SEFSC response to SAFMC Research Recommendations

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NOAA FISHERIES

Southeast Fisheries Science Center

SAFMC
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Outline

1. *Research takes a community and SEFSC is far from alone in this response - numerous state, academic and federal partners*

1. *Update of status on 2020-2025 Research Plan*

1. *Highlight several key initiatives*

Research' budget allocated to SEFSC is declining in buying power or comes in with very specific requests such as the FY23 Congressional South Atlantic Reef fish funding of 1.8M.

Research progress

need	complete	delayed/not planned	ongoing: research in progress or routine	total	status 2023	status 2022
I. Short Term needs for stock assessments, 2020-2023	11	5	10	26	81%	62%
II. Long Term needs for stock assessments, next 5 years.		7	4	11	36%	36%
III. Short Term Needs for Spawning Special Management Zones, next 5 years.		1	4	5	80%	80%
IV. Short Term Needs for MPA monitoring, next 5 years.		3	3	6	50%	50%
V. Long Term Needs within the next 5 years.		1	11	12	92%	92%
VI. Habitat Research and Monitoring Needs			2	2	100%	100%
VII. Specific Monitoring Priorities	2		9	11	100%	100%
VIII. SPECIFIC ANNUAL REPORTING REQUESTS		1	2	3	67%	0%
total	13	18	45	77	75%	68%

Stock assessments (but see SEDAR Steering Committee report)

heading	topic	status 2023
I. Short Term research needs for stock assessments to be completed in 2020-2023	• Operational assessment for Spanish Mackerel, mid-2020:	completed
I. Short Term research needs for stock assessments to be completed in 2020-2023	• Operational assessment for Gag, mid-2020:	completed
I. Short Term research needs for stock assessments to be completed in 2020-2023	• Red Snapper Operational Assessment, 2021:	completed
I. Short Term research needs for stock assessments to be completed in 2020-2023	• Gray Triggerfish Research Track Assessment 2022:	ongoing
I. Short Term research needs for stock assessments to be completed in 2020-2023	• Black Sea Bass Operational Assessment 2021:	completed
I. Short Term research needs for stock assessments to be completed in 2020-2023	• Red Grouper Operational Assessment 2021:	ongoing
I. Short Term research needs for stock assessments to be completed in 2020-2023	• Mutton Snapper Assessment, 2021:	ongoing
I. Short Term research needs for stock assessments to be completed in 2020-2023	• White Grunt Research Track Assessment, 2023	delayed

II. Long Term needs for stock assessments, next 5 years.

partner	**General assessment topics**	
SEFSC	o Evaluate assessment projection performance, considering ability to estimate landings, recruitment, and biomass	ongoing
SEFSC	o Research needs for Protogynous stocks, particularly groupers and Black Sea Bass:	
SEFSC	o Investigate possible effects of hermaphroditism on the steepness parameter.	delayed
SEFSC	o Investigate temporal patterns in sexual transition and develop explanations for any patterns identified.	delayed
SEFSC	o Investigate methods for incorporating the dynamics of sexual transition in assessment models.	delayed
	Spanish Mackerel	
SEFSC	o Need observer coverage of fisheries that catch Spanish Mackerel (gillnets, castnets, handlines, poundnets, and shrimp trawls) for bycatch estimates.	delayed
SEFSC	o Examine how schooling or migratory dynamics may influence the catchability of the species. In particular, research the assumption of the hyperstability of indices that sample the schooling portion of the stock.	delayed
	Gag	
SEFSC	o Evaluate otolith chemistry as an approach to define Gag population structure.	delayed
SEFSC	o Compare genetics of spawning Gag captured by commercial fishermen to juveniles collected in different areas in subsequent months to determine the source of recruits. Consider expanding research to include samples from Mexico to explore gene flow and connectivity.	delayed
	Red Snapper	
SEFSC/ GADNR	o Additional acoustic and traditional tagging is needed on known spawning locations to document spawning migrations or aggregations and return of fish to non-spawning areas.	ongoing
SEFSC	o Evaluate the effects of environmental variation on the changes in recruitment and survivorship.	ongoing
SCDNR	o Investigate possible historical changes in sexual maturity.	ongoing

MPA/Special Spawning Management Zone work

partner	heading	topic	status 2023
?	**III. Short Term Needs for Spawning Special Management Zones next 5 years.**	• Document spawning within Spawning SMZs by priority species in the Snapper Grouper complex.	delayed
SCDNR	**III. Short Term Needs for Spawning Special Management Zones next 5 years.**	• Collect baseline data for Spawning SMZs.	ongoing
SCDNR	**III. Short Term Needs for Spawning Special Management Zones next 5 years.**	• Evaluate the sampling program of the Spawning SMZs. The evaluation should review data on compliance,	ongoing
SEFSC	**III. Short Term Needs for Spawning Special Management Zones next 5 years.**	• Develop methods for incorporating the impacts of Spawning SMZs on management actions and stock	ongoing
SEFSC	**III. Short Term Needs for Spawning Special Management Zones next 5 years.**	• Use hydrodynamic modeling to look at connectivity between SMZs and other habitats.	ongoing
SCNDR	**IV. Short Term Needs for MPA monitoring next 5 years.**	• Maintain annual monitoring to collect data inside and outside the MPAs to characterize MPAs and enable	ongoing
SEFSC	**IV. Short Term Needs for MPA monitoring next 5 years.**	• Characterize spawning by managed species within the MPAs.	delayed
NOS/SEFSC	**IV. Short Term Needs for MPA monitoring next 5 years.**	• Complete multibeam surveys of the MPAs.	ongoing
SEFSC	**IV. Short Term Needs for MPA monitoring next 5 years.**	• Evaluate the sampling program of the SAFMC MPAs. The evaluation should review data on compliance,	delayed
SEFSC	**IV. Short Term Needs for MPA monitoring next 5 years.**	• Develop methods for incorporating the impacts of MPA on management actions and stock status.	delayed
SEFSC/ FWRI	**IV. Short Term Needs for MPA monitoring next 5 years.**	• Use hydrodynamic modeling to look at connectivity between MPAs and other habitats.	ongoing

Unfortunately little ‘onramp’ for incorporating this work into management actions or stock assessments

South Atlantic MARFIN

- Due to funding limitations, the external Marine Fisheries Initiative (MARFIN) grant program competition will run in odd-numbered federal fiscal years. The next funding opportunity notice will be published in Summer 2022 and awards will be announced in 2023.

Cooperative Research Program funded projects (2022 projects)

- No South Atlantic Projects

Saltonstall-Kennedy

- 2023 Refining Ecological Reference Points for Atlantic Menhaden, University of Florida

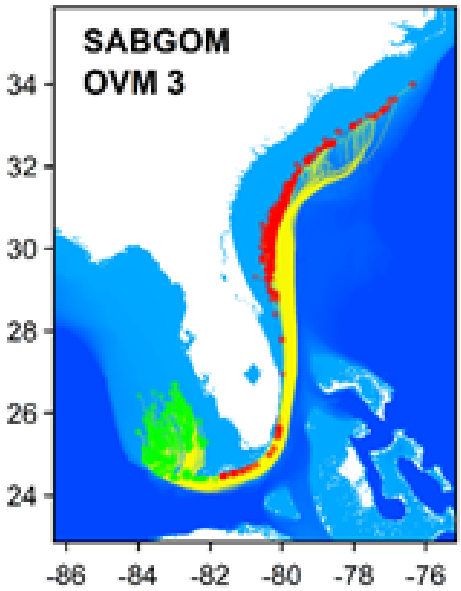
South Atlantic State research projects

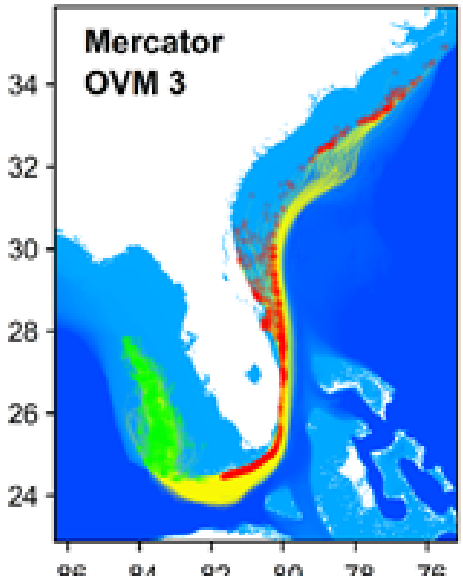
- Staff from all states have been involved in data collection or stock assessments for federally managed species.
  - Collecting fishery dependent data on commercial, recreational, and for-hire trips
  - Sending observers on charter and for-hire vessels
  - Collecting length, age, reproduction, diet, and genetic samples from fishery dependent and fishery independent samples
  - Monitoring Red Snapper mini-season
  - Improving estimates of recreational catch through FWC's new State Reef Fish Survey and validating results through video monitoring
  - Validating and updating conversion factors for gutted and whole fish

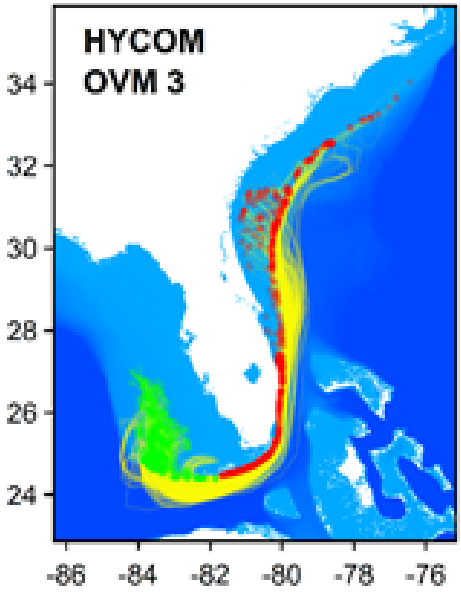
- Research and Monitoring Plan
  - Addressing 71% of the Research and Monitoring Plan main bullets.
  - Developing surveys to monitor deep-water species such as Blueline Tilefish, Snowy Grouper, and Tilefish; on-going trap and video survey (SERFS), new hook and line surveys focused on Red Snapper, and dive survey in Florida Keys.
  - Assisting in both Red Snapper and Greater Amberjack abundance estimates
  - Maintaining receiver arrays for acoustic telemetry studies
    - monitoring species movements and spawning habits

Research highlights

Connectivity modeling







Points are transparent such that darker colors represent greater numbers of larvae spawning or settling in those areas.

Almost 1/3 of red snapper and scamp larvae that settled in the U.S. Atlantic originated from spawning locations in the U.S. Gulf of Mexico

ORIGINAL ARTICLE

Source–sink recruitment of red snapper: Connectivity between the Gulf of Mexico and Atlantic Ocean

Mandy Karnauskas, Kyle W. Shertzer, Claire B. Paris, Nicholas A. Farmer, Theodore S. Switzer, Susan K. Lowerre-Barbieri, G. Todd Kellison, Ruoying He, Ana C. Vaz

Brothers, J.R., M. Karnauskas, C.B. Paris, and K.W. Shertzer. 2019. Larval dispersal of scamp (Mycteroperca phenax) in the waters off the southeastern United States: Connectivity within and between the Gulf of Mexico and Atlantic Ocean. SEDAR68-SID-02. SEDAR, North Charleston, SC. 35 pp.

NOAA FISHERIES

Environmentally-linked changes in recruitment

NOAA Technical Memorandum NMFS-SEFSC-753
doi:10.25923/qmgr-pr03

Ecosystem Status Report for the U.S. South Atlantic Region

J. Kevin Craig, G. Todd Kellison, Samantha M. Binion-Rock, Seann D. Regan, Mandy Karnauskas, Sang-Ki Lee, Ruoying He, Dennis M. Allen, Nathan M. Bacheler, Hannah Blondin, Jeffrey A. Buckel, Michael L. Burton, Scott L. Cross, Amy Freitag, Sarah H. Groves, Christine A. Hayes, Matthew E. Kimball, James W. Morley, Roldan C. Muñoz, Grant D. Murray, Janet J. Reimer, Kyle W. Shertzer, Taylor A. Shropshire, Katie I. Siegfried, J. Christopher Taylor, Denis L. Volkov

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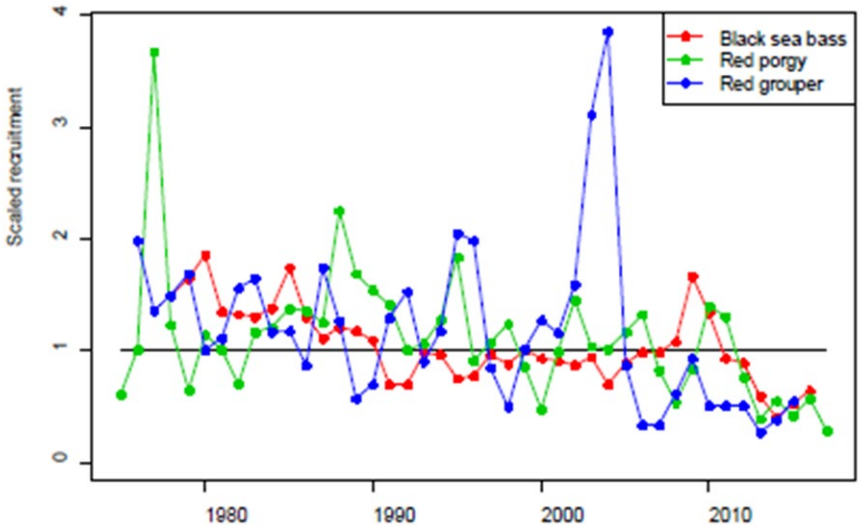
November 2021



Correlations in recruitment patterns of Atlantic reef fishes off the southeastern United States based on multi-decadal estimates from stock assessments

Kaitlynn J. Wade [a], Kyle W. Shertzer [b], J. Kevin Craig [b], Erik H. Williams [b]

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Abstract

Atlantic reef fishes off the southeastern United States support a multispecies fishery important to both commercial and recreational fleets. Productivity of this reef-fish complex is driven to a large degree by recruitment of new individuals into their respective populations. In this study, we analyzed patterns in time series of annual recruitment of ten Atlantic reef-fish species, primarily snappers and groupers, that have been the subject of separate single-species stock assessments. Our focus was on identifying patterns in autocorrelation of recruitment within species and on uncovering patterns in correlation across species. We found that autocorrelation of recruitment deviations was evident in the majority (9/10) of species with a dominant lag of one year. Pairwise correlations between species were both positive and negative. Principal component analysis revealed two general groups of species: those that exhibited lower-than-expected recruitment in recent years and those that did not exhibit such low recruitment (either near expected or higher-than-expected). These results point toward common drivers of recruitment (e.g., environmental, ecological, exploitation) in this complex of reef-associated fishes, and they are a critical first step for developing hypotheses of underlying mechanisms. Additionally, they have practical importance for

VII. Specific Monitoring Priorities (in progress)

"Increase funding for fisheries independent monitoring in the South Atlantic."
[*note that SEFSC does not necessarily make funding allocations*]

- Great South Atlantic Red Snapper Count - ongoing
- Great Amberjack count - ongoing
- South Atlantic Deepwater Longline survey (SADL)

"Develop monitoring programs for Dolphin"

- Dolphin MSE (see additional presentation, later in the program)

"Maintain/improve the ability to document commercial and recreational landings and discards."

- Doubling of commercial observer coverage
- See FY23 Reef fish spend plan

Conclusions

Since 2019 of 77 research priorities 78% are completed or in progress

A number of key research areas have made significant progress

We look forward to working to further align research with NOAA and SEFSC strategic priorities