

**Standing and Special Mackerel SSC
Meeting Summary
December 5, 2024
Webinar**

The webinar meeting of the Gulf of Mexico (Gulf) Fishery Management Council's (Council) Standing and Special Mackerel Scientific and Statistical Committees (SSC) was convened at 8:30 AM EDT on December 5, 2024. The agenda for this meeting was approved along with the minutes from the July 2024 SSC meeting. [Verbatim minutes from past SSC meetings can be reviewed here.](#)

SEDAR 99: Gulf Migratory Group King Mackerel Terms of Reference and Volunteers

Dr. Katie Siegfried (Southeast Fisheries Science Center [SEFSC]) and Council staff reviewed the draft terms of reference for the SEDAR 99 stock assessment of Gulf king mackerel with the Standing and Special Mackerel SSCs. This assessment is expected to have three topical working groups, examining shrimp bycatch, sex-specific life history model inputs, and selectivity and retention estimation approaches. A single group of participants will provide input across all three topical working groups. Dr. Siegfried discussed some specific modifications anticipated by the SEFSC compared to the SEDAR 38 Update base model. The SSC made several edits to the terms of reference including an addition that would consider information collected by the SEFSC's king mackerel technical group and results from the Council's Coastal Migratory Pelagic stakeholder engagement sessions. An SSC member asked about consideration of the Caribbean stock of king mackerel. Council staff replied that the Caribbean stock was a separate stock and historically has not been considered influential to the Gulf stock. Another SSC member asked for clarification about the topical working groups, which Council staff said will operate as a single set of participants covering multiple topics to be addressed during the assessment process. Dr. Siegfried also offered clarification about participation, with some webinars being "working sessions", with the results of those webinars being discussed in a subsequent public webinar before being finalized. The current definition of the minimum stock size threshold (MSST) was discussed, and it was noted that the current definition was set early in the management of Gulf king mackerel. The SSC thought it would be useful to reconsider this definition under more contemporary approaches, which account for the age-varying nature of estimates of natural mortality.

Drs. Jim Nance, Jie Cao, Chris Stallings, Matt Streich, and Mr. Jason Adriance volunteered to participate in SEDAR 99.

SEDAR 98: Gulf Red Snapper Assessment Workshop Volunteers

Council staff solicited the SSC for volunteers for the SEDAR 98 stock assessment of Gulf red snapper. The assessment process of SEDAR 98 will take place via a series of webinars to develop the base model and explore how best to incorporate recommended datasets from the Data Workshop. The assessment process is technical in nature, and SSC members with familiarity in

quantitative catch-at-age and length models would be encouraged to participate and offer their expertise to the analytical team.

Drs. Steven Saul, Luiz Barbieri, David Griffith, David Chagaris, and Mr. Harry Blanchet volunteered to participate in the SEDAR 98 assessment process.

Review: Southeastern U.S. Black Grouper Management Strategy Evaluation

Dr. Bill Harford (Nature Analytics) reviewed progress on work to evaluate the southeastern U.S. black grouper stock using a management strategy evaluation (MSE). This work has been contracted by the Florida Fish and Wildlife Conservation Commission. The last black grouper stock assessment (SEDAR 48) was terminated during the data workshop due to irreconcilable data issues. Broadly, the purpose of this work is to identify data limitations for black grouper that inhibit management decisions and explore MSE approaches that generate stock determination criteria and/or catch advice that can accommodate uncertainty within various data sources.

Dr. Harford first presented information regarding the available data sources for black grouper, which were categorized based on relative uncertainty using a “traffic light” hierarchy to identify problematic data streams. While the life history information for the stock appears reliable, the research team identified commercial and recreational catch estimates as the most uncertain data sources. In the past, landings estimates for black grouper have been confounded by misidentification with gag grouper. The SSC inquired why commercial data, which is considered accurate for black grouper given the stock’s inclusion in the Grouper-Tilefish Individual Fishing Quota program since 2010, was deemed to have high uncertainty. Dr. Harford responded that some analytical methods used for MSEs require long-term (several decades) historical data series to produce meaningful outputs. Similarly, there is evidence to suggest that the recreational data series is highly uncertain due the sampling design especially pre-1991. However, Dr. Harford explained that some approaches use more contemporary data inputs and these fishery-dependent data for black grouper could still be used. He continued that his team has begun deeper explorations of these data streams to assess which set of years would serve as reliable indicators.

Dr. Harford then reviewed several management procedures (MP) that can be used to produce the MSE. Indicator-based MPs can be used when a stock assessment is not available, and an appropriate indicator can be used as a proxy for a variable of interest, such as biomass. This approach may be desirable in the absence of stock biomass estimates. A stepwise adjustment MP would produce catch advice that is “stepped” up or down when an indicator is observed outside some predetermined upper or minimum bound. Similarly, this approach could be used to support decision making when estimates of biomass are not available. However, this method could result in annual modifications in catch advice which fishery managers generally try to avoid. An indicator trend MP would adjust catch advice relative to a magnitude of a trending slope. If an indicator slope is relatively flat, changes may not be needed; but, as the slope changes more substantially, adjustments could be made to account for those observations. The indicator target MP would be for cases where sufficient historical catch-per-unit-effort data is available and can be used as a historical target which would inform the direction and magnitude of any catch advice changes. Lastly, the trend + target MP would consider both the historical target and the slope of the indicator trend to adjust catch advice.

An SSC member asked, using black grouper as an example, what would be recommended when a fishery-dependent data stream has such high annual variability that indicator slopes might be substantially inflated. Dr. Harford replied that the objective of each of these approaches would be to capture the signal rather than the noise inherent in fisheries data to help identify which indicator would achieve management goals. For black grouper, Dr. Harford stated that simulation testing could be used to assess how the uncertainty observed in a particular index would affect an MP's expected outcome. Additionally, multi-indicator analyses can be conducted to alleviate these issues in certain cases.

Dr. Harford then provided some real-world examples of MSEs using thorny skate, plaice, and spanner crab as case studies. He stated that in these three examples catch estimates were not used to inform the analytical process. In each case catch advice could be recommended and, in one example, stock determination criteria could also be generated. Dr. Harford continued that, in the instance of spanner crab, a set of decision criteria were created to determine catch advice based on the outcome of the target reference point analysis.

Dr. Harford explained the workflow of MSEs. The operating models are a mathematical representation of the fish population dynamics, its associated fisheries, and monitoring programs. The MPs are pre-agreed processes defining how a fishery will be managed with the primary role to take fishery information and return a management recommendation. Dr. Harford stated that several operating models can be created to evaluate how robust an MP may be to uncertain factors within the fishery. The final step includes performance metrics that allow for a determination of how well an MP achieves some or all of the management objectives.

An SSC member asked how MSEs handle conflicting indices. Dr. Harford responded different information sources would need to be interpreted based on how often changes in trends would be expected. For example, abundance indices change quickly over time while length compositions do not. He stated that an advantage of the MSE approach is the flexibility to examine these types of questions. He continued that MSEs allow for the exploration of how robust MPs are against data uncertainty incorporated in the operating models prior to any management implementations.

Specific to black grouper, the research team recommended that there was enough information to generate a catch-based and/or indicator (or multi-indicator) MSE for catch advice. An SSC member recommended including information from the Gulf Fishery-Independent Survey of Habitat and Ecosystem Resources (G-FISHER) and Florida's State Reef Fish Survey Program. Dr. Harford mentioned that working groups from SEDAR 48 had cautioned against the use of G-FISHER information as there was concern the survey was spatially limited to a small portion of the black grouper distribution. Still, he noted that his team could explore these data source in addition to those already evaluated.

The SSC discussed some of the next steps for this work and the feasibility of some short-term (completion in 2025 and implementation in 2026) catch recommendations to the Council. However, any changes to catch advice to black grouper would require collaboration with the South Atlantic Fishery Management Council (SAFMC), which affects timing of management changes.

An SSC member suggested the Council provide some direction on risk tolerance and policy implications for black grouper. With those MP directives, the research team could construct an MSE framework which could be reviewed by the SSC and potentially result in recommendations to the Council. Another SSC member requested to see some practical application of MSE for black grouper. They suggested assessing the uncertainty and usefulness of landings information through an MSE might be a helpful first step.

Several SSC members cautioned against repeating the previous missteps for black grouper that discontinued the previous stock assessment. They stated that including highly uncertain and less precise data sources could result in a similar outcome where no management advice is provided. Another SSC member echoed this sentiment and brought up hesitation to previous instances where catch advice was expected from a single index analysis. They acknowledged that MSEs may allow for some simulation testing to address these concerns but indicated that additional review from the SSC would be warranted.

The SSC was supportive of the work to date and encouraged continued exploration of an MSE for black grouper, with a goal of providing management advice. However, the SSC would need to further discuss what could be done in the short-term, what next steps would be needed for more long-term work, and layout an MSE review procedure since this research is being conducted outside of the SEDAR process.

Review: SEDAR 88: Gulf Red Grouper Stock Assessment

Drs. Francesca Forrestal and Siegfried presented the work completed thus far on the Gulf red grouper stock assessment (SEDAR 88). The assessment uses the State of Florida's State Reef Fish Survey (SRFS) in place of the Marine Recreational Information Program's Fishing Effort Survey (MRIP-FES) data for recreational private vessel landings. SRFS was considered appropriate for inclusion in this assessment since the vast majority (>95%) of Gulf red grouper are landed off Florida. Additionally, SRFS exhibits improved precision compared to MRIP-FES for red grouper for the private vessel fleet. Dr. Forrestal also reviewed other model changes, including a re-estimation of natural mortality using an updated method.

Dr. Forrestal reviewed the decisions on which the SEFSC is seeking SSC feedback, including: an updated natural mortality vector to current best practices; freely estimated selectivity parameters; estimating steepness (at 0.66) or fixing it at a biologically plausible estimate (0.786); estimating growth (L_{∞} and k) with or without plateaus; and age-based selectivity for commercial handline, longline and recreational fleets. Generally, the SEFSC would prefer to estimate parameters wherever possible, especially for stock recruitment parameters since fixing these parameters limits how data can inform the estimation of those reference points. A new method for estimating natural mortality (M) is being considered (Then et al. 2015)¹, which results in a higher estimate of M compared to the last stock assessment SEDAR 61 2019)². This change in M results in an increase in the estimate of spawning stock biomass (SSB) over time, higher recruitment, and lower instantaneous fishing mortality. How to consider the L_{∞} (length at max age) parameter also requires feedback, as the two methods considered result in different estimates.

¹ <https://academic.oup.com/icesjms/article/72/1/82/2804320?login=false>

² <https://sedarweb.org/documents/sedar-61-gulf-of-mexico-red-grouper-final-stock-assessment-report/>

In discussing steepness, the SSC thought using the estimated value was the most appropriate approach, since it was feasible to do so given the data available. SSC members asked about the effect on the estimate of the proxy for maximum sustainable yield (MSY) as a result of the steepness estimate. Dr. Forrestal replied that depending on other settings, it was possible that MSY could be estimated at a value lower than the current proxy value of the fishing mortality rate at a 30% spawning potential ratio ($F_{30\%SPR}$). The SSC agreed that it would need to evaluate the diagnostics before finalizing a recommendation about MSY.

Dr. Forrestal reviewed recommended changes to the base model as they relate to selectivity. The SEDAR 88 model fits to the mean weight of catch. The previous model (SEDAR 61) was underestimating the observed weights from the landings data. Also, the mean length at age was input to serve as a check for SEDAR 88, and age-based selectivity was input for three of the directed fleets. By using age-based selectivity, this underestimation is corrected. Longline selectivity is modeled as logistic, as the freely estimated longline selectivity resulted in an unreasonable dome-shaped pattern. Dome-shaped selectivity for the longline fleet was also used in SEDAR 42 (2015)³ and SEDAR 61 but resulted in unrealistic SSB and fishing mortality estimates. **The SSC agreed with the use of a logistic selectivity function for the longline fleet.**

Dr. Forrestal discussed the diagnostics, which demonstrated that the model estimating both steepness and L_{∞} had the lowest log-likelihood values of the four models considered (fix both, fix steepness and estimate the L_{∞} , and estimate steepness and fix L_{∞} being the other three). Differences in log-likelihood values for estimating steepness are minimal, while the estimate for L_{∞} is more well defined, by way of a greater difference in log-likelihood values. Dr. Forrestal compares the model effects of estimating steepness and c not, on spawning output, SSB, F , and recruitment. An SSC member thought some of the differences seen may be as much the result of the differences between fixed or estimated growth parameters as steepness.

Regarding M , an SSC member thought the change was not so different from changes seen in other species when using the Then et al. method, and that consistency in the use of that approach should be pursued absent another approach. Hamel and Cope (2022)⁴ use a more statistically justifiable method based on the data available, basing the estimate of M on max age. **SSC members discussed the Hamel and Cope methodology and ultimately recommended using it moving forward in SEDAR 88.** The Hamel and Cope approach results in an M estimate of 0.1862.

Regarding the estimate for L_{∞} , the value coming from the growth curve without the use of platoons of fish based on effects of selectivity at length appears unrealistically low. Whereas, when using platoons, more variability is incorporated, and the resulting estimate appears more biologically realistic, and more in line with fishery observations. Using platoons allows for accounting for the idea that faster growing fish are disproportionately vulnerable to fishing pressure by way of becoming selected by the fishery faster than slower growing fish. Currently, the best model fits are found with age-based selectivity and length-based retention. Composition fits were poor for fitting to length-based selectivity. **The SSC agreed with using the estimate for L_{∞} based on the platoon approach.** The SSC requested additional information on the use and effects of using the platoon approach at its February 2025 meeting.

³ <https://sedarweb.org/documents/sedar-42-final-stock-assessment-report-gulf-of-mexico-red-grouper/>

⁴ <https://www.sciencedirect.com/science/article/abs/pii/S0165783622002545>

Explicit age-specific modeling of red tide mortality is still outstanding and will be completed in early 2025. No red tide effects are expected to be included for the interim projection years in 2023 – 2025. The SEFSC will make modifications and bring a base model back for final SSC review at the SSC’s February 2025 meeting in Tampa, along with catch limit projections.

Discussion: 2025-2028 Research and Monitoring Priorities

Dax Ruiz (Southeast Regional Office [SERO]) provided an overview on the use of Council-identified research and monitoring priorities at the federal level. Research and monitoring priorities are a requirement of the Magnuson-Stevens Fishery Conservation and Management Act and are often used to guide the broader research community and inform the terms of reference for specific requests for proposals. Council staff also provided an update on the Council-identified research and monitoring priorities for 2025-2028, summarizing the revisions in the document in response to SSC feedback from the July 2024 SSC meeting. This presentation was provided to the Council in November 2024.

An SSC member provided support for priorities that incorporate ecosystem-based fisheries management (EBFM) and asked whether the Council can provide letters of support for outside agencies/individuals applying for funding. Council staff replied that the Council can provide letters of support as necessary. Another SSC member commented on the timeliness of the document and suggested that an annual review of research and monitoring priorities may be useful in annual grant review cycles. An SSC member commented that it may be useful to review the use of indices of abundance noted within the priorities for their effectiveness. Council staff responded that the document highlights the usefulness of the respective surveys; however, it is beyond the role of Council staff to evaluate the efficacy of all indices of abundance. Another SSC member commented that there is no explicit research geared toward electronic monitoring in the report. They thought that inclusion of electric monitoring in the future would be informative to the Council to provide clear data on the utility of electric monitoring tools in fisheries management.

An SSC member noted that the current document may be too broad to encompass specific areas of research and is likely not useful in funding proposals. It was suggested that more detail and specific research projects be highlighted by the Council to be of use in management so that outside agencies/individuals can utilize the document to gain funding. Council staff replied that additional language to reiterate that the document is not exhaustive of all areas of research can be included. Council staff will incorporate SSC recommendations into the document prior to finalization.

Motion: The SSC has reviewed and approves of the updated Research and Monitoring Priorities for 2025 – 2028, as modified by the SSC’s recommendations.

Motion carried without opposition.

Public Comment

Bob Zales II, Panama City, Florida

Mr. Bob Zales emphasized the historical distinction between the Gulf's two migratory stocks, noting that separate quotas were established to ensure equitable access between eastern and western fishermen. He questioned why spawning stock biomass for king mackerel is measured using egg production rather than biomass and expressed concerns about using historical data, given environmental changes and the limited role of recreational fishing in the past. He also highlighted discrepancies in data timelines between king and Spanish mackerel, encouraging a review of these differences. Mr. Zales also voiced strong support for electronic reporting in the recreational sector, criticizing the reliance on surveys as ineffective and overly conservative, which he believes unnecessarily limits fishing opportunities.

In response, Dr. Carrie Simmons, Council Executive Director, explained that the choice of metrics, such as eggs or biomass, depends on the available samples and the data source deemed most reliable during the data workshop.

Other Business

February 2025 Joint Gulf and South Atlantic SSC Meeting

Council staff reviewed the planned procedure for the joint meeting of the Gulf and South Atlantic SSCs to review the SEDAR 79 and SEDAR 96 stock assessments of mutton snapper and yellowtail snapper, respectively. Approximately 11 SSC members from each SSC will convene to review the assessments and catch projections and will make recommendations to the Councils under consensus and using the SAFMC's ABC Control Rule. This review will occur on February 25 and during the first half of February 26, with the full Gulf SSC being convened thereafter. Drs. Steve Saul, Jim Nance, Mike Allen, Paul Mickle, David Griffith, Sean Powers, Dan Petrolia, Andrew Ropicki, Tiffany Hopper, Mr. Trevor Moncrief, and Mr. John Mareska volunteered to represent the Gulf SSC during the joint review.

The meeting adjourned at 3:00 pm eastern time on December 5, 2024.

Meeting Participants

Standing SSC

Jason Adriance
Mike Allen (*Chair*)
Luiz Barbieri
Harry Blanchet
David Griffith
Tiffany Hopper
Jack Isaacs
John Mareska
Paul Mickle

Trevor Moncrief
James Nance (*Vice Chair*)
Dan Petrolia
Andrew Ropicki
Steve Saul
Steven Scyphers
Ralph Townsend

Council Representative

Kesley Banks