



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, Florida 33149 U.S.A.
(305) 361-4200 Fax: (305) 361-4499

February 1, 2023

MEMORANDUM FOR: Carrie Simmons
Executive Director, Gulf of Mexico Fisheries Management Council

FROM: John F. Walter, III
Deputy Director, Science and Council Services
NOAA Southeast Fisheries Science Center

SUBJECT: SEFSC Response to 2025 SEDAR Draft Statements of Work

The Center has reviewed the proposed 2025 Statements of Work for the Gulf of Mexico assessments of Cobia, Gag grouper, Lane Snapper, and King Mackerel. The Center acknowledges the assessments priorities of the Council. The Center will endeavor to include these projects in the 2025 calendar, but notes that the 2025 project schedules will not be available until the May SEDAR meeting. The Center recommends the following changes:

All Gulf Assessments:

The Center recommends adding the following element to all Gulf assessments.

- Provide a means to model projected discards in a manner that relaxes the assumption that discards would increase/decrease in proportion to changes in the landings.

The rationale for this is that this will allow for more accurate evaluation of future management actions similar to the ability to explicitly model and account for closed versus open season dynamics for red snapper. It has been a needed change to the models and we will have time to accommodate these in the upcoming assessments.

GOM Cobia:

We recommend removing the following two bullets:

- For the purposes of yield projections, for selectivity and retention, use the average of the most recent three fishing years. (If an alternative approach is recommended, provide justification and outputs for the current and alternative approach).
- Describe changes in catch advice as they relate to the use of FES-adjusted MRIP recreational catch and effort data, versus changes related to stock abundance.

While the first bullet point describes a typical default assumption, the Center prefers to avoid language that constrains modeling decisions *a priori* simply because situations could occur where a size limit or selectivity change occurred in the last two years, for example. However, the Center agrees to justify the approach taken. The Center recommends removing the second bullet because the previous assessment used MRIP FES data, and previously provided a bridging analysis to show the effect.

King Mackerel:

- We recommend removing the same bullet points as described above for Gulf Cobia.
- We recommend reviewing the shrimp bycatch estimation method across all relevant species prior to the stock assessment process as part of the Working Groups that were set up several years ago. The bycatch working group was put on hold awaiting the completion of the Shrimp Effort working group. The shrimp effort group is meeting during February 22-23, 2023 at the Gulf Council offices and comprises Council, Center and Industry representatives and should be able to complete the transition to a new method of effort calculation. Once this is complete we anticipate being able to reconvene the bycatch working group to complete this effort. Both processes are occurring outside of SEDAR.

Lane Snapper:

The SSC recommended that this assessment be swapped for an interim analysis. The SEFSC will use the iTarget model with updated data, as was provided for the last assessment. This is a similar time commitment for this species as an interim and does not require a SOW.

Gag Grouper:

Center staff assisted the SSC with the draft SOW submitted to the Council. Aside from the general comment above about constraining years for the selectivity and retention, we have no further edits to provide.

Thank you,

A handwritten signature in dark ink, appearing to read "John F. Walter, III", is written over a faint, light-colored background.

John F. Walter, III
Deputy Director, Science and Council Services
NOAA Southeast Fisheries Science Center

CC: Julie Neer, Clay Porch, Shannon Cass-Calay, Kate Siegfried



Gulf of Mexico Fishery Management Council

Managing Fishery Resources in the U.S. Federal Waters of the Gulf of Mexico

4107 W Spruce Street, Suite 200, Tampa, Florida 33607 USA
Phone: 813.348.1630 • Toll free: 888.833.1844 • Fax: 813.348.1711
www.gulfcouncil.org

Gulf of Mexico Cobia Operational Assessment Scope of Work March 20, 2023

1. Update the approved SEDAR 28 Update Gulf of Mexico cobia base model with data through 2023 at a minimum, and 2024 if possible.
2. Document any changes or corrections made to model and input datasets and provide updated input data tables.
 - Describe any annual differences in the magnitude of landings from the previous assessment greater than 10%, with assistance from the NOAA Office of Science and Technology.
 - Update life history data (e.g., growth, reproduction, mortality) if warranted. Evaluate any new data on discard mortality.
 - Re-examine Stevens and MacCall method of developing subset of trips targeting cobia.
3. To the extent possible, the following should be considered in developing the base model:
 - Consider whether steepness can be estimated, with or without a prior. If steepness is fixed, evaluate the sensitivity of that assumption.
 - Explore selectivity functions for recreational and commercial fisheries.
 - Explore uncertainty in landings data using appropriate methods in sensitivity analyses.
4. Update model parameter estimates and their variances, model uncertainties, estimates of stock status and management benchmarks, and provide the probability of overfishing occurring at specified future harvest and exploitation levels. Provide commercial and recreational landings and discards in pounds and numbers.
 - Use the following status determination criteria (SDC):
 - MSY proxy = yield at F_{MSY} or proxy ($F_{SPR30\%}$)
 - If overfished, $MSY = F_{Rebuild}$
 - $MSST = 0.75 * SSB_{MSY}$
 - $MFMT = F_{MSY}$ and $F_{Rebuild}$ (if overfished)
 - $OY = ACL$ as defined by the Gulf and South Atlantic Councils in CMP Amendment 18.
 - If different SDC are recommended, provide outputs for both the current and recommended SDC.
 - Unless otherwise recommended, use the geometric mean of the previous three years' fishing mortality to determine $F_{Current}$. If an alternative approach is recommended, provide justification and outputs for the current and alternative approach.
 - Provide yield and spawning stock biomass streams for the overfishing limit and acceptable biological catch in pounds:
 - Annually for five years
 - Under a "constant catch" scenario for both three and five years

- For the equilibrium yield at F_{MSY} , when estimable
5. Develop a stock assessment report to address these TORS and fully document the input data and results of the stock assessment model.

Topical Working Group

A topical working group **is not** recommended for this assessment.



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Gulf of Mexico Gag Grouper Operational Assessment Scope of Work March 20, 2023

1. Update the approved 2022 Alternative SEDAR 72 base model, using the State of Florida's State Reef Fish Survey for private angling and landings and discards, for Gulf of Mexico gag grouper with data through 2023.
2. Document any changes or corrections made to model and input datasets and provide updated input data tables.
 - Describe any annual differences in the magnitude of landings from the previous assessment greater than 10%, with assistance from appropriate data providers.
 - Update life history data (e.g., growth, reproduction, natural mortality) if warranted. Evaluate any new data on discard mortality.
 - Evaluate available data on the severity (intensity and extent) of the 2021 red tide episodic mortality event, and determine if the previous estimate used in the projections from the last assessment ("medium" severity) should be updated. Evaluate additional red tide episodic mortality (e.g., 2022/2023 red tide bloom) as data availability and time permit.
3. Update model parameter estimates and their variances, model uncertainties, estimates of stock status and management benchmarks, and provide the probability of overfishing occurring at specified future harvest and exploitation levels. Provide commercial and recreational landings and discards in **pounds and numbers**.
 - Use the following status determination criteria (SDC):
 - $MSY \text{ proxy} = \text{yield at } F_{MSY} \text{ or proxy } (F_{40\%SPR})$
 - If overfished, $MSY \text{ proxy} = F_{Rebuild}$
 - $MSST = 0.5 * B_{MSY}$
 - $MFMT = F_{MSY} \text{ and } F_{Rebuild} \text{ (if overfished)}$
 - $OY = 75\% \text{ of the yield at } MSY \text{ or proxy (Amendment 30B); } 90\% \text{ of } MSY \text{ or proxy (Amendment 56; in development)}$
 - If different SDC are recommended, provide outputs for both the current and recommended SDC.
 - Unless otherwise recommended, use the geometric mean of the previous three years' fishing mortality to determine $F_{Current}$. If an alternative approach is recommended, provide justification and outputs for the current and alternative approach.
 - Provide yield and spawning stock biomass streams for the overfishing limit and acceptable biological catch in pounds:
 - Annually for five years
 - Under a "constant catch" scenario for both three and five years
 - For the equilibrium yield at F_{MSY} , when estimable
4. Develop a stock assessment report to address these TORS and fully document the input data and results of the stock assessment model.

Topical Working Group

A topical working group **is** recommended for this assessment:

- Red tide mortality (virtual)



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Gulf of Mexico Migratory Group King Mackerel Operational Assessment Scope of Work March 20, 2023

1. Update the approved 2020 SEDAR 38 Update base model for Gulf of Mexico migratory group of king mackerel with data through 2023.
2. Document any changes or corrections made to model and input datasets and provide updated input data tables.
 - Describe any annual differences in the magnitude of landings from the previous assessment greater than 10%, with assistance from the NOAA Office of Science and Technology.
 - Update life history data (e.g., growth, reproduction, mortality) if warranted. Evaluate any new data on discard mortality.
 - Review the shrimp bycatch estimation method prior to the stock assessment process. Evaluate the new method of shrimp effort calculation, considerate of the recommendations of the Shrimp Bycatch Working Group.
3. Update model parameter estimates and their variances, model uncertainties, estimates of stock status and management benchmarks, and provide the probability of overfishing occurring at specified future harvest and exploitation levels. Provide commercial and recreational landings and discards in **pounds and numbers**.
 - Use the following status determination criteria (SDC):
 - $MSY \text{ proxy} = \text{yield at } F_{MSY} \text{ or proxy } (F_{SPR30\%})$
 - If overfished, $MSY = F_{Rebuild}$
 - $MSST = (1-M) * SSB_{MSY}$
 - $MFMT = F_{MSY} \text{ and } F_{Rebuild} \text{ (if overfished)}$
 - $OY = 0.85 * MSY \text{ or its proxy, currently } F_{30\%SPR}$
 - If different SDC are recommended, provide outputs for both the current and recommended SDC.
 - Unless otherwise recommended, use the geometric mean of the previous three years' fishing mortality to determine $F_{Current}$. If an alternative approach is recommended, provide justification and outputs for the current and alternative approach.
 - Provide yield and spawning stock biomass streams for the overfishing limit and acceptable biological catch in pounds:
 - Annually for five years
 - Under a "constant catch" scenario for both three and five years
 - For the equilibrium yield at F_{MSY} , when estimable
4. Develop a stock assessment report to address these TORS and fully document the input data and results of the stock assessment model.

Topical Working Group

A topical working group **is** recommended for this assessment:

- Shrimp Bycatch Estimation Methodology (virtual)



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February 1, 2023

MEMORANDUM FOR: John Carmichael
Executive Director, South Atlantic Fisheries Management Council

FROM: John F. Walter, III
Deputy Director, Science and Council Services
NOAA Southeast Fisheries Science Center

SUBJECT: SEFSC Response to 2025 SEDAR Draft Statements of Work

The Center has reviewed the proposed 2025 Statements of Work for the South Atlantic assessments of Red Porgy, Gag Grouper and King Mackerel. We acknowledge the assessment priorities of the Council, and we will endeavor to include these projects in the 2025 calendar but note that the 2025 project schedules are provisional until the May SEDAR meeting.

The Center notes that the proposed South Atlantic SOWs include some recommendations that are already complete (e.g. including interannual variability in landings in BAM and Stock Synthesis assessments) and many research elements that are underway but have yet to transition from research to operational use in stock assessments. We recommend removing these from the SOW. We support including these elements promptly when the research is complete and it is evident that we have a path to warrant inclusion in an operational assessment. To facilitate this research, the Center recommends a SEDAR procedural workshop to take place in 2024 to examine the potential sources of recent recruitment declines in several reef fish species, including South Atlantic Gag, Scamp, and Red Porgy. We note that our revisions are substantial and may require additional explanation and would be available for a meeting to discuss further if you think it necessary. We have submitted the revisions as a word document with track changes.

Thank you,

John F. Walter, III
Deputy Director, Science and Council Services
NOAA Southeast Fisheries Science Center

CC: Julie Neer, Clay Porch, Shannon Cass-Calay, Erik Williams

Species:

Red Porgy

Model and Additional Data Years:

- Prior Assessment: SEDAR60 Red Porgy Standard Assessment
- Prior Terminal Year: 2017
- Data providers are encouraged to provide all available data given the raw data deadline. Terminal year used in the model will be determined on the basis of data availability. For analytical products, partial years can be included/excluded based on best practices.
- Apply the current BAM configuration.

Requested Data Updates (Please be as specific as possible):

- Review any new and updated information to determine if it warrants consideration for modifying existing assumptions to life history, discard mortality, and steepness.

Potential Modifications to previously approved assessment (Please be as specific as possible):

- Incorporate catch level working group recommendations, as feasible.

Is a Topical Working Group Needed? No

Species:

Gag Grouper

Model and Additional Data Years:

- Prior Assessment: SEDAR 71 Gag Operational Assessment
- Prior Terminal Year: 2019
- Data providers are encouraged to provide all available data given the raw data deadline. Terminal year used in the model will be determined on the basis of data availability. For analytical products, partial years can be included/excluded based on best practices.
- Apply the current BAM configuration.

Requested Data Updates (Please be as specific as possible):

Review any new and updated information to determine if it warrants consideration for modifying existing assumptions to life history, discard mortality, and steepness.

Potential Modifications to previously approved assessment (Please be as specific as possible):

Deleted: <#>OA Terminal Year: 2024, adding 7 years of new data

Commented [SC1]: This allows more flexibility to our data providers.

Deleted: <#>Include any new and updated information on life history, discard mortality, and steepness.

Commented [SC2]: Information would be included if warranted.

Deleted: <#>Explore using appropriate CVs for the landings data to capture the uncertainty in the model results

Deleted: <#>.

Deleted: <#>Investigate potential factors that may be contributing to the continued low recruitment of Red Porgy to inform projections including impacts of overharvesting and external environmental factors on winter spawners.

Deleted: <#>Include abundance and catch time series to inform projection timeframes
Autocorrelation and partial autocorrelation functions
Negative correlations with Red Snapper and Red Lionfish

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Deleted: <#>I

Deleted: <#>projection

Deleted: <#>topics

Deleted: Consider having discussions of Red Porgy low recruitment along with Gag topical working group on low recruitment

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Deleted: **If Yes, Topical Working Group Topics:**

Topic 1:

Topic 2:

Deleted: **Suggested Topical Working Group Process:**
Is an in-person workshop requested for the Topical Working Group, or can it meet via webinar.

Deleted: **POTENTIAL SCHEDULE:**
Cooperators use their process to develop SoWs
SSC reviews SoWs at April meeting, then SAFMC reviews in September, 2022
Initial Cooperator-approved SoWs submitted to SEFSC by November 1, 2022
SEFSC provides feedback to Cooperators via memo no later than February 1, 2023

... [1]

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Deleted: OA Terminal Year: 2024, adding 5 years of new data

Deleted: Include any new and updated information on life history, discard mortality, and steepness.

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... [2]

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- Incorporate length composition from the video survey, as feasible.
- Incorporate catch level working group recommendations, as feasible.

Is a Topical Working Group Needed? Possibly

- Low recruitment: The Center recommends a SEDAR Procedural Workshop (PW) be conducted in 2024 to examine the potential sources of recent recruitment declines in several reef fish species in the South Atlantic, including: gag, scamp, and red porgy. The Center will work with the Council to draft appropriate terms of reference for that PW.
- Reproductive Dynamics: A TWG is recommended if sufficient information is made available to better characterize the reproductive dynamics of gag (e.g. sex ratio, maturity schedule, batch fecundity, spawning seasonality, and spawning frequency, sperm limitation).

Suggested Topical Working Group Process: webinar.

Commented [SC12]: Stereo cameras on the SEFIS surveys are currently experimental, and no age data is available. We'll consider the inclusion of the length composition data if it is made available and is considered ready for inclusion.

Deleted: <#> Incorporate methods to characterize length and age composition of gag grouper observed on videos from SERFS fishery independent surveys from other research track assessments. Trap sampling of gag was limited and potentially biased due to size selectivity of the gear.

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Deleted: <#> Explore alternative reference points for management as developed by GMFMC for Gag. Include abundance and catch time series to inform projection timeframes. Autocorrelation and partial autocorrelation functions.

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Deleted: <#> projection

Deleted: <#> topics

Deleted: Yes

Deleted: If Yes, Topical Working Group Topics:

Deleted: <#> Topic 1: Investigate potential sources of recent recruitment declines in gag in the South Atlantic. Gag recruitment has been low over the last 10 years, possibly due to overharvest or external environmental factors. Non-traditional datasets, such as inshore estuarine surveys and larval bridge net surveys, may be helpful in better understanding recruitment dynamics of gag. Better characterize population and fishery dynamics of gag during their residency in estuaries. Gag spend their first year of life in estuaries, and differences in natural mortality, growth, or harvest between the estuarine phase and the offshore stock could induce biases in the assessment.

Deleted: <#> Topic 2: Better characterize the reproductive dynamics of gag including sex ratio, maturity schedule, batch fecundity, spawning seasonality, and spawning frequency, as well as the potential for sperm limitation. Mature male and female biomass was the measure of reproductive potential for this assessment, but may be biased if reproductive parameters vary significantly with size and age, or if sex ratio and other life history characteristics have varied considerably over time.

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Deleted: POTENTIAL SCHEDULE: Cooperators use their process to develop SoWs. SSC reviews SoWs at April meeting, then SAFMC reviews in September, 2022. Initial Cooperator-approved SoWs submitted to SEFSC by November 1, 2022. SEFSC provides feedback to Cooperators via memo no later than February 1, 2023. ... [3]

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Species:

King Mackerel

Model and Additional Data Years:

- Prior Assessment: SEDAR 38U King Mackerel Update Assessment
- Prior Terminal Year: 2017/2018 FY
- Data providers are encouraged to provide all available data given the raw data deadline. Terminal year used in the model will be determined on the basis of data availability. For analytical products, partial years can be included/excluded based on best practices.
- Apply the current SS3 configuration.

Requested Data Updates (Please be as specific as possible):

- Review any new and updated information to determine if it warrants consideration for modifying existing assumptions to life history, discard mortality, and steepness.
-

Potential Modifications to previously approved assessment (Please be as specific as possible):

- Provide a means to model projected discards in a manner that relaxes the assumption that discards would increase/decrease in proportion to changes in the landings.
- Explore alternative age references, or age-specific time series for the SEAMAP fishery independent survey.
- Explore model sensitivity to the exclusion of sub-legal fish observations. Explore assumptions regarding the size/age of discards and bycatch.
- Evaluate model sensitivity to the age-data and explore alternative parameterizations (such as inverse age-length key).
- Explore cause of high max gradient for the model. Describe the cause and implement improvements feasible.
- As feasible, explore the possibility to include a sensitivity run, with FISHStory length data (1950s-1970s)
- Incorporate catch level working group recommendations, as appropriate

Is a Topical Working Group Needed? No

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Appendix ¶

Research Recommendations for future: ¶

Implement systematic age sampling for the general recreational and commercial sectors. Age samples were important for this assessment for identifying strong year classes, but sample sizes were limited, particularly for the general recreational sector, which accounts for the majority of the recent landings. ¶

Age-dependent natural mortality was estimated by indirect methods (Lorenzen) for this assessment. Telemetry- and conventional-tagging programs can provide alternative estimates of natural mortality.

Deleted: <#>OA Terminal Year: 2024, adding 6 years of new data ¶

Deleted: Include any new and updated information on life history, discard mortality, and steepness.

Deleted: Explore using appropriate CVs for the landings data to capture the uncertainty in the model results.

Deleted: <#>Research aimed at improving the documentation of data series formatting, including index standardization, for SS3 would improve modeling efficiency. This includes statistical coding for consistent database querying and data processing. ¶

Commented [SC18]: This is an urgent Center Priority.

Deleted: An evaluation of alternative age references, or age-specific time series, for the SEAMAP fishery independent survey was recommended by the data providers and noted by the analyst for future assessments.

Deleted: An analysis of the effect of excluding sublegal fish size observations on the assessment should be undertaken. Information on the age composition of discarded fish from all fleets is needed to validate the assumption of exclusively age-0 discards. The conditional age-at-length data had a significant influence on recent recruitment estimates. ¶

Deleted:), as the fleet coverage was suboptimal with zero information available for several fleets and years.

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Deleted: <#>Examine correlation among parameters in the .eva file and identify where smallest and ... [4]

Deleted: <#>Run a sensitivity

Commented [SC20]: These are mostly editorial recommendations to simplify and clarify the requirements.

Deleted: <#>Include abundance and catch time series to inform projection timeframes ¶ ... [5]

Deleted: **If Yes, Topical Working Group Topics:** ¶

Topic 1: ¶ ... [6]

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List of Research Recommendations:

impacts of climate change on winter spawners

Investigate potential factors that may be contributing to the continued low recruitment of Red Porgy, including egg production, egg quality, fertilization rate, juvenile survival, sex ratio, and size/age of sex transition

Investigate whether Red Porgy males establish and maintain territories as part of their spawning behavior (although territorial behavior has not previously been observed, the SSC deemed the question worthy of further investigation).

Investigate the potential impact(s) on Red Porgy of increased abundance of Red Lionfish and Red Snapper (or other piscivores found to have recent increased abundance) in the South Atlantic, including:

Predation of juvenile Red Porgy by Red Lionfish and Red Snapper and its potential impact on the apparent recruitment failure of Red Porgy

Competition for prey between Red Snapper and Red Porgy (e.g., diet composition and size range overlaps)

Exploring to what extent the resurgence in the Red Snapper South Atlantic population co-occurred with the decline in the South Atlantic Red Porgy population

Potential Items for a Research Track Assessment:

Investigate temporal trends in growth, sex at age, and female maturity at age. In the previous assessments, female maturity at age was estimated for several time blocks and included in the model as a time-varying relationship. During the current assessment process, the basis for modeling only female maturity as time-varying was called into question, given that life history parameters are often linked. The decision was made to use only a single female maturity at age relationship. However, the panel judged this to be an important area of future research.

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Page 3: [7] Deleted Shannon Cass-Calay 2/1/23 5:49:00 PM

Page 3: [8] Deleted Shannon Cass-Calay 2/1/23 5:49:00 PM

Species:

Red Porgy

Model and Additional Data Years:

- Prior Assessment: SEDAR60 Red Porgy Standard Assessment
- Prior Terminal Year: 2017
- Data providers should provide all new and recent available data sufficient for use in the stock assessment through 2024. Data providers may decide to include preliminary or partial for more recent years that could be used in the stock assessment models or projection analyses. Data inclusion for the stock assessment models and projection analyses will be determined by the lead analyst based on quantity and quality of the most recent data
- Apply the current BAM configuration.

Requested Data Updates (Please be as specific as possible):

- Review any new and updated information to determine if it warrants consideration for modifying existing assumptions to life history, discard mortality, landings and discards, and steepness.

Potential Modifications to previously approved assessment (Please be as specific as possible):

- Incorporate catch level working group recommendations.

Is a Topical Working Group Needed? Yes

- Low recruitment: The Center recommends a SEDAR Procedural Workshop (PW) be conducted in 2024 to examine the potential sources of recent recruitment declines in several reef fish species in the South Atlantic, including: gag, scamp, and red porgy. The Center will work with the Council to draft appropriate terms of reference for that PW.

POTENTIAL SCHEDULE:

- Cooperators use their process to develop SoWs
- SSC reviews SoWs at April meeting, then SAFMC reviews in September, 2022
- Initial Cooperator-approved SoWs submitted to SEFSC by November 1, 2022
- SEFSC provides feedback to Cooperators via memo no later than February 1, 2023
- Cooperators/Technical review bodies review feedback and negotiate final SoWs with SEFSC
- Final SoWs provided to SEDAR Program Manager by May 1, 2023
- Assessment Species are approved at Spring SEDAR Steering Committee Meeting, May 2023.
- Terms of Reference to SSC in October, 2023 and SAFMC in March, 2024
- Assessment reviewed by SSC and SAFMC in late 2025/early 2026

Species:

Gag Grouper

Model and Additional Data Years:

- Prior Assessment: SEDAR 71 Gag Operational Assessment
- Prior Terminal Year: 2019
- Data providers should provide all new and recent available data sufficient for use in the stock assessment through 2024. Data providers may decide to include preliminary or partial for more recent years that could be used in the stock assessment models or projection analyses. Data inclusion for the stock assessment models and projection analyses will be determined by the lead analyst based on quantity and quality of the most recent data.
- Apply the current BAM configuration.

Requested Data Updates (Please be as specific as possible):

Review any new and updated information to determine if it warrants consideration for modifying existing assumptions to life history, discard mortality, landings and discards, and steepness.

Potential Modifications to previously approved assessment (Please be as specific as possible):

- Incorporate length composition from the video survey, as feasible.
- Incorporate catch level working group recommendations.

Is a Topical Working Group Needed? Yes

- Low recruitment: The Center recommends a SEDAR Procedural Workshop (PW) be conducted in 2024 to examine the potential sources of recent recruitment declines in several reef fish species in the South Atlantic, including: gag, scamp, and red porgy. The Center will work with the Council to draft appropriate terms of reference for that PW.
- Reproductive Dynamics: A TWG is recommended if sufficient information is made available to better characterize the reproductive dynamics of gag (e.g. sex ratio, maturity schedule, batch fecundity, spawning seasonality, and spawning frequency, sperm limitation).

Suggested Topical Working Group Process:

Webinar

POTENTIAL SCHEDULE:

- Cooperators use their process to develop SoWs
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- Assessment reviewed by SSC and SAFMC in late 2025/early 2026

Species:

King Mackerel

Model and Additional Data Years:

- Prior Assessment: SEDAR 38U King Mackerel Update Assessment
- Prior Terminal Year: 2017/2018 FY
- Data providers should provide all new and recent available data sufficient for use in the stock assessment through 2023/2024 FY. Data providers may decide to include preliminary or partial for more recent years that could be used in the stock assessment models or projection analyses. Data inclusion for the stock assessment models and projection analyses will be determined by the lead analyst based on quantity and quality of the most recent data.
- Apply the current SS3 configuration.

Requested Data Updates (Please be as specific as possible):

- Review any new and updated information to determine if it warrants consideration for modifying existing assumptions to life history, discard mortality, landings and discards, and steepness.

Potential Modifications to previously approved assessment (Please be as specific as possible):

- Provide a means to model projected discards in a manner that relaxes the assumption that discards would increase/decrease in proportion to changes in the landings.
- Explore alternative age references, or age-specific time series for the SEAMAP fishery independent survey.
- Explore model sensitivity to the exclusion of sub-legal fish observations. Explore assumptions regarding the size/age of discards and bycatch.
- Evaluate model sensitivity to the age-data and explore alternative parameterizations (such as inverse age-length key).
- Explore cause of high max gradient for the model. Describe the cause and implement improvements feasible.
- As feasible, explore the possibility to include a sensitivity run with FISHStory length data (1950s-1970s)
- Incorporate catch level working group recommendations

Is a Topical Working Group Needed? No

POTENTIAL SCHEDULE:

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- Assessment Species are approved at Spring SEDAR Steering Committee Meeting, May 2023.
- Terms of Reference to SSC in October, 2023 and SAFMC in March, 2024
- Assessment reviewed by SSC and SAFMC in late 2025/early 2026

Appendix: Additional and Future Research Recommendations not requested to be addressed in 2025 Operational Assessments

Research Recommendations for future Gag Assessments:

- Implement systematic age sampling for the general recreational and commercial sectors. Age samples were important for this assessment for identifying strong year classes, but sample sizes were limited, particularly for the general recreational sector, which accounts for the majority of the recent landings.
- Age-dependent natural mortality was estimated by indirect methods (Lorenzen) for this assessment. Telemetry- and conventional-tagging programs can provide alternative estimates of natural mortality.

Research recommendation for future Red Porgy Assessment:

- Impacts of climate change on winter spawners
- Investigate potential factors that may be contributing to the continued low recruitment of Red Porgy, including egg production, egg quality, fertilization rate, juvenile survival, sex ratio, and size/age of sex transition
- Investigate whether Red Porgy males establish and maintain territories as part of their spawning behavior (although territorial behavior has not previously been observed, the SSC deemed the question worthy of further investigation).
- Investigate the potential impact(s) on Red Porgy of increased abundance of Red Lionfish and Red Snapper (or other piscivores found to have recent increased abundance) in the South Atlantic, including:
 - Predation of juvenile Red Porgy by Red Lionfish and Red Snapper and its potential impact on the apparent recruitment failure of Red Porgy
 - Competition for prey between Red Snapper and Red Porgy (e.g., diet composition and size range overlaps)
 - Exploring to what extent the resurgence in the Red Snapper South Atlantic population co-occurred with the decline in the South Atlantic Red Porgy population
- Investigate temporal trends in growth, sex at age, and female maturity at age. In the previous assessments, female maturity at age was estimated for several time blocks and included in the model as a time-varying relationship. During the current assessment process, the basis for modeling only female maturity as time-varying was called into question, given that life history parameters are often linked. The decision was made to use only a single female maturity at age relationship. However, the panel judged this to be an important area of future research.



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February 1, 2023

MEMORANDUM FOR: Miguel Rolón
Executive Director, Caribbean Fisheries Management Council

FROM: John F. Walter, III
Deputy Director, Science and Council Services
NOAA Southeast Fisheries Science Center

SUBJECT: SEFSC Response to 2025 SEDAR Draft Statements of Work

The Center has reviewed the proposed 2025 Statements of Work for the Caribbean assessments of Hogfish (Puerto Rico) and Lane Snapper (US Virgin Islands). The Center acknowledges the assessments priorities of the Council, however review of the data available for stock assessment revealed data limitations that may not allow for successful assessments of Lane Snapper in the US Virgin Islands. The Center recommends additional data review to identify a species in the US Virgin Islands with available data sufficient for stock assessment. Data do appear adequate to attempt a stock assessment of Hogfish in Puerto Rico.

The Center will endeavor to include Puerto Rico Hogfish and another species, to be identified, in the US Virgin Islands in the 2025 stock assessment calendar, but notes that the 2025 project schedules will not be available until the May SEDAR meeting. A draft Statement of Work for the 2025 SEDAR Caribbean stock assessments is enclosed.

Thank you,

John F. Walter, III
Deputy Director, Science and Council Services
NOAA Southeast Fisheries Science Center

CC: Julie Neer, Clay Porch, Shannon Cass-Calay, Kevin McCarthy, Graciela Garcia-Moliner

Draft Statement of Work and Timing

Species:

Hogfish (Puerto Rico) and a species to be determined (US Virgin Islands)

Model and Additional Data Years:

- Prior Assessment: US Caribbean Data-limited species SEDAR 46 (Puerto Rico Hogfish)
- Prior Terminal Year: 2014
- OA Terminal Year: 2023/2024, adding 9-10 years of new data, depending on SEDAR schedule timing and the chosen terminal year
- The 2015 stock assessment (SEDAR 46) used data limited methods to assess Puerto Rico Hogfish

Data Updates:

- Add new years to data streams/time series used in the previous assessment.
- Review any new and updated life history information to determine if it warrants consideration for modifying existing assumptions to life history.
- Review relevant fisheries independent data for their utility in developing indices of abundance.
- Review relevant fisheries dependent data for their utility in developing indices of abundance.

Requested Model Modification to previous assessment:

- Develop a stock assessment model for Puerto Rico Hogfish and St. Thomas/St. John and St. Croix TBD stocks using assessment tools that are compatible with available data and consistent with standard practices.

Is a Topical Working Group Needed:

No, an in person data workshop is requested.

Assessment Timing:

The SEFSC will work in collaboration with the Caribbean Fishery Management Council on the timing of assessment development meetings/webinars and milestones.