SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

SSC Meeting Final Report

May 3-5, 2016

Town & Country Inn
Charleston, SC

Final, revised
9/20/2016

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Revisions:

7/12/2016: Corrected a typographical mistake in Topic 11, Table 2. The original (May 2016) version of this report included benchmark values and status determination criteria for SEDAR 41 Red Snapper from the preliminary base run provided for the SEDAR 41 Review Workshop. Benchmark values should have been taken from the final base run reflecting Review Workshop recommendations and reported in the addenda to the Stock Assessment Report. Benchmark values and the status determination criteria reported in Table 2 are corrected in this version. Changes in reference values between the two assessment runs are slight, and the projection results reported here were unaffected by this error.

9/20/2016: Corrected a typographical mistake in Topic 11, Table 2. The original (May 2016) version of this report included projection values with discards in pounds for the ABC projections starting in 2016 and discards in numbers for the OFL projections starting in 2017 from the deterministic projections. These values should have come from the probabilistic projections. The projections starting in 2017 will most likely be used since 2016 is nearly over. Therefore, only the OFL discards were affected. The ABC projections were unaffected by this change.

SAFMC PUBLIC COMMENT PROCESS

Written comment:

Written comment on SSC agenda topics is to be distributed to the Committee through the Council office, similar to all other Council briefing materials. Written comment to be considered by the SSC shall be provided to the Council office no later than one week prior to an SSC meeting. For this meeting, the deadline for submission of written comment is 12:00 pm Tuesday, April 26, 2016. Submit written comments to:

SAFMC – SSC Comments
4055 Faber Place Drive
Suite 201
North Charleston, SC 29405

Verbal comment:

Two opportunities for comment on agenda items will be provided during SSC meetings. The first will be at the beginning of the meeting, and the second near the conclusion, when the SSC reviews its recommendations. Those wishing to comment should indicate such in the manner requested by the Chair, which may be through a show of hands or a written list if the number of interested parties is extensive, who will then recognize individuals to come forward and provide comment. All comments are part of the record of the meeting.

1. INTRODUCTION

1.1. Documents

Agenda
Attachment 1. Minutes of the October 2015 meeting
Attachment 2. Minutes of the March 2016 webinar meeting

1.2. Action

- Introductions
- Review and Approve Agenda
- Approve Minutes

2. PUBLIC COMMENT

The public will be provided two opportunities to comment on SSC agenda items during this meeting. The first at the start of the meeting, and the final will be provided at the end during the review of recommendations. Those wishing to make comment should indicate their desire to do so to the Committee Chair.

Accordingly, at this point in the meeting the Chair opened the floor for the first opportunity for public comment. Public comments were provided by Captain Russell "Rusty" Hudson (Directed Sustainable Fisheries).

3. 2014-2015 LANDINGS AND ACLS

3.1. Documents

None.

3.2. Presentation

Landings and ACLs: Mike Larkin, SERO, via Webinar

3.3. Overview

The SSC will be provided an update on 2015 landings, catch limits, and application of accountability measures.

3.4. Action

- Review and comment, with attention toward any ABC recommendation updates.
  - Emphasis should be placed on Level 4 and 5 stocks, concerning landings trends as compared to their ABC values.

SSC RECOMMENDATIONS:

The SSC expressed concerns about stocks that exceeded ACL, and also about stocks whose catches were well below ACL. The SSC noted that the ABC is based on the biological condition of the stock and if landings are significantly under the ACL, this may be a signal that the biological condition differs from the one on which the ABC was based on. Red grouper may be an example of such a species to examine more closely. The SEP recommendations regarding optimum yield in Appendix 1 of this report are also relevant to discussion of stocks with low landings.

Further investigate stocks with landings less than 40% of the ACL by

- *Monitor landings relative to ACL,*
- *Evaluate management actions taken.*
- *Examining other survey data (e.g. fishery independent).*

- Consider assessment schedule and research plan implications

See below under other agenda items.

4. SOUTHEAST REEFFISH SURVEY UPDATE

4.1. Documents

Attachment 3. SERFS Report

4.2. Presentation

SERFS Sampling Update: Dr. Joey Ballenger, SC DNR

4.3. Overview

The Committee will receive an update on SERFS sampling efforts and results through 2015.

4.1. Action

- No specific actions required.

SSC RECOMMENDATIONS:

Dr. Joey Ballenger provided the SERFS sampling update. The SSC asked how much of the data collected have been used directly in stock assessments and whether the data has also been used for purposes other than stock assessments. Dr. Ballenger indicated that since the start of SEDAR, MARMAP and SERFS data have been used in about 28 stock assessments for a dozen species. Also, for many snapper/grouper species the SERFS data are the only source of reproductive information. Survey information has also been used by the Council in management decisions and by the SSC in aid of setting ABCs.

The SSC also inquired if there was any information to measure saturation or trends in total trap biomass. Dr. Ballenger indicated that this issue has been investigated and published in a paper by Bacheler et al. (ICES Journal of Marine Science, 70:873-882) and further studies are underway assessing total biomass and other aspects of the trap survey.

5. SEDAR ACTIVITIES

5.1. Documents

Attachment 4. SEDAR 50 Project Schedule
Attachment 5a. Draft SEDAR 50 ToRs
Attachment 5b. MAFMC SEDAR 50 Feedback
Attachment 6. Draft Red Grouper ToRs

5.2. Overview

The SEDAR Steering Committee will meet May 9, 2016 via webinar, to review progress on the assessment prioritization plan and comments from the SSCs, review SSC comments on the research track process proposal, and review the project schedule.

The data best practices standing group was formed and will hold its first meeting via webinar April 13.

Planning is underway for the Blueline Tilefish benchmark, SEDAR 50. This assessment will be a joint assessment with the NEFSC and MAFMC, with SEDAR and SAFMC / SEFSC having lead. A stock ID workshop will be held June 28-30 in Raleigh, NC. The data workshop is planned for October 24-28, 2016 in Charleston, SC, the assessment workshop is planned to be a series of webinars spanning from February 6, 2017 to April 3, 2017, and the review workshop is planned for May 23-25, 2017 in Atlantic Beach or Raleigh, NC. The SSC will be asked to review the ToRs and identify participants.

Red grouper is scheduled for an update in late 2016, but will be considered as a standard. The SSC will be provided current ToRs, asked to consider making it a standard and revising ToRs accordingly, and asked to identify participants.

Table 1. SAFMC SEDAR Projects May 2016

Plan Year	SEDAR #	Stocks	Approach	Terminal Data	Assessment Complete	Lead Agency
2015	41	Red Snapper & Gray Triggerfish	Benchmark	2014	April 2016	SEFSC
	U	Tilefish	Update	2014	April 2016	SEFSC
2016	47	Goliath Grouper	Benchmark	2014	Jun 2016	FL FWCC
	48	Black Grouper	Standard	2014	TBD[1]	FL FWCC
	U	Red grouper	Update	2015	Jan 2017	SEFSC
2017	50	Blueline Tilefish	Benchmark	2015	June 2017	SEFSC
	U	Vermilion	Update	2016	April 2018	SEFSC
	R	MRIP Revisions, TBD	Revision	2016	June 2018	SEFSC
2018	B	Yellowtail Snapper	Benchmark	2016	Spring 2019	FL FWCC
	S	Scamp, Gulf + SA	Benchmark	2016	Mid-2019	SEFSC

1. FL FWCC requested that the black grouper assessment be postponed to April 2017. This request will be reviewed by the Steering Committee in May 2016

5.3. Action

- Determine whether the ToRs for SEDAR 50, Blueline Tilefish are sufficient as written or if modifications are recommended.
- Identify SSC representation for SEDAR 50, Blueline Tilefish.
- Consider the Red Grouper update for a standard and review/revise the ToRs accordingly.
- Identify participants for the Red Grouper assessment.

SSC RECOMMENDATIONS:

- Determine whether the ToRs for SEDAR 50, Blueline Tilefish are sufficient as written or if modifications are recommended.

1. *ToRs should not request a spatially explicit model (MAFMC ToR 1 and 3), but rather request a model suited for the data, as currently written in ToR's provided by SAFMC/SEDAR. The modelling approaches should be driven by the science and not management needs. However, the SSC realized that if the data could support a spatially explicit model, this could make management easier.*

2. *The SSC agreed that the ToR 2 as put forth by the MAFMC seems inappropriate. There seems to be some overlap between the ToR of the data workshop and stock identification workshop. Stock ID should identify stock units (i.e., substantially reproductively isolated units), but these may be different than management units. Currently, the MAFMC and the SAFMC prefer to manage Blueline Tilefish as two separate management units (i.e., managing separately the Blueline Tilefish occurring in the waters under each Council's jurisdiction).*

3. *Language to address ecosystem considerations was suggested for the ToRs. This would address ToRs put forth by the MAFMC including food habits and environmental conditions. Effects of abiotic and biotic factors (e.g., climate change, predator/prey interactions, etc.) on recruitment, growth, geographic distribution, and natural mortality of Blueline Tilefish should be investigated. Climate change may be causing a distributional change in Blueline Tilefish (and other species). If quantifiable relationships are identified, the SSC recommends incorporating these into the stock assessment if possible.*

4. *At least one in-person assessment meeting should be held for Blueline tilefish. Assessment Workshops are typically synergistic, which would be difficult to achieve via a webinar. If possible, an in-person meeting held in the early part of the modeling process would likely be highly productive. This meeting can then be followed-up with webinars to improve modeling of the data, and further develop the assessment approach.*

5. *Two different management units might require additional considerations in the design of the workshop and/or the webinars.*

6. *The SSC recommends a comparison of historic ROV data with more recent ROV studies conducted by Steve Ross et al. on wrecks and canyons off NC and VA. This may help answer the question of Blueline Tilefish range expansion into the Mid-Atlantic region.*

7. *The SSC requests that a report on the stock ID workshop be presented at the October 2016 SSC meeting.*

- Identify SSC representation for SEDAR 50, Blueline Tilefish.

SSC representatives for the SEDAR 50 assessment:
Data Workshop: - Marcel Reichert, Anne Lange
Assessment Workshop: - Brian Irwin, Fred Serchuk, Alexei Sharov
Review Workshop: - Churchill Grimes, Laura Lee, Scott Crosson (Chair)

- Consider the Red Grouper update for a standard and review/revise the ToRs accordingly.

The Red Grouper assessment should be conducted as a standard assessment. This recommendation was largely based on the fact that the Fishery Independent Index would be changed to include video information. There was some discussion about the possible redundancy or complimentary nature of the two indices (trap and video), and the fact that no length information is available for the video index. The assessment should also evaluate effects of the updated model fitting procedure.

- Identify participants for the Red Grouper assessment.

SSC members for the Red Grouper Assessment Panel:
John Boreman, Fred Serchuk, Eric Johnson

6. UPDATE ON MID-ATLANTIC SSC MEETING CONCERNING SETTING AN ABC FOR BLUELINE TILEFISH

6.1. Documents

Attachment 7. Blueline Tilefish Working Group Report
Attachment 8. MAFMC SSC March Meeting Report

6.2. Overview

The Committee will be given an overview of what was discussed at the March meeting of the MAFMC SSC in regards to setting an ABC for the portion of the Blueline Tilefish stock within the Mid-Atlantic region.

6.3. Action

- No specific actions required.

SSC RECOMMENDATIONS:

Dr. John Boreman provided an overview of the MAFMC's SSC discussion and recommendations. The SSC's ABC recommendation based on a data poor method was reluctantly accepted by the MAFMC with a recommendation that it be re-evaluated in early 2017.

7. REVIEW OF NEW BAG AND SIZE LIMIT ANALYSIS METHODOLOGY

7.1. Documents

Attachment 9. Black Sea Bass Bag Limit Analysis report

7.2. Presentation

Method Overview: Dr. Mike Errigo, SAFMC

7.3. Overview

At their September 2015 meeting, the South Atlantic Council asked staff to put together Regulatory Amendment 25, which included options for increasing the bag limit for Black Sea Bass. The method that has been used for this type of analysis simply assumed that all trips that met the current bag limit will meet any of the new bag limit alternatives. A modification was made that restricted the increase so that for those trips that met the bag limit, they would continue to meet the new bag limit alternatives until they reached the total number of discards for the species in question on that trip.

The current method inherently assumes that all discards on trips that met the bag limit are above the legal limit and were discarded because of reaching the bag limit. An analysis of all the trips that encountered Black Sea Bass showed that most of the Black Sea Bass encountered by recreational anglers (over 92%) were discarded and almost 99% of trips did not reach the bag limit. These data suggest that most of the Black Sea Bass encountered were discarded because they were below the minimum legal size.

The proposed method uses estimated numbers at age and the discard selectivity for fish both above and below the minimum size limit (either in place or proposed) to estimate the proportion of discarded fish that are above the minimum size limit. The idea is to use estimated numbers at age from the years where the analysis is to be applied. For the current example using Black Sea Bass, estimates of numbers at age were not available for 2013 and 2014, so 2012 was used as a proxy. However, in the future, assessments will have the estimated numbers at age for each year of the projections as a standard output. Then, when the bag limit is increased, only that proportion of the discards that are greater than the minimum size can be added to the catch. The analysis can be performed for changing size limits as well (specifically decreasing a size limit). When a size limit is decreased, this analysis can estimate the proportion of fish in the discards that are above the new proposed size limit that can be added to the catch.

7.4. Action

- Discuss the uncertainties associated with this analysis.
- Determine whether this analysis is the Best Scientific Information Available and is appropriate for use in managing fisheries resources.

SSC RECOMMENDATIONS:

- Discuss the uncertainties associated with this analysis.

The SSC noted that the discard selectivity for ages 1 and 2 were based on SEDAR 25 and the subsequent update. There were also some questions as to how the method deals with increasing population ages.

1. *The analysis of the headboat data should be handled in a manner similar to the analysis of the charter boat data. This means that it should be based on a trip bag limit rather than estimating how many anglers may have hit their individual bag limit on trips that did not hit the trip bag limit. Input from industry will benefit this analysis.*

2. *The fishing mortality rate should be changed to exploitation rate.*

3. *Uncertainty is not included in the current analysis, and this could possibly be addressed by introducing variability in length at age, probability of age at a given length, and numbers at age.*

4. Overall, if this method is approved, it can be used for other species as well.

- Determine whether this analysis is the Best Scientific Information Available and is appropriate for use in managing fisheries resources.

The proposed bag limit increase had negligible impact on the landings of Black Sea Bass, but after the proposed changes have been incorporated (see above), this method could be applied to other species.

8. SOUTH ATLANTIC FOR-HIRE REPORTING AMENDMENT

8.1. Documents

Attachment 10. South Atlantic For-Hire Reporting Amendment Document

8.2. Presentation

South Atlantic For-Hire Reporting Amendment Document: John Carmichael, SAMFC

8.3. Overview

This amendment addresses reporting in the for-hire segment, including actions for mandatory, trip level reporting in the charter segment, modification of the timing of reporting in the headboat segment, and location reporting requirements for the charter segment.

The for-hire reporting amendment was taken to public hearing January 25-February 5, 2016. The SAFMC considered revisions of actions in response to public comment and IPT review during their March 2016 meeting. During this meeting, the SAFMC made a motion to specify the core data elements to be collected in the proposed logbook program within the amendment. The Committee is asked to comment on the core data elements to be specified in this amendment for inclusion in the for-hire logbook program.

The Council has chosen preferred options for this amendment at their March 2016 meeting. This may be the SSC's final opportunity to review this amendment before the Council votes on final approval at either their September 2016 or December 2016 meeting. The SSC is given the opportunity to review the document and provide comments.

8.4. Action

- Comment on what should be included in the core data elements.
- Review and provide comments on other actions as necessary.

SSC RECOMMENDATIONS:

1. *Emphasis should be given to data that can be used for both assessments and management advice. Analysts should be consulted to determine what data would be used in assessments, how these data would be used, and what data would be most relevant. Fishermen should be consulted also as to what they think is the most useful and reliable information to gather. (Note that fishermen were indeed consulted during the process.)*

2. *Depth, fate, and reason for discards are important for estimating discard mortality.*

3. *Information on the range of depth fished could be useful in consideration of bathymetric management.*

4. *Collecting information on hours fished and the ability to include split trips could be useful. If additional data (such as home zip code of anglers) can be incorporated, it would be of value in generating consumer surplus estimates of for-hire trips (See Carter et al. 2016 "Valuing Sportfishing Harvest with the Demand for Boat Fuel" in Marine Resource Economics). The SEP also recommended including other information that has socio-economic relevance such as distance traveled for recreational fishers.*

5. *Any and all information could be useful for assessments, but it is important to optimize the usefulness of the data, which could vary among species.*

6. *Once the types of data for reporting are selected, a simulation with a "top 10" list of species should be performed to evaluate if relevant data for these species is actually collected.*

7. *The impact of the sheer amount of requested data should be considered. It may be difficult to collect all of the data on weekly reports.*

9. SNAPPER GROUPER AMENDMENT 41

9.1. Documents

Attachment 11. Amendment 41 (Mutton) Summary Document

9.2. Presentation

Amendment 41 Document: Myra Brouwer, SAMFC

9.3. Overview

The Council is considering the following actions in Amendment 41:

- Specifying MSY and MSST for Mutton Snapper.
- Set ABCs, ACLs, and ACTs for Mutton Snapper.

- Designating a spawning season with possibly different management measures.
- Modifying commercial trip limit and size limit.
- Modifying recreational bag limit and size limit.

Currently, there are preliminary statistics and analyses available for the recreational and commercial bag/trip limits, size limits, and season alternatives. The Committee is asked to review what analyses are available and comment on their utility and appropriateness.

9.4. Action

- Review the available analyses and comment on their use in this amendment, as appropriate. Are they Best Scientific Information Available and useful for making management decisions?
- Comment on any analyses still lacking in this amendment.

SSC RECOMMENDATIONS:

Due to lack of time, the SSC did not address this agenda item. This item will be addressed by the SSC at its October 2016 meeting.

10. UPDATE ON PROPOSED RESEARCH/OPERATIONAL ASSESSMENT TRACKS

10.1. Documents

Attachment 12. SEDAR Stock Assessment Categories

10.2. Presentation

Dr. Erik Williams, SEFSC

10.3. Overview

An update will be given to the Committee on where the Science Center and SEDAR are in terms of implementing the new proposed Research and Operational Tracks, as well as what exactly these tracks would entail.

The operational stock assessment category is primarily to provide management advice, using tested modeling frameworks and previously utilized data sources. These assessments are similar to updates and standards. The research stock assessment category should be applied in cases where a new model, hypothesis, or question needs to be answered about a stock/population. It is not intended to provide management advice, but rather set the stage (prototype approach) for operational modeling. Research assessments are most similar to the current benchmark assessments, but do not result in management advice.

10.4. Action

- Comment on and provide feedback for the proposed Research and Operational Tracks.

SSC RECOMMENDATIONS:

1. *Consider dropping "assessment" from "research track assessment" as the expected outcome is a new (or substantially revised) assessment modeling framework, not a new assessment per se.*

2. *Hold a panel review to evaluate which assessments are already available for the operational status.*

3. *Clients (such as the Council and SEDAR Steering Committee) need to be considered as the tracks are developed and research questions should be developed for the research track. The SSC recognized the need to carefully consider how Best Scientific Information Available (BSIA) is defined and to ensure that timelines are clearly developed. The stock prioritization exercise will assist in determining when different assessments should be conducted. Dr. Williams indicated that Scamp (South Atlantic and Gulf of Mexico) might be a good candidate for the first research track undertaking.*

4. *There was considerable concern about the SSC's role and workload in this new structure and this requires more discussion once plans are further developed. The current procedures call for involvement of the SSC during the development and execution of research track activities. The SSC will also be the sole review body for operational assessments. This is expected to significantly increase the SSC's workload.*

5. *Assessment of several data poor stocks could be accomplished through a research track.*

6. *The new Marine Recreational Information Program (MRIP) revisions could be a candidate for the research track as MRIP estimates will likely have a significant impact on stock assessments, ABCs, ACLs, and other management aspects.*

7. *It is important that the data providers be involved in all scheduling discussions. As many operational assessments are expected in the future, all of these will require the timely availability of data. Careful scheduling is important, especially for those data that involve significant time to compile and analyze. Unless data providers are considered in all of the planning work, the number of assessments that can be conducted in the future will be much constrained.*

11. RED SNAPPER ASSESSMENT REVIEW

11.1. Documents

Attachment 13a. SEDAR 41 SAR, Red Snapper
Attachment 13b. SEDAR 41 Supplemental Projections

11.2. Presentation

Assessment Overview: Dr. Kate Siegfried, SEFSC

11.3. Overview

The Committee is asked to review the Red Snapper Benchmark assessment prepared through SEDAR 41 and provide fishing level recommendations.

Red Snapper was assessed in SEDAR 15, and was determined to be overfished and experiencing overfishing. This led to the Council developing a rebuilding plan in Amendment 17A. Rebuilding began in 2010 and ends in 2044. Amendment 17A implemented a closure of the Red Snapper fishery and proposed a large closed area off the South Atlantic to reduce discard mortality of Red Snapper. A subsequent good year class was identified in SEDAR 24 that eliminated the need for the large closure, but left the fishery closure in place.

During initial reviews of assessed stocks, the SSC calculated a P* of 30% for Red Snapper, and a probability of rebuild of 70%. However, since rebuilding of Red Snapper began prior to the existence of the P* approach, the rebuilding plan is based on a 50% chance of reaching SSB_{MSY} by the end of the rebuilding period. This is the first assessment of Red Snapper under the P* methodology, thus the Council may consider revising the rebuilding approach but is not obligated to do so.

11.4. Action

- Review assessment
  - Does the assessment address the ToRs to the SSCs satisfaction?
  - Does the assessment represent Best Scientific Information Available?
  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?
- Identify and discuss assessment uncertainties
  - Are key uncertainties identified, and if not, indicate additional uncertainties.
  - Are risks and consequences of uncertainties identified and evaluated?
  - Are methods of addressing uncertainty consistent with SSC expectations?
  - List and comment on the effects of those uncertainties that most contribute to risk and impact status determinations and future yield predictions.

- Provide fishing level recommendations
  - Apply the ABC control rule and complete the fishing level recommendations table.
- Provide advice on monitoring the stock until the next assessment
  - What indicators/metrics should the council monitor/SSC evaluate to keep tabs on the stock until the next assessment?
  - Is there a recommended trigger level for these metrics?
- Provide research recommendations and guidance on the next assessment
  - Review the included research recommendations, and indicate those which are most likely to reduce risk and uncertainty in the next assessment.
  - Provide any additional research recommendations the SSC believes will improve future stock assessments.
  - Provide guidance on the next assessment, addressing its timing and type.

SSC RECOMMENDATIONS:

- Review assessment
  - Does the assessment address the ToRs to the SSCs satisfaction?

The SSC received a presentation on the SEDAR 41 Red Snapper stock assessment. After much discussion the Committee concluded that the assessment properly addressed all the review ToRs. Further, the SSC recognized that many of the assessment limitations and uncertainties were caused by data issues and limitations.

  - Does the assessment represent Best Scientific Information Available?

The SSC concluded that the Red Snapper assessment represents BSIA.

  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?

The stock assessment is adequate to determine stock status and support fishing level recommendations. However, there was considerable discussion by the SSC of various sources (and causes) of assessment uncertainty. A summary of the Committee's main concerns, discussion points, and recommendations is provided below:

- *Although the assessment indicates that the stock is undergoing overfishing, the SSC noted there is a high uncertainty in exploitation status and thus the degree of overfishing (i.e., the actual numerical value of the current F estimate) is highly uncertain. Therefore, the SSC conclusions were limited to determining that $F_{12\text{-}14}$ exceeded 0.15, and that it is necessary to have F reduced to the level of $F_{REBUILD}$ (0.14).*

- *The biomass status of the stock was less uncertain given information on the highly truncated current age composition, dominated by fish ages 10 and younger. The SSC concurs with the Review Panel's conclusion that the stock is overfished. The current level of spawning stock biomass (SSB_{2014}) is estimated to be about 22% of MSST ($SSB_{2014}/MSST= 0.22$).*
  - *One caveat to be mentioned here is that the model expects to see an extended age structure based on the age specific estimates of M, but this age structure has never been observed in the fishery. The large biomass of the 1950's and 1960's present in the assessment is based on assumptions rather than observations. A differently shaped curve for the natural mortality at age may lead to a different conclusion about the expected age structure and the unfished biomass level. This remains a significant source of uncertainty in this assessment until such time that it can be demonstrated that the stock can indeed attain the extended age structure expected in the model under low fishing mortality.*

- Identify and discuss assessment uncertainties

The SSC had an extensive discussion of the uncertainties, most of which are identified and well documented in the SEDAR 41 Review Workshop report.

- Are key uncertainties identified, and if not, indicate additional uncertainties.
- Are risks and consequences of uncertainties identified and evaluated?
- Are methods of addressing uncertainty consistent with SSC expectations?
- List and comment on the effects of those uncertainties that most contribute to risk and impact status determinations and future yield predictions.

Although the SSC concluded that the assessment represents the best available science, significant areas of uncertainty are evident in both the data and in components to the model. The most significant sources of this uncertainty include: the stock-recruitment relationship, natural mortality at age, the age structure of the unfished population, the composition and magnitude of recreational discards, potential changes in CPUE catchability, and the selectivities for the different fishery fleets.

- Provide fishing level recommendations
  - Apply the ABC control rule and complete the fishing level recommendations table.

The SSC's fishing level recommendations for Red Snapper are based on yield at $F_{REBUILD}$ provided by the probabilistic projections Yield streams for both OFL and ABC (for landings and discards in both pounds and in numbers) that assume management starting in either 2016 or 2017 are listed in Table 2 below.

- Provide advice on monitoring the stock until the next assessment

- What indicators/metrics should the council monitor/SSC evaluate to keep tabs on the stock until the next assessment?
- Is there a recommended trigger level for these metrics?

The SSC indicated that sufficient funding should be made available to monitor and evaluate the size of the harvest and investigate its effect on the stock, especially if future mini seasons are considered as a management option. Further, the SSC recommends that efforts be developed (or continued) to properly characterize the size and age composition of the catch, discards, and population. Although the South Atlantic Red Snapper stock has had recent strong recruitment pulses and shown significant increases in abundance, rebuilding of the age structure is still a concern and is a critical factor in documenting the rebuilding of spawning stock biomass.

- Provide research recommendations and guidance on the next assessment
  - Review the included research recommendations, and indicate those which are most likely to reduce risk and uncertainty in the next assessment.
  - Provide any additional research recommendations the SSC believes will improve future stock assessments.

Given the importance of the SERFS video index in providing fishery-independent information, the SSC recommends that techniques be developed to determine the length composition in the video survey. Currently, length and age composition data (and resulting selectivity for the combined video and trap index) are based only on the trap survey data.

- Provide guidance on the next assessment, addressing its timing and type.

Given the indications of a strong year class in the terminal year (2014) of the assessment (as indicated by both the assessment model and preliminary 2015 fishery independent age composition data), the SSC recommends an update assessment no later than 2019 (with 2018 as the terminal year of data). This should provide sufficient information for evaluating progress in rebuilding the stock unless there are changes in the selectivity (i.e. size limits). If other sources of data become available (i.e., new data series) another benchmark may be appropriate to assess the rebuilding of the stock.

Table 2. Red Snapper recommendations Note: This table has been corrected to include the benchmark values and status criteria from the final base run reported in the addenda to the SEDAR 41 Stock Assessment Report.

Criteria		**Deterministic**		**Probabilistic**
Overfished evaluation ($SSB_{2014}/SSB_{30\%}$)		0.16		0.17
Overfishing evaluation		$F_{12-14}/F_{30\%} > 1$		$F_{12-14}/ F_{30\%}>1$
MFMT ($F_{30\%}$)		0.15		0.15
$SSB_{30\%}$ (Eggs 1E8)		328,552		294,166
MSST (Eggs 1E8)		246,414		220,624
MSY (1000 lb)		430		419
Y at 75% $F_{30\%}$ (1000 lb)		398		397
ABC Control Rule Adjustment		Under Rebuilding		
P-Star		Under Rebuilding		
M		0.134		
Management starting in 2016 (probabilistic projection results)				
OFL RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2016	144,000	187,000	16,000	38,000
2017	205,000	222,000	21,000	40,000
2018	241,000	242,000	23,000	41,000
2019	267,000	254,000	24,000	41,000
ABC RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2016	138,000	180,000	16,000	36,000
2017	196,000	213,000	20,000	38,000
2018	233,000	233,000	22,000	39,000
2019	258,000	246,000	23,000	39,000
Management starting in 2017 (probabilistic projection results)				
OFL RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2017	174,000	189,000	18,000	35,000
2018	204,000	210,000	19,000	37,000
2019	230,000	227,000	21,000	39,000
ABC RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2017	165,000	179,000	17,000	33,000
2018	195,000	200,000	18,000	35,000
2019	220,000	218,000	20,000	37,000

12. GRAY TRIGGERFISH ASSESSMENT REVIEW

12.1. Documents

Attachment 14. SEDAR 41 SAR, Gray Triggerfish

12.2. Presentation

Assessment Overview: Dr. Luiz Barbieri, FL FWC

12.3. Overview

The Committee is asked to review the Gray Triggerfish assessment prepared through SEDAR 41. This is the first assessment prepared of this stock, so there are no existing recommendations to consider. The Review Workshop was held in April 2016.

An ABC recommendation of 672,565 pounds, provided in April 2011, was based on the third highest landings observed from 1999 to 2008. This was the Committee's default rule for fisheries that did not show any concerning trends in landings. However, the Committee did note that the stock may be recovering from an excessive peak in landings. Given the impending assessment, the SSC felt the risk to the resource was minimal.

12.4. Action

- Review assessment
  - Does the assessment address the ToRs to the SSCs satisfaction?
  - Does the assessment represent Best Scientific Information Available?
  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?
- Identify and discuss assessment uncertainties
  - Are key uncertainties identified, and if not, indicate additional uncertainties.
  - Are risks and consequences of uncertainties identified and evaluated?
  - Are methods of addressing uncertainty consistent with SSC expectations?
  - List and comment on the effects of those uncertainties that most contribute to risk and impact status determinations and future yield predictions.
- Provide fishing level recommendations
  - Apply the ABC control rule and complete the fishing level recommendations table.
- Provide advice on monitoring the stock until the next assessment
  - What indicators/metrics should the council monitor/SSC evaluate to keep tabs on the stock until the next assessment?
  - Is there a recommended trigger level for these metrics?

- Provide research recommendations and guidance on the next assessment
  - Review the included research recommendations, and indicate those which are most likely to reduce risk and uncertainty in the next assessment.
  - Provide any additional research recommendations the SSC believes will improve future stock assessments.
  - Provide guidance on the next assessment, addressing its timing and type.

SSC RECOMMENDATIONS:

The SSC received a brief presentation from Dr. Barbieri (Chair of the SEDAR 41 Review Panel) summarizing the main points and concerns identified during the Review Workshop. The Gray Triggerfish stock assessment was not accepted by the Review Panel.

The Review Panel had concerns relative to the base model results and model diagnostics, especially relative to overfitting of the CVID survey, uncertainty in age determination (including the maximum age estimate), and the natural mortality estimates.

Furthermore, an error with the Chevron Trap survey age composition data used in the base configuration of the Beaufort Assessment Model was discovered during the review workshop (the age compositions used at the Assessment Workshop were based on the number of annuli in the spines but were assumed to be calendar-year age. Corrected age composition data were provided during the workshop). The magnitude of changes to the data, and the results and model diagnostics emanating from the age corrections further exacerbated the Review Panel's concerns with model fit and model performance. Moreover, the Review Panel believed that the proposed base model parameterization was inappropriate to provide information on Gray Triggerfish stock status or benchmarks, and further felt that the magnitude of work necessary to resolve the fit, performance and data issues exceeded what could reasonably be accomplished during the review phase.

The SSC concurred with the SEDAR 41Review Panel recommendation that further modeling is needed to better fit the (corrected) age data and to resolve the fit to the CVID survey (perhaps investigating a multispecies year effect in 1990) as well as to consider possible effects from Hurricane Hugo.

  - Does the assessment address the ToRs to the SSCs satisfaction?
  - Does the assessment represent Best Scientific Information Available?
  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?

The SSC concluded that the current assessment does not represent the BSIA and concurs with the SEDAR 41 Review Panel in rejecting the assessment.

- Identify and discuss assessment uncertainties
  - Are key uncertainties identified, and if not, indicate additional uncertainties.
  - Are risks and consequences of uncertainties identified and evaluated?

- Are methods of addressing uncertainty consistent with SSC expectations?
- List and comment on the effects of those uncertainties that most contribute to risk and impact status determinations and future yield predictions.

This assessment had many uncertainties and was not accepted as representing the Best Scientific Information Available.

- Provide fishing level recommendations
  - Apply the ABC control rule and complete the fishing level recommendations table.

Since the quantitative stock assessment model developed during SEDAR 41 was not accepted, the SSC discussed the potential for providing fishing level recommendations based on lower tiers of the ABC control rule. Accordingly, the Committee considered the possibility of using the DCAC method. However, based on concerns regarding the uncertainties with Gray Triggerfish age determination and its impact on estimates of natural mortality, the SSC decided to not go forward with this approach.

Without an accepted stock assessment or any other basis for providing updated fishing level recommendations, the SSC recommended that the current (i.e., status quo) ABC for Gray Triggerfish be maintained on an interim basis until an analytical assessment can be developed or there is evidence that the stock is not performing as anticipated.

- Provide advice on monitoring the stock until the next assessment
  - What indicators/metrics should the council monitor/SSC evaluate to keep tabs on the stock until the next assessment?

The SSC recommends that indicators to monitor the stock include fisheries landings and discards, as well as the SERFS fishery independent index.

  - Is there a recommended trigger level for these metrics?

The SSC recommends the use of sustained depletion in surveys, increased regulatory discards, landings that meet or exceed the ACL.

- Provide research recommendations and guidance on the next assessment
  - Review the included research recommendations, and indicate those which are most likely to reduce risk and uncertainty in the next assessment.
  - Provide any additional research recommendations the SSC believes will improve future stock assessments.
  - Provide guidance on the next assessment, addressing its timing and type.

With the importance of the SERFS video index in providing fishery-independent information, the SSC recommends that techniques be developed to determine the length composition in the video survey. Currently, the length and age composition data (and the resulting selectivity for the combined video and trap index) are based only on trap survey data.

The Committee had an extended discussion regarding resolution of long-standing issues relative to the age determination for Gray Triggerfish and its impact on estimation of natural mortality. Gray Triggerfish age is determined based on spine structures. As indicated in the documents from the age workshops, there is a high degree of variability in the interpretation of these structures. Furthermore, as no validation of these structures is currently available, the relationships between these observed age structures and true fish ages are unknown. An ongoing 3-year age validation study should be completed soon but the results will likely not be available until 2018. Depending on the study results, it is possible that all the Gray Triggerfish spines may need to be re-aged. This could take a minimum of 6 months to one year. This means that the earliest a Data Workshop could be scheduled would be late 2019.

13. GOLDEN TILEFISH UPDATE ASSESSMENT REVIEW

13.1. Documents

Attachment 15. Golden Tilefish Update Assessment Report

13.2. Presentation

Assessment Overview: Dr. Genny Nesslage, SEFSC

13.3. Overview

An update of the SEDAR 25 assessment of Golden Tilefish is provided for review. The SSC is asked to review the assessment, discuss the uncertainties, apply the ABC control rule and provide fishing level recommendations.

Golden Tilefish was last assessed in 2011 by SEDAR 25. The stock was not overfished and not undergoing overfishing. When SEDAR 25 was reviewed by the SSC during the November 2011 meeting, Golden Tilefish was assigned a P* of 35%.

13.4. Action

- Review assessment
  - Does the assessment address the ToRs to the SSCs satisfaction?
  - Does the assessment represent Best Scientific Information Available?
  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?
- Identify and discuss assessment uncertainties
  - Are key uncertainties identified, and if not, indicate additional uncertainties.

  - Are risks and consequences of uncertainties identified and evaluated?
  - Are methods of addressing uncertainty consistent with SSC expectations?
  - List and comment on the effects of those uncertainties that most contribute to risk and impact status determinations and future yield predictions.

- Provide fishing level recommendations
  - Apply the ABC control rule and complete the fishing level recommendations table.

- Provide advice on monitoring the stock until the next assessment
  - What indicators/metrics should the council monitor/SSC evaluate to keep tabs on the stock until the next assessment?
  - Is there a recommended trigger level for these metrics?

- Provide research recommendations and guidance on the next assessment
  - Review the included research recommendations, and indicate those which are most likely to reduce risk and uncertainty in the next assessment.
  - Provide any additional research recommendations the SSC believes will improve future stock assessments.
  - Provide guidance on the next assessment, addressing its timing and type.

SSC RECOMMENDATIONS:

- Review assessment
  - Does the assessment address the ToRs to the SSCs satisfaction?

ToRs were addressed appropriately and applying the robust likelihood fitting approach improved the model.

  - Does the assessment represent Best Scientific Information Available?

The assessment represents the BSIA.

  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?

All assumptions and modifications in the assessment are well documented and acceptable.

- Identify and discuss assessment uncertainties
  - Are key uncertainties identified, and if not, indicate additional uncertainties.

Key uncertainties were appropriately identified.

- Are risks and consequences of uncertainties identified and evaluated?
- Are methods of addressing uncertainty consistent with SSC expectations?

Yes, however, as this was an update assessment, the changes to the model were limited.

- List and comment on the effects of those uncertainties that most contribute to risk and impact status determinations and future yield predictions.

- Provide fishing level recommendations
  - Apply the ABC control rule and complete the fishing level recommendations table.

ABC control rule:

1. *Quantitative assessment with fixed steepness (tier 2), adjustment of 2.5*
2. *Uncertainty MCB, but did not include environmental factors (tier 2), adjustment of 2.5*
3. *Stock Status: Not overfished, but undergoing overfishing (tier 3), adjustment of 5.*
   - *Status indicators are very close to the benchmark values. There is a long tail in relative F in the MCB runs. The CPUE index has a dramatic increase and sudden decline toward the end of the time series. Using a point estimate for SSB and 3-year average for F. There is an increasing trend in the relative F.*
4. *The PSA score is "High": (tier 3), adjustment of 10*

The total adjustment is 20, providing a resulting P =30%. This is slightly lower than that of the prior assessment due to a change in stock status.*
The SSC was provided updated projections at P=30% during the meeting. Projection tables are included as Appendix 2.*

- Provide advice on monitoring the stock until the next assessment
  - What indicators/metrics should the council monitor/SSC evaluate to keep tabs on the stock until the next assessment?
  - Is there a recommended trigger level for these metrics?

- Provide research recommendations and guidance on the next assessment
  - Review the included research recommendations, and indicate those which are most likely to reduce risk and uncertainty in the next assessment.

1. *A comprehensive regional data collection program should be established to develop a (more comprehensive) index for Tilefish and other deepwater species. There is a current 1 year grant (Gulf and Atlantic States Fisheries Foundation) to collect data in collaboration with commercial fishermen to collect additional samples, but a longer-term, coordinated effort is needed.*

2. *Given the distribution of Tilefish and similar species, coordination and collaboration with assessment and management activities in the Mid-Atlantic area are important.*

3. *Further exploration of the 2013 year class, sexually dimorphic growth, and time varying growth may benefit the next assessment.*

4. *The next update assessment should be done in 3 years (no more than 5). A benchmark assessment should only be considered if significant new data become available.*

    - Provide any additional research recommendations the SSC believes will improve future stock assessments.
    - Provide guidance on the next assessment, addressing its timing and type.

Table 3. Golden Tilefish Recommendations

Criteria		**Deterministic**
Overfished evaluation (SSB_{2014}/SSB_{MSY})		1.13
Overfishing evaluation (F_{12-14}/F_{MSY})		1.22
MFMT		0.24
SSBmsy (mature female gonad weight, lbs)		48,347
MSST (mature female gonad weight, lbs)		36,266
MSY (1000 lb)		560
Y at 75% Fmsy (1000 lb)		551
ABC Control Rule Adjustment		0.2
P-Star		0.3
M		0.1
OFL RECOMMENDATIONS (probabilistic projections)		
Year	Landed lbs gw	Landed Number
2017	377,000	48,000
2018	402,000	52,000
2019	426,000	55,000
ABC RECOMMENDATIONS (probabilistic projections, Appendix 2)		
Year	Landed lbs gw	Landed Number
2017	233,000	30,000
2018	267,000	34,000
2019	302,000	38,000

14. NMFS ASSESSMENT PRIORITIZATION

14.1. Documents

Attachment 16. Prioritizing Fish Stock Assessments
Attachment 17. Stock Assessment Prioritization SAFMC
Attachment 18. Stock Prioritization - SAFMC Stocks

14.2. Presentation

Prioritization Tool and Initial Application to South Atlantic Stocks: Dr. Erik Williams, SEFSC

14.3. Overview

A document recently published by NMFS (Attachment 16) describes a national framework for prioritization of stock assessments. Although fish stock assessment prioritization will take place under the guidance of this national framework, the process will be implemented on a regional level, coordinating with existing regional processes and planning bodies. For South Atlantic fish stocks, the prioritization process described under the national framework considers many of the same criteria as the existing process used to determine annual assessment priorities.

Stock assessment prioritization includes first-time assessments for previously unassessed stocks, updating existing assessments using established methods/data, and upgrading assessments to use new types of data/methods. All stocks managed under Federal Fishery Management Plans, as well as additional stocks that may be assessed using NMFS Science Center resources, are included in assessment prioritization. For stocks that have been previously assessed, the prioritization approach sets targets for assessment completeness (level) and frequency and then determines priorities relative to meeting those targets. For stocks that have only been previously assessed with data-poor methods, the system provides an opportunity to periodically examine: (1) fishery importance, (2) ecosystem importance, (3) biological vulnerability to overfishing, (4) preliminary information on fishery impact level (stock status) and (5) data availability to determine which of the stocks, if any, are both sufficiently at risk to warrant an assessment and have sufficient data to conduct a fuller assessment.

The prioritization process includes five steps conducted at the regional level and updated as needed:

1. Determine which stocks should be included, and how to best organize stocks into groups for prioritization (e.g. by FMP).
2. Collect information for stocks to develop scores for 14 prioritization factors in the five themes mentioned above. Information may be extracted from available databases or through workshops with regional experts, and scores should be updated periodically to support development of the priority ranks described in Step 5.

3. Identify the current and Target Assessment Level describing the data completeness and model complexity required for each stock; initially this could be as simple as determining which previously unassessed stocks are in need of a first-time assessment.
4. Develop Target Assessment Frequencies based on a subset of the information collected in Step 2 to establish how often each stock needs to receive an updated assessment to maintain sufficient timeliness for status determinations and annual catch limit advice; re-examine as situations change.
5. Use factor scores developed in Step 2 and a region-specific factor weighting scheme to calculate prioritization ranks for each stock. These ranks serve as the starting position from which regional managers subsequently determine the final set of stocks to be assessed, after accounting for additional considerations. Ranks will be updated each year or as needed to prioritize stocks for near-term assessment.

Each factor included in this assessment-prioritization process is assigned a region-specific relative weight, intended to reflect each factor's relative importance within the region and maintain consistency across species. Factor weights will be the same for all stocks within an FMP and will be developed by regional NMFS and Fishery Management Council leaders (prototype weights will be provided, initially). This flexibility will allow the South Atlantic to tailor the contribution of each factor to the overall score, so as to reflect regional importance of each factor. The weighted sum of the relative factor scores are then ranked and used to guide decisions on assessment planning for the upcoming assessment cycle.

14.4. Action

- Review application of the prioritization tool and comment on its use in the South Atlantic to prioritize stock assessments.
- Provide recommendations on how to obtain the necessary expert advice to apply the tool.
- Provide recommendations for revisions or modifications to the draft application.
- Discuss and provide recommendations on initial inputs, particularly those requiring expert advice, including:
  - Value for 'time since terminal year' for unassessed stocks
  - Scoring range for factors (0-2 vs 1-5 vs 1-10)
  - Default values for unknown factors

SSC RECOMMENDATIONS:

1. *This tool could make the decisions more transparent and objective on how stocks are prioritized and selected for assessments.*

2. *The Council Coordinating Committee (CCC) should discuss experiences with prioritization nationwide. This may be a good topic for discussion at the next National SSC meeting, in particular to review methods and scalars. There will likely remain a human factor in the prioritization and the weighting factors that will result*

in the final assessment schedule. There is some concern that this may eventually lead to an overly subjective system, similar to what is in place currently.

3. *The prioritization will be addressed at a workshop appended to the October SSC meeting.*

15. SPINY LOBSTER REVIEW

15.1. Documents

Attachment 19. March 28 Spiny Lobster Review Panel report
Attachment 20. Spiny Lobster Landings Presentation

15.2. Presentation

Spiny Lobster Review Panel Meeting Overview: Dr. Kari MacLauchlin, SAFMC

15.3. Overview

On March 28, 2016, the Spiny Lobster Review Panel convened via webinar. The Review Panel is comprised of staff from the Gulf Council, South Atlantic Council, SERO, and FWC/FWRI, in addition to representatives from the Gulf Spiny Lobster Advisory Panel (AP), South Atlantic Spiny Lobster AP, and the South Atlantic SSC. The Review Panel is part of the accountability measure for spiny lobster, which stipulates that if landings exceed the annual catch target (ACT), a panel will be convened to review landings and make management recommendations to the Councils. Spiny lobster landings in 2014-15 were 7,032,422 lbs, which exceed the ACT of 6.59 mp. The Review Panel was also convened the previous year in response to 2013-14 landings, which were at 7,956,947 lbs and exceeded the ACT, annual catch limit and the overfishing level, but the 2015 Review Panel did not recommend changing the method for calculating the ACL and ACT, or any recommendations for management measures. The 2015 Review Panel did recommend that the Councils request an exemption from the ACL/AM requirement for spiny lobster, but this request was declined by NMFS.

The 2016 Review Panel reviewed landings and other factors that may affect spiny lobster catch, and provided recommendations to the Councils. The report with the recommendations is in preparation, but the Review Panel will be making the following recommendations to the Councils.

- Calculate the ACL based on the landings from 1991 through the most recent landings (2015-2016).
- Examine setting the annual catch limit based on a rolling average.
- Examine setting the ACL trigger based on landings and the landings to effort index.

The recommendations are from motions, which were not unanimously approved.

Additionally, the South Atlantic and Gulf Spiny Lobster Advisory Panels will meet jointly on June 1, 2016. The AP recommendations will also be provided to the SSC for discussion.

For additional information, please follow this link, which will take you to the Spiny Lobster Review Panel briefing book from their March 28, 2016 meeting: http://gulfcouncil.org/council_meetings/Panel%20and%20Committee%20Meetings/Spiny%20Lobster%20Review%20Panel%20March%202016%20Index.php

15.4. Action

- Discuss and make recommendations as necessary.
  - Specifically, the Councils will be interested in the SSC's input on potential changes to calculation of the ACL and on specific management measures to address landings exceeding the ACT and ACL in recent years.

SSC RECOMMENDATIONS:

The SSC questioned if there was a region-wide assessment for spiny lobster available, which is not the case. Traditional stock assessment methods for South Atlantic Spiny Lobster have been considered inappropriate due to what is known about the pattern of regional recruitment for this species.

1. *An increase in ACT is required to avoid triggering accountability measures unnecessarily. However, the SSC notes that changes to the OFL and ABC would be needed to increase the ACT.*

2. *New information on recruitment and environmental factors, and metrics, if available, to track abundance could be useful to aid management decisions.*

3. *It was unclear if the landings trends are driven by the biology of the species (e.g. recruitment etc.) or is more market driven. Or if both, what is the relative importance of each of these processes.*

The SSC will discuss the OFL and ABC at its October 2016 meeting.

16. CITIZEN SCIENCE UPDATE

16.1. Documents

Attachment 21. Draft Citizen Science Blueprint

16.2. Presentation

Citizen Science Program Update: John Carmichael, SAFMC Staff

16.3. Overview

The Council expressed interest in a Citizen Science program to address the many outstanding data needs and take advantage of repeated offers by constituents to contribute to data collection efforts. An organizing committee of Council members, staff and interested parties was assembled to address the challenge of starting such a program. As a first major step, to judge interest and obtain broad feedback on a possible citizen science program, a workshop was held January 19-22, 2016 in Charleston, SC. Following the workshop, and relying heavily upon the discussion and recommendations provided, the Organizing Committee developed a program blueprint.

16.4. Action

- None.

SSC RECOMMENDATIONS:

The Citizen Science program may ask the SSC for input and recommendations concerning the scientific merit of any Citizen Science projects. SSC members also may be asked to participate in—or provide guidance on—specific projects.

17. REVIEW OF HOGFISH DECISION TOOLS

17.1. Documents

Attachment 22. SG37 Hogfish Decision Tool Description
Attachment 23. Methods for Commercial Sector Economic Effects Est
Attachment 24. SA SG37 Hogfish Florida Recreational Decision Tool
Attachment 25. SA SG37 Hogfish GA-NC Recreational Decision Tool
Attachment 26. SG37 Commercial Hogfish Econ Effects and Season

17.2. Presentation

Method Overview: Dr. Nick Farmer and David Records, SERO

17.3. Overview

In response to the outcome of the SEDAR-37 (2014) assessment, the Council began development of Amendment 37 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SG-37). SG-37 proposes different ABCs, annual catch limits (ACLs), annual catch targets, minimum size limits, trip limits, and bag limits for the FLK/EFL and GA-NC hogfish stocks. Recreational and commercial decision tools were developed to simulate the impacts of various combinations of proposed management measures to support SG-37.

The decision tools for FLK/EFL and GA-NC hogfish were implemented in Microsoft Excel using drop-down menus to obtain user inputs regarding desired management

measures. Excel was chosen because it is widely available for constituent use. Impacts of management measures were simulated using programs written in SAS (SAS Institute, Cary, NC). The recreational decision tools evaluate seasonal closures, size limits, and bag limits. The commercial decision tool fit a SARIMA model to daily catch rates by month to predict catches in the future under different management measures. This decision tool evaluates seasonal closures, size limits, and trip limits.

17.4. Action

- Discuss the uncertainties associated with these decision tools.
  - Are the data sets appropriate for the types of analyses being conducted? Should data sets/methods from SEDAR be considered?
  - Are the time periods for each of the data series appropriate?
  - What are the potential trade-offs between timely data (most recent information) and complete time series (consistent time series across years and fisheries)?
  - Is the procedure for estimating daily catch rates from Wave-level data appropriate and consistent with how the data are collected? (Ex. Given month and kind of day are both collected for each trip.)
  - Do these decision tools appropriately account for the overlap in reductions estimated for implementation of multiple management measures?
  - Are all assumptions made appropriate and consistent with standard practices?
  - Are the models used appropriate for the available data and the analyses being conducted?
- Determine whether these tools use the Best Scientific Information Available and are appropriate for use in managing South Atlantic fisheries.

SSC RECOMMENDATIONS:

- Discuss the uncertainties associated with these decision tools.
  - Are the data sets appropriate for the types of analyses being conducted? Should data sets/methods from SEDAR be considered?
  - Are the time periods for each of the data series appropriate?
  - What are the potential trade-offs between timely data (most recent information) and complete time series (consistent time series across years and fisheries)?

Using partial years of data may increase uncertainty in the analyses. Data from previous years can be used to help identify any anomalous trends in the partial year. As long as the uncertainty is presented and transparent, then it can be taken into account.

- Is the procedure for estimating daily catch rates from Wave-level data appropriate and consistent with how the data are collected? (Ex. Given month and kind of day are both collected for each trip.)

It is difficult to partition data to a finer level than wave and still retain a level of reliability in the data. A retrospective test of the model using past years could be used to determine the performance of the model and for validation purposes. The most uncertain parameter should be chosen to explore performance and validation.

- Do these decision tools appropriately account for the overlap in reductions estimated for implementation of multiple management measures?

The SEP recommended changing the order of the reductions. Start with size limits and then bag/trip limits. Try to get a data set with information linked.

- Are all assumptions made appropriate and consistent with standard practices?

The authors are transparent in the assumptions made in the calculations of the reductions. Hogfish might have a higher consumer surplus than calculated in the model.

- Are the models used appropriate for the available data and the analyses being conducted?

Yes.

- Determine whether these tools use the Best Scientific Information Available and are appropriate for use in managing South Atlantic fisheries.

1. *The hogfish decision tool was considered BSIA.*
2. *The SEP has specific recommendations in its report (see Appendix 1 to this report) regarding the consumer surplus estimates used to calculate the economic effects for the recreational sector and the order of the analysis for minimum size limits and trip limits. SERO staff agreed to incorporate these recommendations to the extent practicable. The SEP also had questions regarding an apparent pattern for landings cycling, peaking every 3 or 4 years followed by several years of big declines, and questioned whether this might be biological in origin. The SSC was also uncertain as to whether this pattern has a biological basis, but SERO staff's revised analysis after the SEP meeting using a 4-year lag to account for the apparent longer-term cycle did not produce a meaningful result.*
3. *A retroactive validation was recommended.*

18. SNAPPER GROUPER AMENDMENT 37

18.1. Documents

Attachment 27. Amendment 37 (Hogfish) Summary Document

18.2. Presentation

Amendment 37 Overview: Myra Brouwer, SAFMC Staff

18.3. Overview

The Council is considering the following actions in Amendment 37:

- Designate 2 stocks for Hogfish in the South Atlantic.
  - Florida Keys/East Florida Stock (FLK/EFL)
  - Georgia to North Carolina Stock (GA-NC)
- Set ABCs and ACLs for both stocks of Hogfish.
- Implement a rebuilding plan for the FLK/EFL stock.
- Implementing/modifying commercial trip limit and size limit for both stocks.
- Implementing/modifying recreational bag limit and size limit for both stocks.
- Implementing a recreational season for the FLK/EFL stock.
- Adopting Accountability Measures for both stocks.

The SSC is asked to review and provide guidance on the analyses in Amendment 37, as appropriate, and based on any recommendations on the Decision Tools.

18.4. Action

- Review the actions and alternatives concerning size limits, bag limits, trip limits, and recreational season for the FLK/EFL stock.
  - Discuss recommendations in the context of the recently reviewed decision tools: are any of the results from the decision tool analyses likely to change significantly based on recommendations? If so, where are the most likely places where changes may occur?

SSC RECOMMENDATIONS:

This agenda item was not discussed due to time limitations and will be addressed at the October 2016 SSC meeting.

19. SNAPPER GROUPER AMENDENT 43

19.1. Documents

Attachment 28. Synopsis of Red Snapper Data

19.2. Presentation

Red Snapper Amendment Overview: Chip Collier, SAFMC Staff

19.3. Overview

The SAFMC was provided a synopsis of Red Snapper data to help inform their discussions on potential Red Snapper management measures for inclusion in Amendment

43. The data included commercial and recreational landings, seasonality of harvest, size distribution of Red Snapper catch, and distribution of bag/trip sizes.

This amendment hasn't been scoped yet, since the Council was waiting to see the results of SEDAR 41. The Committee has the opportunity for the discussion of data and science to consider as management actions are developed.

19.4. Action

- Discuss data to analyze and science to review when developing management actions for SG Amendment 43 in light of the SEDAR 41 assessment.
- Being that discard mortality is the largest contributor to fishing mortality for Red Snapper, discuss ways of reducing both total discards and discard mortality for this fishery.

SSC RECOMMENDATIONS:

This agenda item was not discussed due to time limitations and will be moved to the October SSC meeting. However, recommendations from the SEP regarding Red Snapper management are in the SEP report (Appendix 1 to this report).

20. ABC CONTROL RULE REVISION GROUP REPORT

20.1. Documents

Attachment 29. P-star Scoring Summary
Attachment 30. P-star Values
Attachment 31. SA Stock Info
Attachment 32. SEDAR Status Plots
Attachment 33. Landings vs ABC
Attachment 34. MAFMC Fishery Performance Report
Attachment 35. NEFSC Fishery Performance Report

20.2. Presentation

Overview and Update: Steve Cadrin, SAFMC SSC

20.3. Overview

At their April 2015 meeting, the SSC discussed the results of the ABC Control Rule Workshop held in October 2014. There were difficulties producing results from that workshop, so the SSC decided to convene a sub-committee to develop a draft proposal to bring to the entire SSC for review.

20.4. Action

- Consider and comment on the ABC Control Rule performance information presented by the sub-committee.
- Provide recommendations on control rule revisions, if appropriate and necessary.
- Provide guidance on next steps to be taken in considering revisions to the control rule.

SSC RECOMMENDATIONS:

The review of P scoring showed that P* values have ranged from 0.15 to 0.4, with most (89%) from 0.3 to 0.4. P* scores generally became less conservative (i.e., tended to shift to lower-numbered tiers) over time. Similarly, P* scores for stocks with multiple ABC reviews tended to improve over time. This trend may reflect an expanding information base with more years of surveys, or a positive management-science feedback.*

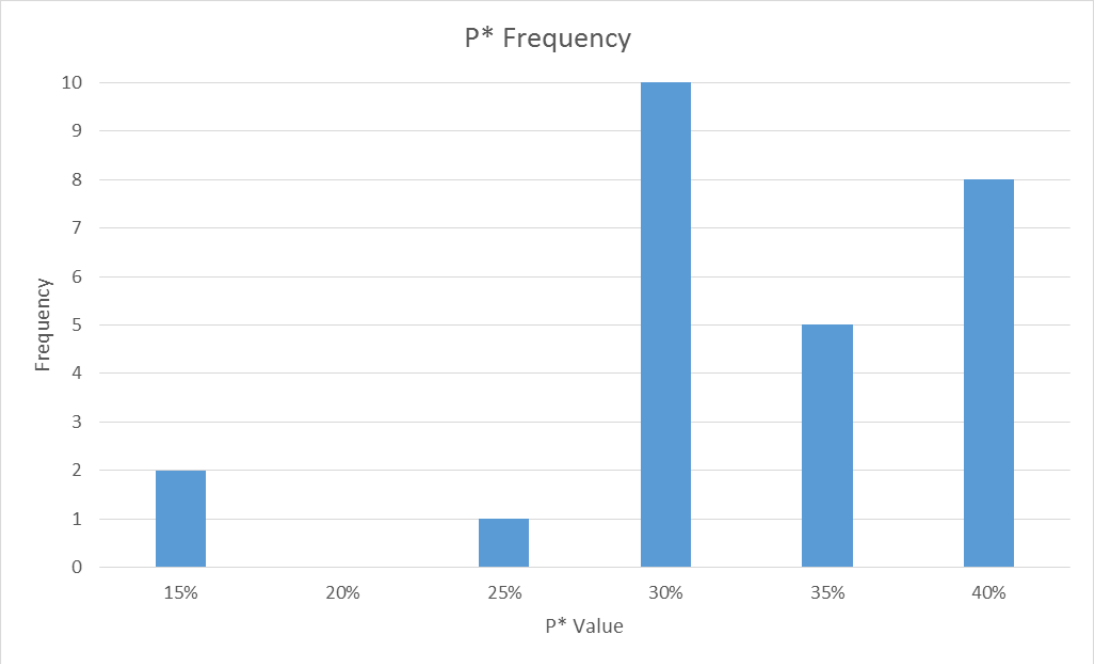

Figure 1. Frequency of which different values of P* have been used for South Atlantic stocks from the initial use of P* in 2009 until 2015.

The review of SEDAR Stock Assessment Information expanded a previous review by evaluating overfishing frequency for 14 stocks and 27 ABC recommendations. The review showed that 41% (11/27) of ABC recommendations resulted in overfishing. Removing cases of overfishing from excessive catch (i.e., >ACL) improved the performance to 27% (6/22), which is approximately the expected frequency of P= 15% to 40%. There was no overfishing of Coastal Migratory Pelagic stocks (much less than the expected frequency) and 38% (6/16) frequency of overfishing of snapper-grouper stocks, approximately the expected frequency. ABCs allowed for growth of some overfished stocks, but not others.*

The Subcommittee concluded that these preliminary results are insufficient for a definitive evaluation. Such evaluations should be updated to accumulate a sufficient number of stocks and ABC recommendations. Evaluations should also be expanded to include more performance metrics (e.g., socio-economics). This approach to evaluating performance assumes stock assessments are correct. Therefore, the approach should be complemented by a Management Strategy Evaluation, which considers assessment bias and precision.

The Subcommittee acknowledged the contributions of Mike Errigo for compiling P and SEDAR information.*

21. SOCIO-ECONOMIC PANEL REPORT

21.1. Documents

Attachment 36. SEP Agenda

21.2. Overview

The SEP met prior to this SSC meeting. A general report was given on the meeting, and specific recommendations were discussed under the appropriate SSC agenda item. Any additional items from the SEP report not previously covered under other agenda items are discussed here.

SSC RECOMMENDATIONS:

The SSC received a brief verbal report by SEP Chair Scott Crosson. Recommendations of the Social and Economic Sciences Panel (SEP) are presented in the SEP report, which is attached to the end of this report (Appendix 1).

22.COUNCIL WORKPLAN UPDATE

22.1. Documents

Attachment 37. SAFMC Work Plan, April 2016
Attachment 38. SAFMC Amendments Overview, April 2016

22.2. Overview

The Committee is provided these documents at each meeting to stay informed of Council activities. Regular detailed reviews of each amendment are no longer requested of the SSC as amendments are developed; instead the Committee is asked to comment on specific technical items that may arise. However, members are welcome to review any ongoing amendments and to provide comments and suggestions directly to staff. Current versions of each amendment are included in the Council Briefing Books distributed to SSC members. Questions or comments about specific items should be addressed to the staff assigned to each FMP, as summarized below.

- Coastal Migratory Pelagic - Kari MacLauchlin
- Corals – Chip Collier
- Fishery Ecosystem Plan - Roger Pugliese
- Snapper Grouper - Myra Brouwer
- Snapper Grouper Amendment 36 (Spawning SMZs) - Gregg Waugh
- Snapper Grouper Amendment 43 (Red Snapper) – Chip Collier
- Spiny Lobster - Kari MacLauchlin
- Golden Crab - Brian Cheuvront
- Dolphin-Wahoo - Brian Cheuvront
- South Atlantic For-Hire Reporting Amendment – John Carmichael

22.3. Action

- No specific actions required

23. CHAIR AND VICE-CHAIR ELECTIONS

The SSC unanimously elected Dr. Marcel Reichert as Chair and Dr. George Sedberry as Vice-Chair.
Dr. Luiz Barbieri was thanked for his leadership and contributions during his 4-year tenure as Chair. As this was Dr. Steve Cadrin's final SSC meeting, he was thanked for his service and considerable contributions to the SSC.

24. PUBLIC COMMENT

The public is provided an additional opportunity to comment on SSC recommendations and agenda items.

Council Chair Dr. Michelle Duval thanked the SSC for its discussions and recommendations.

25. REPORT AND RECOMMENDATIONS REVIEW

The Committee is provided an opportunity to review its report and final recommendations.

The Final SSC report will be provided to the Council by 9 am on Tuesday, May 24, 2016 for inclusion in the first briefing book for the June Council meeting.

26. NEXT MEETINGS

26.1. SAFMC SSC MEETINGS

2016 Meeting Dates (Tentative)

October 18 – 20 in Charleston, SC

26.2. SAFMC Meetings

2016 Council Meetings

June 13 - 17, 2016 in Cocoa Beach, FL
September 12-16, 2016 in North Myrtle Beach, SC
December 5-9, 2016 in Atlantic Beach, NC

Addenda

Appendix 1.

Report of the Socio-Economic Panel
Meeting
May 3, 2016

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SOCIO-ECONOMIC PANEL OF THE SCIENTIFIC AND STATISTICAL COMMITTEE

SEP Report Overview

May 3, 2016

Town and Country Inn
2008 Savannah Highway
Charleston, SC

PURPOSE

This meeting is convened to:

- Discuss definitions of Optimum Yield (OY)
- Review the economic decision tool for Snapper Grouper Amendment 37 (hogfish)
- Provide input on Red Snapper management
- Discuss recent and upcoming council actions in the South Atlantic region

CONTENTS

DOCUMENTS

Attachment 1a: Excerpt on Optimum Yield from NMFS guidance on National Standard 1
Attachment 1b: 2016-2020 Vision Blueprint for the Snapper Grouper Fishery
Attachment 1c. Background Information on OY in the Snapper Grouper and Dolphin Wahoo FMPs
Attachment 1d. Background on Bering Sea and Aleutian Islands (BSAI) Groundfish OY
Attachment 2a. Overview of Snapper Grouper Amendment 37
Attachment 2b. Economic Methods for Economic Decision Tool
Attachment 2c. Presentation on the Snapper Grouper Amendment 37 Economic Decision Tool
Attachment 3: Red Snapper Management and Data Synopsis
Attachment 4: Recent and Developing Council Actions

1. INTRODUCTION

1.1. Documents

Agenda
Minutes, April 2015

1.2. ACTIONS

- Approve Agenda
- Approve April 2015 Minutes
- Introductions

2. DISCUSSION ON DEFINING OPTIMUM YIELD

2.1. Documents

Attachment 1a. **Excerpt on Optimum Yield from NMFS guidance on National Standard 1**

[Full NS1 guidance available here: http://www.fisheries.noaa.gov/sfa/laws_policies/national_standards/documents/national_standard_1_cfr.pdf]

Attachment 1b. **2016-2020 Vision Blueprint for the Snapper Grouper Fishery**

This is the guiding document generated by the Visioning Process, which includes the overall management goals, objectives and actions. Public input on problems and solutions in the snapper grouper fishery were an integral part of this three-year project. More details about the Visioning Process available here: http://www.safmc.net/resource-library/council-visioning-project

Attachment 1c. **Background Information on OY in the Snapper Grouper and Dolphin Wahoo FMPs**

This document includes information on the optimum yield for some snapper grouper species, and for dolphin, and was compiled following discussion at the March 2016 SAFMC meeting. Dolphin is primarily a recreational species.

Attachment 1d. **Background on Bering Sea and Aleutian Islands (BSAI) Groundfish OY**

This document was provided by David Witherell, North Pacific Fishery Management Council. The BSAI Groundfish is managed with a multi-year, multi-species OY, and a total allowable catch (TAC) for each species in the BSAI Groundfish complex.

Additional references for the discussion:

Patrick, W.S., and J.S. Link. 2015. Hidden in plain sight: Using optimum yield as a policy framework to operationalize ecosystem-based fisheries management. *Marine Policy* 62: 74-81.

Healey, M.C. 1984. Multiattribute analysis and the concept of optimum yield. *Can. J. Fish. Aquat. Sci.* 41:1393-1406. Available at: http://web.whoi.edu/seagrant/wp-content/uploads/sites/24/2015/01/WHOI-R-84-014-Healey-M.C.-Multiattribu.pdf

Dichmont, C.M., et al., 2010. On implementing maximum economic yield in commercial fisheries. *PNAS* 107(1):16-21. Available at: http://www.pnas.org/content/107/1/16.full.pdf

2.2. Overview

The Magnuson-Stevens Act defines *optimum yield* as:

> …the amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems; that is prescribed on the basis of the MSY from the fishery, as reduced by any relevant economic, social, or ecological factor; and, in the case of an overfished fishery, that provides for rebuilding to a level consistent with producing the MSY in such fishery. OY may be established at the stock or stock complex level, or at the fishery level.

With the variety of resource users and desired outcomes for fisheries management in the South Atlantic and other regions, it is common for the Council to encounter conflicting management goals. An example is the consideration of changing recreational/commercial allocations, with which the definition of the optimum yield for a fishery creates challenges for the Council.

The concept of OY has been used in fisheries for several decades and is still required by the MSA. NMFS guidance instructs that OY is based on the defined maximum sustainable yield (MSY) for the fishery and must not exceed the MSY level. However, fisheries management has adapted to the acceptable biological catch (ABC) and annual catch limit (ACL) system mandated by the 2006 Reauthorization of the MSA, which may broaden the potential definition of OY by removing the need for the association with MSY. Additionally, ecosystem-based management and managing for multi-fishery participation—looking at the bigger picture—may help to construct a new approach to defining OYs and overall management goals.

The SEP discussion should include but is not limited to:

- different ways to define OY
- different ‘levels’ of OY and how they would interact, such as sector OYs and an overall fishery OY (see BSAI Groundfish example (Attachment 1d)

- considerations for OY decisions- social, economic, ecosystem-based, etc.
- applications of OY in management decisions and long-term goals (e.g., the Snapper Grouper Vision Blueprint).

2.3. Presentation

Kari MacLauchlin, SAFMC staff

2.4. ACTIONS

Discuss and provide guidance to the Council on revising the definition of optimum yield.

SEP RECOMMENDATIONS*:*

"different ways to define OY"

The SEP distinguishes between the long term goal of a fishery (OY) and the mechanisms for achieving it (ACL and allocation to different sectors). OY may include a number of different and potentially conflicting standards such as

- maximum economic yield (MEY),
- tradeoffs between economic efficiency and employment,
- social indicators of dependent communities (see Jepson and Colburn's work)
- the preservation of working waterfronts,
- economic impacts on communities (e.g. as measured by I/O modeling)
- the distribution and availability of seafood to the non-fishing public,
- fishing opportunities (as measured by the likelihood of encountering fish)

"different 'levels' of OY and how they would interact, such as sector OYs and an overall fishery OY (see BSAI Groundfish example (Attachment 1d)"

OY as applied in the North Pacific is solely a commercial concept, but in the Southeast determining OY is complicated by the multi sector fisheries, data limitations, and allocation discussions. One approach is to be to think of OY as existing in three "buckets":

- commercial value, measurable by the landed or consumer value minus harvest cost
- recreational value, measurable by willingness to pay minus harvest cost
- reserve value, which is the biomass left in the ocean, measurable by non consumptive value and its contribution to increasing the likelihood of encountering fish and reducing harvest cost in future fishing seasons.

The long term goal is to equalize the value per fish across the three buckets. This per fish value will change year to year as consumer demand for seafood and recreation, harvest

costs such as gas prices, bad year classes, etc. affect CPUE and sector values. The value per fish would also include the impact to fishing communities and the money spent in community by recreational anglers. If a sector is not catching its portion of the ACL, and another sector is harvesting 100% of its portion of the ACL, then it is possible that reallocating unharvested fish to between sectors could increase the overall value of the fishery. However, the reserve value of unharvested fish is not zero—if unharvested fish are reallocated to a sector that harvests them, then the number of fish in reserve is reduced, which can reduce the likelihood of encountering fish and increase search/harvest costs for all sectors the following year. Any reallocation of fish between sectors should balance the value per fish in each of the three "buckets" as the fishery moves towards long-run OY.

" considerations for OY decisions- social, economic, ecosystem-based, etc."
" applications of OY in management decisions and long-term goals (e.g., the Snapper Grouper Vision Blueprint)"

The SEP recommends the Council consider the following when attempting to move towards OY, especially in the context of reallocating between sectors:

1) How certain is the assessment of the stock?
2) What is the longevity and productivity of the species? Can it quickly rebuild?
3) Move fish between sectors incrementally. Leave some fish in the "reserve" sector to maintain lower search/harvest costs and higher encounter rates.
4) Long term shifts between sectors need increasingly better justification to move towards OY.
5) Be aware of relative timing between commercial and recreational demand or between different geographical regions in the SAFMC jurisdiction.
6) Commercial benefits are more immediately measureable than recreational benefits, but recreational benefits exist even if not measured. The shadow value (the opportunity cost of fish in reserve in the water) is also a value that should be counted.
7) Are regulations a significant factor in a sector not catching its allocation of the ACL?
8) How elastic is the commercial fishing market for the species?
9) Be aware of the placement of fish in trip landings portfolio for both sectors. The marginal value of additional fish makes or breaks many commercial trips.

3. HOGFISH DECISION TOOL FOR SNAPPER GROUPER AMENDMENT 37

3.1. Documents

Attachment 2a. Overview of Snapper Grouper Amendment 37
Attachment 2b. Economic Methods for Economic Decision Tool
Attachment 2c. Presentation on the Snapper Grouper Amendment 37 Economic Decision Tool

3.2. Overview

In response to the outcome of the SEDAR 37 (2014) assessment, the Council began development of Amendment 37 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SG-37). SG-37 proposes different ABCs, annual catch limits (ACLs), annual catch targets, minimum size limits, trip limits, and bag limits for the FLK/EFL and GA-NC hogfish stocks. Recreational and commercial decision tools were developed to simulate the impacts of various combinations of proposed management measures to support SG-37.

Myra Brouwer (SAFMC staff) will provide an overview of Amendment 37, including a summary of the rationale, actions and alternatives. David Records (SERO) will review the economic decision tool.

Attachments 2a/2b are still under review and will be provided as soon available. The economic decision tool (Excel file) will be available soon, and posted in the SSC briefing book: http://safmc.net/SSCMeeting_BriefingBook05_2016.

3.3. Presentations

Snapper Grouper Amendment 37 Overview – Myra Brouwer, SAFMC staff

Review of the Economic Decision tool – David Records, SERO staff

3.4. ACTIONS

Discuss and make recommendations as necessary.

- Consumer surplus (CS) estimates were used to calculate the economic effects for the recreational sector. There is no specific CS estimate available for hogfish. The CS value for a snapper ($12.37 in 2014 $) was used as a proxy. There is a CS value for grouper, but it is much higher ($134.73 for a first grouper, $103 for a second grouper, $69 for a third and so on). There is also a CS estimate for catching a Red Snapper of $140.23. Does the SEP agree that using the CS for harvesting a generic snapper is the most appropriate, or should another value be used?
- Estimates of value for the commercial fishery used an average price per pound for hogfish. Using an average hogfish price is an important

assumption because it assumes price will not change in response to changes in hogfish supply. There are many substitute species for hogfish that would suggest high price elasticity. Additionally, there has been low fluctuation in price over time and the overall quantity of commercial hogfish landings relative to other snapper grouper species is low. Is it appropriate to use the average price per pound for commercial economics effects?

- SARIMA modeling was used to forecast baseline commercial landings for the EFL/FL Keys sub-region. Does the SEP feel that using this model was the most appropriate approach? If not, what other modeling approaches would be better?
- Are there other aspects of the economic models that the SEP would like to comment on?

SEP RECOMMENDATIONS:

Consumer surplus (CS) estimates were used to calculate the economic effects for the recreational sector. There is no specific CS estimate available for hogfish. The CS value for a snapper ($12.37 in 2014 $) was used as a proxy. There is a CS value for grouper, but it is much higher ($134.73 for a first grouper, $103 for a second grouper, $69 for a third and so on). There is also a CS estimate for catching a Red Snapper of $140.23. Does the SEP agree that using the CS for harvesting a generic snapper is the most appropriate, or should another value be used?

There is explicit consideration of uncertainty about recreational hogfish landings but none about the consumer surplus (CS) values. In Haab et al. (Marine Res Econ 2012) the CS estimates for a generic snapper range from $9 to $25 with confidence intervals around each estimate. The recreational analysis chooses the lowest estimate and inflates it to $12 in 2014 dollars. It is not clear why the lowest estimate was chosen, especially since these values are from the boat mode with hook and line gear and hogfishing trips are very different with mostly spearfishing gear. The estimate of consumer surplus for generic snappers is the most appropriate measure from among those presented to the SEP.

However, the economic value of the marginal fish could be very different when bag limits are reduced from 5 fish per trip to 1 fish per trip. The recreational analysis could use the demand curve from grouper provided in the "SEP Meeting Overview" document (SERO should include the reference for these estimates) as a benefit function transfer to hogfish for bag limit reductions. The grouper values are the bold numbers in the table. The CS for grouper catch #4 and #5 are estimated with the linear trend from fish 1-3. Assuming that the $12 per fish CS point estimate is a good number for the median hogfish CS and the hogfish bag limit generates a demand curve similar to grouper, the marginal values would be approximately:

Fish #	Grouper	Hogfish
1	**135**	23
2	**103**	18
3	**69**	12
4	36	6
5	3	1

This demand function would be a good candidate for sensitivity analysis in recreational and commercial-recreational allocation analysis. The consumer surplus lost from not catching fish numbers 2-5 is about $36 which is less than under the assumption that the marginal value is equal to the average, $48. The assumption that $12 is the appropriate CS for fish #3 is key to this estimate, so the SEP recommends a sensitivity analysis under uncertainty. The SEP does not know the correct CS number for hogfish (other than recommending the generic snapper CS is the best place to start) but statistical (confidence intervals +/- ~25% from Haab et al. and ranges 9-25 before the required adjustment for inflation) and diminishing marginal values should each be considered in order to gain more confidence in the recreational economic analysis.

Estimates of value for the commercial fishery used an average price per pound for hogfish. Using an average hogfish price is an important assumption because it assumes price will not change in response to changes in hogfish supply. There are many substitute species for hogfish that would suggest high price elasticity. Additionally, there has been low fluctuation in price over time and the overall quantity of commercial hogfish landings relative to other snapper grouper species is low. Is it appropriate to use the average price per pound for commercial economics effects?

The SEP concurs with the use of average price per pound as a proxy measure of marginal value for the commercial fishery.

SARIMA modeling was used to forecast baseline commercial landings for the EFL/FL Keys sub-region. Does the SEP feel that using this model was the most appropriate approach? If not,
what other modeling approaches would be better?

For the FLE-Keys area, there appears to be a pattern for landings to cycle, peaking every 3 or 4 years followed by several years of big declines. This could be related to the hogfish 3-5 year generation time, cycles in ocean conditions, or other factors. The SEP recommends a revised analysis that considers a 4-year lag to account for the apparent longer-term cycle that appears in Figure 1 of Attachment 2b in the SEP briefing book.

Are there other aspects of the economic models that the SEP would like to comment on?

Perform the analysis for minimum size limits first, and then perform the analysis for trip limits conditioned on the result for each proposed minimum size limit (MSL). This could be accomplished by running the analysis on trip catches after applying the percentage reduction from each proposed MSL. The issue is that it may be harder for fishermen to reach the trip limit if a minimum size limit is already limiting the number of fish they can keep.

Table 2 in Attachment 2b: For FLE-Keys size limit alt 3e (stepped 14-16 inches)—the exposition could be improved if it showed two rows of results, one each for the 14 inch MSL in the first year of implementation and another for the 16 inch MSL for the second year.
Table 6 in Attachment 2b: For GA-NC size limit alt 2f (stepped 15-18-20 inches)—the exposition could be improved if it showed three rows of results, one each for the 15 inch MSL in the first year of implementation, 18 inch MSL for the second year and 20 inch MSL for the third year.

4. RED SNAPPER MANAGEMENT

4.1. Document

Attachment 3. Red Snapper Management and Data Synopsis

4.2. Overview

The stock assessment for Red Snapper (SEDAR 41) will be reviewed by the SSC at their May 2016 meeting, and the Council will receive the assessment results and SSC recommendations in June 2016. Red snapper in the South Atlantic are currently managed with no size limit, 1 fish per person bag limit, 75-pounds commercial trip limit, limited season, and annual catch limits (ACLs) based on acceptable biological catch (ABC) recommendations from the SSC.

Amendment 28 to the Snapper Grouper FMP was approved in 2013 and specified the process and formulas for setting commercial and recreational ACLs for Red Snapper during limited fishing seasons. NNMFS will not open a season if the previous year's harvest, including dead discards, exceeds the projected ABC level for that year. The Red Snapper seasons in recent years have been short: recreational seasons are 6-8 days and commercial seasons are between 3-7 weeks. In 2015, harvest of Red Snapper was not allowed due to total removals in 2014 exceeding the 2014 ABC.

The public and the Council are interested in revising management of Red Snapper, particularly because updated information from the recent stock assessment will be available. The overall management goal is to allow some harvest of Red Snapper, and the Council may consider standard measures such as bag/trip limits, seasons, and changes in minimum size limit.

Chip Collier, SAFMC staff, will provide a synopsis of Red Snapper data is being provided to inform Council discussions on potential Red Snapper management measures. The data include commercial and recreational landings, seasonality of harvest, size distribution of Red Snapper catch, and distribution of bag/trip sizes.

4.3. Presentation

Chip Collier, SAFMC staff

4.4. ACTIONS

- Provide input on potential actions to allow and lengthen the Red Snapper commercial and recreational seasons.
- Make recommendations for economic and social analyses considerations.

SEP RECOMMENDATIONS:

Regarding the incidental catch and discard of Red Snapper by fishermen who target other species, the SEP recommends the Council consider looking at Red Snapper as part of a larger complex with the goal of streamlining and reducing complexity within the whole regulatory regime. This may include unified seasonal opening and closing across the complex. Pew is currently conducting a study to measure the potential impact of unified seasons in the recreational reef fisheries in the Gulf of Mexico which may be applicable. The Council may also consider area closure of key core habitat, tailored to areas where they are most needed (e.g, Central and Northern Florida) as part of simplified regime, then allowing more fishing outside of those closed areas.

Regarding the concern about discard of Red Snapper by fishermen who target Red Snapper, the SEP recommends the Council consider a regime based on a limited number of tags tied to a specific bag limit (rather than brief seasonal opening) that are distributed based on auction or lottery.

Finally, the SEP recommends the Council consider opening the commercial season during the shallow water grouper spawning closure as an opportunity to supply a substitutable fish for the temporarily unavailable grouper species.

5. RECENT AND DEVELOPING COUNCIL ACTIONS

5.1. Document

Attachment 4. Recent and Developing Amendments

5.2. Overview

Council staff will provide a briefing on recent and upcoming amendments and actions.

5.3. Presentation and Discussion

Kari MacLauchlin, SAFMC staff

5.4. ACTIONS

Discuss and make recommendations as necessary.

SEP RECOMMENDATIONS:
The SEP had no specific recommendations

6. OTHER BUSINESS

7. REPORT AND RECOMMENDATIONS REVIEW

8. NEXT SEP MEETING

- Spring 2017, Charleston SC

Appendix 2.

Supplement to the Stock Assessment of Golden Tilefish off the Southeastern United States

2016 SEDAR Update Assessment

Supplement to the Stock Assessment of Golden Tilefish off the Southeastern United States

2016 SEDAR Update Assessment

Southeast Fisheries Science Center

National Marine Fisheries Service

Issued: May 6, 2016

1. INTRODUCTION

This document responds to a May 4, 2016 request by the SAFMC SSC for additional projection results to accompany the Golden Tilefish Update Assessment. In response, short-term projections at $P^* = 0.30$ with management measures effective in 2017 were produced. Methods followed those described in the 2016 Golden Tilefish Update Assessment Report.

In this $P^* = 0.30$ projection, overfishing was predicted to end in 2017 and SSB exceeded SSB_{MSY} by 2020 (Table 2.1 and Figures 3.1 and 3.2. Annual landings (in numbers and 1000 lbs. gutted weight) associated with $P^* = 0.30$ are listed in Table 2.1.

2. TABLES

Table 2.1. Projection results with fishing mortality rate fixed at P = 0.30 in 2017. R = number of age-1 recruits (in 1000s), N = total stock abundance (1000 fish), F = fishing mortality rate (per year), S = spawning stock (mt), B = total stock biomass (mt), L = landings expressed in numbers (1000 fish) and gutted weight (w, in 1000 lbs), and pr.75=proportion of stochastic projection replicates with SSB ≥ MSST using the 75% definition of MSST. All values except year and probabilities are medians from the stochastic projections.*

Year	R	N	F	S(mt)	B(mt)	L(n)	L(w)	pr.75
2015	312	1518	0.2621	18	2296	66	522	0.4958
2016	306	1519	0.2621	18	2296	65	509	0.4964
2017	307	1515	0.1286	19	2296	30	233	0.5231
2018	312	1540	0.1286	20	2395	34	267	0.5898
2019	318	1578	0.1286	20	2468	38	302	0.6493
2020	323	1611	0.1286	21	2532	41	327	0.7061

Table 2.2. Projection results with fishing mortality rate fixed at P = 0.5 starting in 2017. R = number of age-1 recruits (in 1000s), N = total stock abundance (1000 fish), F = fishing mortality rate (per year), S = spawning stock (mt), B = total stock biomass (mt),L = landings expressed in numbers (1000 fish) and gutted weight (w, in 1000 lbs), and pr.75=proportion of stochastic projection replicates with SSB≥ MSST using the 75% definition of MSST. All values except year and probabilities are medians from the stochastic projections.*

Year	R	N	F	S(mt)	B(mt)	L(n)	L(w)	pr.75
2015	311	1514	0.2651	18	2301	67	523	0.4986
2016	310	1516	0.2651	18	2294	66	510	0.4926
2017	307	1516	0.2162	18	2288	48	377	0.5055
2018	309	1519	0.2162	18	2297	52	402	0.5385
2019	314	1530	0.2162	18	2295	55	426	0.5740
2020	321	1545	0.2162	18	2301	57	441	0.6076
2021	320	1555	0.2162	18	2313	58	455	0.6387
2022	322	1561	0.2162	19	2324	59	466	0.6670
2023	321	1566	0.2162	19	2337	59	471	0.6899
2024	324	1580	0.2162	19	2345	60	476	0.7118

3. FIGURES

Figure 3.1. Projection results when fishing mortality rate is fixed at P = 0.30 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians.*

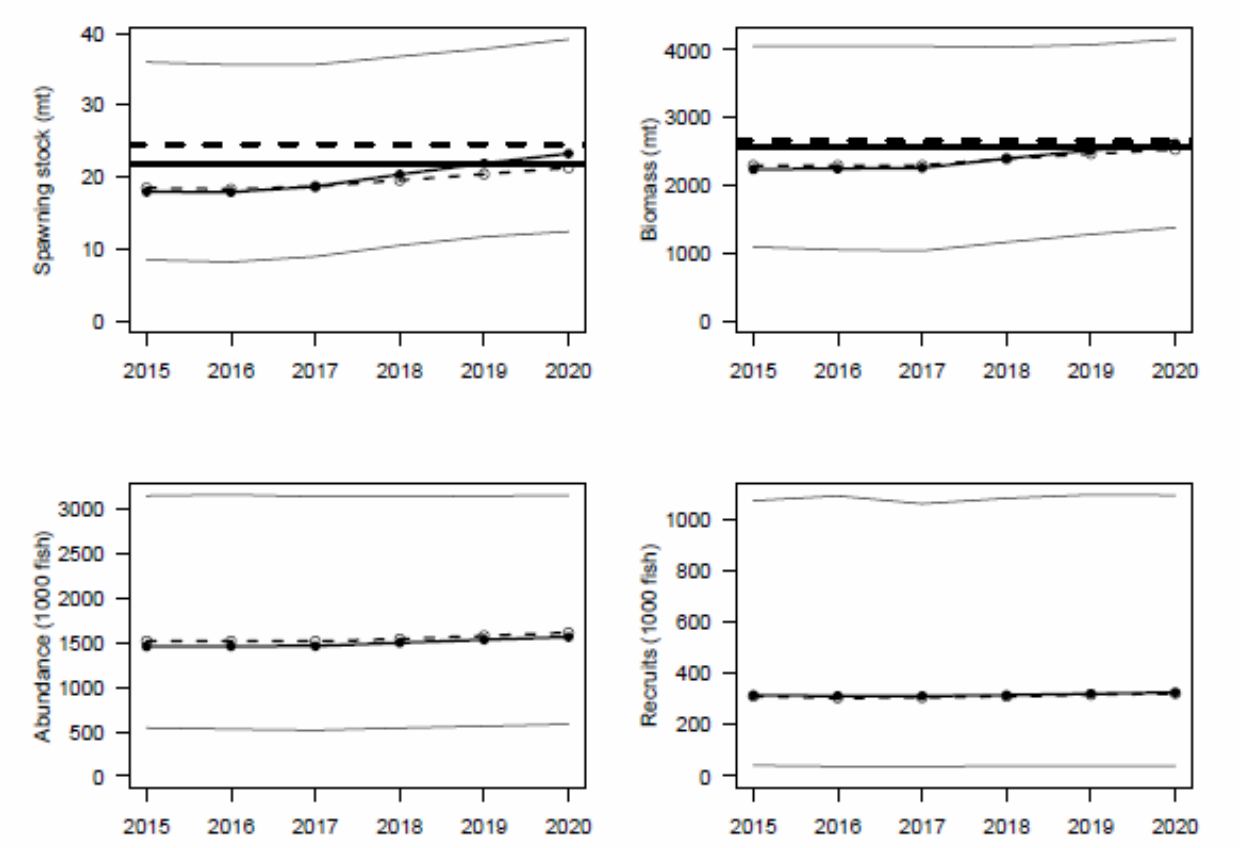

Figure 3.2. Projection results when fishing mortality rate is fixed at P = 0.30 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians. In the bottom panel, the curve represents the proportion of projection replicates for which SSB exceeds the replicate-specific MSST. Horizontal lines drawn at 0.5 and 0.7 for reference.*

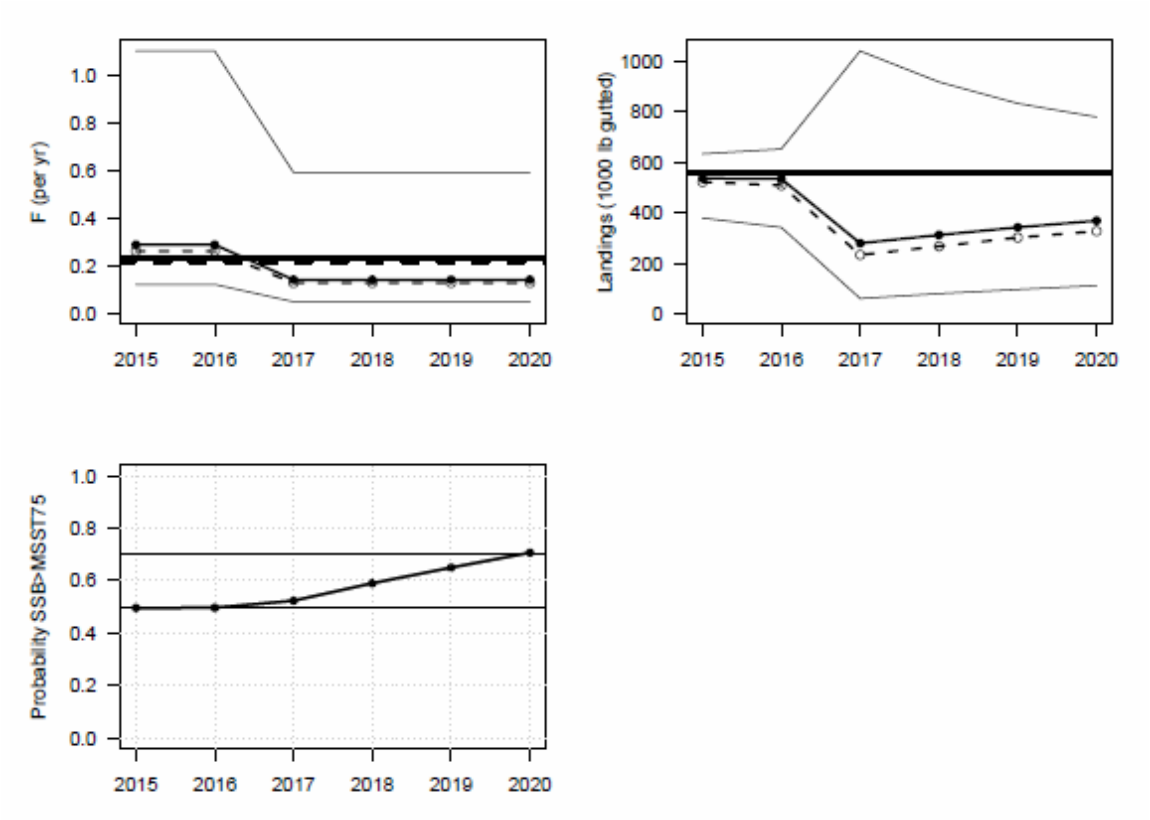

Figure 3.3. Projection results when fishing mortality rate is fixed at P = 0.50 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians.*

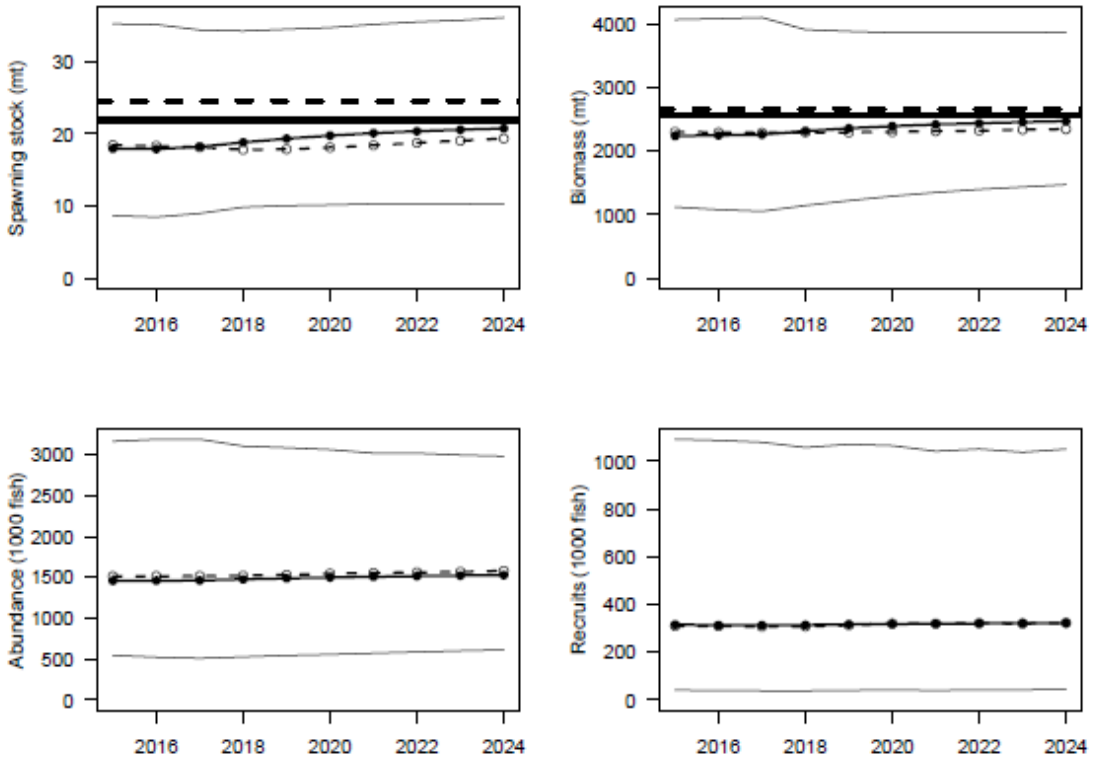

Figure 3.4. Projection results when fishing mortality rate is fixed at P = 0.50 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians. In the bottom panel, the curve represents the proportion of projection replicates for which SSB exceeds the replicate-specific MSST. Horizontal lines drawn at 0.5 and 0.7 for reference.*