GOA Pacific ocean perch

Pete Hulson, Ben Williams, Ben Fissel, Bridget Ferriss, Madison Hall, Ellen Yasumiishi, and Darin Jones

BLUF:

No assessment changes for 2021

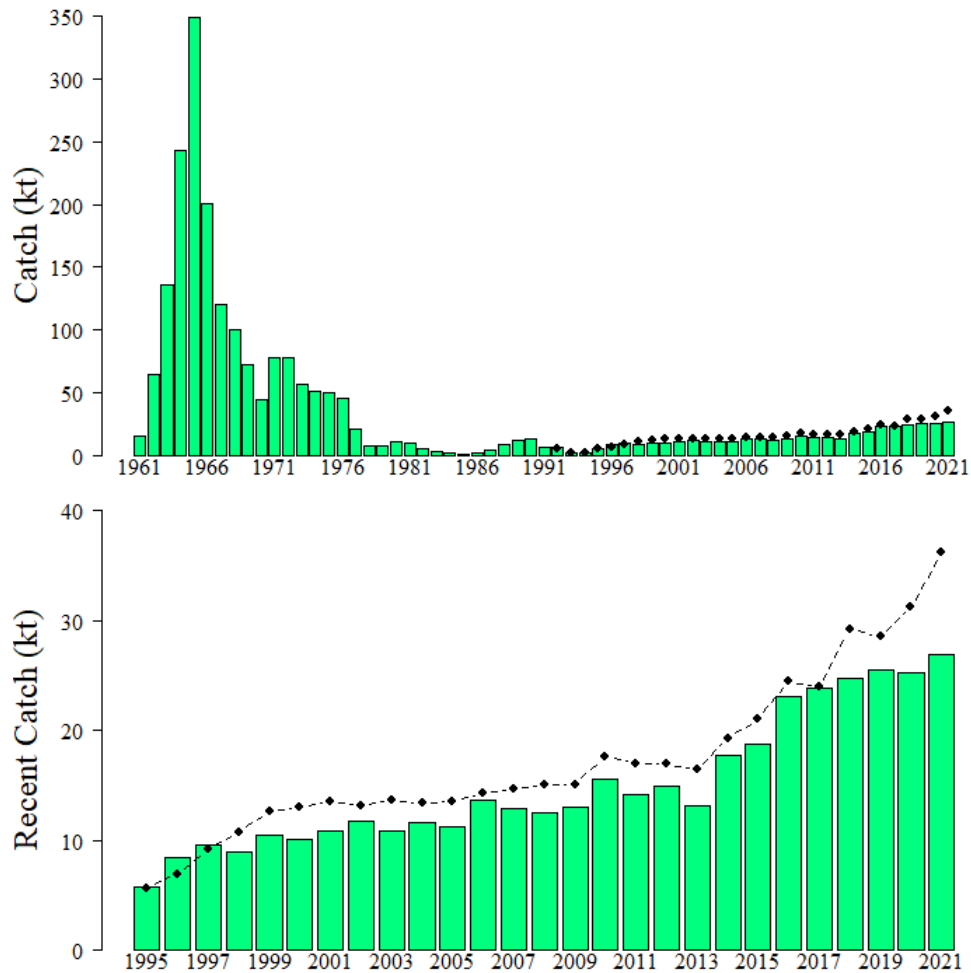- Continue to work on model developments (outlined at the end)

Outline:

1. Input data
2. Model fits
3. Model results
4. Recommendations
5. Apportionment
6. Risk table
7. Future work

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Input data

- New data:
  - 2021 survey biomass
  - 2020 fishery ages
  - updated catch

Catch

Since 2018, catch < TAC
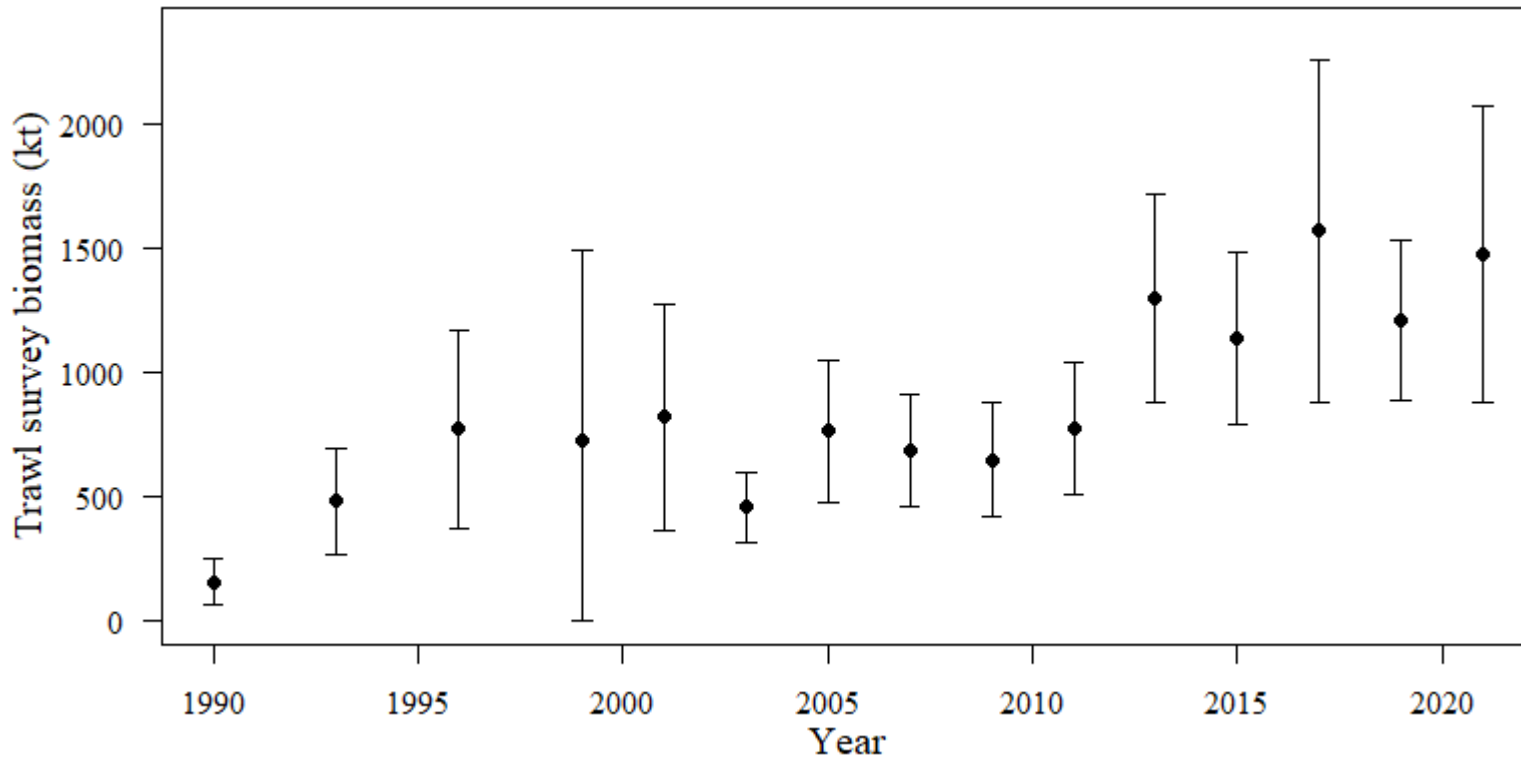
Trawl survey biomass
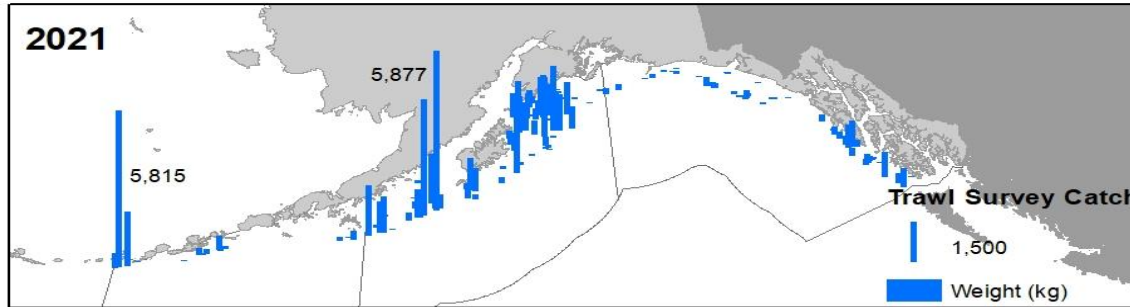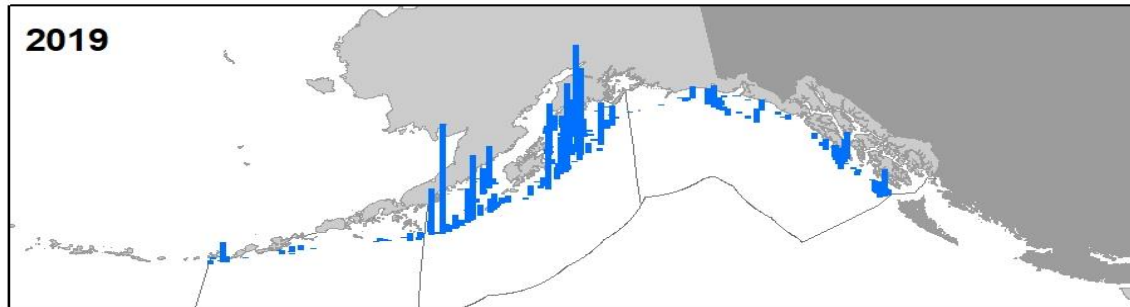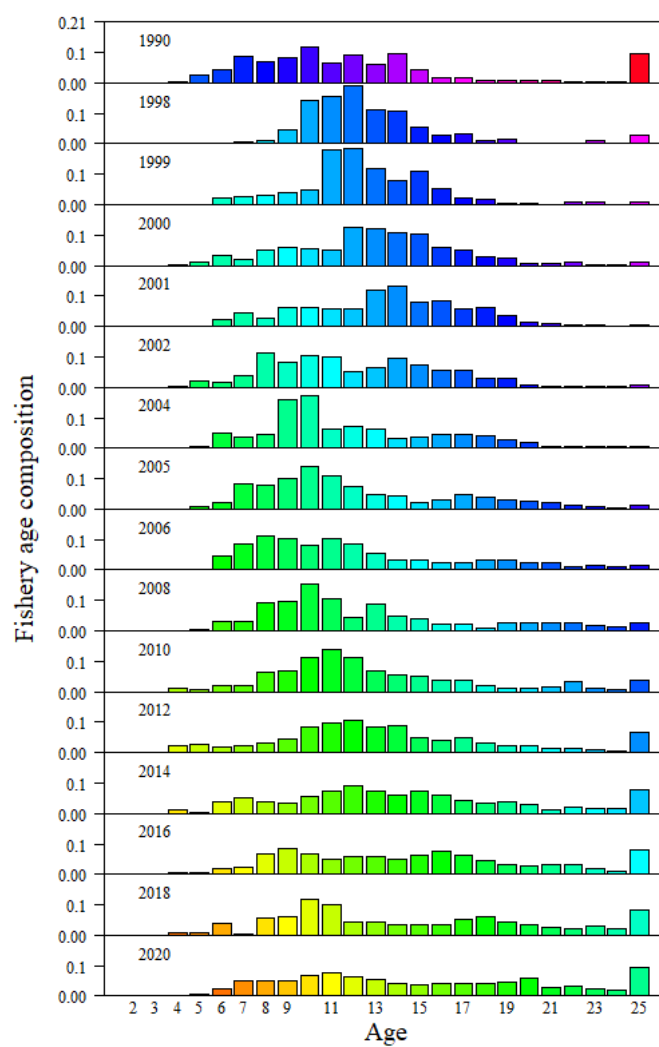
2021 2nd largest in time series (CV=21%)

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service
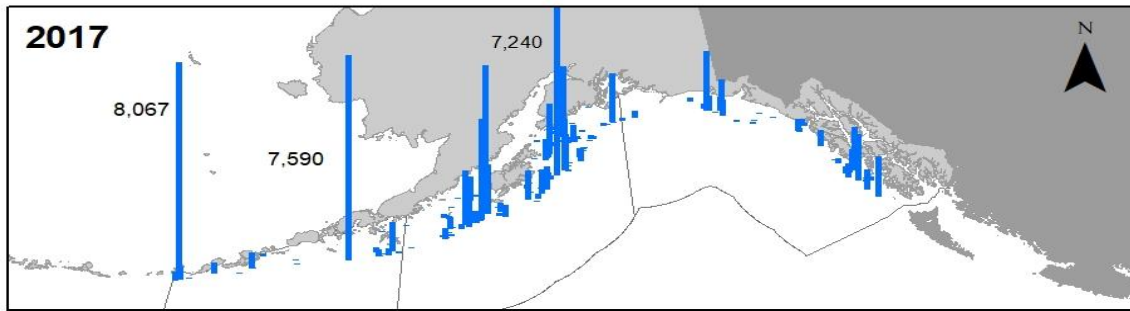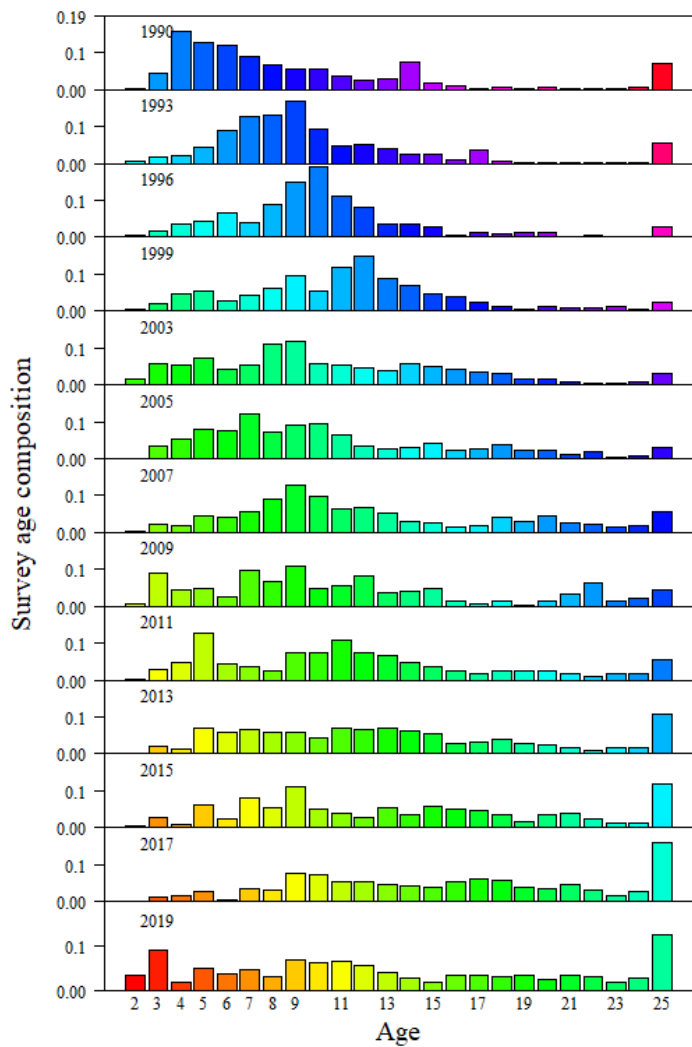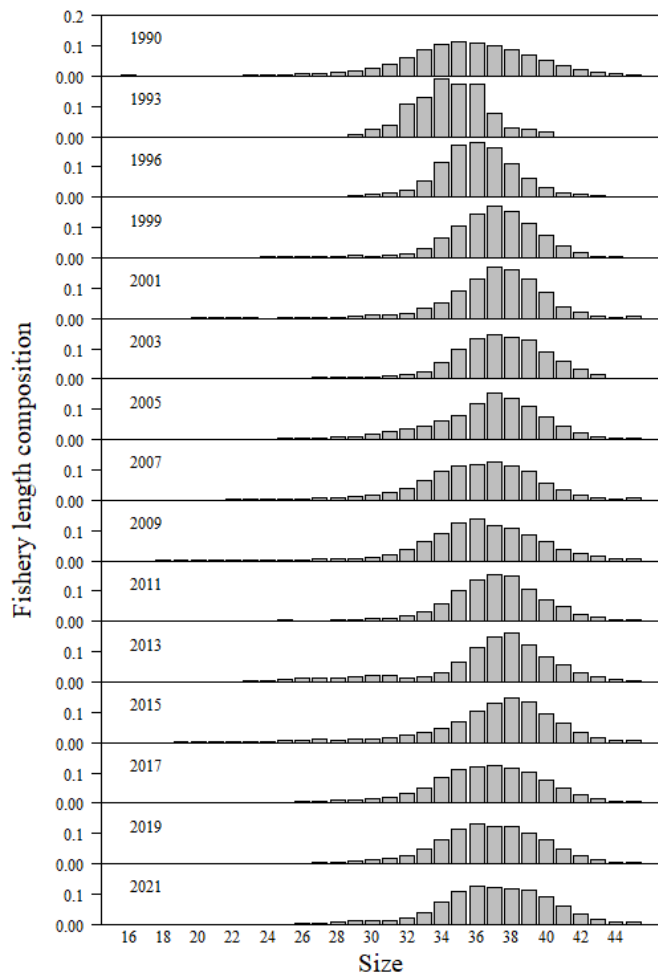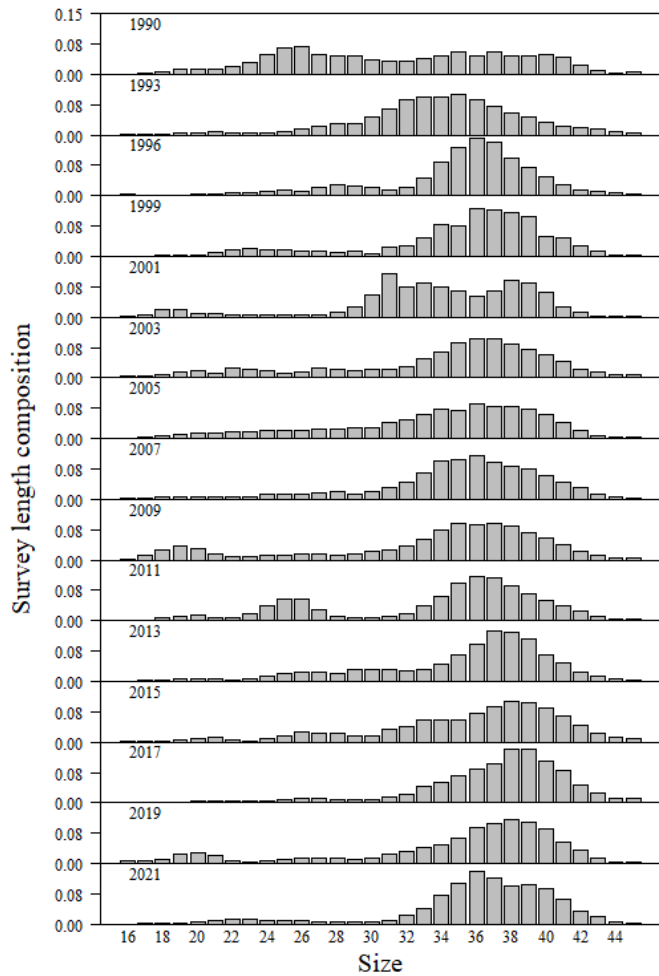
Trawl survey catch distribution

Increase in West and Central, decrease in East

Age composition

- Baby of the blob: 2016 year-class showing up in survey, not in fishery yet

- Getting largish plus age group

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Length composition

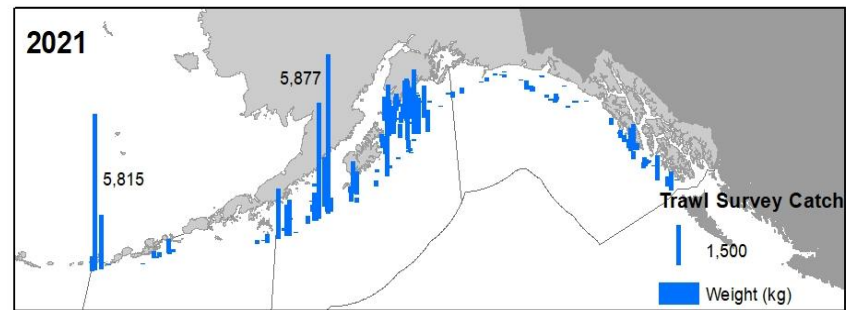- Next time: include most recent survey size comp

- CIE: include fishery size in sensitivity

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service
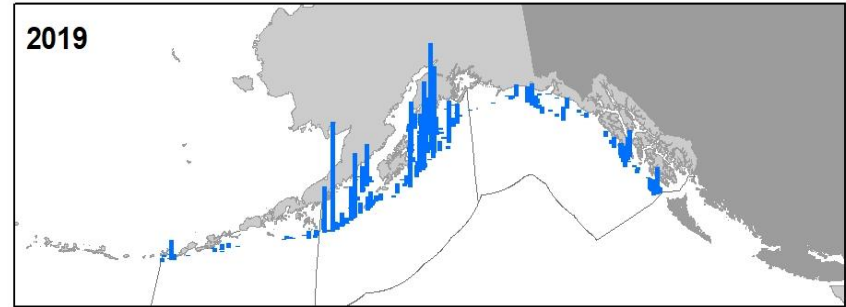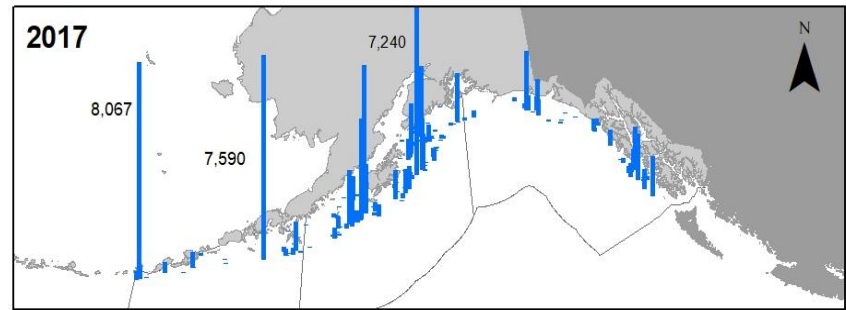
Acoustic catch distribution

Like trawl survey, majority of distribution in CGOA
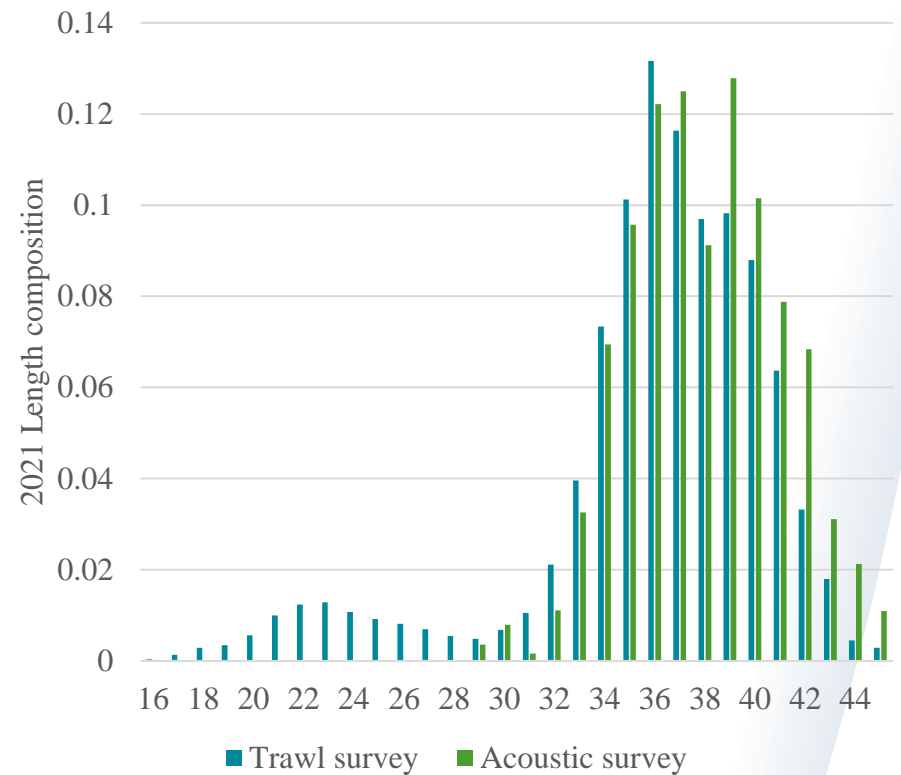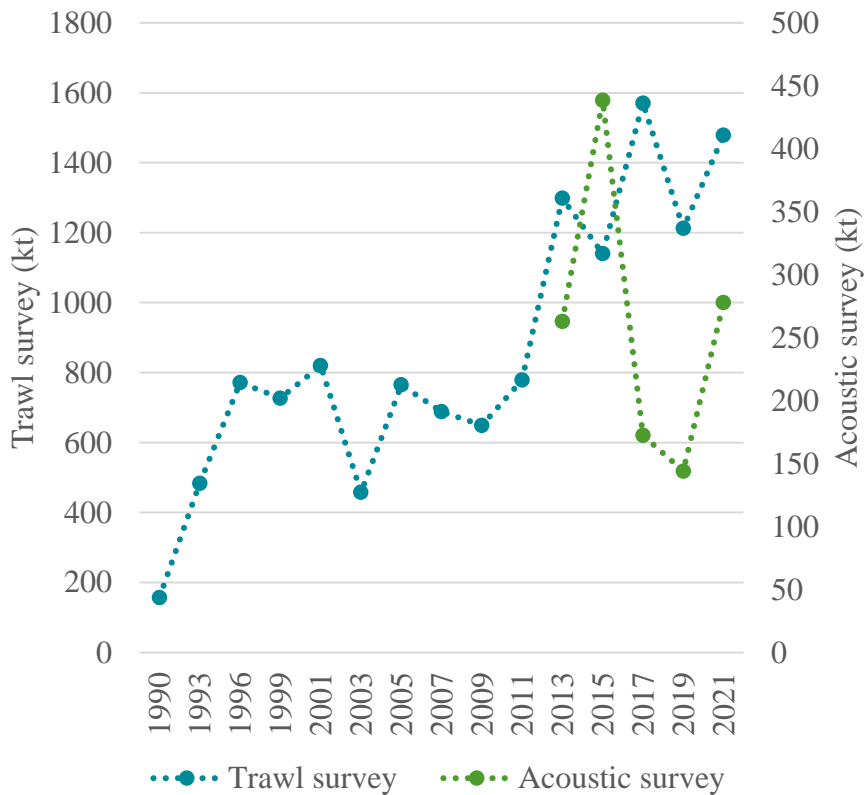
Acoustic Biomass/Length comps

- Agreement in trend size 2017

- Acoustic survey didn't see 2016 year class

Model fits

- Catch

- Trawl survey

- Age comp

- Length comp
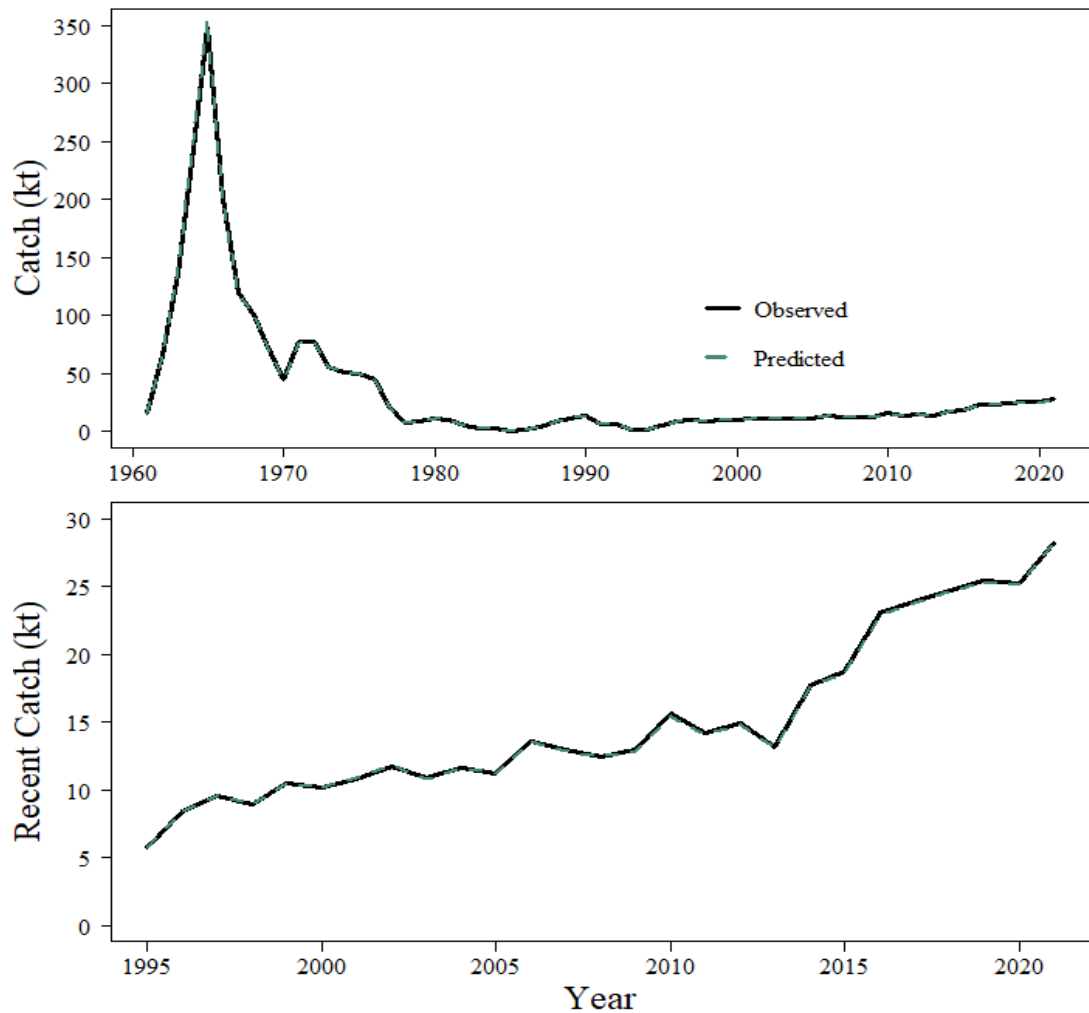
Catch fit

Recent catch increasing over time in general

Trawl survey biomass fit

Slightly better fit compared to 2020 assessment

Survey age comp fit

- Still not quite fitting the 2016 year class

- Could improve fit to plus age group
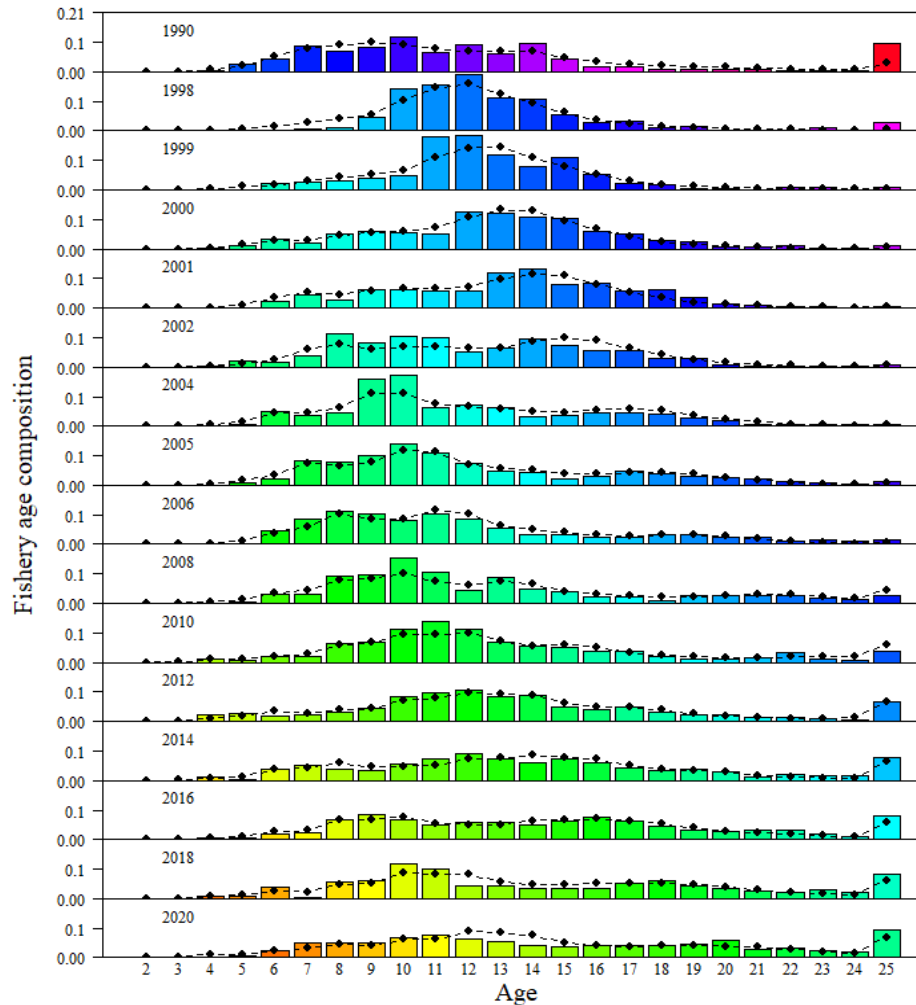
Fishery age comp fit

In 2020, age-10s from 2018 (now 12) didn't show up
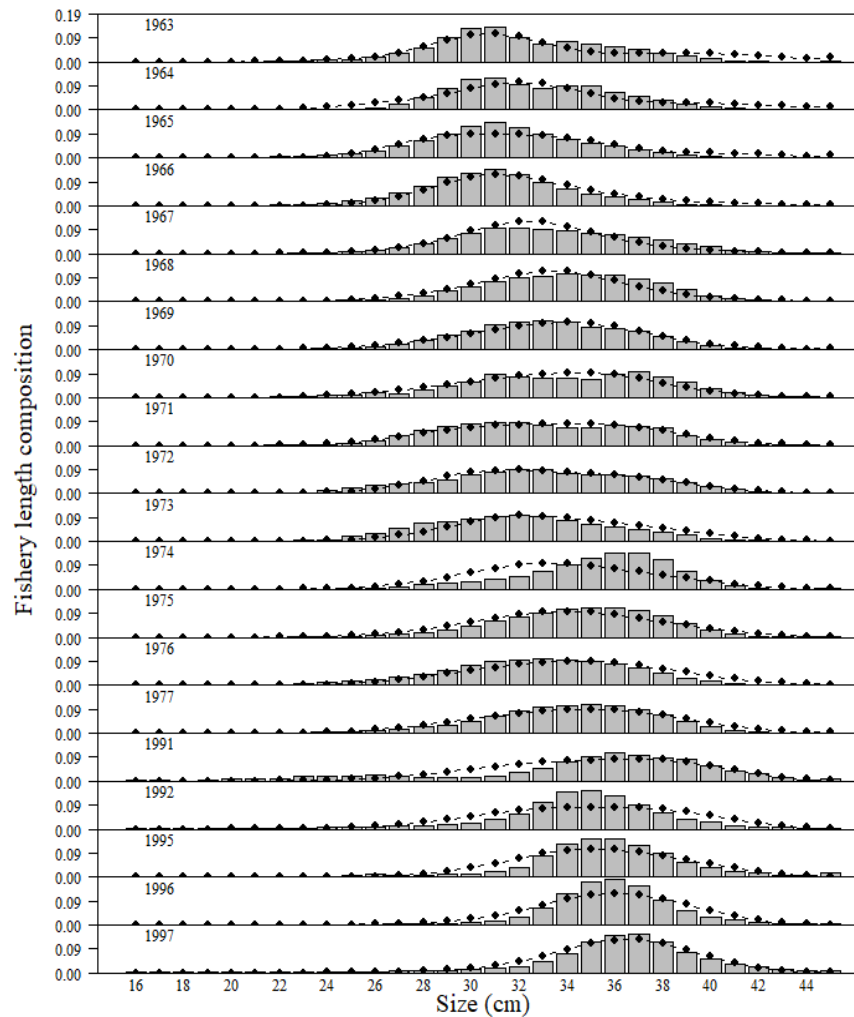
Fishery length comp fit

Nothing particularly unusual

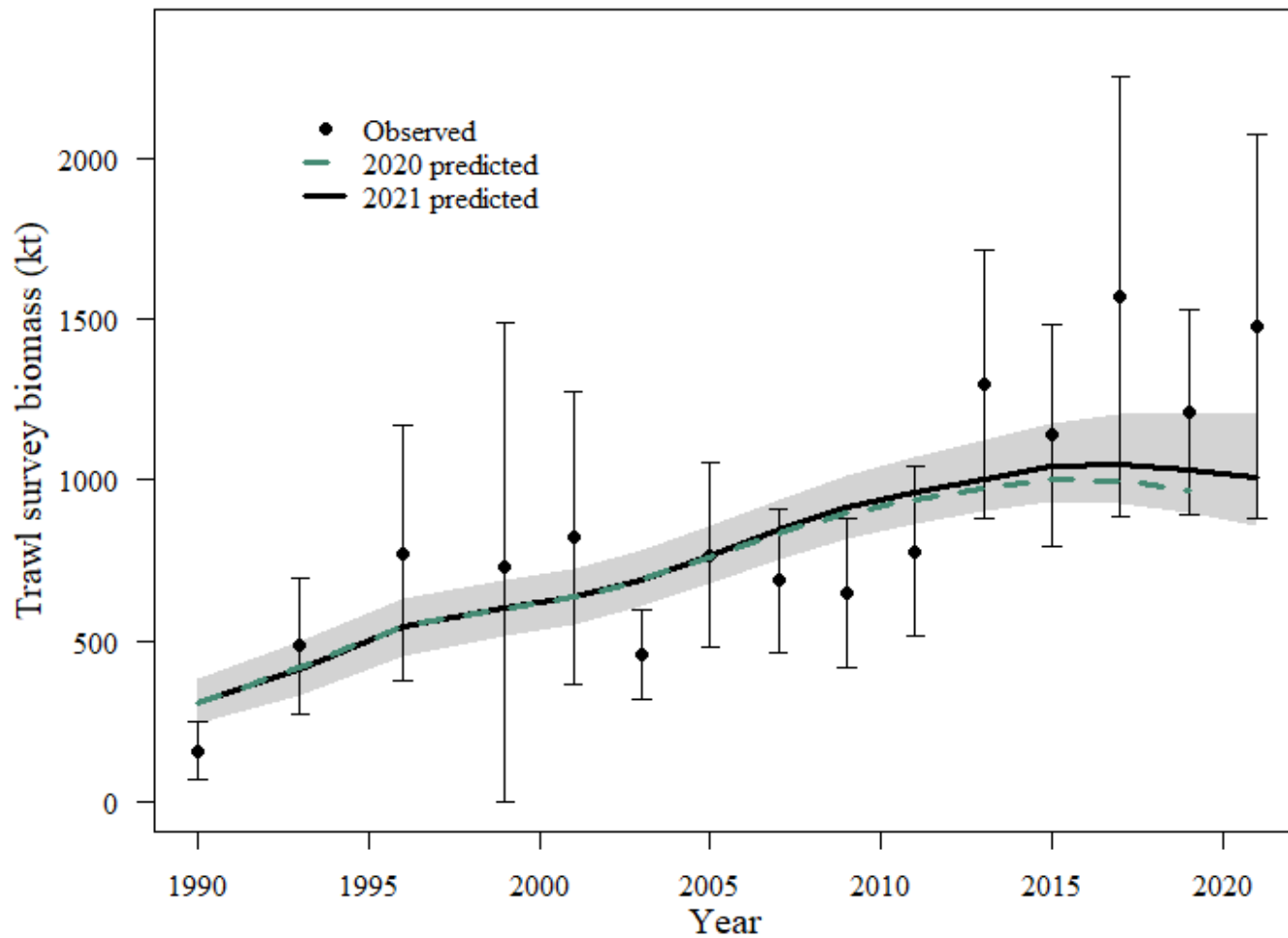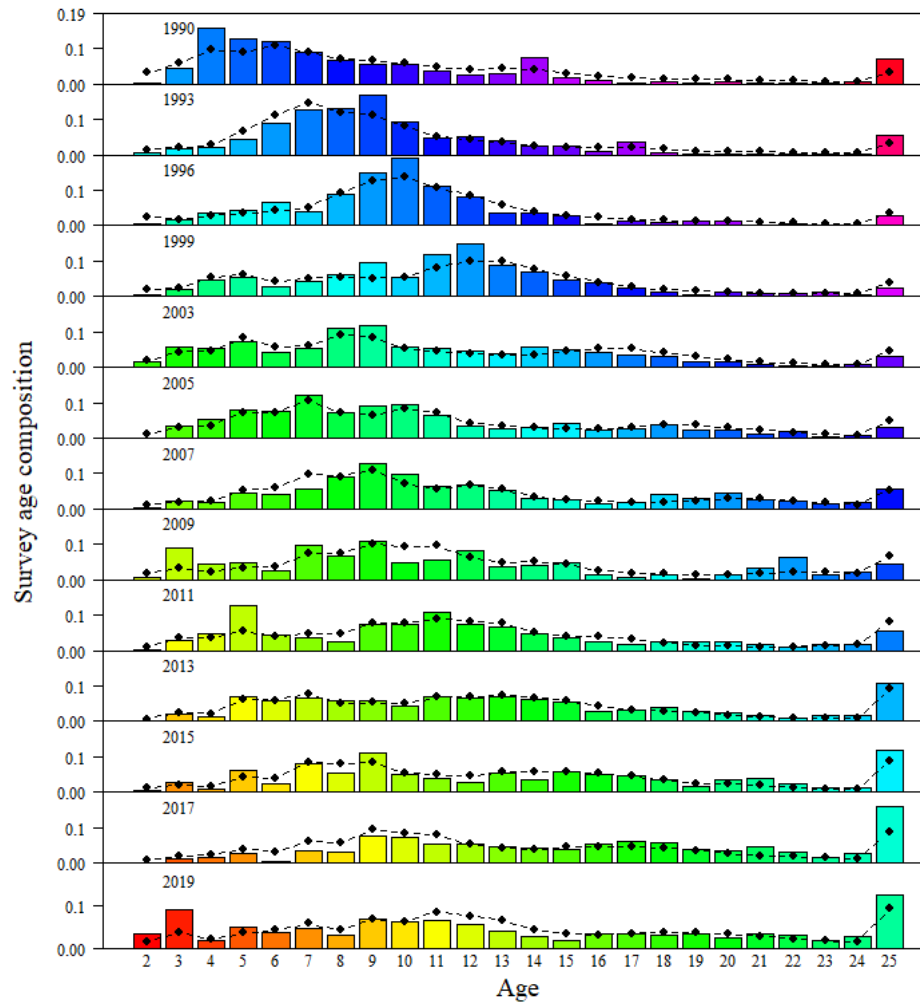| Likelihoods	20.1 (2020)	20.1 (2021)
Catch	0.17	0.19
Survey Biomass	15.65	16.28
Fishery Ages	19.34	20.90
Survey Ages	25.65	26.37
Fishery Sizes	65.06	65.37
Maturity	103.52	103.52
Data-Likelihood	229.39	232.63
Penalties/Priors		
Recruitment Devs	10.56	11.05
F Regularity	5.92	5.95
σ_r prior	7.85	7.80
q prior	0.50	0.53
M prior	2.23	2.09
Objective Fun Total	256.45	260.06

Overall fit

Minor differences with data fit, larger difference with penalties/priors

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Model results

- Main parameters & uncertainty

- Selectivity/maturity

- Recruitment

- Biomass

- Retrospective

- Management/projections

NOAA FISHERIES

Parameter Ests.	20.1 (2020)	20.1 (2021)
Active parameters	164	166
q	1.80	1.82
M	0.076	0.075
σ_r	0.77	0.77
Mean Recruitment	84.07	84.71
$F_{40\%}$	0.10	0.10
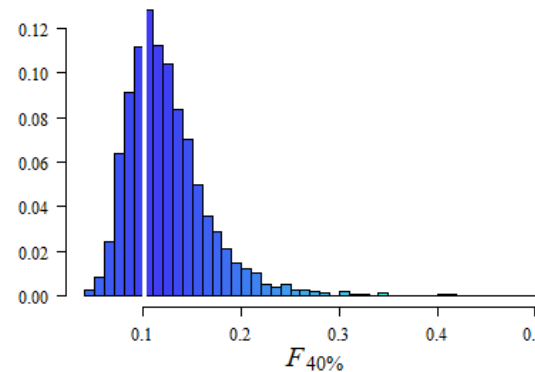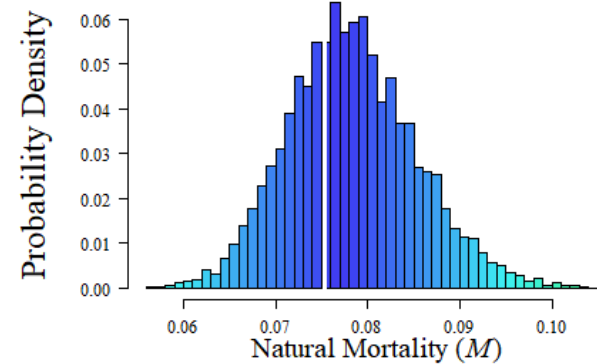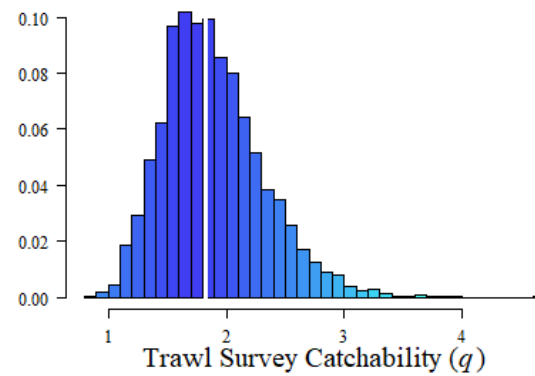
Main parameters

Not much changed from last year
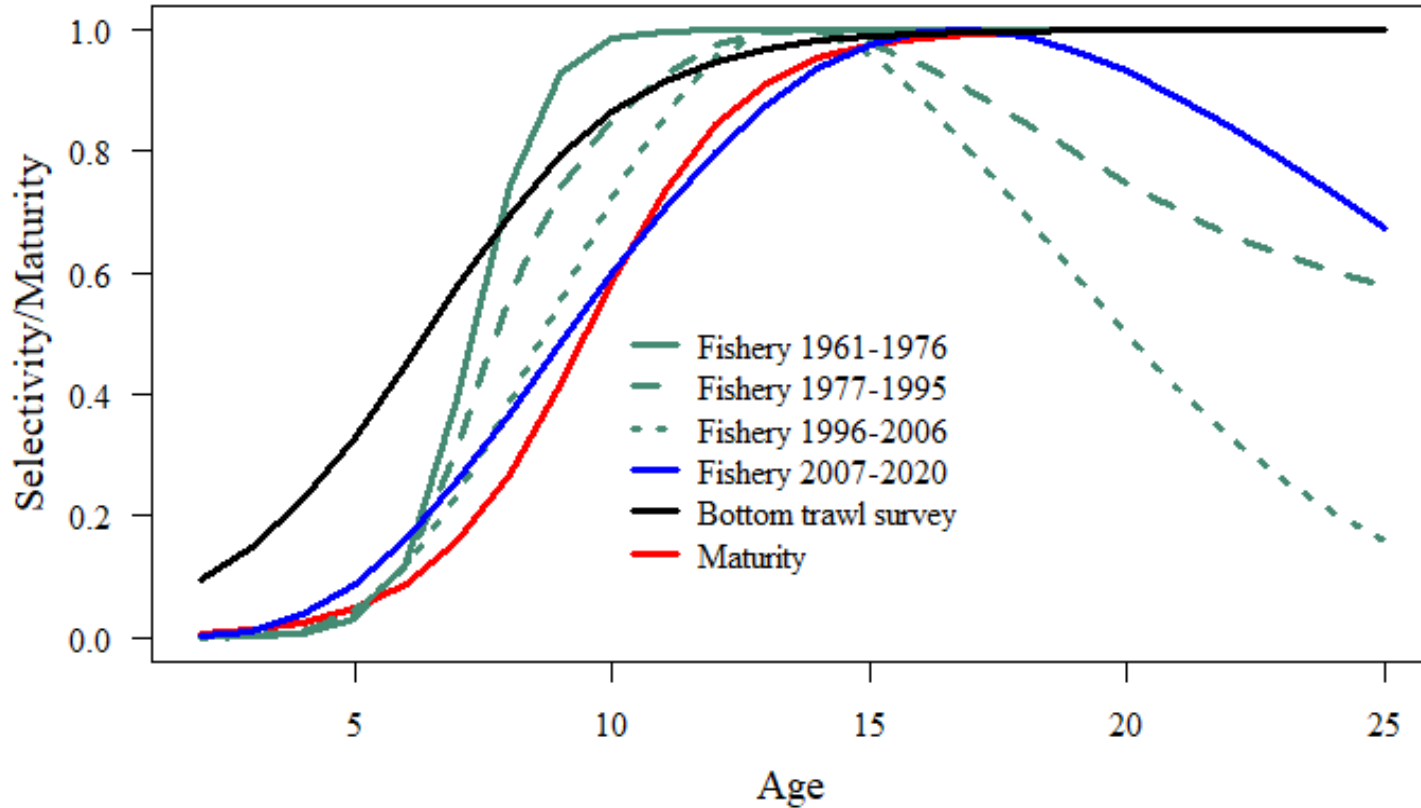
Selectivity/maturity

Continuing to look at adding flexibility to fishery selectivity

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service
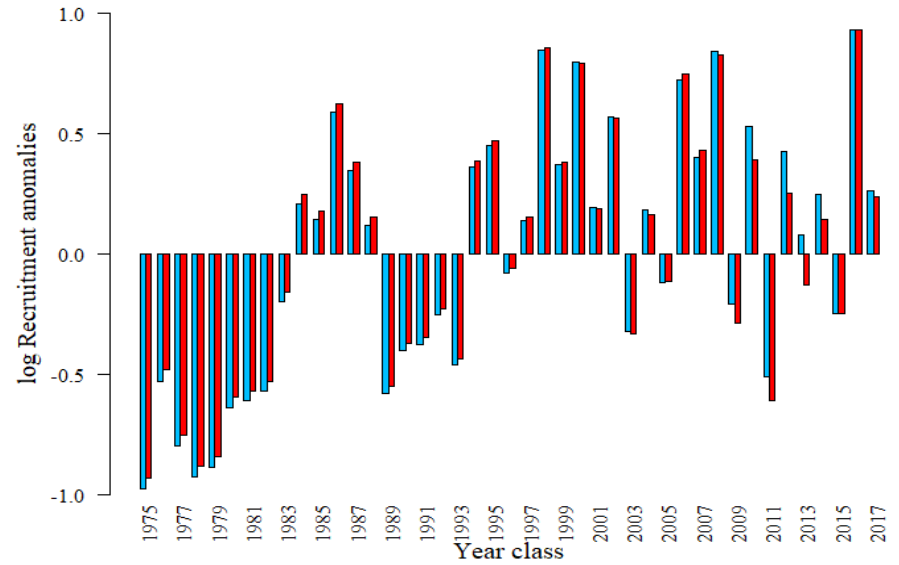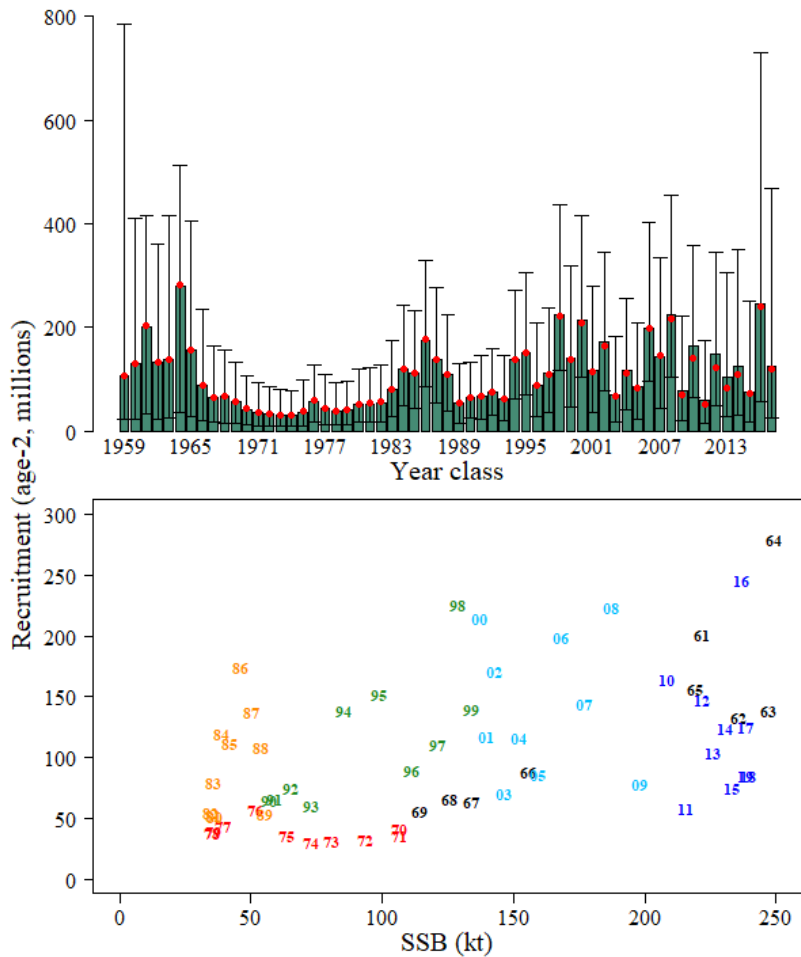
Recruitment

Similar to 2020 assessment estimates
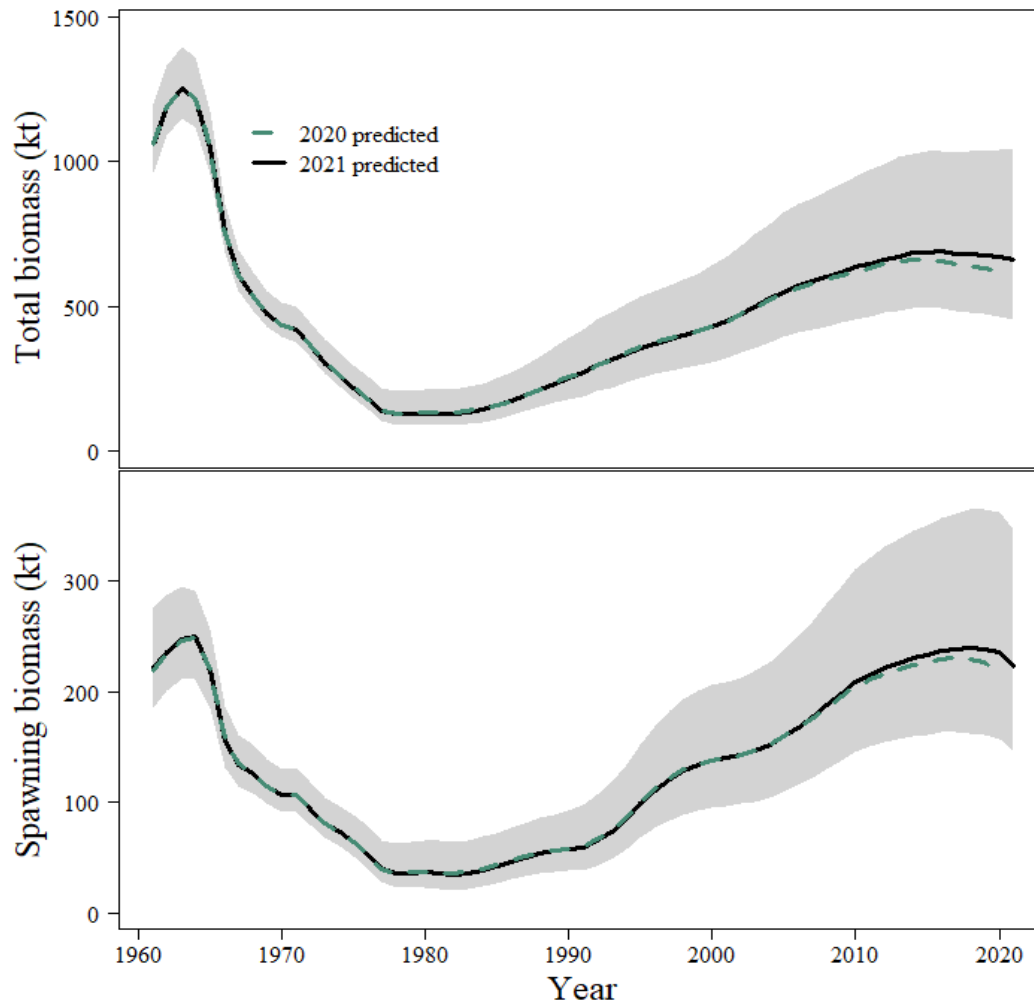
Biomass

Recent increase compared to 2020 assessment

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Mohn's rho = -0.16
(-0.15 in 2020)
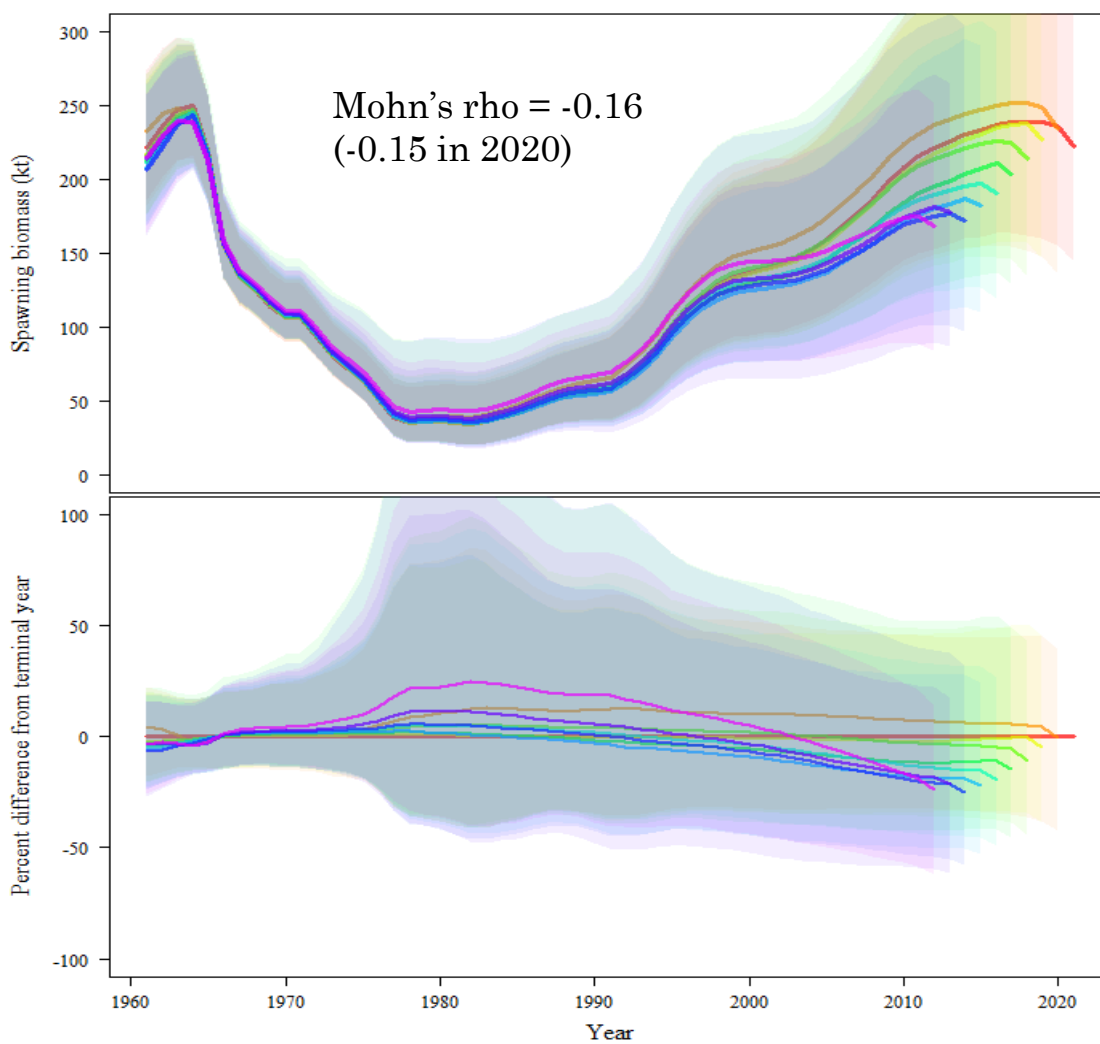
Retrospective

Continuing to be a negative pattern (increasing biomass with each year added)

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service
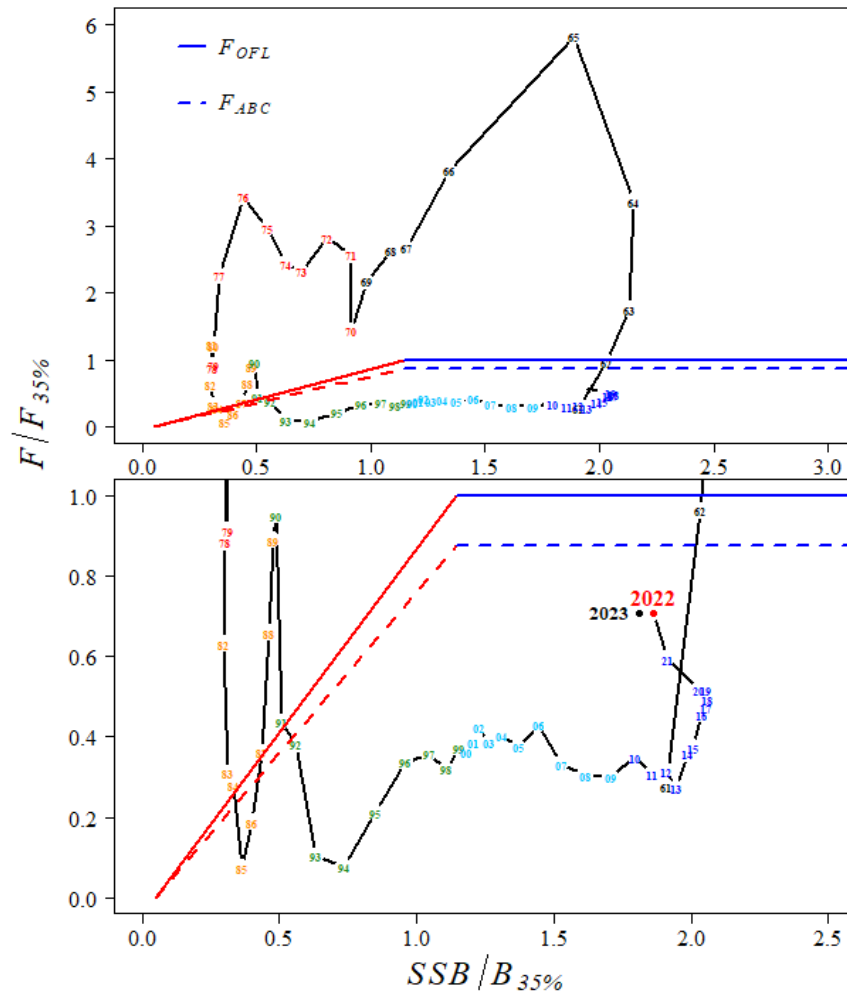
Management path

Still under control rule

Projections

Projected decrease in next 10 years

Recommendations

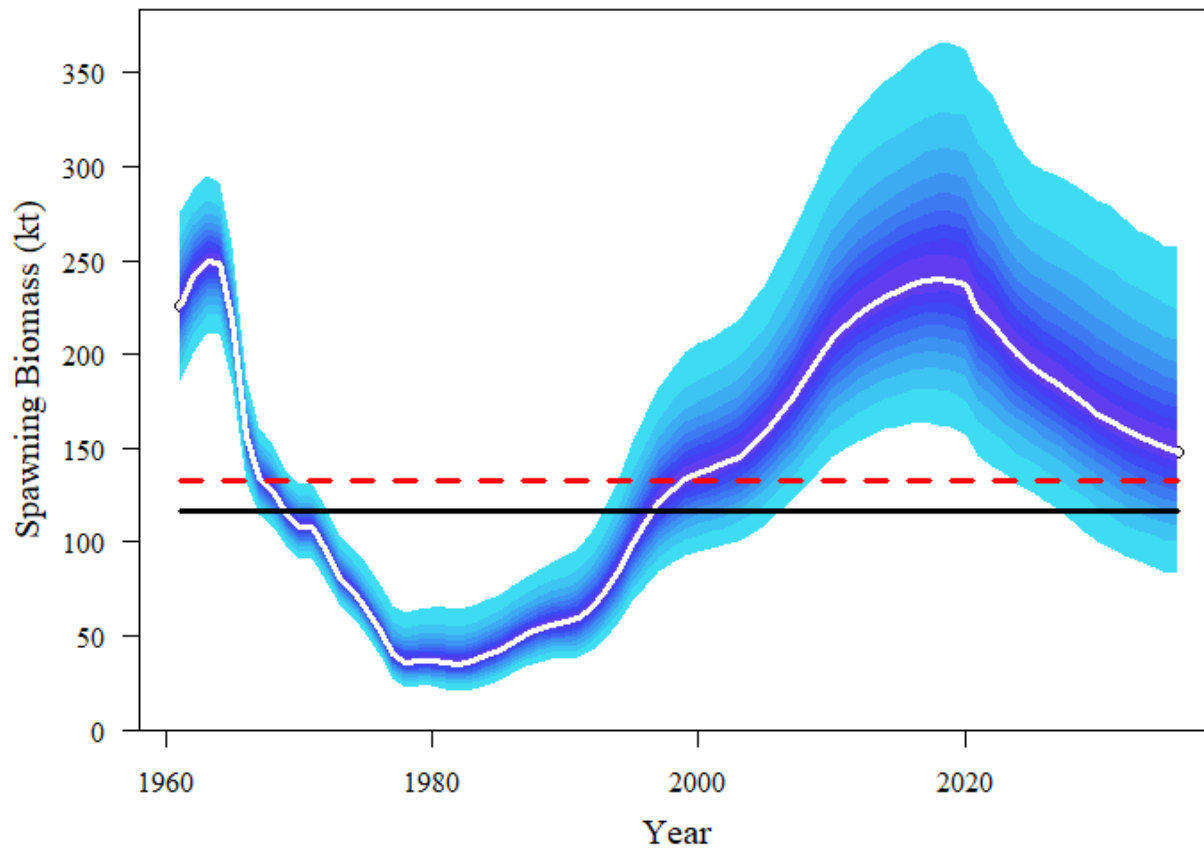|	As estimated or specified last year for:		As estimated or recommended this year for:	
Quantity	2021	2022	2022	2023[1]
M (natural mortality)	0.076	0.076	0.075	0.075
Tier	3a	3a	3a	3a
Projected total (age 2+) biomass (t)	613,522	597,732	650,832	634,907
Projected Female spawning biomass	207,096	198,179	216,635	210,257
$B_{100\%}$	317,035	317,035	331,917	331,917
$B_{40\%}$	126,814	126,814	132,767	132,767
$B_{35\%}$	110,962	110,962	116,171	116,171
F_{OFL}	0.120	0.120	0.120	0.120
$maxF_{ABC}$	0.100	0.100	0.100	0.100
F_{ABC}	0.100	0.100	0.100	0.100
OFL (t)	42,977	41,110	**45,580**	44,196
maxABC (t)	36,177	34,602	38,268	37,104
ABC (t)	36,177	34,602	**38,268**	37,104
Status	As determined last year for:		As determined this year for:	
	2019	2020	2020	2021
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No
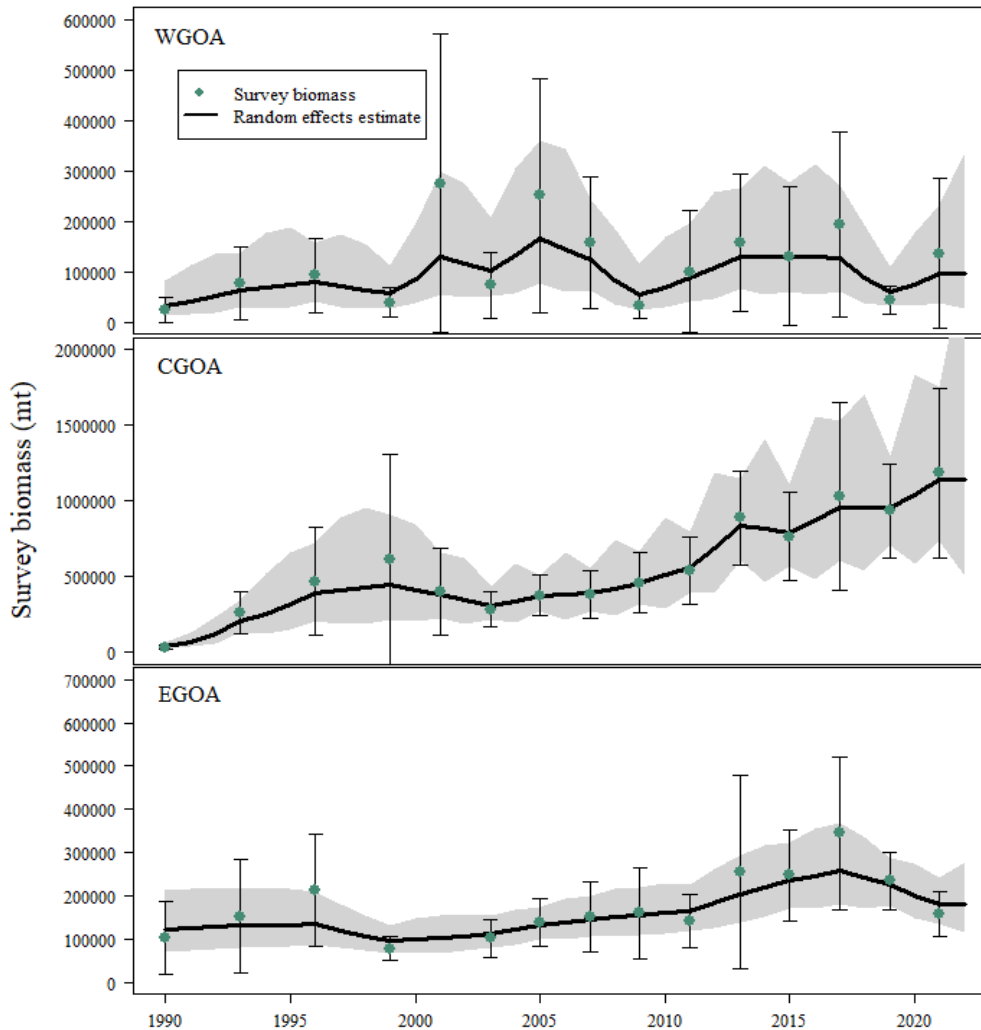
Apportionment

Apportionment

↑58% in WGOA, ↑12% in CGOA,
↓17% WYAK, ↓36% in EY/SE

Area Apportionment	Western 6.8%	Central 80.5%	Eastern 12.7%	Total 100%
2022 Area ABC (t)	2,602	30,806	4,860	38,268
2023 Area ABC (t)	2,523	29,869	4,712	37,104

	W. Yakutat 29%	E. Yakutat/Southeast 71%	Total 100%
2022 Area ABC (t)	1,409	3,451	4,860
2023 Area ABC (t)	1,366	3,346	4,712

	W/C/W. Yakutat	E. Yakutat/Southeast	Total
2022 Area OFL (t)	41,470	4,110	45,580
2023 Area OFL (t)	40,211	3,985	44,196

NOAA FISHERIES

Risk table

No changes in risk table since 2020

Assessment-related considerations	Population dynamics considerations	Environmental / ecosystem considerations	Fishery Performance considerations
Level 2: No apparent concern	Level 2: Substantially increased concerns	Level 1: No apparent concern	Level 1: No apparent concern

- Assessment-related: consistent retrospective patter could be indicative of misspecification

- Pop'n dynamics: sudden increase in biomass not reflected in dynamics of model

- No recommended change to ABC

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Looking ahead

- Continue working on model recommendations from SSC/Plan Team, Internal review team, and CIE (Appendix 9B)

- Work with GAP in 2022 to understand differences with VAST

NOAA
FISHERIES

Cool current work

- Science-Industry Rockfish Research Collaboration in Alaska (SIRCCA), Madison Hall (Appendix 9C)

- Pilot study in 2021, continue in 2022, gear up for 2023 and 2025

Questions?

pete.hulson@noaa.gov