

**Gulf of Mexico Fishery Management Council
And South Atlantic Fishery Management Council
Standing Scientific and Statistical Committees**

**Stock Assessment Review: SEDAR 96
Southeastern US Yellowtail Snapper
February 25 – 26, 2025
Gulf Council Office
Tampa, Florida**

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.

SSCs Consensus: 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: 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	4,307,856	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} 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} 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} 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)	$0.75 * SSB_{MSY}$ or $F_{30\%SPR}$	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.

Meeting Participants

Standing SSC

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

South Atlantic SSC

Dustin Addis

Jim Gartland

Marcel Reichert (*Chair*)

Amy Schueller

Fred Serchuk

Alexei Sharov

Steve Turner

Council Representative

Tom Frazer, Gulf

Kristin Foss, South Atlantic