



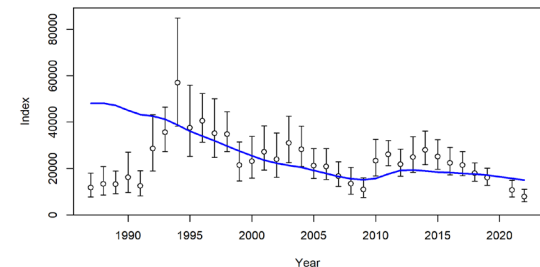
NOAA
FISHERIES

Preliminary assessment of BSAI Greenland turbot (summary)

Meaghan D. Bryan and Alberto Rovellini
October 2026 SSC meeting

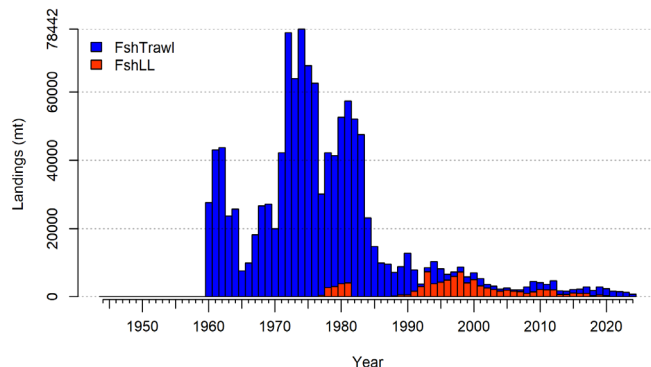
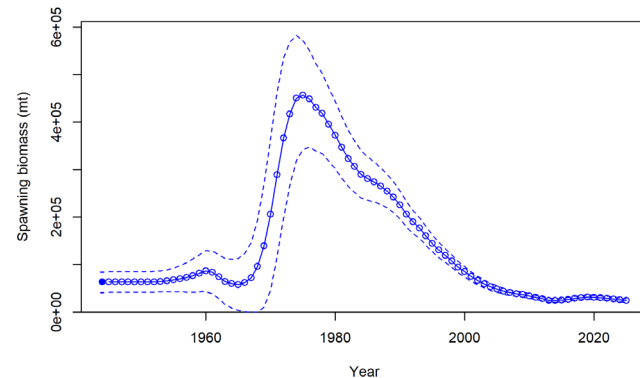
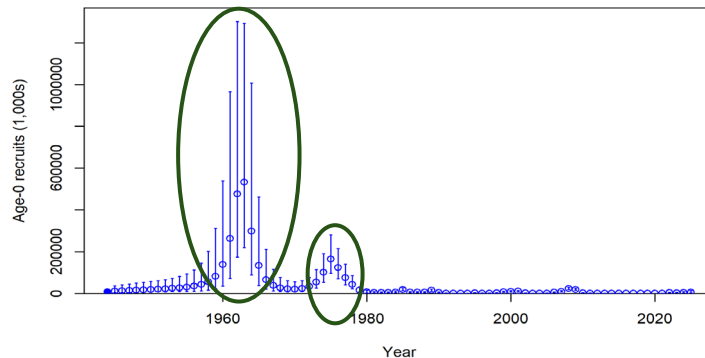
Introduction

- Presented several tier 3 models to the Plan Team in September
- Discussion centered on data conflicts identified through prior exploratory modeling and the tier 3 assessment model diagnostics
 - Considerable tension between the survey length composition data and survey indices
 - Francis reweighting leads to strong down weighting of length composition data, especially survey length compositions
 - Survey indices
 - Deep water surveys drive overestimation of shelf survey biomass in the absence of time blocks
 - Improved fit to the longline survey can result in poorer fits to other surveys



Introduction

- Data conflicts
 - Model used for management starts in 1945
 - Uncertainty about whether the stock was incredibly productive and small or large and less productive

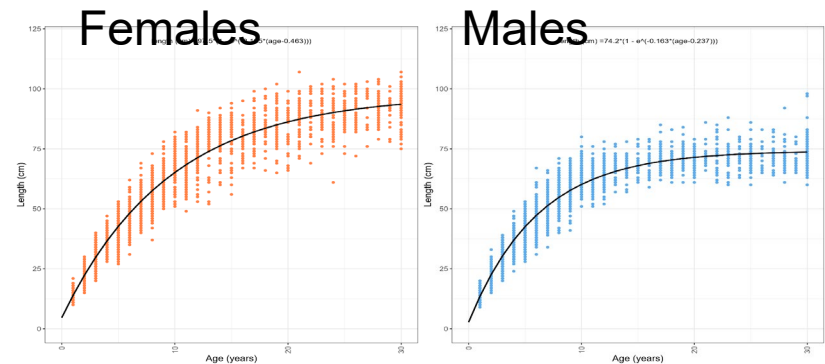
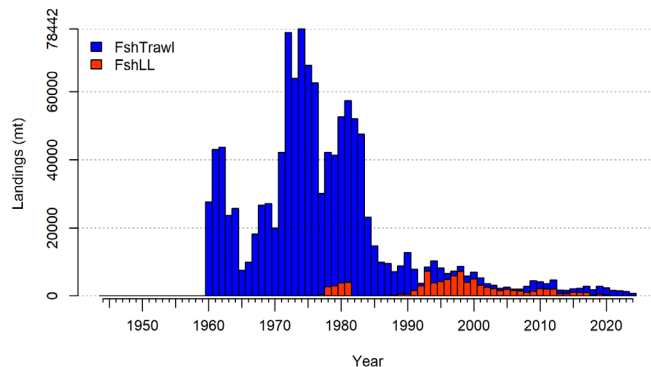
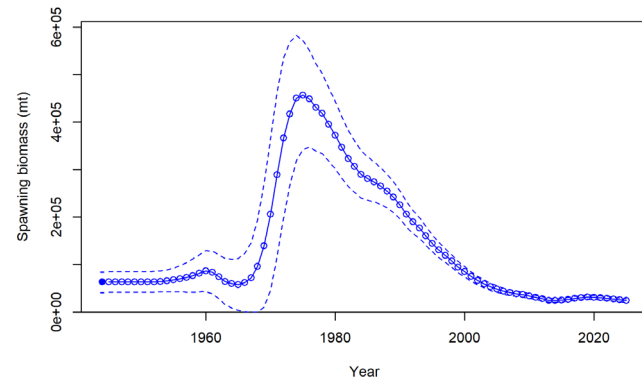
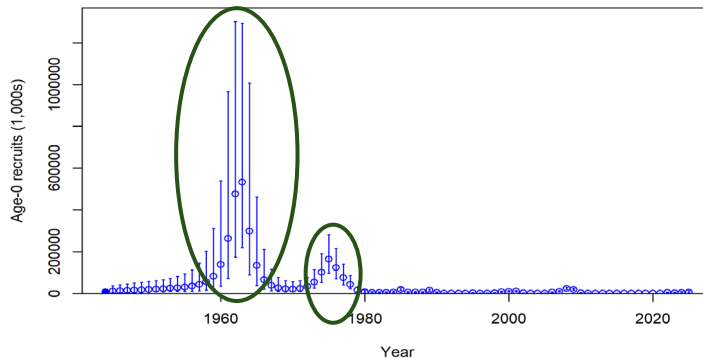


Models

Model	Description	Reason for change
16.4c	Last accepted model for management	-
25.0	16.4c with AFSC longline survey RPNs using the SSC-recommended interpolation method	SSC and PT recommendation. This did not impact the model outcomes
25.2a	25.0 + SRR autocorrelation parameter fixed = 0.437 + Updated input sample size (ISS) for length comp + Length composition variance adjustment from the Francis reweighting approach	The autocorrelation parameter is not estimated confidently. The value used is based on a published value for flatfish. Allowed for interannual variability in fishery input sample size that better reflects sampling. An objective approach to weight the data was used
25.3a	25.2a + survey catchability from qfloat option in SS3 for all three survey fleets	Allows the model to derive the MLE for catchability as opposed to fixing the values for the bottom trawl
25.4a	25.3a + Remove 2011 time block on slope survey selectivity	The 2011_time block for the slope survey contains two years of data. This modification is meant to stabilize the estimation of the slope survey selectivity.

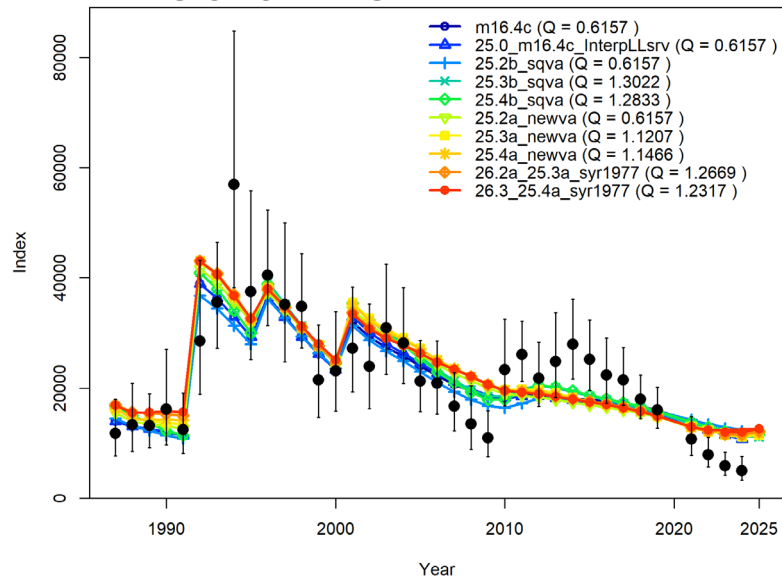
Models

Model	Description	Reason for change
26.2	25.3a + 1977 model start year + equilib catch and F + early rec devs start in 1967	Addresses uncertainty about model initial conditions
26.3	25.4a + equilib catch and F +1977 model start year + early rec devs start in 1967	

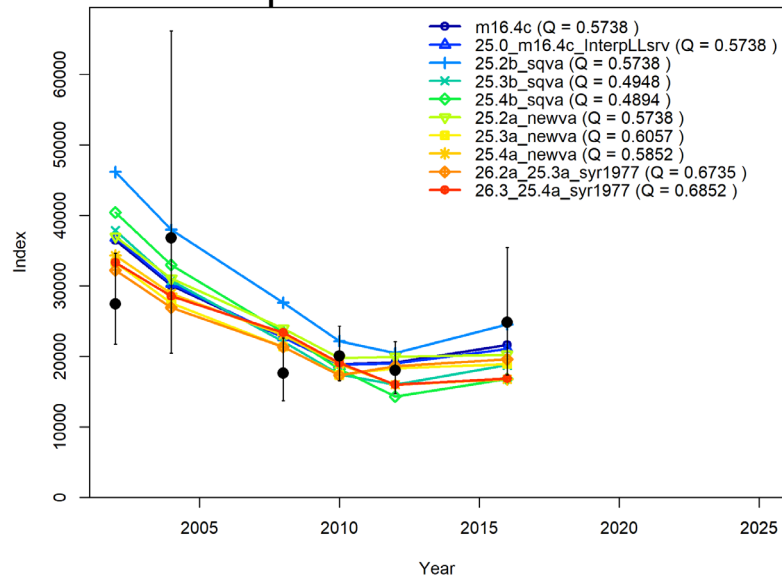


Survey indices

EBS shelf BTS

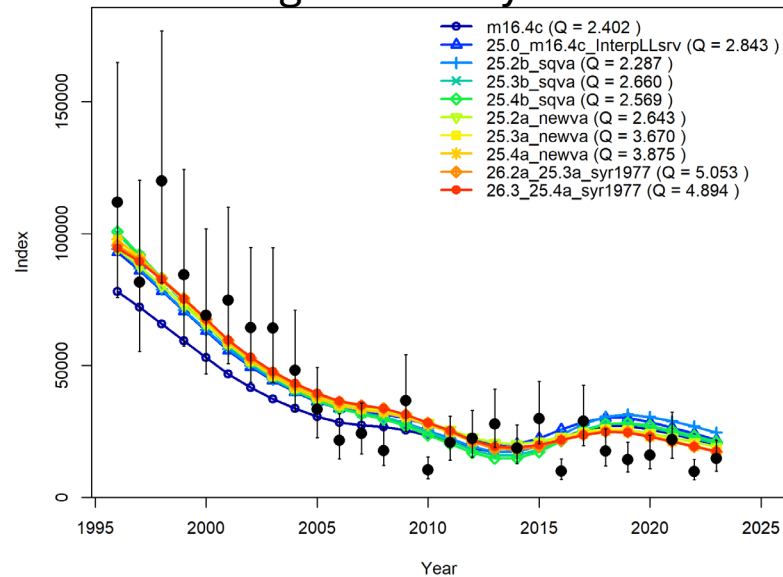


EBS slope BTS



Model	Likelihood			
	Total	LL	Slope	Shelf
m16.4c	8.8	22.7	-6.0	-7.9
25.0	-23.5	-9.9	-5.7	-7.9
25.2a_newva	-27.2	-23.7	-4.4	0.9
25.3a_newva*	-37.7	-25.6	-6.5	-5.6
25.4a_newva*	-35.3	-27.3	-4.2	-3.8
26.2a_25.3a_syr1977	-37.4	-26.6	-7.1	-3.7
26.3_25.4a_syr1977	-32.8	-27.4	-4.5	-0.9

AFSC longline survey



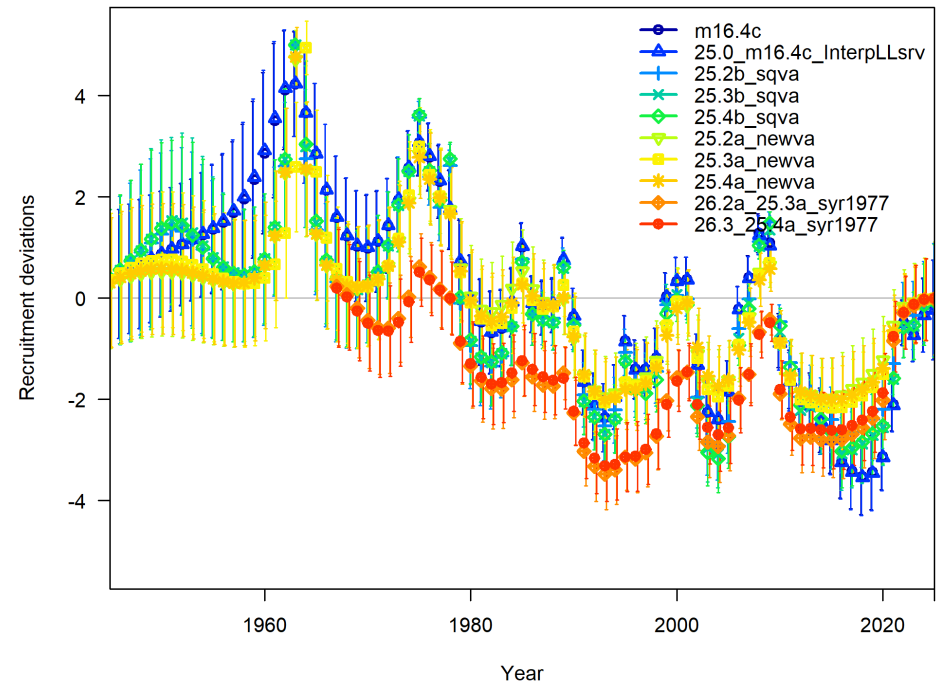
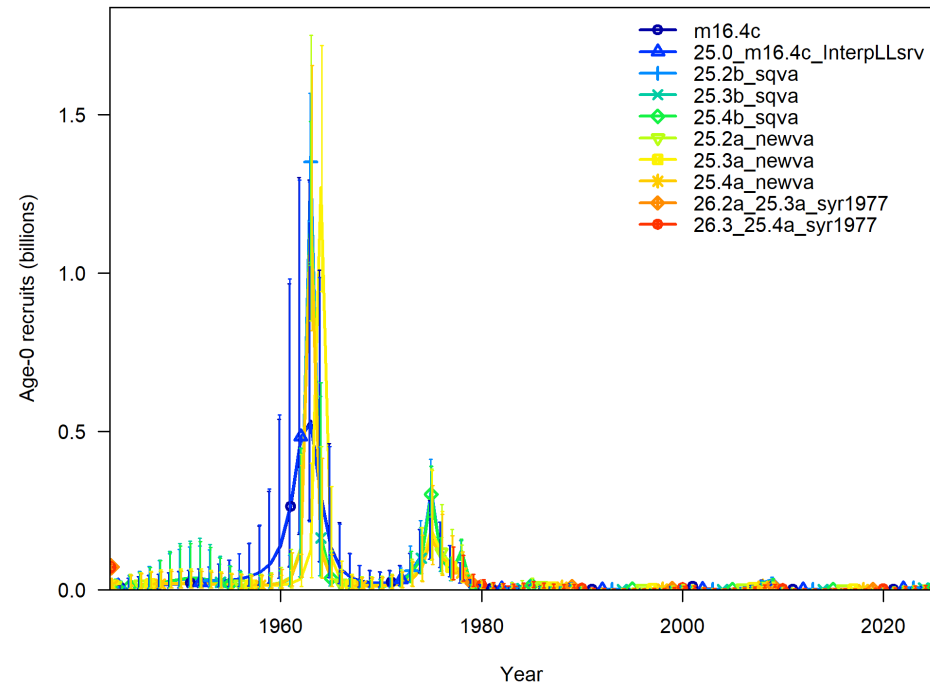
Data weighting

Fleet	Status quo ISS	Adjusted sample size using the variance adjustment in last assessment	updated ISS	Adjusted sample size using variance adjustment from Francis method
Fsh trawl	50	12.5	349.7	8.2
Fsh longline	50	25.0	235.8	54.5
Shelf survey	200	50.0	228.1	5.3
Slope survey	212.5	106.3	281.8	9.8
AFSC longline survey	60	30	100	10.9

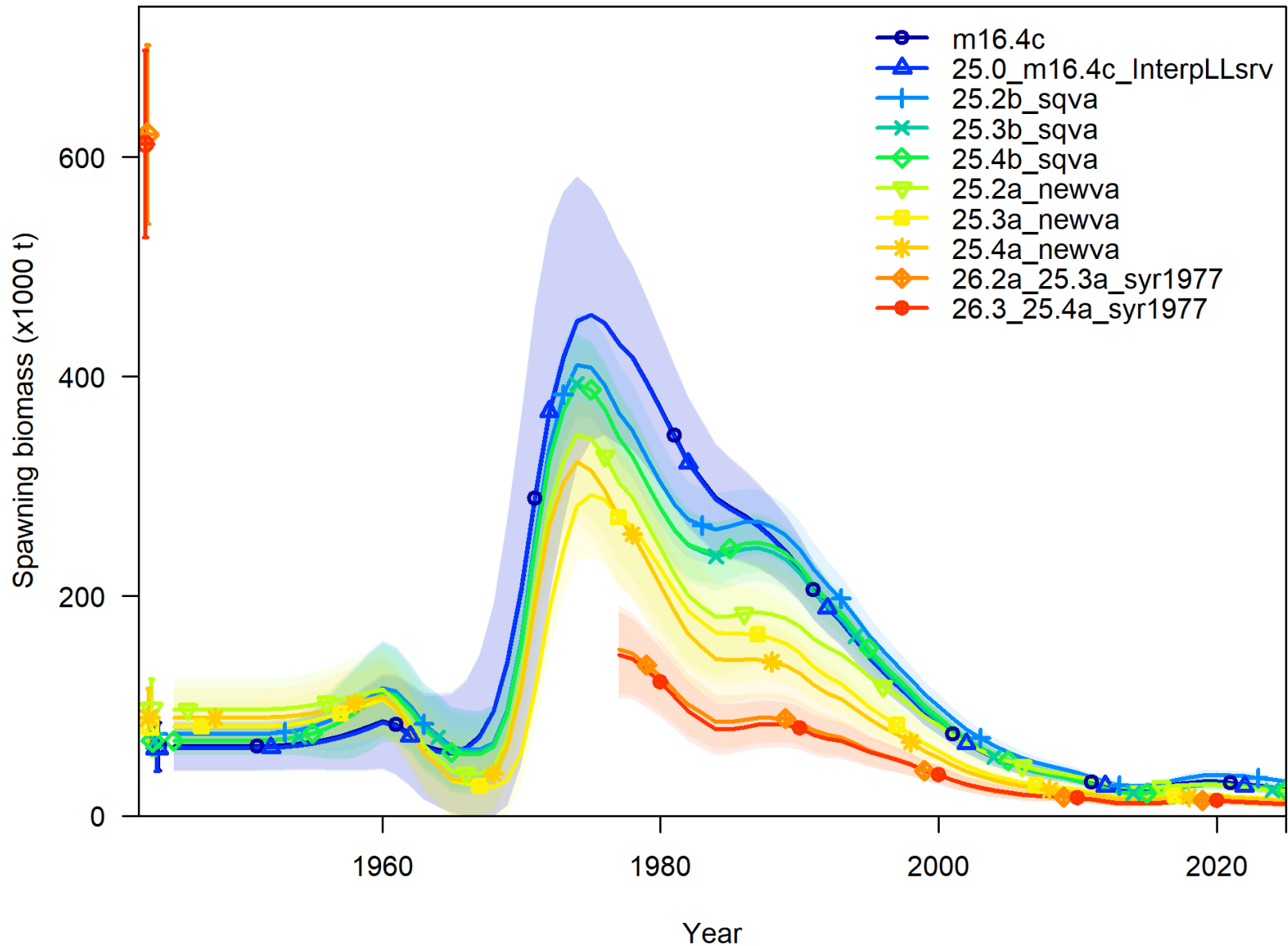
Averages over year shown in table

- Some loss of fit to the survey length composition data (see Figures 9 – 13 in report)
- Allowed for better fit to survey indices, especially the AFSC LL RPNs

Recruitment

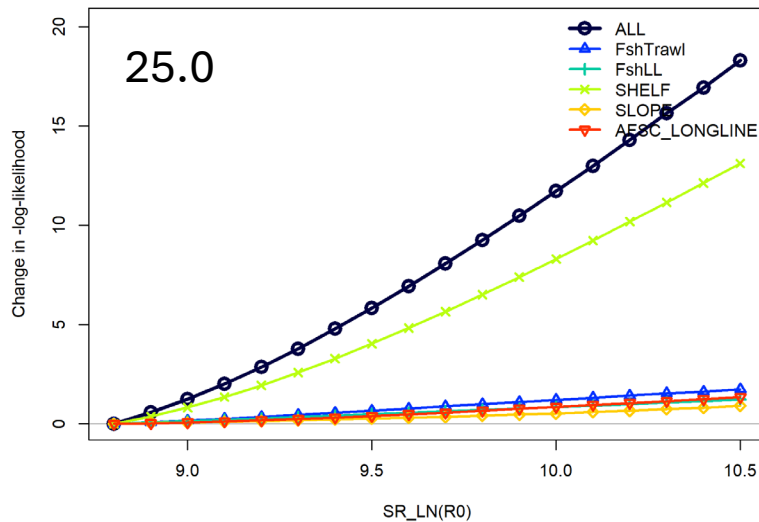


SSB and fishing mortality

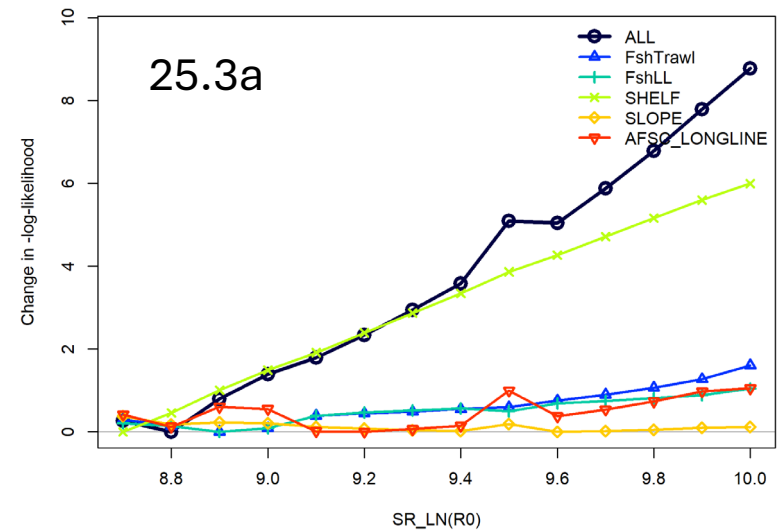


R0 profiles

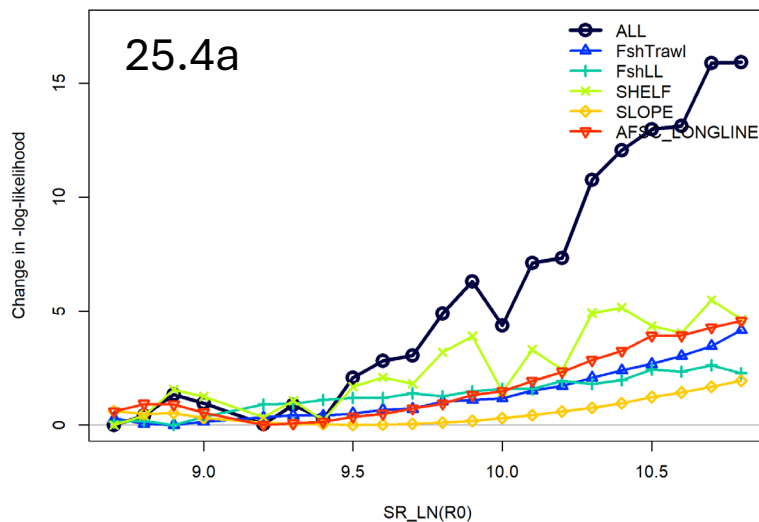
Changes in length-composition likelihoods by fleet



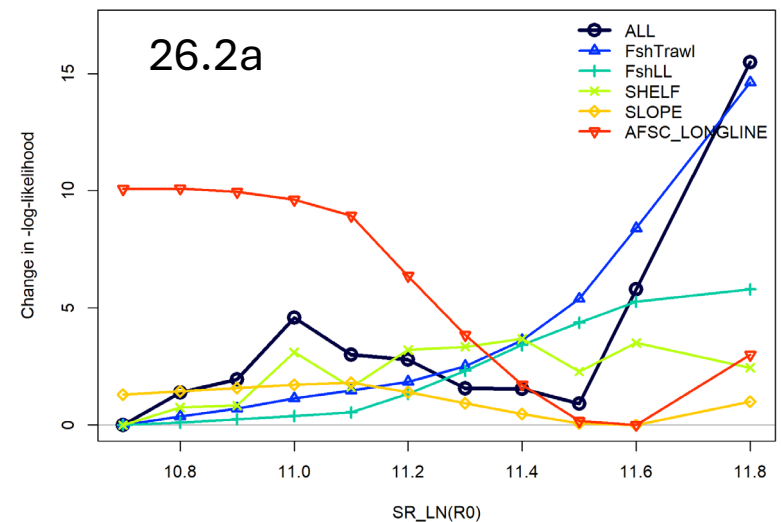
Changes in length-composition likelihoods by fleet



Changes in length-composition likelihoods by fleet

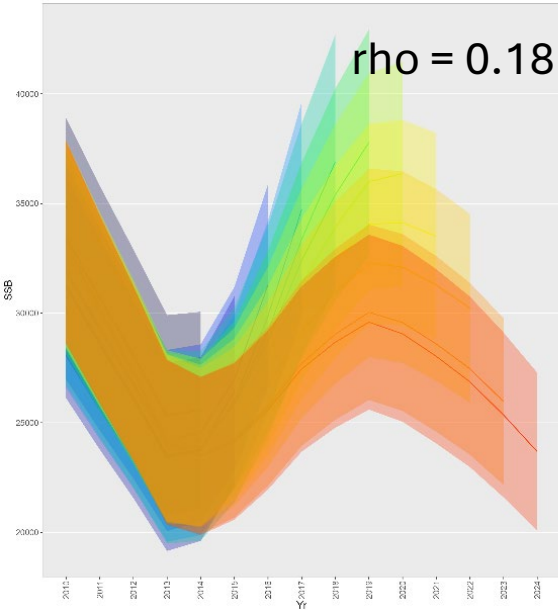


Changes in length-composition likelihoods by fleet

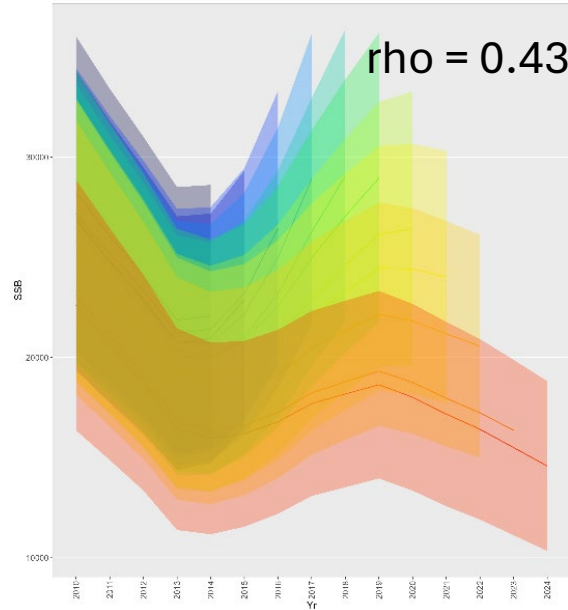


Retrospectives

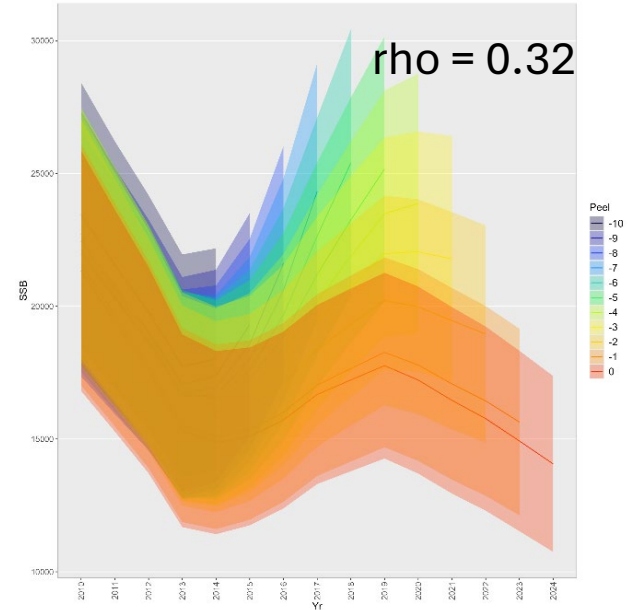
25.0



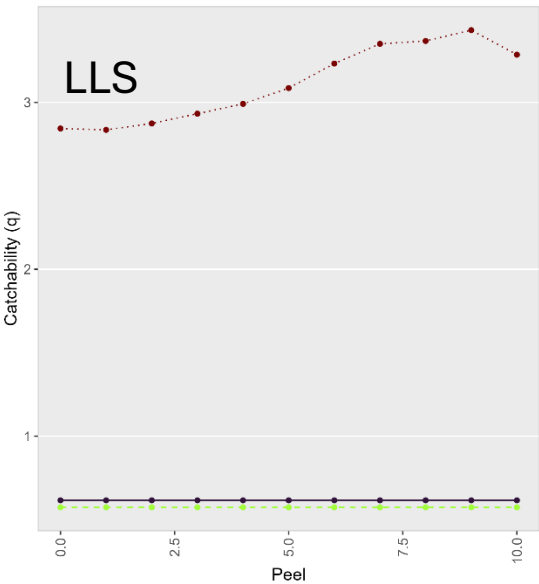
25.3a



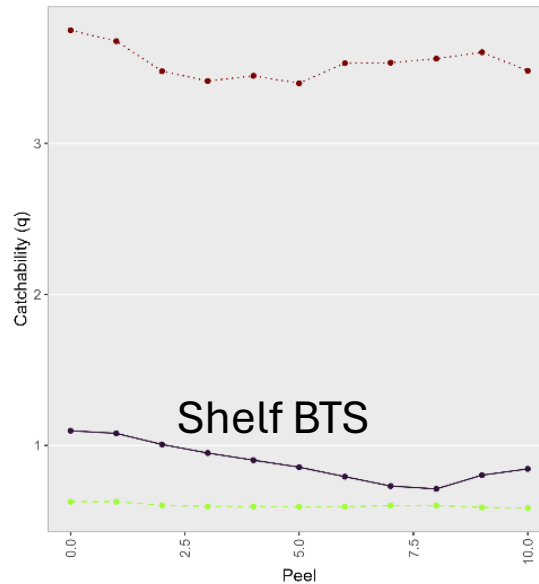
25.4a



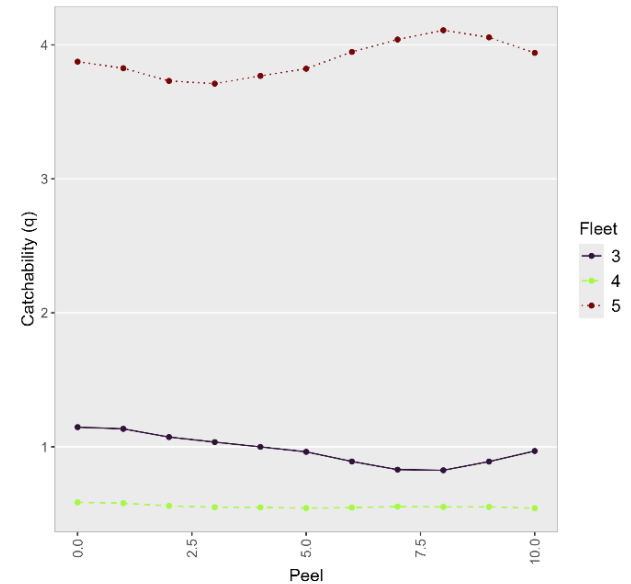
Survey catchability



Survey catchability



Survey catchability



Summary

- Impacts of data weighting and likelihood profile on R0 show that there are several data conflicts in the model
- Recommend bringing forward models 25.0, 25.3a and 25.4a in November
 - Advantage is that they incorporate decision making following best practices

Future steps

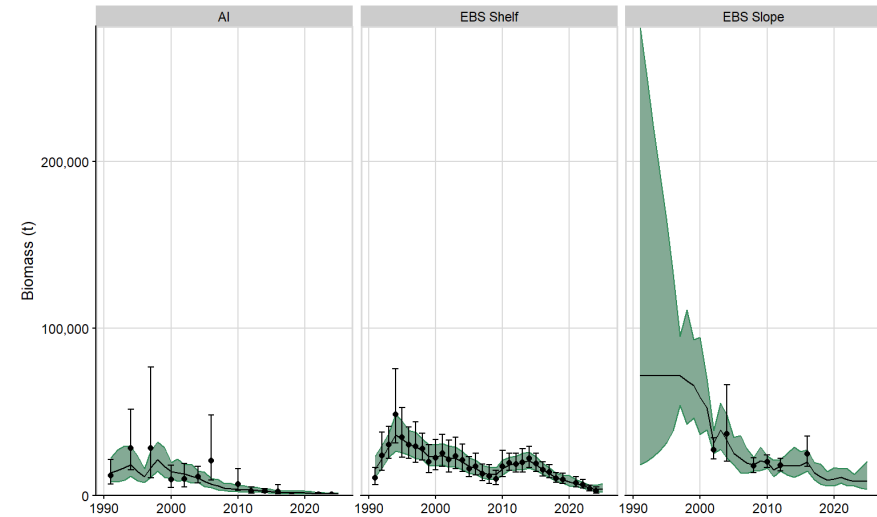
- Model is lacking age data
 - Age data available from the shelf bottom trawl survey and slope bottom trawl survey
 - Age and Growth Program are ageing a single year of fishery otoliths – can we develop informative age distributions from the fishery
 - Can this stabilize the model? Better inform recruitment? Alleviate data conflict?
 - Several years before it will be available for use in model given ageing priorities and staff time
 - We do not have otoliths from longline survey
- Do we conduct update assessments until age data are available?

Future steps

- Do we explore other management options (e.g., tier 4)?
 - Limitation: fairly old maturity ogive (same for assessment model)
- Plan team requested a tier 5 model
 - REMA model
 - Estimated parameters:
 - 2 scaling terms (AI and BS)
 - 2 process error terms (shelf and slope)
 - Fit to:
 - AFSC longline RPWs (BS and AI)
 - AI BTS
 - EBS shelf BTS
 - EBS slope BTS

Model Fits

Bottom Trawl Survey Biomass Strata



Longline Survey Relative Population Weight (RPW) Strata

