Standing, Reef Fish, Mackerel, and Shrimp SSC
Meeting Summary
Tampa, Florida
September 20-21, 2016

The meeting of the Standing, Reef Fish, Mackerel, and Shrimp SSC was convened at 1:00 pm on September 20, 2016. The agenda was approved as written. Luiz Barbieri was elected by acclamation to a second term as Chairman, and Joe Powers was elected by acclamation to a second term as Vice-chairman.

The summary minutes of the January 6-8, 2015 Standing, Reef Fish, and Mackerel SSC meeting and the August 2, 2016 Standing and Reef Fish SSC webinar were approved as written. Approval of the summary minutes of the June 1, 2016 Standing, Shrimp, and Socioeconomic SSC meeting, and the verbatim minutes of the June 2016 Standing reef fish socioeconomic shrimp and spiny lobster SSC meeting were deferred until the second day when the Shrimp SSC would be present. At that time they were approved as written.

Selection of SSC representative at June, 2016 Council meeting

Vice-chairman Joe Powers agreed to be the SSC representative at the October 20-23, 2016 Council meeting in Biloxi, Mississippi.

Standing and Mackerel SSC Session

Updated OFL and ABC yield streams for Gulf migratory group king mackerel for 2017/2018 to 2019/2020 fishing seasons

Dr. Jeff Isely reviewed updated OFL and ABC projections for Gulf migratory group king mackerel. The previous projection ran through the 2019/2020 fishing year (FY), but the stock ACL has been consistently under-harvested. The previous projection assumed that the landings in FYs 2013/2014 and 2014/2015 would be equal to those in 2012/2013. The updated projections used actual landings for FYs 2013/2014 and 2014/2015. For 2015/2016 and beyond, the projections assumed that fishing would occur at the $F_{30\% \text{ SPR}}$ rate (F_{MSY} proxy). All other methods were identical to those used in the previous projections. OFL projections were made at a P* or 0.50, and ABC projections were made at a P* of 0.43.

Commercial handline and gillnet landings in FY 2013/2014 were higher than the 2012/2013 values assumed for the previous projections. Headboat and charter-private landings in FY 2013/2014 were lower, but landings in FY 2014/2015 were higher than the 2012/2013 values assumed previously. On average, the actual 2013-2014 fishing year landings were approximately 12% higher than the 2012 landings that were used in the original ABC calculations. This resulted in the updated ABCs for 2017-2019 being lower than the original values that were calculated in 2013. The comparison for the original and updated OFL and ABC values are shown below.

Fishing Year	Original OFL	Original ABC	Updated OFL	Updated ABC
2017	9.27	8.88	7.56	7.27
2018	9.11	8.71	7.57	7.24
2019	8.95	8.55	7.58	7.24

The SSC had several concerns:

The presentation indicated that the updated ABCs for 2017-2019 were approximately 4% lower than the original values, but the table above shows the updated ABCs 15% to 18% lower. This brought into question what the correct values were.

Future recruitment was based on the average of the prior 3 years, which was a period of low recruitment. Some SSC members questioned whether this was updated for these projections. The lead assessment scientist (Dr. Michael Schirripa) was on leave and was not available for the SSC meeting. It was suggested that he be contacted when available to provide a list of what was updated for these projections.

The updated OFL yield stream for 2017-2019 shows little year-to-year change, suggesting that the stock is near its MSY proxy level. However, the 2013 assessment found that spawning stock biomass was well above the threshold. Some SSC members felt that it doesn't seem likely that the stock could have been fished down to its B_{MSY} level in just a couple of years. Others noted that there were increased catches in the commercial handline, headboat, and private recreational vessels that could explain the decrease in OFL, but also noted that the recreational sector was fishing only about 63% of its ACL in 2014, which should not have significantly affected the OFL.

Differences between actual commercial and recreational catches can change the de facto allocations, which could lead to unexpected results. SSC members would like a better understanding of how this might affect the OFL and ABC projections.

The SSC thought that it could not make OFL and ABC recommendations until the above concerns were addressed regarding configuration of the projections, and recommended that this be revisited at a subsequent SSC meeting. A question was raised as to whether the concerns raised were substantial enough that new projections would require an update assessment. Several questions about the data inputs used for the projections suggest that an update assessment (or equivalent) would be necessary for the SSC to perform its due diligence under National Standard 2 prior to recommending new OFL and ABC yields. In addition to the above concerns, Dr. Isely asked that SSC members contact him with any additional questions.

Standing and Reef Fish SSC Session #1

Goliath Grouper Benchmark Assessment

Luiz Barbieri noted that this was the fourth attempt by FWC to conduct a goliath grouper assessment. The first attempt, SEDAR 3 (2003) was aborted due to insufficient data. SEDAR 6 (2006) and SEDAR 23 (2010) attempted to use a catch-free assessment model, but those assessments were rejected by the Review Panel. The current SEDAR 47 (2016) was also rejected by the SEDAR Review Panel. Dr. Barbieri noted that the catch-free model is a powerful data-poor method, but it does not produce MSY-based reference points or the basis for ABC projections.

Joe O'Hop (Florida FWRI) gave a presentation summarizing the SEDAR 47 Review Panel's comments regarding the goliath grouper assessment. The SEDAR 47 assessment attempted to incorporate new data that had become available since SEDAR 23, including underwater observations, additional tagging studies, identification of nursery areas, and non-lethal ageing and genetic analysis using fin rays. In addition to the catch-free model, an analysis was attempted using a stochastic stock reduction model.

Release mortality appears to be low, less than 5%. The species is assumed to be gonochoristic (no sex change), but protogyny (sex change) is suspected. Spawning is assumed to occur August-November; however, based on acoustic studies of chorusing activities, spawning may occur July-November. Based on a 1992 study, females mature at 47 to 53 inches (ages 6-7), while males mature at 43 to 45 inches (ages 4-6). Juveniles utilize mangrove habitats in estuaries. Adults and sub-adults move offshore to high-relief habitats (wrecks often attract more individuals).

The Review Panel had several concerns with the assessment. They thought there were insufficient details for vetting data used for characterizing catches, vulnerabilities, and indices. They also thought the MRFSS/MRIP index was needlessly restricted to a short interval (1997-2016), and time series adjustments were not explained (none were made due to sparse data). For commercial landings, an adjustment for over-reporting was not adequately explained, and commercial discards could not be estimated. Consequently, neither recreational nor commercial catches could be adequately characterized. The Review Panel also thought the underwater observations from Project REEF were improperly analyzed, and conflicted with the MRFSS/MRIP offshore indices. There was an insufficient suite of sensitivities to examine assumptions and behaviors of both models, and neither model used evaluated episodic mortality events (cold kills) properly.

The Review Panel noted that the usual SEDAR Data and Assessment Workshops were not held for SEDAR 47. They thought the documentation about the data used as model inputs made by experts at these workshops could have aided the analysts' ability to understand and review the information on which the assessment was based. Suggestions were made to use simpler models rather than the age-structured models used in SEDAR 47, and for improvements in the use of the Project REEF data.

SSC members discussed the findings, but questioned how episodic events such as cold kills or red tide could be modeled. It was noted that the assessment contained a stock status determination, but that result was not accepted by the Review Panel. SSC members agreed with the findings of the Review Panel and passed the following motion.

Motion: The SSC concurs with the review report for SEDAR 47 Goliath grouper, and hence does not find the results suitable for stock status or management advice.

Motion passed unanimously.

Evaluation of Candidate Species for Future Data-poor Assessments

Staff explained that at the June Council meeting, the Council had asked staff to work with the Science Center to evaluate potential new candidates for data poor species assessments. SEDAR 49 is currently conducting assessments on 8 data-poor species, leaving 9 species in the Council's FMPs for which we do not have assessments and are not currently conducting assessments. This includes blueline tilefish, which may be assessed in SEDAR 50. The remaining 8 unassessed species are queen snapper, blackfin snapper, cubera snapper, silk snapper, warsaw grouper, yellowfin grouper, goldface tilefish, and banded rudderfish. These remaining species could possibly be evaluated in a successive data-poor SEDAR assessment. However, Dr. Shannon Calay suggested that the SSC wait until it has a chance to review the results of the SEDAR 49 assessment and determine if they are useful for management. If the results are determined to not be useful, then the next step should be to evaluate what needs to be done to make the results of these data poor assessments useful. Staff suggested that, in the interim, a data discovery process could be initiated on the remaining species to determine what information is available. Dr. Calay noted that the results of SEDAR 49 will include a data triage report on species in that assessment. Dr. Jeff Isely added that the Science Center is in the process of doing a data triage on all of the Gulf FMP species (catch history, effort time-series, CPUE indices if available, length data, associated species, species identification issues, and whether a species is bycatch or directly targeted). This work is expected to be completed by the end of December. Given this information, it was suggested that this item be revisited early in 2017.

Standing and Shrimp SSC Session

Risk Assessment for Threshold Permit Numbers Relative to Sea Turtle Incidental Take Constraints

The SSC was presented with the qualitative risk assessment of exceeding the turtle bycatch threshold at different threshold permit numbers. Ultimately, effort and the number of permits is not statistically correlated, and quantitative analysis could not be performed. The presentation focused on a qualitative assessment that assigned a risk value relative to other threshold values. The shrimp fishery effort is tied to the price of shrimp and the price of fuel is what drives effort in the shrimp fishery. The probability of exceeding the turtle threshold cannot be determined based on the fact that effort is not directly related to the number of vessels. The SSC highlighted the caveats identified in the memo (effort is not tied to number of vessels, favorable economic and biological factors could increase effort, and not all latent effort is realized) and made the following list of comments and questions for the Council to consider:
- The probability of exceeding the sea turtle related threshold on total effort under the alternatives in Action 3 cannot be determined because there is no statistical relationship between the number of federally permitted vessels and total effort.

- The reasons for this are due to the caveats in the risk assessment memo.
- Further, specific economic criteria on which to base a Council decision as to opening the fishery to more permits are needed.
- What is effect on turtle mortality?
- What is happening with latent effort?

Standing and Reef Fish SSC Session #2

Decision Tools for Gray Triggerfish

Mike Larkin (NMFS/SERO) reviewed the decision tools (Excel spreadsheets) that he prepared for evaluating commercial and recreational management measures for gray triggerfish. These tools are intended to support evaluation of management alternatives in Amendment 46. The commercial decision tool can evaluate seasonal closures, and commercial trip limits in terms of numbers of fish from 5 to 20 fish per trip. However, the Council is no longer considering seasonal closures, so only trip limits will be evaluated by the tool. Historical landings were converted from pounds to number of fish using 2014-2015 commercial TIP data. Average weight was 4.278 lbs ww. For the trip limit analysis, for trip limits of less than 12 fish (status quo), historical trip with landings higher than the trip limit were reset to the trip limit. For trip limits greater than 12 fish, it was assumed that any trip that landed the current 12-fish trip limit would have landed the higher limit.

The recreational decision tool was developed to allow the Council to evaluate reductions in harvest associated with seasonal closures, size limits, and bag trip limits. Other recreational decision tools have underestimated recreational harvest of gray triggerfish by 21.2%, and greater amberjack by 30.2%. This was likely due to effort shifting which was not accounted for in those tools. Therefore, an addition to this recreational decision tool was a set of inputs to account for effort shifting during the open season. Separate inputs were provided for headboats, charter vessels, and private boats based on observed redistribution of effort during 2013-2015..

Estimated percent of recreational gray triggerfish landings during closed season that were redistributed to the open season during 2013, 2014, and 2015.

	Year		
	2013	2014	2015
Closure Date	Oct. 15	May 1	Feb. 7
Headboat	16.4%	99.8%	> 100%
Charter	1%	0%	47%
Private	10.5%	> 100%	> 100%

SSC members expressed the following concerns.

The magnitude of effort shifting under various closures depends on whether gray triggerfish are targeted or an incidental catch, but SSC members did not know whether targeted or incidental trips were more prevalent. It was suggested that gray triggerfish may be targeted in some regions but not in others.

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Changes in average size as the stock recovered were not accounted for in the decision tools.

For the above reasons, SSC members felt that the decision tools were only valid in the year for which they were designed. With that caveat, the SSC passed the following motion.

> **Motion: The SSC recommends the commercial and recreational data decision tool as appropriate tools to evaluate gray triggerfish management options.**

> Motion carried unanimously.

Evaluation of Recreational Red Snapper Split Seasons

Nick Farmer (NMFS/SERO) reviewed an analysis of two federal split season options requested by the Council for the red snapper recreational for-hire component:

> Option 1: Open federal for-hire red snapper season Apr 20 – May 31, reopen Sept 1 until ACT projected to be exceeded.
> Option 2: Open federal for-hire red snapper season June 1 – June 30, reopen Oct 1 until ACT projected to be exceeded.

The analysis was complicated by several sources of uncertainty, including a lack of recent landings outside of the current federal season. There were also questions about whether there is a seasonal dynamic to red snapper catches, and if so, whether it was due to movements in red snapper stock, changes in fishing effort, or other factors. There was also a question of whether there would be effort shifting associated with different start dates and if so what the magnitude would be.

To address these uncertainties, 10 different projection scenarios were developed to model catch rates and average fish weights during the open June-July federal season. Five of the scenarios were based on recent catch date, and the other five were based on regressions of various time-series and regions. Uncertainty was accounted for by running 1000 bootstraps on each projection model. Covariates evaluated in the analysis included SSB, state seasons, federal seasons, fuel prices, Google trends for searches on "red snapper season", and per capita GDP.

To project catches outside of the current open season, catches were scaled under seven different scalers including no scaling, scaled by 2004-2007 observed daily catch rates for each individual state, scaled by 2004-2007 observed daily catch rates for entire Gulf of Mexico combined, scaled by the mean (2007-2015) ratio of "fishable days" based on wind speed for Beaufort scale < 5 (wind speed<17 knots) and Beaufort scale < 6 (wind speed < 22 knots) relative to June, and scaled by wave height based on mean (2007-2015) ratio of "fishable days" for Beaufort scale < 5 (wave height<2 m) and Beaufort scale < 6 (wave height < 3 m) relative to June. Based on the wind speed and wave height scalers, the highest present of fishing opportunities occurred in the summer months.

% Fishing Opportunities by Month

A: Wind Speeds > 22 knots

B: Wave Heights > 2.4 m

Split Season Option 1
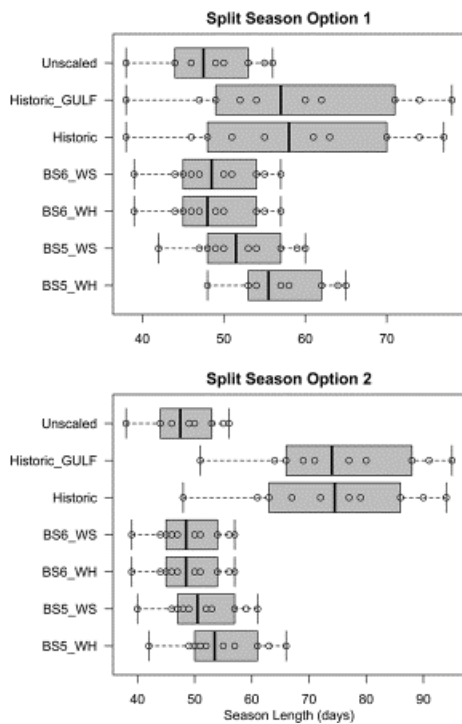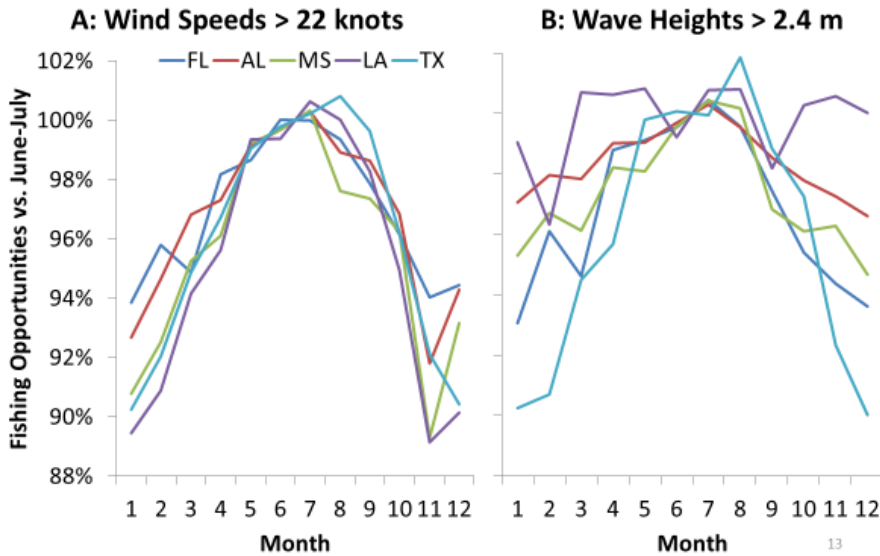
- Substantial variability across model runs
- Minimum season length: 38 days
- Beaufort Scale 6 similar to "Unscaled"
- Beaufort Scale 5 predicted slightly longer second seasons
- "Historic (by State)" and "Historic (Gulf-wide)" scenarios were highly variable, but generally predicted much longer seasons

- 2016 federal for-hire season of **46 days** was based on the mean of the projected season under model scenarios "2015" and "2014."

Applying the same logic:
- Option 1 median: **50 days** (+4 days)
- Option 2 median: **49 days** (+3 days)

Split Season Option 2

Projected season lengths were highly variable across model runs. Under the two split season alternatives, the minimum total number if days was 38. Based on the methodology used to project the 2016 fishing season of 46 days, the median total season length of the Option 1 split season was 50 days (4 more days that the current 2016 season), and for split season Option 2 it was 49 days (3 more days than the current 2016 season).

SSC members noted that there was substantial variability across the model runs, but agreed that the approach used in the analysis was appropriate and passed the following motion.

> **Motion: The SSC finds the analysis for the red snapper federal for-hire split season alternatives to be technically sound and suitable for management advice.**
>
> Motion carried unanimously.

Review of Updated SEDAR Schedule

Luiz Barbieri noted that FWC has received approval from the SEDAR Steering Committee to proceed with a benchmark assessment for black grouper. This assessment was originally scheduled to be delivered by April 2017, but FWC has requested a postponement to December 2017 in order to have time to develop terms of reference and conduct data and assessment workshops.

Staff reviewed the SEDAR assessment schedule as of August 2, 2016. The gag and greater amberjack update assessments and SEDAR 49 (data-poor) are on schedule. For the 2017 assessments, an SSC member asked if a research track assessment rather than a benchmark assessment had been considered for gray snapper. Staff responded that the SEDAR Steering Committee wanted to evaluate the scamp research track assessment as a pilot project before committing to the new format for other stocks. Staff noted that Florida FWC had previously indicated an intent to conduct a hogfish update assessment in 2018, and questioned why that was not on the schedule. Dr. Barbieri responded that FWC is ready to conduct the assessment, but it is up to the SEDAR Steering Committee to prioritize which assessments are put on the schedule. He suggested that staff present at the ongoing Steering Committee meeting bring it up for discussion.

Leann Bosarge noted that at the last Council meeting she had requested a presentation on the issues regarding the gray triggerfish assessment. She thought that, with input from fishermen, the available data might be used differently. She reiterated her request to have such a presentation made at a future Council Reef Fish Committee meeting.

Discussion on Limit and Target Reference Points and MSY Proxies for Reef Fish

Luiz Barbieri gave s presentation on risk and uncertainty with respect to target and limit reference points and MSY proxies. He noted that there are two types of uncertainty, knowledge uncertainty which is easier to control, and natural variability, which is hard to control. He defined risk as equal to probability $\times$ consequence. With respect to MSY proxies, we often do not know the true spawner-recruit relationship and therefore cannot calculate a credible MSY. Therefore, MSY proxies are used, and are generally expressed on the basis of SPR. Simulation analyses indicates that F_{MSY} is often in the range of $F_{20\%SPR}$ and $F_{40\%SPR}$. The choice of proxy depends upon the life history schedules for that species or stock. Dr, Barbieri asked if it would be advisable to form an ad hoc working group to assist with this tasks and to assist the Council in developing a more explicit risk policy for managed stocks?

Some SSC members noted that in addition to the biological risk of overfishing, there are socioeconomic risks from overregulation of foregone economic and social costs. It was suggested that the socioeconomic scientists on the SSC (Ben Blount, Lee Anderson, Ken Roberts, Walter Keithly, and others) work together to develop a white paper on this aspect for the next SSC meeting. Other SSC members could work on developing a list of other items to be discussed when developing MSY proxies.

Review of ABC Control Rule Alternatives
Overview of ABC Control Rules

Shannon Calay presented an overview of NMFS guidance for ABC control rules, noting that additional guidance would be useful. She also reviewed the control rule used by the Gulf Council and compared it to examples of some control rules used by other Councils. One issue with the Gulf Council's ABC control rule is that the probability distribution functions (PDF) produced by the stock assessment tend to be very narrow, resulting in low variance and only small changes in ABC over a range of P* values. One possible solution might be to estimate variance external to assessment process, which is a method used by the Pacific Council (Ralston et al. 2011). Another alternative is to set ABC at some fixed buffer to OFL (e.g., ABC – $0.75*F_{MFMT}$). For stocks with insufficient data to conduct a typical stock assessment, data limited methods are available that can be used to set OFL and ABC. Dr. Calay presented some recommendations for improving the Gulf Council's ABC control rule. She suggested that Tier 1 (Data-Rich) should consider reducing fishing mortality (MFMT) as stock size declines, Tier 2 (Data-Moderate) should be revised to accommodate data limited scientific advice, and Tier 3 (Catch-Only) could also be improved.

One SSC member pointed out that stock assessments are getting better at incorporating sources of scientific variability. He also noted that in the future, expanded use of management strategy evaluation (MSE) techniques may help to better identify sources of scientific variability. A suggestion was made to wait and see the results of the SEDAR 49 (data poor stocks) assessment, and the findings of the socioeconomic sub-group before proceeding with ABC control rule.

Dr. Barbieri felt that it would be asking too much for the SSC to tackle both MSY proxies and ABC control rule revisions at the same time, and he suggested itemizing and prioritizing topics to be addresses by the SSC.

Carryover of Quota Underharvests

Rich Malinowski (NMFS/SERO) reviewed a series of questions to the SSC prepared by Ryan Rindone to assist staff in developing an amendment to address red snapper quota under-harvests. SSC members thought that it would be easier to understand the questions posed if there were examples of projections. It was suggested that the amount of under-harvest that could be carried over would depend upon changes in cohort or year-class strength, and on changes in discards. In all, the SSC suggested that the totality of data requested to consider an ABC adjustment to allow a carry-over to occur would require the equivalent of an update assessment.

One suggestion was made that a conservative amount to carry over might be (1-M)*under-harvest. This would subtract the potential natural deaths from the under-harvested remainder and allow the result to be carried over. Assuming fishing effort was directed mainly at younger fish, this would be carrying over age groups where growth is maximized relative to natural mortality. However, under the Lorenzen function of declining natural mortality, and assuming fishing effort was directed mainly at younger fish, the mean M might underestimate the natural mortality for the age groups likely being carried over. It was pointed out that a paper written by Powers and Brooks (2008) addressed the types of issues involved in addressing underages and overages. This paper was distributed to the SSC.

Another suggestion was made to run simulations to determine what level of carryover could be allowed that would not affect rebuilding. Any projections would need to consider natural mortality and discard mortality. The other alternative would be to actually do an update assessment.

Dates for Next SSC Meeting

Staff noted that the next SSC meeting was originally scheduled for the week of January 10-12, 2017. It had been moved back to December 13-15, 2016, but analysis being requested from the Science Center would not be available until the January dates. Therefore, staff recommended that he next meeting be moved back to its original January date. There was no opposition to this recommendation. Staff also provided the SSC with tentative dates for the remaining 2017 SSC meetings, but based on the SSC meeting 3 weeks before each Council meeting, there was a conflict in March with the Spring 2017 GSMFC meeting. Therefore, the March meeting date will likely be changed.

Other Business - Terms of Reference, Schedule and Participant Solicitation for SEDAR 50: Blueline Tilefish

Council staff announced that the SEDAR Steering Committee wants to convene a group of SSC representatives and other scientists to look at the blueline tilefish stock identification workshop results and make recommendations on whether to include the Gulf in the SEDAR 50 blueline tilefish assessment. One of the concerns raised is that inclusion of Gulf blueline tilefish in the stock assessment is based on genetic analysis of just 15 samples taken from the eastern Gulf, and no samples taken from the western Gulf. The SSC was also asked to review and approve the TORs and schedule for SEDAR 50, and nominate participants for the assessment workshops, contingent on the Gulf being included in the assessment. Shannon Calay noted that the Science Center has already begun work on an assessment that includes the Gulf.

Council staff reviewed the SEDAR 50 TORs. With regard to the assessment schedule, staff noted that because of the decision to convene a group to look at the blueline tilefish stock identification results, the dates on the schedule would likely change, but the format of the schedule would not. In a departure from recent assessments, there will be an in-person assessment meeting between the second and third assessment webinars.

SSC members had no concerns with the TORs or schedule with the understanding that the dates would be modified.

The following SSC members volunteered for the external review of the stock id report:
>Will Patterson
>Kai Lorenzen
>Mary Christman

The following SSC members volunteered for the SEDAR workshops. These persons will not participate if Gulf blueline tilefish are excluded from the assessment.

Data Workshop	Assessment Workshop	Review Workshop
Mary Christman	Mary Christman	Will Patterson
	Jeff Isely	Joe Powers

References

Powers, J.E. and E.N. Brooks. Penalties and rewards for over- and underages of catch allocations. ICES Journal of Marine Science. 65:1541-1551.

Ralston, S., A.E. Punt, O.S. Hamel, J.D. DeVore, and R.J. Conser. 2011. A meta-analytic approach to quantifying scientific uncertainty in stock assessments. Fish. Bull. 109:217–231

SSC Members Present

Standing SSC

Luiz Barbieri, Chair
Joe Powers, V. Chair
Lee Anderson
Harry Blannchet[1]
Benjamin Blount
Mary Christman[1]
Bob Gill
David Griffith
Jack Isaacs
Jeff Isely

Walter Keithly
Kai Lorenzen
Paul Mickle[2]
Will Paterson
Sean Powers
Ken Roberts
Steven Scyphers[1]
Robert Shipp[1]
James Tolan

Reef Fish SSC

Jason Adriance*
Marcus (James) Drymon
Robert Ellis
Jennifer Herbig
John Mareska

Mackerel SSC

Jason Adriance*
Melissa Recks[3]

Shrimp SSC

Richard Burris
Ryan Gandy
Leslie Hartman[3]
Jeffrey Marx[4]
James Nance[1]

* On more than one SSC
1 – Attended via webinar both days
2 – Attended in-person, day 2 only
3 – Attended via webinar, day 1 only
4 – Attended via webinar, day 2 only

Council Staff

Steven Atran
Matt Freeman
John Froeschke
Karen Hoak
Morgan Kilgour
Ava Lasseter
Jessica Matos
Ryan Rindone[1]
Charlotte Schiaffo
Camilla Shireman
Carrie Simmons

Others

Shannon Calay, NMFS/SEFSC
Nick Farmer, NMFS/SERO
Susan Gerhart, NMFS/SERO
Rick Hart, NMFS/SEFSC[1]
Peter Hood, NMFS/SERO
Mike Larkin, NMFS/SERO
Rich Malinowski, NMFS/SERO
Matt Smith, NMFS/SEFSC
Mike Travis, NMFS/SERO[1]

Shanae Allen, FWRI
Jessica Carrol, FWC
Joe O'Hop, FWRI
Claudia Friess, UF
Jeff Greenspan, UF
Chad Hanson, PEW

1 – via webinar

Council Representatives

Leann Bosarge
Camp Matens