

# C2 Gulf of Alaska Groundfish November 2024 Plan Team Report

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**NOAA**  
**FISHERIES**



December 2024, Presentation to the Council

# GF Plan Team Meetings, November 12-15<sup>th</sup>, 2024

## Meeting of the Gulf of Alaska Groundfish Plan Team

Plan Team Report

November 12-15, 2024

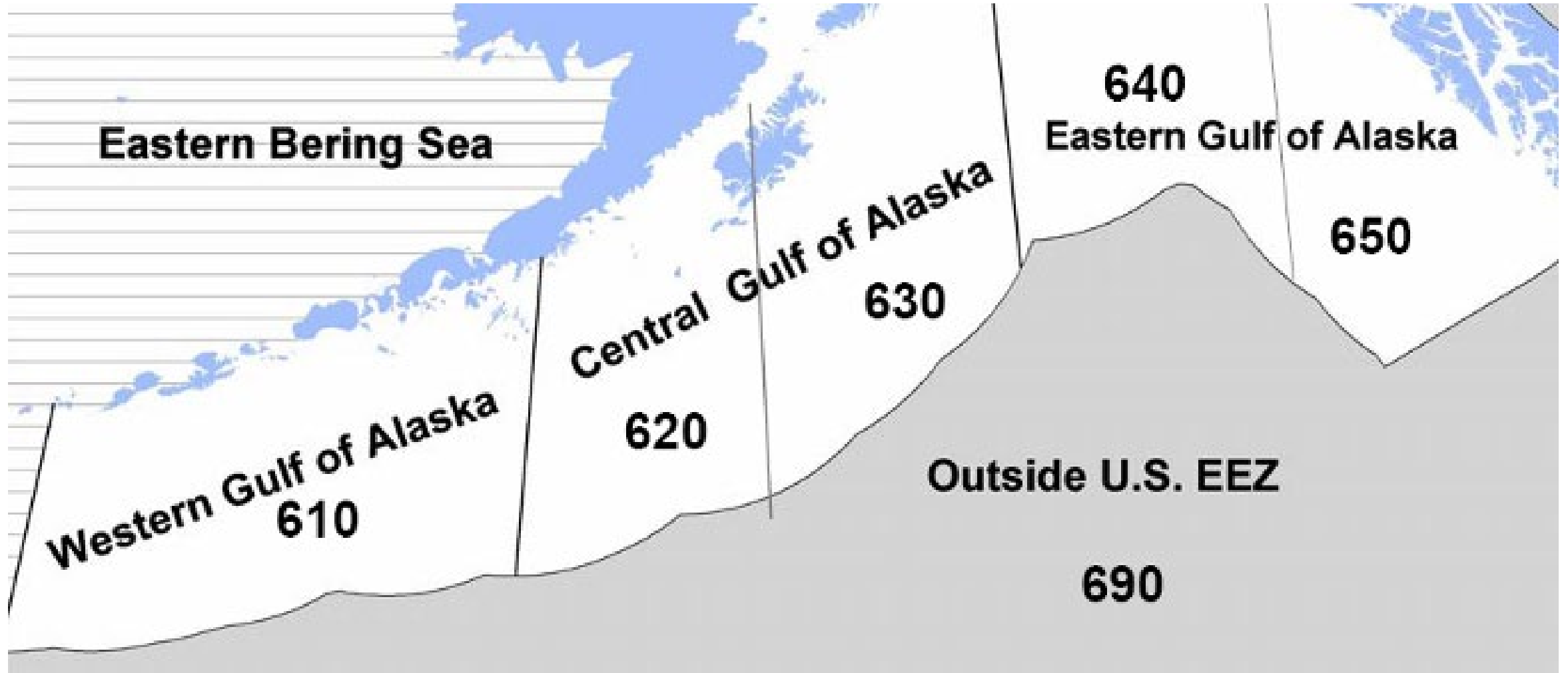
### GOA Groundfish Plan Team Members:

Jim Ianelli	AFSC REFM (co-chair)	Sandra Lowe	AFSC REFM
Chris Lunsford	AFSC ABL (co-chair)	Nat Nichols	ADF&G
Sara Cleaver	NPFMC (coordinator)	Jan Rumble	ADF&G
Abby Jahn	NMFS AKRO	Paul Spencer	AFSC REFM
Craig Faunce	AFSC FMA	Ben Williams	AFSC ABL
Lisa Hillier	WDFW	James Thorson	AFSC REFM
Pete Hulson	AFSC ABL	Sophia Wassermann	AFSC RACE

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# GOA Assessment Overview

Off year = no trawl survey



GOA Groundfish stock  
assessment *plans*  
2024-2027

Key: ◆ operational, harvest projection, "—" catch report, and blank is nothing

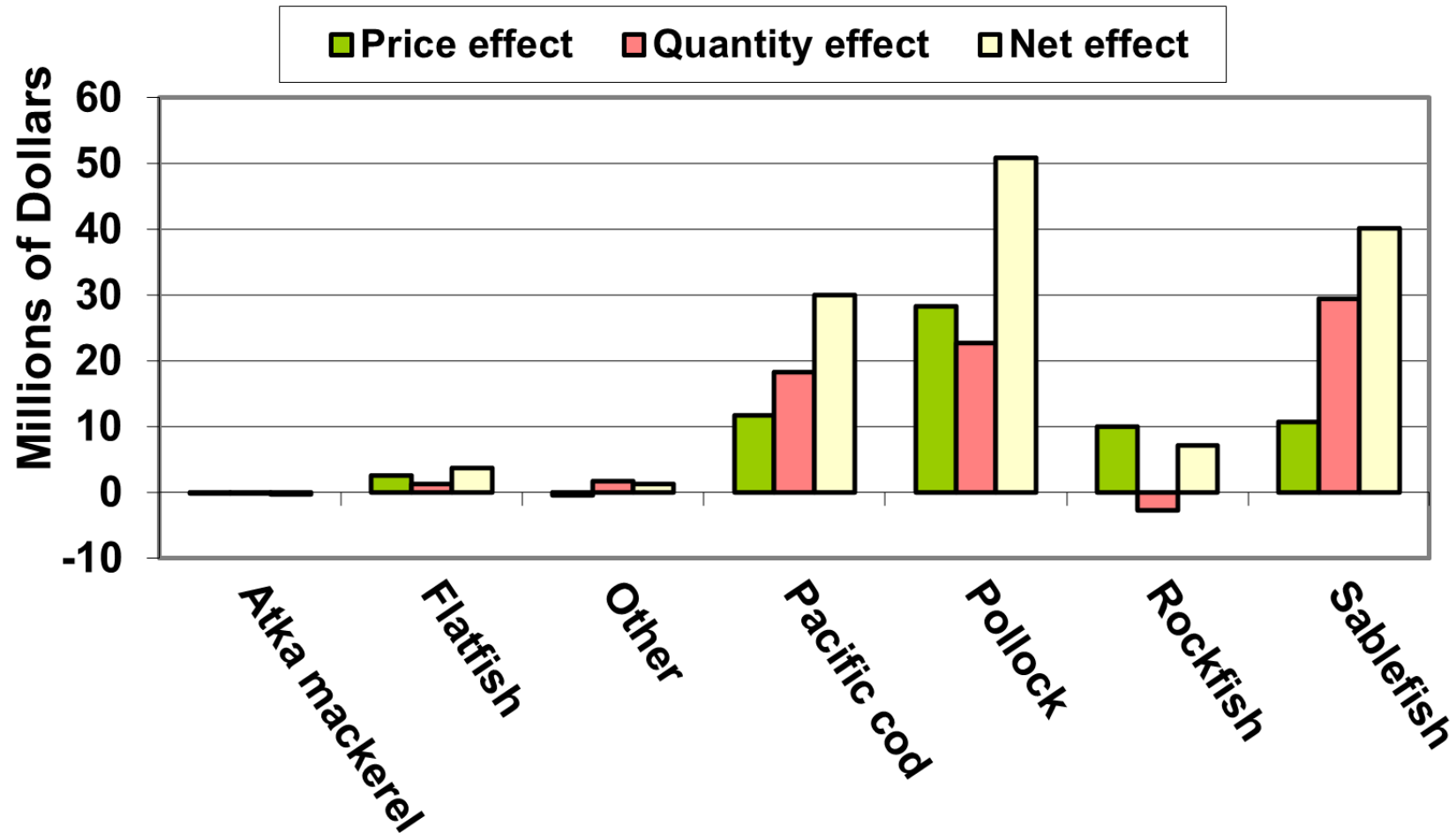
Stock	Tier	Freq.	Last Full	2024	2025	2026	2027
Pollock	3	1	2023	◆	◆	◆	◆
Pacific cod	3	1	2023	◆	◆	◆	◆
Sablefish	3	1	2023	◆	◆	◆	◆
Dusky rockfish	3	2	2022	◆		◆	
Northern rockfish	3	2	2022	◆		◆	
Pacific ocean perch	3	2	2023		◆		◆
Rougheye & blackspotted rockfish	3	2	2023		◆		◆
Shortraker rockfish	5	2	2023	—	◆	—	◆
Skates	5	2	2023	—	◆	—	◆
Thornyheads	5	2	2022	◆	—	◆	—
Demersal shelf rockfish	4, 5, 6	2	2022	◆	—	◆	—
Other rockfish	4, 5, 6	2	2023	—◆	◆?	—	◆
Forage species (w/ squid)	Eco rep	2	2022	◆		◆	
Arrowtooth flounder	3	4	2021		◆		
Flathead sole	3	4	2022			◆	
Rex sole	3	4	2021		◆		
Atka mackerel	6	4	2021	—	◆	—	—
Octopus	6	4	2021	—	◆	—	—
Shallow water flatfish (incl. N/S rock sole)	3, 5	4	2021		◆		
Deep water flatfish (incl. Dover sole)	3, 6	4	2023				◆
Sharks	5, 6	4	2022	—	—	◆	—
Grenadiers	Eco rep	4	2020	◆			
Sculpins	Eco rep	4	2023				◆

# GOA Ecosystem status report—Plan Team discussion

- No formal recommendations but...ideas for future work:
  - Explore portfolio effects methods for community-wide consumption
  - Validate conceptual models
  - Develop composite indicators
  - Explore ecosystem dynamics due to trawling  
(EGOA vs CGOA/WGOA)
  - Provide a recap of previous year's highlights

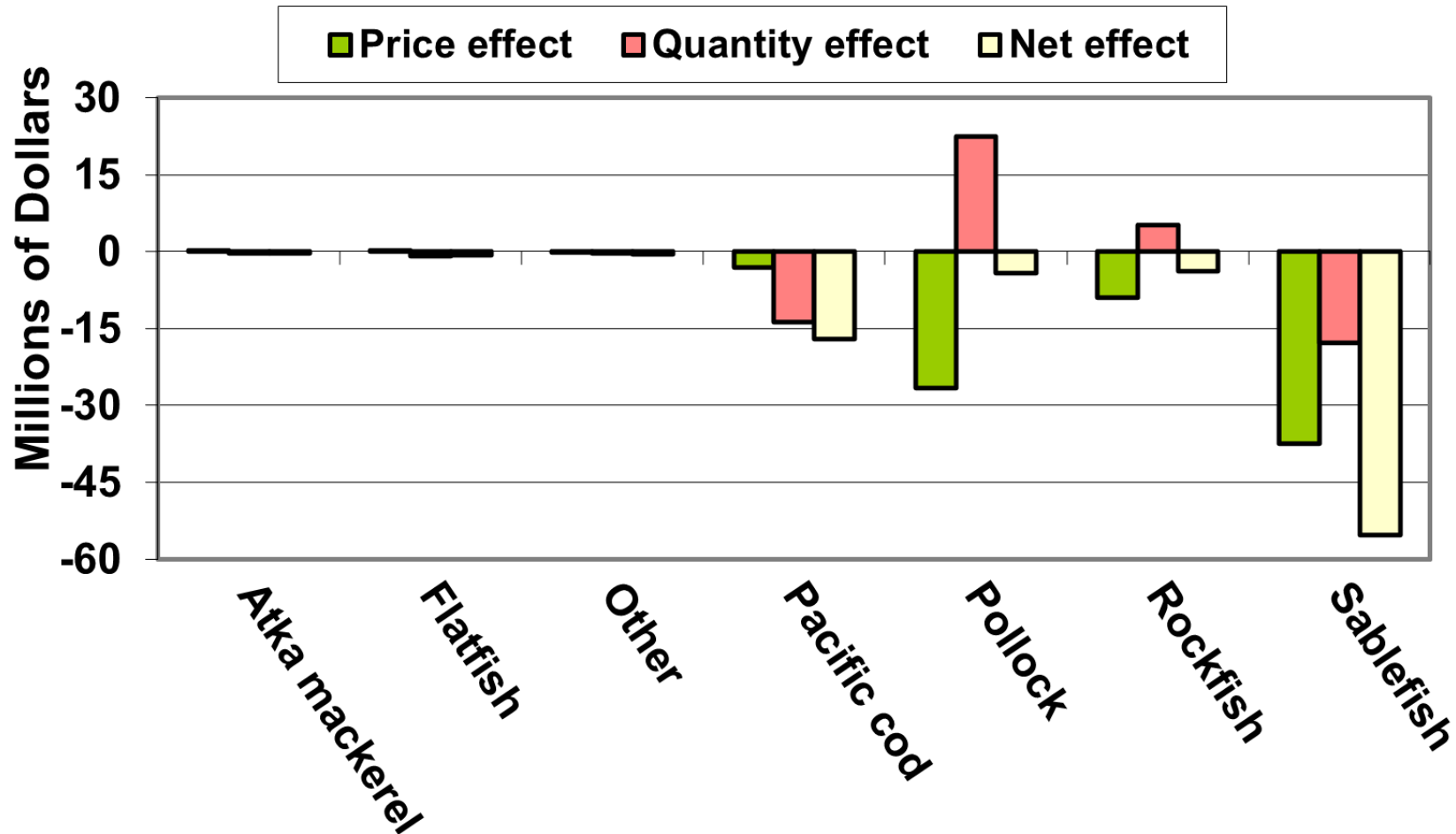
# Revenue changes (and source), 2021-2022

## GOA First-Wholesale Revenue Change in 2021-2022 Decomposed by Species Group

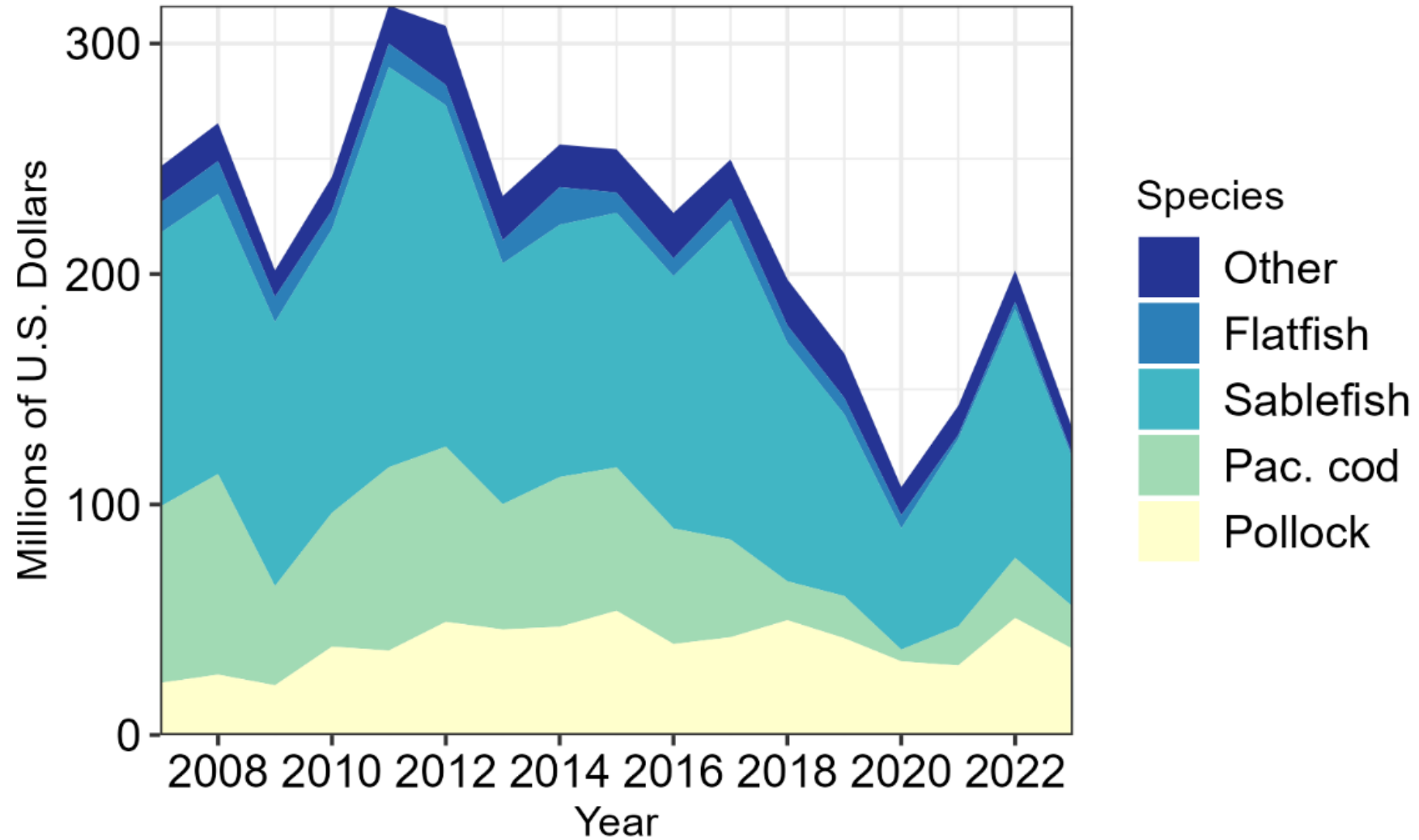


# Revenue changes (and source), 2022-2023

## GOA First-Wholesale Revenue Change in 2022-2023 Decomposed by Species Group

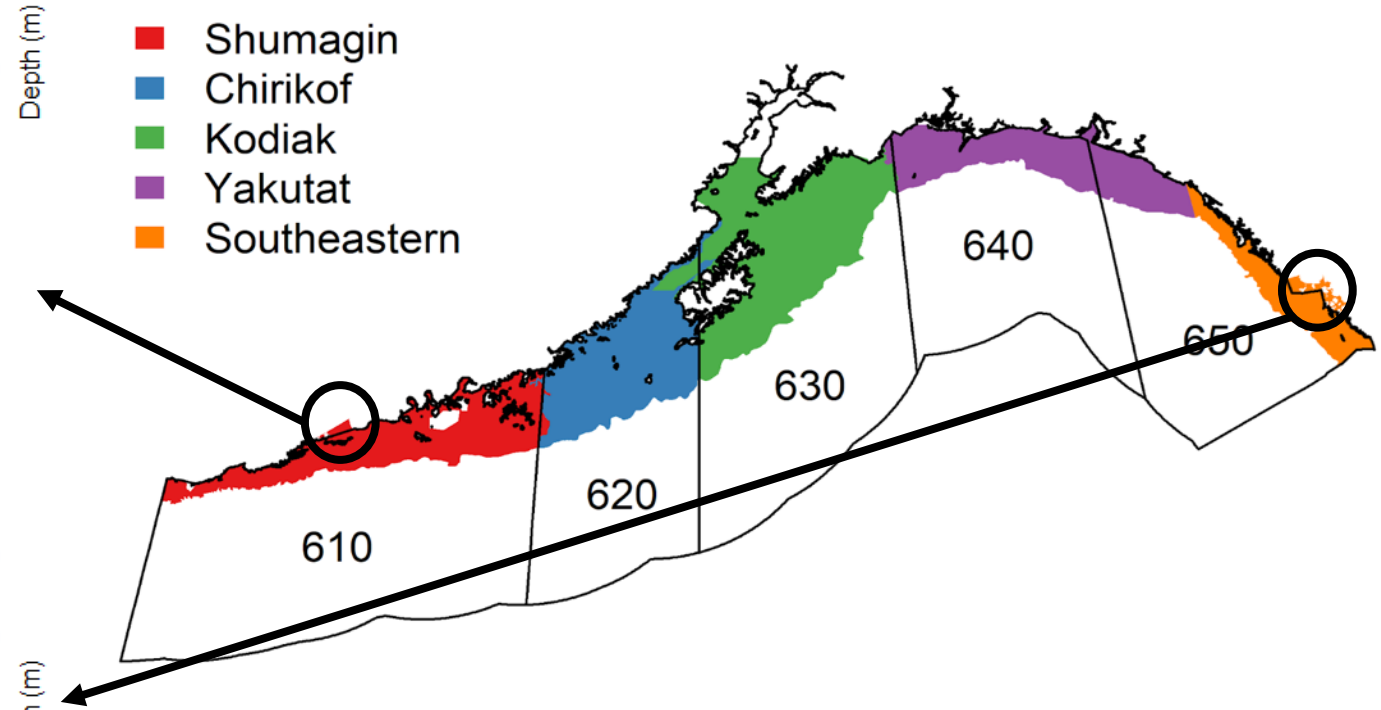
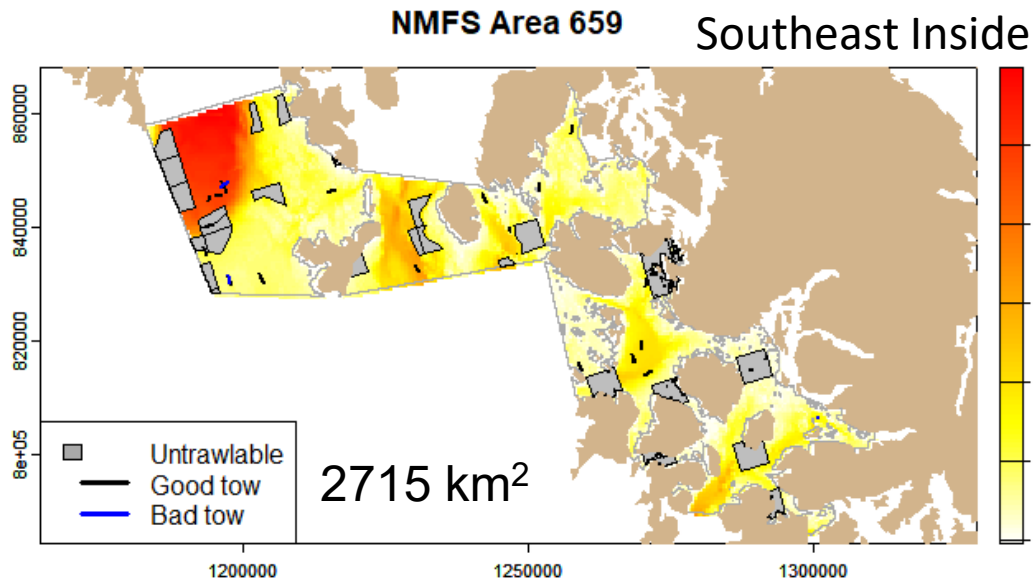
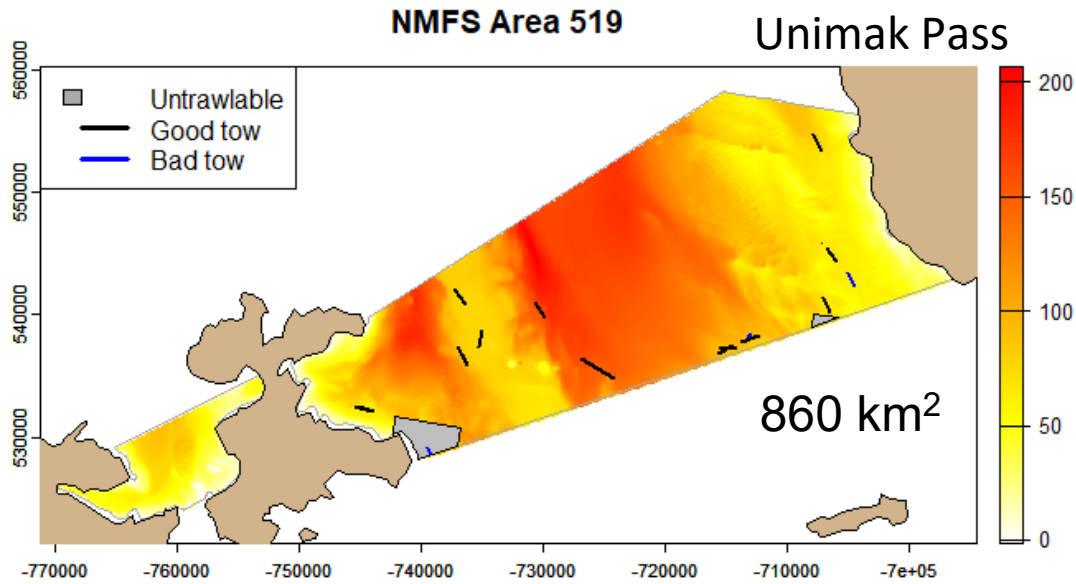


# GOA Economic synopsis: Ex-vessel value





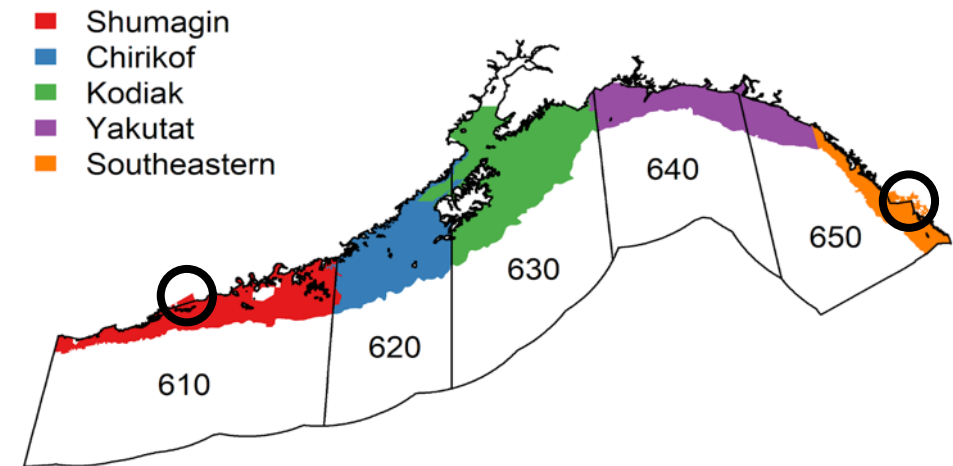
# 2025 GOA bottom-trawl survey re-stratification



*Percent reduction of historic GOA survey sampling areas:  
Across entire GOA, ~ 1.4% reduction of area  
In the Western GOA regulatory area, ~1.3% reduction  
In the Eastern GOA regulatory area, ~3.2% reduction*

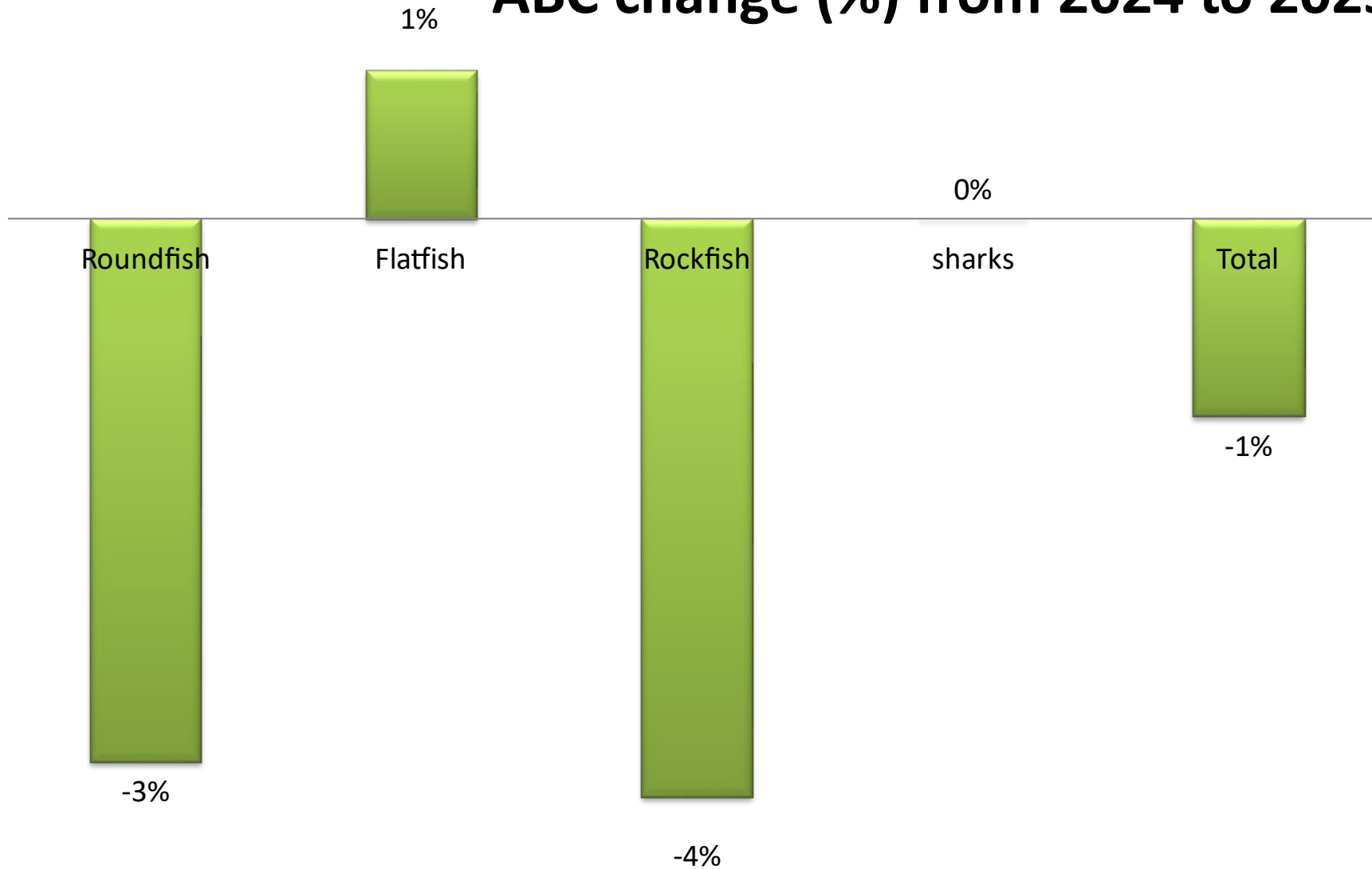
# 2025 GOA bottom-trawl survey re-stratification

- ❖ The Team agreed re-stratification an improvement and recommended:
  - ❖ re-calculating the time series of design-based indices of abundance and age composition in steps
  - ❖ Present percent differences by area and combined
  - ❖ assuring shapefiles be available
  
- ❖ To be taken up internally at AFSC



# 2024-2025 ABC change

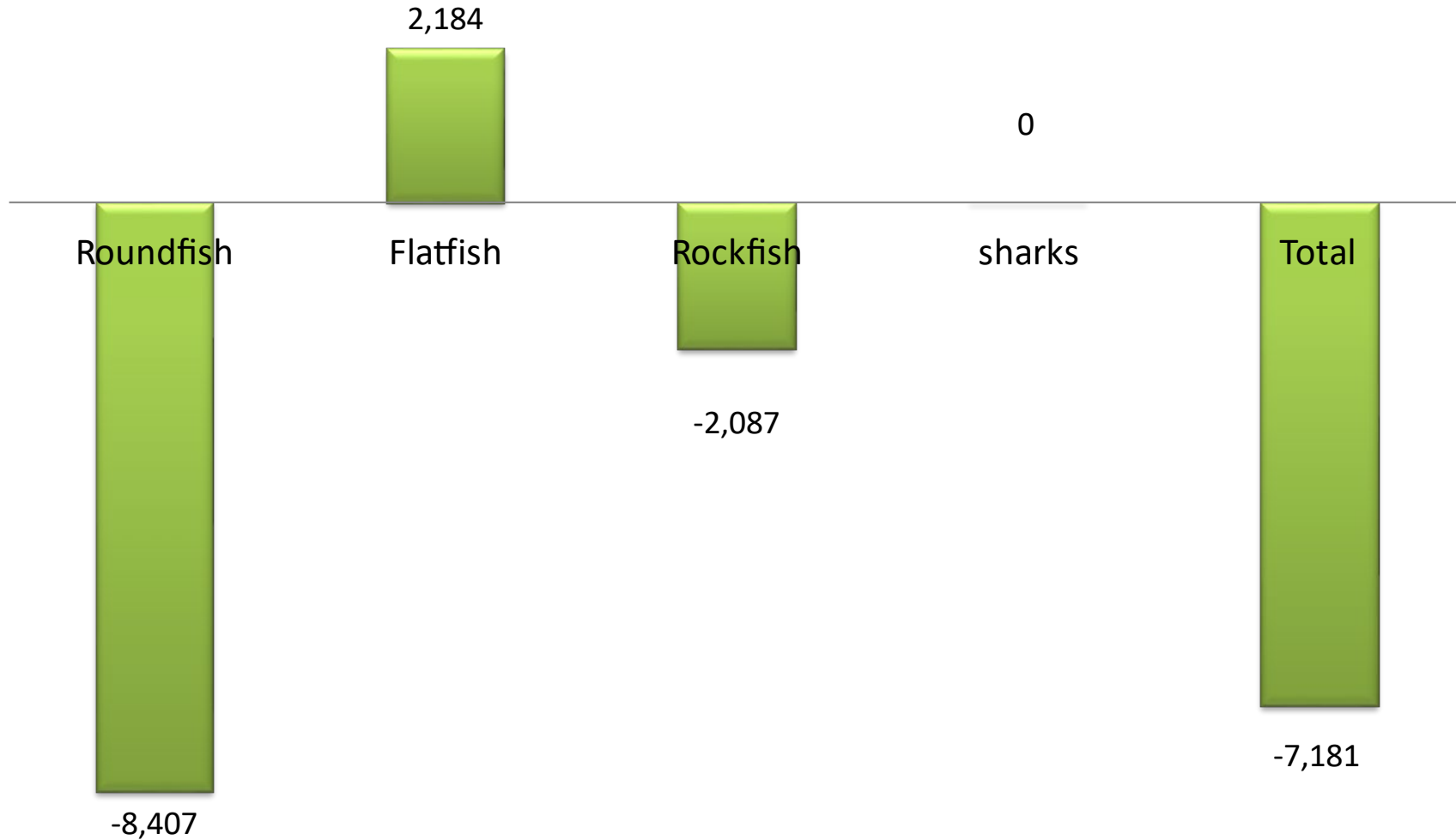
## ABC change (%) from 2024 to 2025



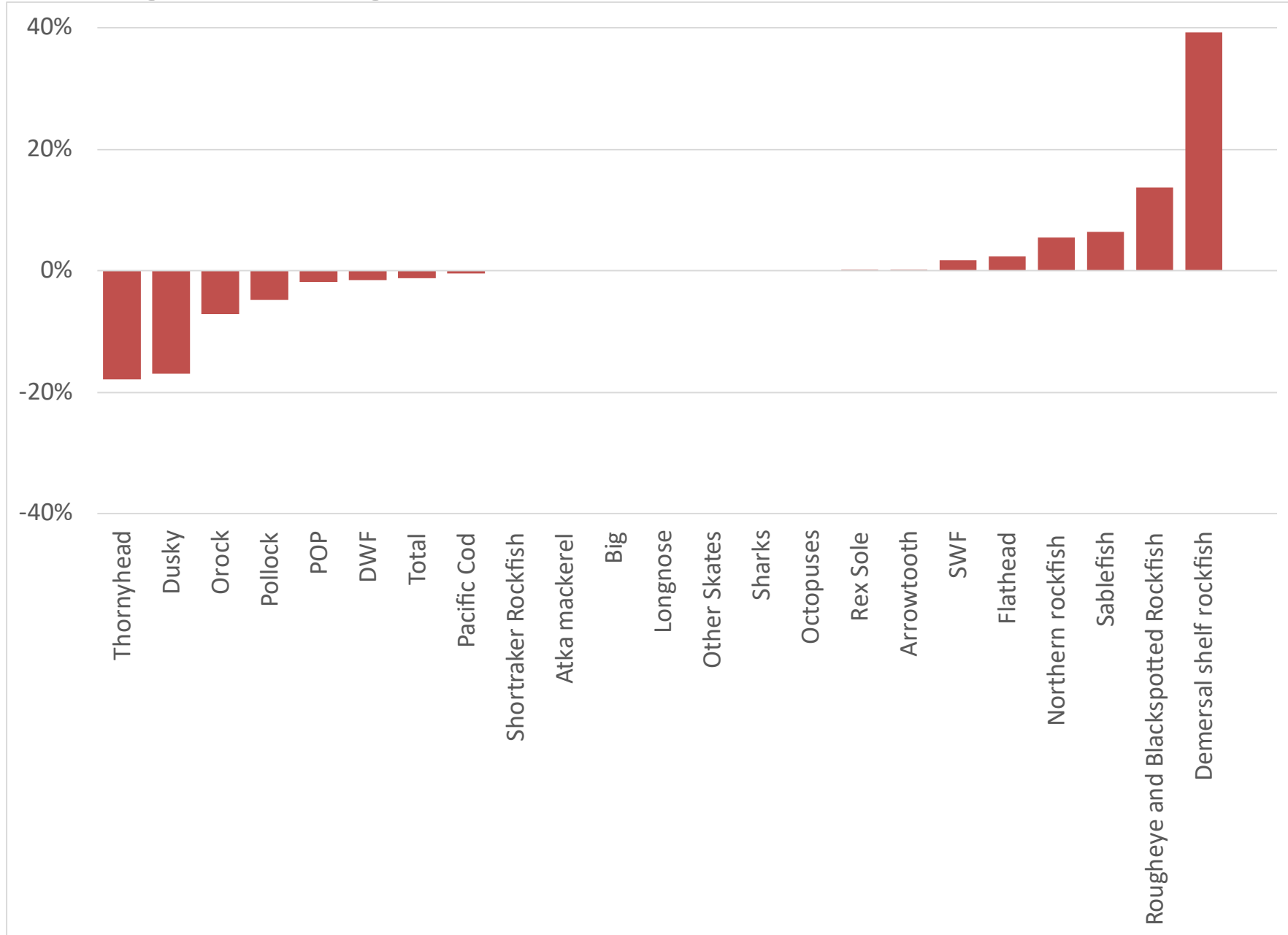
Overall a 1% decrease

# 2024-2025 ABC change

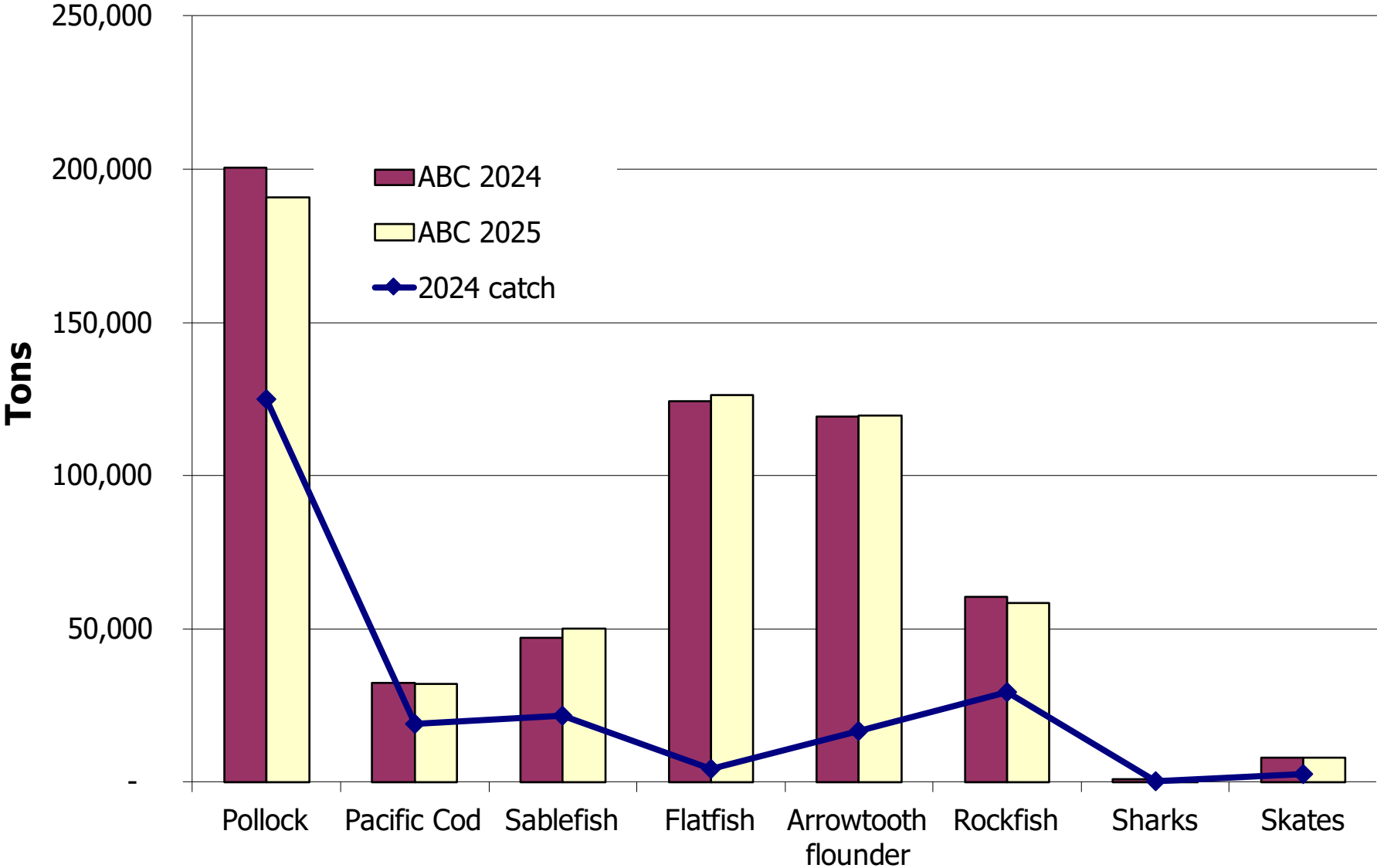
## ABC change (tons) from 2024 to 2025



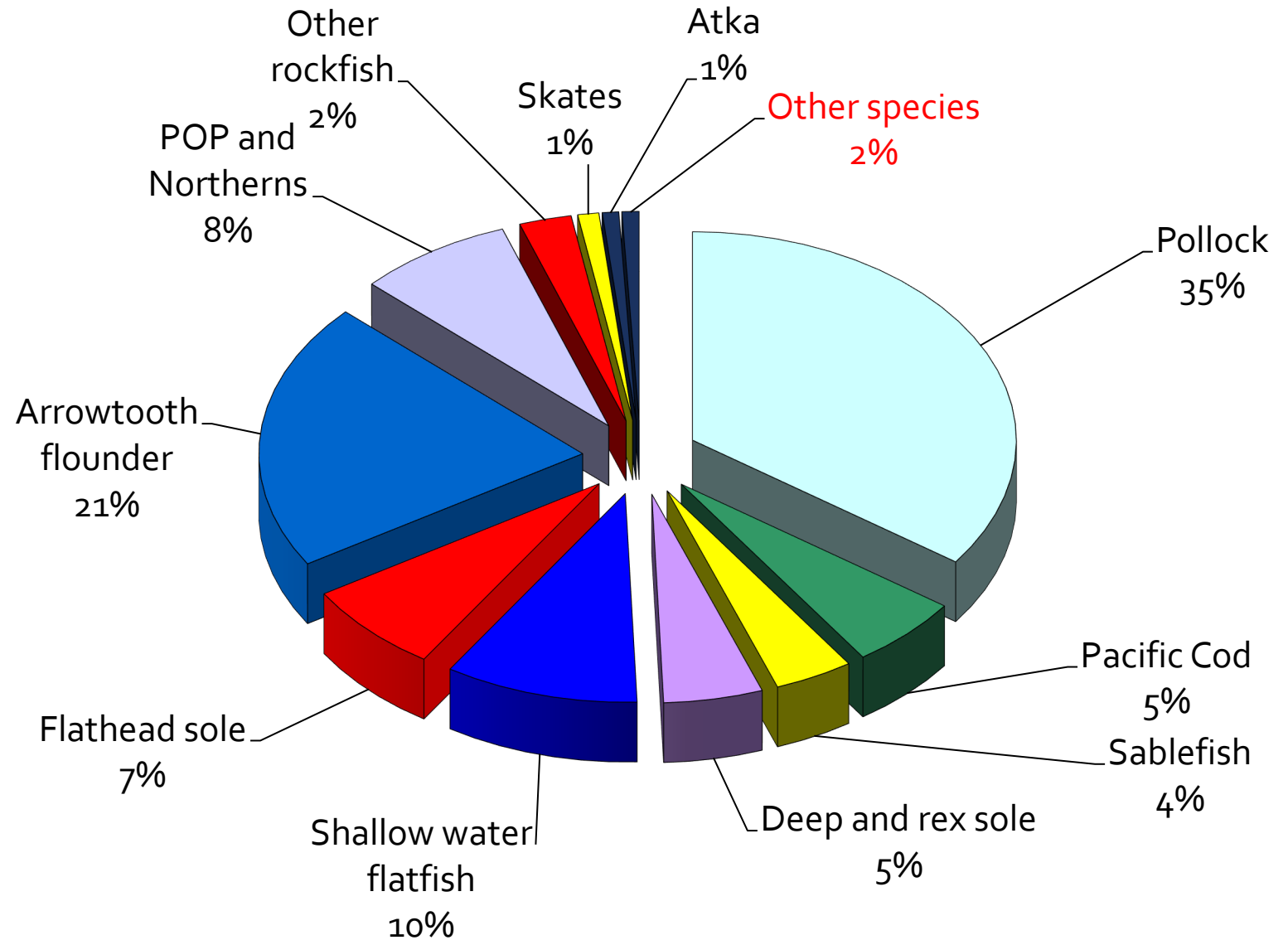
# Percentage change in ABC, 2024-2025



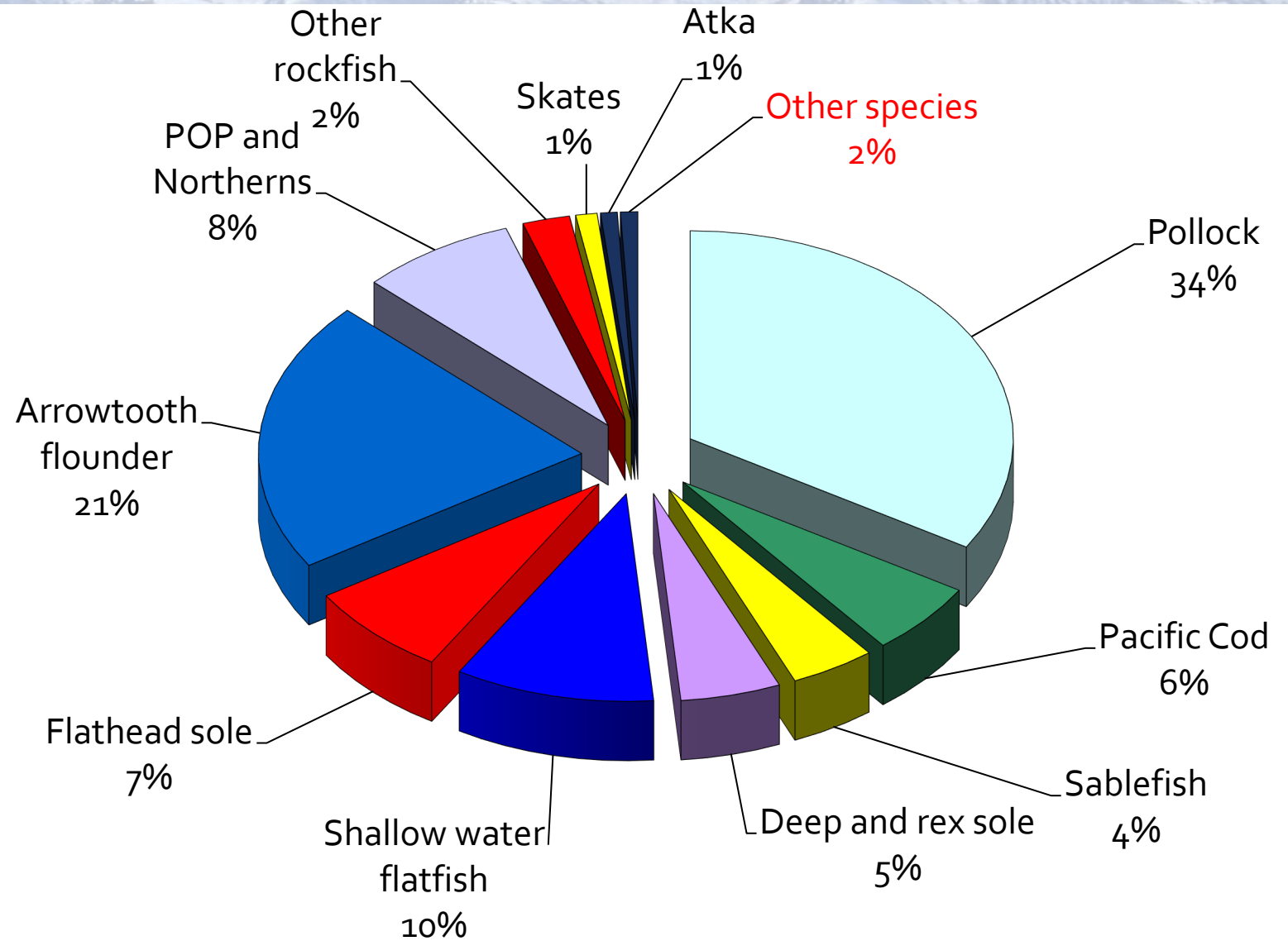
# GOA Catch and ABC levels



# GOA 2024 ABC's: 575,234 t

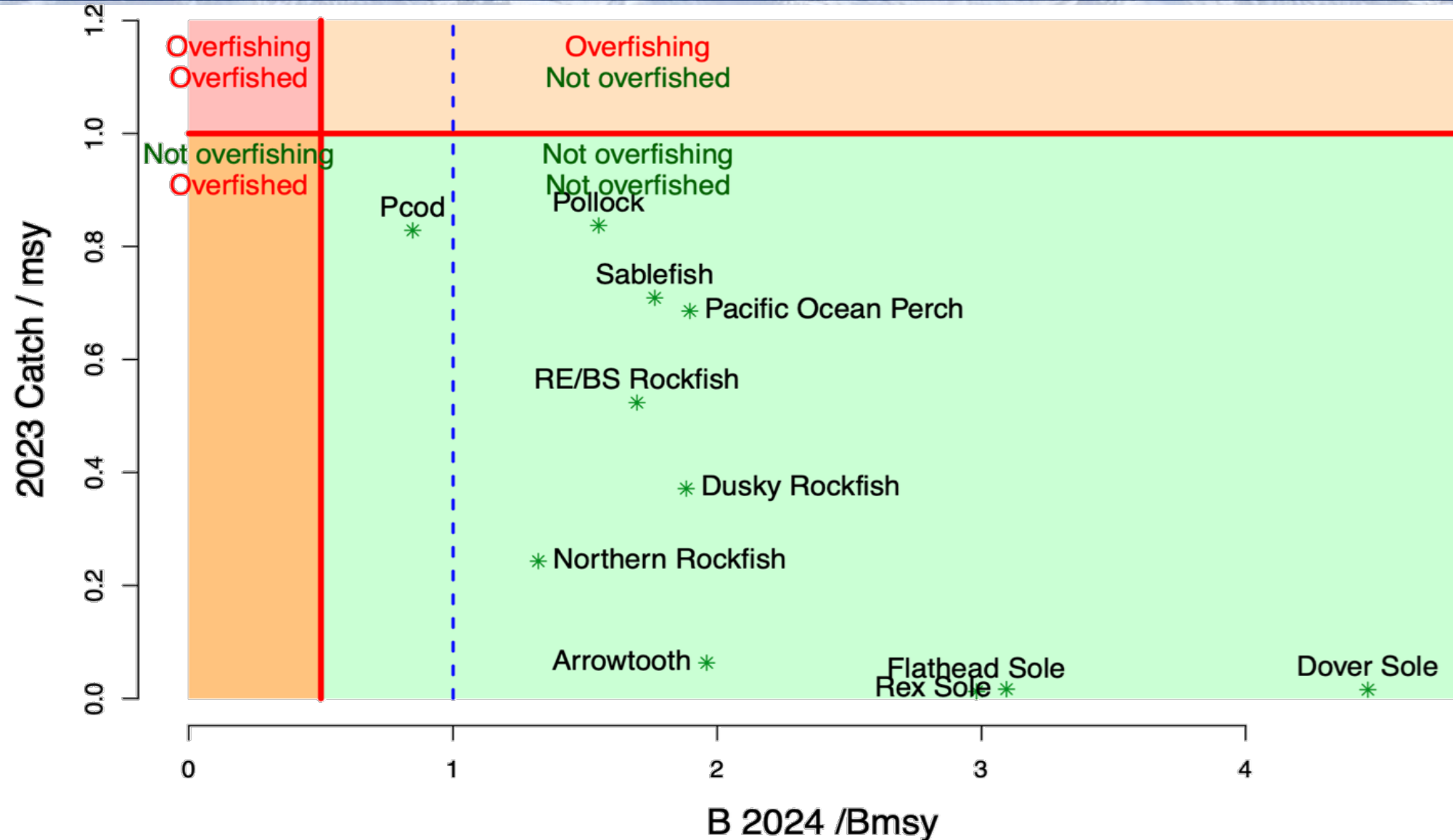


# GOA 2025 ABC's: 566,924 t

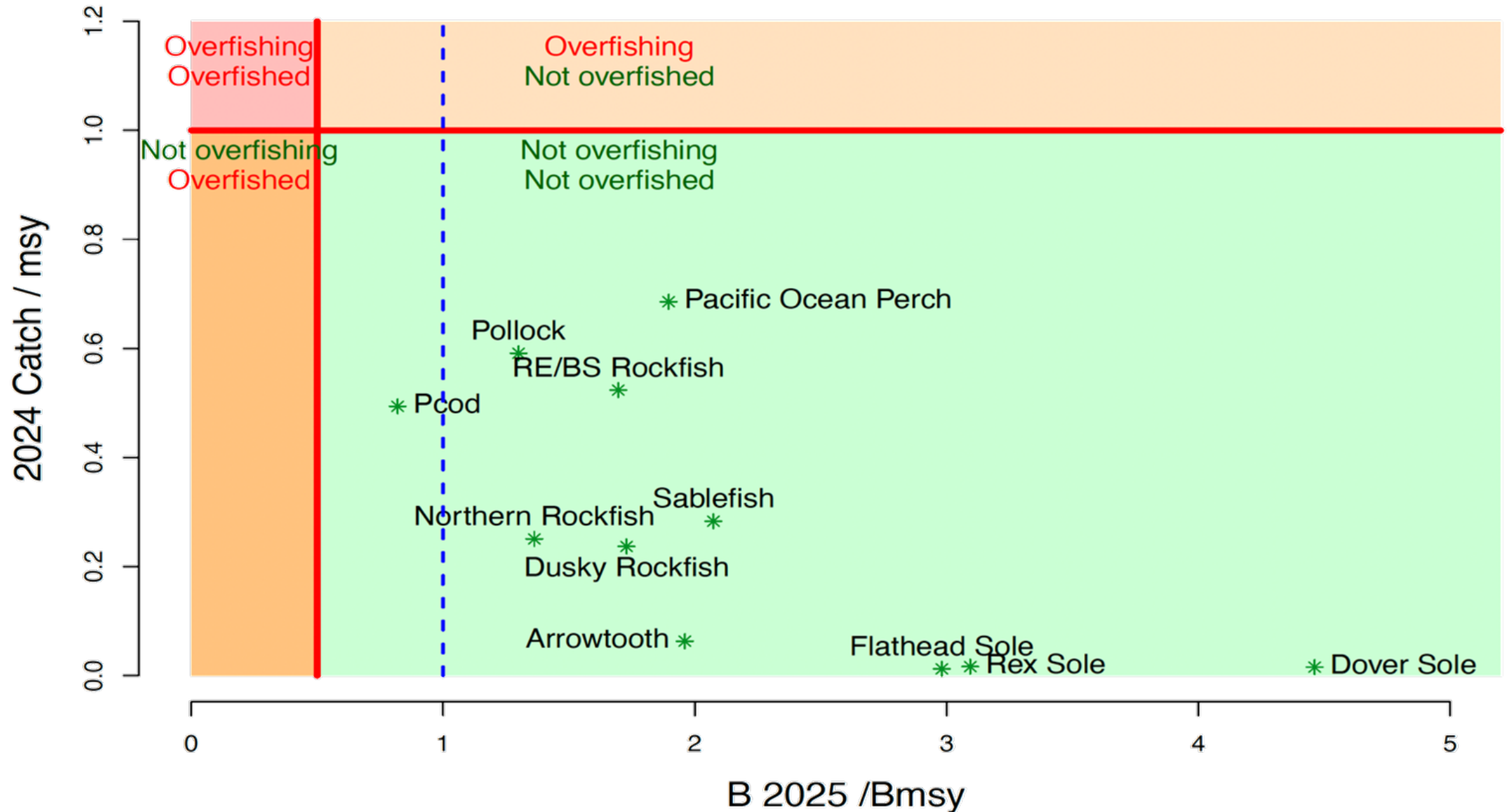




# Stock status summary **last** year



# Stock status summary **this** year



# Species overviews

1. 2024 ABC/Catch and recommended changes
2. Highlights
  - New data
  - Analytic approach (changes)
3. Stock status and trend
4. ABC/OFL
  - Tier history and recommendations
  - 2025, 2026 maxABC; recommended ABC

# GOA Pollock

Species	2024 catch	ABC 2024	ABC 2025	Change
Pollock	124,944	200,489	190,771	down 9,718 (5%)
Pacific Cod	19,106	32,272	32,141	down 131 (0%)
Sablefish	15,686	22,596	24,038	up 1,442 (6%)
Flatfish	4,304	124,494	126,380	up 1,886 (2%)
Arrowtooth flounder	16,866	119,249	119,547	up 298 (0%)
Rockfish	29,727	59,527	57,440	down 2,087 (4%)
Atka mackerel	380	4,700	4,700	same (0%)
Skates	2,381	6,036	6,036	same (0%)
Sharks	1,288	4,891	4,891	same (0%)
Octopus	197	980	980	same (0%)
Total	214,879	575,234	566,924	down 8,310 (1%)

# GOA Pollock Ecosystem and Socioeconomic Profile (ESP)



## Ecosystem (ABC Information):

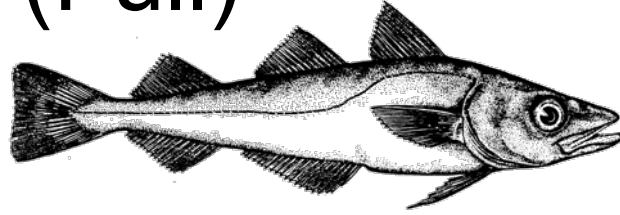
- Overall average (YOY ↑, juv ↔, adult ↓)
- Heatwave absent, avg temp, moderate habitat conditions, few larval indicators (no survey) but sufficient prey based on seabirds
- High nearshore CPUE in beach seine
- Adult condition mixed, low biomass consumed, but high sablefish and POP
- DSEM + integrated in model

## Socioeconomic (TAC Information):

- CPUE decreased in winter & spring, less concentrated
- May impact roe quality, ex-vessel price low



# GOA Pollock (Full)



**Author's 2025 ABC = 181,022 t**

- Increase of 56% from 2023
- 2026 ABC decreases to 133,075 t
- No reduction from max ABC

**Changes (cumulative) to model:**

- 23a: Revamped ISS & CVs
- 23b: Environmental covariate on catchability
- 23c: Remove age 1 and 2 Shelikof indices
- **23d: Use Dirichlet-multinomial**

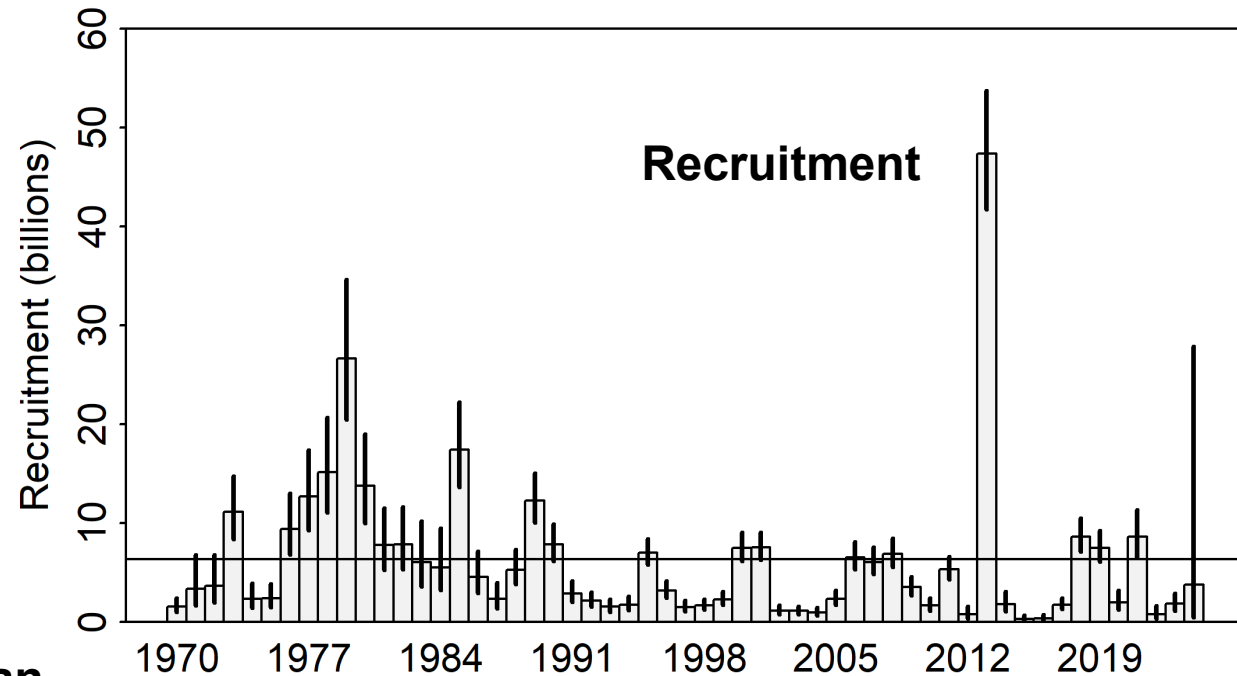
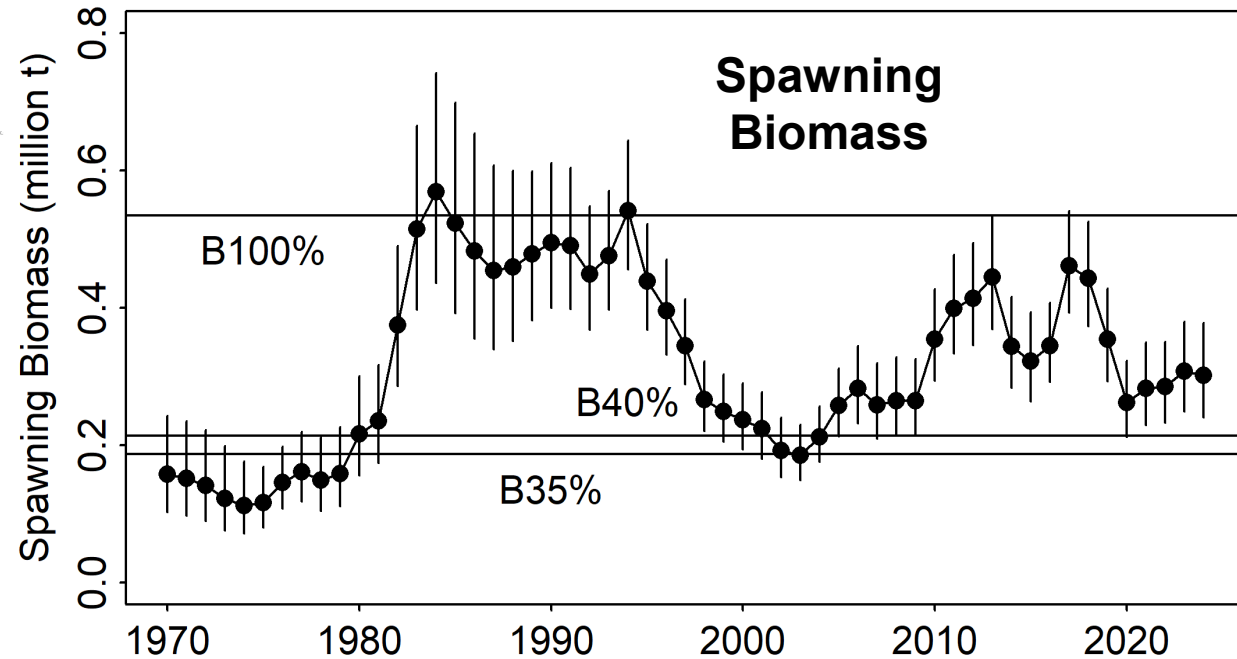
**Concerns:**

- Poor fit to NMFS bottom trawl index

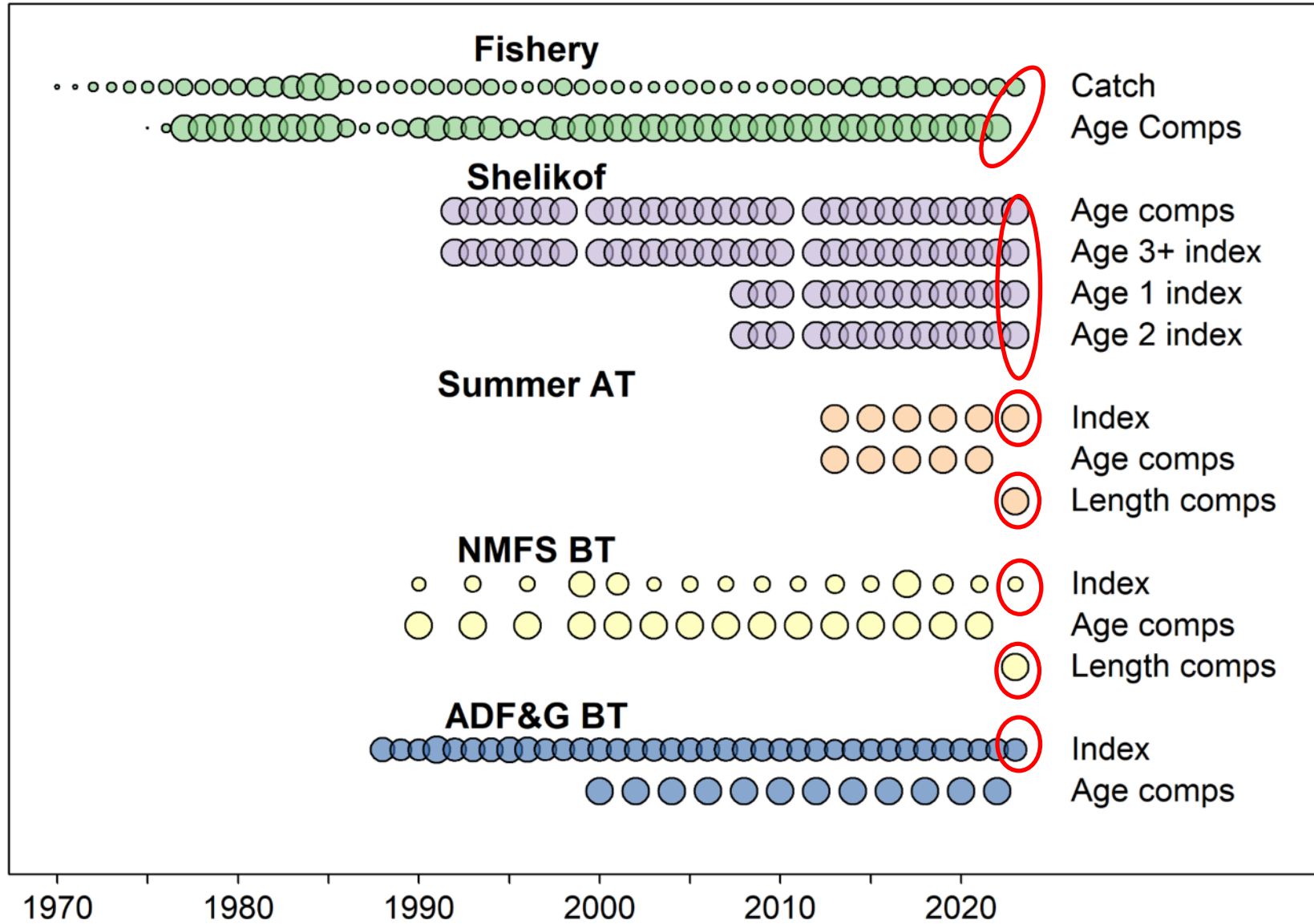
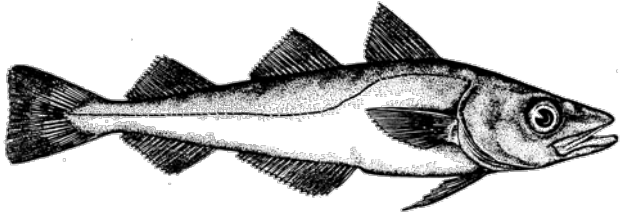
**Positives:**

- 2017, 2018, 2020 cohorts above average
- Better retrospective pattern

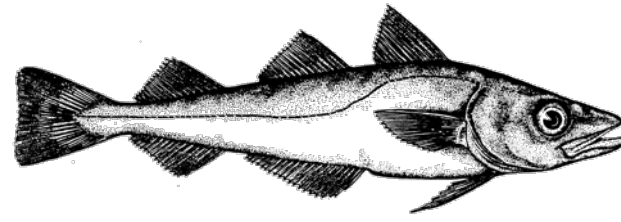
**Thanks to Cole Monnahan**



# GOA Pollock: Data



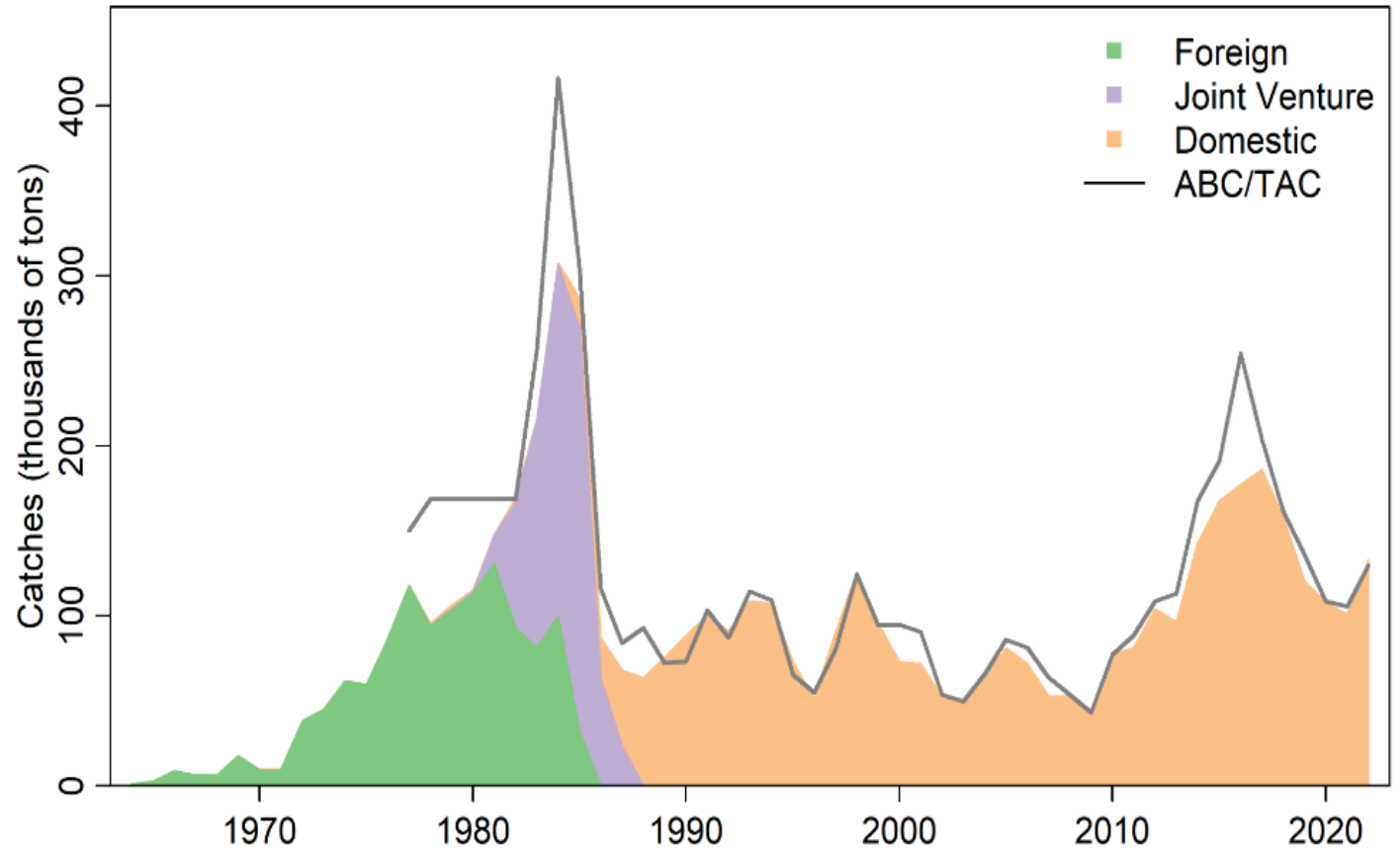
# GOA Pollock: Catch



2023 projected catch = 145,215 t

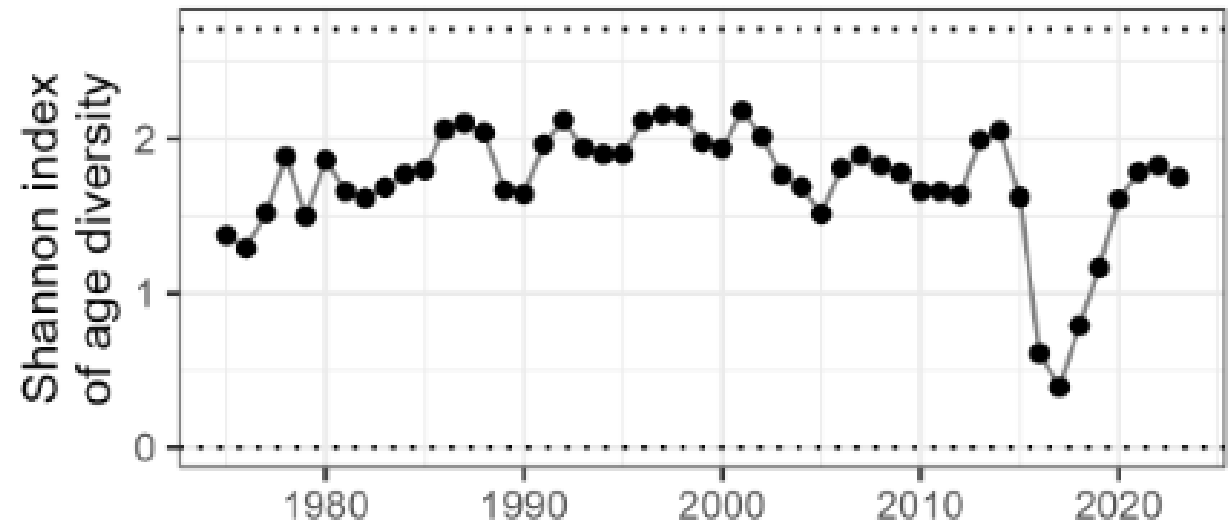
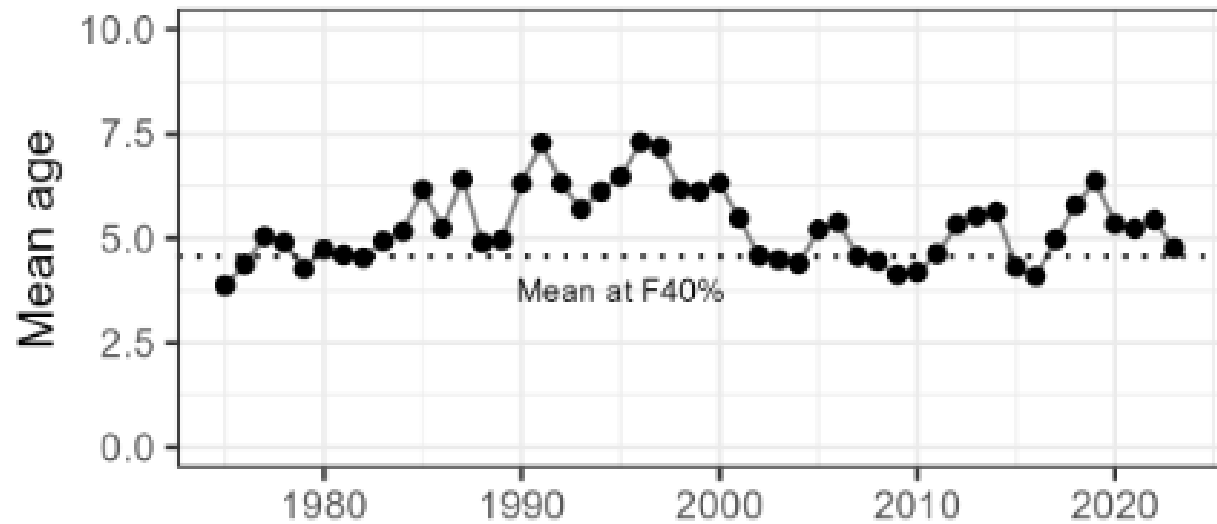
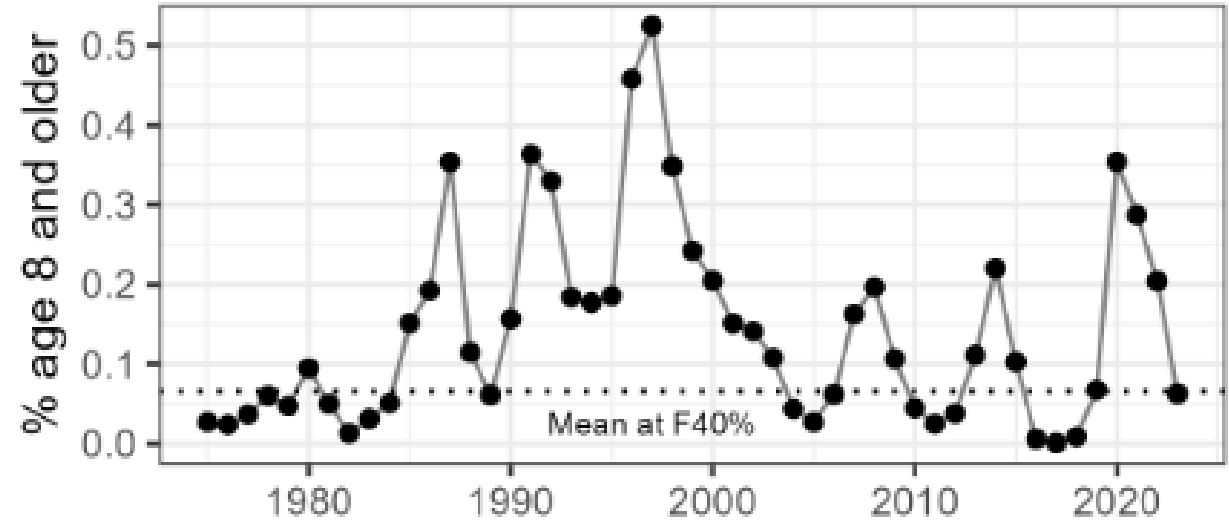
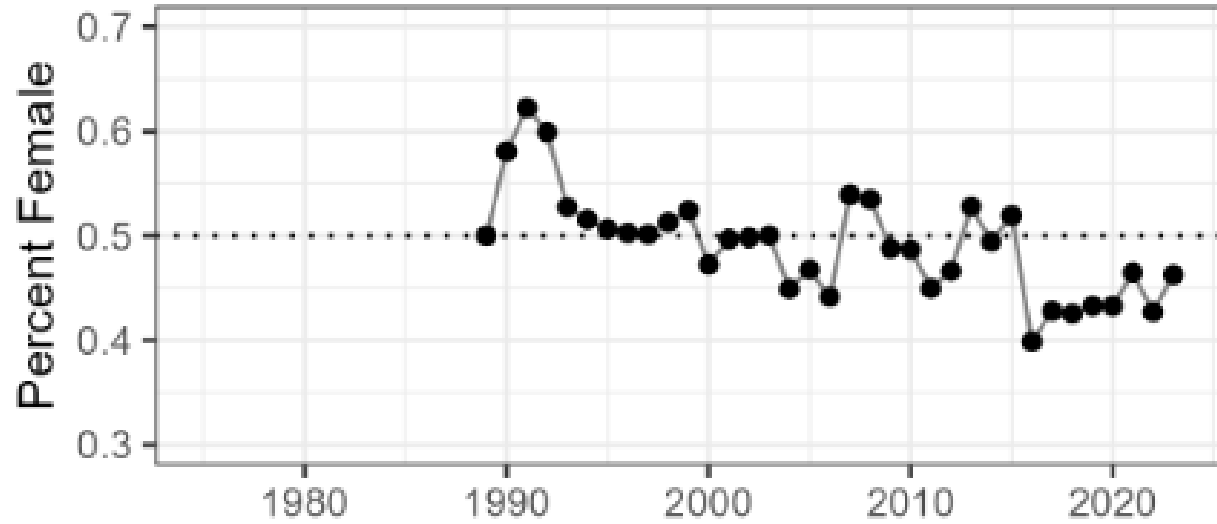
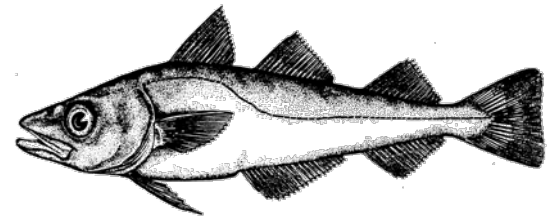
2023 realized catch = 135,103 t

2024 projected catch = 131,000 t  
(CGOA closure in Sep-2024)

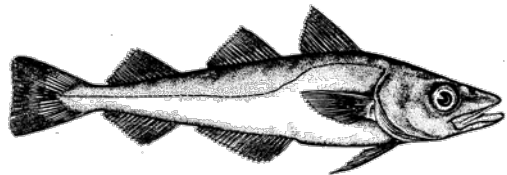




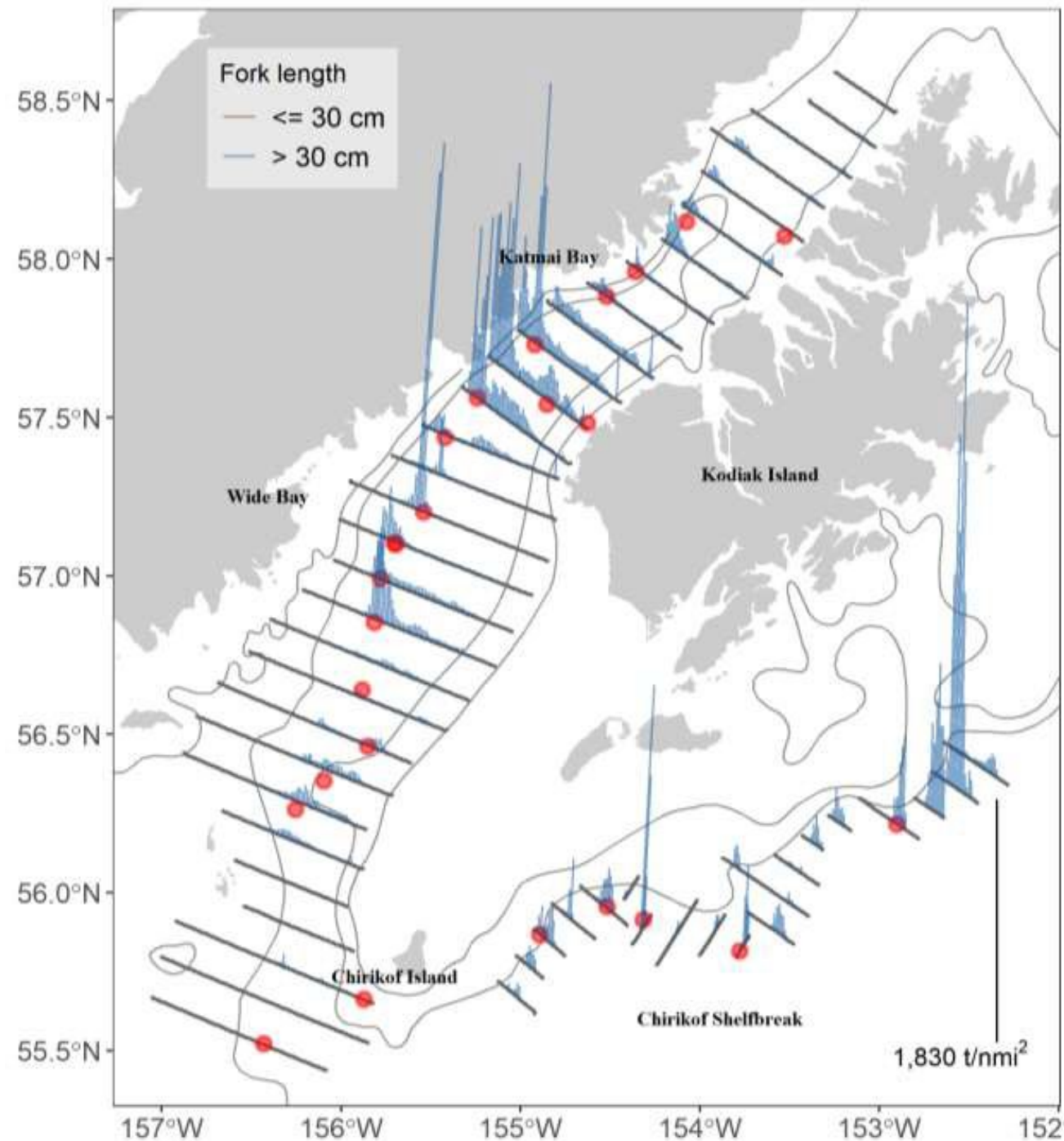
# GOA Pollock: Indicators



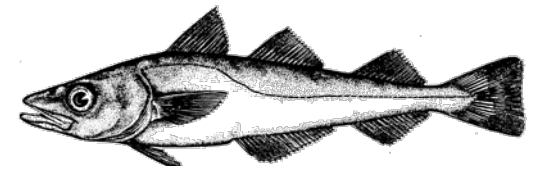
# GOA Pollock: 2024 Shelikof Strait pollock AT survey



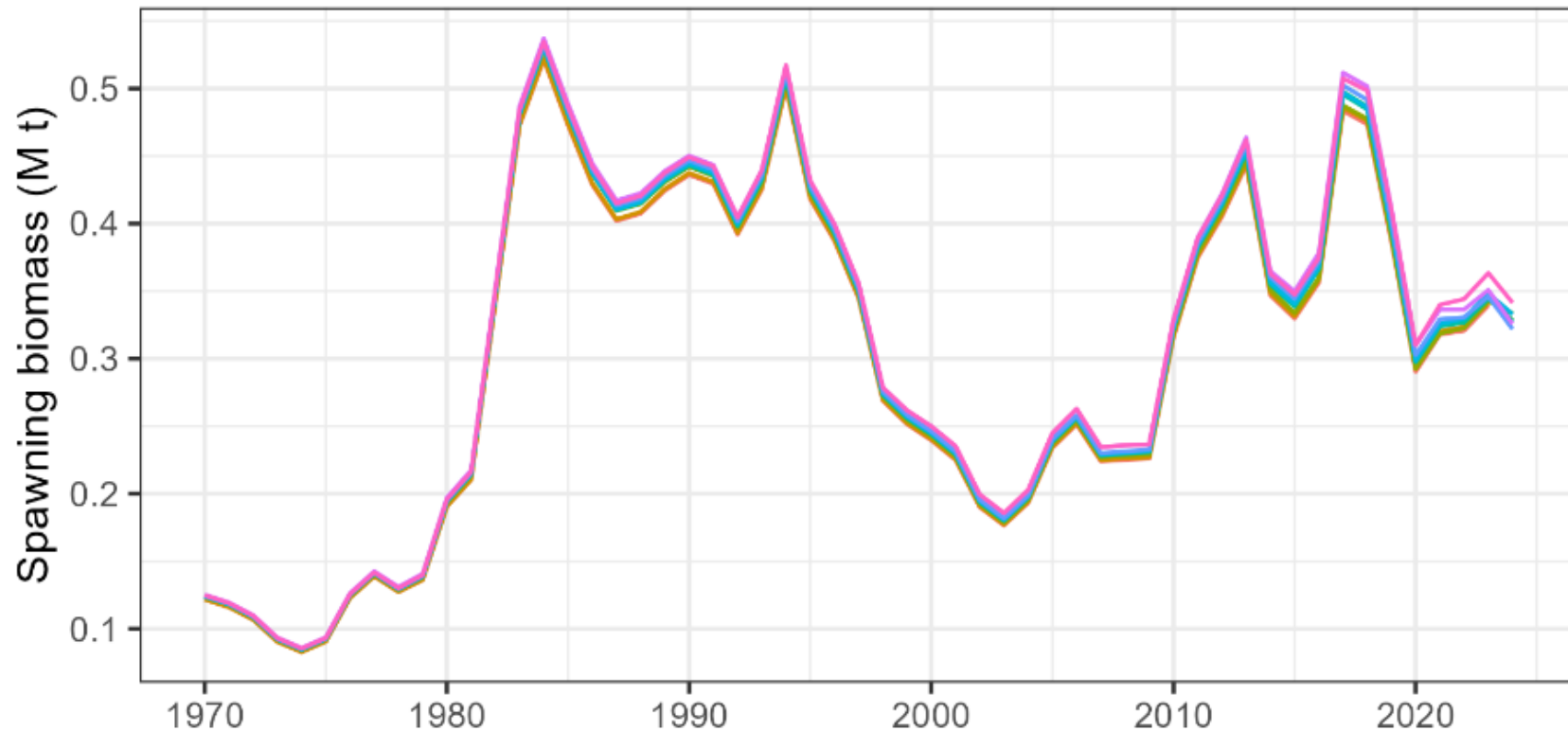
- Shelikof up 12%
  - No small fish (similar to 2023)
- Chirikof up 189% to 115 kt



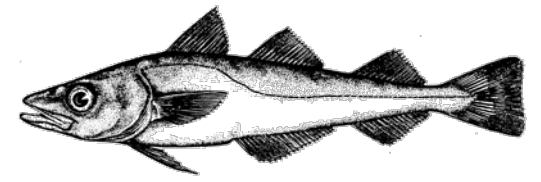
# GOA Pollock: Sequential addition of data



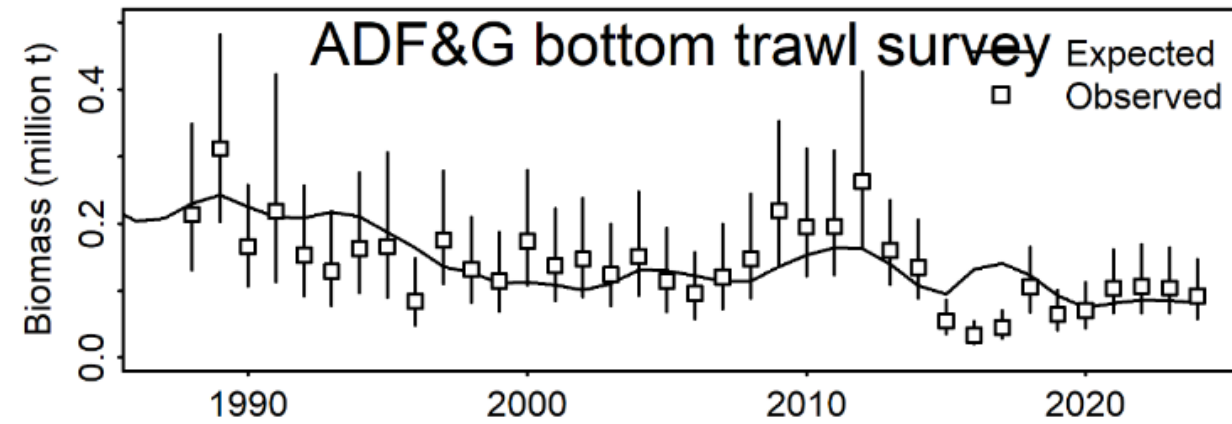
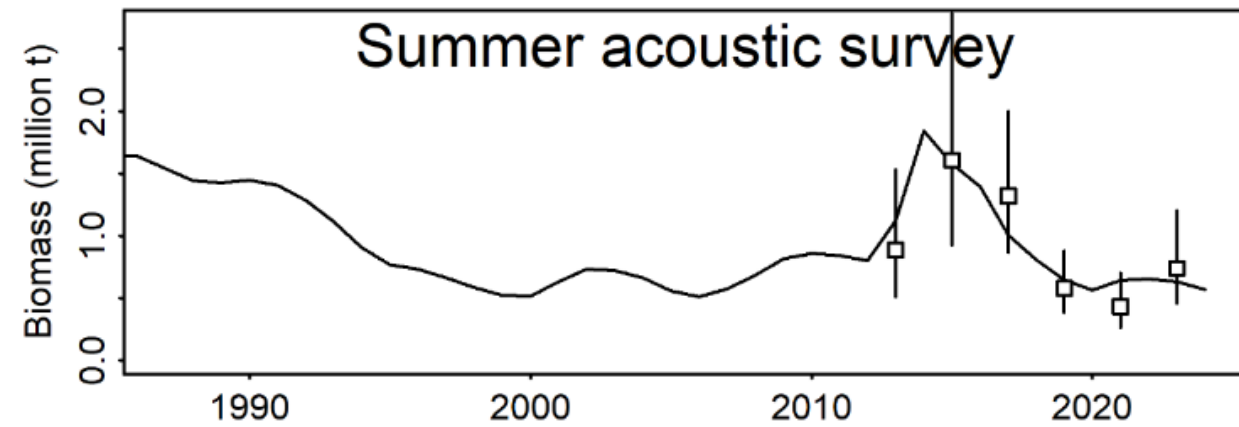
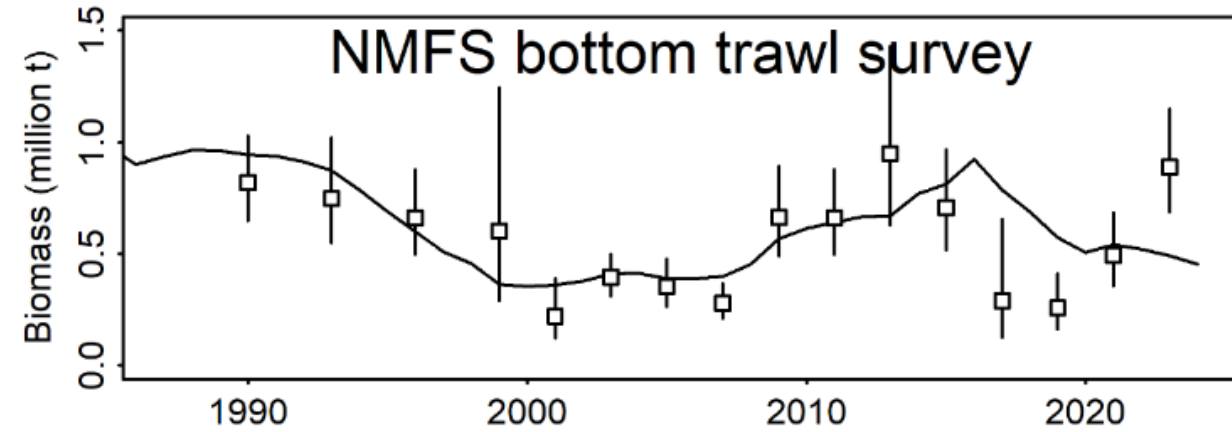
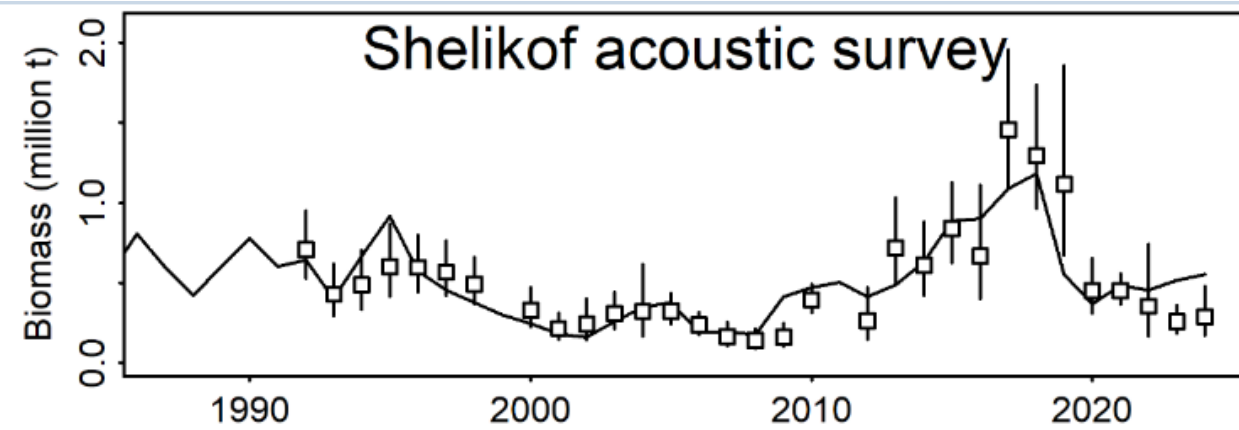
- Track 2023 accepted model (23) changes as new data are added
- Relatively stable trend and scale compared to 2023



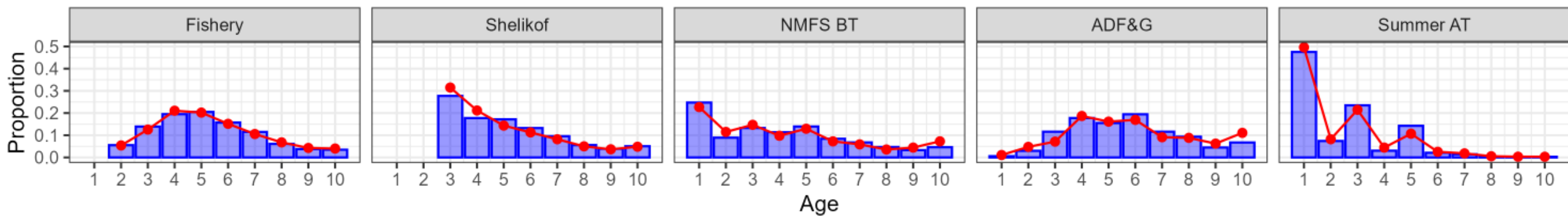
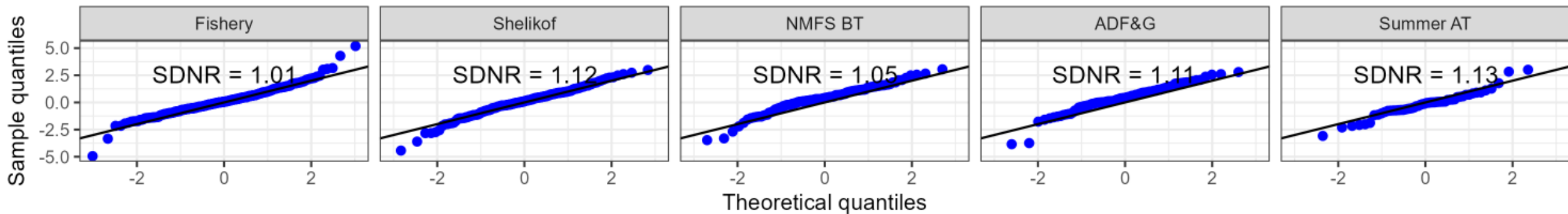
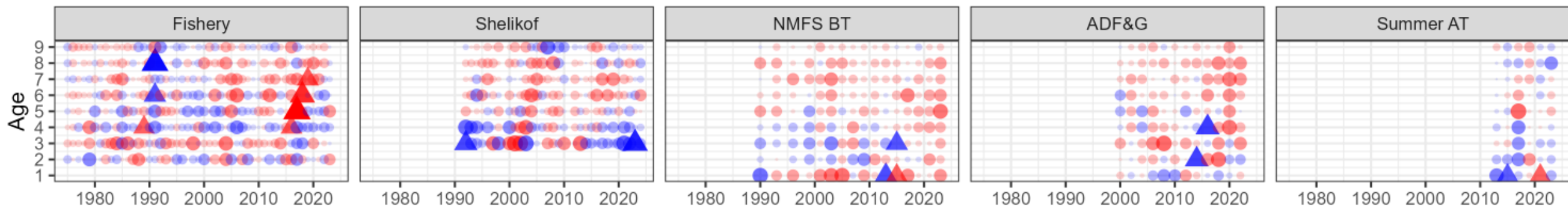
# Index fits



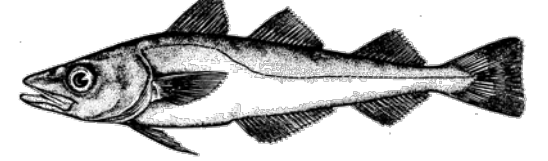
- Improved Shelikof fits (q-link); poor NMFS BT



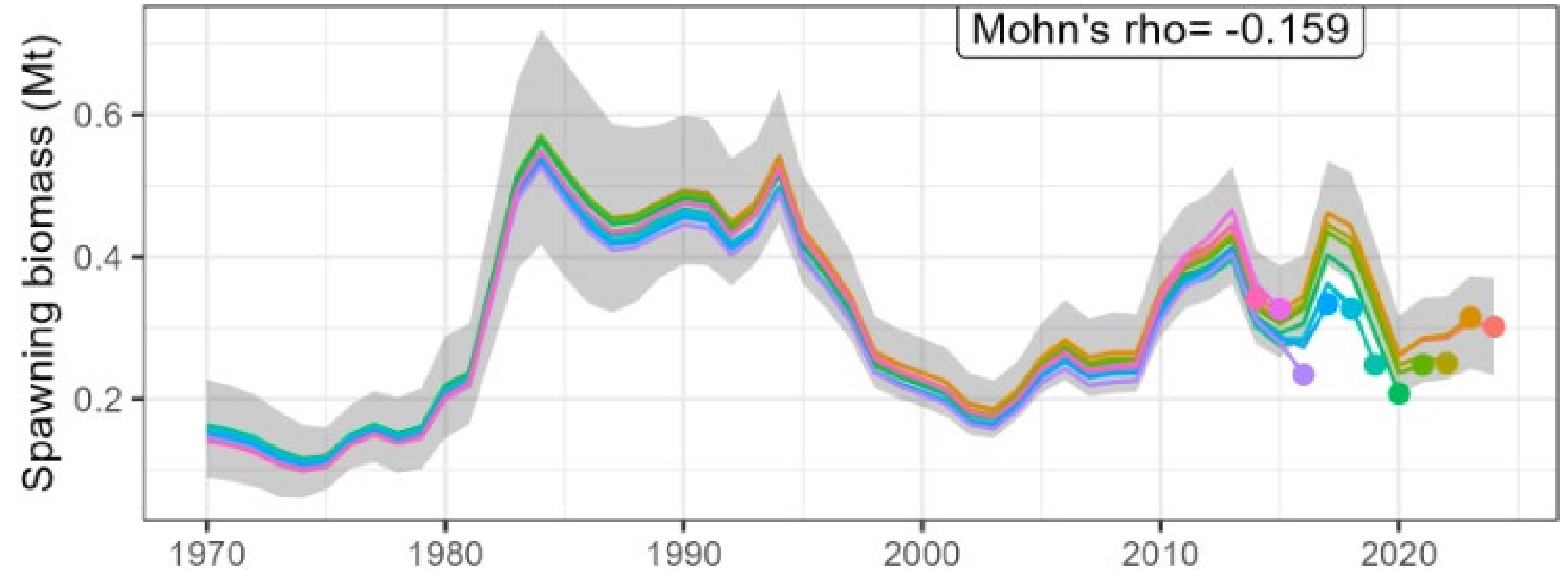
Sign   ● Neg   ● Pos   Outlier   ● No   ▲ Yes   abs(Resid)   ● 1   ● 2   ● 3   ● 4   ● 5



# GOA Pollock: Retrospectives

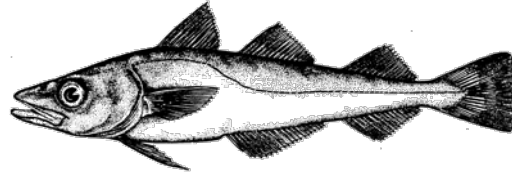


- Rho not significant (null range -0.2 to 0.3)





# GOA Pollock: Risk table



## Summary and ABC recommendation

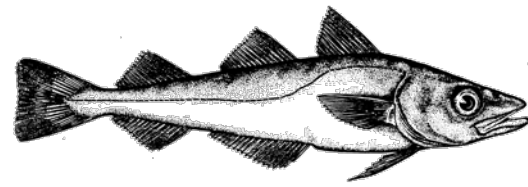
<i>Assessment-related considerations</i>	<i>Population dynamics considerations</i>	<i>Ecosystem considerations</i>	<i>Fishery Performance considerations related to the health of the stock</i>
Level 1: Normal	Level 1: Normal	Level 1: Normal	Level 1: Normal

- Assessment concerns: poor fit to NMFS BT index
- No reduction from maxABC is recommended



# GOA Pollock

W/C/WYK area apportionment

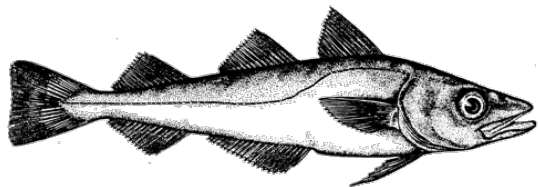


Year	Area	Season A ABC (t)	Season B ABC (t)
2025	610	5,589	31,755
	620	63,267	18,998
	630	16,751	34,854
	640	5,282	
2026	610	4,109	23,344
	620	46,510	13,967
	630	12,314	25,622
	640	3,883	

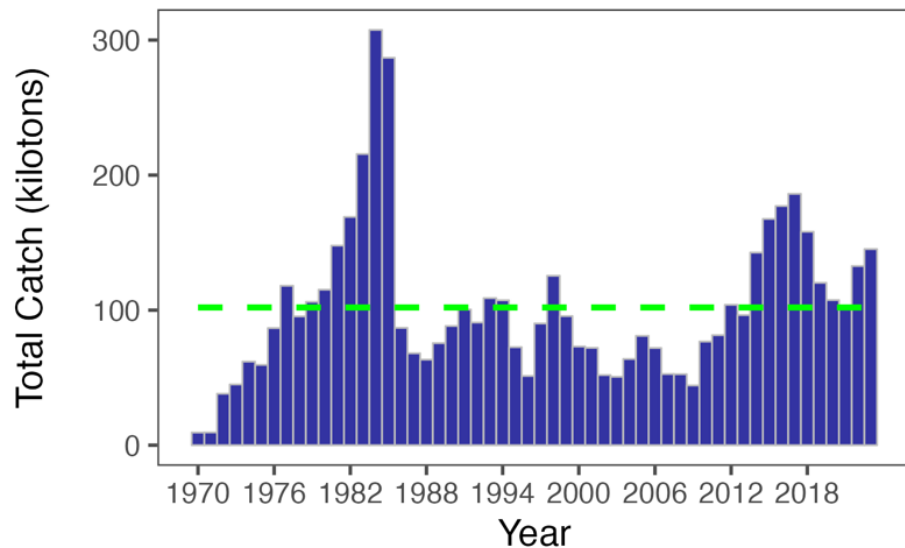
Changes from 2024 apportionment

Area	ABC (t)		Percent	
	Season A	Season B	Season A	Season B
610	-1,022	-9,038	0.00	0.00
620	-23,194	-5,407	-0.02	0.00
630	-150	-9,920	0.02	0.00
640		-1,503		0.00

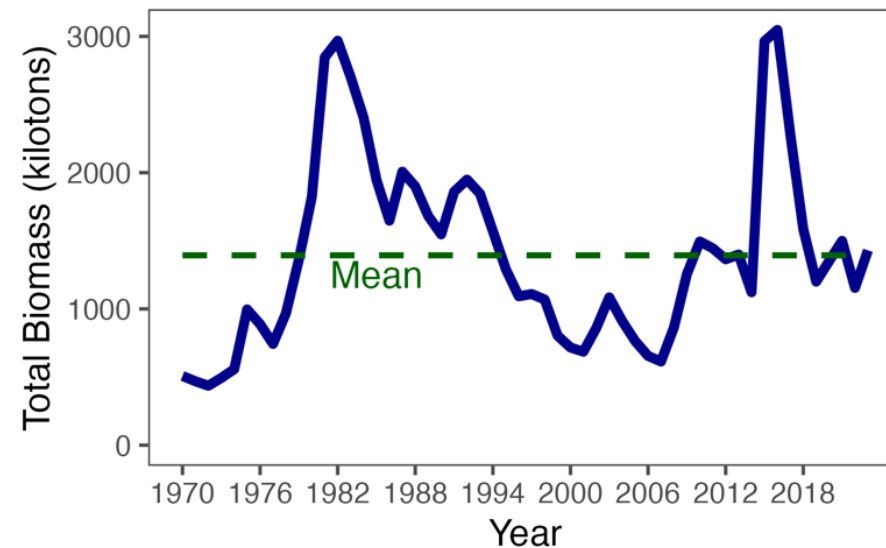
# GOA Pollock



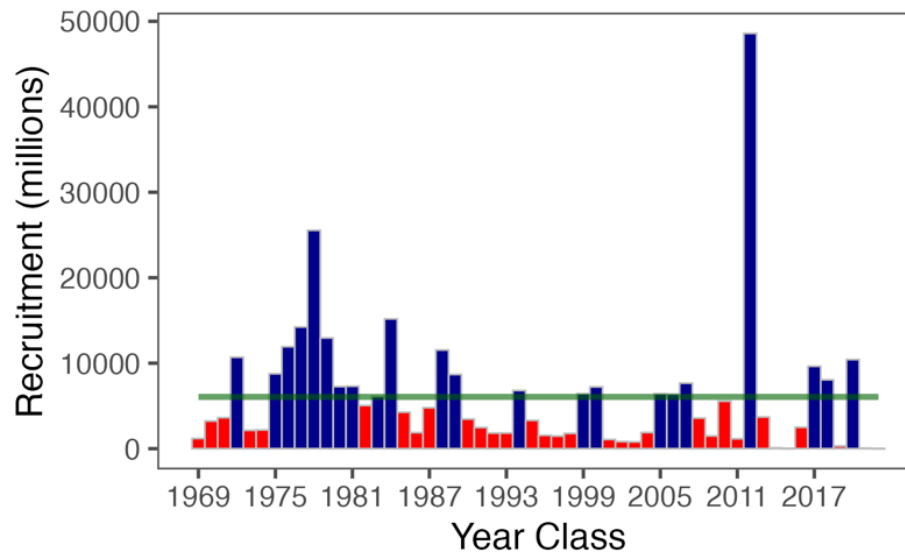
### Total Catch



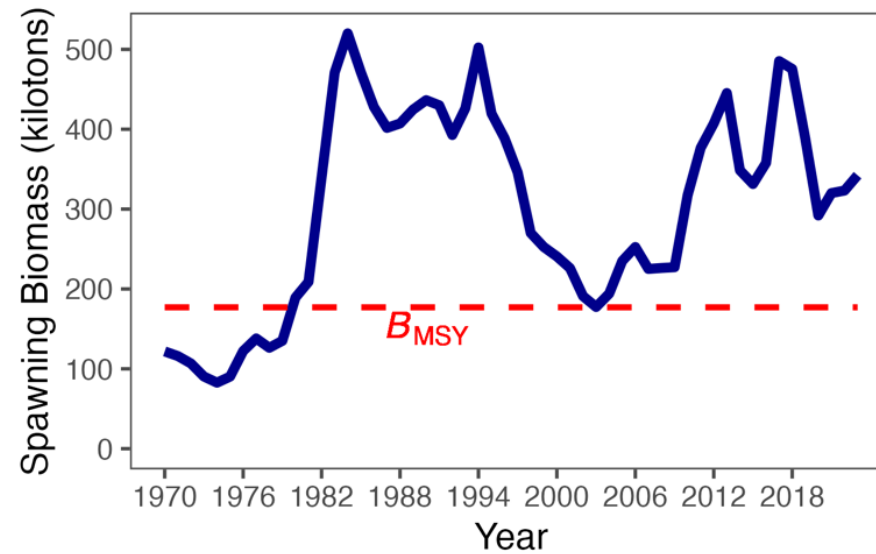
### Total Biomass



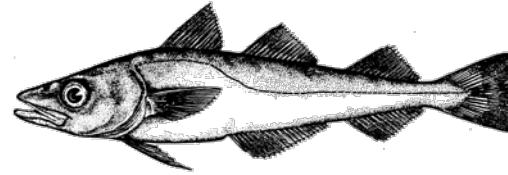
### Age 1 Recruitment



### Spawning Biomass



# GOA Pollock SE Tier 5 (unchanged from 2023)



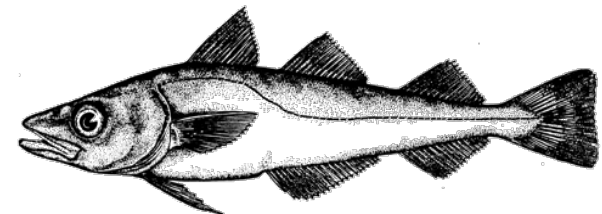
	As estimated or <i>specified last year</i> for:		As estimated or <i>recommended this year</i> for:	
<b>Quantity/Status</b>	2023	2024	2024	2025
Biomass (t)	50,505	50,505	43,328	43,328
$F_{OFL}$	0.30	0.30	0.30	0.30
$maxF_{ABC}$	0.23	0.23	0.23	0.23
$F_{ABC}$	0.23	0.23	0.23	0.23
OFL (t)	15,150	15,150	12,998	12,998
$maxABC$ (t)	11,363	11,363	9,749	9,749
ABC (t)	11,363	11,363	9,749	9,749
	As determined <i>last year</i> for:		As determined <i>this year</i> for:	
Status	2022	2023	2023	2024
Overfishing	No	n/a	No	n/a

# GOA Pollock: Team Discussion

The Team agreed with the authors' recommended model (Model 23d) etc.

The Team recommended:

- evaluating vertical distribution of pollock in the water column due to the lack of fit to the bottom trawl survey
- looking into methods that allow inclusion of additional surveyed areas not currently included in the winter survey index estimates
- evaluating dropping 3-year-olds from the Shelikof Strait survey, which would also include reevaluation of dropped age 1 and 2 data



# GOA Pacific cod

Species	2024 catch	ABC 2024	ABC 2025	Change
Pollock	124,944	200,489	190,771	down 9,718 (5%)
Pacific Cod	19,106	32,272	32,141	down 131 (0%)
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Octopus	197	980	980	same (0%)
Total	214,879	575,234	566,924	down 8,310 (1%)

# GOA Pacific cod Ecosystem and Socioeconomic Profile (ESP)



## Ecosystem (ABC Information):

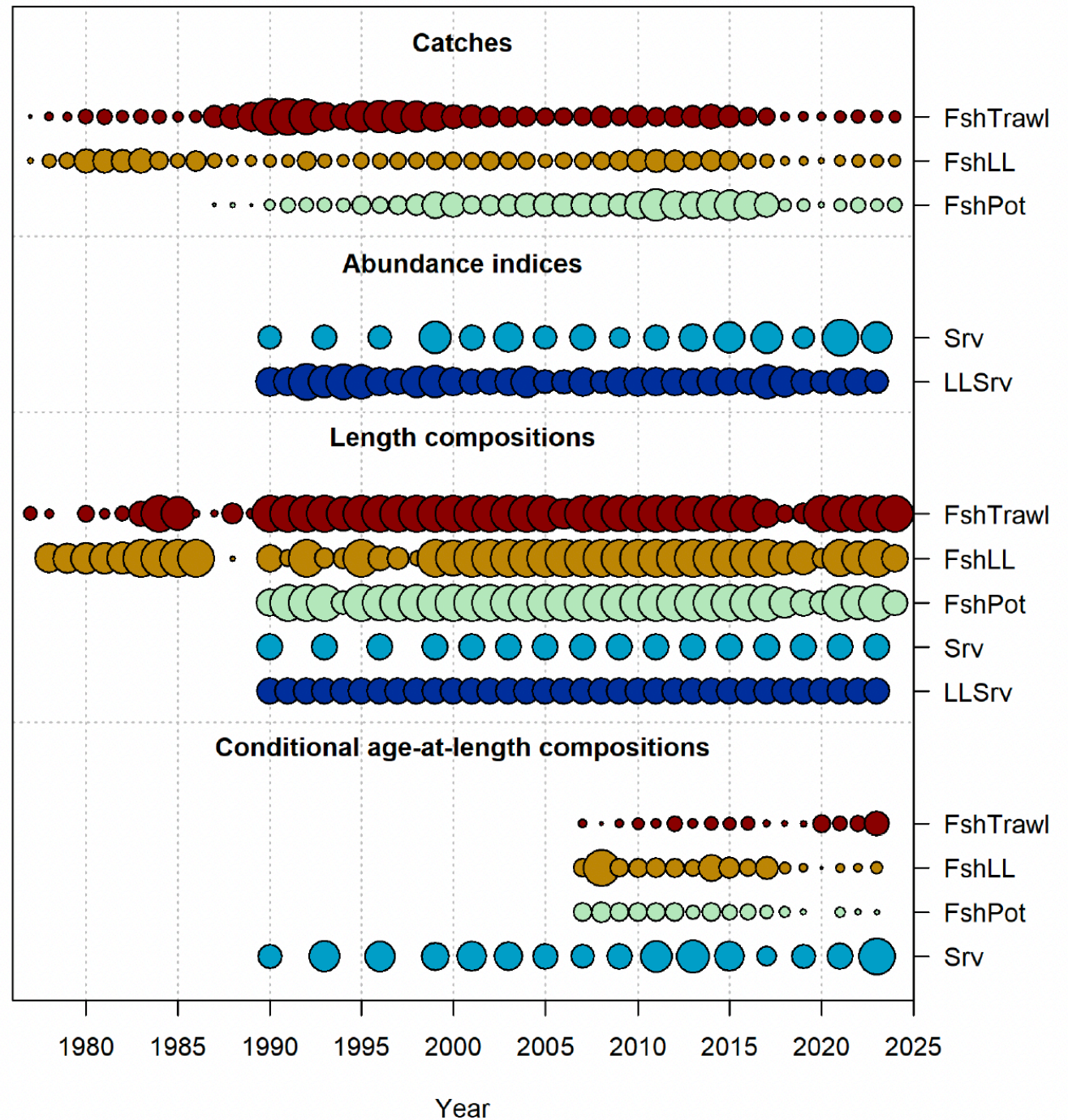
- Overall above average (YOY ↑, juv ↔, adult ↔)
- No heatwave, below average habitat suitability, reduced energy and transport
- Sufficient prey, nearshore YOY just below average
- Age-1 natural mortality consistently above the operational model
- Below average bioenergetic demand, low biomass consumed



## Socioeconomic (TAC Information):

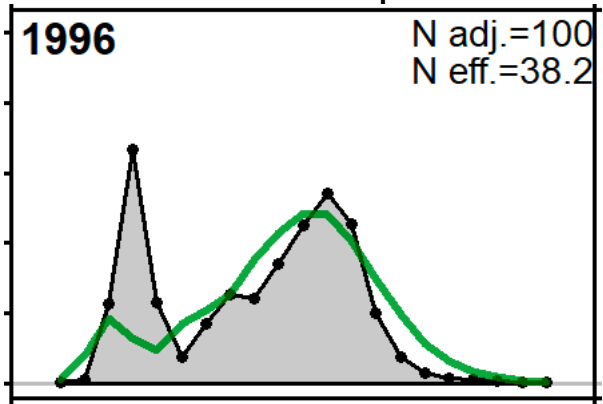
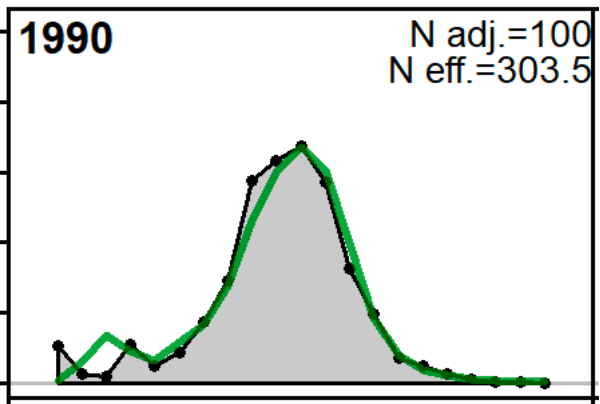
- Ex-vessel value low for five of last six years
- Price decreased and below avg
- Revenue/unit effort < from historic high to below avg

# GOA Pacific cod (Full)

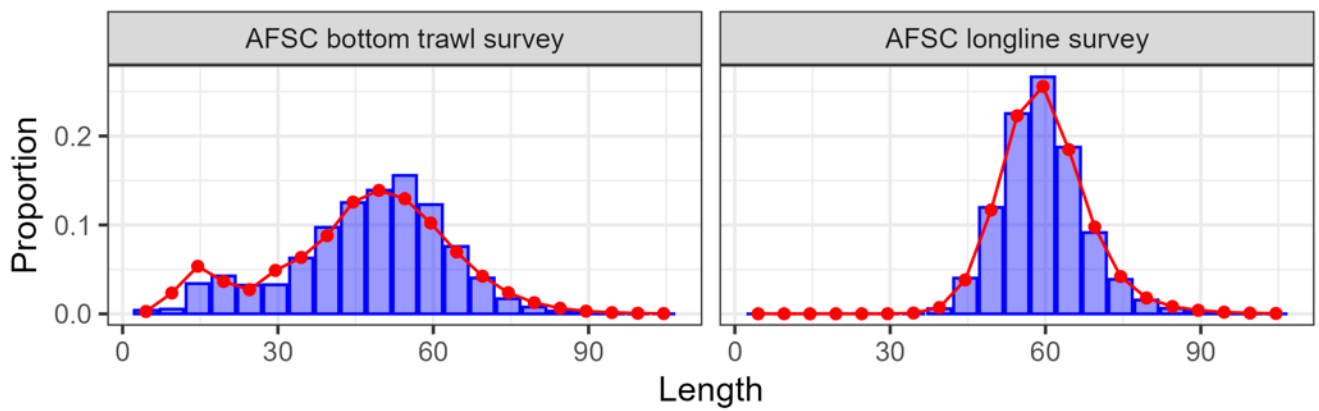
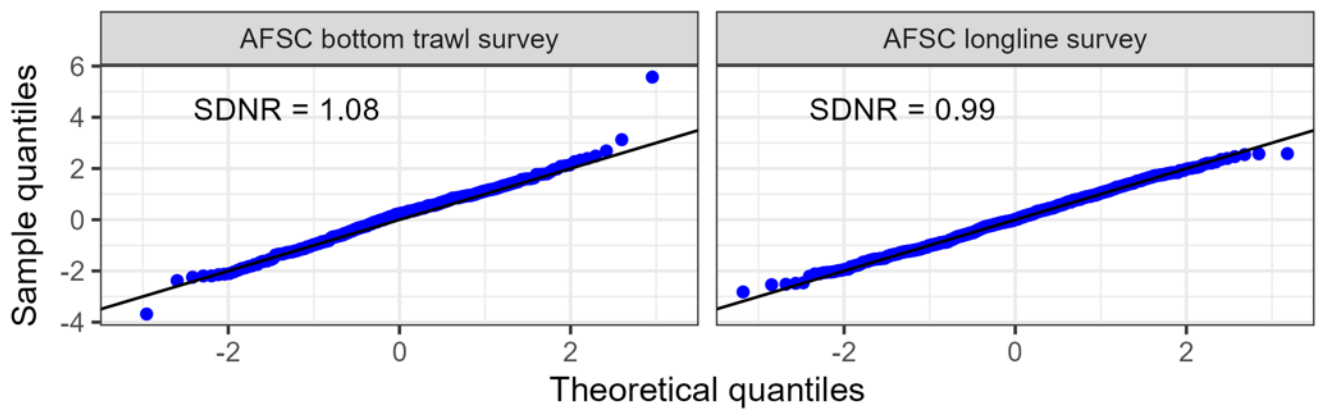
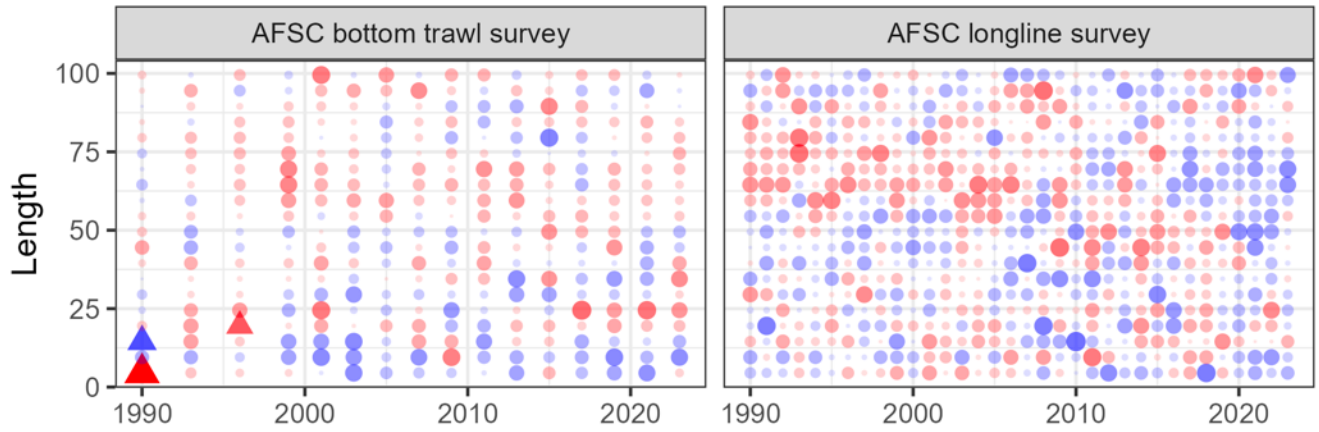


Thanks to Pete Hulson

# GOA Pacific cod



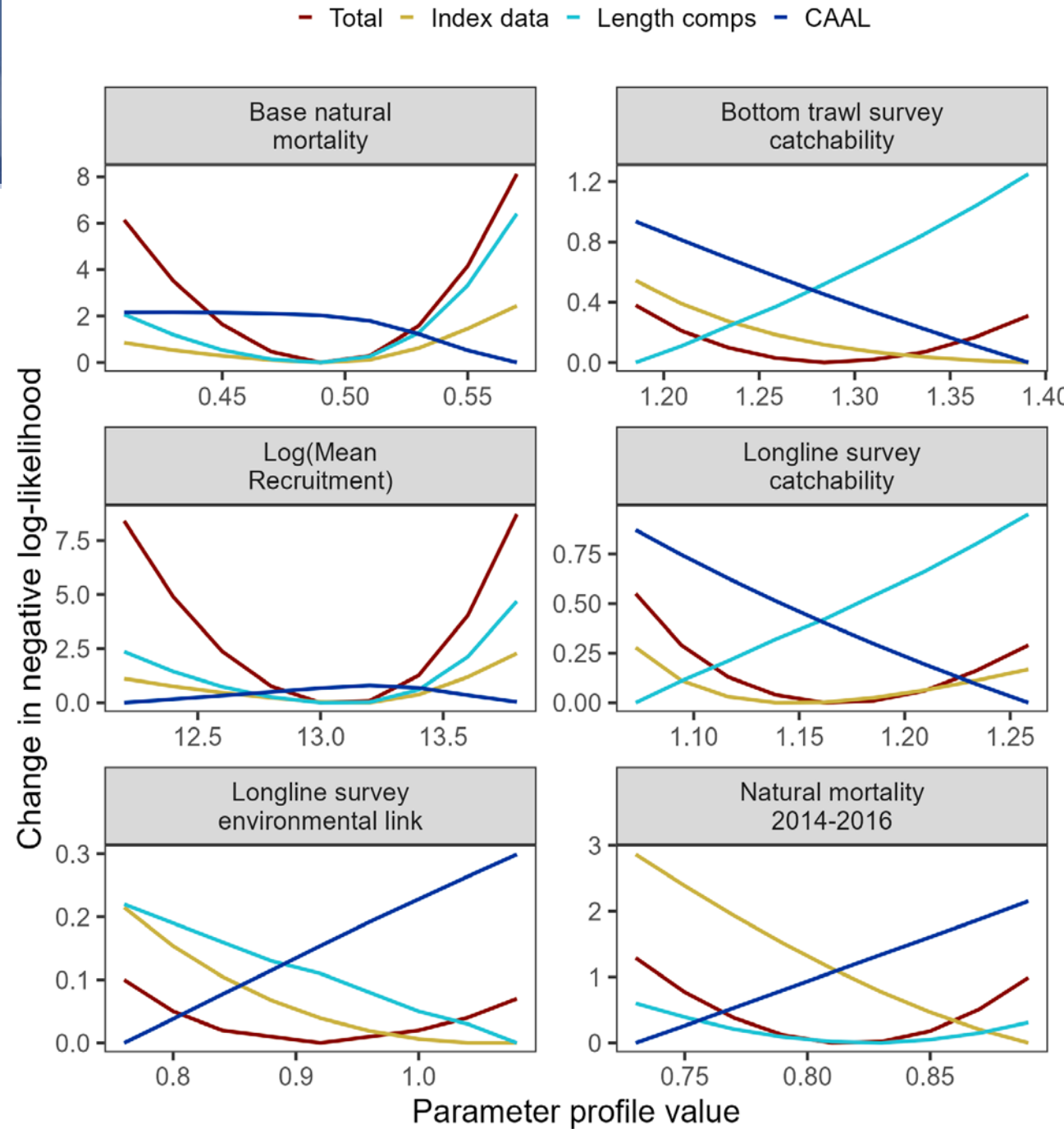
Sign ● Neg ● Pos    Outlier ● No ▲ Yes    abs(Resid) ● 1 ● 2 ● 3 ● 4 ● 5





# GOA Pacific cod

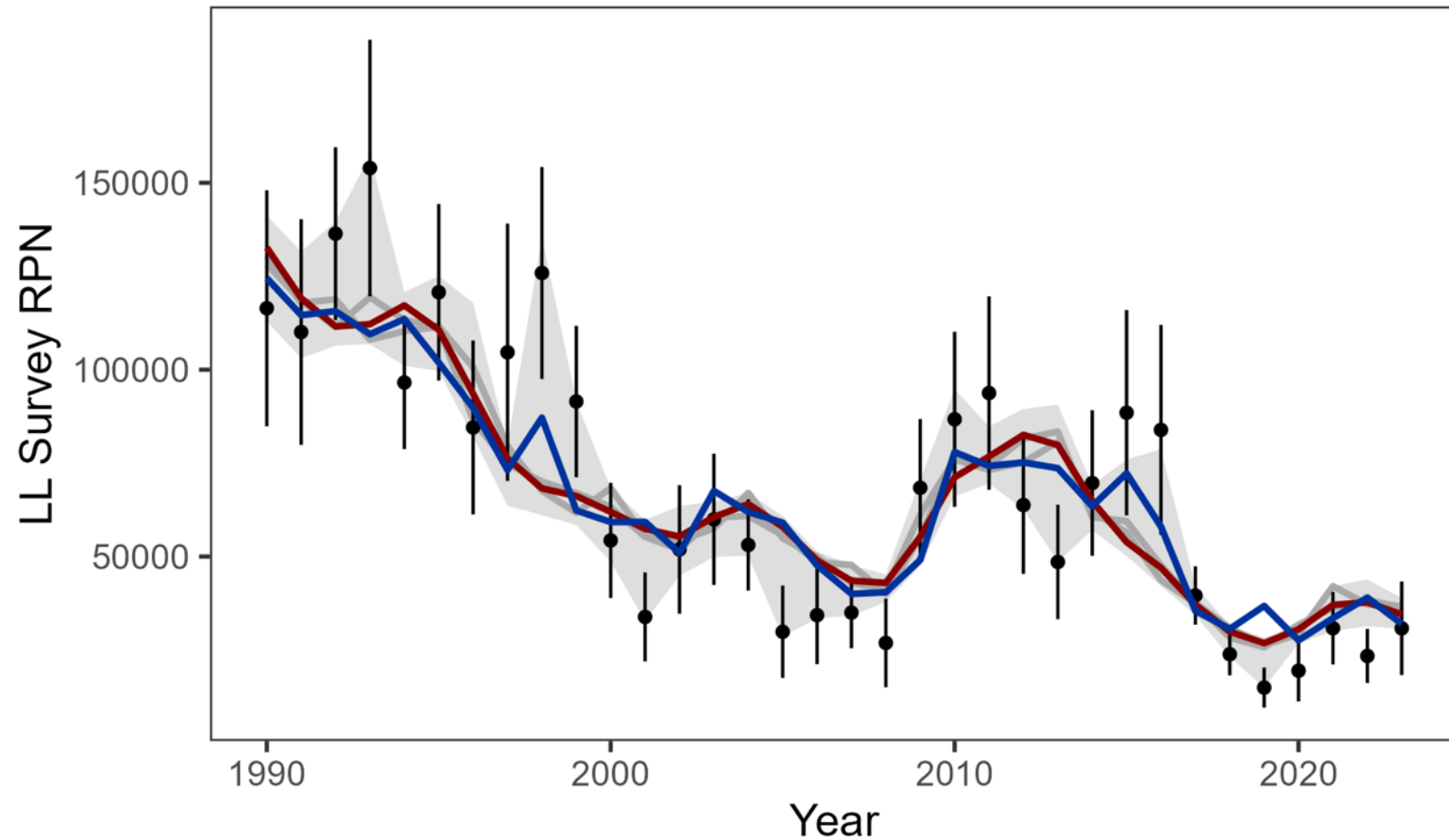
- Parameter profiles:
  - Catchability: conflict between length comps and CAAL
  - Base M &  $\ln(R_0)$ : minima confirmed by both length comps and index data



# GOA Pacific cod

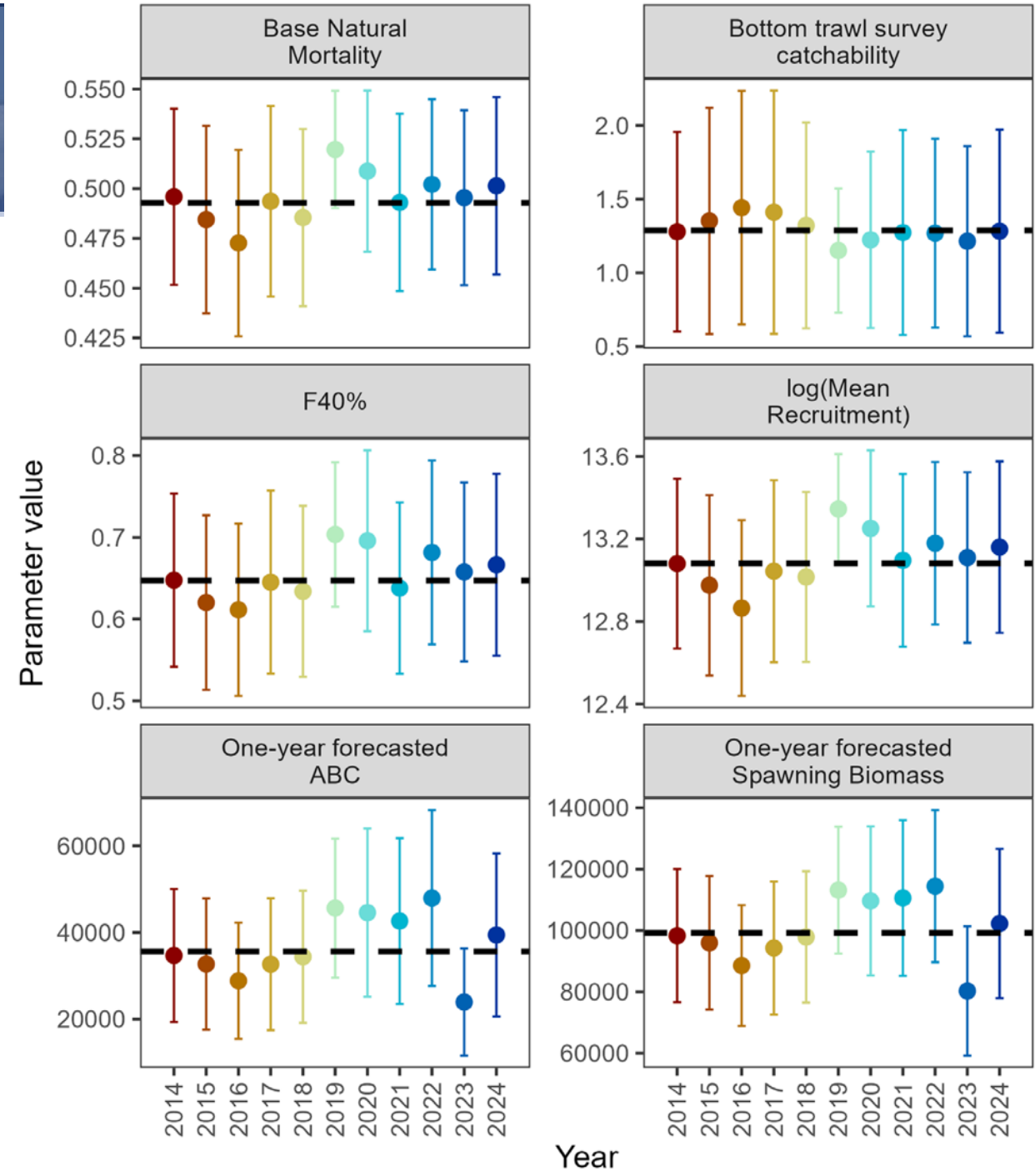
- Environmental with AFSC longline survey catchability included

Catchability — No covariate — Random — Recommended



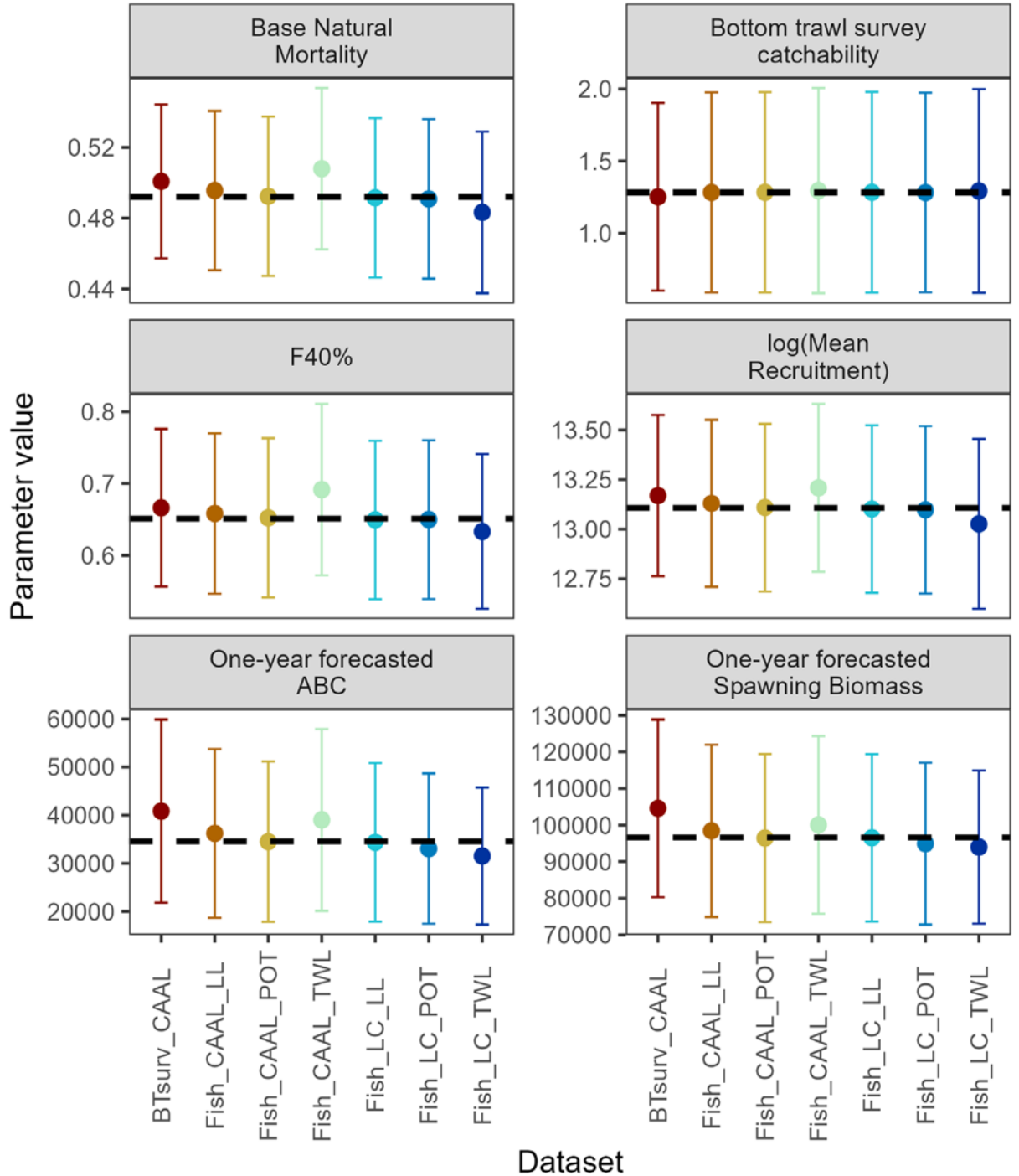
# GOA Pacific cod

- Leave one out

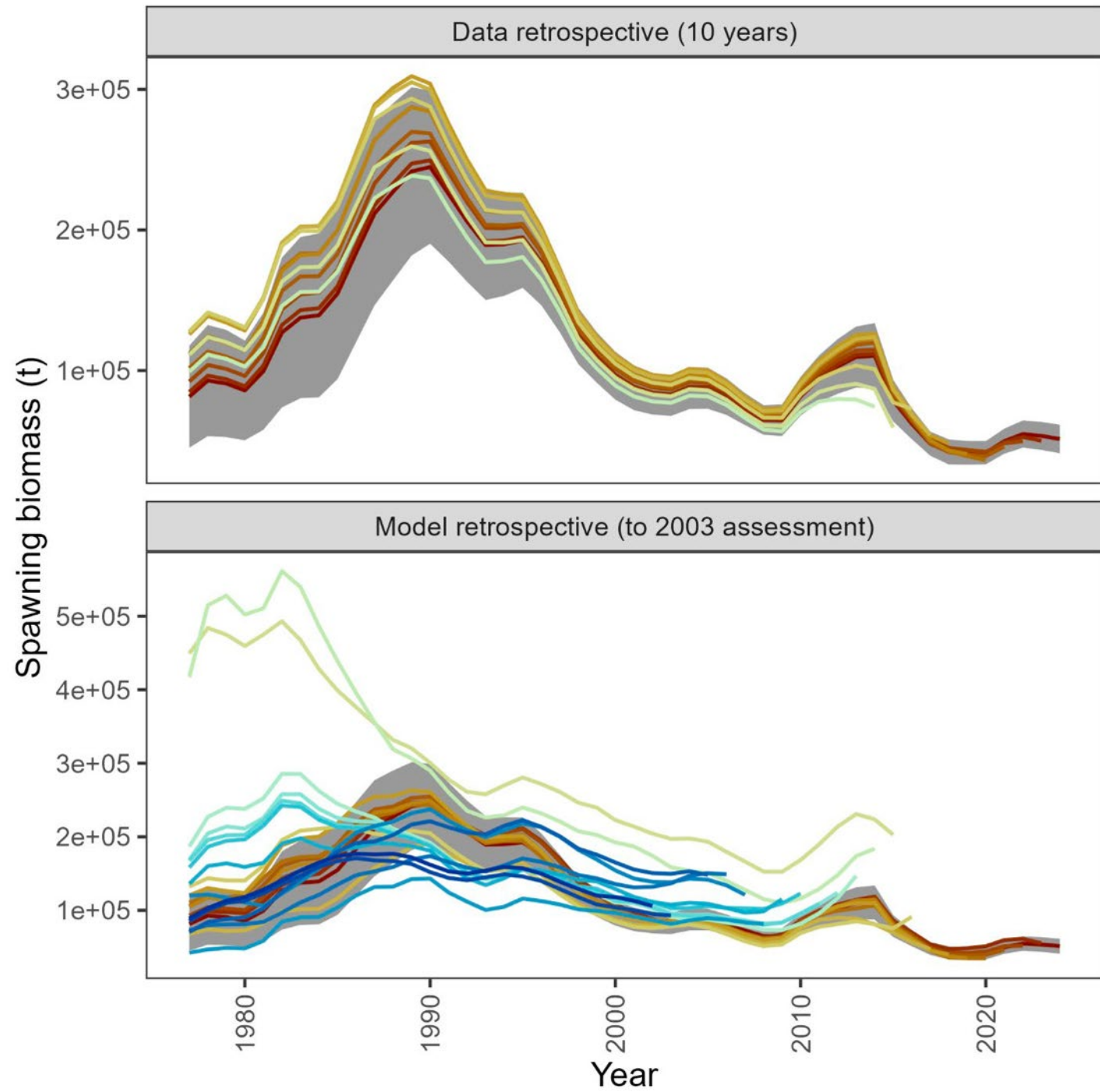


# GOA Pacific cod

- Add one in...
  - 2023 AFSC bottom trawl survey and trawl fishery CAAL data influential on ABC,
  - 2024 trawl fishery length comp to some extent



# GOA Pacific cod

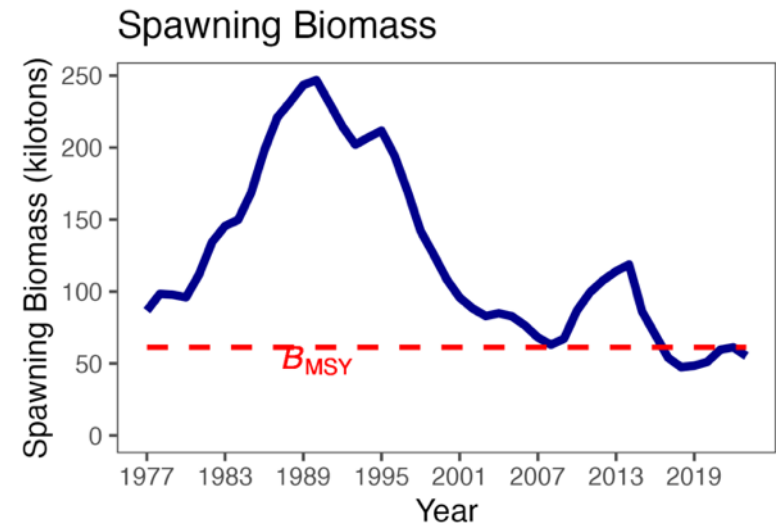
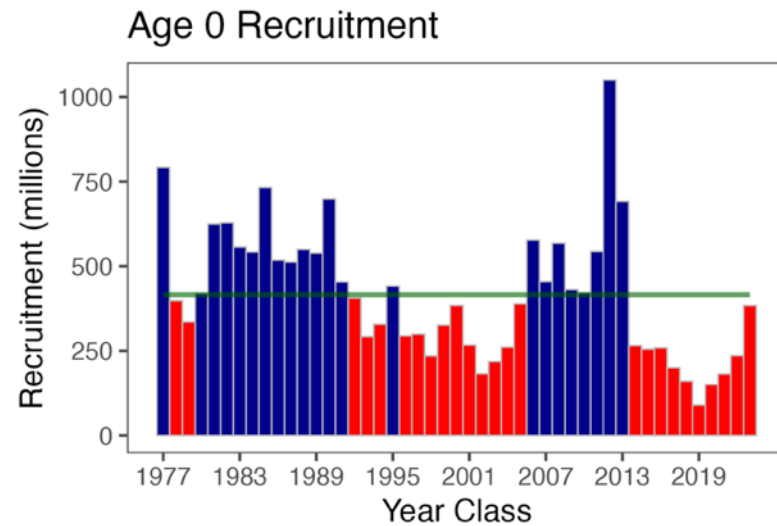
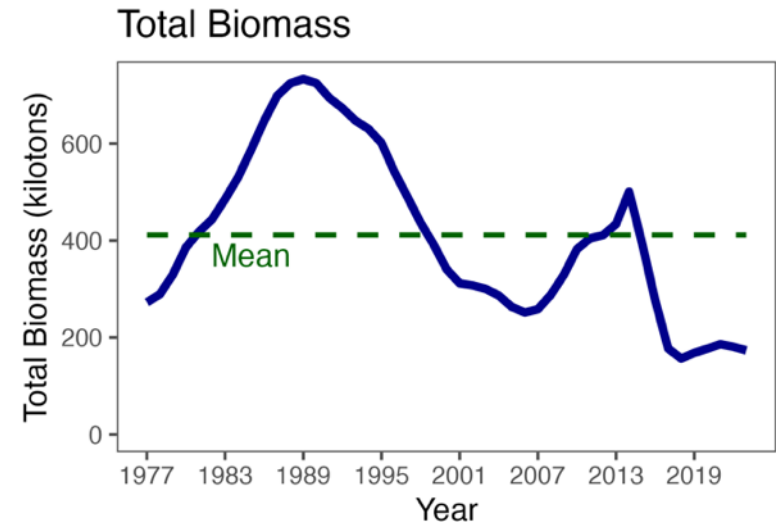
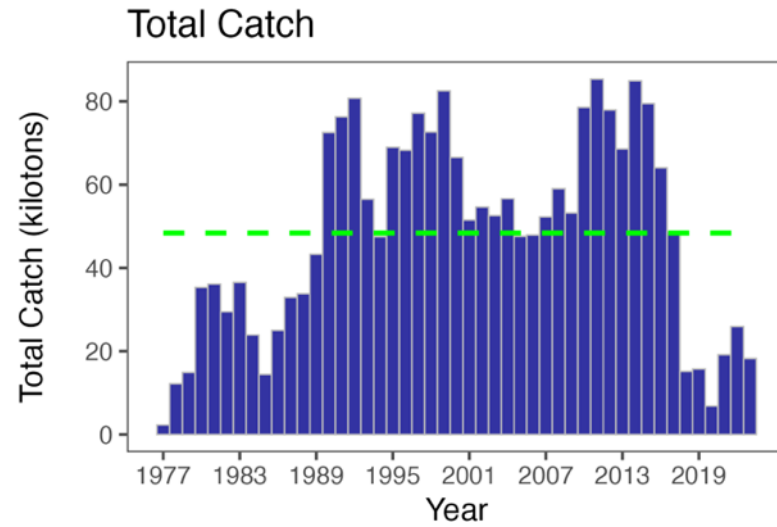


# GOA Pacific cod: Team Discussion

- The Team agreed with the authors' recommended model (Model 24.0) and the authors' recommended ABCs and OFLs, with no reduction from maxABC.
- The Team recommended: continued work on the modeling of size and weight at age, potentially including:
  - whether the conditional age-at-length data needs to be corrected for length-stratified survey sampling;
  - evaluating time-varying growth;
  - using age compositions rather than conditional length at age; and
  - using empirical estimates of length and weight at age.



# GOA Pacific cod



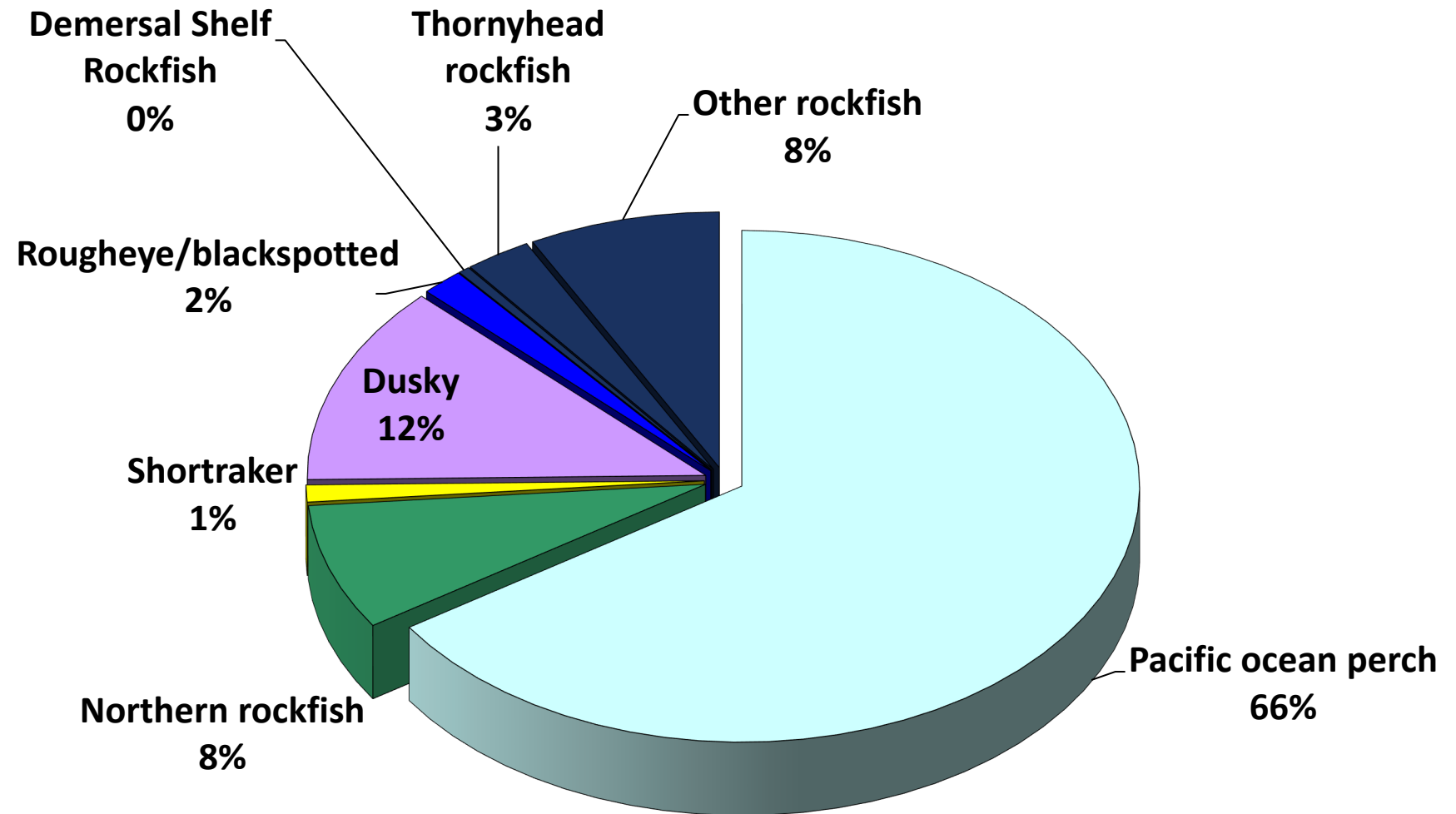
# GOA rockfish

Species	2024 catch	ABC 2024	ABC 2025	Change
Pollock	124,944	200,489	190,771	down 9,718 (5%)
Pacific Cod	19,106	32,272	32,141	down 131 (0%)
Sablefish	15,686	22,596	24,038	up 1,442 (6%)
Flatfish	4,304	124,494	126,380	up 1,886 (2%)
Arrowtooth flounder	16,866	119,249	119,547	up 298 (0%)
Rockfish	29,727	59,527	57,440	down 2,087 (4%)
Atka mackerel	380	4,700	4,700	same (0%)
Skates	2,381	6,036	6,036	same (0%)
Sharks	1,288	4,891	4,891	same (0%)
Octopus	197	980	980	same (0%)
Total	214,879	575,234	566,924	down 8,310 (1%)



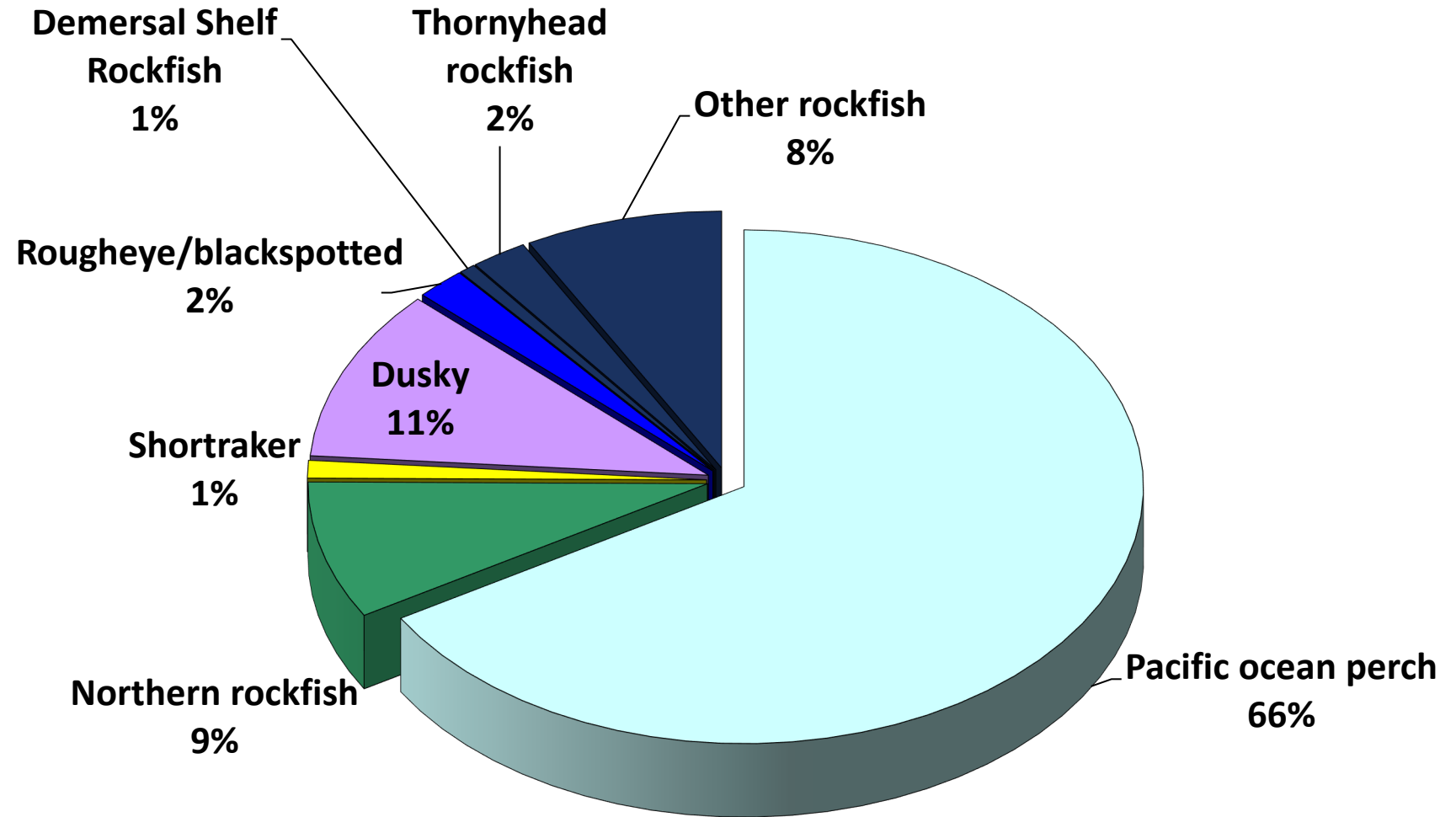
# Rockfish 2024 ABC's

## 60,453 t total



# Rockfish 2025 ABC's

## 58,635 t total

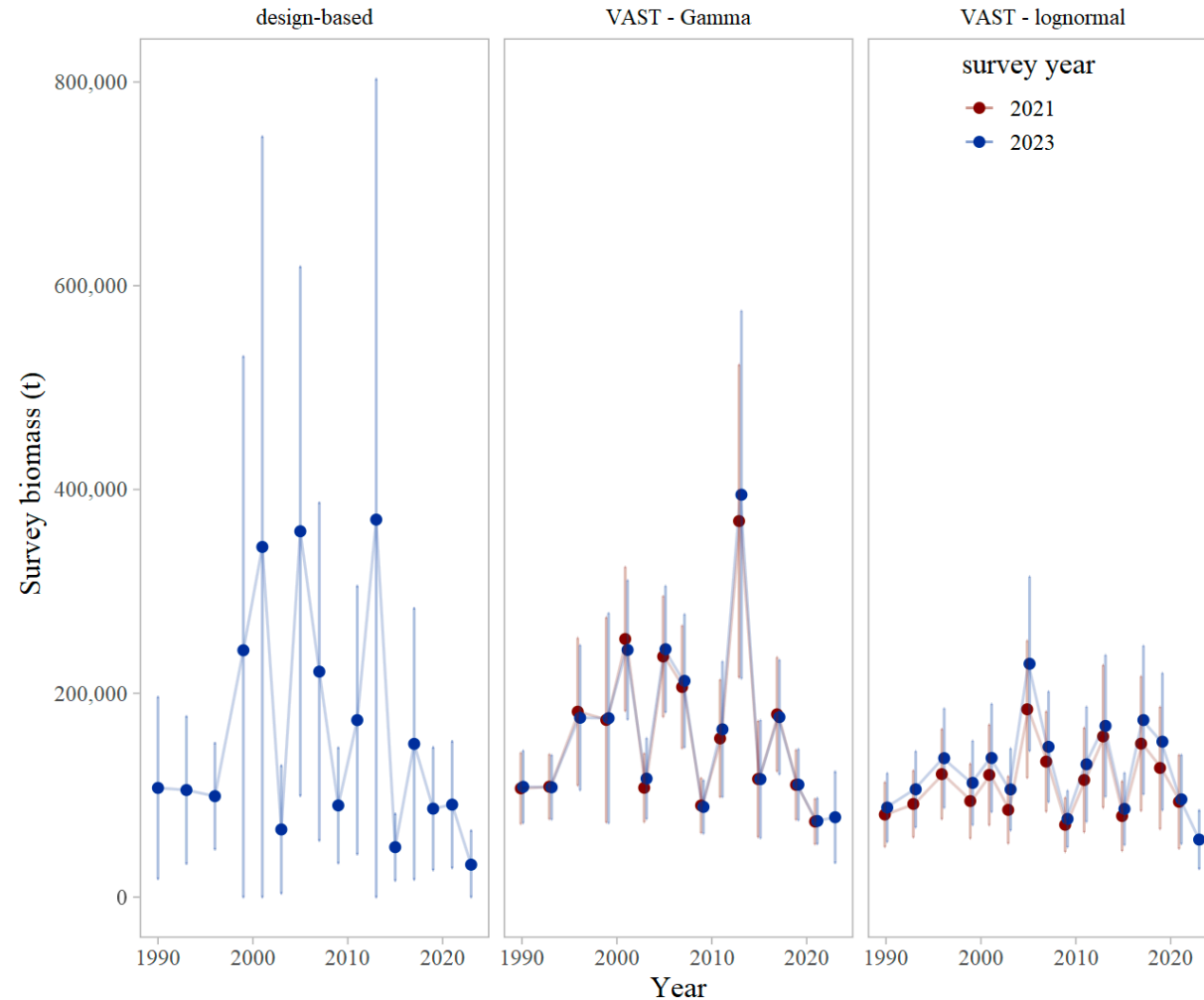


# Northern rockfish

Species	ABC 2024	ABC 2025	Change
POP	39,719	38,962	down 757 (2%)
Northern rockfish	4,815	5,076	up 261 (5%)
Shortraker Rockfish	647	647	same (0%)
Dusky	7,624	6,338	down 1,286 (17%)
Rougheye and Blackspotted Rockfish	1,037	1,180	up 143 (14%)
Demersal shelf rockfish	283	394	up 111 (39%)
Thornyhead	1,628	1,338	down 290 (18%)
Other rock	3,774	3,505	down 269 (7%)
Sub Total	59,527	57,440	down 2,087 (4%)

# Northern rockfish (Full)

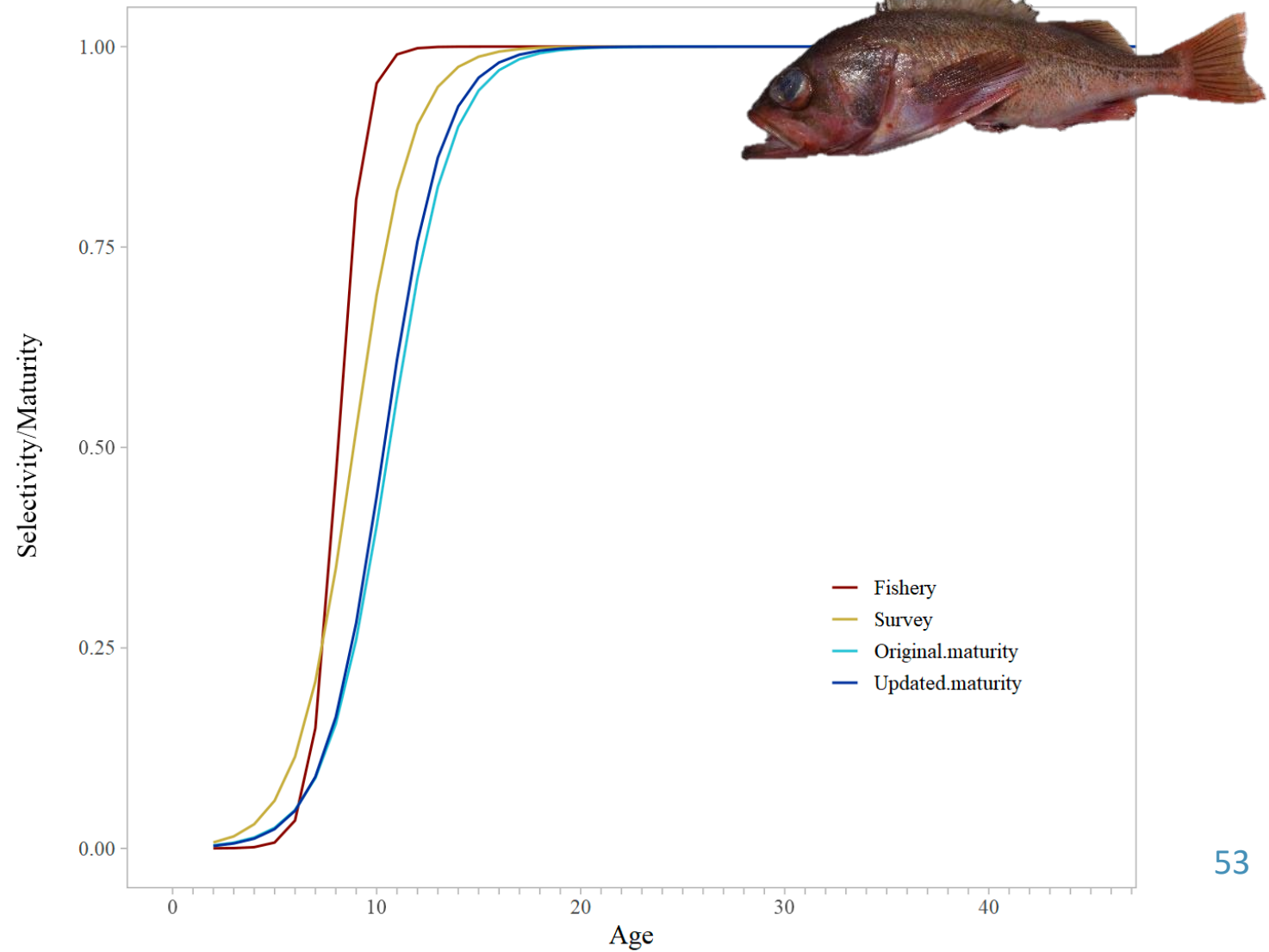
Changed from  
design-based to  
VAST-based in 2018



Thanks to Ben Williams

# Northern rockfish

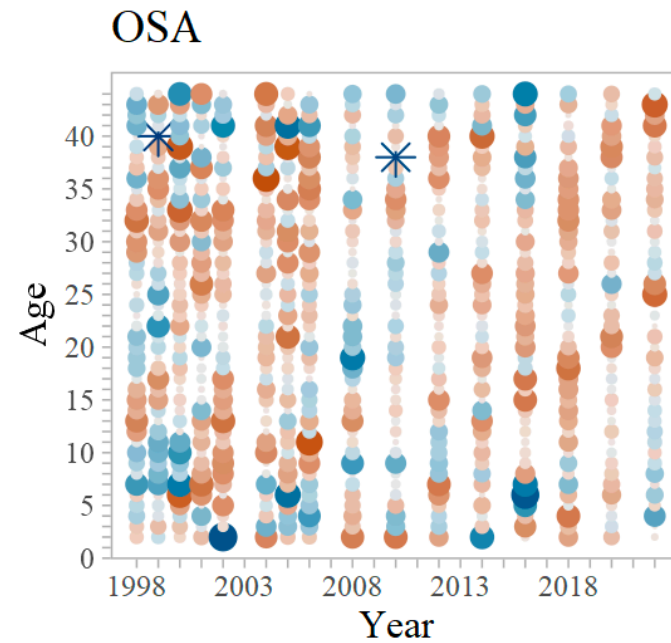
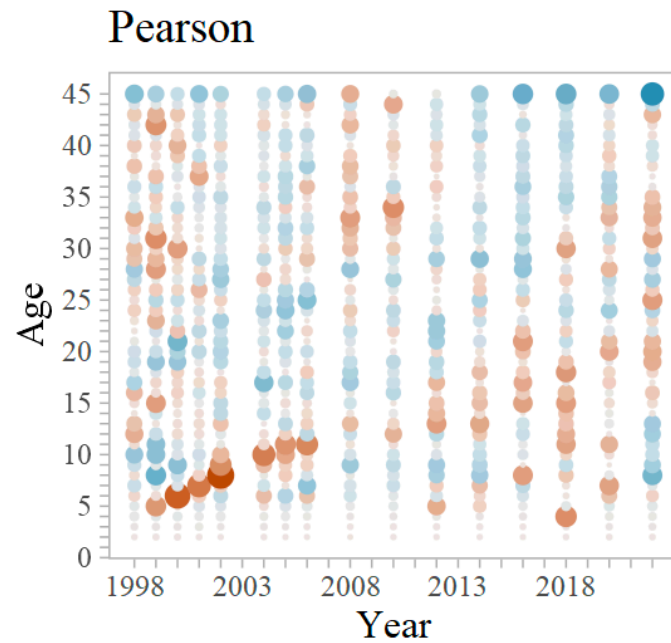
- Maturity



# Northern rockfish

Model	Description
<b>base</b>	<b>2022 model (m22.1) – ADMB/RTMB</b>
m22.1	base model w/data updated through 2024 - RTMB
M22.1a	m22.1 change to lognormal survey NLL
m22.1b	m22.1a change survey age comp ISS
m22.1c	m22.1b change to lognormal VAST
m24	m22.1c w/additional maturity data

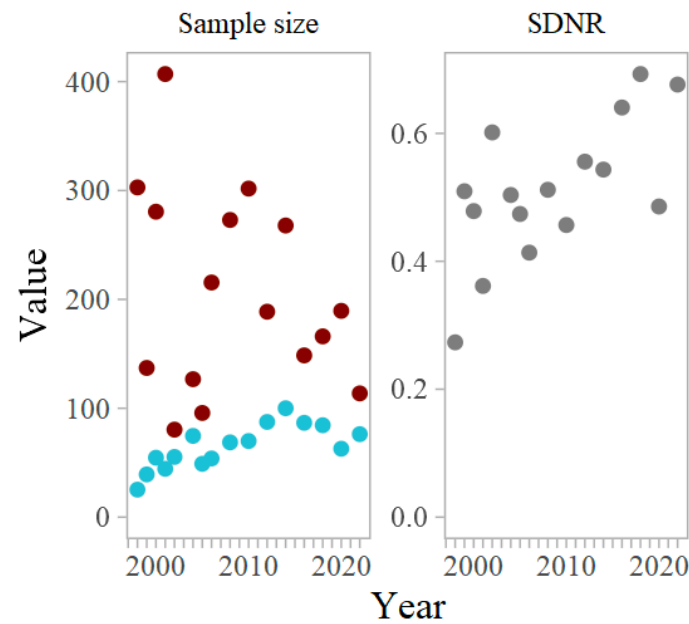
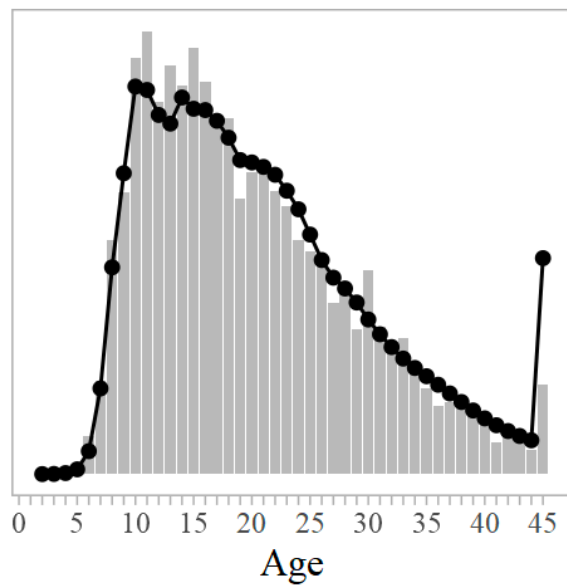
# Northern rockfish



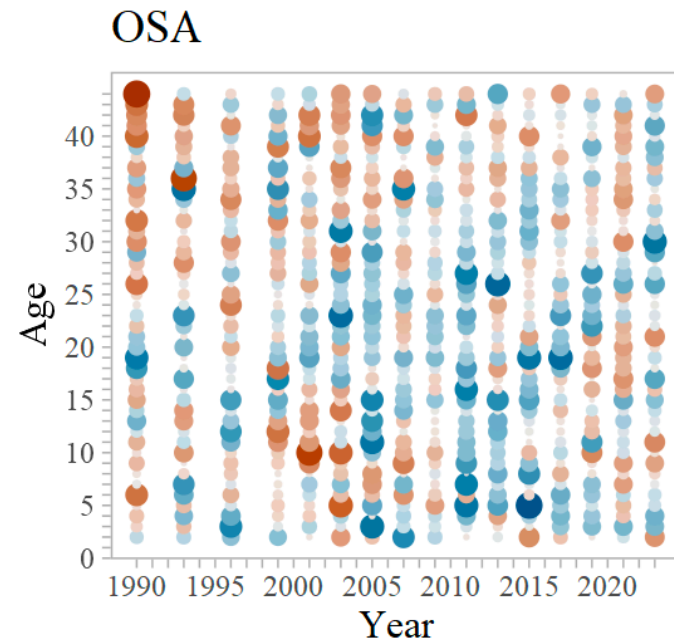
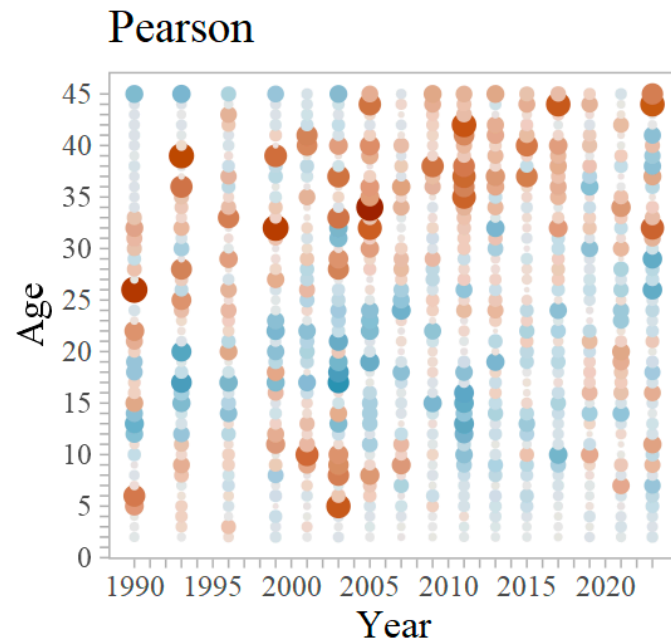
Outlier

- No
- \* Yes

value



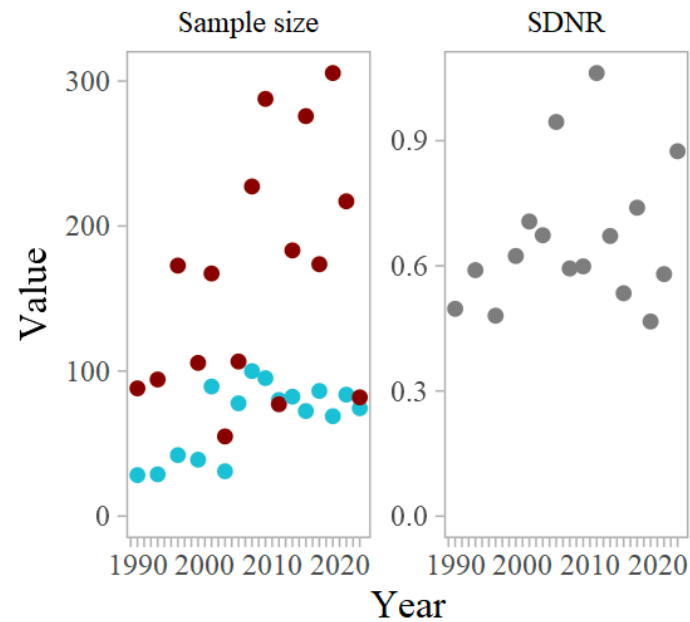
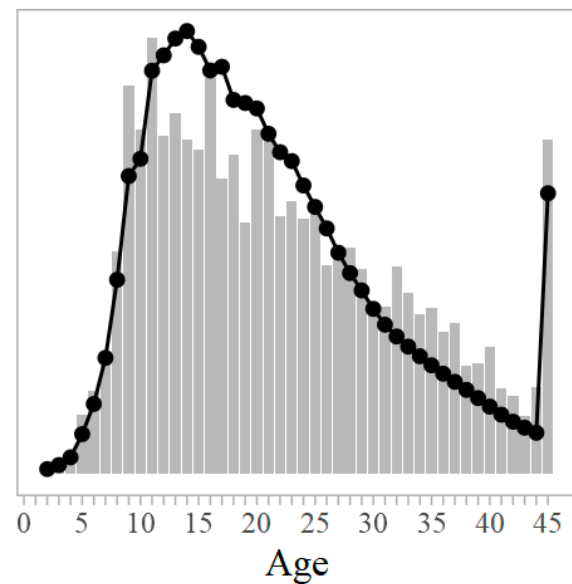
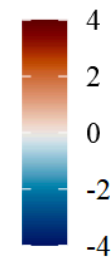
# Northern rockfish



Outlier

- No
- \* Yes

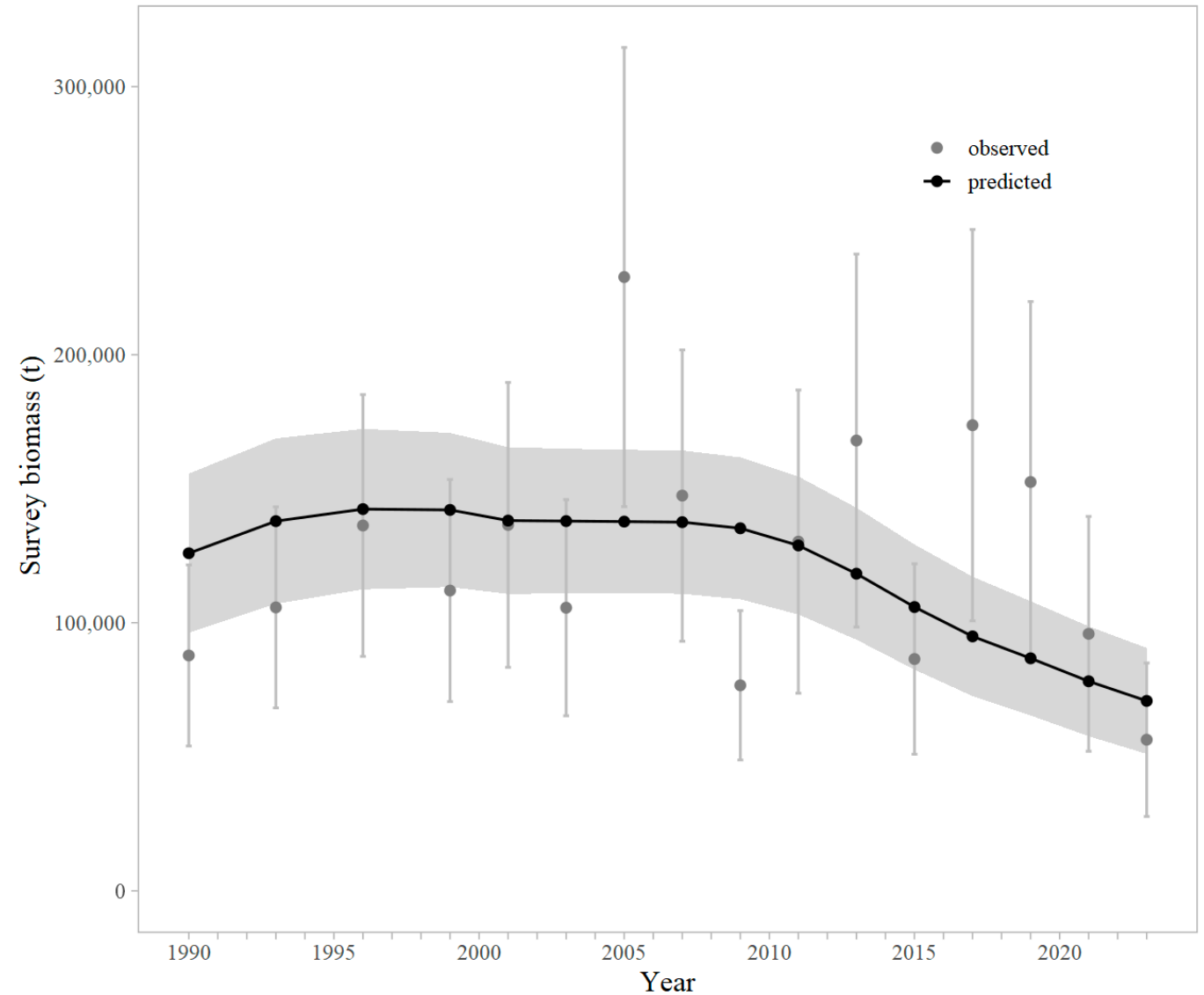
value





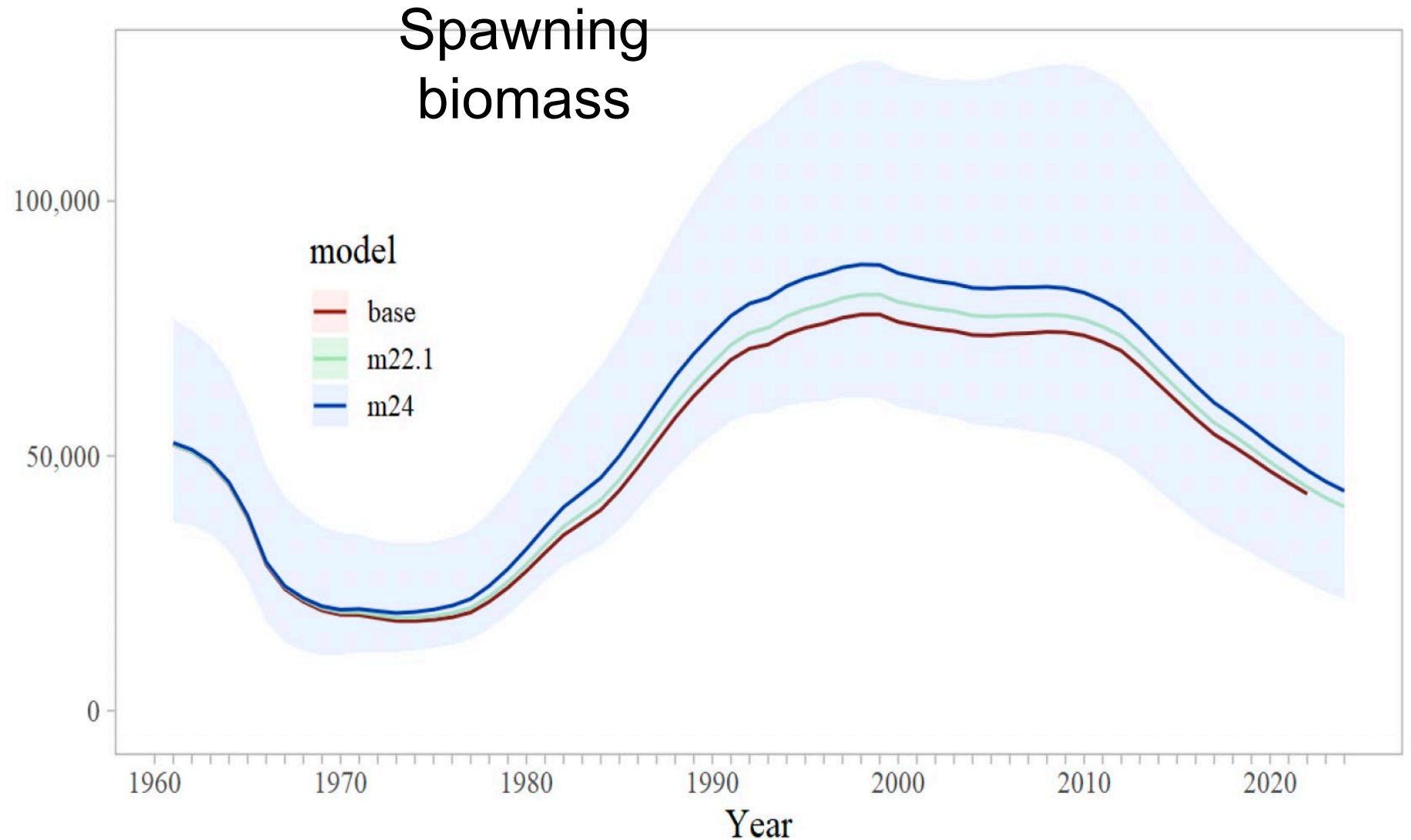
# Northern rockfish

- Fit to survey series



# Northern rockfish: Team discussion

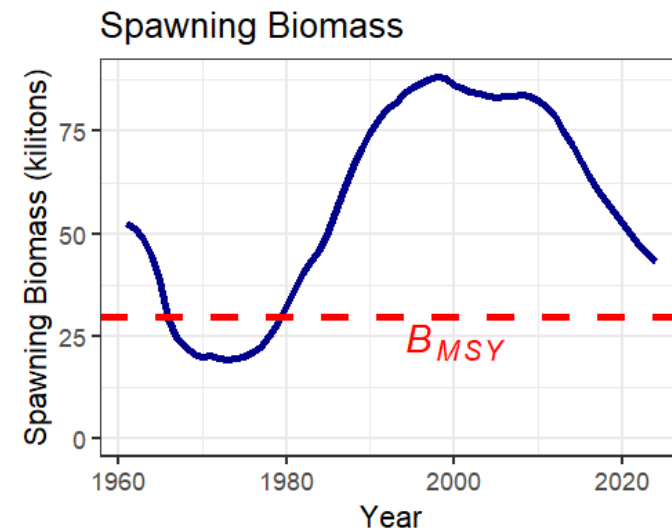
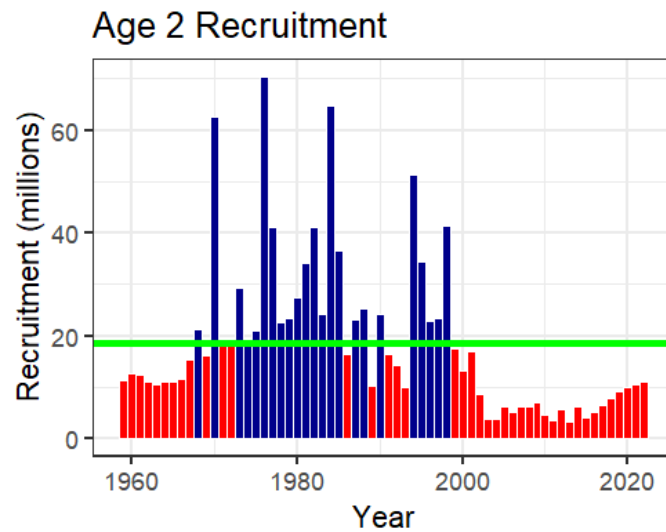
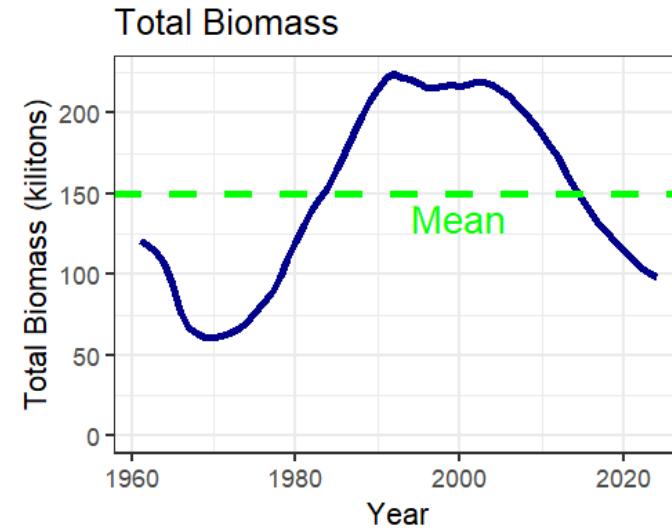
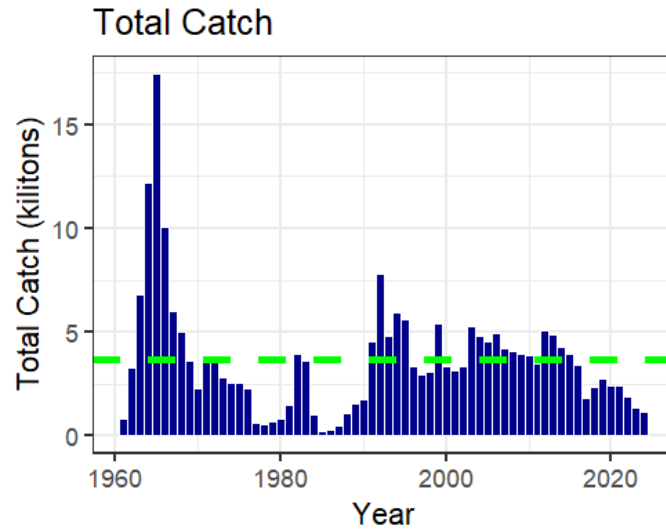
- The Team agreed change from ADMB to RTMB and ABCs and OFLs
- No reduction from maxABC.



# Northern rockfish apportionment

- Proposed alternative apportionment method
  - VAST approach (same as for model)
  - Large changes to apportionment, very different from expectations
- Team ultimately recommended status quo approach for 2025.
  - Noted that more research needed
- Also applies to Dusky rockfish apportionment

# Northern rockfish



# Dusky Rockfish

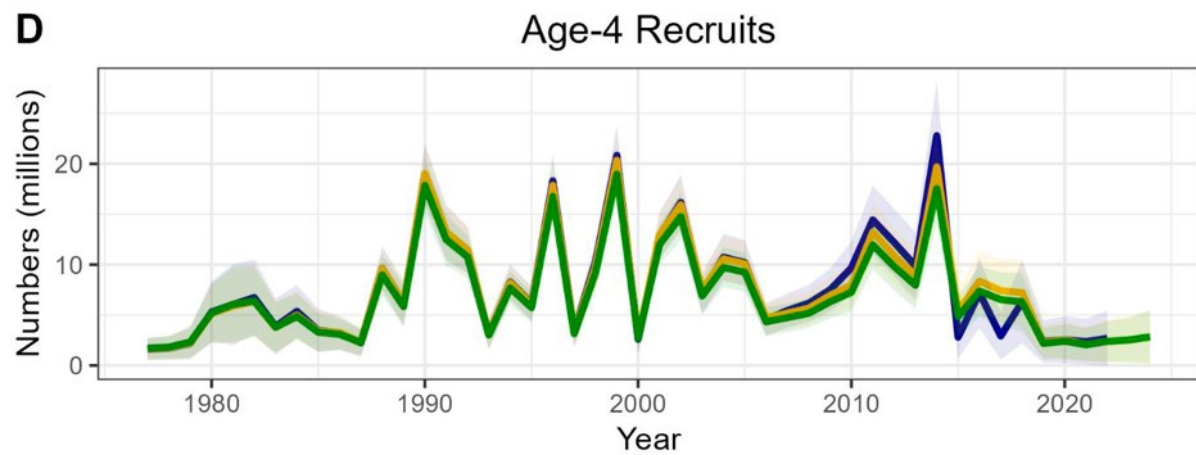
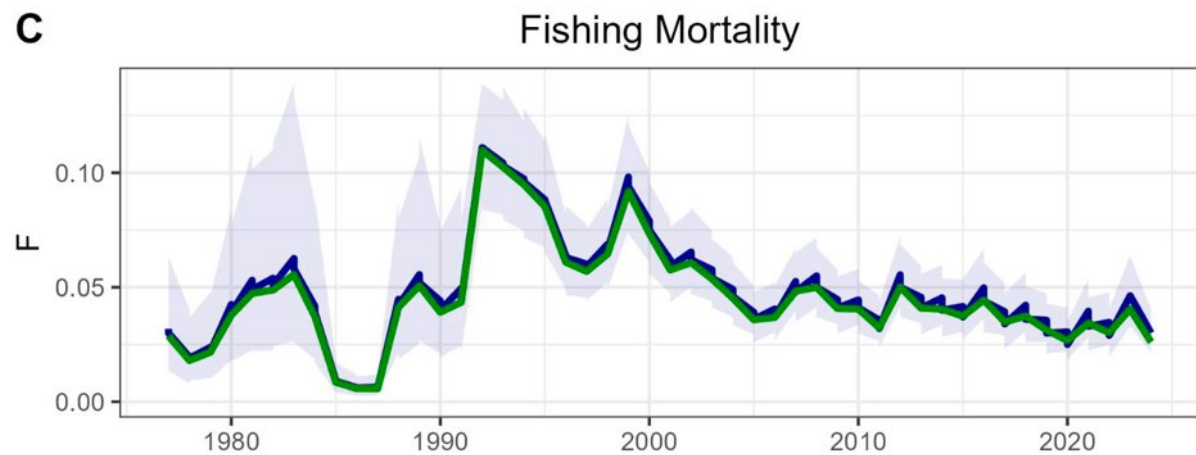
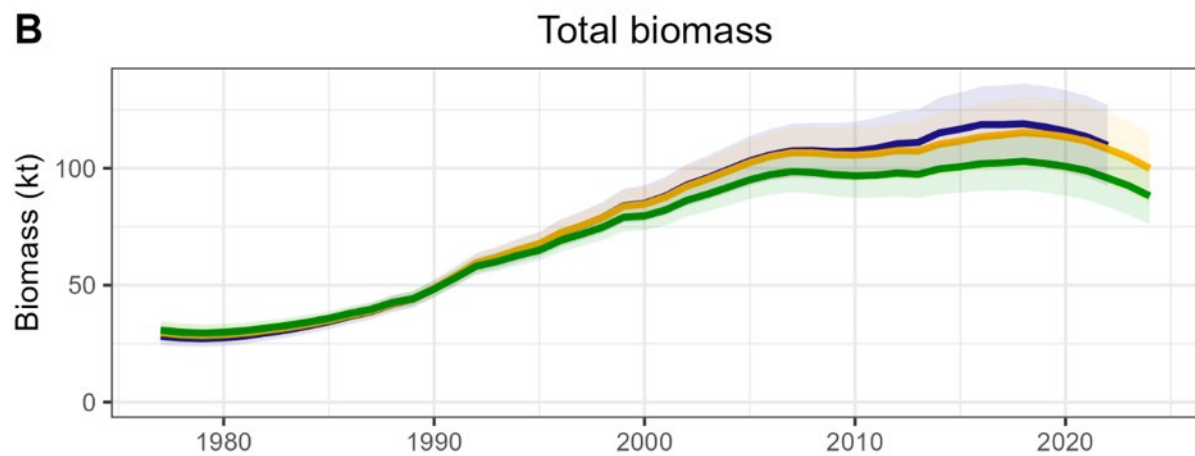
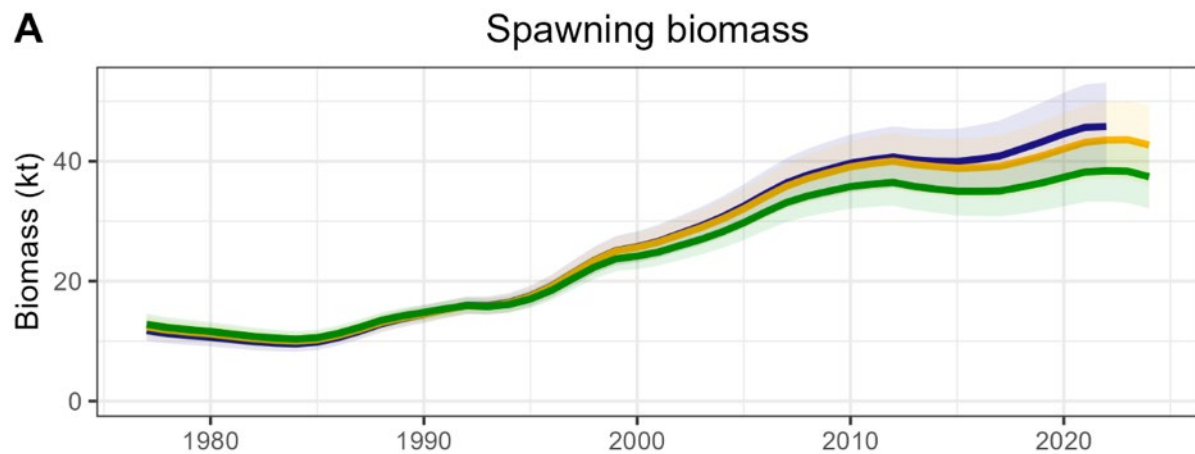
Species	ABC 2024	ABC 2025	Change
POP	39,719	38,962	down 757 (2%)
northern rockfish	4,815	5,076	up 261 (5%)
Shortraker Rockfish	647	647	same (0%)
Dusky	7,624	6,338	down 1,286 (17%)
Rougheye and Blackspotted Rockfish	1,037	1,180	up 143 (14%)
Demersal shelf rockfish	283	394	up 111 (39%)
Thornyhead	1,628	1,338	down 290 (18%)
Other rock	3,774	3,505	down 269 (7%)
Sub Total	59,527	57,440	down 2,087 (4%)

# GOA Dusky rockfish (Full)

Source	Data	Years
NMFS Groundfish survey	Survey biomass	1990-1999 (triennial), 2001-2021 (biennial), <b>2023*</b>
	Age composition	1990-1999 (triennial), 2003-2021 (biennial), <b>2023*</b>
U.S. trawl fishery	Catch	1977-2022, <b>2023-2024*</b>
	Age composition	1998-2002, 2004-2006, 2008-2020 (biennial), <b>2022*</b>
	Length composition	1991-1997, 2003, 2007-2021 (biennial), <b>2023*</b>

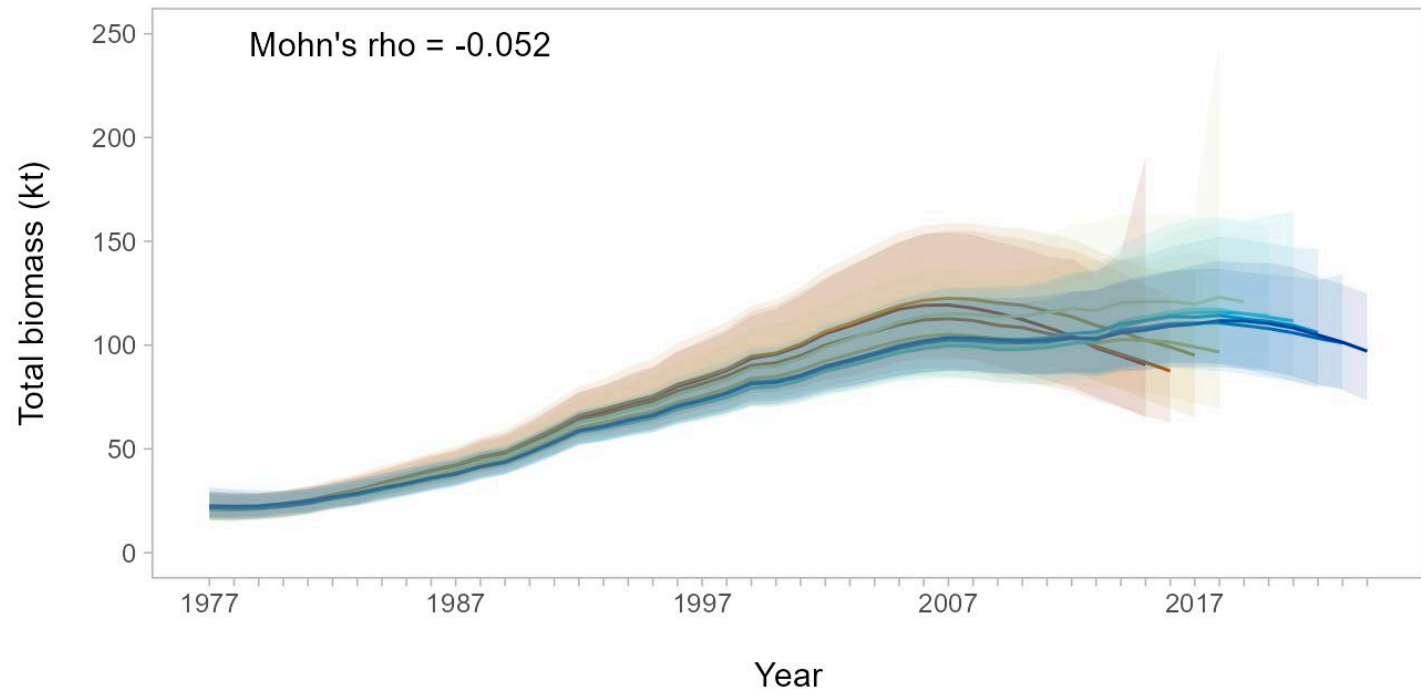
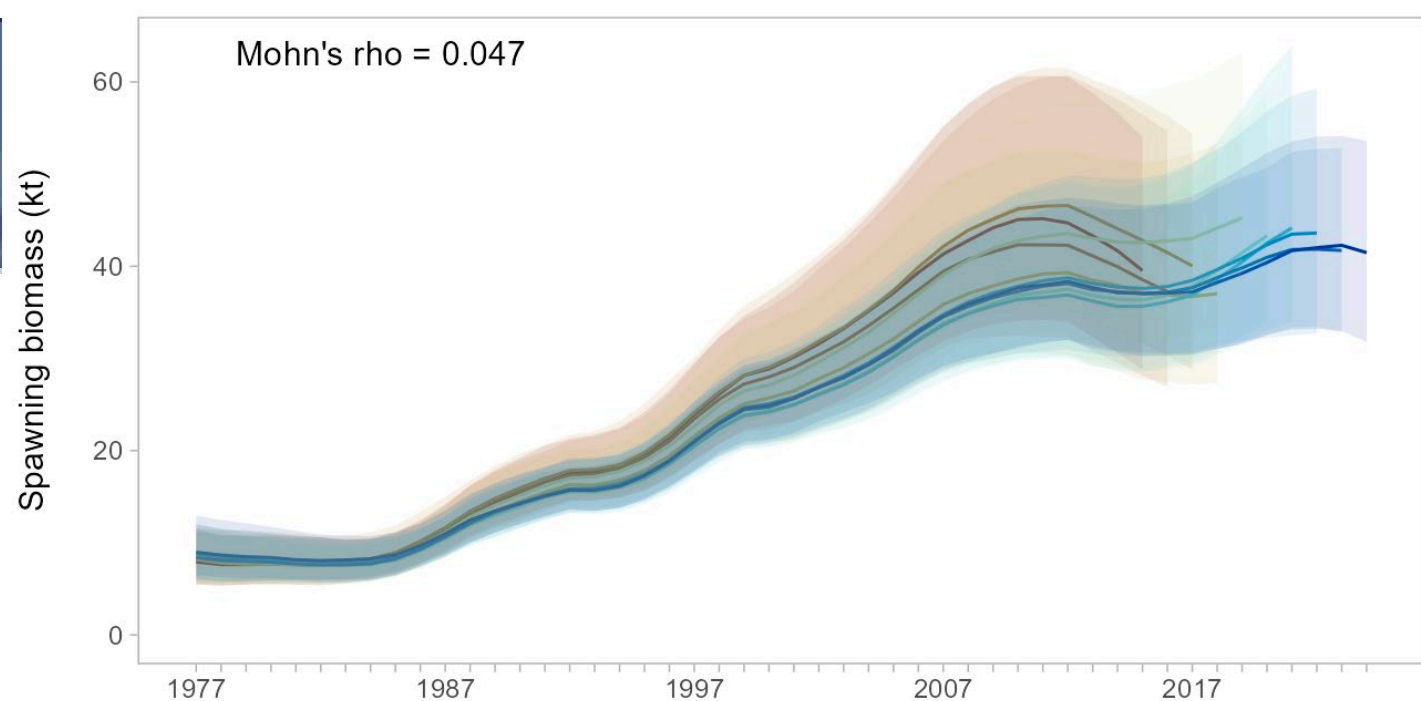
Thanks to Kristen Omori

# Dusky rockfish

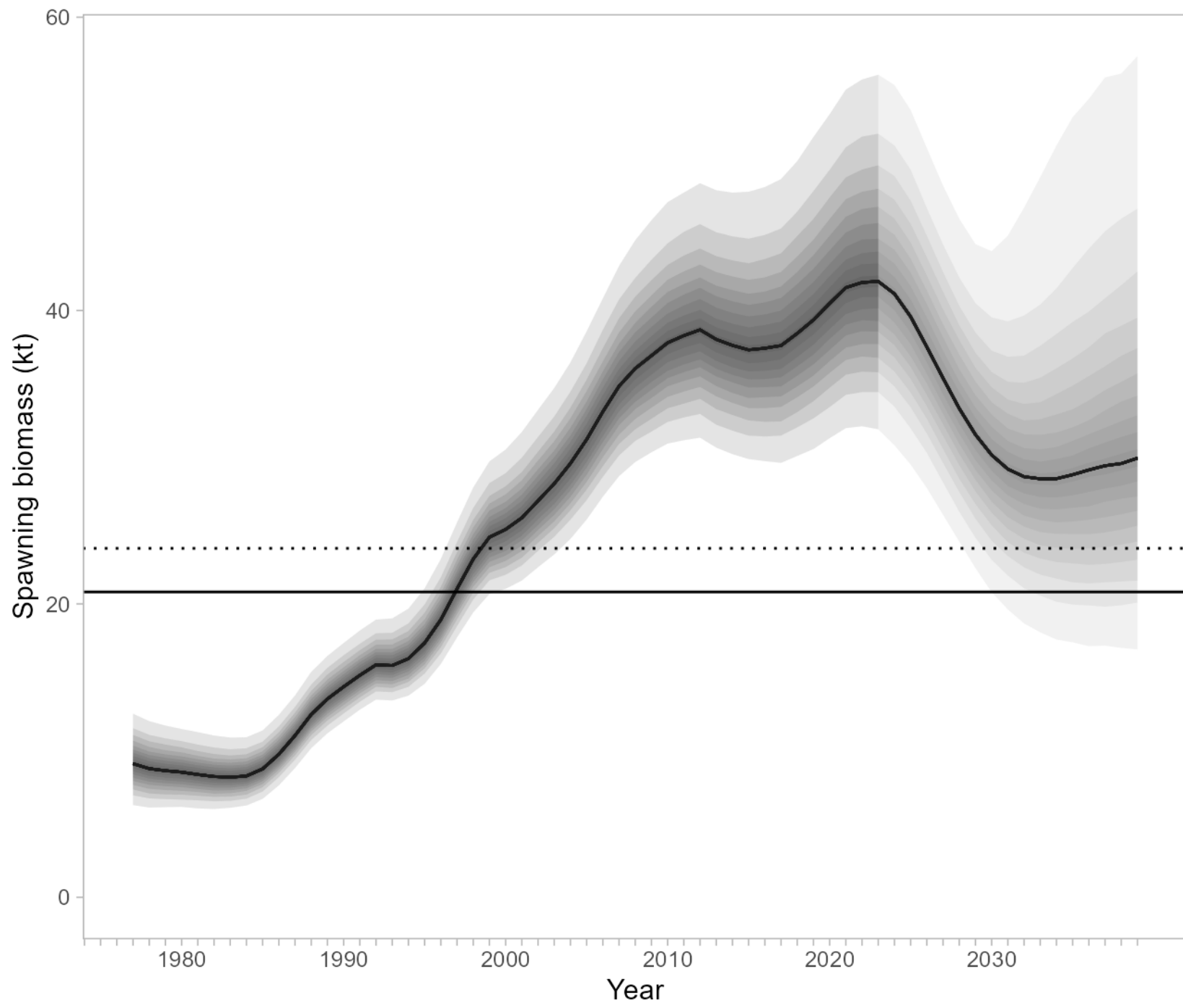


# Dusky rockfish

- Retrospective pattern
  - Low Mohn's rho, but shows 2 different patterns
  - Consistent estimated biomass in last 5 years of peels (< 5 years are removed)
  - Early peels (> 5 years removed), overestimation of spawning biomass



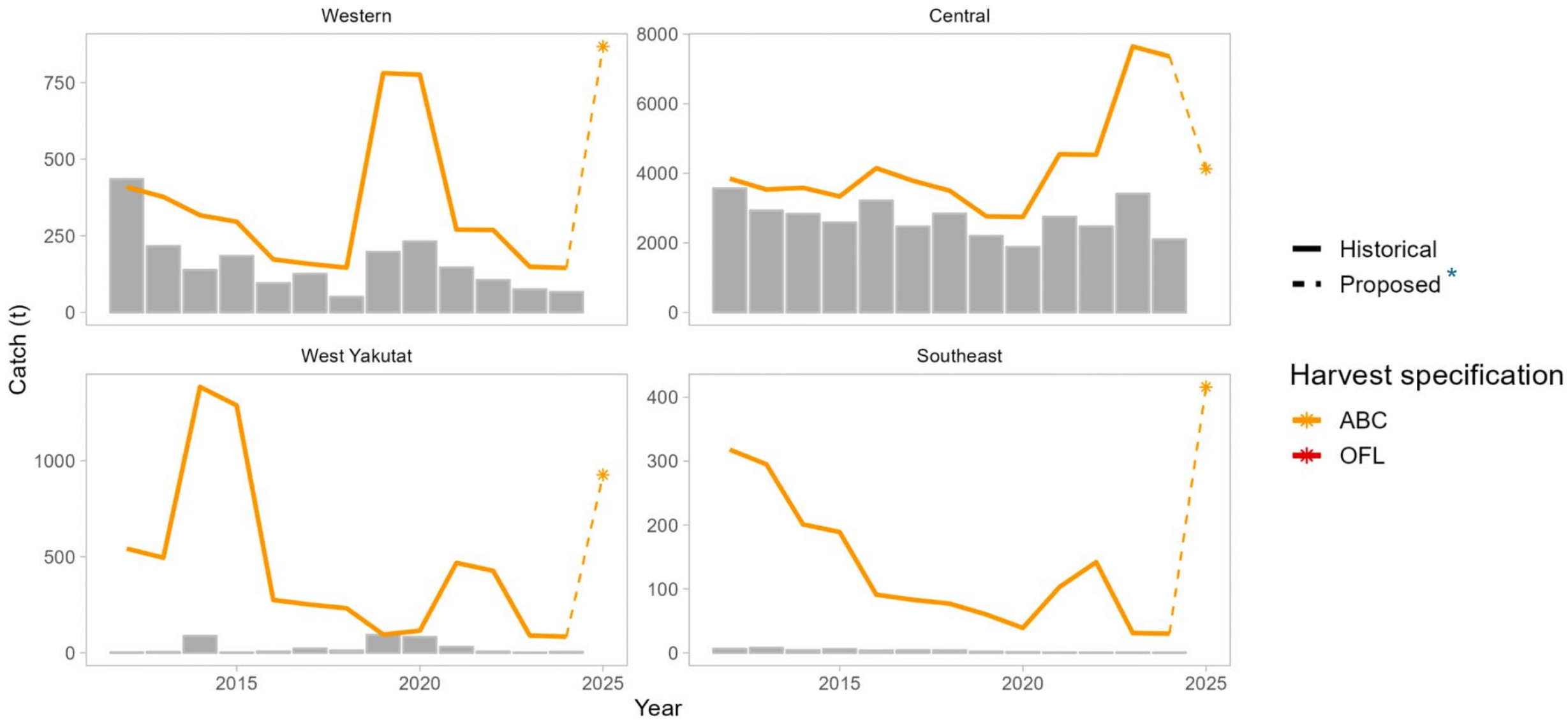




# Dusky rockfish

Assessment-related considerations	Population dynamics considerations	Environmental/ ecosystem considerations	Fishery-informed stock considerations
Level 2: Increased concern	Level 1: Normal	Level 1: Normal	Level 1: Normal
<ul style="list-style-type: none"><li>• Decent data fits (except length comps)</li><li>• High recruitment uncertainty</li><li>• Sensitive to the scaling of the VAST index</li><li>• Bimodal pattern in retrospective analysis</li></ul>	<ul style="list-style-type: none"><li>• No dramatic changes from last assessment</li><li>• Unknown levels of skip spawning</li></ul>	<ul style="list-style-type: none"><li>• No concerning conditions</li></ul>	<ul style="list-style-type: none"><li>• Catch in 2024 is low from fishery not targeting rockfish (not biological reasons)</li><li>• ~ 50% of ABC/ TAC caught</li></ul>

# Dusky rockfish

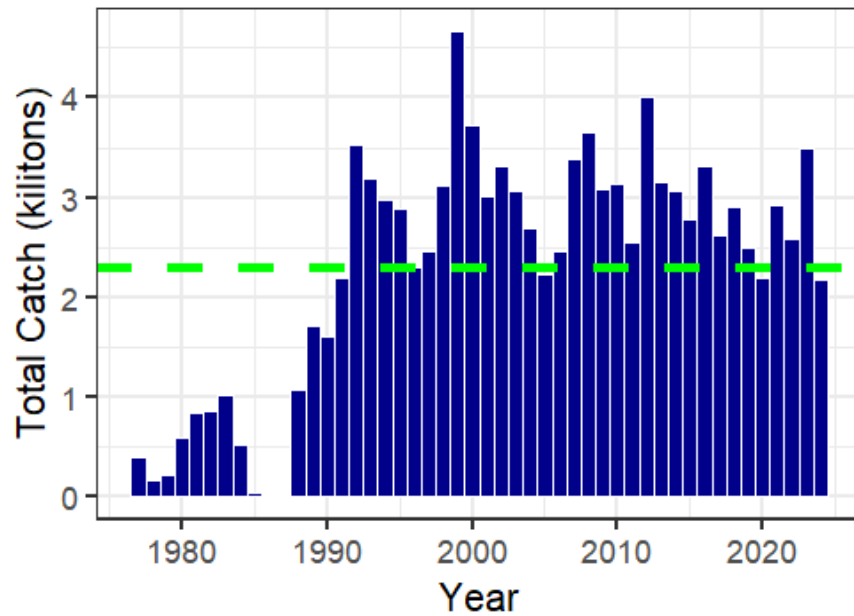


# Dusky rockfish apportionment

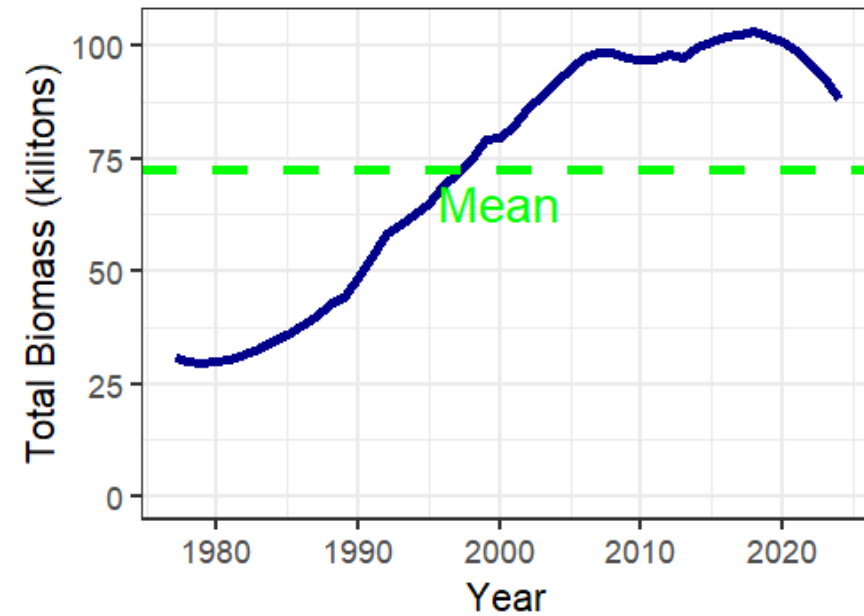
- Proposed alternative apportionment method
  - VAST approach (same as for model)
  - Large changes to apportionment, very different from expectations
- Team ultimately recommended status quo approach for 2025.
  - Noted that more research needed
- Also applies to Northern rockfish apportionment

# Dusky rockfish

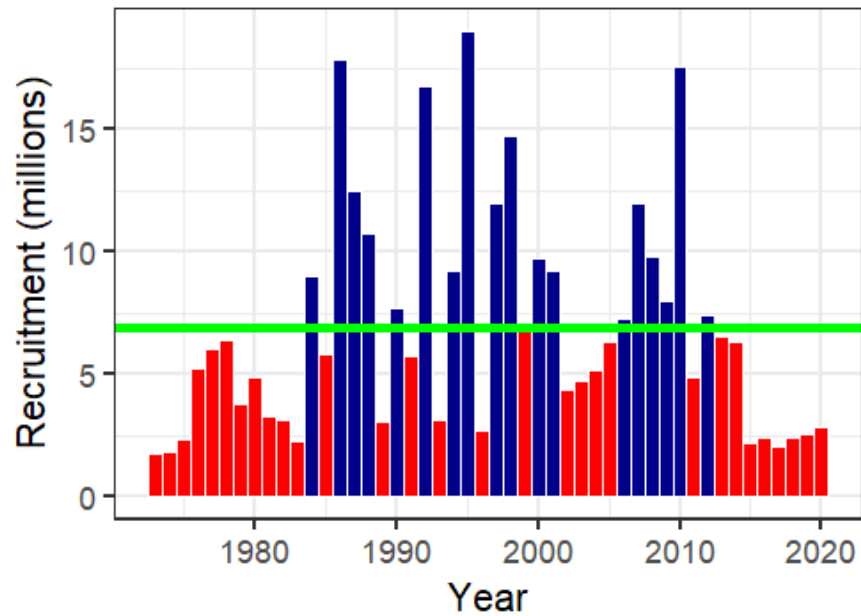
### Total Catch



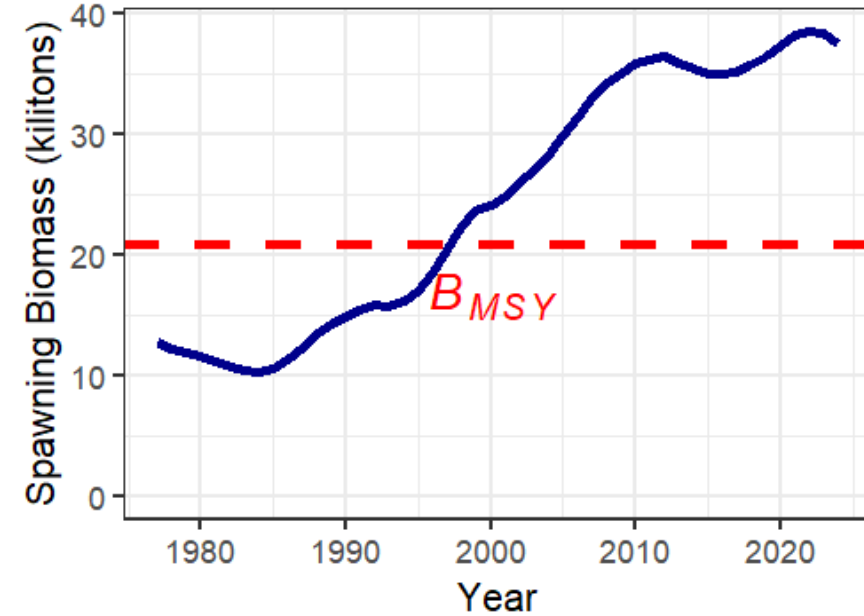
### Total Biomass



### Age 4 Recruitment



### Spawning Biomass



# Other Rockfish

Species	ABC 2024	ABC 2025	Change
POP	39,719	38,962	down 757 (2%)
northern rockfish	4,815	5,076	up 261 (5%)
Shortraker Rockfish	647	647	same (0%)
Dusky	7,624	6,338	down 1,286 (17%)
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Thornyhead	1,628	1,338	down 290 (18%)
Other rock	3,774	3,505	down 269 (7%)
Sub Total	59,527	57,440	down 2,087 (4%)

2024 and 2025 OROX are not comparable due to DSR being moved out of OROX in W/C/WYAK for 2025

## GOA Other rockfish (update)

*“The Council is considering a motion to change the spatial management of demersal shelf rockfish (DSR), by moving DSR species out of the other rockfish category to a GOA wide assessment. The SSC supports making this change to the DSR complex in the 2024 stock assessment for implementation for the 2025 fisheries and looks forward to examining the area apportionment at that time.” (SSC, October 2023)*

- Was therefore an update assessment to reflect the species membership change in the stock complex (i.e., removal of DSR species from Other Rockfish)

# GOA Other rockfish

No new model runs (no new survey data)

Tiers	Data Input	Assessment method	OFL calculations	Change?
Tier 4: 1 species	GOA bottom trawl survey	REMA	Biomass x $F_{35\%}$	NO
Tier 5: 4 species	GOA bottom trawl survey	REMA	Biomass x $\overline{Wt\_M}$	NO
Tier 6: 14 species	Fishery catch	Catch history	Maximum catch	YES



# GOA Other rockfish

Complex	Western GOA/ Central GOA/ West Yakutat	Southeast Outside	Total
Area ABC (t)	1,083	2,421	3,504
OFL (t)			4,618

ABC and OFL recommendations for the full Other Rockfish complex for 2025–2026.

Quantity All Other Rockfish Combined	As estimated or <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	2024	2025	2025	2026
Tier	4/5/6	4/5/6	4/5/6	4/5/6
OFL (t)	4,977	4,977	<b>4,618</b>	4,618
<u>maxABC</u> (t)	3,774 <sup>1</sup>	3,774 <sup>1</sup>	3,504	3,504
ABC (t)	3,774 <sup>1</sup>	3,774 <sup>1</sup>	<b>3,504</b>	3,504
Status	As determined <i>last year for:</i>		As determined <i>this year for:</i>	
	2023	2024	2024	2025
Overfishing		n/a		n/a

<sup>1</sup>ABCs include the transferred northern rockfish ABC to the Other Rockfish ABC.

# Demersal shelf rockfish (DSR)

7 DSR subgroup species from OROX → W/C/WYAK DSR

- Separate OFL, separate ABC from SEO
- One SAFE chapter

Species	Area	2024			Catch 11/1/2024	SSC Recommended 2025		SSC Recommended 2026	
		OFL	ABC	TAC		OFL	ABC	OFL	ABC
Demersal shelf rockfish	W/C/WYAK	n/a	n/a	n/a	n/a	361	271	361	271
	SEO	376	283	283	153	524	394	524	394

Species	ABC 2024	ABC 2025	Change
POP	39,719	38,962	down 757 (2%)
northern rockfish	4,815	5,076	up 261 (5%)
Shortraker Rockfish	647	647	same (0%)
Dusky	7,624	6,338	down 1,286 (17%)
Rougheye and Blackspotted Rockfish	1,037	1,180	up 143 (14%)
Demersal shelf rockfish	283 (SEO)	394 (SEO)	up 111 (39%)
Thornyhead	1,628	1,338	down 290 (18%)
Other rock	3,774	3,505	down 269 (7%)
Sub Total	Does not include addtl row for W/C/WYAK DSR (non SEO) 59,527	57,440	down 2,087 (4%)

# Demersal shelf rockfish (DSR): Update



## Tier 5 (Yelloweye) Model 22.2 (REMA)

- Estimates
  - one process error
  - four area-specific scaling coefficients
  - additional observation error for the ADF&G ROV survey biomass estimates
- IPHC CPUE index is included as a secondary index of abundance; both surveys have equal weights

## Tier 6

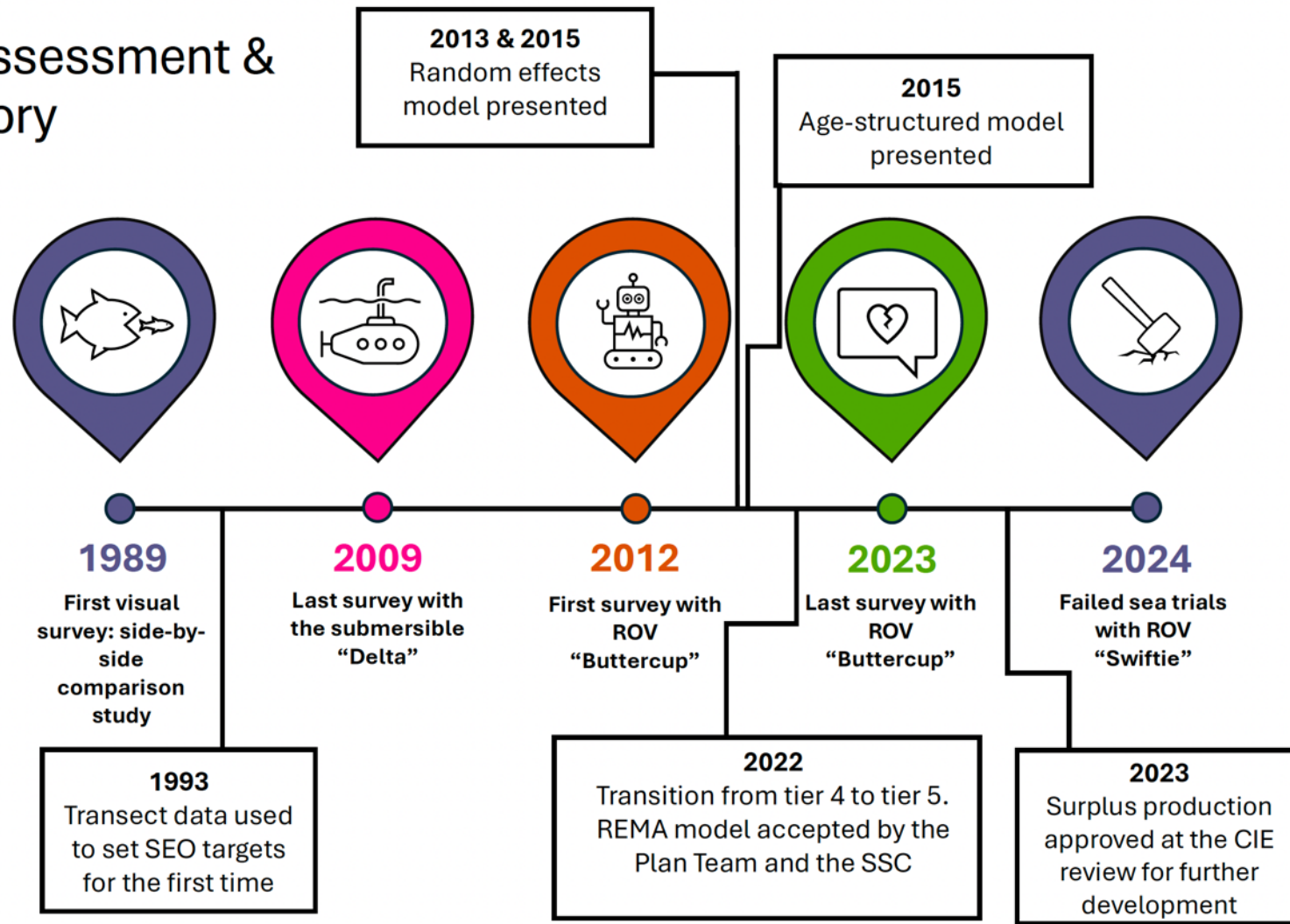
- CG/WG/WY      271 t ABC
- SEO              20 t ABC

Thanks to Caitlin Stern, Laura Coleman, Rhea Ehresmann, Kristen Omori, Phil Joy, Christine Hinds, Bridget Ferriss

# Demersal shelf rockfish (DSR) SEO

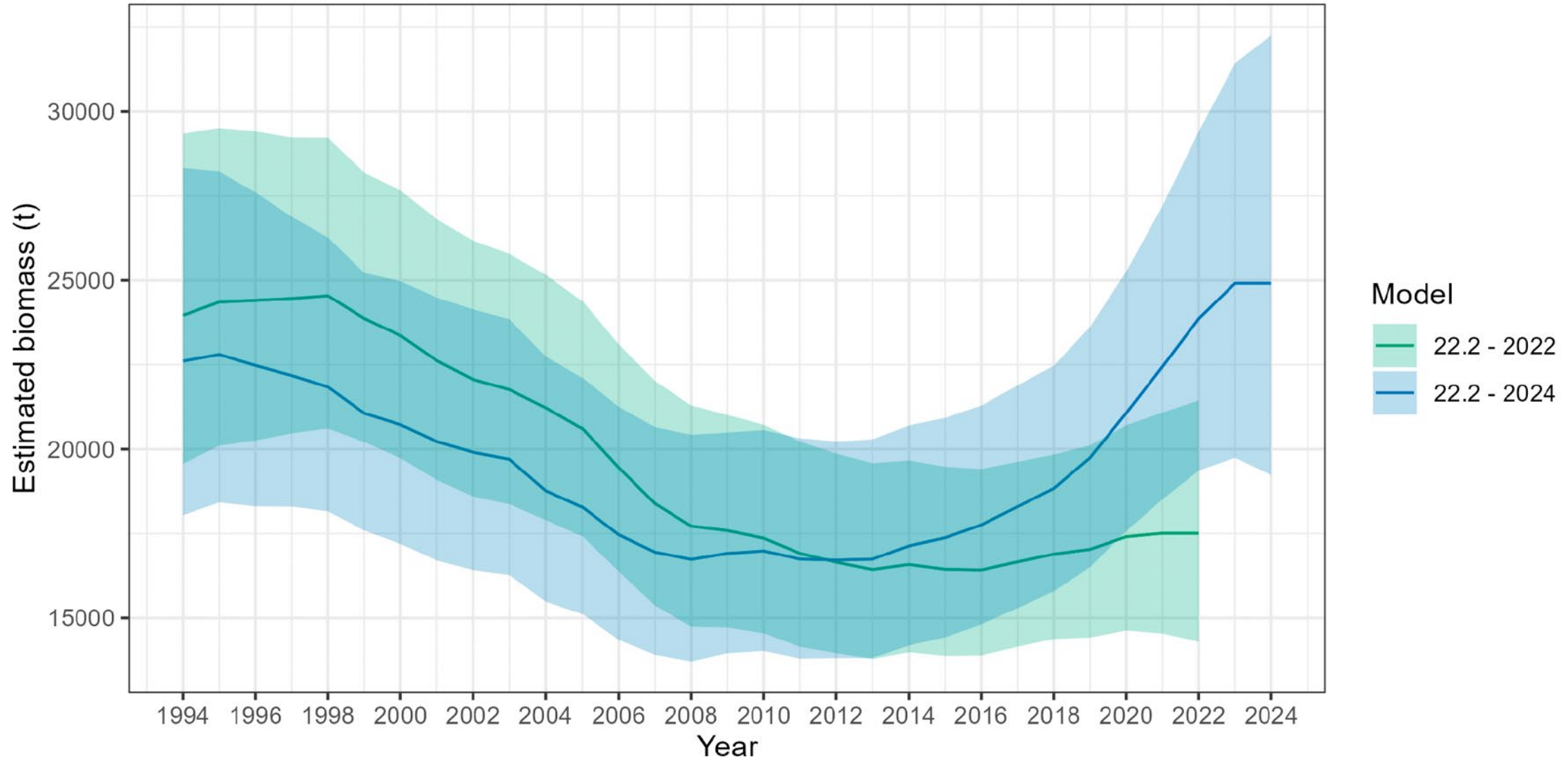


## SEO DSR Assessment & Survey History



Status-quo method: Lower 90% confidence interval of biomass estimate to set targets

# Demersal shelf rockfish (DSR) SEO



# Demersal shelf rockfish (DSR) SEO



Quantity	As estimated or <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	2024	2025	2025	2026
$M$ (natural mortality rate)	0.02	0.02	0.044	0.044
Tier	5	5	5	5
Yelloweye biomass (t)	17,511	17,511	24,912	24,912
$F_{OFL}$	$F = M = 0.02$	$F = M = 0.02$	$F = M = 0.044$	$F = M = 0.044$
$maxF_{ABC}$	$0.75M = 0.015$	$0.75M = 0.015$	$0.75M = 0.033$	$0.75M = 0.033$
$F_{ABC}$	0.01275	0.01275	0.0264	0.0264
OFL (t)	350	350	1,096	1,096
maxABC (t)	263	263	822	822
ABC (t)	263	263	658	658
Status	As determined <i>last year for:</i>		As determined <i>this year for:</i>	
	2022	2023	2023	2024
Overfishing	No	n/a	No	n/a

# Demersal shelf rockfish (DSR) Team discussions



- The Team discussed the IPHC CPUE standardization and noted that issues related to hook competition could be improved. Consequently, the Team recommended
  - **that this could be addressed by treating the data as compositional data and using information about total catch of other species and examining empty hooks for target and non target species. Also..**
  - examining the effect of this survey effort reduction on the catch estimates and compositions.

# Demersal shelf rockfish (DSR) Team discussions

The Team noted that

- more exploration of estimating M needed
  - A change in the value of M has a large impact on reference points could be helped by more evaluation
- Authors suggested 20% reduction in maxABC based on the risk table analysis
  - **Instead, The Team recommended using a natural mortality value of 0.02 applied to the new standardized IPHC CPUE index for determining maxABC/OFL for 2025 with no reduction from maxABC.**
- The Team agreed with the authors' recommended ABC/OFLs for the remaining Tier 6 Southeast Outside and WG/CG/WY species.





# Thornyhead Rockfish

Species	ABC 2024	ABC 2025	Change
POP	39,719	38,962	down 757 (2%)
northern rockfish	4,815	5,076	up 261 (5%)
Shortraker Rockfish	647	647	same (0%)
Dusky	7,624	6,338	down 1,286 (17%)
Rougheye and Blackspotted Rockfish	1,037	1,180	up 143 (14%)
Demersal shelf rockfish	283	394	up 111 (39%)
<b>Thornyhead</b>	<b>1,628</b>	<b>1,338</b>	<b>down 290 (18%)</b>
Other rock	3,774	3,505	down 269 (7%)
Sub Total	59,527	57,440	down 2,087 (4%)

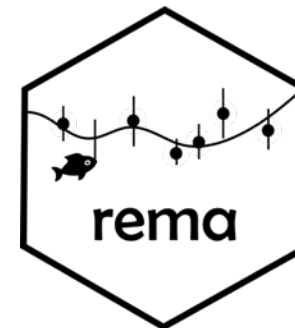
# GOA Thornyhead rockfish (Full)

## Stock Complex model updates

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

- Changes in the input data
  - Bottom trawl survey biomass and errors from the 1990 to 2023 updated.
  - Longline survey RPWs and errors from 1992 to 2023 updated.
- Changes in assessment methodology
  - Common process-error instead of area-specific values

Thanks to Kevin Siwicke and Katy Echave



# GOA thornyhead rockfish catch – 2024



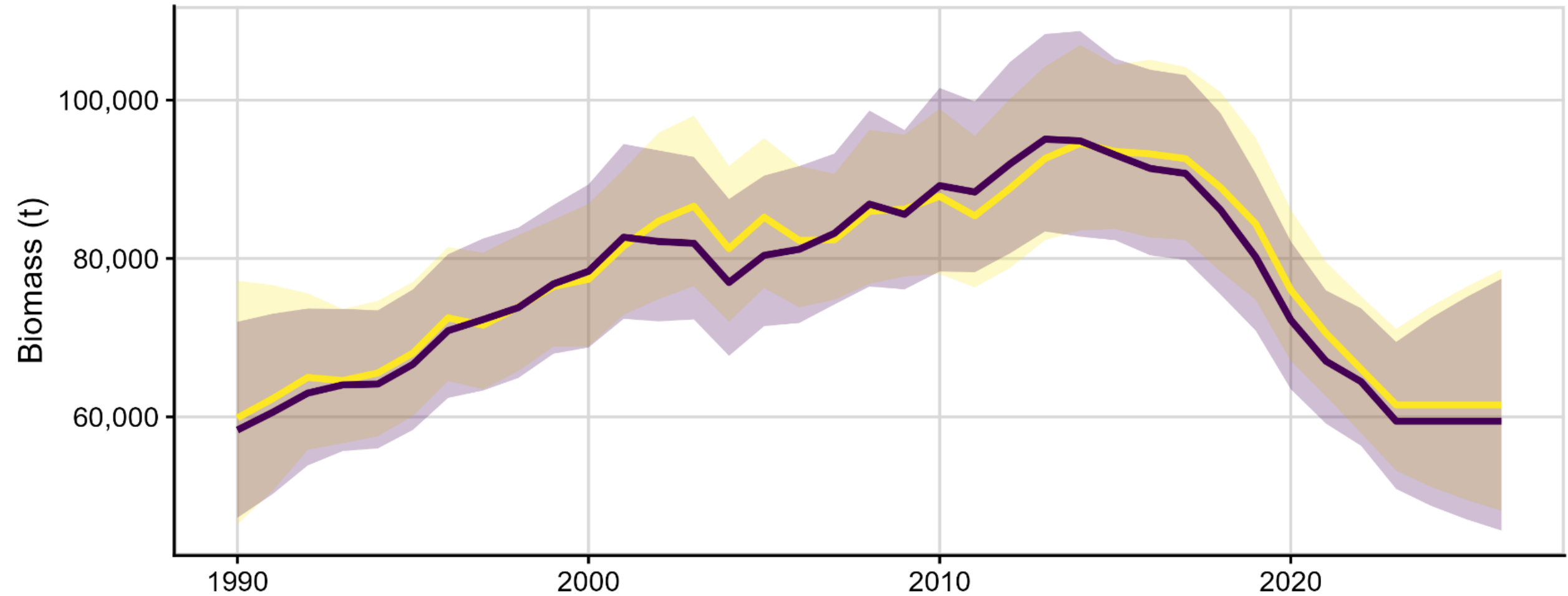
Area	OFL	ABC	TAC	Catch
W	n/a	314	314	34
C	n/a	693	693	62
E	n/a	621	621	61
Total	2,170	1,628	1,628	157*

\*Catch as of Oct. 7, 2024

- 2024 catch is 25% below 2023 Total
- Catch is at 10% of GOA-wide ABC

# GOA thornyhead rockfish common vs area-split process errors

Model 22a base Model 24.2



# GOA thornyhead

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

# GOA thornyhead rockfish

Quantity	As estimated or <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	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	<b>1,784</b>	1,784
maxABC (t)	1,628	1,628	1,338	1,338
ABC (t)	1,628	1,628	<b>1,338</b>	1,338
Status	As determined <i>last year for:</i>		As determined <i>this year for:</i>	
	2022	2023	2023	2024
Overfishing	No	n/a	No	n/a

# GOA thornyhead rockfish

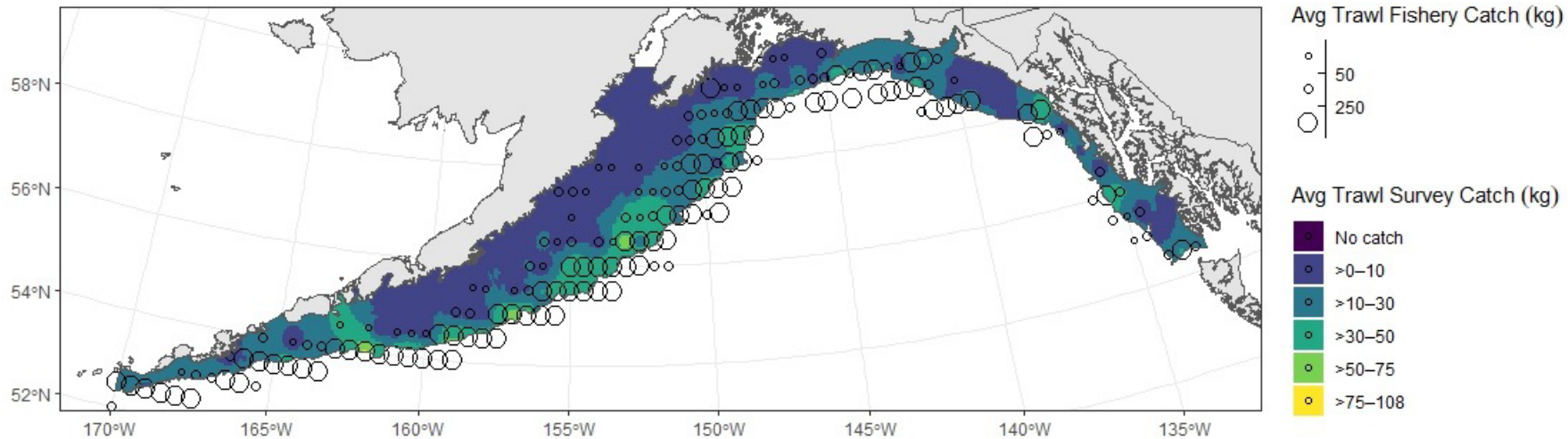
Area	2025 Biomass (t)	% of Biomass	ABC (t)	% Change from 2024
Western GOA	10,514	15%	206	-34%
Central GOA	25,643	44%	590	-17%
Eastern GOA	23,302	41%	542	-13%
GOA-wide	59,459	100%	1,338	-18%

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

# Thornyhead: Stock Structure Summary (Echave)

Data suggest current practice ok

- But data limited...
- Genetic differentiation lacking
- Growth similar
- Movement limited based on tags
- Fishing distribution consistent with abundance





# Thornyhead Recommendations

- 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.
- Plan Team agreed with the author's recommendation
  - Noted decrease in LL survey RPN/RPW in all regions
  - and similar (but less definitive) decline in the BTS (primarily evident in the western GOA).
  - The Team cautioned this could indicate a concerning trend considering catches are low and recommended tracking further changes in thornyhead population levels over the coming cycles.



# Catch reports

	Year	OFL	ABC	TAC	Catch
<b>Atka mackerel</b>	2023	6,200	4,700	3,000	925
	2024	6,200	4,700	4,700	760
<b>Shortraker</b>	2023	940	705	705	494
	2024	863	647	647	343
<b>Sharks</b>	2023	6,521	4,891	4,891	1,963
	2024	6,521	4,891	4,891	1,288
<b>Octopus</b>	2023	1,307	980	980	191
	2024	1,307	980	980	197
<b>Skates</b>	2023	1,311	984	984	611
	2024	887	665	665	547

**PT OFL/ABC Recommendations for catch report stocks for 2025/2026 shown in Table 1 (all are rolled over)**

# GOA Stocks with Harvest Projections (reviewed in Sept/Oct)

- GOA flathead sole- Maia Kapur
- GOA POP- Ben Williams, Maia Kapur
- GOA RE/BS rockfish- Jane Sullivan
- GOA rock sole- Meaghan Bryan
- GOA shallow-water flatfish (SWF)- Meaghan Bryan
- GOA rex sole- Carey McGilliard
- GOA deepwater flatfish- Carey McGilliard
- GOA arrowtooth flounder (ATF)- Kalei Shotwell

**Final OFL/ABC Recommendations for harvest projections for 2025/2026 shown in Table 1**

## Key Events in Gulf of Alaska Groundfish Management

