

Tab B, No. 5(a)

Reef Fish Committee (Tab B, No. 5a)

Gulf and South Atlantic SSC Review and Recommendations for
Southeastern U.S. Yellowtail Snapper

- Florida Fish and Wildlife Conservation Commission (FWC) presented an interim analysis
 - Updates landings and discards data through 2020
- Used SSCs-approved base model from the SEDAR 64 (2020) stock assessment.
- Interim analysis- no updates made from SEDAR 64 to other model features like age and length composition, reproduction, and indices.
- SEDAR 64 used the Marine Recreational Information Program's (MRIP) Fishing Effort Survey (FES)-calibrated private recreational catch and effort statistics.

- The base model configuration was reviewed, with updated recruitment deviations through 2020 and updated bias adjustments.
- Model convergence criteria and error structure remain unchanged from SEDAR 64.
- Model fits to landings and discards were observed to be reasonable and within the model error estimation.

- Model diagnostics were completed to evaluate model stability.
 - Model performed well
 - Overall, goodness of fit increased over time in the model towards present-day data.
- The ratio of the spawning stock biomass (SSB) compared to the SSB at the proxy for fishing mortality at maximum sustainable yield (F_{MSY}), currently defined at $F_{30\%SPR}$ (spawning potential ratio), has remained consistent or increased with time across stock assessments, indicating a healthy stock.

- FWC reviewed yield projections, limited to 2021 – 2030, and including constant catch and constant F scenarios.
- Recruitment fixed similar to the average recruitment for the stock over the recruitment time series.
- Using the South Atlantic SSC's acceptable biological catch (ABC) control rule, a P^* of 0.375 is applied to the projections, as was done following SEDAR 64.
- Projections for a three-year and five-year average constant catch, and equilibrium catch, were provided.

- **Consensus Statement:** The SSCs determine that the 2022 SEDAR 64 interim analysis satisfies the prescribed terms of reference.
- **Consensus Statement:** The SSCs did not find any outstanding issues with the analysis that would prevent it from being used to inform catch level recommendations.
- **Consensus Statement:** The SSCs finds the 2022 interim analysis using the SEDAR 64 base model as being consistent with the best scientific information available.

- The SSCs recommended using the P^* value of 0.375 to produce ABCs, and that the Councils consider adjusting the annual catch limit (ACL) or annual catch target (ACT) for management uncertainty (e.g., $0.75 * F_{30\%SPR}$).
- **Consensus Statement:** The SSCs recommend that the next stock assessment of southeastern U.S. yellowtail snapper be performed in the next 3 – 5 years, and include updating all indices of relative abundance. The next assessment should also further explore uncertainty in natural and discard mortality, and in the projections, and also MRIP-FES CPUE interpretation as catch-per-trip instead of catch-per-angler. Research recommendations from SEDAR 64 should also be considered.
- **Consensus Statement:** The SSCs recommend catch levels commensurate with $F_{30\%SPR}$ for the overfishing limit (OFL), a P^* of 0.375 for the ABC, using annual yields as outlined in the table below:

Table 1. Joint SSC catch level recommendations for Southeastern Yellowtail Snapper. Projected landings in millions of pounds whole weight under $F_{30\%SPR}$ (MFMT/OFL), the fishing mortality rate that corresponds to a P^* value of 0.375 (ABC), 90% of $F_{30\%SPR}$, and 75% of $F_{30\%SPR}$ from 2021 – 2031.

Year	$F_{30\%SPR}$ (OFL)	$P^* = 0.375$ (ABC)	90% of $F_{30\%SPR}$	75% of $F_{30\%SPR}$
2023	3.922	3.887	3.733	3.432
2024	3.774	3.749	3.635	3.401
2025	3.684	3.665	3.576	3.385
2026	3.625	3.610	3.537	3.375
2027	3.584	3.572	3.510	3.367

Reef Fish Committee (Tab B, No. 5a)

SSC Recommendations from the July 2022 Meeting:

1. Wenchman Landings and Catch Limits
2. Discards Data for Various Reef Fish Species

- *1. Presentation and Discussion: Wenchman Data Evaluation and Consideration of Stock-specific Catch Limits*
- NMFS provided background, management history, and recent landings for the mid-water snapper complex (queen snapper, blackfin snapper, silk snapper, and wenchman), specifically focusing on wenchman.
- The stock experienced an unconventional in-season closure in 2021 due to exceeding the ACL, with large landings of wenchman contributing to the increased harvest.

- Mr. Andrew Bryant and Mr. Mike Grieco, stakeholders in the butterfish fishery, provided testimony indicating that the observed increased landings of wenchman in 2021 were due to their harvest as bycatch when targeting butterfish.
- The SSC inquired if the other species in the mid-snapper complex were also observed as bycatch in the butterfish fishery and Mr. Bryant replied that only wenchman were frequently encountered.
- The SSC asked Mr. Bryant and Mr. Grieco if they were able to differentiate butterfish from wenchman using the vessel's sonar gear and Mr. Grieco responded that the two species tend to school up together, making directed targeting difficult.

- Wenchman are marketed for human consumption, and thus not discarded when caught; however, butterfish are the directly targeted species in this fishery.
- Closure of the mid-water snapper complex could result in high discard mortality of wenchman and potentially also close the butterfish fishery.
- Capt. Eric Schmidt indicated that, recreationally, the deep-drop fishery has expanded for other species in the complex.

- The SSC discussed the rationale for wenchman's inclusion in the mid-water snapper complex.
- After review of the 2011 Generic Acceptable Catch Limit and Accountability Measures Amendment, and an empirical study categorizing a number of Gulf stocks (Farmer and Malinowski 2010), the SSC concluded that data limitations, rather than a robust association of life history traits, resulted in wenchman being designated with the mid-water snapper complex.

Motion: Based on a review of catches and historical records, the SSC recommends wenchman snapper be removed from the mid-water snapper complex.

Motion carried with no opposition.

- The SSC deliberated on possibly setting separate catch advice for wenchman.
- SEFSC staff provided some options for the OFL using a variety of years in the time series to compute an average from the available (and non-confidential) mid-water snapper landings.
- The SSC struggled to identify any substantial portion of the time series where landings were consistent.
- Additionally, each iteration of the exercise resulted in an OFL for wenchman that would be less than the current mid-water snapper OFL thus, not addressing the issue of avoiding a closure of the butterfly fishery.

- The SSC was hesitant to set any catch advice before having a better understanding of the nature of the landings history for wenchman.

Motion: To recommend the Council ask GSMFC to work with the 5 Gulf states to compile historical landings for butterfish, wenchman, scad, and any other associated species from the mid-water trawl fishery for the Gulf SSC evaluation.

- *Motion carried with no opposition.*

- *2. Review of Discards Data for Gulf Gag, Red Grouper, Greater Amberjack, and Red Snapper*
- The SEFSC provided an overview of summarized discards data for directed fleets and fishing sectors.
- The presentation included discards data inputs from the most recent stock assessments for the requested species.

- The SSC stated that visualizing trends in discard data was informative.
- However, the SSC acknowledged several caveats when interpreting the presented information including differing sampling units, difference in fishery-dependent survey designs, and species-specific discard mortality estimates.
- The SSC contended that novel management approaches to incentivize release techniques that increase the probability of survival would be required for a meaningful reduction in discard mortality.

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SSC Review and Recommendations of Alternative SEDAR 72 Base Model using
Florida State Reef Fish Survey Data

- The SEFSC presented a resolved issue with the data from the headboat directed landings and discards.
- When these data were pulled for the SEDAR 72 assessment, Area 23, which covers northwest Florida and Alabama, was accidentally omitted.
- The inclusion of these data in both the original SEDAR 72 base model using Marine Recreational Information Program (MRIP) data, and Florida's State Reef Fish Survey (SRFS) data, resulted in minimal differences in the estimated landings by year.

- Although these differences for gag grouper were small, both the MRIP- and SRFS-informed models were re-run to ascertain any effects to management benchmarks and rebuilding timelines.
- This resulted in no substantial change to the rebuilding timeline for the SRFS model.
- However, the MRIP model now projects that the stock rebuilds in 10 years (T_{Min} , $F=0$) at a fishing mortality rate at maximum sustainable yield (F_{MSY}) proxy using a 30% spawning potential ratio ($F_{30\%SPR}$), and a medium severity estimate for red tide mortality in 2021.

- The SEFSC presented the revised SEDAR 72 results using SRFS for private angling landings in place of those from the MRIP's Fishing Effort Survey (FES), and the original SEDAR 72 base model.
- A review of the SRFS data and historical calibration was coordinated and completed by the NMFS Office of Science and Technology (OST) in May 2022.
- The findings of the review were subsequently evaluated by NMFS OST and SEFSC staff, and no major concerns were identified in the review that would preclude the use of the calibrations for their intended purpose.

- Generally, the SRFS model estimates similar trends in landings as the MRIP model, albeit with lower estimates of removal and stock size.
- Approximately 95% of private angling landings of gag grouper are captured within the SRFS sampling frame, which encompasses the eastern Gulf of Mexico from the Florida/Alabama state line east and south through Monroe County.
- The SEFSC presented updated model results and diagnostics, including comparisons with the SEDAR 33U assessment as well as the previously approved SEDAR 72 base model (SEDAR 2021), and revised management benchmarks, stock status estimates and projections for Gulf gag grouper.

- Fits to indices, trends in recruitment, exploitation rate (F), and spawning stock biomass (SSB) were also similar between models.
- The SRFS run does estimate a lower virgin biomass, a lower rate of depletion, and less recruitment, all to pair with the lower estimated historical removals under SRFS compared to MRIP.
- Diagnostics demonstrated stable models using either SRFS or MRIP, and minimal retrospective patterns in the SSB, recruitment, and F.
- Generally, the SRFS run scales down the stock's population size by about 50%, but does not change the stock's trajectory or the ratio of SSB to virgin SSB in the terminal year.

- The SEFSC presented projections from the models, which were informed by a medium severity estimate of red tide mortality in 2021 compared to the 2005 red tide, and proxies for F_{MSY} of $F_{30\%SPR}$ and $F_{40\%SPR}$.
- F_{MAX} was not included in the projections due to previously being deemed inappropriate by the SSC.
- For the projections, selectivity and retention are fixed at their 2019 values, with recruitment following the Beverton-Holt stock-recruitment relationship. Actual landings are used for the interim years of 2019 – 2021, and the average of those three years for 2022.

- The sector allocation ratio from Reef Fish Amendment 30B is retained (61% recreational, 39% commercial), and the red tide influence in 2021 is included as a fixed F.
- Under either the SRFS or MRIP models, gag grouper is overfished and undergoing overfishing.
- Using an F_{MSY} proxy of $F_{30\%SPR}$, the stock rebuilds to a smaller SSB than at $F_{40\%SPR}$, with ultimately smaller yields over time.
- The SSC noted that fixing steepness and setting a proxy for F_{MSY} in effect fixes stock productivity.

- The SSC noted the need to determine which proxy to use for F_{MSY} .
- An SSC member noted differences in when the stock was estimated to be overfished, based on the way in which SSB is calculated (female-only versus sexes-combined SSB), and based on the F_{MSY} proxy (F_{MAX} versus $F_{30\%SPR}$).
- These model specifications have changed from assessment to assessment as the data have evolved with time.

- An SSC member thought that an F_{MSY} proxy of $F_{30\%SPR}$ was likely a lower bound for gag grouper, and $F_{50\%SPR}$ or $F_{60\%SPR}$ was a higher bound, with $F_{40\%SPR}$ being closer to the middle.
- Another SSC member agreed, adding that given the low sex ratio, rate of reproduction, and red tide susceptibility, there appeared to be ample evidence in support of a higher F_{MSY} proxy than $F_{30\%SPR}$.

Motion: The SSC recommends $F_{40\%SPR}$ as the appropriate F_{MSY} proxy and the basis for stock status determination criteria for Gulf of Mexico gag grouper.

Motion carried with one opposed and 5 absent.

- The SSC discussed the SRFS run compared to the MRIP run, considerate of how the fishery is expected to be monitored in the future.
- An SSC member noted that the State of Florida and the Council have expressed a desire to use the same data collection program to both monitor and assess the stock, which would support using SRFS.
- Another SSC member added that migrating from a generalized survey like MRIP to a region-specific survey like SRFS may be more appropriate for stocks that are effectively sampled by the latter (95% of private angling landings for gag grouper are captured by SRFS), with the added benefit of improved precision in the SRFS survey.

- The SSC discussed selecting the exact model that was consistent with BSIA, considerate of discussions about the data inputs and the trends observed in the stock.
- The two surveys are linked in that intercept data collected by SRFS are ultimately used to inform MRIP's catch estimation in the Access Point Angler Intercept Survey. Where the surveys differ is in the estimation of fishing effort.
- An SSC member thought that determining that the SRFS run was consistent with BSIA was not out of order, especially given the comparatively similar performance of the two models.

Motion: The SSC determines that the SEDAR 72 Gulf of Mexico Gag Operational Assessment State Reef Fish Survey Run, based on the combined-sexes SSB, the corrected SRHS data, an MSY proxy of $F_{40\%SPR}$, and the “medium” red tide scenario is consistent with the best scientific information available and should be used as the basis for stock status determination and management advice. Based on this assessment model, the stock is determined to be overfished and undergoing overfishing.

Motion carried 15-4 with 5 absent.

- The SEFSC reviewed the rebuilding timelines for the projections assuming no fishing pressure ($F = 0$), to determine the minimum time to rebuild the stock (T_{Min}).
- Assuming an $F_{40\%SPR}$ reference point, the MRIP model rebuilds in 13 years at $F = 0$, and 12 years for the SRFS run.

Motion: The SSC determines that the yields corresponding to the rebuilding schedules based on T_{Min} , T_{Min} plus one generation time (8 years for gag grouper), and $T_{Min} * 2$, are appropriately calculated and suitable for informing catch advice.

Motion carried with no opposition and 5 absent.

- The SSC noted that the overfishing limit (OFL) projections (i.e., fishing at MFMT) and those for F_{Rebuild} , which are equivalent to the acceptable biological catch (ABC), were contained in the tables in the presentation provided in millions of pounds gutted weight.
- Although not contained in the SSC's previous motion about the catch limits associated with the different rebuilding timelines, the SSC stated that it thought the catch limits associated with the rebuilding timeline using 75% of $F_{40\%SPR}$, which is one of the options when T_{Min} is greater than 10 years under the Magnuson-Stevens Act, was a valid option for consideration by the Council.
- The SEFSC compiled these data into a single table for the different rebuilding timelines.

Table 1. OFL and ABC yields for gag grouper based on the model selected by the SSC (SRFS run, using $F_{40\%SPR}$, and medium red tide severity) for the three rebuilding timelines.

SRFS RUN		mp gw	million pounds gutted weight			
F40%SPR		mt gw	metric ton gutted weight			
			FRebuild		0.091	
F= F40%SPR	0.098		Year Rebuilt		2047	
OFL	mt gw	mp gw	TMin (12 yrs) * 2	mt gw	mp gw	
2023	189.915	0.41869		2023	175.909	0.387812
2024	284.417	0.627031		2024	264.72	0.583607
2025	382.781	0.843887		2025	357.698	0.788588
2026	467.534	1.030735		2026	438.582	0.966907
2027	566.314	1.248507		2027	533.216	1.175539
			FRebuild		0.081	
			Year rebuilt		2043	
			TMin (12 yrs) + 1 Generation (8 yrs)	mt gw	mp gw	
				2023	157.508	0.347245
				2024	238.533	0.525875
				2025	324.008	0.714315
				2026	399.289	0.880281
				2027	487.816	1.075449
			FRebuild		0.074	
			Year rebuilt		2042	
			F=75% * F40%SPR	mt gw	mp gw	
				2023	142.614	0.31441
				2024	217.079	0.478577
				2025	296.117	0.652825
				2026	366.418	0.807812
				2027	449.428	0.990818

Motion: The SSC determines that the yields corresponding to the rebuilding schedules based on T_{Min} (12 years @ $F = 0$), T_{Min} plus one generation time (8 years for gag grouper; 20 years total), $T_{\text{Min}} * 2$ (24 years total), and 75% of $F_{\text{SPR40\%}}$ (19 years total) are appropriately calculated, and the 5-year OFL and ABC yield streams associated with those rebuilding timelines are suitable for informing catch advice.

Motion carried with no opposition and 5 absent.

Sustainable Fisheries Committee (Tab B, No. 5a)

SSC Recommendations on Acceptable Biological Catch (ABC) Control Rule

- Each regional Council must establish an ABC Control Rule based on scientific advice from its SSC. The current ABC Control Rule has been in place since 2011.
- SSC members have regularly expressed a desire to revisit the control rule due to its tendency for generating narrow buffers between the OFL and ABC that is not representative of the scientific uncertainty within the stock assessment.
- To address this issue, a comparison analysis of multiple stock assessments' results can be performed to quantify scientific uncertainty over time; this method has been proposed by Ralston et al. 2011.

- Results from the Ralston method indicate a minimum “sigma”, σ (σ_{mi}) of 0.36 is appropriate for data-rich Tier 1 stocks and allows for σ to increase as data quality/quantity declines, resulting in larger buffers between OFL and ABC for lower tiers.
- This is in contrast to results from the Gulf Council’s ABC Control Rule, which often uses σ values of 0.1 for many Gulf stocks.
- An update to Ralston et al. 2011 has since been published by Privitera-Johnson and Punt (2020), which suggests using probability-based harvest control rules to incorporate scientific uncertainty and risk tolerance when setting catch limits by scaling buffers between catch limits with scientific uncertainty.

Motion: The SSC recommends that the Council request that the SEFSC develop the σ_{\min} using the Ralston et al. 2011 method for Gulf of Mexico Tier 1 (data rich) stocks.

Motion carried without opposition, and with two absent.

Motion: The SSC recommends that the Council request that the SEFSC evaluate the potential for setting ABC at 75% of F_{MSY} or its proxy, without exceeding OFL, as outlined in Appendix A of the Restrepo et al. 1998 report for Tier 1 stocks.

Motion carried with one opposed and four absent.

Motion: The SSC recommends the Gulf Council to request a management strategy evaluation to better account for scientific uncertainty, including imprecision and bias issues, in reducing ABC from OFL estimated or projected from data-rich Gulf stock assessments. Approaches to be considered should include those of Restrepo et al. (1998), Ralston et al. (2011), and Privitera-Johnson and Punt (2020) among others.

Motion carried with two abstentions and four absent.