

**Standing, Reef Fish, Socioeconomic,  
and Ecosystem SSC  
Meeting Summary  
September 21 – 23, 2022**

The meeting of the Gulf of Mexico (Gulf) Fishery Management Council's (Council) Standing, Reef Fish, Socioeconomic, and Ecosystem Scientific and Statistical Committees (SSC) was convened at 1:00 PM EDT on September 21, 2022. The agenda for this meeting was approved along with the minutes from the July 7 – 8, 2022, SSC meeting. [Verbatim minutes from past SSC meetings can be reviewed here.](#)

Dr. Sean Powers will represent the SSC at the Council's October 24 – 27, 2022, meeting in Biloxi, Mississippi.

*Review of Socioeconomic Stock Assessment Workshop Report*

Dr. Andrea Chan (NOAA) gave a presentation on the socioeconomic aspects in stock assessments workshop (SEASAW) report: recommendations for increasing assessment accuracy and improving management advice. Dr. Chan stated that the SEASAW initiative conducted a survey of current practices and held a national multi-disciplinary workshop. The national workshop discussed a broad range of issues including economic connections in stock assessments, projections of stock dynamics by multi-disciplinary teams, and case studies integrating socioeconomic data and approaches in stock assessments. Survey results and workshop recommendations were published as a NMFS technical memorandum<sup>1</sup>.

Dr. Chan indicated the workshop recommended collaboration between stock assessment scientists, economists and other social scientists to conduct stock assessments. This interdisciplinary approach to stock assessments would help fill data gaps and improve management advice. Dr. Chan noted that the stock assessment process could be divided in several steps including data collection, data processing, stock assessment modeling, projections, harvest control rules, and communication with managers. Dr. Chan indicated that the technical memorandum provided 27 recommendations, and noted that several recommendations were related and could be implemented together. She discussed one recommendation for each step of the stock assessment process and highlighted the importance of trade-offs between conservation and socioeconomic considerations. Dr. Chan emphasized that socioeconomic data streams could contribute to mitigating data gaps during the stock assessment process. Dr. Chan indicated that a collaboration between stock assessment scientists, economists and other social scientists would continue to be promoted.

SSC members expressed their support for the recommendations provided in the report. The Committee inquired whether regional fishery management councils and science centers have developed standardized methods to collect socioeconomic data and whether these methods would

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<sup>1</sup> <https://spo.nmfs.noaa.gov/sites/default/files/TMSPO232.pdf>

be flexible enough to be used in different regions. Dr. Chan indicated that data collection methods that would facilitate sharing would continue to be promoted.

SSC members noted that data collection should account for the diversity of disciplines in social sciences. Matt McPherson (SEFSC) noted that economic data collection systems are well developed in the Southeast and that improvements are needed in the data collection for other social sciences. Dr. Chan concurred and indicated that the survey found that social science data are usually not prioritized. She also indicated that NMFS is looking into possible improvements to social data collection. Committee members noted that commitments to provide additional funding for socioeconomic data collection would be needed.

SSC members asked about knowledge sharing across regions and whether recommendations provided in the report were prioritized. Dr. Chan noted that several recommendations are interrelated and that pilot projects to develop good practices to be shared across regions are encouraged. Dr. McPherson emphasized that fostering a close collaboration between stock assessment and socioeconomic scientists is a priority. Dr. McPherson indicated that the SEFSC is considering bioeconomic modeling approaches for the shrimp fishery.

The SSC noted that the interdisciplinary work must start early, i.e., by the Data Workshop and not the Assessment Workshop. SSC members asked about funding to hire additional staff to support the interdisciplinary approach. Dr. McPherson indicated that immediate staff expansion was not planned and that the SEFSC would work with existing resources. The Committee recognized that the SEFSC would need additional funding to support the interdisciplinary approach discussed.

### *Review of Essential Fish Habitat Dashboard*

Dr. Lisa Hollensead (Council Staff) presented a draft webtool to compare the proposed alternatives included in the EFH Generic Amendment and to visualize available benthic-habitat data. She focused on two approaches for describing EFH. The current approach incorporates spatial information for several habitat characteristic types and the empirical literature of species habitat associations. The Generic Amendment would use more contemporary spatial habitat data layers and more recently updated literature reviews (Alternative 2). Another approach would describe EFH based on species presence using kernel density estimation modeling (Alternative 3).

An SSC member asked for clarification of the adult red grouper EFH description, and noted other known red grouper habitats (i.e., the Middle Grounds) did not appear on the map. Council staff acknowledged that available habitat data included in the tool was limited, and encouraged the SSC to share information about additional data sources that could increase the accuracy of the habitat layers. Members of the SSC then recommended a number of academic, agency, and industry partners that could help provide habitat data resources.

An SSC member asked if the map is available to the public and expressed concern that fishermen might use it as a tool to target a species/location, which could have negative biological impacts. Dr. John Froeschke added that the webtool was available on the Council webpage, but was not searchable by Google or promoted on the Council's website. Dr. Hollensead continued that the

end user would ultimately be marine construction developers that are prompted to complete EFH consultations. Another SSC member noted that the marsh habitat layer for southern Louisiana was not representative of current environmental conditions there. Dr. Hollensead responded that, according to the spatial layer metadata, the layer was constructed using a number of survey observations dating back to the 1970s and that could explain the misidentification. She continued that further investigations of the spatial layer attribute tables would be warranted when developing the maps generated for Alternative 2. Additionally, not all habitat characterizations can be mapped (water column association, drifting algae [*Sargassum*], and banks/shoals) which can result in EFH maps that are not reflective of the species distribution. Also, some habitat characterization and species life stages could be consolidated to allow for more accurate descriptions of EFH.

When comparing EFH description maps for Alternatives 2 and 3 for adult gag grouper, a member asked why they resulted in such markedly different results. Dr. Froeschke replied that the habitat association linkages informing Alternative 2 were not well understood. Often, the process used in the current approach results in small spatial descriptions for EFH when something about the species habitat use is known and larger spatial EFH descriptions when little is known. This result may be undesirable for achieving EFH goals. The species presence approach used to inform Alternative 3 produced a more plausible EFH description.

Another SSC member asked if physiochemical variables were considered when describing EFH for any of the alternatives. Dr. Froeschke indicated that proposed Alternative 4 would use boosted regression tree modeling to describe EFH. This model would incorporate a suite of environmental covariates (including physicochemical factors), and using regression analyses techniques, would generate rasterized probabilities of occurrence that could be mapped and compared to the other document alternatives. He then provided an example of the boosted regression tree output for adult gag grouper including model variable performance and resulting habitat suitability map. An SSC member noted that a deep area in the middle of the Gulf of Mexico was interpreted by the model as possible adult gag grouper habitat which was unlikely. The SSC agreed that future modeling analyses for Alternative 4 should be bounded by known environmental constraints (i.e. depth), and Dr. Froeschke replied that those considerations could be incorporated in the model.

In summary, the SSC was supportive of taking a more extensive look at the available data sources and the development of the webtool. The group offered a number of suggestions to staff for possible data sources and inputs. For example, an SSC member recommended focusing the mangrove layer to observations of red mangrove as that habitat type provides more functionality for marine species than black mangrove. Council staff agreed that engagement with state agency partners, along with existing agency collaborators, would be worthwhile to better ensure EFH descriptions were as accurate as possible. The next steps would involve a rigorous exploration of data sources, addressing any identified EFH description anomalies, and providing documentation that explains the rationale for describing EFH for each species and life stage.

### *Presentation: Current Approaches to Allocation Analysis*

Dr. David Carter (SEFSC) gave a presentation on current approaches to allocation analysis. Dr. Carter noted that the timing and justification for allocation changes in the Gulf of Mexico would

be determined by the allocation review guidelines. His presentation discusses the methods by which allocations could be modified. Allocation methods presented include catch-based allocations, equal shares or lotteries, auctions, inter-sector trading, and multi criteria allocations including ecological, biological, economic, and social factors. Dr. Carter then discussed each method and provided pros and cons for each one.

Catch-based allocation, which constitutes the method typically used in the Gulf, is based on historical landings, i.e., it allocates shares of the quota based on percentages of the quota landed over a given time period. Dr. Carter noted that this method is widely used, easy to understand, and would reward dependence on the fishery. However, this allocation method requires the availability of harvest records, and may be unfair to new entrants.

Equal quota shares could be allocated to all participants. However, if the quotas are insufficient, a lottery system would pick the recipients. Equal quota allocations would be fair, easy to understand and could be relatively inexpensive to implement. However, this allocation method does not account for historical dependence and investment in the fishery. Dr. Carter noted that there are few real-world examples for this allocation method.

Allocations via auctions would allow those who place the highest value on the resource to fish. This economically-efficient method would create opportunities for new entrants and would be useful when historical landings records are missing. Frequent re-auctioning of fishing privilege would provide pricing information. Auction proceeds may provide additional resources for fishery management. However, auctions would favor interests with a larger monetary capital (including outsiders) and would not account for historical participation in the fishery. Auctions are costly to fishermen, and thus could encourage illegal fishing. The Council would have to set up a system to run auctions but the use of the auction proceeds in fishery management may not be guaranteed.

Changes to an existing allocation can be implemented by allowing sectors to trade fishing privileges, i.e., inter-sector trading. This approach would require that at least one sector possesses relatively well-defined property rights, e.g., individual fishing quota (IFQ) programs. Inter-sector transfers would foster cooperation between sectors, bring more flexibility and increase the economic value of the fishery. Inter-sector trading would be costly to set up and monitor.

Multi-criteria decision-making would base allocations on a wide range of criteria including biological, ecological, social, and economic criteria. Multi-criteria allocations can consider multiple objectives and could promote fairness through political negotiations at the Council's level. For example, this approach could consider historical harvest and other criteria. This allocation approach is challenging, e.g., because of political pressure, it would be hard to agree on how to weigh different objectives. Furthermore, the evaluation of some criteria such as economic efficiency is complicated by the current management structure of some sectors. Multi-criteria allocations have onerous heavy data and modeling requirements.

In theory, bioeconomic and management strategy evaluation models could be used to evaluate allocation changes. However, these approaches are typically unpracticable and the datasets required are generally not available. While there is generally agreement on the objectives of a stock assessment, it would be challenging to agree on the objectives of these allocation evaluation

approaches. In the Gulf, detailed data are generally available for the commercial sector but limited for the recreational sector. Data collected for the for-hire sector are expected to improve following the implementation of the Southeast For-Hire Integrated Reporting (SEFHIER) program but comparable improvements in data collection efforts for private anglers do not currently exist. To better incentivize private anglers to provide detailed information, field experiments and rewards such as increased fishing days for data provision programs could be considered.

Dr. Carter indicated that the multi-criteria approach requires substantial ongoing council involvement, detailed data streams, and appropriate models. Other alternative allocation approaches such as auctions, lotteries, and inter-sector trading, may require more design effort up front, but less data and modeling subsequently. Regardless of the allocation strategy considered, detailed data would be necessary to make informed decisions.

An SSC member inquired about the available evidence to suggest that auctions would increase illegal fishing, which Dr. Carter noted was limited to anecdotal information. An SSC member suggested that rather than auctioning the entire quota, reserving a portion to be auctioned would assist in discovering the value of the resource, as done by the Environmental Protection Agency for the sulfur dioxide program. Dr. Carter concurred and noted that value discovery through auctions was discussed in the past.

SSC members recognized that allocation decisions are usually difficult, emphasized that the role of the SSC should be limited to scientific aspects of allocations, and reiterated that allocation-related management decisions were ultimately the prerogative of the Council. SSC members acknowledged that the multi-criteria allocation approach requires a lot of data. An SSC member inquired about the definition for efficiency. Dr. Carter indicated that it refers to maximizing net benefits to the nation and that essentially one would look for the distribution of resources, e.g., fish, that would maximize net benefits. He further noted that while auctions are appealing in theory, their practical implementation would be difficult if one of the sectors is managed under an open access regime. The SSC inquired about the potential role of auctions in the IFQ programs' initial share distribution. An SSC member indicated that if auctions were built into the IFQ program design, the programs would not be able to clear the referenda. Dr. Carter noted that, as stipulated by the Magnuson-Stevens Fishery Conservation and Management Act (MSA), economic efficiency cannot be the sole basis for allocation. He also indicated that if economic efficiency were the sole objective, then auctions would be the preferred allocation method. Mara Levy (NOAA General Counsel) noted that MSA has additional requirements linked to allocation, e.g., fairness of equity, promoting conservation, preventing an entity from getting an excessive share.

SSC members emphasized the importance of understanding the objectives of a particular reallocation to evaluate whether or not the approach used is likely to achieve the stated objectives. The SSC Chair noted the Council motion requesting the SEFSC to evaluate practicable allocation approaches. SSC members indicated that the Committee may have more to contribute once the allocation objectives are clearly specified. SSC members emphasized that to go beyond the current Committee discussion, the Council needs to articulate clear goals and the Committee needs a concrete statement from Council as to its allocation goals and objectives.

An SSC member commented on the notion of economic value and inquired about the implications of buying quota and deciding not to fish it; e.g., a non-profit organization could acquire quota and not harvest it. Dr. Carter noted that once an organization buys the quota through auction, it has contributed to net benefits regardless of the intended future use. A Committee member further noted that economic value is not limited to profit and revenues and that aggregate efficiency comes from a series of efficient allocations at the micro level. He further noted that non-use values, e.g., existence, option, and bequest values, are well-studied in economics.

The SSC asked whether the Council was interested in allocations or reallocations. Dr. Tom Frazer (Council representative) noted that most allocations were based on historical landings and that the Council is interested in guidance toward a more objective approach for both. The conversion of recreational data into Marine Recreational Information Program's Fishing Effort Survey (MRIP-FES) leads to using new recreational landings and results in reallocations. Dr. Frazer emphasized that the Council's interest is in an allocation process. He further noted that there are always trade-offs in allocations and inquired about ways to identify those; for example, the role of discards. He and the Committee suggested that case studies could potentially be helpful to identify trade-offs. Dr. Frazer inquired whether the South Atlantic's allocation decision tree has already been used. Dr. Scott Crosson (SEFSC) indicated that it has not been used to date. SSC members suggested that the Council could request that the SSC evaluate the decision tree at a future meeting.

The SSC inquired about next steps. Council staff indicated that the allocation review working group will meet to discuss the SSC's comments and recommendations, update the presentation, and present at a future Council meeting. SSC members discussed multi-criteria allocations and considered eliminating allocation approaches deemed currently impossible to implement. An SSC member emphasized that strict catch-based allocation would not generally result in optimal allocations and suggested that to improve economic efficiency and social outcomes, incremental changes away from catch-based allocation should be considered. The SSC indicated that the Council may consider small changes in allocation to mitigate potential disruptions in fisheries.

Mr. Bob Gill (Council member) on the webinar noted that the presentation and discussions were different from what he envisioned and stated the allocation process takes precedence over the outcomes. The SSC discussed the inclusion of socioeconomic factors in the evaluation of multi-criteria allocations and stated the importance of considering economic and non-economic factors, i.e., other social sciences. Dr. Carter noted that moving forward with multi-criteria allocations would be labor intensive and require more detailed data. He also suggested that hearing from experts dealing with the allocation of other natural resources, e.g., water, could be informative. The SSC stated that the SEFSC would need more resources, including staff to fully address allocation issues. The SSC indicated that it may review the South Atlantic's allocation decision tool and that it plans to continue the discussion in March 2023.

### *Review: SEDAR 68 Operational Assessment for Gulf of Mexico Scamp*

Dr. Katie Siegfried (SEFSC) presented the findings of the SEDAR 68 Operational Assessment (OA) of Gulf of Mexico Scamp. SEDAR 68 began in 2020 with a research track (RT) to build the modeling environment for this stock assessment, as it is a first for scamp in the Gulf. Scamp is

currently considered part of the shallow-water grouper complex (along with black grouper, yellowfin grouper, and yellowmouth grouper). Also, commercial harvest of scamp is regulated under an individual fishing quota (IFQ) program such that when a shareholder of commercial shallow-water grouper allocation has landed that allocation for the year, they can still land scamp on any remaining deep-water grouper allocation.

Dr. Siegfried reviewed the management history for scamp, and noted that the assessment also includes yellowmouth grouper due to difficulties in differentiating between the species when identifying them dockside. The stock structure was unchanged from the current management structure, as no data supported an alternative. One of the tasks of the OA was to re-estimate age data using updated growth curves and age composition data. Approximately 500 otoliths from 2003 - 2012 were reprocessed, and added to additional samples from 2018 – 2020. These data were then input for placeholder data from the RT and the ageing error matrix was reconstructed. Coefficients of variation for growth parameters were allowed to be model-estimated, and resulted in an updated growth curve. Natural mortality was estimated internally using the Lorenzen approach and, with a reference age of 10 years, was equal to 0.17. This estimate accounts for an assumption of peak spawning occurring in mid-April.

Dr. Siegfried summarized the data updated in the model, which uses a terminal data year of 2020. Abundance indices were informed by the commercial vertical line and headboat fleets, and from the fishery-independent combined video surveys. Landings and discards were input by fleet, with the private angling and charter for-hire fleets combined. Age and length composition data were available for all fleets, and length composition data only for the video surveys. Corrections were made in the OA for the omission of area 23 off the Florida/Alabama line in the headboat landings, as was also done recently for gag grouper (SEDAR 72). Landings are generally dominated by the commercial fleets (mostly vertical line), but recreational landings have increased considerably recently. Recreational landings are input as numbers of fish. Recreational discards are estimated to be substantially greater than commercial discards. This was maintained for the OA, along with mean weight estimated by fleet (headboat and charter/private); generally, the charter/private fleet lands larger fish than the headboat fleet. The commercial fleets land larger fish on average when compared to the recreational fleets. Discard mortality rates of 47% for commercial longline, 68% for commercial vertical line, and 26% for the recreational fleets were applied to discards. Most recreational discards are commensurate with the minimum size limit, while commercial discards after 2010 (when the IFQ program was implemented) can be either above or below the minimum size limit, likely due to the availability of allocation on a trip. Indices of relative abundance indicate a decline in recent years, especially in the Reef Fish Observer Program (RFOP) data.

Dr. Siegfried noted that the base model in the OA uses a spawning stock biomass (SSB) estimate considerate of both males and females, and updated the mean weight estimated for recreational landings. Changes in the growth curve estimation resulted in larger changes, resulting in an increase in terminal year SSB. Additional model improvements had minimal impacts on terminal year outputs but resulted in more stable model performance. Hindcasting ability was improved, with Mohn's Rho estimating within bounds in the OA base model for SSB and fishing mortality (F). Growth is estimated by the model, and time-varying retention is used to account for changes in fisheries management with time. Dr. Siegfried pointed out that scamp is not assumed to be in a virgin exploited condition at the beginning of the time series in 1986, necessitating estimation of

initial  $F$  conditions for all fleets except headboat (which used the average of 1986 – 1990). Large errors on recreational landings ( $CV = 0.3$ ) are assumed; commercial  $CV$ s are constrained to 0.05 up to 2009, and 0.01 post-2009. Catchability is held constant, as the manner in which harvest has occurred has been consistent. Ages were modeled from 1 – 34 years, with fish 20 years and older lumped into a “plus” group (20+; <4% of ages). For estimating the stock-recruitment relationship, recruitment deviations were estimated from 1986 – 2017. Steepness was not able to be estimated freely in the model, and was fixed at 0.69 based on empirical data and from the steepness estimate for South Atlantic scamp. Length-based selectivity was used for all fleets and surveys, with logistic functions applied to commercial fleets and the SEAMAP combined video survey, and dome-shaped functions applied to the recreational fleets. Selectivity was held constant, and retention was time-varying using time blocks based on regulatory changes. All fish caught prior to the implementation of minimum size limits were assumed retained, as are all commercially harvested fish post-2009. Recreational retention is assumed asymptotic (and estimated within the model), since daily bag limits keep all fish from being retained.

Dr. Siegfried walked the SSC through the model results, which estimate selection and retention of larger and older scamp by the commercial fleets compared to the recreational fleets and the video indices. Fits to commercial landings were good, and fair for recreational landings in most years. Fits to discards were generally within confidence intervals (CI) for all fleets, but highly variable. Commercial discards decreased substantially post-2009. Some patterning of mis-fitting was evident in the residuals for the length and age composition data from the commercial fleets, but the residuals were nonetheless small. Patterns in residuals were evident in the recreational sector as well, to a lesser degree; however, residuals were larger compared to commercial data. Dr. Siegfried noted that scamp is rarely directly targeted except by the headboat fleet, and as such the residuals observed may be affecting the data for scamp based on what species are being targeted. Fits to length compositions were improved, albeit at the expense of the age compositions to some degree. Fits to indices were within CIs in most years for all indices, with the best fit being to the headboat index; the model appears to be largely ignoring the RFOP index. The stock-recruitment relationship is poorly defined, and recruitment deviations are generally lower for the last decade. Females (average age 2-3 years) are more prevalent than males (average age 10-13 years), and the proportion of males in the SSB has increased in recent years. Fishing mortality is dominated by the commercial fleets historically, and the charter-private fleet in recent years.

Dr. Siegfried described the model diagnostics, noting that very few model parameters are fixed, which results in some movement of model results in jitter analyses. Fixing parameters would reduce model movement, but would mask uncertainty. Likelihood profiling supported the OA base model estimate for virgin recruitment, initial  $F$ s, and length-at-age, with less certainty in the recruitment and growth parameters. Retrospective bias fell within acceptable thresholds; however, bias was highest for estimates of  $F$ . Non-random patterns in residuals were evident in the commercial vertical line and recreational data, and poor predictive skill observed for the SEAMAP combined video surveys and the RFOP. A jackknife analysis, removing indices to test model sensitivity, showed a sensitivity to the headboat data and all fishery-independent indices for SSB.

Dr. Siegfried reviewed the estimated benchmarks and projections. The minimum stock size threshold (MSST) was set at 75% of biomass at maximum sustainable yield ( $B_{MSY}$ ), and  $F_{MSY}$  at a 30% spawning potential ratio ( $F_{30\%SPR}$ ). Relative  $F$ s used the average of  $F$ s for 2018 – 2020, as did



retention and selectivity, respectively. Recruitment was informed by the Beverton-Holt stock-recruitment relationship. Interim landings used actual landings for 2021, and the average of 2019 – 2021 for 2022. Since scamp does not have a sector allocation, no allocation is assumed in the projections. As of 2020, scamp is not overfished ( $SSB_{2020}/MSST = 2.15$ ; a value greater than 1 is good), and is not experiencing overfishing ( $F_{Current}/MFMT = 0.538$ ; a value less than 1 is good). The SSC noted that optimum yield is a yield in pounds, not a rate of exploitation. Thus, OY should be defined as the yield at 90% of  $F_{MSY}$ , or 90% of  $F_{30\%SPR}$ . Because the current SSB is greater than  $SSB_{MSY}$ , the yield resulting from fishing at 75% of  $F_{30\%SPR}$  would result in an OY greater than 90% of  $SSB_{MSY}$ . OY is a long-term equilibrium value, and is intended to be equivalent to a level of fishing that is below  $F_{MSY}$ .

The SSC was encouraged to think about the dynamics of how scamp and yellowmouth grouper are currently managed within the shallow-water grouper complex. Further, the OFL projections for this OA are calibrated to the MRIP-FES, while the black and yellowfin grouper portions of the current shallow-water grouper ACL are currently in MRIP's Coastal Household Telephone Survey data currency. Dr. Siegfried also asked about the projection settings, specifically for recruitment and using model-derived values for 2018 – 2020 that may be overly optimistic. An SSC member noted that the stock has been trending down towards  $SSB_{MSY}$  in recent years, while  $F$  has been decreasing at the same time. The SSC thought it best to use the stock-recruitment relationship for determining the benchmarks, but a more recent period for the projections. SSC members discussed the merits of using the last 10 years of estimated recruitment, considerate of recent management changes that may reduce direct targeting of shallow-water groupers in the near-term.

The SSC also discussed the  $F_{MSY}$  proxy of  $F_{30\%SPR}$ , and whether  $F_{40\%SPR}$  should also be considered, as was done recently for gag. Of note was the lower susceptibility of scamp to red tide, as scamp is usually found on the shelf edge and less affected by red tide blooms. Also noted was the seemingly lower overall productivity of the stock, especially since scamp is not directly targeted as widely as gag and red grouper, and that scamp do not typically grow as large as gag and red grouper. Under Amendment 48 to the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico (RF48), the Council can specify the adoption of a new proxy for status determination criteria (like  $F_{MSY}$ ) within an amendment without it being a separate action. Thus, the SSC could investigate  $F_{40\%SPR}$  if it thought that appropriate for scamp, and make such a recommendation to the Council. Dr. Siegfried added that specifying recruitment for the projections was critical for estimating benchmarks and generating projections under  $F_{40\%SPR}$ .

Many SSC members thought that similar management strategies should be considered for other grouper species, including  $F_{MSY}$  proxies. Some SSC members were more reserved, wanting to consider the life history of scamp and yellowmouth grouper more directly before proposing any modification to the current  $F_{MSY}$  proxy. The SSC was reminded of presentations provided at past SSC meetings about applying higher  $F_{MSY}$  proxies like  $F_{40\%SPR}$  and  $F_{50\%SPR}$  for grouper species based on contemporary research. Some SSC members thought the SSC should have a more directed and public discussion of the global application of  $F_{40\%SPR}$  to grouper species in general before adopting that  $F_{MSY}$  proxy for additional stocks. Other SSC members disagreed with a global application, but rather considered the similarities between scamp and gag (e.g., low recent recruitment, recent recruitment trends, low proportion of males, similar habitat requirements, and

aggregate spawning of protogynous hermaphrodites). The SSC decided to consider the current analytical product for the OA before considering an alternative to the current  $F_{MSY}$  proxy.

**Motion:** The SSC moves to accept the SEDAR 68 Gulf of Mexico Scamp Operational Assessment as consistent with the best scientific information available. Under the current  $F_{MSY}$  proxy of  $F_{30\%SPR}$ , the model derived estimates indicate that the stock is not overfished and is not undergoing overfishing.

*Motion carried without opposition.*

Dr. Siegfried presented updated scamp projections using  $F_{40\%SPR}$ , which also indicate that the stock is not overfished ( $SSB_{2020}/MSST = 1.41$ ; a value greater than 1 is good), and is not experiencing overfishing ( $F_{Current}/MFMT = 0.786$ ; a value less than 1 is good) as of 2020. Under  $F_{40\%SPR}$ , catch yields increase with time as the stock increases from an SSB level between MSST and  $SSB_{MSY}$  ( $SSB_{40\%SPR}$ ) to  $SSB_{40\%SPR}$ . When projecting based on a model-estimated MSY, MSY is estimated equivalent to an SPR of 37.8%. The corresponding OFL projections based on  $F_{30\%SPR}$  and  $F_{40\%SPR}$  are shown in Tables 1 and 2.

**Table 1.** OFL projections for scamp assuming an  $F_{MSY}$  proxy of  $F_{30\%SPR}$ , beginning in 2023.

Year	Recr	F	F/ FSPR30	SSB	SSB/ SSBSPR30	SSB/ MSST	SSB ratio	OFL	OY
2023	1191	0.171	1	1069	1.33	1.77	0.28	0.426896	0.384206
2024	1176	0.171	1	1026	1.27	1.70	0.27	0.409010	0.368109
2025	1165	0.171	1	994	1.23	1.65	0.26	0.395361	0.355825
2026	1155	0.171	1	970	1.20	1.61	0.26	0.384984	0.346485
2027	1147	0.171	1	950	1.18	1.57	0.25	0.376632	0.338969
2028	1140	0.171	1	933	1.16	1.54	0.25	0.369710	0.332739

**Table 2.** OFL projections for scamp assuming an  $F_{MSY}$  proxy of  $F_{40\%SPR}$ , beginning in 2023.

Year	Recr	F	F/ FSPR40	SSB	SSB/ SSBSPR40	SSB/ MSST	SSB ratio	OFL	OY
2023	1192	0.117	1	1069	0.87	1.16	0.28	0.292801	0.263521
2024	1196	0.117	1	1081	0.88	1.17	0.29	0.295341	0.265807
2025	1201	0.117	1	1096	0.89	1.19	0.29	0.298084	0.268275
2026	1205	0.117	1	1109	0.90	1.20	0.29	0.300698	0.270628
2027	1209	0.117	1	1121	0.91	1.21	0.30	0.303425	0.273083
2028	1212	0.117	1	1131	0.92	1.23	0.30	0.306100	0.275490

The SSC requested a review of consideration of  $F_{MSY}$  proxies at a future meeting. The SSC discussed next steps for scamp, including determining an ABC for scamp. Council staff noted that the SSC should seek the Council's input regarding its intent for how scamp should be managed, since it and yellowmouth grouper are currently included in the shallow-water grouper complex which is part of the Grouper-Tilefish IFQ program. If scamp and yellowmouth remain part of the shallow-water grouper complex, then projections would need to be provided including all four species in that complex. If not, then projections would need to be provided for scamp and

yellowmouth, and also for black grouper and yellowfin grouper. The SSC decided to defer ABC projections until such a time that it receives advice from the Council on how future management might be envisioned. The SSC thought its consideration of scientific uncertainty for decrementing the ABC from the OFL would be strongly contingent on whether scamp and yellowmouth grouper remain in, or are managed separate from, black grouper and yellowfin grouper.

**Motion: The SSC accepted the SEDAR 68 Gulf of Mexico Scamp and Yellowmouth Grouper Operational Assessment as consistent with the best scientific information available. However, the SSC thinks that an  $F_{MSY}$  proxy of  $F_{40\%SPR}$  is more appropriate for scamp and yellowmouth grouper, based on their life history, and thus should be considered by the Council for management. Under an  $F_{MSY}$  proxy of  $F_{40\%SPR}$ , the model derived estimates indicate that the stock is not overfished and is not undergoing overfishing.**

*Motion carried with one in opposition.*

### *Review of Scope of Work for 2024 Operational Assessment of Lane Snapper*

The planned OA of Gulf lane snapper is scheduled to occur in 2025, using data through 2023. The last catch analysis of lane snapper was performed as an interim analysis in 2019, which used catch-per-unit-effort data from the headboat fleet through 2018, and estimated the stock to be healthy. The SSC discussed if another interim analysis was sufficient, or if an OA of lane snapper was necessary. The last interim analysis was essentially a refresh of the iTarget model run from SEDAR 49. The SEFSC stated that an interim analysis could be performed outside of the SEDAR process, in cooperation between the SEFSC and the Council. Further, transitioning lane snapper from an OA to an interim analysis would free up time and resources for the SEFSC to focus on the proposed research track assessments of gray triggerfish and greater amberjack.

**Motion: The SSC recommends that the Council request an interim analysis for lane snapper be performed by the SEFSC, instead of the planned operational assessment.**

*Motion carried without opposition.*

### *Review of Scope of Work for 2024 Operational Assessment of Gag Grouper*

This operational assessment is scheduled to occur in 2025, using data through 2023. The last stock assessment for gag grouper was performed as an alternative model run using the base model for SEDAR 72, and swapped the MRIP-FES recreational landings and discards data for the private angling and state for-hire fleets for the same from the state of Florida's State Reef Fish Survey (SRFS). This "SRFS run" was considered consistent with best scientific information available (BSIA) by the SSC in July 2022, and estimated gag grouper to be overfished and experiencing overfishing as of 2019. A rebuilding plan to end overfishing of gag grouper (Reef Fish Amendment 56) is being developed by the Council, and an interim rule to reduce overfishing in 2023 is being developed by the Council and NMFS.

The SSC discussed estimates of episodic red tide mortality back to 2002, which were previously considered as sensitivity runs in SEDAR 72. The previous model examined mortality by age up to age 5, with ages older than 5 years included in a “plus” group. A future consideration would be to fit episodic red tide mortality to all ages, which the SSC thought would be an appropriate task for a topical working group.

### *Review of Scope of Work for 2024 Operational Assessment for Gulf King Mackerel*

The Gulf migratory group of king mackerel (Gulf king mackerel) OA is scheduled to occur in 2025, using data through 2023. The last stock assessment for Gulf king mackerel was SEDAR 38 Update, which updated recreational landings and discards data with those calibrated to MRIP-FES. SEDAR 38 Update also revised the estimate of shrimp bycatch, and all data in the model were updated through the 2017 – 2018 fishing year. The SSC reviewed SEDAR 38 Update in 2020, considered it to be consistent with BSIA, and estimated that the stock was not overfished and not experiencing overfishing. However, the SSC noted depressed recruitment in the stock for approximately 13 years compared to the long-term average from the data-rich period for the species (1986-present). Further, the 2021/2022 fishing season marks the first time in over 20 years that the commercial sector has not landed its quota.

SSC members discussed including a topical working group to examine the shrimp bycatch estimation process. An SSC member noted that a special SEFSC-led working group has been convened to investigate this topic. The SEFSC added that it is working with external partners to complete that methodology, which will go through a formal peer-review. They recommended that this methodology be reviewed by the Center for Independent Experts (CIE), which would possess the statistical expertise necessary to evaluate the shrimp bycatch estimation methodology. The SSC ultimately recommended a topical working group to discuss the shrimp bycatch methodology.

### *Review of Updated Projections for Gulf of Mexico Gag Grouper using SRFS*

Dr. Siegfried reviewed updated catch projections for gag grouper based on the alternative SRFS run. These updated projections considered a revised sector allocation of 65% recreational, 35% commercial, based on the application of the SRFS landings and discards to the historical reference period (1986 – 2005) used to set the current sector allocation for gag grouper (presently equal to 61% recreational, 39% commercial). As part of its work to develop a rebuilding plan for gag grouper (Reef Fish Amendment 56), the Council considered other reference periods (1986 – 2009 [pre-IFQ] and 1986 – 2019 [data-rich period]), and found those referenced periods to result in similar average landings ratios between the commercial and recreational fleets. Dr. Siegfried reviewed updated projections based on four scenarios: the minimum time to rebuild ( $T_{Min}$ ) with fishing mortality set equal to zero ( $F = 0$ ; 11 years); 75% of  $F$  at 40% spawning potential ratio (SPR: the current proxy for maximum sustainable yield; 18 years);  $T_{Min}$  plus one generation period (8 years for gag grouper; 19 years total), and  $T_{Min} * 2$  (22 years).

For these projections, the first year of management is 2024, using the total ACL of 661,000 lbs gw for 2023 as specified in the interim rule being reviewed for implementation by NMFS. Dr.

Siegfried described how the landings for the interim year were divided by fleet within sectors, based on fleet-specific proportional landings within sector for 2017 – 2019. Selectivity and retention use 2019 values, recruitment is informed by the stock-recruit relationship, and a medium red tide severity for 2021 is estimated. Managing at an  $F_{MSY}$  proxy of  $F_{40\%SPR}$  will necessitate a substantial reduction in catch limits, but is expected to result in a larger, more robust stock with time and allow for greater annual yields (compared to managing at  $F_{30\%SPR}$ ) once the stock is rebuilt. Table 3 describes the updated OFL projections for gag grouper. Tables 4, 5, and 6 show the ABC yields at the various rebuilding timelines of 75% of  $F_{40\%SPR}$  (18 years);  $T_{Min}$  plus one generation period (8 years for gag grouper; 19 years total), and  $T_{Min} * 2$  (22 years), respectively.

**Table 3.** OFL projections for Gulf gag grouper for 2024 – 2028, using an  $F_{MSY}$  proxy of  $F_{40\%SPR}$ , and a sector allocation of 65% recreational and 35% commercial.

<b>F = <math>F_{40\%SPR}</math></b>	0.097	
<b>OFL</b>	mt gw	<b>mp gw</b>
2024	268.153	<b>0.591175</b>
2025	365.347	<b>0.805451</b>
2026	449.523	<b>0.991027</b>
2027	544.507	<b>1.200431</b>
2028	659.547	<b>1.454051</b>

**Table 4.** ABC projections for Gulf gag grouper for 2024 – 2028, using an  $F_{MSY}$  proxy of  $F_{40\%SPR}$ , and a sector allocation of 65% recreational and 35% commercial, for the 75% of  $F_{40\%SPR}$  (18 years) rebuilding timeline.

<b>F<sub>Rebuild</sub></b>	0.073	
<b>Year rebuilt</b>	2042	
<b>F = 75% * <math>F_{40\%SPR}</math> (18 years)</b>	mt gw	<b>mp gw</b>
2024	201.297	<b>0.443783</b>
2025	279.095	<b>0.615298</b>
2026	348.787	<b>0.768943</b>
2027	427.865	<b>0.94328</b>
2028	524.249	<b>1.15577</b>

**Table 5.** ABC projections for Gulf gag grouper for 2024 – 2028, using an  $F_{MSY}$  proxy of  $F_{40\%SPR}$ , and a sector allocation of 65% recreational and 35% commercial, for the  $T_{Min}$  plus one generation period (8 years for gag grouper; 19 years total).

<b>F<sub>Rebuild</sub></b>	0.08	
<b>Year rebuilt</b>	2043	
<b><math>T_{Min}</math> (11 yrs) + 1 Generation (8 yrs)</b>	mt gw	<b>mp gw</b>
2024	221.646	<b>0.488645</b>
2025	305.689	<b>0.673928</b>
2026	380.219	<b>0.838238</b>
2027	464.626	<b>1.024324</b>
2028	567.294	<b>1.250668</b>

**Table 6.** ABC projections for Gulf gag grouper for 2024 – 2028, using an  $F_{MSY}$  proxy of  $F_{40\%SPR}$ , and a sector allocation of 65% recreational and 35% commercial, for the  $T_{Min} * 2$  (22 years) rebuilding timeline.

<b><math>F_{Rebuild}</math></b>	0.088	
<b>Year rebuilt</b>	2046	
<b><math>T_{Min}</math> (11 yrs) * 2</b>	mt gw	<b>mp gw</b>
2024	243.595	<b>0.537034</b>
2025	334.039	<b>0.736429</b>
2026	413.364	<b>0.911311</b>
2027	503.034	<b>1.108999</b>
2028	611.876	<b>1.348954</b>

The SSC acknowledged that the request for updated projections, using an alternative sector allocation of 65% recreational and 35% commercial based on the SRFS landings and discards from 1986 - 2005, came directly from the Council based on Council discussions at its August 2022 meeting. The SSC stated that allocation decisions are expressly the purview of the Council, and it was up to the Council to determine which sector allocation scenario it ultimately prefers.

**Motion: The SSC determines that the yields corresponding to the rebuilding schedules, calculated using the Council requested allocation scenario of 35% commercial and 65% recreational, based on  $T_{Min}$  (11 years @  $F = 0$ ), 75% of  $F_{40\%SPR}$  (18 years),  $T_{Min}$  plus one generation time (8 years for gag grouper; 19 years total), and  $T_{Min} * 2$  (22 years total) are appropriately calculated, and the 5-year OFL and ABC yield streams associated with those rebuilding timelines for 2024 – 2028 are suitable for informing catch advice.**

*Motion carried with one opposed.*

The SSC noted that the projections using the status quo sector allocation scenario of 61% recreational and 39% commercial should be updated to include the use of the interim rule's 661,000 lb gw ACL for 2023, and those values used in Amendment 56 for Council consideration.

### *Public Comment – Summary from All Days*

Captain Bob Zales:

- He does not understand the use of EFH, including how they mitigate climate change and if they are even useful for management, due in part to the lack of socioeconomic data.
- He commented on sector allocation, saying issues stem partly from the conversion from MRIP-CHTS to FES; he also noted that the NMFS landings estimates for red grouper and gag do not line up with what is recorded from FWC.
- He cautioned the SSC on recommending changes to scamp and is concerned about recreational red grouper and gag discards. He thinks recreational effort would shift to scamp.

- He thinks king mackerel are in trouble, especially in the Florida Panhandle. He has not seen any kingfish for three consecutive years; this trend seems to be spreading across the Gulf. He correlates this to a lack of baitfish, specifically round scad.

Ms. Leann Bosarge:

- She commented that the effort to determine handling of shrimp trawl bycatch for a data-rich species, such as red snapper, should not be handled in the same manner as data-poor species, such as king mackerel. She stated it is imperative to use the expertise of outside members before starting the CIE process.

### *Other Business*

No other business was brought before the SSC.

**The meeting was adjourned at 12:00 pm eastern time on September 23, 2022.**

### *Meeting Participants*

#### **Standing SSC**

Jim Nance, *Chair*  
 Luiz Barbieri, *Vice Chair*  
 Harry Blanchet  
 David Chagaris  
 Roy Crabtree  
 Benny Gallaway  
 Doug Gregory  
 David Griffith  
 Paul Mickle  
 Will Patterson  
 Sean Powers  
 Steven Scyphers  
 Jim Tolan  
 Richard Woodward

#### **Special Reef Fish SSC**

Jason Adriance  
 Mike Allen  
 John Mareska

#### **Special Ecosystem SSC**

Mandy Karnauskas  
 Josh Kilborn  
 Steven Saul

#### **Special Socioeconomic SSC**

Luke Fairbanks  
 Cindy Grace-McCaskey  
 Jack Isaacs

#### **Council Representative**

Tom Frazer

[A list of all meeting participants can be viewed here.](#)