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Gulf of Mexico Fishery Management Council
And South Atlantic Fishery Management Council
Standing Scientific and Statistical Committees
Meeting Summary
February 25 – 26, 2025
Council Office
Tampa, Florida

The joint meeting of the Gulf of Mexico (Gulf) Fishery Management Council (Gulf Council) and South Atlantic Fishery Management Council (South Atlantic Council) Standing Scientific and Statistical Committees (SSCs) was convened at 8:30 AM EDT on February 25, 2025. The agenda for this meeting was approved as written. Verbatim minutes from past SSC meetings can be reviewed here.

Review: SEDAR 79: Southeastern U.S. Mutton Snapper Stock Assessment

Gulf Council staff reviewed its Fishermen Feedback tool, which is used to gather input from fishermen ahead of stock assessments. Input was gathered in mid-2023, with 74 responses analyzed, mostly from private anglers in Florida. Overall response sentiment about mutton snapper was neutral, indicating angler perceptions of stock stability. Positive comments were most frequently from Florida fishermen and their perceptions of increasing or prolific populations, and negative comments were associated with sharks and undersized fish. SSC members offered support for the tool and encouraged its continued deployment. Next, the South Atlantic Council staff reviewed its fishery performance report for mutton snapper, which is compiled through consultation with the South Atlantic Council and its Advisory Panels (APs). Input gathered was complementary to that received though Fishermen Feedback and trended towards a positive perception of the status of the fishery with observed increases in recruitment of juvenile fish as well as medium sized fish (16-18 inches total length [TL]).

Dr. Shanae Allen (University of South Florida and Florida Fish and Wildlife Research Institute's Center for Analysis, Synthesis, and Application [CASA]) presented SEDAR 79, which is the stock assessment for southeastern U.S. mutton snapper. This stock 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 because the vast majority (>95%) of mutton snapper are landed off Florida and SRFS demonstrates improved precision compared to MRIP-FES for mutton snapper despite estimating a lower level of landings. Previous stock assessments for mutton snapper have found the stock to be healthy (SEDAR 15A, SEDAR 15A Update).

The start year for SEDAR 79 was 1981, with a terminal year of 2023. A single closed population is assumed in the southeastern US, encompassing both Councils' jurisdictions; the Florida Current may serve as a barrier to recruitment between the Gulf/Atlantic versus Caribbean portions of the stock, despite no genetic distinction. Directed fleets include the commercial handline/other, commercial longline, and recreational east and west for all modes (for-hire,

shore, and private angling landings combined). Only landings from Florida were included, since landings outside Florida are minimal. Abundance indices included: the commercial longline catch-per-unit effort (CPUE); Reef Visual Census (RVC) for the Dry Tortugas, Florida Keys, and Southeast Florida; fishery-independent young of the year (YOY); the G-FISHER composite video index, and the Southeast Reef Fish Survey video index (SERFS).

Dr. Allen detailed key model input parameters. Maximum length was estimated at 847 mm TL, with natural mortality estimated to be 0.129. Discard mortality is estimated at 30% for all fleets. Approximately 50% of fish are sexually mature by 422 mm TL (+/- 198 mm TL), or approximately 3.5 years old (+/- 1.1 years). Length composition data suggest larger fish are found north of the Florida Keys and Southeastern Florida, and smaller fish are found in the southern areas. Private vessel and shore modes catch smaller fish than for-hire and commercial modes. Retention in the length compositions is influenced by the minimum size limit (18 inches TL). Fleet length compositions are all catch-weighted. Older fish are most often caught by the commercial and for-hire fleets, which typically fish in deeper waters, while the shore and private angler recreational fleets tend to land younger fish. Dr. Allen noted that the age data are comprehensive for all regions, not just Florida. However, since the age data are catch-weighted, the inclusion of non-Florida age data does not skew the model.

Dr. Allen reviewed landings and releases and summarized the SRFS, which underwent benchmarking against MRIP-FES from 2021 – 2023 for mutton snapper[1]. Recreational data include: headboat data from the Southeast Region Headboat Survey; character for-hire data from the MRIP For-Hire Telephone Survey (FHTS); shore mode from MRIP-FES; private vessel data from SRFS; and non-Florida private vessel landings from MRIP-FES. Dr. Allen compared using MRIP-FES versus SRFS, which showed notable differences in the magnitude of landings estimated for the recreational private vessel fleet. SSC members noted the remarkably high landings and release estimates for 2008 from the shore mode off east Florida, which also corresponds with a peak in the fishery independent YOY survey. Dr. Allen concurred and added that the Data Workshop discussed this data point, with panelists noting tropical weather systems can push mutton snapper closer to shore. While the difference between the estimated coefficients of variation (CVs) between MRIP-FES and SRFS show lower CVs for SRFS, the difference is not as pronounced as with other managed species. This may be due in part to the more "rare event" nature of mutton snapper landings throughout its managed range. Recreational landings have been stable since the 2000s, with discards increasing since that point. The CVs for the recreational east and west landings are notably high throughout much of the time series (> 0.5). Similarly, commercial landings and discards have also been stable since the 2000s. In general, the recreational fleets dominate the landings and discards in all regions.

Dr. Allen reviewed fishery independent indices, which all have varying time periods depending on when the respective surveys began and the terminal year of data available. The longest running indices are those from the RVC. Age data are largely unavailable for these indices, except for the commercial longline CPUE index. Generally, the standardized fishery independent indices show stable trends, except for the G-FISHER index which has expanded its

[1] https://sedarweb.org/documents/sedar-79-ap-01-a-ratio-based-method-for-calibrating-mrip-srfs-recreational-fisheries-estimates-for-southeastern-us-mutton-snapper-lutjanus-analis/

survey coverage into known sub-optimal mutton snapper habitat. This survey expansion effect for G-FISHER was remedied with modifications to survey selectivity in those later years.

Council staff asked about estimated discard mortality of 30%, since 77% of mutton snapper were estimated to be caught in less than 10m of water. Dr. Allen summarized the meta-analysis that was used in SEDAR 74: Gulf Red Snapper to estimate discard mortality (Ramsay et al. 2022)[2], including post-release survival, and this information was used as a proxy for the discard mortality rate for mutton snapper given the lack of direct estimates of discard mortality for this species. This method resulted in that 30% discard mortality estimate. An SSC member asked about the selectivity of the G-FISHER survey, and whether any work had examined dropping that survey. Dr. Allen described the jackknife ('leave one out') cross-validation approach, which reruns analyses with one index removed at a time to estimate model dependence on that index. She noted trivial difference in model results when the G-FISHER index is removed due to how it is parameterized. Another SSC member asked about shark depredation and how it would be expected to be incorporated into mortality estimates. Dr. Allen replied that the data are insufficient at present to estimate a specific mortality function for depredation, and that it remained a research recommendation. An SSC member expressed concern about the large fraction of recreational landings and discards coming from the shore mode, which carries higher CVs than the other recreational fleets. Dr. Allen agreed that a shore mode calibration to SRFS and reduced uncertainty would be ideal. Sensitivity testing for some of these concerns will be reviewed later. There was some discussion that the years with increased shore-based landings could have been influenced by tropical storms.

The base model proposed by Dr. Allen uses Stock Synthesis (SS), with mutton snapper modeled as a single stock from 1981 – 2023. Spawning is estimated to peak in June, with settlement of juveniles in January. The model combines sexes, which are thought to be 1:1 for males:females, with a female-specific spawning stock biomass (SSB). Growth is estimated within the model with external growth model inputs, with ages from 1 – 40 years old. Average natural mortality rates are fixed for ages 3 – 40. Meristics are fixed. Length composition data are from the directed fleets and G-FISHER. Conditional age-at-length data are also from the directed fleets, and from the fishery-independent indices. Commercial selectivities are simple logistic (flat-topped), and double-normal (dome-shaped) for the recreational fleets. Retention is flat-topped after the minimum size limit. Fishery-independent selectivities are flat-topped for the commercial longline CPUE, G-FISHER, and SERFS, and dome-shaped for the RVC surveys. Recruitment uses the Beverton-Holt stock-recruit relationship, with recruitment deviations split between early (1970 – 1985) and main (1986 – 2022) components, with bias adjustment. Error structure and data weighting were reviewed, along with model convergence criteria. The model estimated 202 out of 241 parameters. The model fit the life history and commercial landings data well; model fit to recreational data were more variable as expected. While model fits to estimated discards were reasonably estimated, the fits did follow the general trends for the respective fleets. Fits to fishery-independent indices also followed trends in those data. An SSC member asked how the declining selectivity for the G-FISHER index was tuned. Dr. Allen replied that the tuning of selectivity was informed by the expansion of the survey, against the

[2] https://sedarweb.org/documents/sedar-96-wp-05-a-ratio-based-method-for-calibrating-mrip-srfs-recreational-fisheries-estimates-for-southeastern-us-yellowtail-snapper-ocyurus-chrysurus/

habitat types known to be preferred by mutton snapper. The decrease in the estimated selectivity allows the model to better fit those G-FISHER data.

Dr. Allen reviewed model diagnostics, summarizing key points, and noting that the review panel for SEDAR 79 was satisfied with the model's performance. Model estimated selectivities and retention were reviewed, with the recreational fleets estimated to select for smaller mutton snapper than the commercial fleets. An SSC member asked for clarification about what is informing the dome-shaped selectivity for the recreational east and west fleets. Dr. Allen replied that the headboat data were primarily responsible for informing those functions, and that the headboat data could be overwhelming any other signal from other recreational fleets in those combined areas due to the difference in sample size. The RVC selectivities were dome-shaped, as expected for diver surveys due to depth limitations. The model-estimated steepness (h) was 0.64. Recruitment deviation declines consistently beginning in 2006 to a low in 2010, then increases through 2022, with more uncertainty around the terminal year point estimate for 2023 due to lack of contrast. Age-1 recruitment is also estimated to have increased consistently since 2010. An SSC member asked about trends in recruitment deviations. Dr. Allen replied that process error was investigated, and that steepness was not used to inform initial conditions. She said that the model was not stable enough to freely estimate steepness through initial conditions. SSC members discussed the confidence in the steepness estimate, which one SSC member noted as being particularly flat. Another SSC member thought that using the estimated steepness did not result in a much-improved model from a performance standpoint. An SSC member echoed that the likelihood profile of steepness was flat and thought it did not lend confidence to the estimate; the range of values for steepness could be from 0.54 to 0.85. Dr. Allen also reviewed sensitivity analyses for steepness when fixed at 0.99, demonstrating some justification for using the model estimate.

Dr. Allen summarized the age-3 fishing mortality rates, which decreased in 2018 with the institution of the 18-inch TL minimum size limit. This signal also appears in the apical fishing mortality estimates for the recreational east fleets, which is expected since those fleets make up the largest portion of mutton snapper landings. Dr. Allen did not expect finalization of the 2023 landings data to affect the terminal year estimates. Further, the 2018 change to the minimum size limit was discussed as potentially contributing to observed increases in biomass and recruitment in recent years. Dr. Allen noted that the current level of fishing mortality is below both the proxy for fishing mortality at maximum sustainable yield (F_{MSY}), which is presently set at the F corresponding to a 30% spawning potential ratio ($F_{30\%SPR}$), and F at optimum yield ($F_{40\%SPR}$). Under either $F_{30\%SPR}$ or $F_{40\%SPR}$, as of 2023, mutton snapper is estimated to be healthy, in that it is not overfished or experiencing overfishing. Further, in both cases, the current SSB is estimated to be greater than the SSB at MSY. Kristin Foss (South Atlantic Council representative) commented that the projected SSB under $F_{40\%SPR}$ did not appear consistent with fishery observations. However, an SSC member thought that the fishery-independent indices indicated a lower level of biomass until recent years, which corresponds with the SSB projection at $F_{40\%SPR}$. Another SSC member thought stock juvenescence, or the absence of it, supports current fishing mortality being lower than F at MSY. They also noted changes in the estimated max age of mutton snapper, which is now estimated to be 40 years. Gulf Council staff noted that outside of the spawning season, mutton snapper does not aggregate like some other snappers, and trips with large landings of mutton outside the spawning season are atypical. Further, since the

early 2010s, the age-at-length data suggest increasing numbers of younger fish, which may have benefitted from changes to their selectivity by the directed fleets by way of the increase in the minimum size limit. Additionally, the proportion of the stock comprised of age-10 and older fish was increasing through the time series and was estimated at its highest point in the terminal year. An SSC member also thought the closed areas around the Dry Tortugas, and the seasonal closure at the Western Dry Rocks, could also be playing a role in the change in the SSB observed in recent years. Some SSC members thought that the current SPR target of 30%, as defined in the Councils' fishery management plans, appears to be resulting in adequate management of the mutton snapper stock. Another SSC member noted that cold kills have become increasingly rare in the southeastern US compared to historical averages, which might be resulting in increased survival of the portions of the stock occurring in shallower or nearshore waters.

The SSCs discussed the proxy values for F_{MSY}. An SSC member did not think the SSC was confident in the steepness profiling which, while achieving a minimum, was still poorly fit. Further, the SSC member noted that the distribution in the spawner recruit data were not typical, and wondered if a more generalized spawner recruit relationship might be worth exploring. These observations could be due to the aggregating behavior of mature mutton snapper, and their more solitary behavior outside of the spawning season. Given these points, the SSC member thought that using the current F_{MSY} proxy of $F_{30\%SPR}$ remained appropriate. Some SSC members agreed and noted that due to the uncertainty in the spawner recruit relationship, mutton snapper should be re-assessed more frequently to monitor the stock's health more closely. Another SSC member sought more discussion about the consideration of $F_{40\%SPR}$, given recent research about the selection of SPR proxies. An SSC member replied that the research underpinning those recommendations are largely based on species from cold and temperate climes, which are not necessarily representative of subtropical to tropical species found in the southeastern US. They added that per the National Standard Guidelines for the Magnuson-Stevens Fishery Conservation and Management Act, the overfishing limit (OFL) is intended to be set at a risk-neutral level. The SSC could then reduce the acceptable biological catch (ABC) from the OFL to represent scientific uncertainty. Thus, and since current management at $F_{30\%SPR}$ has not resulted in a decline in the health of the stock, the SSC member thought that $F_{30\%SPR}$ remained appropriate.

An SSC member asked for some justification for supporting the use of $F_{40\%SPR}$ instead of $F_{30\%SPR}$. Another SSC member noted the aforementioned research focusing on cold to temperate climate species, but that not all species used in those meta-analyses were from those climates. The SSC member said that generally, $F_{40\%SPR}$ was considered appropriate. In the case of mutton snapper, and while it was poorly estimated, steepness was able to be estimated and resulted in an SPR of 40.7%. Given this model estimate, the SSC member thought this served as evidence in support of using $F_{40\%SPR}$ for mutton snapper. An SSC member replied that the actual value of MSY would change depending on the value of steepness used, noting that steepness could range from 0.54 to 0.85 based on the likelihood profiling. The SSC member thought it made the resulting value of MSY so uncertain that it would not be appropriate for use. They added that this very situation is why not just the central tendency of an estimate is considered, but also the uncertainty about that estimate. While acknowledging the role of the Councils to set the value of F_{MSY} for a species, another SSC member thought it was the role of the SSCs to advise the Councils regarding the scientific uncertainty, and the risk about that uncertainty. Dr. Allen added that the profiling of MSY based on the estimated steepness using a 95% confidence

interval ranged from 0.32 to 0.5. Dr. Tom Frazer (Gulf Council representative) added that the Councils would benefit from knowing the risks associated with selecting one MSY proxy over another. An SSC member recalled the Gulf Council being receptive of characterizing such risks. Another SSC member said that the OFL has been managed at $F_{30\%SPR}$, and the ABC at $F_{40\%SPR}$, and that such an approach has led to the stock being in its current healthy condition.

An SSC member discussed the attributes of mutton snapper that might influence its MSY proxy selection, including its max age, reproductive strategy, vulnerability to environmental perturbations, and other factors. Another SSC member thought the best course of action may be to offer recommendations under both scenarios, thereby letting the Councils decide how to best proceed regarding the selection of the MSY proxy. An SSC member then suggested setting the OFL based on $F_{30\%SPR}$, and the ABC equivalent to $F_{40\%SPR}$.

> **SSCs Consensus: The combined SSCs consider the SEDAR 79 stock assessment as consistent with BSIA. The SSCs conclude based on the SEDAR 79 results that the mutton snapper stock is not undergoing overfishing nor is it overfished. This is based on the currently adopted SPR-based F_{MSY} proxy of $F_{30\%SPR}$.**

Review: SEDAR 96: Southeastern U.S. Yellowtail Snapper Stock Assessment

Gulf Council Staff provided an overview of responses received in the 2019 Fishermen Feedback public engagement and outreach effort for yellowtail snapper, used previously in the SEDAR 64 stock assessment. Responses were positive across the Gulf and South Atlantic, with varying opinions on size trends observed in the fishery. Gulf Council staff highlighted that this feedback was conducted in 2019 and results may differ in recent years. An SSC member inquired on the distribution of responses using the tool across all sectors. Gulf Council staff responded that advertisement and public notice of fishermen feedback was typical of other Gulf Council communications, and responses reflect the demographics across the fishery (recreational, for-hire and commercial). An SSC member noted that these types of surveys tend to appeal to avid anglers, and the responses may reflect that.

South Atlantic Council Staff provided an overview of the fishery performance report completed by the Snapper-Grouper Advisory Panel for yellowtail snapper in October 2024 and provided fishery trends observed by sector including range, effort, discards, geographic distribution, and storm impacts on fishery dynamics. Advisory Panel members stated they have recently observed a range expansion of yellowtail snapper further north into the Carolinas, while also not seeing any less fish around historical ranges such as the Florida Keys. The AP also stated they are encountering more large fish and more small fish, indicative of higher recruitment, in recent years. Lastly, they reported that most releases of yellowtail snapper are in shallow water (35-90 ft) and tend to survive release without significant barotrauma affliction. Dr. Chris Swanson (CASA) inquired about the change in yellowtail snapper occurrence following storm activity. South Atlantic Council staff replied that storm activity has been shown to affect yellowtail and mutton snapper effort by sector following storm damage to working waterfronts.

Dr. Swanson provided a presentation on SEDAR 96, which assessed southeastern US yellowtail snapper. For SEDAR 96, the assessment authors updated the SEDAR 64 Update base model as set forth in the terms of reference, to include:

- Explore the State of Florida's State Reef Fish Survey (SRFS) to inform private recreational landings data and consider its use in the current assessment.
- Document any changes or corrections made to model and input datasets and provide updated input data tables.
- Update life history data (e.g., growth, reproduction, natural mortality) if warranted.

Consistent with the SEDAR 64 Update, only landings from Florida were considered. SEDAR 96 uses SRFS in place of MRIP-FES data for recreational private vessel landings. SRFS was considered appropriate for inclusion in this assessment because the vast majority of yellowtail snapper are landed off Florida. The start year for SEDAR 96 was 1981 with a terminal year of 2023. To inform age data, otoliths collected off Florida from 1981-2023 from fishery dependent sources were used and determined 50% of the population was between 2-3 years old, with 89% being between 2-6 years old. A size-truncated Von Bertalanffy growth model was developed in SEDAR 64 indicating a functional maximum length (L_{Inf}) at 42.3 cm fork length (FL), and was used in the current assessment, but was not re-run using the updated age sub-sampled population. There has been no new information to inform maturity estimates since SEDAR 27A, which suggests that the length at which 50% of females are sexually mature (L_{50}) for females is 192 mm FL. It was suggested that updated maturity information should be a future research recommendation. Natural mortality at age was derived from SEDAR 64.

Landings data for the commercial vertical line fleet, headboat landings and recreational landings (for-hire, shore, and private vessels) were used in the model. A majority of landings for all three fleets are in the Florida Keys, with some recreational landings spanning to Southeastern and Southwestern Florida. An SSC member inquired about the decrease in commercial landings following 2017, and Dr. Swanson noted that it may be attributed to effects of storm damage from Hurricane Irma impacting working waterfronts and limiting commercial activity, but it has yet to be thoroughly investigated. The Topical Working Group (TWG) met in May 2024 to review SRFS and MRIP-FES private vessel landings and discard data for Florida. The TWG reviewed literature and exploratory models utilizing SRFS data in the SEDAR 64 base model and recommended that the data series to be included in the base model. To gather the ratio-based calibration on historic MRIP private model data, it was necessary to calibrate MRIP data from 1981-2020. To generate the "Full SRFS" series, the SRFS (2021-2023) and SRFS-calibrated data (1981-2020) were added to the MRIP charter (FHTS) and MRIP-FES shore mode. Full SRFS data were compared to MRIP data and were found consistent in trend, and the TWG approved the use of the full SRFS data for use in SEDAR 96. An SSC member inquired about the status of SRFS calibration to the data on the Atlantic Coast. Dr. Swanson stated that the use of SRFS was certified by the NOAA Office of Science and Technology, and another SSC member reiterated that recent literature (Ramsay et al. 2024) further corroborated that SRFS had been calibrated to data from the South Atlantic in 2024. South Atlantic Council Staff noted that the South Atlantic SSC received a presentation on incorporating South Atlantic data into the SRFS calibration, and the documentation is included as a reference document for SEDAR 96.

Dr. Swanson highlighted the changes made to discards, including the commercial discard data being derived from observers versus a logbook which resulted in a decreased CV from an average of 2.74 (SEDAR 64) to 0.51, which is improved. However, commercial discards comprise a small component of total discards. Headboat discards are derived from the SRHS logbook from 2008-2023, with a proxy being used prior to 2007. Headboat discards are highest in the west region with the Florida Keys being the predominate fishing area. A majority of recreational discards come from private vessel mode (55%) followed by the shore mode (36%). Dr. Swanson highlighted the increasing trend in discards in recent years given the high presence of shore-based discards and stated that if shore-based discards remain higher, they may be an important source of discards in the future.

An SSC member noted that discards in 1991 are four times higher than what was typically observed, and in the future more detail should be paid to the recreational timeseries to account for any uncertainties and outliers. Gulf Council Staff noted that this was discussed at the Data Workshop in regard to discards and landings and the reliability of data spikes across the historical time series. Additionally, guidelines for surveys were less standardized and may be more variable from 1981-2012 as there has been substantial improvement made in the dockside survey methods. The discard mortality rate was treated in the model as a fixed input of 10% across all fleets. Prior to determination of discard mortality rates, sensitivity runs were conducted in SEDAR 64 to evaluate model sensitivity to the discard mortality rate.

Indices used in the model include Commercial CPUE, MRIP-FES CPUE, and RVC from the Florida Keys and Dry Tortugas. The Commercial CPUE was updated using the commercial fisheries logbook program (CLFP) using data from 1993-2023, excluding trips in months during closures. Differences in this index since SEDAR 64 include a reduction in uncertainty from 0.18 to 0.04. Dr. Swanson noted that the base model fits this index the best, but not without a tradeoff to fits of other indices. An SSC member inquired with about the CV calculation method, as often a CV from a jack-knifing procedure can be unrealistically small such as the one observed here, which may not be representative. Dr. Swanson clarified that the CV was calculated as a result of a 1000 bootstrap runs. Changes in the MRIP-FES CPUE index was an update to the base code. The updated RVC index included a few updates, most notably the data for the Florida Keys and Dry Tortugas were separated into individual inputs, whereas, in SEDAR 64 they were combined for overlapping years. Additionally, the RVC index changed how the indices were handled by maturity and combined all length classes.

Length and age composition data remained unchanged from SEDAR 64, but there were changes in data configuration. Length compositions were largely unimodal in distribution, primarily between 24-60 cm FL, and most discards were below the minimum size limit (24.8 cm FL; 12 inches FL). Annual length compositions were consistent through time. When the sample size is higher, there is improved consistency with age at length data. Age data are truncated at the minimum size limit, with 2023 lacking some of the larger fish typically observed. Dr. Swanson discussed the fishery independent data set being configured as a “dummy fleet” and to be included in the model to inform growth estimates. Age data from the combined recreational fleet is consistent with previous years, with larger uncertainty observed with smaller sample sizes. An SSC member inquired about the decrease in 2020 mean age, and Dr. Swanson highlighted that

the low sample size (~20 samples) during 2020 contributed to higher uncertainty in the 2020 estimates of mean age.

Dr. Swanson reviewed model configurations, noting key updates from SEDAR 64. Model results showed overall good fits and consistency throughout. The landings (mt) for all three fleets were nearly exactly fit when comparing observed versus expected values. Most estimates in the model were close to observed values for discards, but the combined recreational fits were poor in some years. An SSC member inquired about the missing data in MRIP discards prior to 1992. Dr. Swanson clarified that there was an inherent tradeoff in fitting to discards. He noted that newer versions of SS may be able to have better model fits for landings and discards but fits to discards are not ideal due to the overall fit to the combined recreational data.

For the indices of abundance, the commercial CPUE index had the best fit, followed by the MRIP CPUE index. An SSC member asked if the MRIP CPUE is SRFS-calibrated, to which Dr. Swanson replied that it is not, and that SRFS is only calibrated for discards and landings.

Length composition fits to observed lengths were good. The conditional at age length index also fit well. For the total biomass and SSB, the model followed trends produced by fishery dependent indices, as expected. The numbers and biomass at age showed that much of the population is comprised of younger fish, but biomass across age classes is constant, and those reaching mature age classes is consistent throughout the timeseries.

The recruitment timeseries showed lower recruitment in early years, then shifting to higher levels later with clustering occurring lower on the curve. The base model estimated age-0 recruitment as a slightly increasing trend that is cyclical in nature, with a timeseries high in 2022. Estimated recruitment declined in 2023, but uncertainty increases in the terminal year, so that may change with time. Age-4 fishing mortality (F) has remained relatively stable since the early 2000s. Selectivity in the model shows that the RVC survey observed fish at smaller age classes, whereas the directed fleets could select for (and discard) those smaller fish with retention occurring at the minimum size limit. Overall, the model followed trends for total and spawning stock biomass produced by fishery dependent indices, as expected.

Dr. Swanson summarized the model diagnostics and uncertainties, and highlighted uncertainty with steepness not providing convincing evidence for a stock-recruit relationship. Under $F_{30\%SPR}$, as of 2023, yellowtail snapper is estimated to be healthy, in that it is not overfished or experiencing overfishing.

An SSC member thought it unique to see landings and mortality rates higher historically than they are currently, and that management measures may have influenced those changes. Gulf Council Staff replied that stocks in subtropical/tropical waters may spawn for longer periods of time, and that yellowtail snapper has been observed to spawn year-round with a peak in summer months. Further, landings data and Fishermen Feedback indicate range expansion in conjunction with the stock's health. Dr. Frazer highlighted that while the range may be expanding for yellowtail snapper, it does not necessarily equate to an increase in recruitment. Dr. Swanson noted that it is challenging to track changes in recruitment as the stock expands its range given a majority of fishery dependent data sources are concentrated in the Florida Keys but investigating

increased recruitment as the stock's range is expanding is something to consider. Discussion from the SSCs did not suggest evidence for declining abundance of yellowtail snapper in the historic range, but a range expansion northward also is occurring.

Following the previous discussion on mutton snapper surrounding proxy values for F_{MSY}, the SSC discussed the use of a proxy for MSY or a model-derived estimate. Dr. Swanson noted that the proxy for steepness was estimated in the benchmark and interim analysis in the past, and that is how it was input for SEDAR 96. Additionally, the absence of evidence for a strong stock-recruit relationship precluded a reliable estimate of F_{MSY}, but the current proxy value of $F_{30\%SPR}$ seemed appropriate. An SSC member stated that a formal estimation of steepness in the report may help with future deliberations on F_{MSY} and F_{MSY} proxy values. An SSC member inquired about whether or not $F_{30\%SPR}$ is appropriate based on historical use of the proxy in previous assessments, or if other options are worth exploring. Gulf Council Staff stated it is within the SSCs' purview to discuss other SPR proxy values.

An SSC member thought a direct estimation of MSY may be warranted; however, it was noted that a direct estimation of MSY was not included in the TORs. Another SSC member stated that the diagnostic runs provided evidence supporting another look at the quality of the estimated parameters, and that the proxy value is not well defined. An SSC member highlighted that the SSC does not have defined rules to evaluate the level of uncertainty that is appropriate for using a proxy versus a direct estimate of MSY. The SSC member suggested better defining a set procedure to determine levels of uncertainty for reference points and proxy values in the future. Another SSC member stated that if the proxy value is not acceptable for yellowtail snapper, it sets the precedent that this distribution of values for steepness is not acceptable, and the SSCs will need to adjust how to handle other stocks with similar levels of uncertainty about this parameter. An SSC member stated that there are other stocks with profiles of steepness that are similar to those presented in SEDAR 96, and the SSCs accepted those values as suitable for management advice. Another SSC member reiterated that the diagnostics used in the model point to a need to explore additional options for a direct estimate of MSY or re-evaluating the MSY proxy value of $F_{30\%SPR}$.

An SSC member stated that if the SSC is uncertain with the steepness parameter, the SSC should consider if the model should be used for projections. Another highlighted that it may be interesting to go back to previous iterations of the assessment to see what the likelihood profiling was and what the minimums looked like to better address whether the same level of uncertainty was observed in the benchmark and interim assessments. An SSC member suggested evaluating a model with mean recruitment. Another SSC member noted that in the South Atlantic there is a standard operating procedure for how to deal with projections and one of the questions is whether or not steepness can be estimated. The SSCs determined that this conversation will be readdressed during the projection discussion.

> **<u>SSCs Consensus</u>: The SSCs find the SEDAR 96 stock assessment to be consistent with BSIA and appropriate for management advice. Based on the results of the assessment, yellowtail snapper is estimated to not be overfished and not experiencing overfishing.**

Review: South Atlantic Fishery Management Council ABC Control Rule

The South Atlantic Council in collaboration with their SSC recently developed a new ABC Control Rule (ABC-CR) amendment applicable to the Snapper-Grouper, Dolphin-Wahoo, and Golden Crab fishery management plans. The new ABC-CR categorizes stocks based on the available information and scientific uncertainty evaluation and incorporates the South Atlantic Council's risk tolerance policy through an accepted probability of overfishing (P*). The South Atlantic Council specifies the P* based on the relative stock biomass output from an updated stock assessment and a stock risk rating that is developed using a variety of biological, social, economic, and environmental indicators. The new ABC-CR was developed to increase flexibility and adaptability in accounting for uncertainty through both the scientific and management process, to incorporate phase-in and carry-over provisions, and to provide a mechanism for categorizing uncertainty in data-limited and unassessed stocks.

The stock risk rating matrix is compiled from South Atlantic SSC and AP input based on available information from SEDAR stock assessment reports, commercial and recreational databases, fishery performance reports, and social and economic indicators. The scoring matrix from the South Atlantic SSC and AP is aggregated and approved by the South Atlantic Council before the completion of a new stock assessment and, along with the relative stock biomass estimate, provides the P* value.

The SSCs reviewed the newly amended South Atlantic ABC-CR and discussed its application of P* to the mutton snapper and yellowtail snapper stock assessments to produce recommended values for the ABC. For mutton snapper, the current biomass from the most recent stock assessment, SEDAR 79, was determined to be "high" (biomass exceeds B_{MSY} or 110% of B_{MSY}), and the stock risk ratings value was determined to be "high risk," resulting in a default P* of 40%. For yellowtail snapper, the current biomass from the most recent stock assessment, SEDAR 96, was determined to be "high" (biomass exceeds B_{MSY} or 110% of B_{MSY}), and the stock risk ratings value was determined to be "high risk," resulting in a default P* of 40%.

During the review of the mutton and yellowtail snapper assessments and projections, the SSCs determined that the South Atlantic ABC-CR P* approach did not provide an adequate buffer for scientific uncertainty because of how the uncertainty of OFL is characterized and carried through projections. The SSCs recommended using an alternate approach of 75% of F_{MSY} (or its proxy) for deriving the ABCs from the OFLs for both mutton and yellowtail snapper.

Public Comment, February 25

Bob Zales II, Panama City, Florida

He thought that the decisions made by the SSCs and the Councils impact not just the fish, but the fishermen and all the industries that support or benefit from fishing. Changes to SPR proxies can have profound effects on fishing, which itself will not have changed in how it happens. He thought that there should be a standardized approach between the Gulf and South Atlantic Councils regarding how to handle steepness and managing to MSY. He acknowledged that more data, and more precise data, would always be nice, but wondered what would be the minimum

necessary to provide the needed advice to the Councils. He said that the 2006 reauthorization of the Magnuson-Stevens Act gave the SSCs a great deal of power in fisheries management by setting legally binding OFLs and ABCs. He appreciated the discussions about shark depredation and criticized NMFS for not adding questions in dockside intercepts asking about depredation. He thought depredation should be treated as a separate source of mortality.

Open Discussion

The SSCs discussed the need for a comprehensive discussion about when and how to use estimable stock-recruit parameters. The SSCs have both observed species stock assessments where these parameters have not been estimable, and those where they have, but with variably satisfactory diagnostics. The SSCs thought that working together to develop a clear method for when and how to use this information for informing catch advice would benefit both Councils.

> **SSCs Consensus: The Gulf and South Atlantic SSCs see a clear need to collectively address the required precision to estimate steepness (and thus estimate MSY) for management advice, as well as a discussion of SPR proxy values given a range of life history values among fish species (e.g., longevity, age at maturity, growth characteristics, vulnerability to environmental perturbations). The SSCs by consensus think that a follow up joint meeting to address these topics is essential to the consistent application of an agreed decision-making paradigm for present and future stock assessments.**

Review: SEDAR 79: Southeastern U.S. Mutton Snapper Catch Limit Projections

Dr. Allen detailed the yield projection method, which uses an iterative approach to set fleet-specific fishing mortality rates by year for the projection period. These methods rely on holding the target fishing mortality rate, fleet allocations, growth, stock-recruit parameters, and fleet-specific selectivity and retention constant throughout the projection period. Growth, stock-recruit parameters, and fleet-specific selectivity and retention were informed by the average of the last three years of the model (2021 – 2023). Recruitment of age-1 fish will be informed in the short-term by the geometric mean of recruitment from 2019 – 2023; in the long-term, by the equilibrium recruitment from the stock recruit relationship. Requested projections scenarios included $F_{30\%SPR}$, 75% of $F_{30\%SPR}$, $F_{40\%SPR}$ (current definition of F_{OY}) but nearly equal to 75% of $F_{30\%SPR}$, and $F_{Current}$ (average of 2021-2023 estimates). Dr. Allen explained the difference in how recruitment is determined between the short- and long-term approaches, with the former heavily influenced by strong recruitment in recent years. She demonstrated the effects of the various scenarios on fishing mortality, SSB, and retained yield under the two recruitment scenarios.

An SSC member noted the challenge associated with determining which recruitment scenario is most realistic- equilibrium or recent. They did not think it had been demonstrated that the recent recruitment reflects a stable new reality. Another SSC member thought that the stock had responded well to the management changes implemented in 2018 (reduced recreational bag limit, increased minimum size limit), and that in the short-term, expected a continuation of the trend in recruitment. An SSC member noted the uncertainty in the recruitment in the last few years of the model but did not think that the uncertainty necessarily detracted from the overall value of the

stock-recruit relationship estimated by the model. They thought the decision came down to the confidence in the continuation of the current trend in recruitment. Gulf Council staff recalled the age frequency histogram, which showed more age-10 and older fish in the population in the terminal year (2023) than at any previous point in the modeled time series. An SSC member added that the current closed areas, which are known to foster mutton snapper spawning aggregations, are expected to remain in place. Another SSC member commented that regardless of the decision selected, it seems unlikely that the fishery will operate in a manner so different as to negatively affect the stock in the short-term.

An SSC member noted that the projected increases in yield, despite the change in data units, are higher than that currently being removed by the directed fleets. Gulf Council staff replied that each year of yield in the projections is predicated on the exact amount allowed in the previous year being removed; if it is not, then the following year's projected yield would need to be adjusted accordingly. The directed fleets are not removing that level of yield now, and it seems unlikely that they would in the future, barring some substantial change in the social and economic environments surrounding the fishery. Gulf Council staff added that if such a change in fishery dynamics were to occur, the stock would be able to weather some measure of that change from a biological standpoint, based on the stock status.

An SSC member recalled a South Atlantic workgroup that discussed how to treat decisions for recruitment, which found that extensive case-specific testing is not always feasible (Van Beveren et al. 2021)[3]. Another SSC member acknowledged the success of proactive management and the increasing trends in biomass and recruitment, in that the SSCs do not always see stocks at this level of positive health. They thought the same decision-making that is usually used when stocks are trending in the opposite direction, i.e., using the recent trend in recruitment, should be equally applied for mutton snapper. Dr. Frazer asked, under the projection scenario for $F_{30\%SPR}$, if the retained yield equals the OFL, to which Dr. Allen replied that it did. Dr. Frazer then acknowledged that the value at 75% of $F_{30\%SPR}$ was the ABC and, if is exceeded, then landings would in effect have exceeded the biological OFL as estimated by the assessment. He urged discussion about this possibility when considering this approach in future assessments. An SSC member noted that commercial landings for mutton snapper from the Florida Keys decreased following Hurricane Irma in 2017 and has not seemed to rebound.

An SSC member said that the South Atlantic SSC usually uses a P* approach to reduce the ABC compared to the OFL and uses a Monte Carlo bootstrapping ensemble (MCBE) approach for characterizing the uncertainty in the projections. However, in this case with mutton snapper, these simulations were done using Monte Carlo multiple comparison testing in Stock Synthesis, which produces a narrower distribution of uncertainty, comparatively. For mutton snapper, it seems more appropriate to use a Gulf SSC-typical approach of setting the ABC based on 75% of F_{MSY}. Another SSC member discussed using the equilibrium recruitment from the stock-recruit relationship scenario for the OFL, and the recent average recruitment scenario for the ABC, and added that it was unlikely that management changes would take effect until 2026. Dr. Katie Siegfried (Southeast Fisheries Science Center [SEFSC]) recalled that in the Gulf, the OFL has often used the equilibrium recruitment for the OFL, and the recent recruitment for the ABC.

[3] https://safmc.net/documents/b03c_van-beveren-et-al-2021-pdf/

This has also been the practice in the South Atlantic following guidance from the Catch Level Projections Workgroup report[4]. Gulf Council staff clarified that using different recruitment scenarios would result in the projected difference between the OFL in 2028 using the equilibrium recruitment and the ABC using the recent recruitment would only be approximately 40,000 pounds whole weight (lb ww). This narrow buffer is something the SSCs have noted as not preferable in their old ABC Control Rules. However, the Gulf SSC's use of equilibrium recruitment in setting the OFL has been recently applied to stocks with declining trends in SSB, which is not the case at present with mutton snapper. Dr. Siegfried clarified that setting the OFL using the recent recruitment constitutes a change in where the stock is projected to be, referencing a regime shift. Regarding management not taking effect until 2026, the SSCs acknowledged that the fishery was unlikely to harvest the projected yields in 2024 or 2025, and thus including those years in the projection scenario posed no biological risk to the stock.

SSCs Consensus: The SSCs selected an alternative approach from the South Atlantic Council's P* approach in its ABC Control Rule for mutton snapper, because of differences in how the uncertainty in the OFL was characterized.

SSCs Consensus: The SSCs used the geometric mean of the most recent five years of recruitment (2019 – 2023) for informing OFL and ABC projections. Using the geometric mean for recruitment can be interpreted to indicate a regime shift; however, in this situation for mutton snapper, the SSCs do not think a regime shift has occurred. The OFL is set at $F_{30\%SPR}$, and the ABC is set at 75% of $F_{30\%SPR}$, for the years 2026 – 2028, as derived from the provided projections for 2024 – 2028.

	OFL ($F_{30\%SPR}$)	ABC (75% of $F_{30\%SPR}$)
2024	3,280,143	2,498,073
2025	3,384,760	2,662,320
2026	3,363,706	2,725,359
2027	3,313,030	2,752,377
2028	3,270,355	2,772,615

Catch limits are in lb ww.

[4] https://safmc.net/documents/a03a_catch-level-projections-wg-report-draft_final-pdf/

Table 1. Status determination criteria and management benchmarks for southeastern U.S. mutton snapper for the South Atlantic and Gulf Councils, based on the results of the SEDAR 79 stock assessment.

South Atlantic and Gulf of Mexico Fishery Management Councils (Amendment 41)		
Criteria	Definition	Base Model Value
$F_{30\%SPR}$	The fishing mortality rate associated with 30% SPR and the proxy used for F_{MSY}	0.149 yr^{-1}
$F_{40\%SPR}$	The fishing mortality rate associated with 40% SPR and the proxy used for F_{OY}	0.11 yr^{-1}
MFMT (Maximum Fishing Mortality Threshold)	$F_{30\% SPR}$	0.149 yr^{-1}
F_{OY}	$F_{40\%SPR}$	0.11 yr^{-1}
$F_{current}$ (recent average fishing mortality rate on age-3 fish)	The geometric mean of F on age-3 fish for 2021 - 2023	0.08 yr^{-1}
$SSB_{F30\%SPR}$	The estimated spawning stock biomass associated with F at 30% SPR	3,352 mt (7,389,895 lbs.)
MSST (Minimum Stock Size Threshold)	$0.75*SSB_{F30\%SPR}$	2,514 mt (5,542,421 lbs.)
$SSB_{current}$ (recent average of SSB)	The geometric mean of SSB for 2021 - 2023	5,403 mt (11,911,576 lbs.)
MSY proxy (Maximum Sustainable Yield Proxy)	Yield at $F_{30\%SPR}$	681.87 mt (1,503,266 lbs.)

Review: SEDAR 96: Southeastern U.S. Yellowtail Snapper Catch Limit Projections

Dr. Swanson presented the projection scenarios following the TORs and noted that there are similarities between mutton snapper and yellowtail snapper assessments, and much of the discussion surrounding mutton snapper projections also applies to yellowtail snapper. He presented the projection methodology with the 5-year average (2019-2023) recruitment time series. Provided projection scenarios included: $F_{30\%SPR}$, $F_{P^*=0.40}$, $F_{P^*=0.375}$, $F_{Current}$, 75% of $F_{30\%SPR}$, and $F_{40\%SPR}$. Dr. Swanson discussed the impact of constant F projections on recruitment, SSB, retained yields, and discards, and the tables providing short term projections under all five projection scenarios, highlighting the subsequent retained yield in lb ww.

Dr. Swanson noted that while there are similarities between mutton snapper and yellowtail snapper, it is important to note that the recruitment range (2019-2023) is the same, but yellowtail snapper uses the arithmetic mean, not the geometric mean, of that period of recruitment data. The SSC discussed the value of requesting that the assessment be updated with the true values of retained landings. An SSC member noted that while it may be valuable, CASA staff may not have the analytical capacity to provide those values in a timely manner to allow for improved assessment estimates. Additionally, it was noted that the Councils will be receiving a presentation on how best to streamline the SEDAR process and efficiencies in the future, which may result in less frequent interim analyses.

SSCs Consensus: The SSCs selected an alternative approach from the P* approach in the ABC in the SAFMC control rule because of differences of how the uncertainty of OFL is characterized.

SSCs Consensus: The SSC used the arithmetic mean of the most recent five years of recruitment (2019-2023) for informing OFL and ABC projections. Using the arithmetic mean for recruitment can be interpreted to indicate a regime shift; however, for yellowtail snapper, the SSCs do not think a regime shift has occurred. The OFL is set at $F_{30\%SPR}$, and the ABC is set at 75% of $F_{30\%SPR}$, for the years 2026-2028, as derived from the provided projections for 2024-2028.

	OFL ($F_{30\%SPR}$)	ABC (75% of $F_{30\%SPR}$)
2024	5,076,490	3,955,300
2025	4,767,230	3,973,088
2026	4,495,187	3,925,031
2027	4,364,600	3,913,426
2028	4,307856	3,918,634

Catch limits are in lb ww.

Table 2. Status determination criteria and management benchmarks for southeastern U.S. yellowtail snapper for the South Atlantic and Gulf Councils, based on the results of the SEDAR 96 stock assessment.

South Atlantic and Gulf of Mexico Fishery Management Councils

Criteria	Definition	Base	MCMC
MSY	The retained yield at F_{MSY} (or proxy, $F_{30\%SPR}$)	1,391.44 mt (3,067,600 lbs.)	1394.99 mt (3,075,437 lbs.)
$F_{MSY \text{ or proxy}}$	The fishing mortality rate associated with MSY (or proxy, 30% SPR)	0.398 yr^{-1}	0.398 yr^{-1}
MFMT (Maximum Fishing Mortality Threshold)	$F_{MSY \text{ or } 30\% SPR}$	0.398 yr^{-1}	0.398 yr^{-1}
$F_{current}$ (recent average fishing mortality rate on age-4 fish)	The geometric mean of F on age-4 fish for 2021 – 2023	0.263 yr^{-1}	0.264 yr^{-1}
$SSB_{MSY \text{ or proxy}}$	The estimated spawning stock biomass associated with F_{MSY} or $F_{30\%SPR}$	1,816.54 mt (4,004,785 lbs.)	1,820.46 mt (4,013,438 lbs.)
MSST (Minimum Stock Size Threshold)	$0.75*SSB_{MSY \text{ or } F30\%SPR}$	1,362.41 mt (3,003,589 lbs.)	1,365.35 mt (3,010,079 lbs.)
$SSB_{current}$ (recent average of SSB)	The geometric mean of SSB for 2021 – 2023	2,518.21 mt (5,551,692 lbs.)	2,456.02 mt (5,414,597 lbs.)
OY (Optimum Yield)	ABC, based on SAFMC control rule	TBD	TBD

SSC members commended both the Gulf and South Atlantic SSCs for the discussion on the reviewed stock assessments and highlighted the value of a joint in-person meeting to allow for a productive discussion. An SSC member highlighted that through this meeting, the SSCs were able to identify additional areas for further exploration to develop better processes between the two Councils during joint assessment reviews.

Other Business

<u>SSCs Consensus</u>: The SSCs recommend updating the stock assessments for mutton and yellowtail snapper at least every five years.

The meeting adjourned at 12:00 pm eastern time on February 26, 2025.

Meeting Participants

<u>Standing SSC</u>
Mike Allen (*Chair*)
Luiz Barbieri
Harry Blanchet
Dave Chagaris
David Griffith
Tiffany Hopper
Jack Isaacs
John Mareska
Paul Mickle
Trevor Moncrief
James Nance (*Vice Chair*)
William Patterson
Dan Petrolia
Sean Powers
Andrew Ropicki

<u>South Atlantic SSC</u>

Dustin Addis
Jim Gartland
Marcel Reichert (*Chair*)
Amy Schueller
Fred Serchuk
Alexei Sharov
Steve Turner

Council Representative
Tom Frazer, Gulf
Kristin Foss, South Atlantic

A list of all meeting participants can be viewed here.