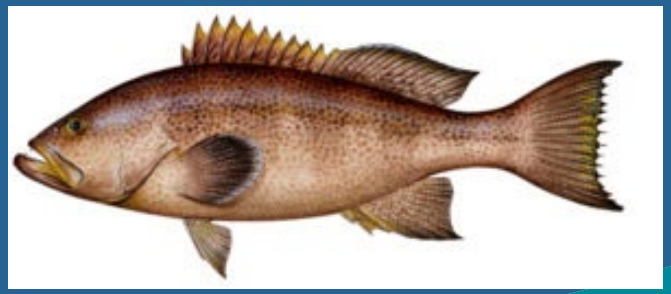
SEDAR 68 Operational Assessment South Atlantic Scamp & Yellowmouth Grouper

NOAA FISHERIES

SEFSC

Atlantic Fisheries Branch



SAFMC

March 2023

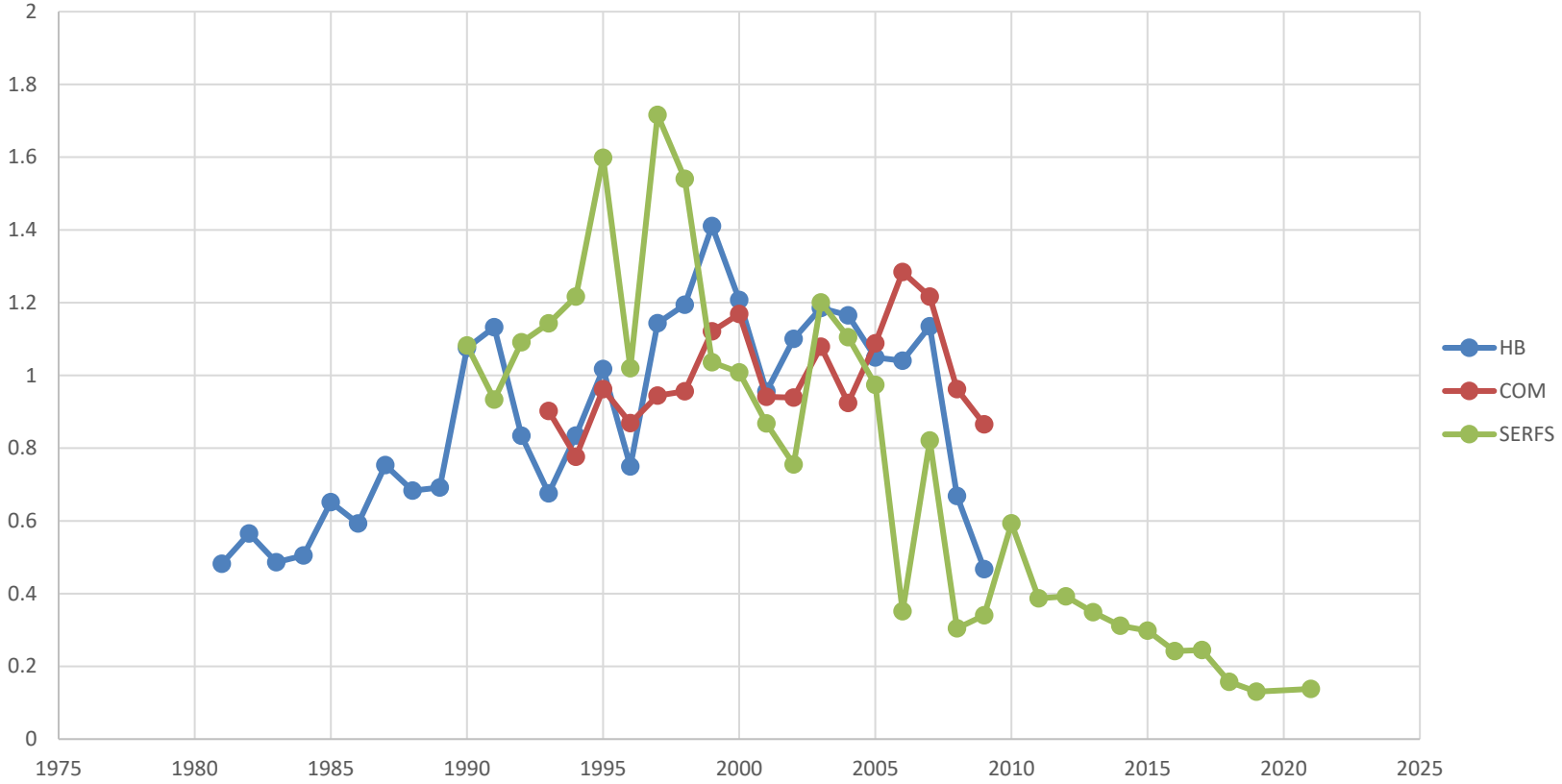
Background – SEDAR68 Research Track

- The SEDAR68 Stock ID Workshop completed in March 2020. Two primary recommendations:
  - Assess GoM and SA stocks separately
  - Treat scamp and yellowmouth grouper as a complex
- Data Workshop held by webinars April-Sept 2020
- Assessment Workshop held by webinars Dec 2020-May 2021
- CIE Review Workshop in Sept 2021
- SSC Review in Oct 2021
- *As a Research Track project, the goal was to develop data sources and methods, not to provide management advice*

Background – SEDAR68 Operational Assessment

- SEDAR68OA TORs and schedule approved Dec 2021
- Data submissions completed Aug 2022
- Modeling and report writing Aug-Dec 2022
- SSC review Jan 2023
- *As an Operational Assessment, the goal was to provide management advice*

Indices of relative abundance



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Decadal-scale decline of scamp (*Mycteroperca phenax*) abundance along the southeast United States Atlantic coast

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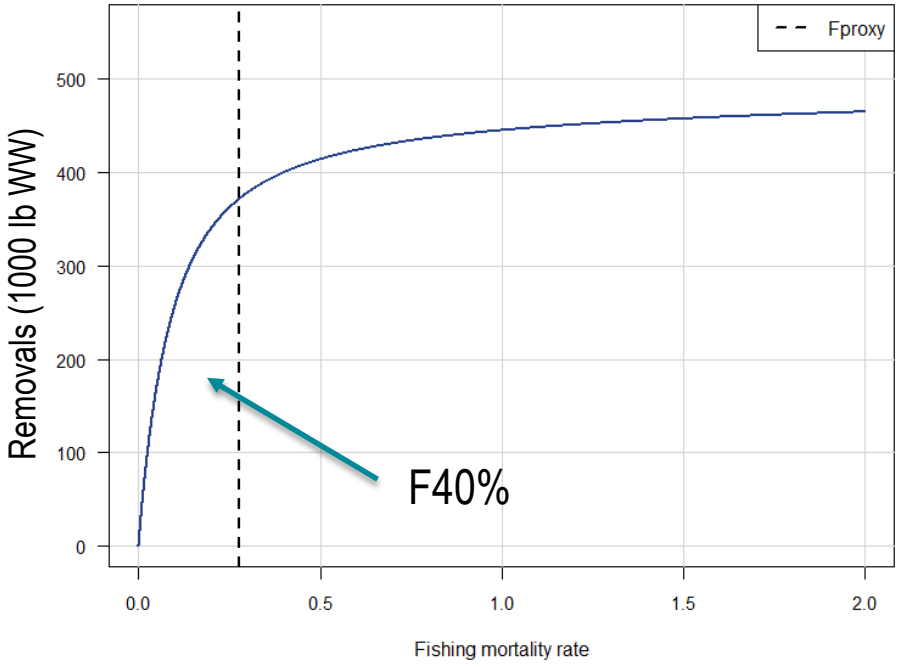
Assessment model

- Applied the Beaufort Assessment Model (BAM), with the same basic formulation as in the S68 Research Track
- Assessment time frame was 1969-2021
- MSY-based reference points were not estimable, so an SPR (Spawning Potential Ratio) proxy for F_{MSY} was used
  - For example, FSPR40%(or F40%, in short) is the fishing rate that provides 40% of the reproductive output compared to the unfished condition

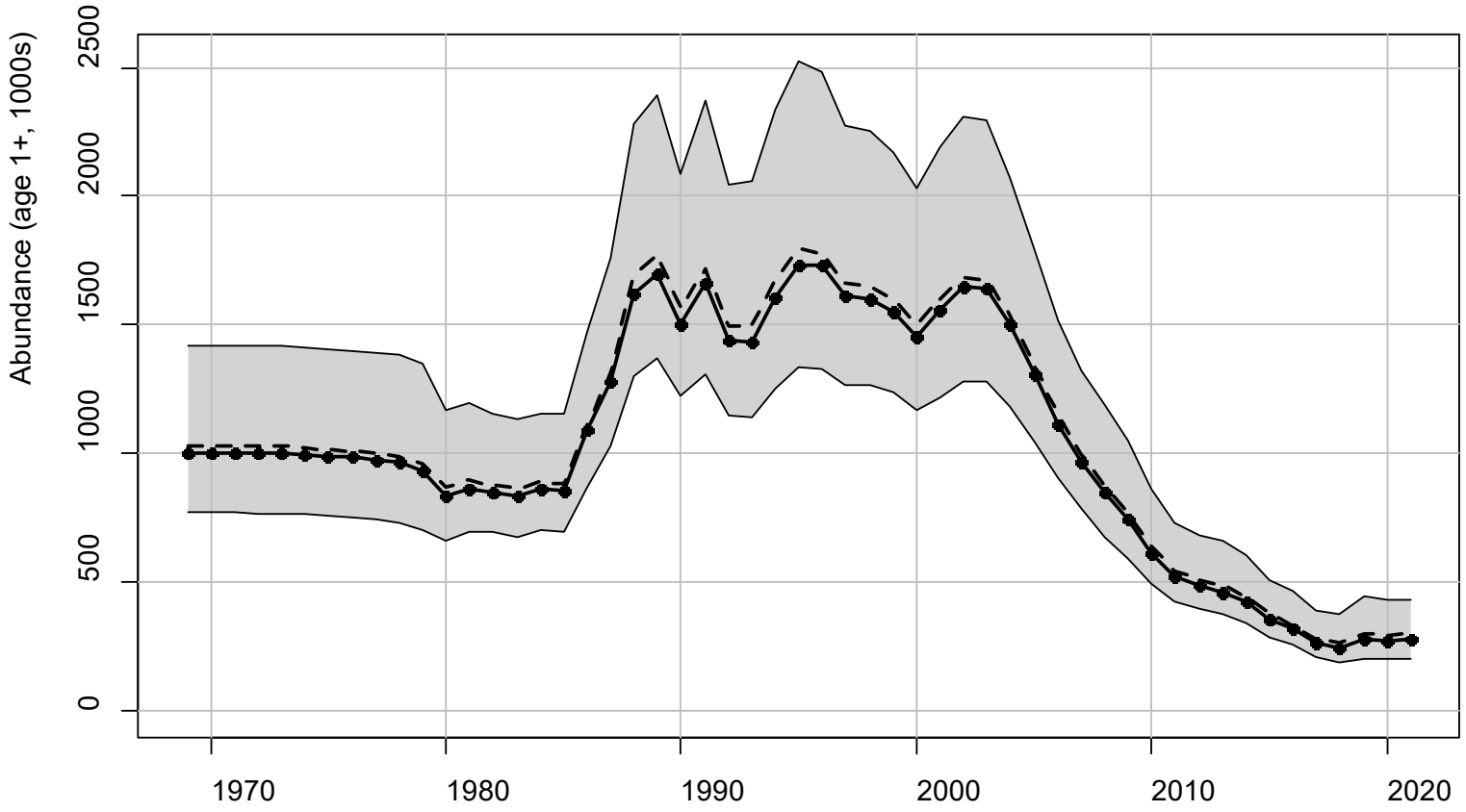
Which proxy?

*We note that we provide this as background material but the scientific recommendation on which proxy to use comes from the SSC for the Council to adopt .

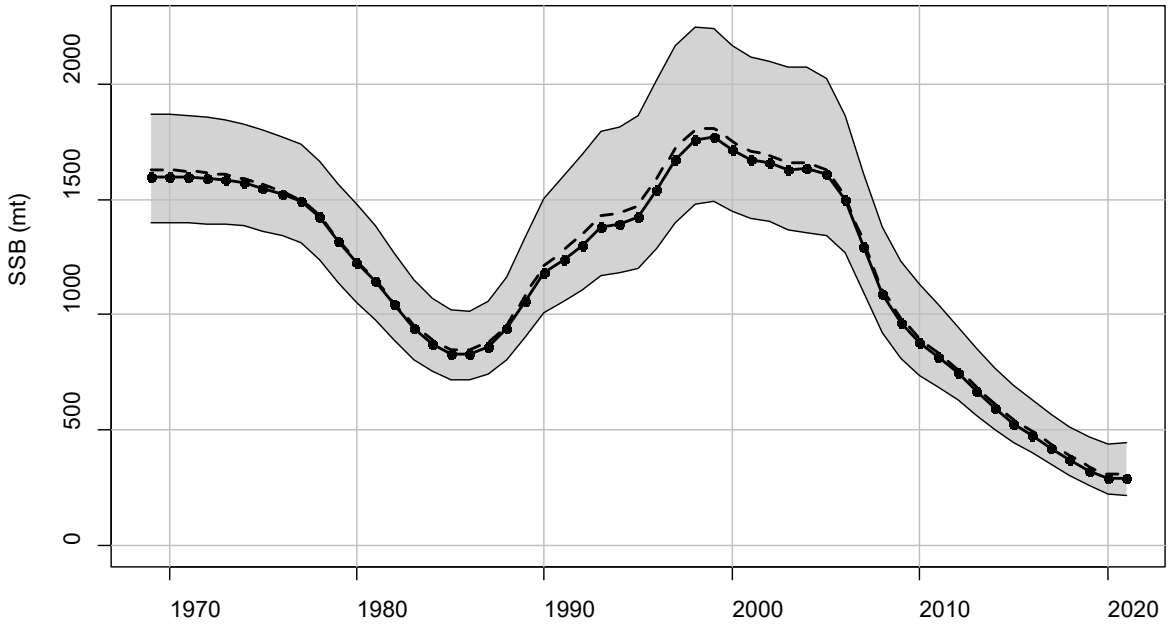
- 50 CFR 600.310(e)(1)(v)(B) *"When data are insufficient to estimate MSY directly, Councils should adopt other measures of reproductive potential that can serve as reasonable proxies for MSY, F_{msy}, and B_{msy} "*
- 50 CFR 600.310(e)(2)(ii) *"…In specifying SDC, a Council must provide an analysis of how the SDC were chosen and how they relate to reproductive potential of stocks of fish within the fishery. If alternative types of SDCs are used, the Council should explain how the approach will promote sustainability of the stock or stock complex on a long term basis."*
- F40% is a common proxy in the United States (Legault & Brooks 2013; Harford et al. 2019)
- F30% sometimes considered, but is appropriate only for very resilient stocks (Brooks et al. 2010)
- Even F40% is 'aggressive' in some cases (Clark 2002; Hartford et al. 2019; Zhou et al. 2020)

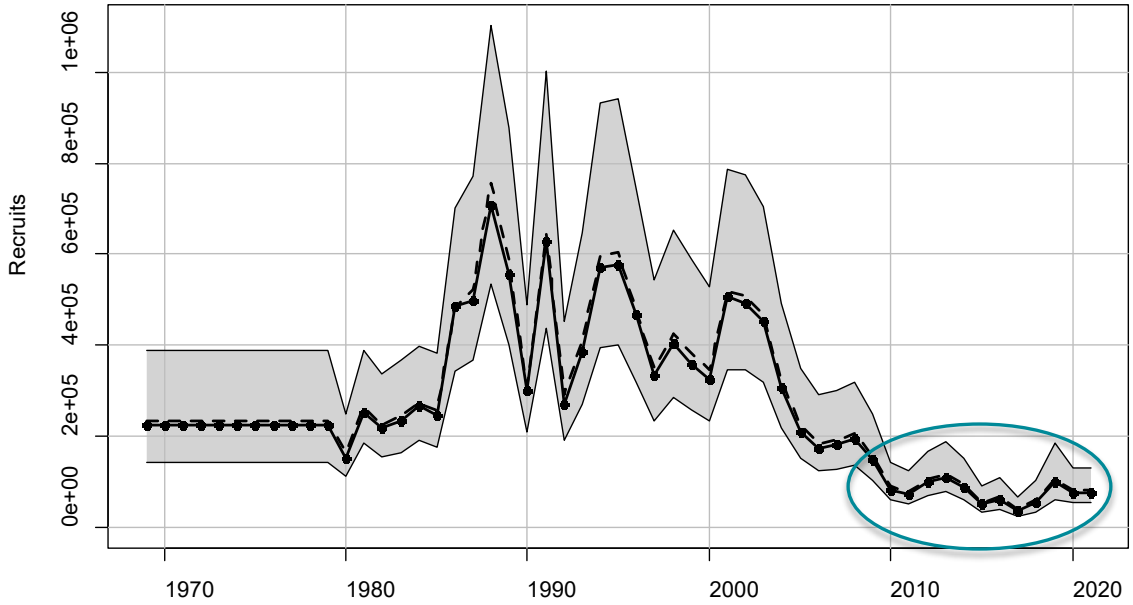


Total abundance

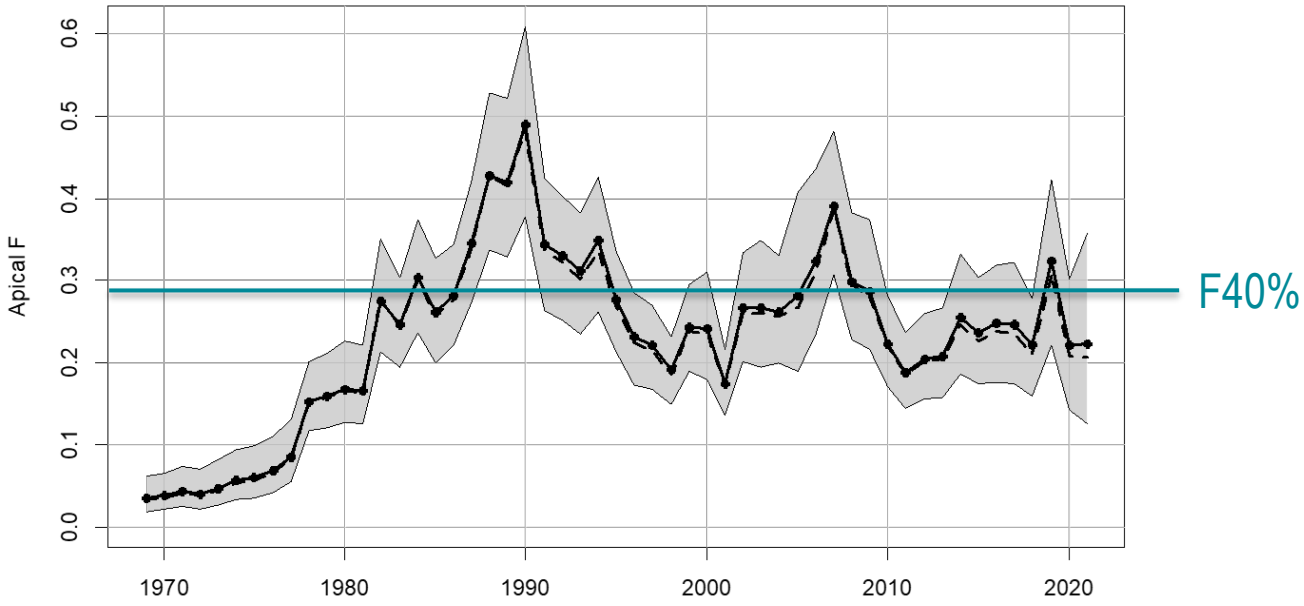


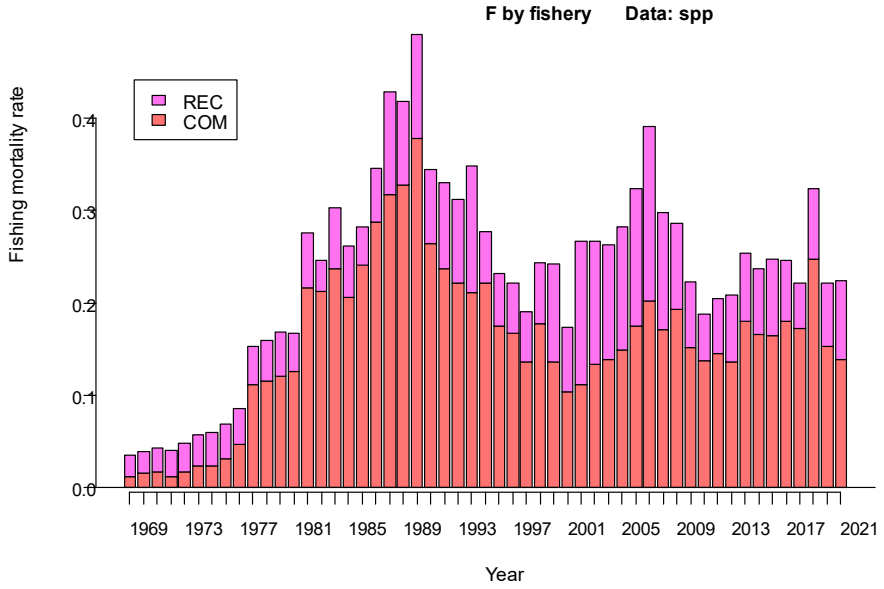
Spawners and recruits



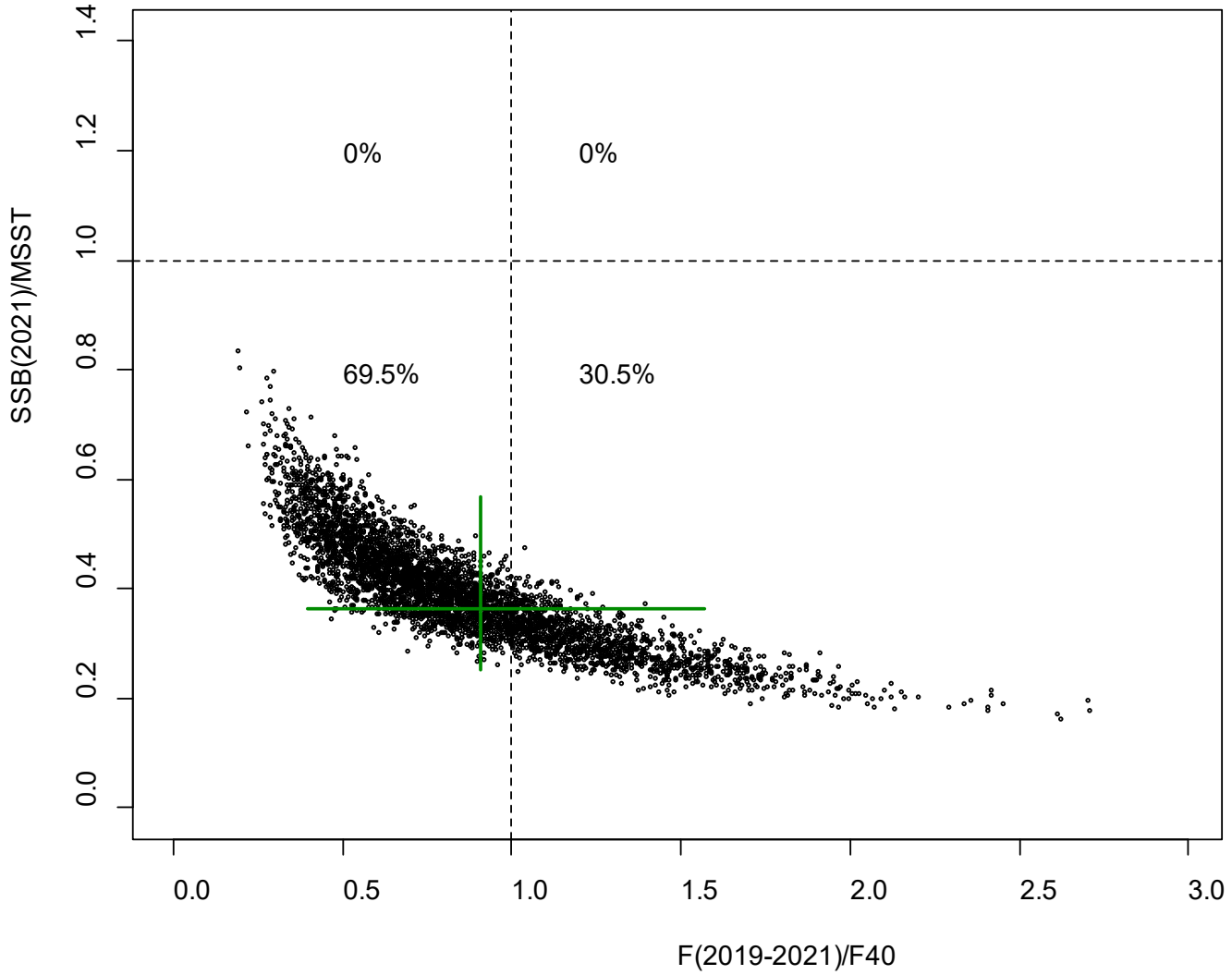


Fishing mortality





Status indicators



BAM results – Management quantities

Quantity	Units	Estimate	Median	SE
$F_{40\%}$	y^{-1}	0.28	0.30	0.09
$75\%F_{40\%}$	y^{-1}	0.21	0.22	0.07
$B_{F40\%}$	metric tons	1503.87	1540.65	61.90
$SSB_{F40\%}$	metric tons	1068.80	1068.19	78.95
MSST	metric tons	801.60	801.14	59.22
$L_{F40\%}$	1000 lb whole	372.28	381.39	35.90
$L_{75\%F40\%}$	1000 lb whole	344.83	353.68	34.47
$L_{current}$	1000 lb whole	115.48	114.80	9.55
$R_{F40\%}$	number fish	290882.80	305247.70	74569.47
$F_{2019-2021}/F_{40\%}$	—	0.91	0.81	0.36
$SSB_{2021}/MSST$	—	0.36	0.38	0.10
$SSB_{2021}/SSB_{F40\%}$	—	0.27	0.29	0.07

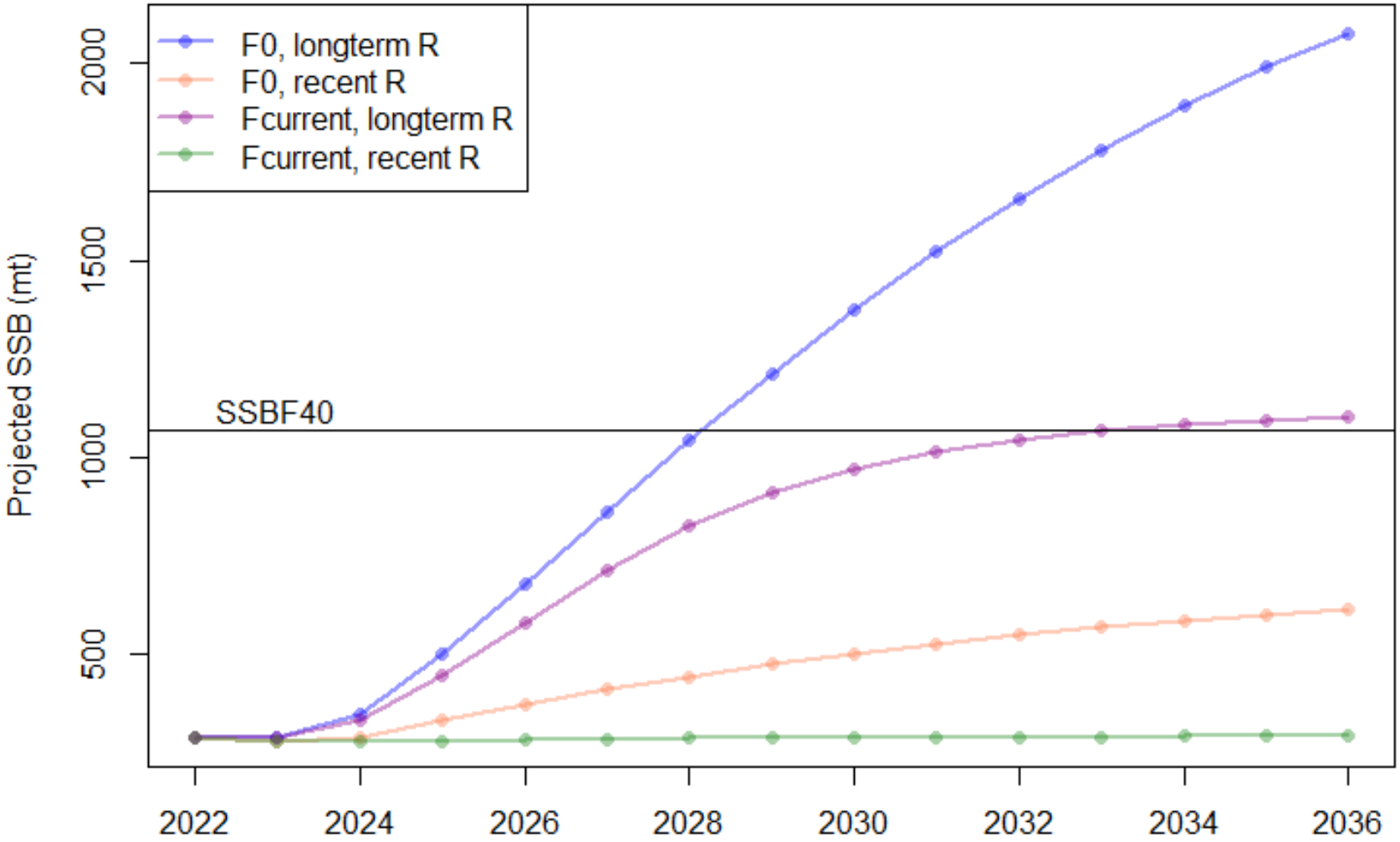
Includes dead discards

Summary of assessment results

- SA scamp/yellowmouth grouper are overfished/depleted (robust result)
- Overfishing not occurring in terminal years (~30% of MCBE runs resulted in overfishing)
- Stock status driven primarily by poor recruitment
- Pattern of low recruitment in recent 10-15 years raises the question of a regime shift, but there is insufficient evidence at this time to declare such.

Forecasts

- These are preliminary, but potentially informative
- Four F scenarios
  - Fcurrent with long-term average recruitment
  - Fcurrent with recent average recruitment
  - F=0 with long-term average recruitment
  - F=0 with long-term average recruitment
    - (This last one was added during the SSC review)


F0, longterm R
F0, recent R
Fcurrent, longterm R
Fcurrent, recent R
SSBF40
Projected SSB (mt)
500
1000
1500
2000
2022
2024
2026
2028
2030
2032
2034
2036

Summary of forecasts

- If recruitment returns to the long-term average, the stock is expected to rebuild quickly
- Low recruitment is suppressing the stock, not overfishing
- Currently working with the SSC to develop forecasts to inform the rebuilding time frame and catch levels
  - To be reviewed by the SSC in April
- The SERFS index (plus age/length comps) could be used to monitor the rebuilding trajectory

SEFSC proposal to have SSC chair present stock assessments and the resulting advice

- 50 CFR 600.310(b)(2)(v)(A) “Each SSC shall provide its Regional Fishery Management Council recommendations for ABC as well as other scientific advice, as described in Magnuson-Stevens Act section 302(g)(1)(B).

- Having the SSC chair present the SSC’s interpretation as well as the management advice streamlines messaging and avoids duplication

- Places the roles of Science generation (SEFSC and SEDAR process), Science interpretation and advice formulation (SSC) and Management decision making (Council) in their most effective role.

- SEFSC and our analysts would continue to fully support the SSC chair in providing any materials, slides, etc as we do in the Gulf and Caribbean.