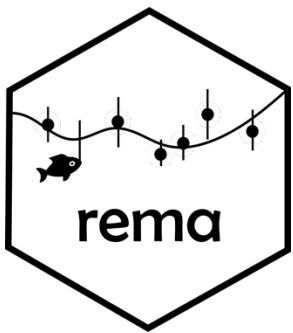# GOA Thornyhead Complex: Model Updates

Kevin Siwicke and Katy Echave

November 2024 GOA Groundfish Plan Team Meeting

Team/SSC Comments

"The Team recommended the use of a common process error across the GOA, and would like to see a comparison of that approach with the current approach that allows process error to vary by subregion. If process errors are treated separately by sub-region, then justification for that decision should be provided." (Plan Team, Nov 22)

"Specific to GOA assessments, the SSC also supports a previous GOA GPT recommendation to use a common process error across the GOA and to compare that approach with the current approach that allows process error to vary by sub-region. If process errors are treated separately by sub-region, then justification for that decision should be provided." (SSC Dec 2022)

We do not have a justification for treating process error separately by area, so we recommend transitioning to a common process error.

GOA Thornyhead Stock Complex

❑ **Tier 5 complex –** represented by shortspine thornyhead *Sebastolobus alascanus* (longspine thornyhead *S. altivelis* in complex but not model*)*

❑ **Changes in the input data**

1. Total catch was updated with partial 2024 data through 7 October 2024.

2. Fishery lengths from the 2023 and 2024 longline and trawl fisheries.

3. AFSC bottom trawl survey lengths from 2023.

4. AFSC longline survey lengths from 2023.

5. AFSC longline survey RPWs and errors from 1992 to 2023 updated.

6. AFSC bottom trawl survey biomass and errors from the 1990 to 2023 updated.

❑ **Changes in assessment methodology –** Transition from three area-specific PE to one.

NOAA FISHERIES

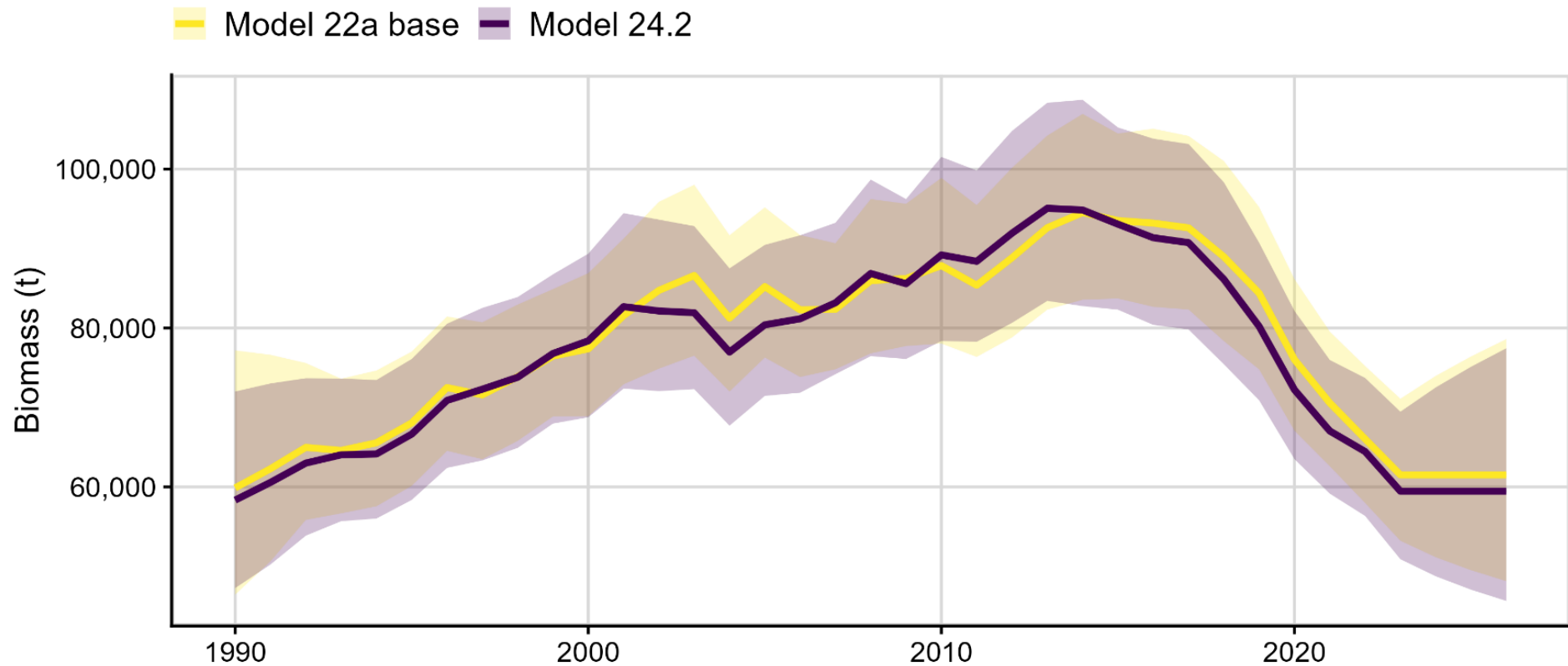# Catch Status – 2024

Area	OFL	ABC	TAC	Catch
W	n/a	314	314	34
C	n/a	693	693	62
E	n/a	621	621	61
Total	2,170	1,628	1,628	157*

*Catch as of Oct. 7, 2024

- Current 2024 catch is 25% below 2023 Total
- Catch is at 10% of GOA-wide ABC
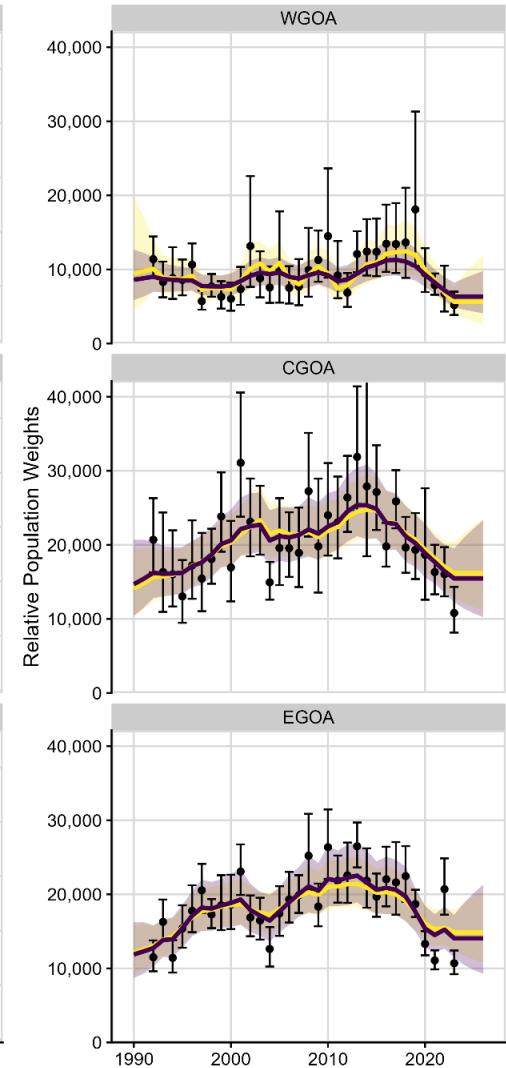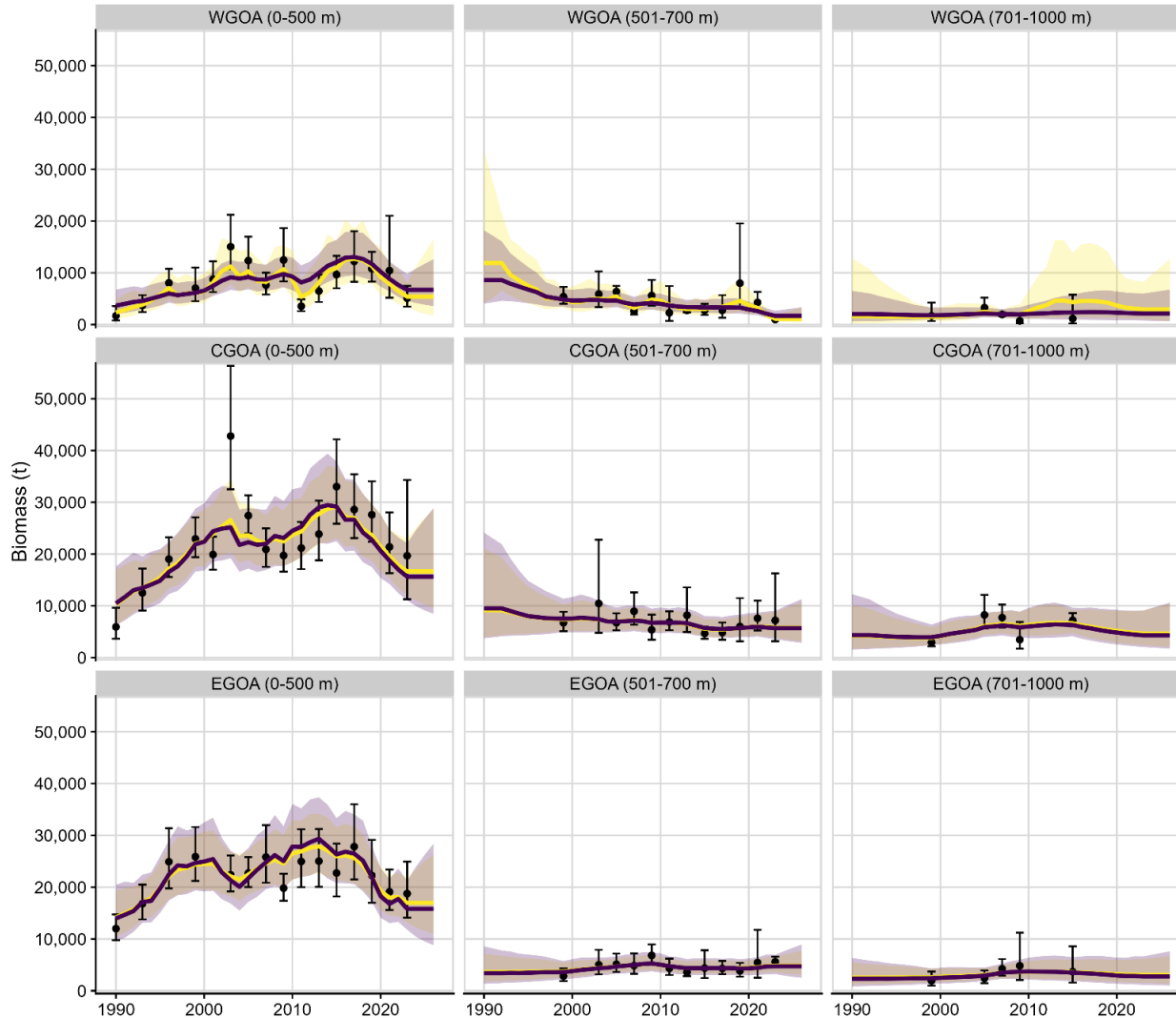
Model 22a: Base, 3-region specific PE
Model 24.2: 1-shared PE

Trawl Survey (biomass)

Longline Survey (Relative Population Weights)

Changes to Parameters

Model	Process Error(s)	Scaling (q)	Addt'l Obs. Err.
22a	WGOA: 0.306 CGOA: 0.130 EGOA: 0.106	0.600	BTS: 0.161 LLS: 0.151
24.2	Shared: 0.149	0.603	BTS: 0.249 LLS: 0.141

GOA Thornyhead Recommendations

Quantity	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
	2024	2025	2025	2026
M (natural mortality rate)	0.03	0.03	0.03	0.03
Tier	5	5	5	5
Biomass (t)	72,349	72,349	59,459	59,459
F_{OFL}	$F = M = 0.03$	$F = M = 0.03$	$F = M = 0.03$	$F = M = 0.03$
$maxF_{ABC}$	$0.75M = 0.0225$	$0.75M = 0.0225$	$0.75M = 0.0225$	$0.75M = 0.0225$
F_{ABC}	0.0225	0.0225	0.0225	0.0225
OFL (t)	2,170	2,170	**1,784**	1,784
maxABC (t)	1,628	1,628	1,338	1,338
ABC (t)	1,628	1,628	**1,338**	1,338
Status	As determined *last* year for:		As determined *this* year for:	
	2022	2023	2023	2024
Overfishing	No	n/a	No	n/a

GOA Thornyhead Area Allocation

Area	2025 Biomass (t)	% of Biomass	ABC (t)	% Change from 2024
Western GOA	10,514	15%	206	-34%
Central GOA	25,643	44%	590	-17%
Eastern GOA	23,302	41%	542	-13%
GOA-wide	59,459	100%	1,338	-18%

- ~84% of decline from new/updated survey data
- ~16% related to the model change

CGOA Rockfish Program (RP)
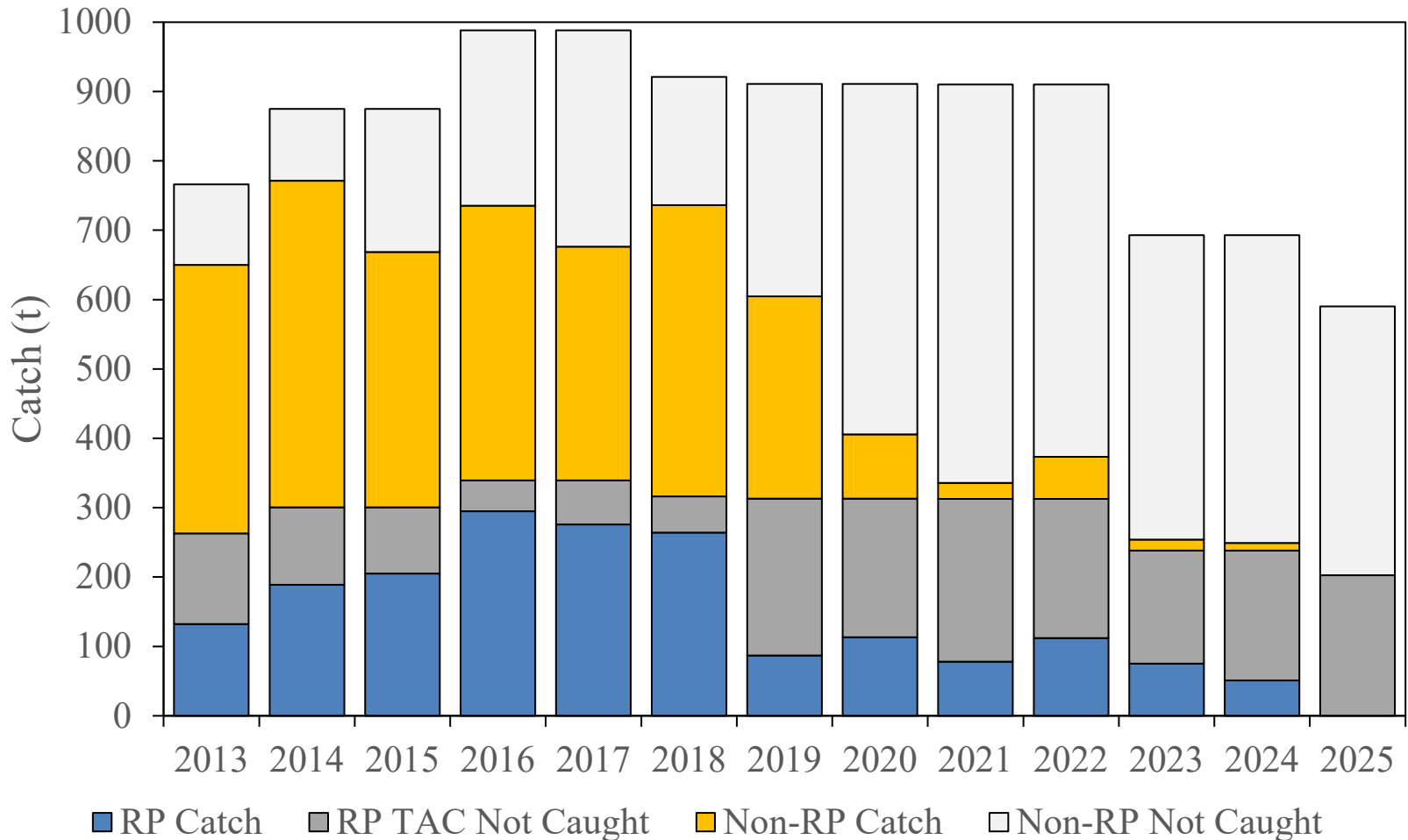
2025 breakout: CV ~46 t, CP ~156 t

Thornyhead: Stock Structure Summary (Echave)

- **Data do not suggest that changes to mgmt regime are necessary**
  - Data is limited
  - Genetics indicate a single genetic stock in Alaska waters
  - No within GOA differences in growth
  - Movement is possible but most stay within their tagging location
  - Consistent fishing effort with abundance distribution
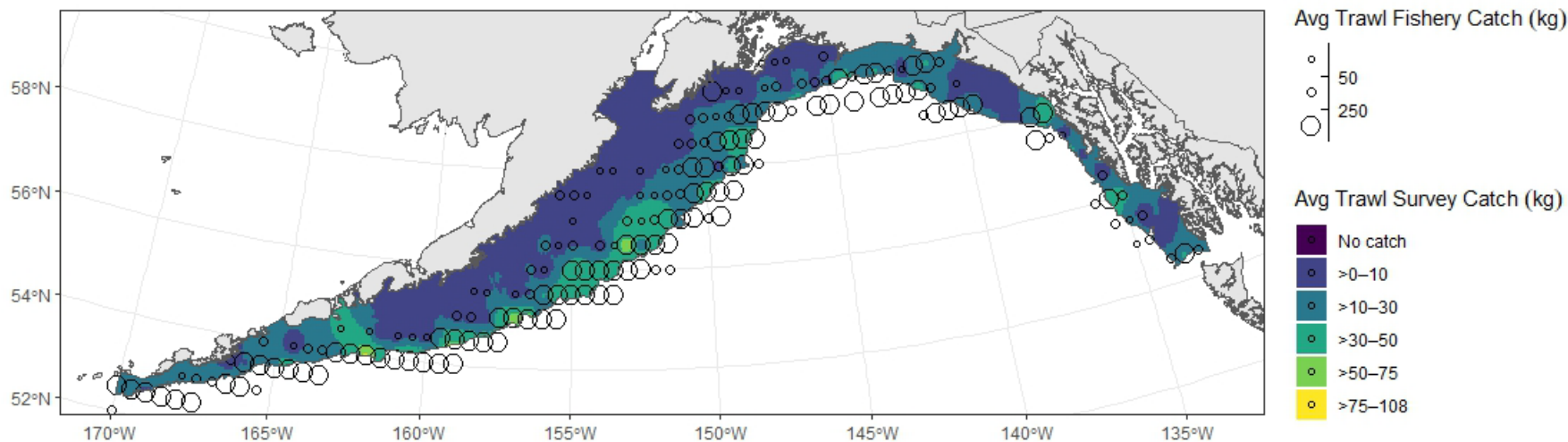
Author Recommendations:

- Use Model 24.2 with single process error, single scaling coefficient, and additional observation error for both surveys.
- Note the low catches following sablefish transition to pots.

Thank You

Feedback and Questions?