Questions regarding projection settings

1. 40% SPR proxy for calculating benchmarks
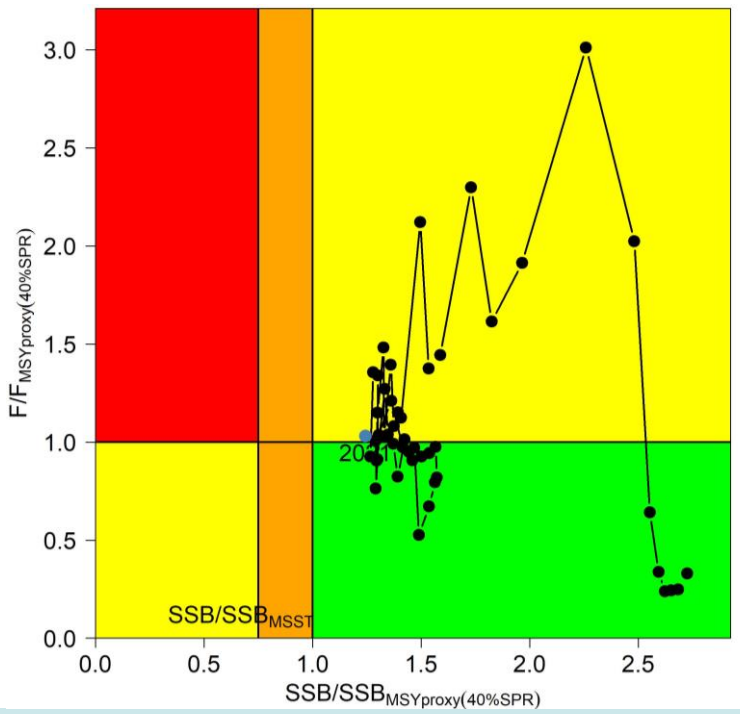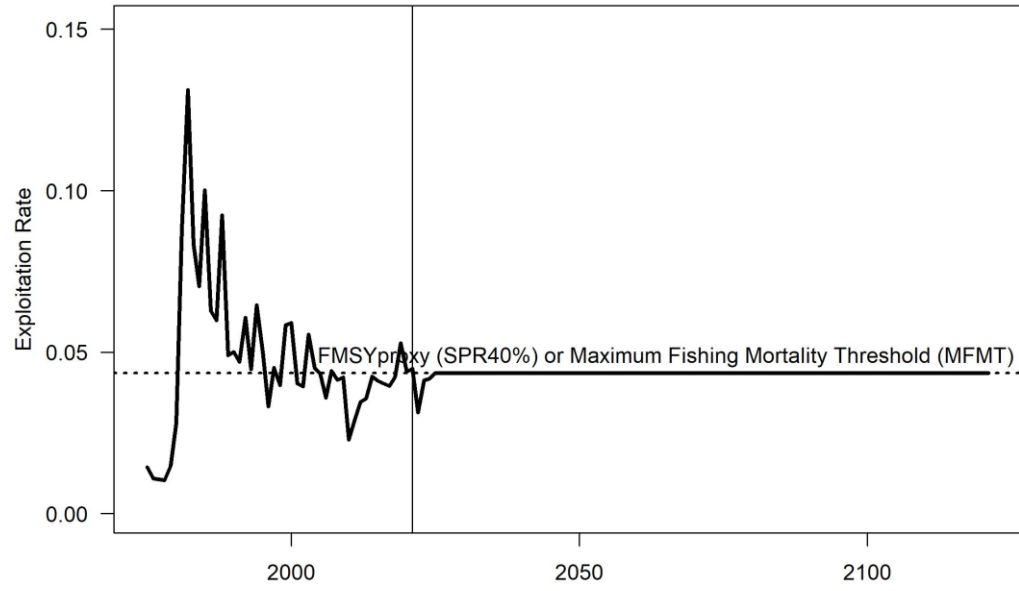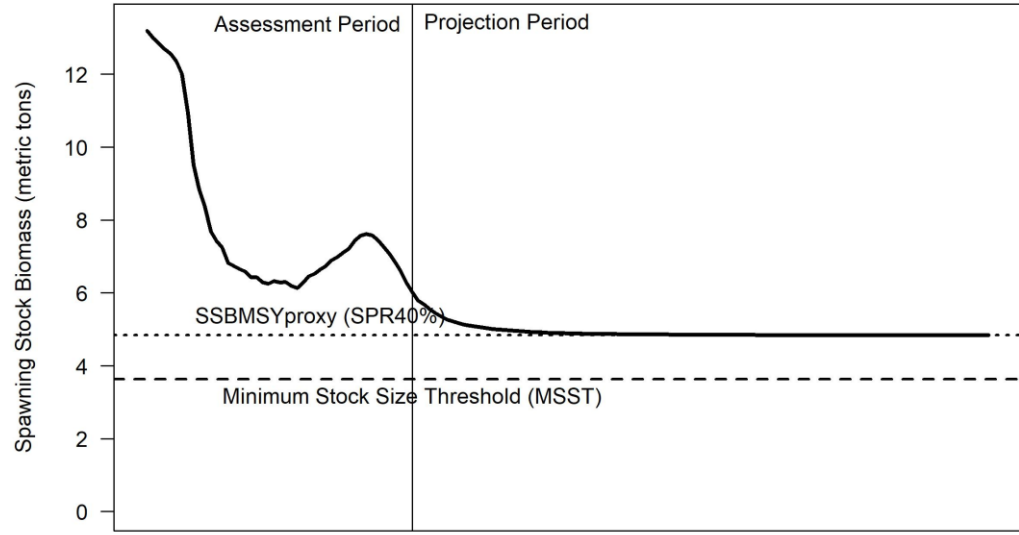
Projection settings

Parameter	Value	Comment
Relative F	Average from 2019-2021	Average relative fishing mortality (apical F) over terminal three years
Selectivity	Average from 2019-2021	Fleet specific selectivity estimated over terminal three years
Recruitment (Benchmarks)	Beverton-Holt stock-recruitment relationship	Derived from the model estimated Beverton-Holt stock-recruitment relationship
Interim Landings (2022-2024)	9.04/6.85 metric tons (Commercial Vertical Line - East) 12.53/11.01 metric tons (Commercial Vertical Line - West) 161.73/202.74 metric tons (Commercial Longline - East) 34.38/47.48 metric tons (Commercial Longline - West)	Landings provided for 2022 For 2023 and 2024, used 2-year average (2021-2022)
Allocation Ratio	None	

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MSRA Benchmarks & Reference Points: 40%SPR

Criteria	Definition	Value
Steepness	Steepness of the Beverton-Holt stock-recruit relationship (fixed)	0.827
R_0	Virgin recruitment (1,000s)	985
Generation Time	Fecundity-weighted mean age	18.17
SSB_0	Virgin spawning stock biomass (mt)	13,197
Mortality Rate Criteria		
$F_{MSYproxy}$	Equilibrium F that achieves 40%SPR	0.044
MFMT	$F_{MSYproxy}$	0.044
$F_{current}$	Geometric mean of the last 3 years of the assessment ($F_{2019-2021}$)	0.047
$F_{current}$/MFMT	Current stock status based on MFMT **OVERFISHING**	**1.08**
Biomass Criteria		
$SSB_{MSYproxy}$	Equilibrium SSB at $F_{40\%SPR}$	4,842
MSST	$0.75 * SSB_{40\%SPR}$	3,632
$SSB_{current}$	SSB in 2021	6,017
$SSB_{current}$/$SSB_{FMSYproxy}$	Current stock status based on $SSB_{40\%SPR}$ (Equilibrium)	1.24
$SSB_{current}$/MSST	Current stock status based on MSST	**1.66**
$SSB_{current}$/SSB_0	SSB ratio in 2021	0.46

Stock Status: 40%SPR
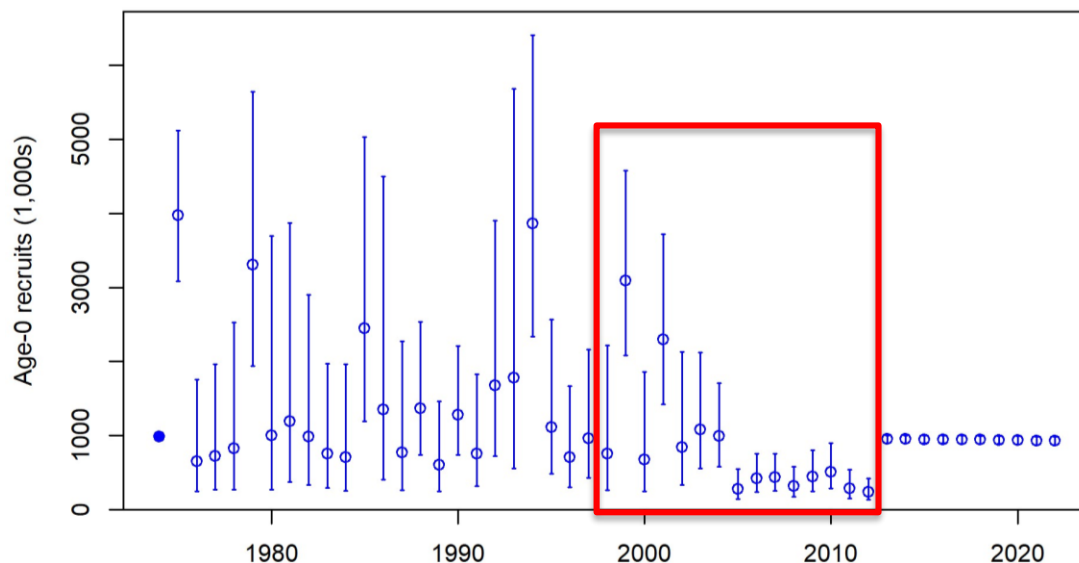
- Gulf of Mexico Yellowedge Grouper is **not overfished but is <u>undergoing overfishing at 40% SPR</u>**

Questions regarding projection settings

2. Recruitment assumption for catch advice

- Use recent average recruitment from 1998-2012

  - Last 15 years where estimated

Projection settings for catch advice

Parameter	Value	Comment
Relative F	Average from 2019-2021	Average relative fishing mortality (apical F) over terminal three years
Selectivity	Average from 2019-2021	Fleet specific selectivity estimated over terminal three years
~~Recruitment (Benchmarks)~~	~~Beverton-Holt stock-recruitment relationship~~	~~Derived from the model estimated Beverton-Holt stock-recruitment relationship~~
Recruitment (catch advice)	1998-2012 average	Average recruitment over the last 15 years where estimated
Interim Landings (2022-2024)	9.04/6.85 metric tons (Commercial Vertical Line - East) 12.53/11.01 metric tons (Commercial Vertical Line - West) 161.73/202.74 metric tons (Commercial Longline - East) 34.38/47.48 metric tons (Commercial Longline - West)	Landings provided for 2022 For 2023 and 2024, used 2-year average (2021-2022)
Allocation Ratio	None	

OFL Projections: $F=F_{40\%SPR}$

Year	Recr (1000s)	F	$F/F_{40\%SPR}$	SSB (mt)	$SSB/SSB_{40\%SPR}$	SSB/ MSST	SSB ratio	OFL (mp gw)
2025	698.493	0.043	1	4,227	1.128	1.504	0.324	0.498
2026	698.493	0.043	1	4,142	1.105	1.474	0.318	0.491
2027	698.493	0.043	1	4,071	1.086	1.449	0.312	0.486
2028	698.493	0.043	1	4,014	1.071	1.428	0.308	0.481
2029	698.493	0.043	1	3,967	1.058	1.411	0.304	0.477

- Assuming mean recruitment from the last 15 years (1998-2012)

Years	Constant Catch
Three (2025-2027)	0.492 mp gw
Five (2025-2029)	0.487 mp gw
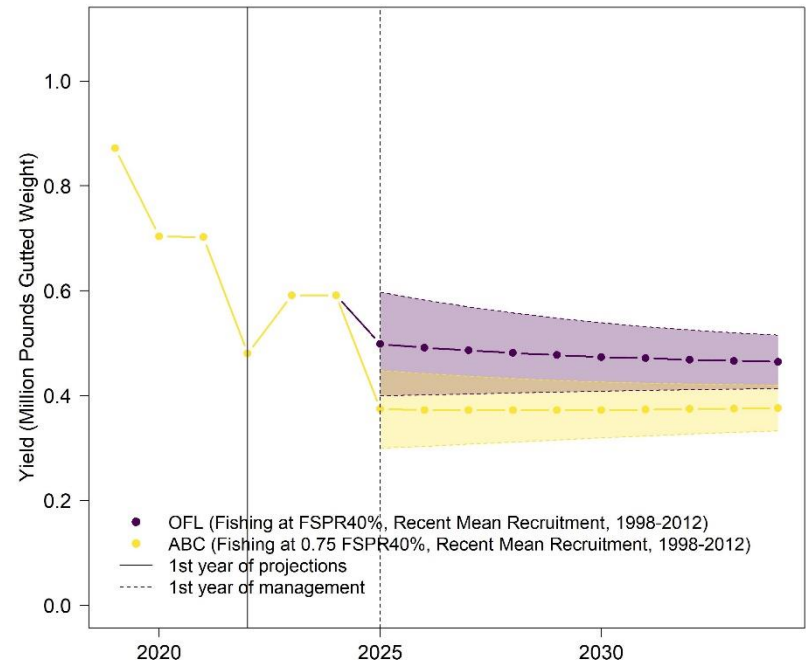
ABC Projections: $F = 0.75 \times F_{40\%SPR}$

Year	Recr (1000s)	F	$F/F_{40\%SPR}$	SSB (mt)	$SSB/SSB_{40\%SPR}$	SSB/ MSST	SSB ratio	Yield (mp gw)
2025	698.493	0.033	0.75	4,227	1.128	1.504	0.324	0.374
2026	698.493	0.033	0.75	4,190	1.118	1.491	0.321	0.372
2027	698.493	0.033	0.75	4,166	1.112	1.482	0.32	0.372
2028	698.493	0.033	0.75	4,153	1.108	1.478	0.319	0.372
2029	698.493	0.033	0.75	4,149	1.107	1.476	0.318	0.372

- Assuming mean recruitment from the last 15 years (1998-2012)

Years	Constant Catch
Three (2025-2027)	0.373 mp gw
Five (2025-2029)	0.372 mp gw

OFL (Fishing at FSPR40%, Recent Mean Recruitment, 1998-2012)
ABC (Fishing at 0.75 FSPR40%, Recent Mean Recruitment, 1998-2012)
1st year of projections
1st year of management

NOAA FISHERIES
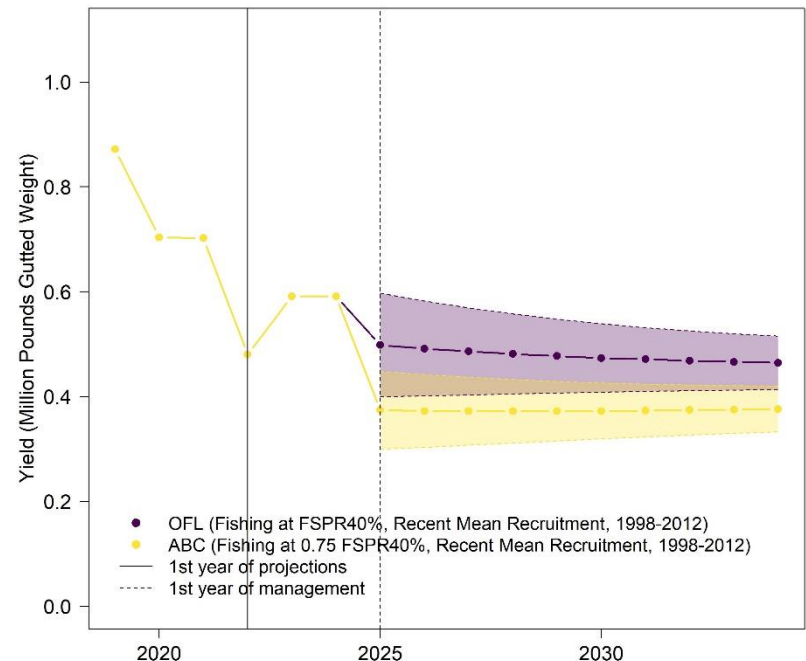
Thank you for your attention!
Questions?

The SEDAR 85 Operational Assessment for Gulf of Mexico Yellowedge Grouper would not have been possible without the efforts of the numerous SEFSC, SERO, and GMFMC staff along with the many state, academic, and research partners involved throughout the Gulf of Mexico. The following agencies contributed to the assessment and deserve notable attention and thanks for efforts extended to developing data inputs: NOAA SEFSC Fisheries Statistics Division (FSD), NOAA SEFSC Panama City Laboratory, NOAA SEFSC Mississippi Laboratories, NOAA Southeast Regional Office (SERO), Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, NOAA SEFSC Beaufort Laboratory, and the Gulf States Marine Fisheries Commission. Special thanks are also extended to the Data Updates Topical Working Group members for their rapid and helpful guidance with model development.