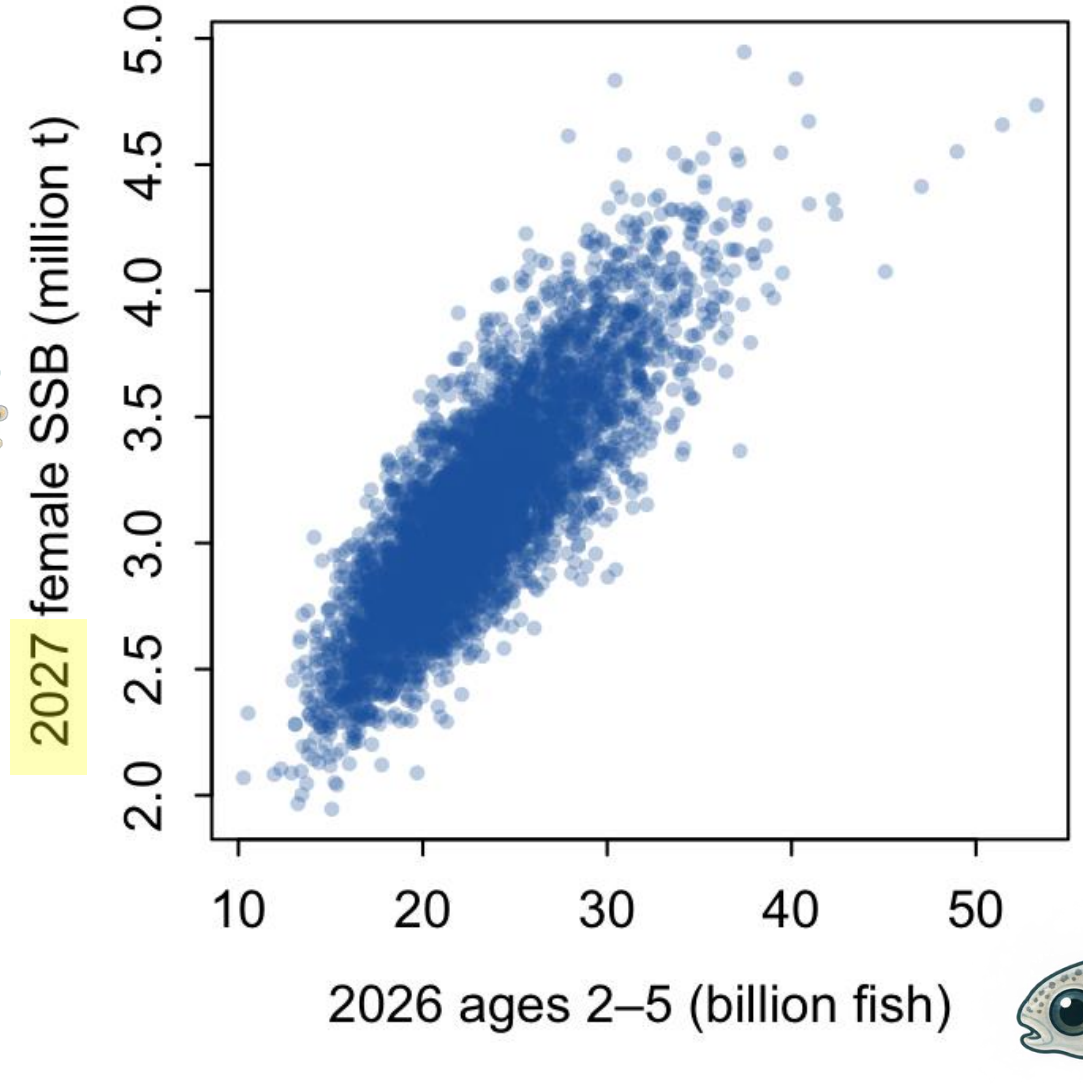
2027 spawning biomass vs:

2026 ages 2–5: r = 0.84
2018 cohort: r = 0.36
Survey scale: r = −0.22

Survey scale matters, but younger fish have a stronger link with next year’s spawning biomass.

Younger fish shape the near-term outlook





2027 spawning biomass vs:

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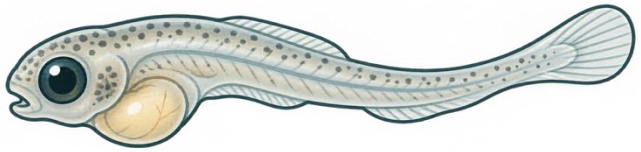
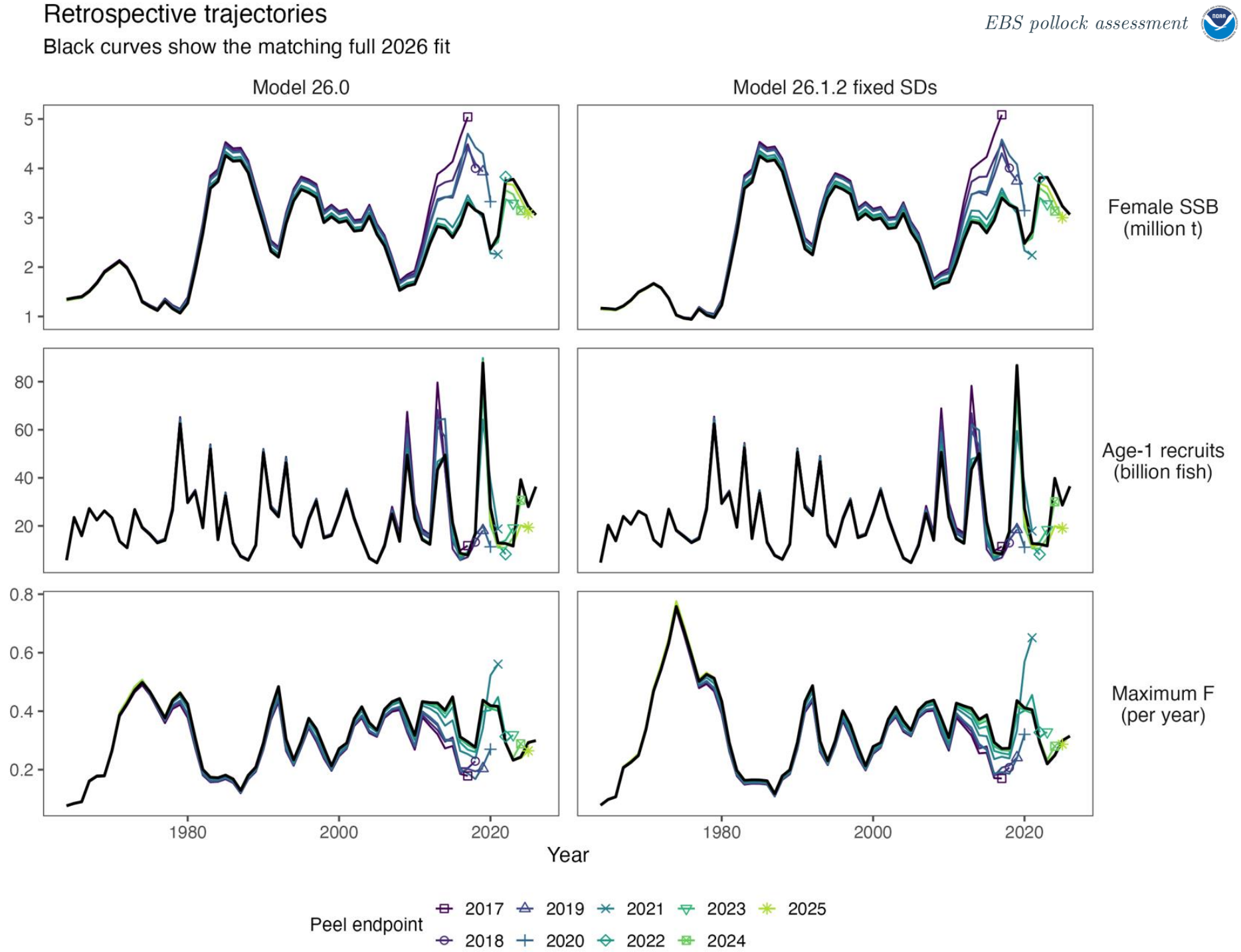
Survey scale: r = −0.22



Survey scale matters, but younger fish have a stronger link with next year's spawning biomass.

Nine-peel retrospective

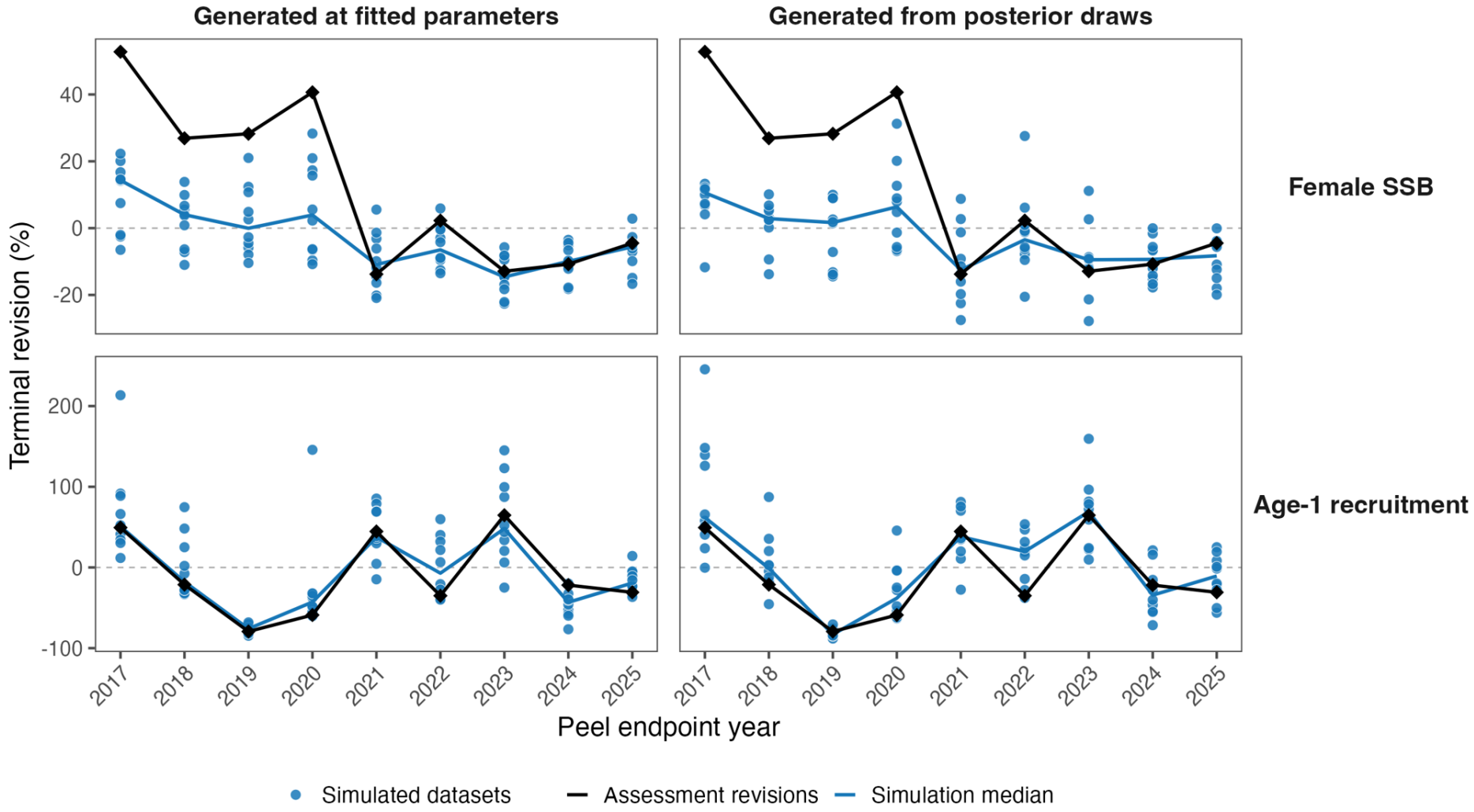


2026 EBS pollock SAFE, Figure 52

Split-fishery tradeoffs

Fit measure	Model 26.0	26.1.2
Modern proportion RMSE (percentage points)	0.693	0.590
Modern mean-age RMSE (years)	0.123	0.0963
Foreign proportion RMSE (percentage points)	2.67	3.43
Foreign mean-age RMSE (years)	0.655	0.696

Simulation-retrospective experiment



2026 EBS pollock SAFE, Figure 60

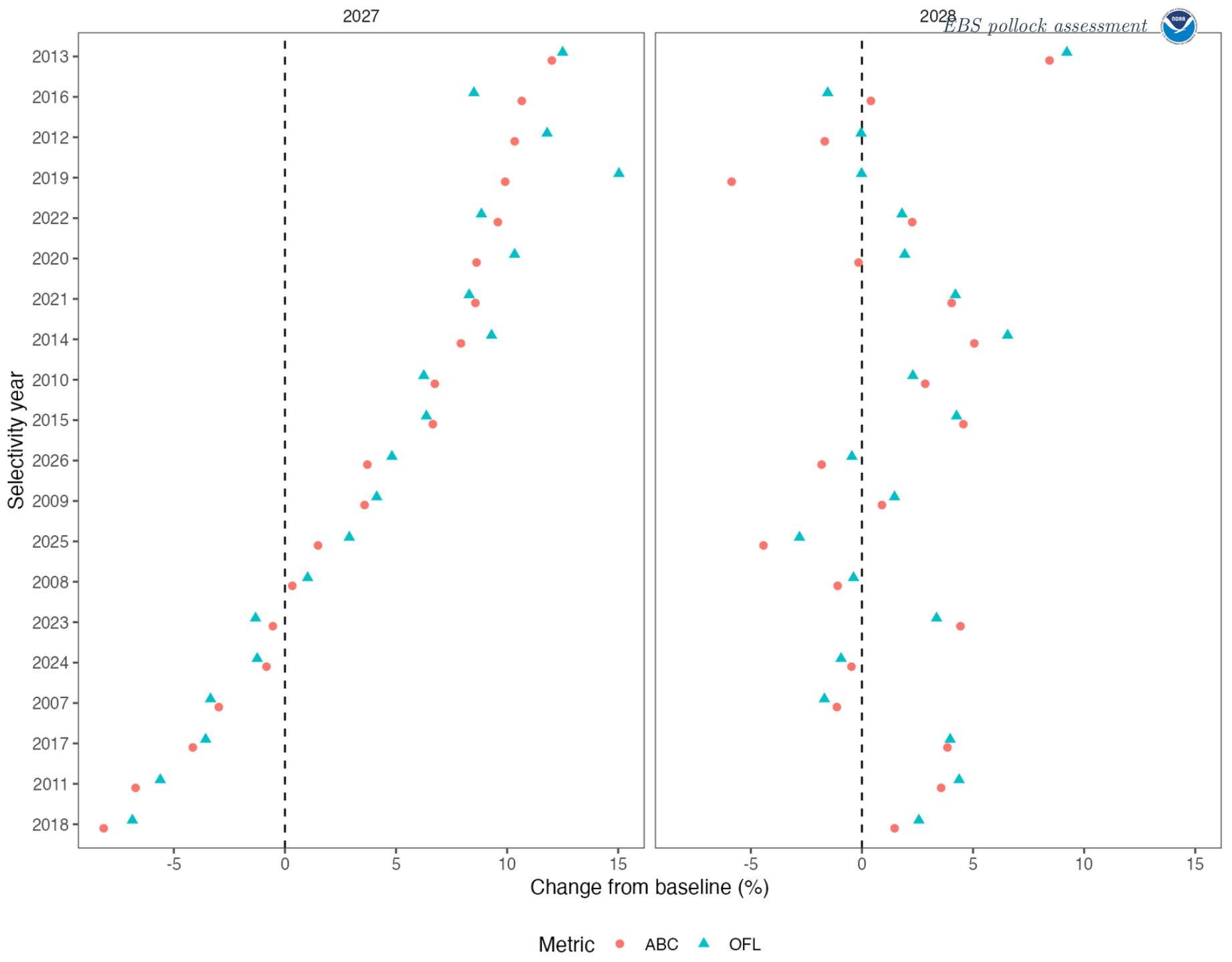
Projection assumptions

Mean raw fishery selectivity curves from 2023–2025, then normalize

Mean age-1 recruitment years 1978–2023, inverse Gaussian variability

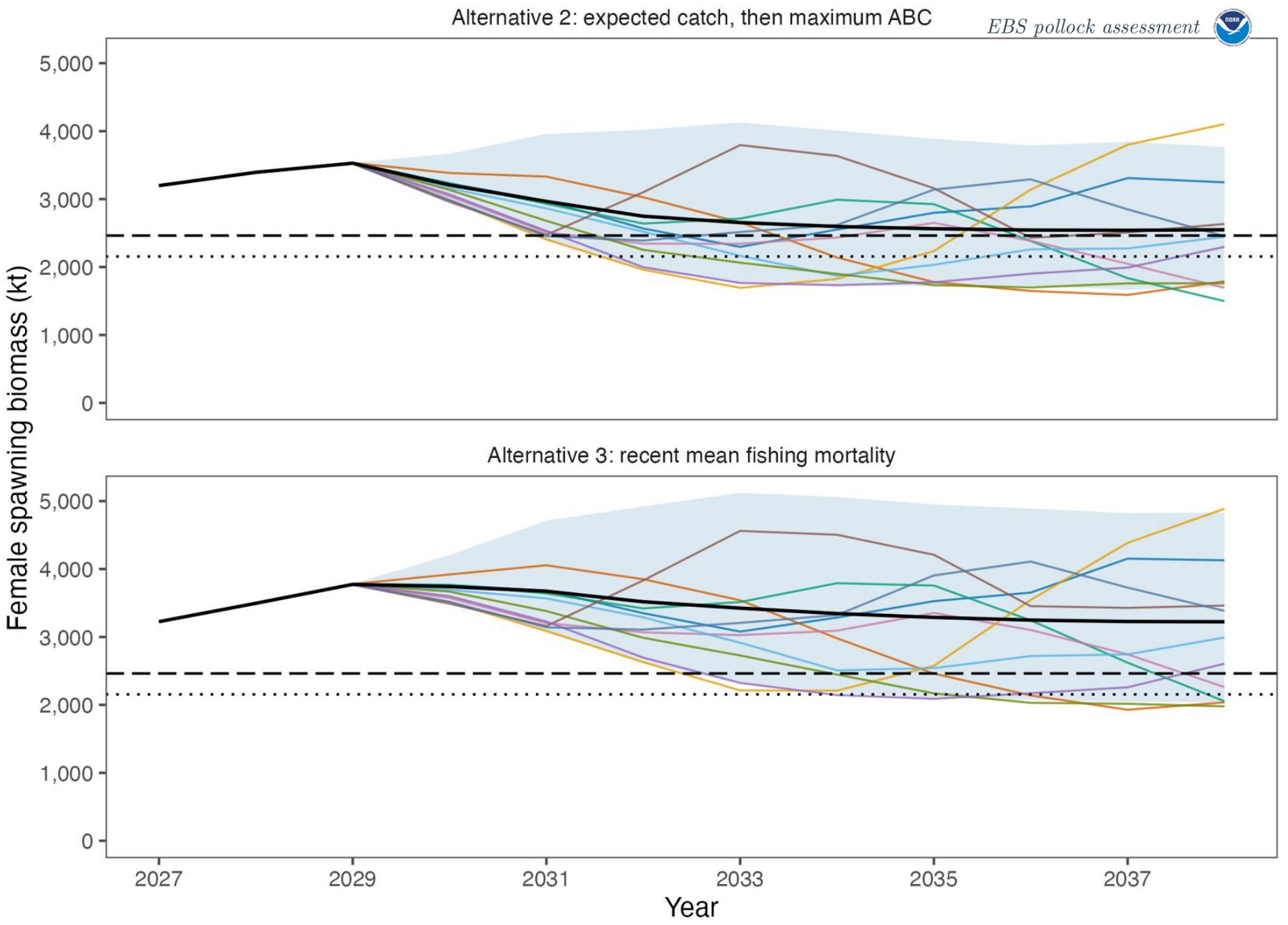
Fixed mortality, maturity and selected weight schedules

Projection selectivity sensitivity



2026 EBS pollock SAFE, Figure 71

Future recruitment uncertainty



2026 EBS pollock SAFE, Figure 67

2027–2028 advice, Model 26.0

Quantity	2027	2028
Assumed catch (million t)	1.375	1.375
Projected female SSB (million t)	3.198	3.394
Maximum ABC (million t)	1.896	1.968
OFL (million t)	2.328	2.422
Maximum F at assumed catch	0.354	0.341

Review conclusions and priorities

Proposed Model 26.0 integrates the updated survey and age evidence

All reported risk categories are Level 1, supporting maximum ABC

Retrospective patterns and residual patterns could be improved

Future selectivity and weight assumptions affects advice

Summary

Quantity	As estimated or specified in 2024 for:		Primary baseline Model 26.0 for:	
	2025	2026	2027	2028
Natural mortality (annual rate, ages 3+)	0.300	0.300	0.300	0.300
Tier and sub-tier	3a	3a	3a	3a
Projected total biomass (ages 3+, t)	8,526,000	8,075,000	11,270,000	12,367,000
Projected female spawning biomass (t)	3,118,000	3,342,000	3,198,000	3,394,000
B100% (t)	5,902,000	5,902,000	6,158,000	6,158,000
B40% (t)	2,361,000	2,361,000	2,463,000	2,463,000
B35% (t)	2,066,000	2,066,000	2,155,000	2,155,000
F_OFL (annual rate)	0.513	0.513	0.658	0.658
Maximum F_ABC (annual rate)	0.394	0.394	0.513	0.513
Recommended F_ABC (annual rate)	0.394	0.394	0.513	0.513
OFL (t)	2,957,000	2,496,000	2,328,000	2,422,000
Maximum ABC (t)	2,417,000	2,036,000	1,896,000	1,968,000
Recommended ABC (t)	2,417,000	2,036,000	1,896,000	1,968,000

Historical source: December 2024 SAFE, Executive Summary, Tier 3 version, p. 4; B40% is printed in section 7.2, p. 35.

Appendix B
Ecosystem and Socioeconomic Profile of Eastern Bering Sea Walleye Pollock

This draft Ecosystem and Socioeconomic Profile (ESP) for EBS pollock brings together substantial work completed to date and provides a starting point for future ESP Team discussions. An AI agent helped compile and coordinate material from disparate information sources and research activities. Over the next year, the EBS pollock ESP Team will formalize its membership and begin meetings that engage a broader group of scientific experts to develop the profile. Please contact Jim Ianelli and Kalei Shotwell with questions or for further details about this document or the EBS pollock ESP.

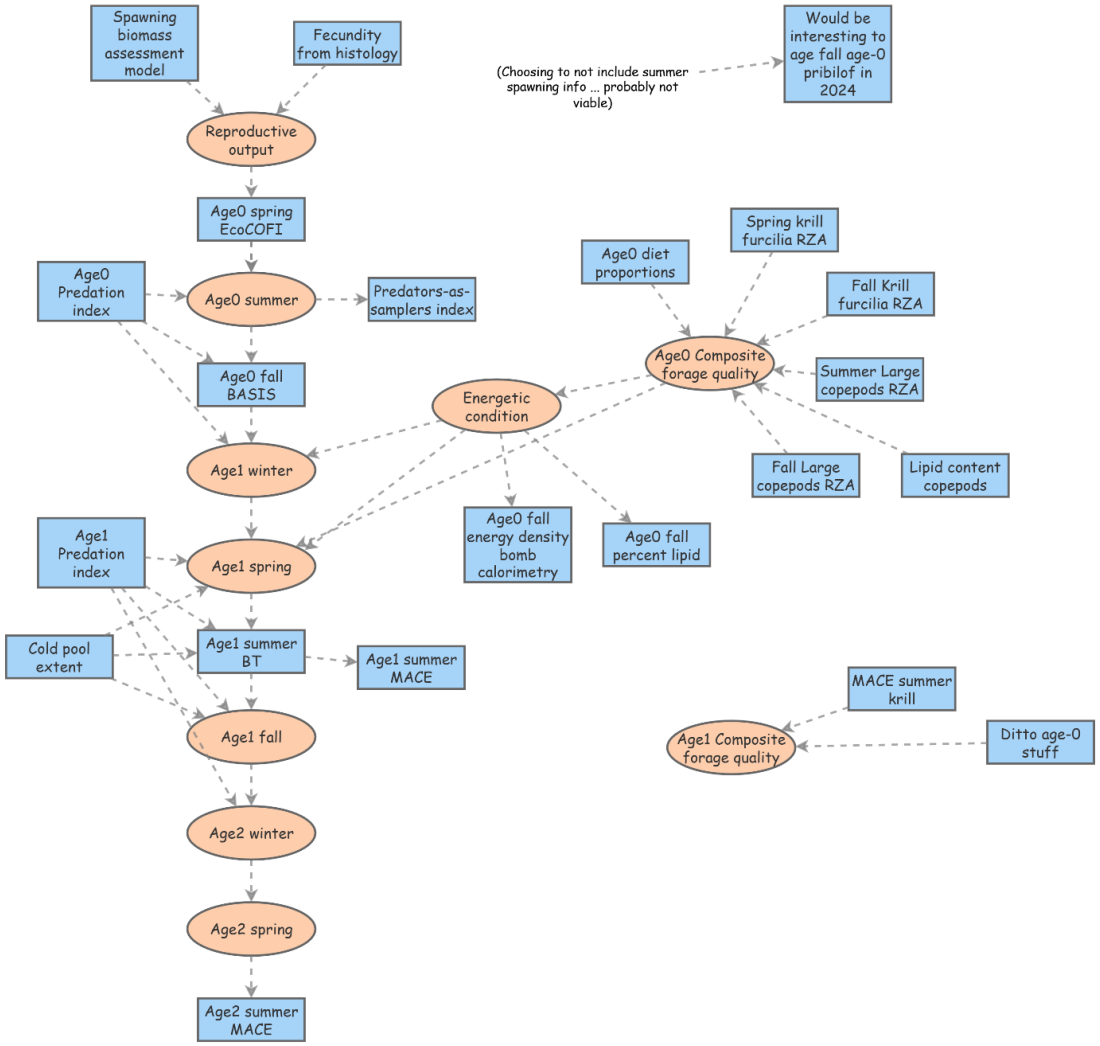


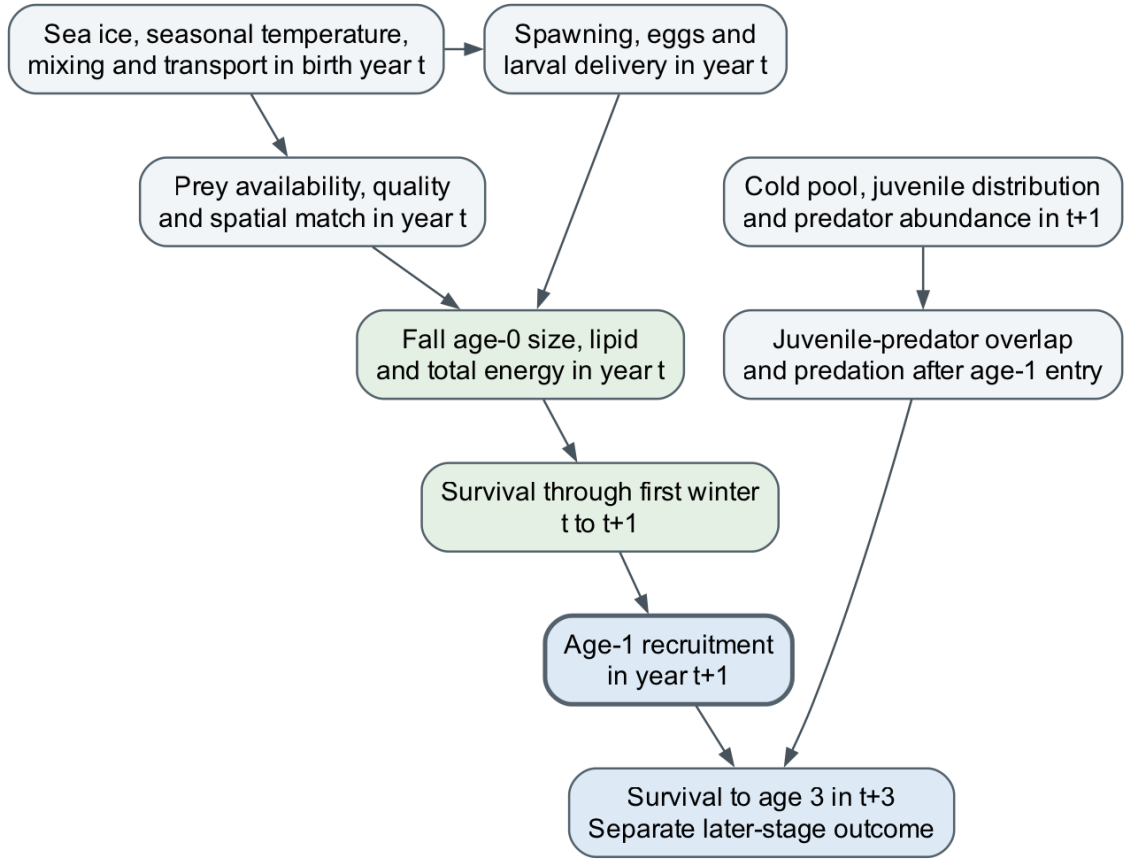
EBS pollock ecosystem and socioeconomic profile

How can early-life observations help explain recruitment?

Age-1 recruitment	Follow cohorts from spawning and nursery delivery through feeding, fall energy storage and the first winter.
Survival to age 3	Track the same cohort through later exposure to adult pollock and arrowtooth flounder.
Broader scope	Adult growth and condition, survey availability, fishery performance and community exposure.

2026 EBS pollock SAFE • Draft Appendix B, pp. 176–178





Monnahan, Cole C., David W. McGowan, Jim Ianelli, Bridget E. Ferriss, and Lauren Rogers. 2026. *Proceedings of the 2025 Workshop on Walleye Pollock Biology and Ecology*. AFSC Processed Report Nos. 2026-09. Alaska Fisheries Science Center, NOAA, National Marine Fisheries Service. https://doi.org/10.25923/hkwv-2f57.

Fall energy and predator overlap are priorities

2025 age-0 energy density

19.23

Southeastern Bering Sea

20.84

Northern Bering Sea

kJ/g dry mass. Both declined from 2024. The series ends in 2025.

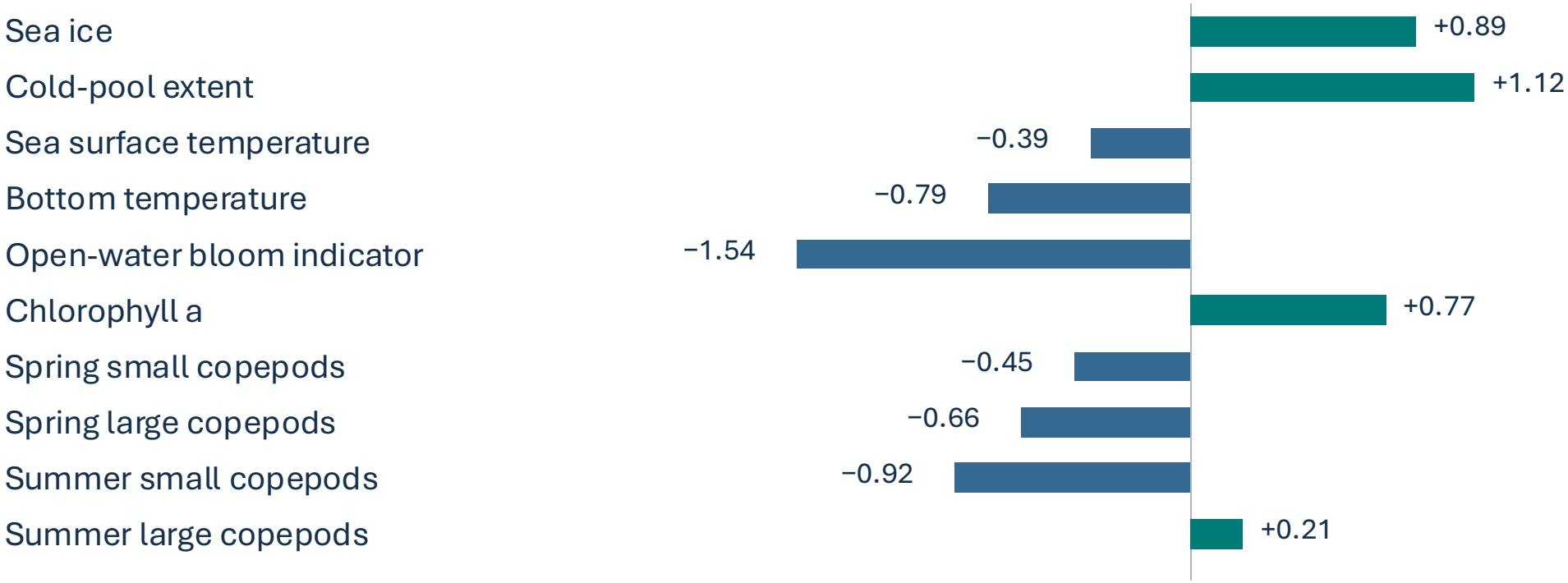
Candidate predictors

Test fall total energy using body mass and energy density, alongside prey quality and abundance.

Match juvenile–predator overlap to the survival interval. Summer observations in the age-1 year occur after age-1 entry.

2026 physical and prey indicators were mixed

Departure from each series mean (SD)



Baselines vary by series. Departures describe historical variability.

Two DSEM analyses examine age-1 recruitment

Test an Rceattle pilot	The birth-year late-summer SST model had the lowest AIC, but exceeded the gradient threshold and requires refitting. Cold-pool intervals included zero.
Standalone age-1 analysis	The working analysis uses 18 ecosystem series and assessment-derived age-1 recruitment. The recruitment response runs through 2024.
Forecast evaluation	Retain an AR(1) benchmark and test forecast skill using predictors available at the time of prediction.

BSAI production and U.S. exports provide market context

2024 BSAI fishery	1.316 million t of total catch. Trawl catcher vessels retained 678,400 t, valued at $213 million ex-vessel.
2024 first wholesale	487,890 t of pollock product valued at $1.47 billion. Surimi volume fell from 2023 while fillet volume rose.
2025 U.S. exports	333,000 t of pollock products valued at $1.00 billion. The appendix provides qualitative context for 2026 margins and community outcomes.

2026 EBS pollock SAFE • Appendix B, pp. 180–182 and Tables B6–B8

How the profile can inform assessment decisions

2026 risk discussion	Document ecosystem and fishery evidence and its uncertainty. Appendix B leaves ABC and OFL unchanged.
Recruitment research	Verify series definitions and observation uncertainty. Align predator overlap with cohort timing and evaluate forecast skill.
Socioeconomic monitoring	Link quota utilization and vessel behavior to availability, avoidance, operating costs, processing and markets. Define sector and community measures.

ESP draft presented in Sept

Extended to address SSC request

Presented here as an initial proof of concept