Comprehensive ABC Control Rule Amendment

OPTIONS PAPER
Scoping Comments Review

March 2019 SAFMC Meeting

Background

The South Atlantic Fishery Management Council (Council) Scientific and Statistical Committee (SSC) developed an acceptable biological catch (ABC) control rule (CR) in 2008, based on the concept of using uncertainty and risk traits to determine the acceptable risk of overfishing. The acceptable risk of overfishing is specified as the P-Star (P*) value that is applied through assessment projections to develop the yield values that provide the ABC. During consideration by the Council and development of the Comprehensive Annual Catch Limit (ACL) Amendment, the SSC added additional levels to the ABC CR to better address unassessed and data limited stocks.

The ABC CR was implemented by the Council through the Comprehensive ACL Amendment that became effective in April 2012. The Comprehensive ACL Amendment included fishery management plans (FMP) for snapper grouper, dolphin wahoo, golden crab, and Sargassum. A revision to the ABC CR for snapper grouper occurred in July 2015 when the Only Reliable Catch Stocks (ORCS) approach was add to the CR for snapper grouper stocks, through Amendment 29 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region FMP (Snapper Grouper FMP).

In applying the ABC CRs as specified in the Comprehensive ACL Amendment and snapper grouper Amendment 29 to different stocks and assessments from 2012-1016, the SSC began to express concerns that the rules lacked adequate resolution to distinguish differences in uncertainty levels across assessments, did not address continued developments in data poor assessment methods, and mixed uncertainty evaluation (an SSC role under the Magnuson-Stevens Fishery Conservation and Management Act (MSA)) and risk tolerance determination (a Council role under the MSA). Additionally, the existing CR does not provide a means to make use of 2016 revisions to National Standard 1 that increased the flexibility available to regional

fishery management councils for managing catch limits by allowing carry-over of unharvested catch and phasing in of catch level changes. While the addition of the ORCS approach to the ABC CR for snapper grouper represented some progress in addressing data poor assessment developments, it did not address the other ABC CR concerns or the National Standard revisions.

Actions in this amendment

- **Action 1.** Modify the acceptable biological catch control rule.
- **Action 2.** Specify an approach for determining the acceptable risk of overfishing.
- **Action 3.** Specify an approach for determining the probability of rebuilding success for overfished stocks.
- **Action 4.** Allow phase-in of acceptable biological catch changes.
- **Action 5.** Allow carry-over of unharvested catch.

Proposed timing

Process Steps	**Dates**
Scoping webinar hearings	January 2019
Council reviews scoping comments, finalize wording of actions & alternatives	March 2019
Review and revise action/alternatives, SSC & AP comments	June 2019
Approval for public hearings	June 2019
Public hearings	Summer 2019
Review public hearing comments and approve all actions/alternatives	September 2019
Final action to approve for secretarial review	December 2019

March 2019 Timing Update

The Council's intent on timing for this amendment has been to consider final approval of the wording for actions and alternatives once NMFS guidance on carry-over provisions is available and can be incorporated. The schedule proposed for this amendment was based on receiving NMFS guidance on carry-over provisions at the CCC meeting planned for February 26-28, 2019. Due to the federal government shutdown, the CCC meeting was cancelled and the guidance is not yet final. There is a possibility that the guidance will be available soon, perhaps in time for consideration by the SSC meeting in April.

Staff recommends delaying the amendment until the carry-over guidance is available, and next considering approval of final language in June 2019 if the guidance is available in time.

Purpose and need statement

Purpose for Actions

The purpose of this amendment is to revise the acceptable biological catch control rule; simplify incorporation of scientific uncertainty; modify the approach used to determine the acceptable risk of overfishing; and address flexibility in specifying catch levels.

Need for Actions

The need for this amendment is to ensure catch level recommendations are based on the best scientific information available, prevent overfishing while achieving optimum yield, and include flexibility in setting catch limits as allowed per recent changes to the Magnuson-Stevens Fishery Conservation and Management Act implementing regulations.

Management Plans modified by this Comprehensive Amendment

- Snapper Grouper Amendment 25
- Dolphin Wahoo Amendment 2
- Golden Crab Amendment 5
- Sargassum Amendment 2
- Coral

SCOPING OVERVIEW – March 2019

Scoping sessions were conducted via webinar held on the evenings of January 23 and 24, 2019. Scoping materials, including a scoping summary document and draft options paper were available on the SAFMC website.

Scoping comments submitted online (via the electronic form) are available for review on the SAFMC website public comment page (http://safmc.net/amendments-under-development/).

Scoping comments provided during the webinar were transcribed and are appended to the end of this document.

Due to the few comments received, they are summarized for each action below.

Action 1. Modify the acceptable biological catch control rule.

Supported:

- Taking action on the ABC Control Rule
- Provide an ABC range based on uncertainty

Action 2. Specify an approach for determining the acceptable risk of overfishing.

Supported:

- Higher levels of risk
- Clearly stating risk levels as high-medium-low at the Council level, recognizing there will be underlying specific risk percentages associated with the levels and applied by the SSC.

Action 3. Specify an approach for determining the probability of rebuilding success for overfished stocks.

No specific comments applicable to this action were received.

Action 4. Allow phase-in of acceptable biological catch changes.

Supported:

- Allowing phase-in "if not over done"
- Phasing in over 1-2 years, not to exceed 3
- Take the greatest cut in year 1

Action 5. Allow carry-over of unharvested catch.

Supported:

- Allowing carry-over
- Evaluating & allowing carry-over by by sector

Opposed

- Allowing carry-over poundage to accumulate over several years.

SCOPING OVERVIEW – March 2019

Proposed Actions and Alternatives

Action 1 Modify the Acceptable Biological Catch Control Rules

Alternative 1 (No Action). Acceptable biological catch for included species will continue to be specified as per the control rule specified by the Comprehensive Annual Catch Limit Amendment (**Table 2.1**) for the Dolphin Wahoo, Golden Crab, and Sargassum Fishery Management Plans, and Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (**Table 2.2**). There is no acceptable biological catch control rule for the Fishery Management Plan for Coral, Coral Reefs, and Live/Hardbottom Habitats of the South Atlantic Region.

Alternative 2. Specify an acceptable biological catch control rule that establishes categories based on the type of information and the scientific uncertainty evaluation available for a stock. The Scientific and Statistical Committee may deviate from the acceptable biological catch control rule when necessary due to data or assessment circumstances that cannot be adequately addressed by the approved acceptable biological catch control rule. In the case of overfished stocks, the acceptable biological catch will be based on the rebuilding plan chosen by the Council.

Options to consider for **Alternative 2**:

- **Option 1**. Define acceptable biological catch based on the yield available at 75% of the fishing mortality rate that provides maximum sustainable yield for any assessment category if an acceptable overfishing limit probability distribution cannot be derived.

- **Option 2**. When requested by the Council, the Scientific and Statistical Committee will specify the acceptable biological catch for up to 5 years as both a constant value across years and as individual annual values for the same period of years.

Alternative 3. Specify the acceptable biological catch control rule to be consistent with the control rule specified in Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region, modified such that the Scientific and Statistical Committee will evaluate scientific uncertainty and determine the uncertainty adjustment values for Tiers 1 and 2 of Level 1. Tiers 3 and 4 of Level 1 will be deleted and the Council will specify a risk tolerance for overfishing that will provide a P* adjustment of 0 to 20% that will be added to the uncertainty adjustment of the SSC. The acceptable biological catch will be based on the accepted probability of overfishing selected by the Council, as modified by the sum of the scientific uncertainty and risk tolerance adjustments applied by the Scientific and Statistical Committee and the South Atlantic Fishery Management Council and derived by applying the chosen overfishing probability to a stock projection analysis.

DISCUSSION:

Alternative 1, no action, is summarized in **Tables 2.1** and **2.2** The only difference in **Tables 2.1** and **2.2** is that **Table 2.2** includes the ORCS approach implemented for the Snapper Grouper FMP as Level 4, with the unassessed stocks provisions subsequently renumbered as Level 5.

Table 2.1. ABC control rule specified by the Comprehensive ACL Amendment for the Snapper Grouper, Dolphin Wahoo, and Sargassum FMPs. Parenthetical values in Level 1 indicate (1) the maximum adjustment value for a dimension; and (2) the adjustment values for each tier within a dimension.

Level 1 – Assessed Stocks	
Tier	**Tier Classification and Methodology to Compute ABC**
1. Assessment Information (10%)	1. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%) 2. Reliable measures of exploitation or biomass, no MSY benchmarks, proxy reference points. (2.5%) 3. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%) 4. Reliable catch history. (7.5%) 5. Scarce or unreliable catch records. (10%)
2. Uncertainty Characterization (10%)	1. Complete. Key determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%) 2. High. Key determinant – reflects more than just uncertainty in future recruitment. (2.5%) 3. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%) 4. Low. Distributions of F_{MSY} and MSY are lacking. (7.5%) 5. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)
3. Stock Status (10%)	1. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%) 2. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%) 3. Stock is either overfished or overfishing. (5%) 4. Stock is both overfished and overfishing. (7.5%) 5. Either status criterion is unknown. (10%)
4. Productivity and Susceptibility Analysis (10%)	1. Low risk. High productivity, low vulnerability, low susceptibility. (0%)

	2. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%) 3. High risk. Low productivity, high vulnerability, high susceptibility. (10%)
Level 2 – Unassessed Stocks. Reliable landings and life history information available	
OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA). ABC derived from applying the assessed stocks rule to determine the adjustment factor if possible, or from expert judgment if not possible.	
Level 3 – Unassessed Stocks. Inadequate data to support DBSRA	
ABC derived directly from "Depletion-Corrected Average Catch" (DCAC). Done when only a limited number of years of catch data for a fishery are available. Requires a higher level of "informed expert judgment" than Level 2.	
Level 4 – Unassessed Stocks.	
OFL and ABC derived on a case-by-case basis. Stocks with very low landings that show very high variability in catch estimates (mostly caused by the high degree of uncertainty in recreational landings estimates), or stocks that have species identification issues that may cause unreliable landings estimates. Use "decision tree": 1. Will catch affect stock? NO: Ecosystem Species (Council did this already, ACL Amend) YES: Go to 2 2. Will increase (beyond current range of variability) in catch lead to decline or stock concerns? NO: ABC = 3rd highest point in the 1999-2008 time series YES: Go to 3 3. Is stock part of directed fishery or is it primarily bycatch for other species? Directed: ABC = Median 1999-2008 Bycatch/Incidental: If yes, go to 4. 4. Bycatch. Must judge the circumstance: If bycatch in other fishery: what are trends in that fishery? What are the regulations? What is the effort outlook? If the directed fishery is increasing and bycatch of stock of concern is also increasing, the Council may need to find a means to reduce interactions or mortality. If that is not feasible, will need to impact the directed fishery. The SSC's intention is to evaluate the situation and provide guidance to the Council on possible catch levels, risk, and actions to consider for bycatch and directed components.	

Table 2.2. Acceptable biological catch control rule specified for Snapper Grouper by Amendment 29 to the Snapper Grouper FMP. Parenthetical values in Level 1 indicate (1) the maximum adjustment value for a dimension; and (2) the adjustment values for each tier within a dimension.

Level 1 – Assessed Stocks	
Tier	**Tier Classification and Methodology to Compute ABC**
1. Assessment Information (10%)	1. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%) 2. Reliable measures of exploitation or biomass, no MSY benchmarks, proxy reference points. (2.5%) 3. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%) 4. Reliable catch history. (7.5%) 5. Scarce or unreliable catch records. (10%)
2. Uncertainty Characterization (10%)	1. Complete. Key determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%) 2. High. Key determinant – reflects more than just uncertainty in future recruitment. (2.5%) 3. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%) 4. Low. Distributions of F_{MSY} and MSY are lacking. (7.5%) 5. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)
3. Stock Status (10%)	1. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%) 2. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%) 3. Stock is either overfished or overfishing. (5%) 4. Stock is both overfished and overfishing. (7.5%) 5. Either status criterion is unknown. (10%)
4. Productivity and Susceptibility Analysis (10%)	1. Low risk. High productivity, low vulnerability, low susceptibility. (0%) 2. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%) 3. High risk. Low productivity, high vulnerability, high susceptibility. (10%)
Level 2 – Unassessed Stocks. Reliable landings and life history information available	
OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA). ABC derived from applying the assessed stocks rule to determine the adjustment factor if possible, or from expert judgment if not possible.	
Level 3 – Unassessed Stocks. Inadequate data to support DBSRA	
ABC derived directly from "Depletion-Corrected Average Catch" (DCAC). Done when only a limited number of years of catch data for a fishery are available. Requires a higher level of "informed expert judgment" than Level 2.	

Level 4 – Unassessed Stocks. Only Reliable Catch Stocks.
OFL and ABC derived on a case-by-case basis. Apply ORCS approach using a catch statistic, a scalar derived from the risk of overexploitation, and the Council's risk tolerance level.
Level 5 – Unassessed Stocks.
OFL and ABC derived on a case-by-case basis. Stocks with very low landings that show very high variability in catch estimates (mostly caused by the high degree of uncertainty in recreational landings estimates), or stocks that have species identification issues that may cause unreliable landings estimates. Use "decision tree": 5. Will catch affect stock? NO: Ecosystem Species (Council did this already, ACL Amend) YES: Go to 2 6. Will increase (beyond current range of variability) in catch lead to decline or stock concerns? NO: ABC = 3rd highest point in the 1999-2008 time series YES: Go to 3 7. Is stock part of directed fishery or is it primarily bycatch for other species? Directed: ABC = Median 1999-2008 Bycatch/Incidental: If yes, go to 4. 8. Bycatch. Must judge the circumstance: If bycatch in other fishery: what are trends in that fishery? What are the regulations? What is the effort outlook? If the directed fishery is increasing and bycatch of stock of concern is also increasing, the Council may need to find a means to reduce interactions or mortality. If that is not feasible, will need to impact the directed fishery. The SSC's intention is to evaluate the situation and provide guidance to the Council on possible catch levels, risk, and actions to consider for bycatch and directed components.

Both the Council and SSC have held extensive discussions on potential ABC CR modifications. The following bullets summarize prior recommendations and discussion points made in support of the overall ABC CR modifications proposed in **Action 1**.

- The existing CR is overly prescriptive and formulaic with regard to Tier 1 (assessed stocks), thus preventing the SSC from adequately addressing uncertainty differences across stocks or from responding to new methods and techniques.
- The CR is too prescriptive with regard to Tiers 2 and 3 (unassessed stocks), calling upon specific methods, which have in some cases been surpassed by recent developments.
- Some assessment information factors of Tier 1 (assessed stocks) are not appropriate for the stocks addressed under the CR's Tier 1, and overlap with stocks assigned to other tiers (e.g., includes an adjustment for 'scarce or unreliable catch records' that is inappropriate now that the rule includes tiers addressing catch-only stocks)

- The current rule mixes uncertainty evaluation (an SSC responsibility) with risk tolerance (a Council responsibility); and relies upon the SSC to make recommendations with regard to both components.
- Language and definitions have become unclear over time, particularly with multiple use of the word "Tiers."
- The Council recommended that the SSC consider removing status from consideration in the CR. The Council cited two considerations in support of this request. The first is that status determinations (overfished and overfishing) are made by the National Marine Fisheries Service (NMFS), not the SSC. The second consideration is that the basis for a status determination is an assessment output, not a characteristic of the assessment approach or the data. Therefore, status of the stock is not a component to the underlying assessment uncertainty that should be addressed by the CR. The Council considers that stock status is more appropriately considered when it considers its risk tolerance for a stock.
- The SSC recommends removing stock status from the factors it should consider when evaluating uncertainty and applying the ABC CR. Stock status is determined by NMFS on a timeline that is out of Council or SSC control, and therefore a final determination may not be available when the SSC is required to apply the CR. Additionally, the SSC considers it more appropriate for the Council to consider stock status when determining the acceptable risk of overfishing.
- The SSC recommends removing stock productivity and susceptibility to overfishing traits from the evaluation of uncertainty, because such factors are included in the stock assessment parameters and are more appropriate to risk evaluation than uncertainty evaluation. The SSC further recommends that the Council consider stock productivity and susceptibility traits when determining the acceptable risk of overfishing, and that the SSC be given an opportunity to provide updated information when the Council applies or updates risk levels.

Alternative 2

The SSC recommended categorizing assessed stocks based on the information provided to evaluate and characterize assessment uncertainty, which led to **Alternative 2**.

Category Descriptions for **Alternative 2**:

- Category 1. The stock is assessed and scientific uncertainty is adequately incorporated. The P* will be applied to the assessment outputs to provide an ABC consistent with the chosen level of overfishing risk. The specifics of how the P* is applied to the assessment information will vary depending on how uncertainty is expressed in the assessment. For example:
    - If the assessment provides a distribution of overfishing limit yield values, the acceptable biological catch can be derived by applying the acceptable risk of overfishing to the assessment overfishing limit distribution.
    - If the assessment provides a distribution of fishing mortality values that achieve maximum sustainable yield (i.e., F_{MSY}), the ABC can be derived by applying the fishing mortality rate associated with the chosen P* to a population projection to derive estimates of fishery yield.

- Category 2. The stock is assessed, but scientific uncertainty is not adequately evaluated or some assessment outputs may be lacking. The SSC will adjust the assessment measures of uncertainty (e.g., coefficient of variation, F_{MSY} distribution, or overfishing limit (OFL) distribution) as necessary to adequately address scientific uncertainty. ABC is derived by applying the acceptable risk of overfishing to the assessment information.
- Category 3. The stock is assessed; however, scientific uncertainty is not adequately evaluated, and the SSC is not able to address uncertainty by modifying the available measures of uncertainty. The SSC will develop uncertainty measures it considers adequate for the assessment, such as a coefficient of variation, F_{MSY} distribution, or OFL distribution as necessary to derive the ABC that reflects scientific uncertainty and the Council's risk tolerance, or apply a direct buffer to OFL (or an OFL proxy) to derive the ABC recommendation.
- Category 4: No acceptable stock assessment is available. The OFL and ABC will be based on the expert judgment of the SSC. The SSC will consider available information and the Council's risk tolerance when applying its expert judgment.

The Council may choose any of the Options (below) under **Alternative 2** to refine and modify how **Alternative 2** is applied. Options do not replace **Alternative 2** categories (**Table 3**).

Option 1 provides an alternative basis for ABC for stocks lacking some of the information necessary for the SSC to apply a risk tolerance level to assessment results. If selected, this option would provide additional guidance to the SSC in setting ABC for the Category 3 and 4 stocks described for **Alternative 2** (**Table 3**).

Option 2 is proposed for **Alternative 2** to allow the SSC to specify a constant ABC value for multiple years. Providing the ABC as both annual and fixed values is necessary for the Council to evaluate the effects of the fixed ABC. Under this option, the Council would be expected to request the number of years (up to 5) for which annual and fixed ABC values are desired. To avoid delay in ABC recommendations, such requests should be made prior the SSC considering an ABC recommendation, with adequate advance notice for preparing the necessary stock projections. Circumstances that could lead to the Council to request a constant multi-year ABC include addressing severe social and economic consequences, addressing information that is available through other sources such as Fishery Performance Reports, and providing stability for the fishery.

TABLE 3 – ABC Control rule proposed through Alternative 2.

Category	Criteria	ABC Determination
Category 1.	Stock is assessed; scientific uncertainty is adequately incorporated	The P* is applied to the assessment information to derive ABC.
Category 2.	Stock is assessed; scientific uncertainty is not adequately evaluated or some assessment outputs may be lacking.	The SSC will adjust the measures of uncertainty, P* will then be applied to the assessment information.
Category 3.	The stock is assessed; scientific uncertainty is not adequately evaluated and cannot be addressed by adjusting the available uncertainty measures.	The SSC will develop uncertainty measures as necessary to apply the P* to the available assessment information. Alternatively, the SSC may apply a direct buffer to the overfishing limit (or an overfishing limit proxy) to derive the ABC.
Category 4	No acceptable stock assessment is available	The OFL and ABC will be based on the expert judgment of the SSC. The SSC will consider available information and the Council's risk tolerance when applying its expert judgment. Techniques that may be considered by the SSC in developing its judgment include, but are not limited to: Data limited assessment models: may provide OFL or ABC or proxies thereof, and varying types of uncertainty distributions. Only Reliable Catch Stocks (ORCS): applied using a catch statistic, a scalar derived from the risk of overexploitation, and the Council's risk tolerance level Council SSC Decision Tree: 1.Will catch affect stock? NO: Ecosystem Species (Council did this already, ACL Amend) YES: Go to 2 2.Will increase (beyond current range of variability) in catch lead to decline or stock concerns? NO: ABC = 3rd highest point in the 1999-2008 time series YES: Go to 3 3.Is stock part of directed fishery or is it primarily bycatch for other species? Directed: ABC = Median 1999-2008 Bycatch/Incidental: If yes, go to 4. 4.Bycatch. Must judge the circumstance: If bycatch in other fishery: what are trends in that fishery? What are the regulations? What is the effort outlook?

Example of P* affects under varying conditions

Life history data were simulated for a hypothetical reef fish-like species to illustrate the changes in fishing mortality (F) and allowable biological catch (ABC) for various values of probability of overfishing (P*) and levels of scientific uncertainty, expressed as the coefficient of variation (CV) of F_{MSY}. A normal distribution of error about F_{MSY} was assumed for this example. Typical output from South Atlantic stock assessments comes from the Monte-Carlo Bootstrap (MCB) analysis and often results in slightly skewed error distributions that do not exactly conform to a normal distribution. Nonetheless the output tables below illustrate some key patterns in the results. Both F and ABC decrease as P* decreases and CV increases (Table 1). The rate of this decrease gets larger as the OFL is reduced (e.g. OFL = 75% F_{MSY}) (Table 2). The reason OFL might be less than FMSY would be if the stock biomass were at low levels and/or the stock were under a rebuilding plan. We did not compute the exact stock status condition for this example, as it would have required more complicated assumptions about a type and shape of stock-recruit curve.

Table 1. Results from a hypothetical reef fish species showing fishing mortality (F) (panel a) and allowable biological catch (ABC) in weight (panel b) as a function of different assumed input values for probability of overfishing (P*) and coefficient of variation (CV) of F_{MSY}. In this example the overfishing limit (OFL) is assumed to be at F_{MSY} = 0.38.

a)

	P*						
CV	**0.2**	**0.25**	**0.3**	**0.35**	**0.4**	**0.45**	**0.5**
0.2	0.31	0.33	0.34	0.35	0.36	0.37	0.38
0.3	0.28	0.3	0.32	0.33	0.35	0.36	0.38
0.4	0.25	0.28	0.3	0.32	0.34	0.36	0.38
0.5	0.22	0.25	0.28	0.3	0.33	0.35	0.38
0.6	0.19	0.22	0.26	0.29	0.32	0.35	0.38
0.7	0.15	0.2	0.24	0.28	0.31	0.34	0.38
0.8	0.12	0.17	0.22	0.26	0.3	0.34	0.38

b)

	P*						
CV	**0.2**	**0.25**	**0.3**	**0.35**	**0.4**	**0.45**	**0.5**
0.2	1326	1329	1331	1333	1334	1335	1335
0.3	1312	1321	1327	1331	1333	1334	1335
0.4	1289	1308	1320	1327	1332	1334	1335
0.5	1253	1288	1309	1322	1330	1334	1335
0.6	1202	1261	1296	1316	1327	1333	1335
0.7	1128	1224	1277	1308	1324	1332	1335
0.8	1023	1174	1254	1297	1321	1332	1335

Table 2. Results from a hypothetical reef fish species showing fishing mortality (F) (panel a) and allowable biological catch (ABC) in weight (panel b) as a function of different assumed

input values for probability of overfishing (P*) and coefficient of variation (CV) of F_{MSY}. In this example the overfishing limit (OFL) is assumed to be at 75% F_{MSY} = 0.28.

a)

CV	P* 0.2	0.25	0.3	0.35	0.4	0.45	0.5
0.2	0.24	0.24	0.25	0.26	0.27	0.28	0.28
0.3	0.21	0.23	0.24	0.25	0.26	0.27	0.28
0.4	0.19	0.21	0.22	0.24	0.25	0.27	0.28
0.5	0.16	0.19	0.21	0.23	0.25	0.26	0.28
0.6	0.14	0.17	0.19	0.22	0.24	0.26	0.28
0.7	0.12	0.15	0.18	0.21	0.23	0.26	0.28
0.8	0.09	0.13	0.16	0.2	0.23	0.25	0.28

b)

CV	P* 0.2	0.25	0.3	0.35	0.4	0.45	0.5
0.2	1274	1283	1291	1298	1303	1308	1312
0.3	1244	1263	1277	1289	1298	1306	1312
0.4	1203	1236	1260	1278	1292	1303	1312
0.5	1151	1203	1239	1266	1286	1301	1312
0.6	1083	1162	1215	1252	1279	1298	1312
0.7	995	1112	1186	1236	1271	1295	1312
0.8	880	1049	1152	1218	1262	1292	1312

Alternative 3

Alternative 3 is a slight modification of the existing CR. It adds the ORCS approach, and divides the adjustment factors of the current CR into uncertainty considerations, addressed by the SSC, and risk tolerance considerations, addressed by the Council.

Reconsideration of ABC Recommendations

Situations may arise for which the Council decides it is necessary and appropriate to remand an ABC recommendation to the SSC for reconsideration or clarification, due to new information or changing circumstances. In such instances, the Council will provide a written statement to the SSC requesting clarification or reconsideration of the ABC recommendation that includes the Council's justification for the remand, guidance on timing of the SSC's consideration of the request, and any documentation that led the Council to request the remand. Circumstances which could lead to the Council remanding an ABC recommendation include, but are not limited to:

- New information becomes available after the SSC makes a recommendation (e.g. through an Advisory Panel (AP), Fishery Performance Reports, new analysis/research, management change, updated or revised catch info).
- A mistake is found in the analysis or inputs that were used to support the ABC.
- The Council changes its risk determination.
- The SSC did not address the Council's request or TORs related to the ABC recommendation and supporting information.

- The SSC did not have a majority present when making the recommendation.
- The SSC's justification for the ABC is not clearly stated (particularly when based on expert judgement, modified uncertainty levels (categories 2-4), or ABC Control Rule deviations).

SSC Deviation from the ABC Control Rule

The SSC may provide an ABC that deviates from strict application of the approved ABC Control Rule if necessary to address scientific uncertainty or available information. If the SSC deviates from the ABC Control rule, it must describe in writing why the deviation was necessary, how the alternative ABC recommendation is derived, and how the alternative ABC addresses scientific uncertainty and the Council's specified risk tolerance.

Other Alternatives Discussed by the Council and SSC

Establish an Ecosystem Component Category

This alternative would create an additional category to address Ecosystem Component stocks identified by the Council under the MSA guidelines. This approach was opposed by the SSC because these stocks are not subject to the full suite of fishing level specifications, such as OFL and ABC, and therefore would not be subject to the same control rule provisions as other stocks in the fishery management unit. Including them in the ABC CR would add confusion and unnecessary complexity.

Establish and identify categories based on data levels

- Data labels, particularly "Data poor" can be negative, misleading.
- Many stocks defy clear categorization by data – relative quality can vary greatly across the available data types.
- There are no accepted standards for the typical data descriptors: (rich, limited, moderate, poor, complete, etc.)
- Characterizing assessments and stocks by data levels may infer inappropriate or undesired quality or reliability conclusions.
- Data availability is not the salient point to determining how ABC is derived; assessment information and uncertainty evaluations are.

Establish and identify categories based on assessment levels or types

- Assessment science is always changing, so model types and descriptions can become outdated or limiting (as shown in the purpose and need regarding data limited approaches).
- Assessment outputs and their reliability is more important to deriving the ABC than the particular type or class of model.
- There can be considerable overlap in the outputs of various assessment models, as well as variations in which outputs are reliable and useful for any particular assessment.
- Characterizing assessments and stocks by assessment type may infer inappropriate or undesired quality or reliability conclusions, and lead to efforts to simply move stocks "up" the hierarchy.
- The assessment type or label is not the salient point to determining how ABC is derived: Assessment information and uncertainty evaluations are.

SSC Recommendations:

- The SSC supported modifying the ABC CR as described in Alternative 2.
- The SSC recommended not including ecosystem component stocks in the ABC CR provisions.
- The SSC did not support designing the ABC CR solely around data or assessment categories or levels, and recommended that the treatment of uncertainty was a more robust and useful categorization approach.
- The SSC supports allowing constant ABC recommendations for 3-5 years.
- The SSC recommends addressing circumstances when the Council can remand, or ask the SSC to reconsider, an ABC recommendation, and developing rules or guidelines to address ABC remands.

Action 2 Specify an approach for determining the acceptable risk of overfishing.

Alternative 1 (No Action). The acceptable risk of overfishing is determined by the acceptable biological catch control rule criteria that are evaluated by the Scientific and Statistical Committee.

Alternative 2. The South Atlantic Fishery Management Council will specify the acceptable risk of overfishing. The existing acceptable biological catch control rule provisions addressing stock status and the productivity and susceptibility analysis (Tier 1, Dimensions 3 and 4), will be deleted, and the South Atlantic Fishery Management Council will specify a risk tolerance for overfishing that will provide a P* adjustment of 0 to 20% that will be added to the uncertainty adjustment of the SSC, considering advice from the Scientific and Statistical Committee and the South Atlantic Fishery Management Council's advisory panels.

Alternative 3. The South Atlantic Fishery Management Council will specify the acceptable risk of overfishing based on three stock biomass levels and three stock risk ratings. The Scientific and Statistical Committee will evaluate a stock's risk category each time the stock is assessed.

Option 1. Allow the highest risk level when stock biomass exceeds 110% of the biomass at maximum sustained yield, and use 110% of the maximum sustained yield biomass level to evaluate the biomass midpoint for defining the boundary between the moderate and low risk levels.

Option 2. Allow the Council to deviate from the default risk levels by 0.1 for an individual stock, based on its expert judgment, new information, or recommendations by the Scientific and Statistical Committee or other expert advisors. Risk tolerance may not exceed 0.5.

Option 3. Assign unassessed stocks to the moderate biomass level, unless there is a recommendation from the Scientific and Statistical Committee that justifies a different level.

Alternative 4. Specify risk tolerance for each stock directly, considering recommendations of the Scientific and Statistical Committee and the Council's advisory panels. Risk tolerance may not exceed 0.5.

DISCUSSION:

Summary table of risk tolerance levels based on stock-specific risk ratings and biomass levels.

Risk rating (Stock Specific)	Council's Default Risk Tolerance: accepted risk of overfishing (P* values)		
	High Biomass Biomass exceeds B_{MSY} (or 110% B_{MSY} per Option 1)	**Moderate Biomass** Biomass is ABOVE the midpoint between B_{MSY} and MSST	**Low Biomass** Biomass is below the midpoint between B_{MSY} and MSST
low	0.45	0.45	0.4
medium	0.45	0.4	0.3
high	0.4	0.3	0.2

The SSC intends to review preliminary stock risk ratings at the October 2018 meeting.

The SSC noted that stock biomass typically exhibits some trend over time. The terminal biomass of the stock assessment would likely be used to determine the risk tolerance level, in the same way the terminal values are used to determine stock status. However, the biomass trajectory should also be considered by the SSC when recommending ABC values, particularly if multi-year fixed ABCs are applied. The SSC further recommends that the Council consider basing risk tolerance on the expected biomass level at the end of the fixed ABC period if necessary to ensure an acceptable overfishing risk over the period covered by the ABC recommendation. Whether this results in a higher or lower risk tolerance would depend on whether the trajectory is increasing or decreasing and whether it crosses one of the thresholds for risk tolerance.

EXAMPLE: B_{MSY} for hypothetical medium risk stock X is 1000, and the minimum stock size threshold (MSST) is 500. The midpoint between B_{MSY} and MSST is therefore 750. The terminal biomass estimate is 800, placing the stock above the B_{MSY}-MSST midpoint and in the moderate biomass range, resulting in a risk tolerance of 0.4. However, in this example the Council requested a 5 year fixed ABC, and due to recent poor recruitment the short term biomass trajectory is downward. In year 5 the stock biomass is projected to be 600, below the midpoint and therefore placing the stock in the low biomass level, resulting in a risk tolerance of 0.3. In this situation, the SSC would base the ABC on the 0.3 risk tolerance, to address declining stock biomass over the ABC period.

Other factors the Council may consider in establishing the acceptable level of risk for a stock include the expected time that would elapse between assessments, whether there is a reliable index of stock abundance, overall management performance relative to catch limits (i.e., whether or not the management program constrains harvest to the ACL), overall assessment and recruitment trends, social and economic considerations, and recent information provided by Fishery Performance Reports.

Additionally, the Council may consider the reliability of information available to support management and recommended catch levels, as well as to evaluate management performance. In

selecting management actions and establishing risk tolerance, the Council should consider the effects its actions may have on scientific information, to avoid exacerbating existing scientific uncertainty. For example, harvest moratoriums typically increase scientific uncertainty because they eliminate the fishery dependent data sources that are often the primary source of information available. When confronted with high uncertainty, the Council may consider incremental actions and management changes, coupled with a specific period over which to evaluate the fishery response. The SSC should consider that there can be a distinction between best scientific information available and suitability for management when evaluating available data.

Alternative 2 represents a slight modification in the existing practices. It would not address the concerns raised by the SSC regarding the information used to determine productivity and susceptibility, and would not address the concern that using a stock's overfishing status to determine the accepted risk of overfishing for that stock creates an unnecessarily large buffer.

Alternative 3 would base risk tolerance on stock specific traits, through the assigned risk rating, and on the stocks biomass. It allows the Council to determine the risk level, and provides flexibility for the SSC and APs to provide recommendations for the Council to consider. By including biomass considerations, it addresses National Standard 1 guidance to consider reducing fishing mortality as stock biomass declines.

Under **Alternative 3**, stocks would be assigned a risk rating of high, moderate, or low by the Council, considering the recommendations of the SSC and the Council's APs. Stock risk ratings would be evaluated each time a stock is assessed, and at other times when necessary to incorporate new information. Both the Council and the SSC may initiate an evaluation of risk ratings.

Risk tolerance values for each biomass and stock category would be set by the Council, considering recommendations from the SSC and other Council APs. Stock biomass used to determine risk would be based on stock assessment results or the expert judgement of the SSC, and categorized as high, moderate, or low. For all stock risk ratings, the highest risk tolerance would be allowed when biomass exceeds the maximum sustained yield (MSY) biomass level. The risk tolerance would be reduced to the moderate level when biomass is below the MSY biomass level, and further reduced to low risk tolerance when biomass is below the midpoint between the maximum sustained yield biomass level and the MSST.

For all stock risk ratings, the highest risk tolerance would be allowed when biomass exceeds the MSY biomass level. The risk tolerance would be reduced to the moderate level when biomass is below the MSY biomass level, and further reduced to low risk tolerance when biomass is below the midpoint between the MSY biomass level and the MSST considering recommendations from the SSC and other Council APs. The SSC will evaluate a stock's risk category each time the stock is assessed.

Under **Alternative 3, Option 1** provides a higher degree of precaution, by raising the biomass level at which the highest risk rating is allowed. **Option 2** provides the Council

flexibility to deviate from the specified risk levels. **Option 3** provides guidance for assigning risk levels when stock biomass is unknown. It includes a default value as well as flexibility for an alternative SSC recommendation.

Alternative 4 is the simplest approach, but also potentially the most difficult to implement as it provides little guidance to the Council on the appropriate risk level. It could be difficult to establish risk levels that adequately reflect stock productivity differences, and risk it not related to stock biomass.

SSC Recommendation:

- The SSC supports varying risk tolerance by biomass levels and considering the PSA risk categories for assigning stock risk ratings.
- The SSC recommends including preliminary risk ratings in the draft amendment, and finalizing those ratings once the amendment is approved.
- The SSC recommends evaluating risk ratings as part of each stock assessment, and also when necessary to address new information that becomes available for a stock.
- The SSC recommends considering social and economic considerations when evaluating risk tolerance. Fishery Performance reports may be useful to identify factors.

Action 3 Specify an approach for determining the probability of rebuilding success for overfished stocks

Alternative 1 (No Action). Do not specify an approach for determining the probability of rebuilding success for overfished stocks.

Alternative 2. When developing a stock rebuilding plan, the South Atlantic Fishery Management Council will specify a probability of rebuilding success, considering the recommendations of the appropriate fishery management plan advisory panel and the Scientific and Statistical Committee.

Alternative 3. When developing a stock rebuilding plan, the South Atlantic Fishery Management Council will specify a probability of rebuilding success based on the stock risk rating. The rebuilding probability will be set at 80% for high risk stocks, 70% for moderate risk stocks, and 60% for low risk stocks. The South Atlantic Fishery Management Council may deviate from these levels by 10% to address unforeseen or unique circumstances. Stocks will be assigned a risk rating of high, moderate, or low by the South Atlantic Fishery Management Council, considering the recommendations of the Scientific and Statistical Committee and the South Atlantic Fishery Management Council's advisory panels.

DISCUSSION:

This action addresses the need to develop a process for specifying rebuilding probability for overfished stocks. If the Council took no action (**Alternative 1**) the rebuilding probability would need to be at least 50%, per MSA requirements.

Alternative 2 provides the most flexibility, as it allows the Council to set the rebuilding probability directly. It does not provide any specific guidance or criteria and therefore could lead to difficulties in implementing consistent approaches to rebuilding that adequately address differences in stock biology and productivity.

Alternative 3 ties the rebuilding probability to stock risk levels. This provides consistency across the methods used to address overfishing (ABC specifications) and overfished conditions (rebuilding plans and rebuilding probabilities).

SSC Recommendation:

The SSC supports specifying rebuilding probabilities and considering stock risk categories.

Action 4 Allow phase-in of acceptable biological catch changes

Sub-Action 4.1. Establish criteria specifying when phase-in is allowed.

Alternative 1 (No Action). No phase-in of ABC changes is allowed.

Alternative 2. A llow phase-in when a new acceptable biological catch is less than X% of the existing acceptable biological catch.

Option 1. X=70%

Option 2. X=80%

Option 3. X=90%

Alternative 3. Allow phase-in when stock biomass exceeds a specific level

Option 1. if stock biomass exceeds the minimum stock size threshold

Option 2. if the stock biomass is greater than the midpoint between the biomass that provides maximum sustainable yield and the minimum stock size threshold.

Sub-Action 4.2. Specify the approach for phase-in of acceptable biological catch changes.

Alternative 1 (No Action). No phase-in of ABC changes is allowed.

Alternative 2. Phase-in acceptable biological catch changes over 3 years.

- Year 1: modified acceptable biological catch may not exceed the overfishing limit.
- Year 2: modified acceptable biological catch equals one-half the difference between the overfishing limit and the new acceptable biological catch recommendation.
- Year 3: modified acceptable biological catch equals the original recommended year 3 acceptable biological catch (based on the projections and analyses that triggered the phase-in).
- Subsequent years: acceptable biological catch is based on revised projections that account for the phase-in during years 1-3.

Alternative 3. Phase-in acceptable biological catch changes over 2 years.

- Year 1: modified acceptable biological catch may not exceed the overfishing limit.
- Year 2: modified acceptable biological catch equals one-half the difference between the overfishing limit and the new acceptable biological catch recommendation.
- Year 3 and beyond: acceptable biological catch is based on revised projections that account for the phase-in during years 1 and 2.

Alternative 4. Phase-in acceptable biological catch changes over 1 year.

- Year 1: modified acceptable biological catch may not exceed the overfishing limit.
- Year 2: acceptable biological catch is based on revised projections that account for the phase-in during year 1.

DISCUSSION:

This action addresses flexibility allowed under the revised National Standard 1 guidelines. Phase in of the ABC is an option the Council can consider to address the social and economic impacts from management changes. Adopting this flexibility does not require the Council to phase-in all ABC changes, nor does adopting one approach prevent the Council for choosing a more restrictive schedule of ABC phase-in. When considering whether or not to phase-in an ABC change, the Council should compare and contrast the risk to the stock against the perceived social and economic benefits of the alternative ABC. Management strategy evaluations may be used to quantify such trade-offs. The Council may consult with its scientific and fishery advisors to help develop a rationale for phase-in.

Relevant National Standard 1 Guidance:

> *Phase-in ABC control rules. Large changes in catch limits due to new scientific information about the status of the stock can have negative short-term effects on a fishing industry. To help stabilize catch levels as stock assessments are updated, a Council may choose to develop a control rule that phases in changes to ABC over a period of time, not to exceed 3 years, as long as overfishing is prevented each year (i.e., the phased-in catch level cannot exceed the OFL in any year). In addition, the Councils should evaluate the appropriateness of phase-in provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible.*

To simplify the analysis and evaluation of alternatives under this action, sub-actions are used to address criteria and process alternatives separately. Therefore, the alternatives under each sub-action can be evaluated relative to each other.

Sub-Action 4.1 provides guidance for when phase-in would be allowed, addressing the National Standard guidance directing the Council to consider when phase-in is appropriate. **Sub-Action 4.1-Alternative 2** bounds the amount of change required in ABC to justify phase-in. This alternative would address the National Standard language referencing "large changes in catch limits." Options under **Sub-Action 4.1-Alternative 2** specify different levels of ABC change. **Sub-Action 4.1-Alternative 3** would address stock biomass considerations. **Option 1** would allow phase-in when a stock is not overfished (biomass exceeds MSST). **Option 2** is more conservative, only allowing phase-in if the biomass is between MSST and the MSY level.

Sub-Action 4.2 provides alternatives for the duration of the phase-in and guidance on determining revised catch levels that will prevent overfishing in years following phase-in. The Council could choose multiple alternatives under this Sub-Action to maximize flexibility and address the availability of updated stock information.

The alternatives provide possible maximum years over which phase-in is applied and do not prevent the Council from using a shorter period. However, because each alternative provides specific details for how the ABC is revised following phase-in, for this action the Council should consider selecting multiple alternatives to provide flexibility in phase-in periods, rather than selecting a single alternative that represents the maximum phase in period the Council is willing to consider. Selecting multiple alternatives would also give the Council flexibility to address the SSC recommendation that assessment schedules be considered when evaluating the timing of a phase-in approach and the updated analyses required to evaluate phase-in effects on the stock.

For example, the Southeast Fisheries Science Center (SEFSC) is considering improvements in the timing for delivering stock assessment information that could result in the Council receiving annual information for select stocks. However, given that the SEFSC has not yet implemented the accelerated delivery of assessment information, the Council cannot consider applying these sub-actions on a stock by stock basis at this time.

Sub-Action 4.2-Alternative 2 provides for a phase in over 3 years, which is the maximum phase in period allowed by the MSA guidelines. The phase in period is shortened for **Sub-Action 4.2-Alternative 3** (2 years) and **Sub-Action 4.2-Alternative 4** (1 year). Considering possible timing of assessment information, and the time required to prepare updated analyses and stock projections to evaluate the impact of phase-in, the maximum phase-in and evaluation period of **Sub-Action 4.2-Alternative 2** would likely be appropriate for those stocks expected to have longer intervals between assessment updates. At the other end of the range, the short evaluation period of **Sub-Action 4.2-Alternative 4** would be appropriate for stocks expected to receive annual updates of assessment information.

As shown in Table XX, the longer phase in of **Sub-Action 4.2-Alternative 2** results in the largest reduction of total catch over time. The cost, or reduction in total catch over the 4 year period illustrated, is lowest for the lowest phase in period proposed in **Sub-Action 4.2-Alternative 4**.

The SSC liaison and Committee chair may work with Council staff to request the projection analyses necessary for the SSC and Council to evaluate and implement phase-in a timely manner.

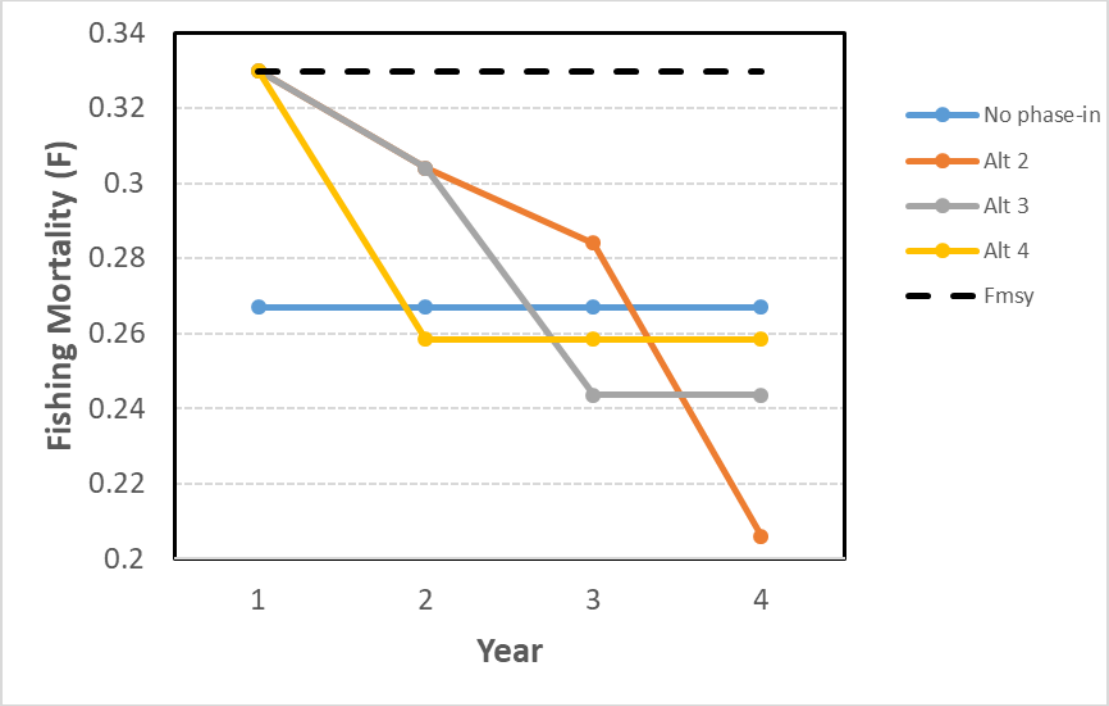
Hypothetical example of ABC phase-in

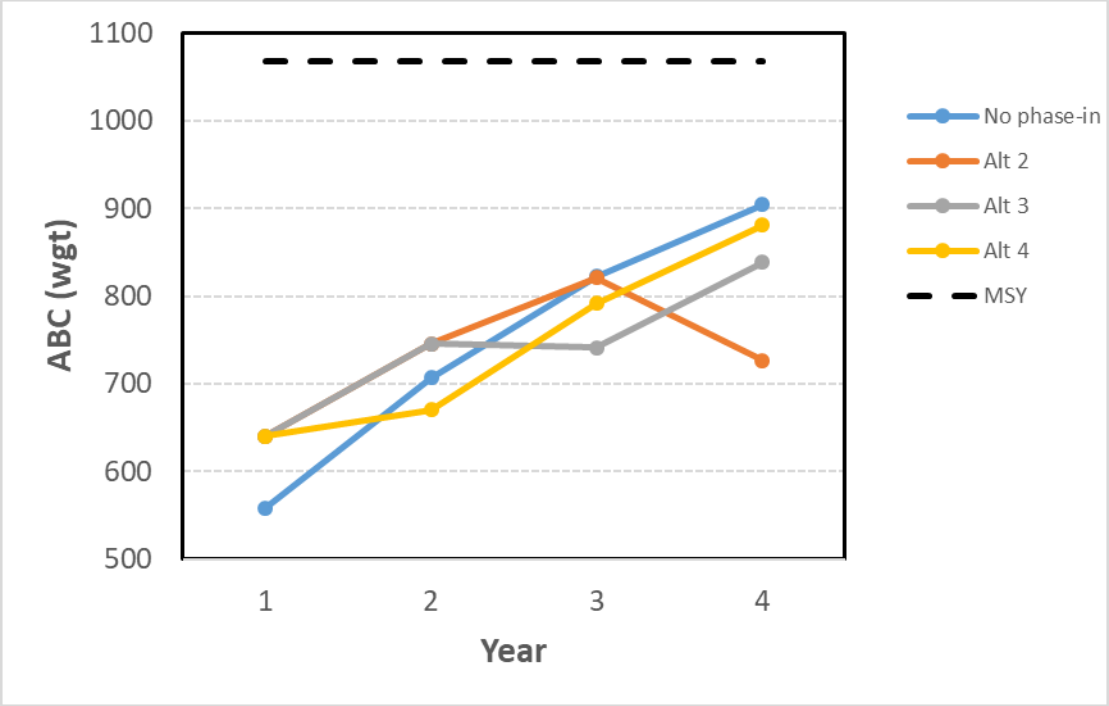
Population dynamics were simulated for a hypothetical fish species. Benchmarks for the stock were determined to be F_{MSY} (OFL) = 0.33, MSY = 1068 (wgt), and SSB_{MSY} = 2668 (mature wgt).

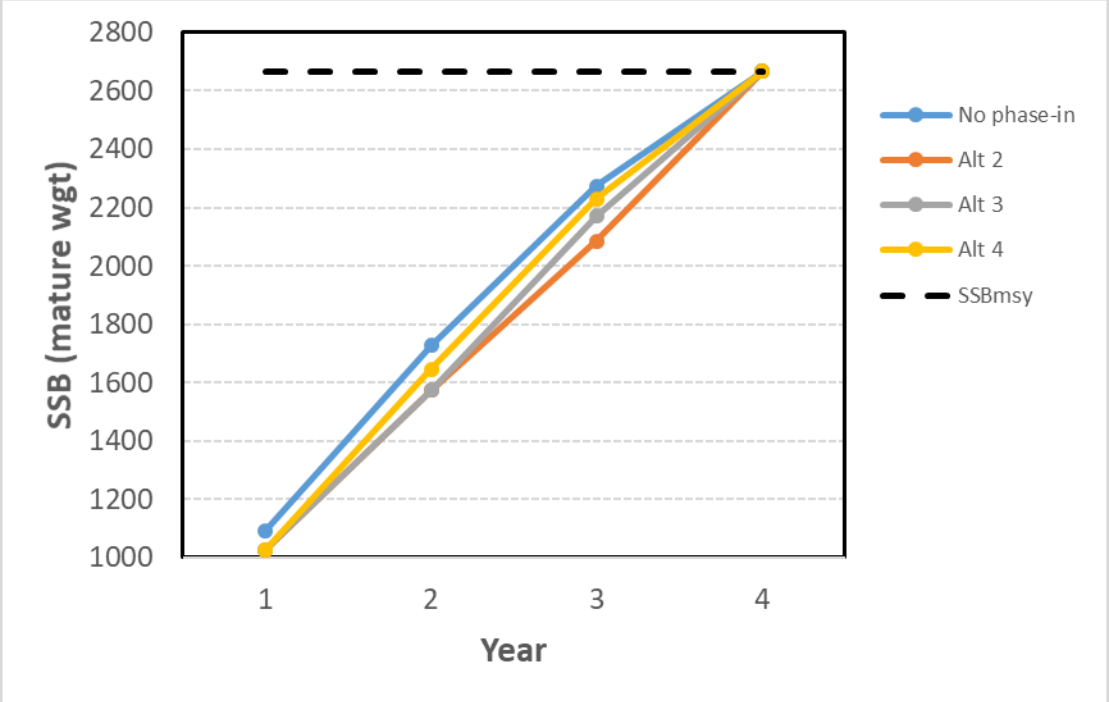
Starting conditions for the stock in year 0 were in an overfishing and overfished state (F=0.8 and SSB = 645), with landings at 924 (wgt). In this example the stock is rebuilding to SSB_{MSY} by year 4. SSB and Yield are increasing over time in this example. The No phase-in alternative is an F-rebuild that rebuilds the stock to SSB_{MSY} in year 4. All alternatives rebuild the stock in year 4.

Fishing Mortality (F)					
Year	**No phase-in**	**Alt 2**	**Alt 3**	**Alt 4**	**F_{MSY}**
1	0.267	0.33	0.33	0.33	0.330
2	0.267	0.304	0.304	0.2584	0.330
3	0.267	0.284	0.2435	0.2584	0.330
4	0.267	0.206	0.2435	0.2584	0.330
ABC (wgt)					

Year	No phase-in	Alt 2	Alt 3	Alt 4	MSY
1	558	641	641	641	1068
2	707	745	745	670	1068
3	822	821	741	792	1068
4	905	727	839	881	1068
SUM	2993	2934	2966	2984	
SSB (mature wgt)					
Year	**No phase-in**	**Alt 2**	**Alt 3**	**Alt 4**	**SSB_{MSY}**
1	1092	1026	1026	1026	2668
2	1727	1574	1574	1647	2668
3	2274	2085	2171	2229	2668
4	2668	2667	2668	2668	2668




1100
1000
900
800
700
600
500
ABC (wgt)
1
2
3
4
Year
No phase-in
Alt 2
Alt 3
Alt 4
MSY


2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
SSB (mature wgt)
1
2
3
4
Year
No phase-in
Alt 2
Alt 3
Alt 4
SSBmsy

SSC Recommendation:

- The SSC supports phase-in for stocks above MSST.
- Assessment frequency should be considered when evaluating phase-in. It is important to avoid 'chasing down' stock reductions. Additionally, long phase-in periods may not be compatible with frequent assessments as the basis for ABC recommendations will change before the prior ABC is reached.
- Management Strategy Evaluations and economic considerations may be useful for evaluating phase-in situations.

Action 5 Allow carry-over of unharvested catch

Sub-Action 5.1. Establish criteria specifying circumstances when unharvested catch can be carried over from one year to increase the available harvest in the next year.

Alternative 1 (**No Action).** No carry over will be allowed.

Alternative 2. Carry-over of unharvested catch will be allowed if the stock is neither overfished nor experiencing overfishing.

Alternative 3. Carry-over of unharvested catch will be allowed if the stock biomass exceeds the midpoint between the Bmsy and MSST biomass levels and the stock is not experiencing overfishing.

Alternative 4. Carry-over of unharvested catch will be allowed for a fishery sector if that fishery sector has experienced a regulatory closure due to catch exceeding that sector's annual catch limit at least once in the previous 3 years.

Alternative 5. Carry-over of unharvested catch will be allowed for a fishery sector if total landings of all fishery sectors over the previous 3 years are less than the landed catch component of ABC for all fishery sectors over those same years.

Alternative 5. Carry-over will not be allowed when ABC changes are phased-in.

Sub-Action 5.2. Specify limits on the amount of unharvested catch that may be carried over from one year to increase the available harvest in the next year.

Alternative 1 (No Action). There will be no carry-over of unharvested catch.

Alternative 2. Allow carry-over of unharvested catch for an individual fishery sector using the buffer between the annual catch limit and the acceptable biological catch.

Alternative 3. Allow carry-over of unharvested catch for an individual fishery sector that results in an adjusted annual catch limit that exceeds the original acceptable biological catch for the year for which the unharvested catch is carried-over,. .

Option 1. If the overfishing limit is unknown, the revised acceptable biological catch may not exceed 105% of the original acceptable biological catch.

Option 2. If the overfishing limit is unknown, the revised acceptable biological catch may not exceed 110% of the original acceptable biological catch.

Option 3. If the overfishing limit is unknown, the revised acceptable biological catch may not exceed 120% of the original acceptable biological catch.

Option 4. If the overfishing limit is unknown, no carry-over is allowed.

Alternative 4. Allow carry-over of unharvested catch for an individual fishery sector of up to 25% of the sector annual catch limit. .

Sub-Action 5.3. Specify an approach for implementing acceptable biological catch and annual catch limit modifications to support carrying over unharvested catch from one year into the next year.

Alternative 1 (No Action). No carry over is allowed.

Alternative 2. Use the framework approaches as provided in each fishery management plan.

Alternative 3. Implement an expedited approach to address carry-over of unharvested catch.

DISCUSSION:

This action addresses flexibility allowed under the revised National Standard 1 guidelines. Carry-over that does not exceed the original ABC can be accommodated under existing rules, using the buffer between the ACL and ABC. However, for many Council stocks, ACL=ABC, so there is no buffer available. Per the National Standard 1 guidance, an ABC CR may include provisions to increase the ABC in the next year to address an ACL underage.

Relevant National Standard 1 Guidance:

> *Carry-over ABC control rules. An ABC control rule may include provisions for the carry-over of some of the unused portion of an ACL (i.e., an ACL underage) from one year to increase the ABC for the next year, based on the increased stock abundance resulting from the fishery harvesting less than the full ACL. The resulting ABC recommended by the SSC must prevent overfishing and must consider scientific uncertainty consistent with the Council's risk policy. Carry-over provisions could also allow an ACL to be adjusted upwards as long as the revised ACL does not exceed the specified ABC. When considering whether to use a carry-over provision, Councils should consider the likely reason for the ACL underage. ACL underages that result from management uncertainty (e.g., premature fishery closure) may be appropriate circumstances for considering a carry-over provision. ACL underages that occur as a result of poor or unknown stock status may not be appropriate to consider in a carry-over provision. In addition, the Councils should evaluate the appropriateness of carry-over provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible.*

The intent of carry-over provisions is to enable the Council to ensure a species can make use of its full ACL. Ideally, in-season adjustments would be made to allow full use of an ACL and alleviate the need for carry over. These carry-over provisions provide additional flexibility when in-season adjustments are not possible, perhaps due to regulatory or data timelines. When considering carry over, the Council must develop rationale that addresses scientific uncertainty and its risk tolerance, and indicates that the carry-over would not result in overfishing. The Council should also consider the impacts of the carry over on rebuilding plans when appropriate. The Council should consult with its scientific and fishery advisors in developing a rationale for carry-over.

Any revised ABC resulting from carry-over would remain in place for one year and may not exceed the OFL, and evaluations of carry-over for future years would be based on the original ABC, not the temporary revised acceptable biological. If the carry-over results in an ACL that exceeds the original ABC for the year for which the unharvested catch is carried-over, the ABC for that year would be revised upwards to accommodate the temporary increase in ACL. Evaluations of possible carry-over for future years would be based on the original ABC, not the temporary revised ABC.

Under the existing ABC CR, the Council could ask the SSC to consider recommending a temporary, higher ABC to accommodate carry-over. This approach is not particularly efficient,

given the timing of Council and SSC meetings. The overall purpose of this action is to develop criteria to guide when carry-over can be allowed while preventing overfishing, and develop an efficient process that would accommodate minor, temporary increases in an ABC to support carry over. Overfishing is prevented as long as the revised ABC stays below OFL, so no increased ABC due to carry over can exceed the annual OFL. As stated in the National Standard guidance, the Council will consider the need for, and consequences of, carry-over, in its justification and request. The Council may consult its scientific and fishery advisors as needed to define and evaluate the justification for carry-over. It is the Council's intent that carry-over would be applied on a sector by sector basis, and that the amount that may be carried over may not exceed the amount of unharvested catch in the prior year. Unharvested catch will be evaluated using the same units of measurement (e.g., weight or numbers) used to specify catch limits for the sector.

The Final Rule addressing carry-over allowances indicates that Councils must state in its FMP when carry over can and cannot be used. This is addressed through the criteria in **Sub-Action 5.1**. The FMP must also state how overfishing is prevented. **Sub-Action 5.1** provides guidance on circumstances when carry-over would be allowed. The alternatives address the National Standard guidance requiring Councils to consider the reason for carry-over and the appropriateness of carry-over for different stock status conditions. **Sub-Action 5.2** addresses the amount of unused catch that could be carried over. Alternatives provide limits on the amount of carry-over, thereby addressing the level of risk and uncertainty. **Sub-Action 5.3** addresses the process by which catch limits would be modified to accommodate carry-over.

Several Alternatives are considered in **Sub-Action 5.1** to provide guidance on when carry-over can be applied. Under **Sub-Action 5.1-Alternative 1**, no carry-over would be allowed. **Sub-Action 5.1-Alternatives 2** and **3** address stock status conditions, with **Sub-Action 5.1-Alternative 3** allowing carry-over when biomass is higher than the overfished standard (MSST) applied in **Sub-Action 5.1-Alternative 2**. **Sub-Action 5.1-Alternative 4** addresses carry-over following catch-based regulatory closures for an individual fishery sector. A sector must have experienced a catch-based regulatory closure during the prior 3 years to be considered eligible for carry-over. **Alternative 5** considers carry-over for a fishery sector, similar to **Sub-Action 5.1-Alternative 4**, but bases the criteria for allowing carry-over on the catch history over the entire fishery during the prior 3 years. This alternative would be evaluated by comparing the sum of the landings component of ABC over the prior 3 years to the sum of landings over those 3 years, for all fishery sectors combined. If different sector ACLs are specified in different catch units (e.g., one in pounds and another in numbers), landings will be evaluated based on the units used to specify ABC and apply sector allocations to determine ACL. Note that for most Council-managed fisheries, the landings component of the ABC will equal the ACL.

Sub-Action 5.2, Alternative 1 would not allow for carry over. For **Sub-Action 5.2, Alternative 2**, the amount of catch that could be carried over is limited by, and may not exceed, the ABC. For **Sub-Action 5.2, Alternative 3**, the original ABC for the carry-over year would be revised upwards to accommodate the temporary increase in ACL. The revised ABC would remain in place for one year and may not exceed the OFL, and evaluations of carry-over for future years would be based on the original ABC, not the temporary revised ABC.

The expedited approach of **Sub-Action 5.3-Alternative 3** would operate as follows. The Council would consider the need for and benefits of carry over during a scheduled Council meeting. If the Council decides carry over would be beneficial to a species and would not result in overfishing, it would notify the Regional Administrator of the recommendation for carry-over in a letter indicating that the criteria and guidance of this amendment are met. The letter would include the Council's analysis of the relevant biological, economic, and social information necessary to meet the criteria and guidance and support the Council's request. If the Regional Administrator concurs that the Council's recommendations are consistent with the objectives of the FMP, the MSA, and all other applicable law, the Regional Administrator would be authorized to implement the Council's request through publication of appropriate notification in the *Federal Register*, providing appropriate time for additional public comment as necessary.

Hypothetical example of ABC carryover

Population dynamics were simulated for a hypothetical fish species. Benchmarks for the stock were determined to be F_{MSY} (OFL) = 0.33, MSY = 1068 (wgt), and SSB_{MSY} = 2668 (mature wgt). Because stock status is important in determining the constraints for carryover, we simulated the initial stock conditions in two ways.

In the first starting condition the stock in year 0 is in an overfishing and overfished state (F=0.8 and SSB = 645), with landings at 924 (wgt). In this example the stock is rebuilding to SSB_{MSY} by year 4. Using a 100 (wgt) carryover from year 1 to year 2, we compare the F and ABC values to the case where no carryover occurred. In both cases the stock reaches the same target biomass, SSB_{MSY} in year 4. Note that this scenario is similar to the phase-in example.

Original ABC advice					**100 (wgt) carryover in year 2**			
Year	**Full F**	**ABC (wgt)**	**SSB**		**Year**	**Full F**	**ABC (wgt)**	**SSB**
1	0.267	558	1092		**1**	0.203	458	1164
2	0.267	707	1727		**2**	0.312	807	1748
3	0.267	822	2274		**3**	0.264	813	2272
4	0.267	905	2668		**4**	0.264	896	2668
	SUM	2993				**SUM**	2975	

In the second starting condition the stock in year 0 is at 75% SSB_{MSY} (F=0.41 and SSB = 2001), with landings at 1057 (wgt). In this example the stock is constrained by the OFL (expressed as the yield provided at MFMT (F=0.33)) in most years. Using a 100 (wgt) carryover from year 1 to year 2, we compare the F and ABC values to the case where no carryover occurred. Under this scenario the full 100 (wgt) carryover is not possible because of the OFL constraint. Instead only 33 (wgt) carryover is allowable for the ABC in year 2, fishing at the OFL level.

Original ABC advice					100 (wgt) carryover in year 2			
Year	**Full F**	**ABC (wgt)**	**SSB**		**Year**	**Full F**	**ABC (wgt)**	**SSB**
1	0.33	940	2168		**1**	0.275	840	2290
2	0.33	985	2334		**2**	0.33	1018	2456
3	0.33	1016	2459		**3**	0.33	1039	2549
4	0.33	1037	2540		**4**	0.33	1052	2600
	SUM	3978				**SUM**	3949	

SSC Recommendation:

- The SSC supported this action if applied to stocks that are neither overfished nor overfishing, and have catch close to the ACL.
- The SSC commented that species' biology is a factor, and the stock consequences of carry-over will differ between short-lived and long-lived stocks.
- The SSC recommended requesting updated stock projections to evaluate carry-over and to provide a basis for ABC recommendations in years after carry-over occurs.
- The SSC recommended considering the precision of catch estimates when allowing carry-over of a percentage of the ACL (Sub-Action 2, Alternative 3).
- The SSC recommended adding a terms of reference to future assessment reviews and ABC recommendations addressing whether carry-over should be allowed for a stock. The SSC could then consider the stock's condition and trend, past management and fishery trends, and recommended whether carry-over would result in an unacceptable risk of overfishing during the period covered by the ABC recommendation.
- The SSC recommended considering the B_{MSY}-MSST midpoint as a threshold for carry-over. Carry-over would not be allowed if the stock biomass is below the midpoint (or estimated to fall below the midpoint during the period covered by the ABC recommendation).

Appendices

Definitions

ABC Control Rule (ABC CR)	A policy for establishing a limit or target catch level that is based on the best scientific information available and is established by the Council in consultation with its SSC.
Accountability Measure (AM)	Management controls to prevent ACLs, including sector-ACLs, from being exceeded, and to correct or mitigate overages of the ACL if they occur.
Allowable Biological Catch (ABC)	A level of a stock or stock complex's annual catch, which is based on an ABC control rule that accounts for the scientific uncertainty in the estimate of OFL, any other scientific uncertainty, and the Council's risk policy.
Annual Catch Limit (ACL)	A limit on the total annual catch of a stock or stock complex, which cannot exceed the ABC, that serves as the basis for invoking accountability measures. An ACL may be divided into sector-ACLs (*see* paragraph (f)(4) of this section).
Annual Catch Target (ACT)	An amount of annual catch of a stock or stock complex that is the management target of the fishery, and accounts for management uncertainty in controlling the catch at or below the ACL.
Approaching an Overfished Condition	A stock or stock complex is approaching an overfished condition when it is projected that there is more than a 50 percent chance that the biomass of the stock or stock complex will decline below the MSST within two years.
Buffer	Informal term often used by the SSC when referring to the difference between OFL and ABC. Related to the level of assessment uncertainty. May be expressed in absolute values or as a percentage of OFL.
Catch	The total quantity of fish, measured in weight or numbers of fish, taken in commercial, recreational, subsistence, tribal, and other fisheries. Catch includes fish that are retained for any purpose, as well as mortality of fish that are discarded.
Fishery Performance Reports	
Coefficient of Variation (CV)	Standardized statistical measure of uncertainty, reflecting the dispersion (i.e. spread) of a probability distribution.
Optimum Yield	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.

Overfished	A stock or stock complex is considered "overfished" when its biomass has declined below MSST.
Overfishing	Occurs whenever a stock or stock complex is subjected to a level of fishing mortality or total catch that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis.
Overfishing Limit (OFL)	Annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance and is expressed in terms of numbers or weight of fish.
Management Uncertainty	Uncertainty in the ability of managers to constrain catch so that the ACL is not exceeded, and the uncertainty in quantifying the true catch amounts (i.e., estimation errors). The sources of management uncertainty could include: Late catch reporting; misreporting; underreporting of catches; lack of sufficient inseason management, including inseason closure authority; or other factors.
Maximum Fishing Mortality Threshold (MFMT)	The level of fishing mortality (i.e. F), on an annual basis, above which overfishing is occurring. The MFMT or reasonable proxy may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential.
Maximum Sustainable Yield (MSY)	The largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technological characteristics (*e.g.*, gear selectivity), and the distribution of catch among fleets.; actual year to year yields will vary with changes in stock size and catch characteristics.
MSY Fishing Mortality Rate	Fmsy; The fishing mortality rate that, if applied over the long term, would result in MSY.
MSY Stock Size	Bmsy; The long-term average size of the stock or stock complex, measured in terms of spawning biomass or other appropriate measure of the stock's reproductive potential that would be achieved by fishing at Fmsy.
Minimum Stock Size Threshold (MSST)	The level of biomass below which the capacity of the stock or stock complex to produce MSY on a continuing basis has been jeopardized; used to determine if a stock is overfished.
Probability Density Function (PDF)	A function that can be used to determine the likelihood of a particular value. In ABC CR use, it can provide the yield associated with a given P*.

Scientific Uncertainty	uncertainty in the information about a stock and its reference points. Sources of scientific uncertainty could include: Uncertainty in stock assessment results; uncertainty in the estimates of MFMT, MSST, the biomass of the stock, and OFL; time lags in updating assessments; the degree of retrospective revision of assessment results; uncertainty in projections; uncertainties due to the choice of assessment model; longer-term uncertainties due to potential ecosystem and environmental effects; or other factors.

ABC CONCEPTUAL DIAGRAMS & DESCRIPTION

The following figures illustrate the relationships between reference points and how OFL and ABC are derived from the yield distribution and the chosen risk tolerance (P*).

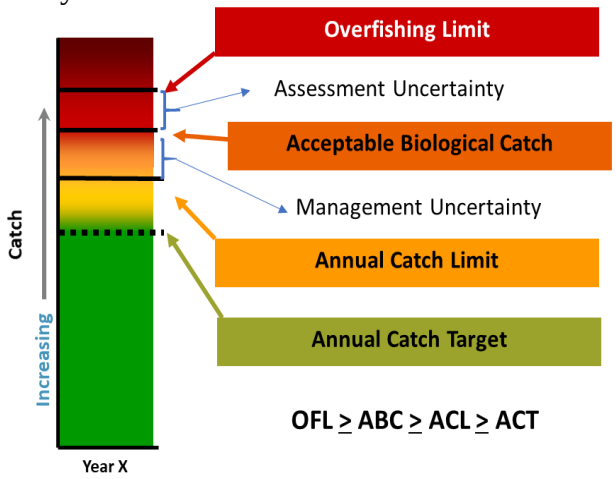


Figure 1. Illustrated general relationship between OFL, ABC, ACL, and ACT. The difference between OFL and ABC addresses assessment uncertainty, while the difference between ABC and ACL addresses management uncertainty.

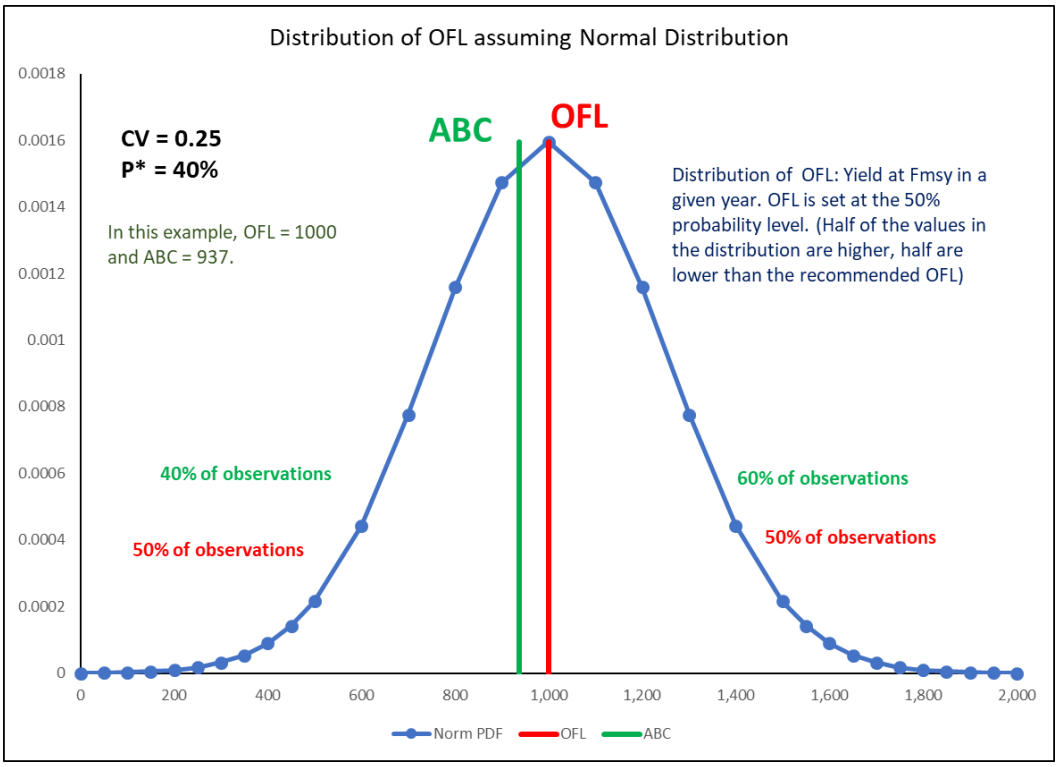


Figure 2. Example distribution illustrating OFL and ABC for a hypothetical stock with OFL=1000 pounds, a chosen risk tolerance or P* pf 40% (40% chance that overfishing occurs), and an assessment CV of 0.25.

How is ABC derived for assessed stocks under this rule?

Three basic items are required to derive an ABC from a stock assessment:

1. Estimates of productivity (i.e. MSY and OFL) and stock assessment uncertainty.

These are products of an assessment and inputs to the ABC Control Rule. Various proxies can be used for unassessed stocks, such as SPR (spawning potential ratio) levels, or Fmax.

a. Estimated yield (OFL) and, ideally, a distribution of its uncertainty or a PDF.

b. Assessment CV that can be applied to the OFL distribution

2. A risk tolerance for overfishing (e.g., P*).

This is set by the Council, as guided by the ABC Control Rule. Typically, the Council will provide risk tolerance guidance for the SSC to use when applying the ABC CR.

a. The Council will specify a risk rating for each stock (Action 2).

The SSC and relevant AP will provide guidance and recommendations for consideration by the Council.

b. The SSC will evaluate the biomass level of the stock, either through the use of assessment results or, in the case of unassessed stocks, application of its best judgement as informed by other information as may be available.

c. The risk tolerance is determined based on the combination of the stock risk rating and the stock biomass (Action 2).

3. A method for applying the risk tolerance to the assessment results.

This is addressed by the SSC, guided by the ABC Control Rule, and forms the basis of the ABC recommendation.

a. Direct approach: distribution of OFL used to derive ABC

The P* is applied to the distribution (PDF) of the estimated overfishing level (OFL). MSY or the OFL is based on the midpoint (50^{th} percentile) of the estimated stock yield at FMSY. ABC is based on a different percentile, determined by the P* value. For example, if the risk of overfishing is 30%, P*=0.3 and ABC is determined by the 30^{th} percentile of the OFL yield. The difference between ABC and OFL will vary across assessments, and will depend on the observed OFL distribution.

This is the approach used most often for assessed SAFMC stocks.

(To come: some example OFL distributions)

b. Indirect approach: CV and assumed distribution of OFL used to derive ABC

If the distribution of OFL is not available, or not considered adequate for determining ABC, the ABC can be derived from a measure of assessment uncertainty (CV) and an assumed distribution of OFL. The type of distribution assumed (e.g., normal or log-normal) determines its shape. The CV determines how widely the distribution spreads. Thus, high CV distributions are broad and

flat, encompassing many values; while low CV distributions are narrow and steep, encompassing fewer values with many more values centered closely around a mode or median.

Once a CV and type of distribution is decided, the buffer between ABC and OFL can be determined for any risk level. In fact, the buffer can be determined in advance for any combination of CV, distribution, and risk tolerance (P*). To derive ABC, the buffer calculated by the CV, distribution, and P* is applied to the OFL. For example, if a CV of 0.5 and a log-normal distribution of OFL are assumed, the ABC buffer will be 53%. If the OFL were 100,000 pounds, the OFL would be 47,000 pounds.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

PUBLIC SCOPING SESSION
ABC CONTROL RULE AMENDMENT/ RECREATIONAL ACCOUNTABILITY MEASURES
(ADDRESSING RECENT AMENDMENTS TO THE MSFCMA)

Webinar

January 24, 2019

PUBLIC COMMENTS

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Bill Mandulak: Yes, based on the following question, I'd like to see that the carryovers be allocated by sector, seems to make the most sense to me. And I know it would have affected me in a few instances. That would be my comment or recommendation. And I'll formally submit it, as well.

Bill Gorham: Bill Gorham from, Southern Shores, North Carolina. I'm just commenting to say that I'm strongly in favor of the Council taking any action, whether it be ABC, all of it. That is the more common sense approach, that takes into account the uncertainty; the lack of data, the lack of funding and data across migratory ranges. Would definitely love to see higher percentages of that risk management. I think we've gone through ten years of less is better, less is better, always less is better. We all see the troubles that is has caused as far as economically for some. And I am happy to hear that this is being done and I hope the Council is willing to take bold steps; even if it's within the Council itself. Passing or trying to pass measures that they know are right. That's all that I have.

Bill Mandulak: I will submit some written comments online as well. I think the end season closures for most of these species is really ineffective. By the time you get enough data to decide whether you're going to close the fishery or not, communicating that, in our case 700,000 recreational fisherman; the chances of them getting it are pretty small. Obviously if you're a charter captain, or something like that or a guy that is following this stuff on a regular basis- that is fine. But most of the recreational fisherman, they are not going to go on a website or something, if they are just going out on a weekend. I think it's ineffective both from a reliability point of view, basing it on MRIP, but also just from communication point of view; I think it's pretty ineffective. I would much rather see a fixed season; if there is a possibility to expand it. Because we are not needing the allowable catch, that's fine. But trying to close it, is a waste of time, I think. Just my two cents.

Bill Gorham: Bill Gorham from Southern Shores, NC and I have submitted written comments as well; but one comment I would definitely like to put on record is that end season closures are not feasible, it appears. But also shortening seasons; the method used in the following years, is determined if there needs to be a shortening in the season; should also factor in any regulatory

changes in that. An example is this year's commercial Cobia season closed the exact same day it did in the year prior; but a state that was catching fifty percent of the quota went from six per boat, per day went down to a two per boat, per day. It resulted in North Carolina again being left out of their historically peak November fishery. But I would definitely like to see changes to the accountability measures and have them reflect the uncertainty in the catch estimate and even uncertainty in the assessment itself. I also think having a trigger, accountability can be, I think that if we have really high catches, it may be because the abundance is really high any maybe there needs to be a stock assessment to determine there may have been a big spawn that was not caught in the last stock assessment that maybe five years old. But I am not in favor of shortening seasons within one year and even boat limits within one year. So, if there can be accountability measures that fall within the law that look over multiple years and data uncertainty, I think that is a win-win for everybody.

Transcribed by:

Cierra Graham

February 1, 2019

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

SSC Meeting Overview

April 9-11, 2019

Town & Country Inn
Charleston, SC

VERSION
FINAL
May 7, 2019

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APPENDIX A

Tables

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Attachment 13. Risk Tolerance Method spreadsheet
Attachment 14. Risk Tolerance Method Story Map (click here to go to Story Map)
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Attachment 16. Final SEP Report (also Appendix A)
Attachment 17. Background Materials
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Attachment 20. MRIP Revision Assessments Report
Attachment 21. Feb 2019 MRIP Revisions Webinar Report
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Attachment 23. Agency letters concerning FES calibrated MRIP data issues
Attachment 24. SEDAR Committee Report, March 2019
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Attachment 26. SAFMC Amendments Overview, March 2019

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 2, 2019. 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 at set times during SSC meetings. The first will be at the beginning of the meeting, and the second near the conclusion. Those wishing to comment should indicate such in the manner requested by the Chair, who will then recognize individuals to provide comment.

An opportunity for comment on specific agenda items will also be provided as each item comes up for discussion. Comments will be taken after all the initial presentations are given and before the SSC starts the discussion of the agenda topic. As before, those wishing to comment should indicate such in the manner requested by the Chair, who will then recognize individuals to provide comment. All comments are part of the record of the meeting.

1. INTRODUCTION

1.1. Documents

Agenda
Attachment 1. Minutes of the October 2018 meeting
Attachment 2. Minutes of the February 25, 2019 MRIP Revision Assessments webinar

1.2. SSC Recommendations

- Introductions
- Review and Approve Agenda
  - *SSC approves agenda as is.*
- Approve Minutes
  - *SSC approves minutes from the Oct 2018 SSC meeting as written. SSC approves minutes from the Feb 2019 webinar as written.*

2. PUBLIC COMMENT

The public will be provided an opportunity to comment on SSC agenda items as they are being discussed during the meeting. Comments will be taken after any initial presentations are given on a particular topic, but before the SSC begins their discussion of the topic. There will also be an opportunity for comment at the start and end of the meeting. Those wishing to make comment should indicate their desire to do so to the Committee Chair.

3. SEDAR ACTIVITIES

3.1. Documents

Attachment 3. SEDAR Projects Update
Attachment 4. Revised Scamp Research Track Schedule

3.2. Overview

Updates on individual SEDAR projects can be found in Attachment 3. This version primarily addresses the impacts of the government shutdown. There will also be effects considered in the future from the ongoing efforts by this committee to address the revised MRIP data.

3.3. SSC Discussion and Recommendations

- Can those who volunteered for the Scamp Research Track Data Workshop still attend given the revised schedule? If not, is there anyone else interested in participating?
  - *Those SSC members scheduled to attend the Scamp Data Workshop are still able to attend: George Sedberry, Marcel Reichert, and Anne Lange.*
  - *The approximate dates for upcoming participatory events include:*
    - *2019*
      - *June: Stock ID Scoping Webinar*

- *August and September: Stock ID Webinars*
- *October: Data Scoping Call*

- *2020*
  - *January: Data Webinar*
  - *March 16-20 (tentative) Data Workshop*
  - *May: Discard Mortality Webinar*
  - *June: Post Data Workshop Webinar*
  - *July-November: Assessment Webinars*
- *2021*
  - *March: Review Workshop*

- Are there any other scheduling conflicts due to the revised SEDAR schedules?
  - *Yellowtail Snapper Data Workshop has been rescheduled to June 25-27 (St. Petersburg, FL).*
    - *Dr. Marcel Reichert is unable to attend. Dr. Luiz Barbieri has volunteered to replace Dr. Marcel Reichert at the Data Workshop.*

Table 1. SEDAR Projects Underway.

SEDAR Project	Assessment Type	SSC Representatives	Schedule Overview - please see individual project schedule for more details
SEDAR 58: Atlantic Cobia	Benchmark	Data Workshop: George Sedberry, Anne Lange	Webinar & In-person Workshop (Apr 1-5, 2019)
		Assessment Process: Jeff Buckel, Anne Lange	Webinars (Jun - Oct 2019)
		Review Workshop: Rob Ahrens (reviewer)	In-person Workshop (Nov 19-21, 2019)
SEDAR 59: South Atlantic Greater Amberjack	Standard	Panel: Anne Lange, Fred Serchuk	Webinars (May 2018 - June 2019) Schedule on hold pending SSC workshop addressing MRIP
SEDAR 60: South Atlantic Red Porgy	Standard	Panel: Marcel Reichert, George Sedberry, Fred Scharf	Webinars (Mar-Apr 2019) Schedule on hold pending SSC workshop addressing MRIP
SEDAR 64: Southeastern Yellowtail	Benchmark	Data Workshop: George Sedberry, Luiz Barbieri	Webinar and In-person Workshop (Jun 25-27, 2019)
		Assessment Process: Fred Serchuk, Anne Lange	Webinars (Aug - Dec 2019)
		RW: Amy Schueller, Alexei Sharov	In-person Workshop (Feb 25-27, 2020)

Table 2. Future SEDAR Projects - no Council appointments have been made yet; names below are SSC members who volunteered thus far.

SEDAR Project	Assessment Type	SSC Representatives	Schedule Overview - please see individual project schedule for more details
SEDAR 66: South Atlantic Golden Tilefish	Standard	Luiz Barbieri, Genny Nesslage, Churchill Grimes	Exact schedule TBD; preliminary schedule includes Webinars (~ late spring 2019 - winter 2020) & In-person Workshop (Jan 2020)
SEDAR 68: South Atlantic & Gulf of Mexico Scamp	Research Track	Stock ID: George Sedberry	Exact schedule TBD; preliminary schedule includes Stock ID webinars (Jun-Sep 2019); Data webinars (Oct 2019 - Jun 2020) and in-person workshop (Mar 16-20, 2020); Assessment webinars (Jul-Oct 2020); Review workshop (~Mar 2021)
		Assessment Development Team: Marcel Reichert, Alexei Sharov, Rob Ahrens	
		Other DW Participants:	
		Other AW Participants	
		RW:	

4. SNAPPER GROUPER FISHERY ECONOMIC OVERVIEW

4.1. Documents

Attachment 5. SG Econ Overview Tech Memo
Attachment 6. SG Econ Overview Presentation

4.2. Presentation

Economic Analysis Overview: Dr. Christopher Liese, NMFS

4.3. Overview

In the fall of 2018, the Southeast Fisheries Science Center (SEFSC) released the technical memorandum *Economics of the U.S. South Atlantic Snapper-Grouper Fishery – 2016* (Attachment 5). The tech memo provides summary information and economic estimates for the snapper grouper fishery as a whole and for specific Segments of Interest (SOI) that consist of species or groups of species within the snapper grouper management complex. Among the results are estimates of net revenue and net cash flow that are potentially useful for better analyzing the economic effects of fishery management actions on the commercial sector. The Committee will receive a summary presentation from the SEFSC on the methods and major findings from the tech memo (Attachment 6) as well as input from the Socio-Economic Panel's (SEP) review that will have occurred earlier in the week.

4.4. SSC Discussion and Recommendations

- Review the analysis, discuss the uncertainties, and determine if it is the best scientific information available and usable for management decisions.

- *The SSC appreciates this work and the advancement it represents. We anticipate that this information will be valuable in providing recommendations to the Council in the future.*
- *All three SSC members on the SEP expressed the SEP's pleasure with the research and the committee's enthusiastic support for this approach (see details in SEP report from their April 2019 meeting). The* ***SEP reached consensus, and the SSC concurred, that these reports and the methodology used to generate them is Best Scientific Information Available and usable for management.***
- *There was some concern that by removing respondents from the pool of those logbooks analyzed for the year following their use in the analysis, the randomness of sampling would be affected. It was noted that since sampling of first year and subsequent years is random, the randomness is not compromised.*
- *The SSC noted that the availability of variables such as profitability (not just gross revenue) and other more nuanced variables is important to fishery economic descriptions for management/amendments. Also, this information can be used to evaluate the different outcomes of management regimes. It can also help understand fisher behavior in fisheries with limited or fishery dependent data.*
- *Question: Why the differences in economic outcomes between the Gulf and Atlantic? Answer/Discussion: There seems to be a higher efficiency of the fishery in the Gulf; also, there are differences in the relative size of the fisheries. These factors drive revenue per vessel higher in Gulf. Regulatory decisions in the Gulf and Atlantic also make a difference to costs; e.g., trip limits in Atlantic drive up fuel costs (as more fuel must be burned over more trips). The regulatory approach in the Gulf allows for more efficiency.*
- *Question: What non-economic data are available that have been cleaned using this process? Answer: Depth and gear were not used.*
- *Question: Is code and data available? Answer: Government owns code, so code and methodology are certainly available for sharing within NMFS (code developer is no longer available to NMFS, so program is currently in maintenance mode and cannot be expanded to address additional variables at this time). Currently the data and the report are not available as an interactive data tool. This is because R only produces output as a pdf file at this point, and because of the importance of appropriate data analysis/selection when developing SOIs. The SSC recommends that when possible, these data should be made available on line. The automation of this process will make these data available for use very quickly. It would also be nice to see some of the metrics in graphical format as the time series gets longer.*
- *The SSC discussed: how this information can be used for recommendations to the Council or for management? Answer/Discussion: So far the information*

has been used on a more ad-hoc basis, but it is now ready to be released for broader usage. Ready access to information on variables such as profitability (not just gross revenue) and other more nuanced variables can be used to evaluate different outcomes of management regimes e.g., IFQ in Gulf vs. regulated open access in the South Atlantic. The information can also help to understand fisher behavior in fisheries with limited data or only fishery dependent data. In addition, the data can be used to assess effectiveness of continuing the two-for-one permit requirement in the South Atlantic snapper-grouper fishery.

- *Question: How is uncertainty in the analyses accounted for in the sampling methods and in defining confidence intervals? Answer: Initially, the researchers were hoping to get to more homogeneity through definition of Segments of Interest (SOIs), but in practice this did not happen. More guidance for users on what data are appropriate for which management purposes will be forthcoming.*
- *There was some concern that the timing of return of logbooks may affect the uncertainty and accuracy. E.g., those who log and return data early/throughout the season vs. those who turn it in at the end, just in time to be able to renew permits. The researchers checked for effects related to time returned and found no significant differences. A bigger issue that may increase uncertainty is changes in the definition of spatial zones over time when management changes.*
- *The SSC noted the following potential sources of uncertainty: 1) Large variations in the landings per trip data; 2) the practice of excluding vessels from the sampling frame if they were sampled in the previous year.*

5. REVIEW OF SNAPPER GROUPER REGULATORY AMENDMENT 29

5.1. Documents

Attachment 7. SG Reg Am 29

5.2. Overview

Commercial and recreational fishermen have expressed concern about regulations that result in released fish that do not survive. To reduce the number of released fish and improve the survivorship of released fish, the Council is considering best fishing practices as either mandatory or voluntary options. Current preferred alternatives in Snapper Grouper Regulatory Amendment 29 (Attachment 7) would require a descending device be on board vessels fishing for or possessing snapper grouper species and would require the use of non-offset, non-stainless-steel circle hooks to fish for snapper grouper species north of 28 degrees North Latitude. The Council has requested input from the Scientific and Statistical Committee (SSC) on how best fishing practices might affect estimates of release and release mortality, and how that could be considered in future stock assessments. Chapter 9 of Attachment 7 is a list of all the references used in the amendment, many of which are studies on the effectiveness of circle hooks, venting

tools, and descending devices on a variety of species in a variety of different circumstances. If anyone would like a copy of any of these references and is unable to access them, please contact Dr. Mike Errigo (mike.errigo@safmc.net) or Christina Wiegand (christina.wiegand@safmc.net) and we would be happy to provide you with a copy.

5.3. SSC Discussion and Recommendations

- Does the SSC consider non-offset circle hooks and descending devices effective methods for reducing release mortality?
  - *The SSC considers the proper use of non-offset circle hooks, venting devices, and descending devices effective methods for reducing release mortality.*
    - *However, quantifying the extent of the benefit from these tools is not possible without more information, some of which still needs to be collected.*
    - *The effectiveness of descending devices will also depend on depth and species.*
  - *Paper by Crandall et al. suggests anglers prefer venting devices over descending devices and the SSC recommends that the Council consider angler preferences when mandating one or the other to be on board.*
  - *Some studies show no difference between survival of fish vented vs. descended. However, it was noted that this is only true when the person venting knows the proper way to vent fish. Many studies are done by researchers who have received training in proper handling and venting of fish.*
  - *The SSC suggested adding an alternative that requires either a venting or descending device.*
    - *Council staff noted that a similar alternative was removed from the Amendment due to the Council's preference for descending over venting devices. Main reason was that research has shown in general, venting was not being performed properly, causing more harm than good.*
  - *The SSC emphasized that outreach and education (perhaps by means of a campaign) is very important for the success of this initiative.*
  - *Actual impacts of use of these tools will heavily depend on compliance. However, the SSC realizes that compliance is difficult to determine.*
- Are there any potential negatives to stocks or fisheries from these measures?
  - *If venting is not done properly, it can cause additional harm to the fish, increasing release mortality.*
  - *The use of descending devices can increase handling time, which has been shown to increase release mortality.*
- Can the SSC provide any guidance on factors affecting effectiveness of these measures, or on species they are likely to benefit?

- *Handling time is very influential on actual survival, so there is need for outreach regarding if and when to use descending devices.*
- *Depth is a very influential factor on release mortality and the effectiveness of descending and venting devices. Fish caught in shallow waters may not require any descending methods and quick release without venting or descending device may optimize survival. However, fish caught in deeper waters will benefit from properly used descending methods, which should reduce mortality.*
- *The need for using a device will depend on the species.*
  - *There is variability, by species, in barotrauma, effects of handling, and resulting release mortality.*
- *Level of compliance can determine the effectiveness of descending devices in reducing release mortality.*
- *Proper use, especially of venting devices (enhanced by means of outreach and training), can have a large effect on the effectiveness of these devices.*

- If these methods are effective, will requiring non-offset circle hooks and descending devices allow the impacts to be applied in future stock assessments?
  - *It could take some time before benefits to release mortality can be applied to stock assessments due to the amount of information that needs to be collected after these requirements are implemented.*
  - *The level of compliance is critical for adjusting estimates of release mortality and for subsequently incorporating these estimates into stock assessments. The effect of compliance could be investigated in sensitivity runs.*
- How might these benefits be incorporated into a stock assessment framework?
  - *Can be used to inform release mortality. For example, if 50% compliance then a lower release mortality (associated with the use of a device) could be applied to 50% of the live releases.*
  - *May be able to investigate effect of compliance and use of devices in sensitivity runs.*
- Is there any additional information needed in order to take advantage of these benefits in a stock assessment framework?
  - *Collection of data on angler compliance and use of descending devices, venting tools, and circle hooks, as well as changes in release mortality estimates.*
  - *Additional studies on differences in handling time between different descending devices and venting devices could aid in reducing uncertainty in release mortality estimates.*

6. UPDATE ON SEFSC RESEARCH EFFORTS

6.1. Documents

None.

6.2. Overview

The Committee will be updated on research projects currently ongoing within the SEFSC, with a particular focus on those directly affecting stock assessments.

6.3. SSC Discussion and Recommendations

- No specific actions required.

7. SOUTH ATLANTIC ECOSYSTEM MODEL USE IN FISHERIES MANAGEMENT

7.1. Documents

Attachment 8. South Atlantic Ecopath with Ecosim Model Completion
Attachment 9. Ecopath to Analyses, Tools and Evaluation
Attachment 10. Background Material on Use of Ecopath Model

7.2. Presentation

South Atlantic Ecopath with Ecosim Model Completion and Simulations: Dr. Tom Okey, UVIC
Ecopath to Conducting Analyses, Developing Tools and Evaluations: Luke McEachron, FWRI

7.3. Overview

As part of the FEP II development process a new generation South Atlantic ecosystem modeling effort funded by the South Atlantic Landscape Conservation Cooperative (SALCC), was conducted to engage a broader scope of regional partners. This effort drew on existing ecosystem and other supporting models to facilitate development of a new generation Ecopath with Ecosim (EwE) model, and ultimately providing evaluation tools for the SSC and Council. This new South Atlantic model was developed through regional partners to refine links between the SAFMC FEP II and other regional conservation planning efforts. At the October 2018 meeting, the SSC was provided a presentation on the development of the South Atlantic Ecopath Model and requested that prior to consideration of forming a Workgroup, the model be completed, and dynamic simulations be conducted for presentation at a next meeting.

Tom Okey (UVIC) will provide an overview of the completion of the South Atlantic Ecopath with Ecosim model and examples of dynamic simulations. Luke McEachron will provide a focused view of the transition to conducting analyses and developing newly available spatio-temporal capabilities to support management in the Florida Keys. These presentations will provide the SSC with an overview of inputs and examples of the types of analyses/outputs of the

model, and how those outputs could inform management. With the model complete and tuned to the available data, it can be used to address broad strategic issues, and explore "what if" scenarios that could then be used to address tactical decision-making questions such as provide ecosystem context for single species management, address species assemblage questions, and address spatial questions using Ecospace.

A path forward will involve establishing a modeling team comprised of FWRI, Council staff, and other technical experts as needed. This team will coordinate with members of the original Ecosystem Modeling Workgroup to maintain and further refine the South Atlantic Model. The SAFMC/FWRI Ecospecies online species information system will be a long-term repository for the inputs and outputs associated with the South Atlantic Ecopath with Ecosim model. An Ecopath Model Subgroup comprised of selected members of the SSC and Modeling Workgroup will, provide an initial review of the model focusing on: the overall base model including the appropriateness of data and decisions made; providing input on what analyses/applications the model should/can be used for; and direction on the formulation of more focused dynamic simulations or sub-models. Terms of Reference for the Workgroup will be developed, refined and focused.

7.4. SSC Discussion and Recommendations

- Discuss identifying SSC members to serve on an Ecopath Model Subgroup who will provide an initial review of the model.

  The SSC discussed the strengths, weaknesses, and potential applications of the South Atlantic Ecosystem model. First, the SSC noted how the EwE model relies upon, and is therefore not independent of, information derived from single species stock assessments. However, the Ecospace modeling component can inform stock assessment in an independent way by examining the interaction among species and the impacts these interactions may have on individual species or species groups. Presenters noted there are ways to examine non-trophic habitat effects within Ecosim as well. The SSC recommended that the potential benefits and uses of these models in management be clarified and communicated to the Council and public. For example, the Ecosystem Model can benefit management by exploring potential unexpected ecosystem consequences of past or future management actions. The SSC also suggested that model exploration and performance may highlight areas where data are lacking which subsequently could be used in guiding future data collection programs priorities.

  An ad hoc SSC workgroup was formed to conduct a review of this model. Members include Luiz Barbieri, Marcel Reichert, Fred Scharf, Alexei Sharov, Rob Ahrens, and Eric Johnson. A workgroup leader will be identified at the first meeting. The first task of the workgroup, in cooperation with other members of the Ecopath Model Subgroup, is to clearly define a set of ToRs and a timeline. The SSC requested that the ToRs include retrospective diagnostics, as well as other diagnostics developed specifically for EwE models (see Link, J. S. 2010. Adding rigor to ecological network models by evaluating a set of pre-balance diagnostics: A plea for PREBAL. Ecological Modelling 221:1580-1591*). The SSC suggested that the letter from the Council concerning implementation of the EBFM plan be used to help formulate ToRs.*

- *Recommend clarifying for the Council and the public the benefits and uses of these models in a management context.*
- *The interaction between single species models and this EwE model is a strength in which the EwE can help to inform inputs to the single species models (e.g., natural mortality) while the single species models may help to inform inputs to the EwE (e.g., can identify data needs to inform key trophic interactions among managed species and their prey).*

8. SOUTH ATLANTIC RESEARCH AND MONITORING PLAN REVIEW

8.1. Documents

Attachment 11. Draft 2019 Research and Monitoring Plan

8.2. Overview

The Committee is provided an opportunity to review the research and monitoring plan, as well as the source document. The Council will consider the research plan at its June 2017 meeting.

8.3. SSC Discussion and Recommendations

- Review and provide comments and recommendations on the plan and source document.

  Initial SSC discussion of this topic focused on whether or not there was an accounting of the outcomes of the priorities identified in this annual exercise. While it is important to identify priorities, there is also a need to identify whether those priorities have been successfully addressed. If we identify priorities and they are not addressed, then the reasons should be discussed. SAFMC Staff indicated they could put together a separate document with the list of accomplished tasks.

  The SSC also questioned whether the list was in priority order and who was involved in setting the priorities. Council Staff noted that the items were not prioritized but were listed by groups set up by the SEFSC. The groupings were established to provide guidance on short versus long term priorities to assist the SEFSC in determining where these fit within other Center projects. The SSC discussed concerns that it was difficult to recommend priorities without knowing which topics are currently being addressed, or if funding or staff are available for particular studies. Staff noted that recommendations of the SSC would be used to help determine if staff and funding would be allocated to a project.

  SSC members suggested changing topic titles to better align these with priorities important to the SSC members, while staff noted that the Center had established its priorities within the categories they defined, and the SSC was asked to review those. However, if the SSC felt topics should be moved from short to medium- or long-term sections, that recommendation should be noted.

SSC members noted that while some suggestions for citizen science projects (e.g. White Grunt and Red Snapper) may be appropriate, they questioned who would conduct the associated analyses of the citizen-provided data and samples.

Specific SSC comments/recommendations regarding the Overview Document text, associated with this agenda topic, follow.

- *Recommend changing heading/create new heading for Section I for all upcoming assessment research needs (within the next 2 years).*
- *Examining the population genetics of Gag based on citizen science data may be hindered by the spawning season closure (in the past, researchers have been able to sample during the closure, under permit from NMFS).*
- *Add first three research needs under Gag operational assessment to Long Term Research Needs.*
  - *Otolith chemistry to evaluate the population structure.*
  - *Genetics of spawning adults vs. juveniles collected subsequent to spawning and include connectivity to Gulf.*
  - *Monitoring of age structure in the South Atlantic.*
- *Add species ID issue with Black Grouper under Gag operational assessment.*
- *Add bycatch mortality estimates under Red Snapper research track assessment.*
- *Add use of hydrodynamic modeling to assess connectivity between MPAs and other habitats under Spawning SMZs Research Needs and MPA Research Needs.*
- *Recommend listing the current monitoring programs for MPAs.*
- *Recommend combining the two climate change bullets under Long Term Research Needs.*
  - *Develop models to predict changes to shrimp, shallow water and deepwater coral, snapper-grouper, dolphin-wahoo, and mackerel populations due to climate change, including changes to species distributions, movements, and reproductive patterns.*
- *Move Evaluate assessment projection performance to Short Term Research Needs as the projections can be used to estimate landings, recruitment, and biomass levels.*
- *Rewrite bullet 8 under Long Term Research Needs as follows:*
  - *Update reproductive biology work on shallow water groupers (Red Grouper), to determine latitudinal variation in spawning periodicity and habits.*
- *Add Develop a program for monitoring/evaluating compliance with the use of descending/venting devices to Long Term Research Needs.*
- *Remove "shallow water and deepwater" from the first bullet under Habitat.*

9. COMPREHENSIVE ABC CONTROL RULE AMENDMENT

9.1. Documents

Attachment 12. ABC Control Rule Options Paper
Attachment 13. Risk Tolerance Method spreadsheet
Attachment 14. Risk Tolerance Method Story Map (click here to go to Story Map)
Attachment 15. Social Issues Risk Tolerance

9.2. Presentation

Overview: John Carmichael, SAFMC
Risk Tolerance Method Overview: Dr. Mike Errigo, SAFMC

9.3. Overview

The Council is developing a comprehensive amendment to revise the ABC Control Rule, to address flexibility allowed in the MSA and address issues raised over the last few years by the SSC with the existing rule. The purpose of the amendment is to revise the acceptable biological catch control rule; simplify incorporation of scientific uncertainty; modify the approach used to determine the acceptable risk of overfishing, and address flexibility in specifying catch levels. The need for this amendment is to ensure catch level recommendations are based on the best scientific information available, prevent overfishing while achieving optimum yield, and include flexibility in setting catch limits as allowed per recent changes to the Magnuson-Stevens Fishery Conservation and Management Act implementing regulations.

Changes made to the document since the last SSC review include edits to the actions and alternatives, additional discussion text, and examples of how the alternatives may impact ABC values. Significant additions and changes in actions are highlighted in the attachment (Attachment 12). Additionally, Council staff has developed a preliminary application of the risk tolerance determination process (Attachment 13). A Story Map has been created to help walk the Committee, and any future audience, through the process of how risk tolerance is determined (Attachment 14-click the link here or above to be taken to the Story Map, Attachment 15). The SSC is asked to provide comments on the actions at this meeting. SSC recommendations on the actions are provided in the discussion of each action and are highlighted in the document provided for review (Attachment 12). These recommendations help the Council decide the range of feasible alternatives and select appropriate preferred recommendations.

9.4. SSC Discussion and Recommendations

- Review and discuss the approach for and results of initial risk tolerance recommendations.
  - *Unknown Attributes*
    - *The SSC is in favor of increasing the risk of a species when an attribute is unknown.*
    - *When there are all unknowns for a category, then the default should be High (1).*

- *However, a species may have unknowns, but be stable and have no issues in terms of biomass that would not warrant a High (1) risk score or a penalty. The SSC has the flexibility to deviate from the assigned scores, but should provide proper justification*
- *A Bayesian framework with uninformative priors could help inform how to treat unknowns.*

➢ *Biological Attributes*

- *Recommend adding an attribute regarding special life history characteristics such as hermaphroditism.*
- *Age at maturity: use oldest study, before heavy fishing could have had an influence on life history parameters.*

- Provide any further recommendations regarding actions and alternatives as necessary.

➢ *Insert a ToR for assessments to look at the rating for Biological and Environmental Attributes to help inform any potential changes.*

➢ *Give the SSC the flexibility to change the Risk Category for a species based on expert judgement.*

➢ *The SSC would like to see a side-by-side P* comparison for assessed species comparing what is in place now and what would result from this new methodology.*

➢ *Story Map*

- *The SSC would like to see a step-by-step walk-through of a few species to assess how the attributes are scored and the Risk Score is calculated.*

10. SOCIO-ECONOMIC PANEL REPORT

10.1. Documents

Attachment 16. Final SEP Report (also Appendix A)

10.2. Overview

The SEP met on April 8-9, 2019. A general report will be given on the meeting, while specific recommendations will be discussed under the appropriate SSC agenda item. Any additional items from the SEP report not previously covered under other agenda items will be discussed here.

10.3. SSC Recommendations

- No specific actions required.

➢ *What would the SSC want to see from a Fishery Performance Report?*

- *General observations about effort in relation to the landings.*
- *Effects of management actions.*

- *Reasons why landings are above/below the ACL.*
- *Information on changes in the spatial dynamics of the fishery (can help inform utility of index, sudden changes in landings).*

➢ *As the SEP report was not available during the meeting, the SSC will approve the SEP report via email by May 3, unless there are objections. The SSC did not raise any objections to any of the recommendations in the summary presentation on the SEP meeting.*

- *The SSC subsequently approved the recommendations in the SEP report, which was reviewed by the SSC via email following the SSC meeting.*

11. USE OF THE FES CALIBRATED MRIP DATA

11.1. Documents

Attachment 17. Background Materials
Attachment 18. MRIP Calibration Effects
Attachment 19. Landings Trends
Attachment 20. MRIP Revision Assessments Report
Attachment 21. Feb 2019 MRIP Revisions Webinar Report
Attachment 22. MRIP Revision Assessments Model Outputs
Attachment 23. Agency letters concerning FES calibrated MRIP data issues
Attachment 24. SEDAR Committee Report, March 2019

11.2. Presentation

Overview: Dr. Mike Errigo, SAFMC

11.3. Overview

At their October 2018 meeting, the Committee was presented with four revision assessments (Blueline Tilefish, Red Grouper, Vermilion Snapper, and Black Sea Bass) that replaced the original MRIP catch data with the newly calibrated FES data. At that time, the Committee felt there was not enough information provided them to evaluate if the new FES estimates might warrant data decisions that differed from those made in the previous SEDAR assessments or if estimates of key parameters and model inputs were affected by the change. Therefore, the Committee requested a webinar be scheduled where they could review the full output diagnostics of each model to evaluate the effect that the use of the new FES data had on the model estimates.

During the February 25, 2019 webinar, the Committee further discussed the revision assessments and the use of the FES calibrated MRIP estimates. The Committee stated that an in-depth review of the calibrated estimates was necessary before estimates could be used in assessments and to make catch level recommendations. The SSC recommended that the new FES calibrated MRIP data be incorporated in a formal SEDAR process for assessed stocks, and the TORs be developed for future assessments to provide guidance on how this should be accomplished. However, consensus was not reached on specifically how this review should be done. Staff also points out that these issues are not limited to the assessed species, and the SSC needs to address use of the current MRIP data for developing fishing level recommendation for unassessed stocks and monitoring fishery performance for all stocks.

Concerns with the FES estimates arose during a SEDAR webinar devoted to Greater Amberjack the day following the SSC webinar. There was discussion of the FES estimates in general, the calibration process, and the possibility that certain points could be outliers.

The Council was briefed on the concerns from both webinars at the March 2019 meeting. Given concerns with costs in time and money and the potential for inconsistencies from a species by species approach, and the inability to address SSC MRIP concerns in the SEDAR process applied to Greater Amberjack, the Council supported convening a workshop devoted to the MRIP data concerns of the SSC. The Council also asked that each state agency provide the SSC a letter detailing their concerns with the MRIP estimates (Attachment 23) The charge to the SSC for this workshop is to identify specific concerns and develop an approach forward (Attachment 24). Guidance from the Council is provided by the following motion:

MOVE TO DIRECT STAFF TO ORGANIZE AN SSC WORKSHOP TO IDENTIFY MRIP DATA CONCERNS ACROSS THE SOUTH ATLANTIC, IDENTIFY SPECIFIC UNCERTAINTIES OR POTENTIAL BIAS, AND DEVELOP RECOMMENDATIONS ON HOW TO PROCEED IN THE SHORT TERM FOR USING THE DATA IN STOCK ASSESSMENTS, IN DEVELOPING ABC RECOMMENDATIONS, AND EVALUATING ACLS. INCLUDE REPRESENTATIVES FROM EACH STATE, MRIP/S&T, AND SEFSC.

At this meeting the committee is asked to provide guidance for the SAFMC workshop to address MRIP concerns, and to discuss how the issues of outliers can be addressed in both stock assessment and other uses of MRIP data including developing catch recommendations for unassessed stocks.

11.4. SSC Discussion and Recommendations

The SSC concluded that the FES survey design is best scientific information available (BSIA). However, the SSC would like to further explore the expansion and analysis parts of the process.

The SSC concluded that a workshop would be useful to further address the topics of interest, which include rare events species; outliers; the disparity between FES and CHTS; low recreational catch species; and tracking of the ACL. The SSC also recommends that the workshop include a mini-data workshop to focus on species that are currently undergoing an assessment through the SEDAR process, but would not limited to those and may consider other managed species, including unassessed species.

- Are the revision assessments best scientific information available and useful for making catch level recommendations?
  - ***SSC Consensus: The SSC does not deem these assessments useful for making catch level recommendations at this time, therefore the ABC recommendations based on the previous assessments still stand.***
- The SSC noted it would develop TORs that specify the uncertainties associated with these data that should be addressed in the assessment.
  - What is the SSC's intent with regard to approved TORs for assessments now underway?

- *Timing of the workshop will impact how current assessments are treated; i.e., assessments that are ongoing and have started using the FES data at the time of the workshop are a primary concern (e.g., Greater Amberjack and Red Porgy).*
- *The SSC recommends moving forward with ongoing assessments and adapt to new information at it arises.*
- *The SSC recommends that the Council give priority to the assessment of species that are mostly commercial in the meantime, as they are least affected by the MRIP data*
- ***SSC Consensus: The SSC recommends that, in particular, the FES calibrated MRIP data for Red Porgy, Greater Amberjack, King Mackerel, and golden Tilefish assessments, be looked at in detail at the upcoming workshop to resolve any issues.***

o The SSC should review the process being used for assessments now underway and provide recommendations for any changes in the process that are necessary to address SSC concerns.

- *This will be addressed at the upcoming workshop.*

o How will the SSC identify the specific uncertainties for each assessment, both those underway and those that will incorporate the revised data in the future?

- *This will be addressed at the upcoming workshop.*

o What guidance, in the form of specific TORS, can the SSC provide on approaches to addressing the uncertainties, to ensure that the final product will not fail to meet SSC approval due to these issues?

- *This will be addressed at the upcoming workshop.*

- Provide direction for the workshop supported by the Council

o Develop Terms of Reference for the workshop to address the Council's charge the SSC concerns.

- *There is an issue of using CHTS data in the assessment, but only having FES data to track the ACL with. The SSC agrees that the FES survey design is BSIA but would like to explore the expansion and analysis part of the process with respect to the disparity between FES and the CHTS and tracking of the ACL.*
- *The workshop should particularly focus on why there is such a disparity between CHTS and FES.*
- *How do you treat recreational data in an assessment for a species with low recreational data (rare event species in MRIP)?*
- *Need to focus on the expansion and data analysis steps since the FES methodology was deemed to be sound.*
- *How should outliers be handled within the context of an assessment?*
- *Data Workshop type discussion looking at how outliers are dealt with in the SEDAR process.*

- *Review data from ongoing assessments.*
- *Also look at unassessed species and how to handle ABC recommendations.*

➢ *3 steps to look at:*

- *Data collection method*
- *Sample collected*
- *Data analysis*

➢ *Need to understand why there are differences in the FES estimates for the Gulf vs. Florida's Reef Fish effort estimates, and is this a concern in the South Atlantic, where there are no comparison data.*

- *Will take a lot longer to accomplish.*
- *How will the resolution of this issue, along with the White Paper, affect the South Atlantic?*

➢ *The SSC would like the Council to consider the impact these decisions have on the allocation to respective fisheries, as changed MRIP estimates may change allocation decisions with respect to the recreational sector.*

o Identify key presenters and participants (such as MRIP, State agency, or SEFSC representatives)

➢ *Full breadth of MRIP staff, members of the rare event species workgroup, Science Center staff.*

➢ *Dave van Voorhees, John Foster, Richard Cody, Consultants(?), Dr. Erik Williams (Other SEFSC staff?), Economists (Dr. John Whitehead, Dr. Tim Haab), Rec fishery rep from each state (FL: Bev Sauls, staff to contact other states for reps), rep from ASMFC*

➢ *SSC Steering Committee: Dr. Fred Scharf (Chair), Dr. Chris Dumas, Dr. Luiz Barbieri, Dr. Yan Li, Dr. George Sedberry*

o Identify briefing materials required to address the TORs.

➢ *Information about addressing bias in FES.*

➢ *Detailed info/sources of differences between CHTS and FES.*

➢ *Degradation of sampling frame/participation in CHTS and effect on trend.*

➢ *Demonstrate how frame impacted estimates of effort.*

- *Changes in demographics*

➢ *Documentation from FES and APAIS calibration reviews.*

- *How are the new numbers derived from the FES data and the calibration models?*

➢ *In depth reviews of data points for the species with ongoing assessments.*

➢ *Target month for the workshop is August.*

        - *Next steps include Council staff checking with the MRIP team and their consultants for availability, then sending out a doodle poll to the SSC to pick dates.*
    - Develop an approach to identify specific uncertainties prior to the workshop, so that they may be analyzed and prepared ahead of time.
        - *This will be addressed by the Steering Committee.*
    - Are there any differences in the way assessed and unassessed stocks should be treated when reviewing the FES calibrated MRIP data?
        - *This will be addressed at the upcoming workshop.*
- The SSC recommended that assessment analysts explore how the FES calibrated MRIP data relates to individual species assessments.
    - Provide a detailed listing of the analysis and information the SSC desires in response to this request.
        - *This will be addressed at the upcoming workshop.*
    - Provide guidance on how the SSC will review and respond to this information, including clear guidance on the extent to which this information can be reviewed by the SEDAR processes noted above versus being addressed by the SSC directly.
        - *This will be addressed at the upcoming workshop.*
- There was considerable discussion of outliers during both the SSC webinar and the SEDAR Greater Amberjack Webinar on the following day. There appears to be some disagreement among participants of these webinars on what constitutes an outlier and what to do if a data point is considered unusual.
    - Identifying Outliers
        - How does the SSC define an outlier in the MRIP data?
            - *This will be addressed at the upcoming workshop.*
        - How should outliers be identified in current MRIP data, considering that there is a need to address both the data for current stock assessments as well as the data for all species that will be used in future assessments and ABC recommendations?
            - *This will be addressed at the upcoming workshop.*
        - How should outliers be identified for future estimates?
            - *This will be addressed at the upcoming workshop.*
    - Addressing Outliers
        - What should be done within assessment models to address accepted outliers?
            - *This will be addressed at the upcoming workshop.*
        - What should be done to address accepted outliers in data used by the Council to develop allocation values and by the SSC to develop ABC recommendations for both assessed and unassessed stocks?

- *This will be addressed at the upcoming workshop.*

12. COUNCIL WORKPLAN AND SSC WORKGROUP UPDATE

12.1. Documents

Attachment 25. SAFMC Work Plan, September 2018
Attachment 26. SAFMC Amendments Overview, March 2019

12.2. Overview

These documents are provided at each meeting to keep the Committee 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.

- Corals Amendment 10/Golden Crab Amendment 10/Shrimp Amendment 11 (Access Areas) – Chip Collier
- Fishery Ecosystem Plan – Roger Pugliese
- SG Amendments 43 & 46 (Red Snapper & Recreational Reporting) – Chip Collier
- SG Commercial and Recreational Visioning Amendments – Myra Brouwer
- SG Regulatory Amendment 32 (Yellowtail Snapper) – Myra Brouwer
- SG Amendment 38 (Blueline Tilefish) – Roger Pugliese
- SG Regulatory Amendment 29 (Best Fishing Practices) – Christina Wiegand
- SG Amendment 42 (Sea Turtle Release Gear) – Christina Wiegand
- SG Regulatory Amendment 30 (Red Grouper Rebuilding) – John Hadley
- SG Amendment 47 (For-Hire Permit Modifications) – John Hadley
- DW Amendment 10 (Adaptive Management for Dolphin) – John Hadley
- Joint Commercial Logbook Amendment – John Carmichael
- Bycatch Reporting Amendment – Chip Collier
- Recreational AMs (SG Reg 31/CMP Framework 7/DW Reg 2) – Brian Cheuvront
- Abbreviated Framework 2 (Fishing levels for Black Sea Bass and Vermilion Snapper) – Brian Cheuvront

Table 3. Current SSC Workgroups with their status and charges.

Workgroup	SSC Members	Status/Charge
ABC Workgroup	Carolyn Belcher, Jeff Buckel, Eric Johnson, Erik Williams (SEFSC)	Dissolved due to SSC issues with calibrated MRIP data. To be addressed at upcoming workshop.
MRIP Workshop Steering Committee	Fred Scharf (chair), Chris Dumas, Luiz Barbieri, Yan Li, George Sedberry	Charged with planning upcoming MRIP workshop and developing ToRs to be addressed.
Ecosystem Model Review Workgroup	Luiz Barbieri, Marcel Reichert, Fred Scharf, Alexei Sharov, Rob Ahrens, Eric Johnson	Initial charges: Identify chair, develop ToRs, develop timeline for review.

12.3. SSC Discussion and Recommendations

- No specific actions required

13. OTHER BUSINESS

The SSC was presented with some recommendations from the SSC Executive Committee regarding meeting and reporting procedures to be tried at the next (October 25-17) meeting. They include the following:

1. *Starting the meeting on Tuesday morning*
2. *Dedicated time each day for report preparation and plenary report-out by assigned workgroups*
3. *Breakout for final report drafting and plenary to ensure concurrence on last day.*
4. *Report will include:*
   a. *Documentation & reasoning for decisions & recommendations*
   b. *Include research needs/deliverables for SAFMC meeting*
   c. *Minority report if needed*

14. PUBLIC COMMENT

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

15. CONSENSUS STATEMENTS AND RECOMMENDATIONS REVIEW

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

The Final SSC report will be provided to the Council by 9 am on Tuesday, May 19, 2019 (approximately 5 ½ weeks from the end of the meeting) for inclusion in the briefing book for the June Council meeting.

16. NEXT MEETINGS

16.1. SAFMC SSC MEETINGS

2019 Meeting Dates
October 15-17, 2019 in Charleston, SC

16.2. SAFMC Meetings

2019 Council Meetings
June 10-14, 2019 in Stuart, FL
September 16-20, 2019 in Charleston, SC
December 2-6, 2019 in Wilmington, NC

ADJOURN

Addenda

Appendix A.

Report of the Socio-Economic Panel
April 8 – 9, 2019

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SOCIO-ECONOMIC PANEL OF THE SCIENTIFIC AND STATISTICAL COMMITTEE

SEP Meeting Report

April 8-9, 2019

Town & Country Inn
2008 Savannah Highway
Charleston, SC 29407

PURPOSE

This meeting is convened to discuss and provide input to the SSC and Council on:

- Recent and developing Council actions
- The System Management Plan socioeconomic action items
- Social and economic risk tolerance for the ABC Control Rule amendment
- Recreational accountability measures modifications
- The SEFSC technical memorandum on the economics of the commercial snapper grouper fishery
- The social and economic components of Fishery Performance Reports
- Recreational reporting and MyFishCount survey results

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DOCUMENTS

Attachment 1a. Agenda
Attachment 1b. Minutes from the February 2018 meeting
Attachment 2. Recent and Developing SAFMC Amendments
Attachment 3. System Management Plan Socioeconomics
Attachment 4a. Presentation slides for SEP discussion on ABC Control Rule Amendment
Attachment 4b. Approach for Determining Acceptable Risk of Overfishing: Social Concerns
Attachment 5. Discussion document on recreational accountability measure modifications
Attachment 6a. NOAA Technical Memorandum: Economics of the U.S. South Atlantic Snapper-Grouper Fishery - 2016
Attachment 6b. Presentation slides for SEP discussion of technical memorandum on the economics of the commercial snapper grouper fishery
Attachment 7. Fishery performance report overview
Attachment 8a. MyFishCount Survey Methods
Attachment 8b. MyFishCount Survey Results Presentation

1. Introduction

1.1. Documents

Attachment 1a. Agenda
Attachment 1b. Minutes of the February 2018 meeting

1.2. ACTIONS

- Review and approve the agenda
- Approve the February 2018 Minutes
- Introductions
- Opportunity for public comment

2. Recent and Developing Council Actions

2.1. Document

Attachment 2. Recent and Developing SAFMC Amendments

2.2. Overview

Council staff will provide a briefing on developments in the Citizen Science Program as well as recent and upcoming amendments and actions (***Attachment 2***). The briefing will go into specific details on the Snapper Grouper visioning amendments (Vision Blueprint Regulatory Amendments 26 and 27), recreational reporting and best practices amendments (Snapper Grouper Amendment 46 and Regulatory Amendment 29), Dolphin Wahoo Amendment 10 (Revise Dolphin and Wahoo Management Measures), and Coastal Migratory Pelagics Amendment 31 (Atlantic Cobia Management).

Snapper Grouper Vision Blueprint Recreational Regulatory Amendment 26 - Council lead: Myra

In June 2016, the Council directed staff to begin development of an amendment to address items identified in the Vision Blueprint addressing recreational management measures. Actions in the amendment that was eventually approved include modifications to aggregate bag limits and minimum size limits for several snapper grouper species. The Council approved the amendment for formal review in December 2018.

Snapper Grouper Vision Blueprint Commercial Regulatory Amendment 27 - Council lead: Myra

In June 2016, the Council directed staff to begin development of an amendment to address items identified in the Vision Blueprint addressing commercial management measures. Actions in the amendment that was eventually approved include commercial split seasons and/or trip limit adjustments for several snapper grouper species/complexes as well as removal of the size limit for multiple deepwater snapper species. The Council approved the amendment for formal review at their October 2018 meeting and the amendment was submitted to NMFS on January 24, 2019.

Snapper Grouper Amendment 46 (recreational permit and reporting) - Council lead: Chip

In June 2017, the Council instructed staff to move actions formerly in Amendment 43, except an action to specify a red snapper ACL in 2018, to Amendment 46. The amendment would specify OFL/ABC/ACL for red snapper, address recreational permitting and reporting for private recreational fishermen, best fishing practices (also include an option to remove circle hook requirements for snapper grouper fishing), and removing powerhead restrictions in special management zones off South Carolina (action formerly included in the Visioning amendments). In December 2017 the Council directed staff to remove actions pertaining to red snapper from the amendment and focus on recreational reporting and best fishing practices. In March 2018, the Council directed staff to retain actions on recreational permitting and reporting in Amendment 46 and develop the remainder of the actions (best fishing practices and powerhead regulations) in a framework amendment (Regulatory Amendment 29). The Council approved the amendment for scoping and it is on the agenda for the September 2019 meeting.

Snapper Grouper Regulatory Amendment 29 (Best Fishing Practices and Powerhead Regulations) - Council Lead: Christina

At their March 2018 meeting, the Council removed actions pertaining to best fishing practices and powerhead regulations from Amendment 46 and requested that staff begin development of a framework amendment. The Council reviewed an options paper at their June 2018 meeting and approved the amendment for scoping. The Council reviewed scoping comments at their September 2018 meeting. Actions and alternatives addressing venting and descending devices, circle hooks, and powerheads were approved for analysis while the action pertaining to allowable rigs was removed. The Council reviewed a draft public hearing document at their March 2019 meeting. Preferred alternatives were selected that would require a descending device be on board vessels

fishing for or possessing snapper grouper species, require vessels fishing for or possessing snapper grouper species to use non-offset circles, and would allow the use of powerheads to harvest snapper grouper species in federal waters off South Carolina. The Council also requested input from the Snapper Grouper Advisory Panel and the Law Enforcement Advisory Panel on the definition of descending devices used in the document. Additionally, the Council requested that staff work with NMFS to put together a research and monitoring plan for descending device usage and work with the SSC to determine how best fishing practices requirements may be considered in future stock assessments. Lastly, the Council approved Regulatory Amendment 29 for public hearings. At the June 2019 meeting the Council will review public comments and input from the APs and consider modifications to the document, if necessary.

Dolphin Wahoo Amendment 10 (Revise Dolphin and Wahoo Management Measures) - Council lead: John H.

In March 2016, the Council directed staff to begin development of a joint dolphin wahoo and snapper grouper amendment to examine different ways to allocate or share quota between the commercial and recreational sectors for dolphin and yellowtail snapper. Options included a common pool allocation, a reserve category, temporary or permanent shifts in allocation, combined annual catch limits, and creating gear allocations in the commercial dolphin fishery. In December 2016, the Council considered approving the amendment, which was being developed jointly with Snapper Grouper Amendment 44, for public hearings in early 2017. Instead, the Council directed staff to continue to develop Dolphin Wahoo Amendment 10 but separately from SG Am 44 and include an action to revise the ABC Control Rule to include a carry-over provision from one fishing year to the next. The Council also directed staff to develop actions that would eliminate the operator card requirement in the Dolphin Wahoo FMP, revised optimum yield, and allow properly permitted vessels with gear onboard that are not authorized for use in the dolphin wahoo fishery to possess dolphin or wahoo. In March 2017, the Council decided to stop work on the amendment until the revised MRIP data were available. At the December 2018 meeting, the Council directed staff to start work again on the amendment with the inclusion of additional items to allow bag limit sales of dolphin for dually permitted for-hire and commercial permit holders, modify gear, bait, and training requirements in the commercial longline fishery for dolphin and wahoo to align with HMS requirements, reduce the recreational vessel limit for dolphin, revised the ACLs to accommodate new MRIP data, and revise sector allocations. The Council will next consider Amendment 10 at the June 2019 meeting.

Coastal Migratory Pelagics Amendment 31 (Atlantic cobia management) Council lead: Christina

In June 2017, the ASMFC requested that the Councils consider transferring management of Atlantic cobia to the ASMFC, which would require that Atlantic cobia be removed from the federal fishery management plan. In June 2017, the South Atlantic Council discussed the request and directed staff to start work on an amendment with an option for complementary management of Atlantic cobia and an option to remove Atlantic cobia from the federal FMP. At their December 2018 meeting, the Council reviewed a draft document and selected Alternative 2 (Remove Atlantic cobia from the

CMP FMP) as their preferred. At the June 2018 meeting, the Council approved Amendment 31 for formal review. Amendment 31 was transmitted for formal review on July 13, 2018. The proposed rule published on November 9, 2018. The final rule published on February 19, 2019 with an effective date of March 21, 2019.

2.3. Presentation and Discussion

John Hadley, SAFMC staff

2.4. ACTIONS

Discuss and make recommendations as appropriate. In general, this agenda item is meant to brief the SEP on Council actions that were largely driven by social or economic concerns or may be presented to the group for review later in the meeting.

SEP RECOMMENDATIONS:

The SEP had no comments on most of the developing Council Actions. Regarding Dolphin Wahoo Amendment 10, the SEP recommended against the ban of bag limits in Coastal Migratory Pelagics Amendment 19, noting in its October 2012 report that

> *"bag limit sales allow additional economic value since the commercial value is added to the recreational value. An elimination of the bag limit sales might lead to illicit sale of landed fish as well as the loss of important data on these landings. There is little justification for prohibiting the sale of landed fish. The panel recognizes that there may be cause for compensation to the commercial sector if there is damage caused by these bag limit sales in the form of reduced available catches or downward price pressure. There are many potential remedies to this damage involving transfers in sector apportionment of allowable catches or monetary transfers."*

3. System Management Plan Socioeconomic Action Items

3.1. Documents

Attachment 3. System Management Plan Socioeconomics

3.2. Overview

Council staff will provide an update on the Council's System Management Plan Workgroup. The System Management Plan Workgroup, a body of scientists, outreach/communication specialists, law enforcement officers, and industry representatives discussing and drafting a report to evaluate the effects of marine protected areas and special management zones in the South Atlantic. The workgroup will periodically evaluate the management effectiveness of protected areas. The Spawning Special Management Zones and Deep-water Marine Protected Areas have system management plans with Socio-Economic sections. These sections should be reviewed to determine if the action items are appropriate and achievable.

Presentation

Dr. Chip Collier, SAFMC staff

3.3. ACTIONS

SAFMC staff will provide a presentation with background information on the System Management Plan (Attachment 2). The SEP will be asked to provide feedback on the action items and rankings included in the system management plans.

Discussion Questions:
Should additional actions items be included in the system management plans for Spawning Special Management Zones (Snapper Grouper Amendment 36) or Deep-water Marine Protected Areas (Snapper Grouper Amendment 14)?

Are the action items appropriate and achievable? If not, should other items be used instead?

SEP RECOMMENDATIONS:

There two types of studies, one of perceived effects (Action items 14 and 15) and one of actual effects (Action items 13 and 16).

Studies about perceptions have a greater likelihood of success than studies about actual effects. With this in mind, rank Actions 14 and 15 as the two highest priorities.

Action item 13 could be the highest ranked priority if it was needed to identify the sampling universe for the study of perceptions, but also potentially the most expensive.

The SEP advises to not collect data until a model for analyzing that data has been developed after a review of existing studies about socioeconomic effects of SMZs and MPAs. The models used in previous studies should inform the development of a model to evaluate socioeconomic effects and/or perceptions of their effects for South Atlantic protected areas. For Deepwater Marine Protected Areas, consider replicating (with larger sample size) Larry Perruso's research about deepwater MPAs, circa 2008. For SMZs, the NC DMF has a research project tracking the

use of artificial reefs, and if there is a geographic overlap with the SMZs may allow the projects to work in tandem.

4. Social and economic attributes in setting risk tolerance for the ABC Control Rule amendment

4.1. Documents

Attachment 4a. Story map SEP discussion on ABC Control Rule Amendment (see: https://arcg.is/004KLP)

Attachment 4b. Approach for Determining Acceptable Risk of Overfishing: Social Concerns

4.2. Overview

The Council is developing a comprehensive amendment to revise the ABC Control Rule, to address flexibility allowed in the MSA and address issues raised over the last few years by the SSC with the existing rule. The purpose of the amendment is to revise the acceptable biological catch control rule; simplify incorporation of scientific uncertainty; modify the approach used to determine the acceptable risk of overfishing, and address flexibility in specifying catch levels. The need for this amendment is to ensure catch level recommendations are based on the best scientific information available, prevent overfishing while achieving optimum yield, and include flexibility in setting catch limits as allowed per recent changes to the Magnuson-Stevens Fishery Conservation and Management Act implementing regulations.

Council staff has developed a preliminary application of the risk tolerance determination process. Within this application are several social and economic attributes that can potentially help the Council and SSC when determining risk tolerance for a specific species. The SEP is asked to provide comments on these attributes at this meeting. Council staff will provide an overview of the social and economic attributes, how they are determined, and how they are intended for use in setting risk tolerance.

4.3. Presentation

Christina Wiegand, SAFMC staff

4.4. ACTIONS

Discuss and provide feedback to staff on appropriate social and economic measures for risk tolerance that the Council and SSC could use in application of the ABC Control Rule.

Discussion Questions:

1. Keeping in mind that the social and economic attributes are intended for use across several species, many of which may be data poor, are there other attributes that the SEP recommend examining?
2. Does the SEP feel as though the social and economic attributes are calibrated to adequately convey a “low”, “moderate”, and “high” risk setting?
3. What thresholds should be used to determine whether a community is reliant on the commercial or recreational fishery for a given species?
4. How does the SEP feel qualitative and quantitative information should be balanced in determine community dependence?

SEP RECOMMENDATIONS:

The criteria used to classify fisheries as "low risk," "medium risk," or "high risk" were ad-hoc and it is hence prudent to conduct a sensitivity analysis to support/justify the criteria. The SEP suggested varying the number of communities required to be highly reliant on a species "up or down by one" in order for its fishery to be classified in a particular risk category. For example, Attachment 4b used the following "baseline" classification criteria:

less than 7 communities highly reliant ====> fishery considered low risk

7 to 13 communities highly reliant ====> fishery considered medium risk

14 or more communities highly reliant ====> fishery considered high risk

The SEP suggests looking at the following, alternative ("sensitivity analysis") classification criteria and comparing the results (i.e., which fisheries are placed in which risk categories) with the results obtained using the baseline criteria:

varying the criteria "down by one"

less than 6 communities highly reliant ====> fishery considered low risk

6 to 12 communities highly reliant ====> fishery considered medium risk

13 or more communities highly reliant ====> fishery considered high risk

or varying the criteria "up by one"

less than 8 communities highly reliant ====> fishery considered low risk

8 to 14 communities highly reliant ====> fishery considered medium risk

15 or more communities highly reliant ====> fishery considered high risk

In addition to the measures of community dependence described in Attachment 4b, another measure of a fishing community's dependence on a commercial fishery would be the ratio of the dockside (ex-vessel) value of the commercial fishery's landings to total non-fishery sales (sales of all goods and services minus ex-vessel fishery sales) in the community. Total non-fishery sales are a measure of the other business and employment opportunities available in the community. This ratio could then be compared across communities. To make it easier to "see" the relative differences in the ratio across communities, the ratio of ex-vessel fishery sales to "Thousands of Dollars of Non-fishery Sales" or even to "Millions of Dollars of Non-fishery Sales" could be calculated for each community. (Similarly, for recreational fisheries, the ratio of directed trips to total non-fishery sales could be used.) States document sales tax rates and sales tax revenues by community/municipality, from which total sales for each community can be calculated. Using total sales data has the advantage of being available at the community (sub-county) level; other measures of economic output are often available only at the county level, making it difficult to measure fishing dependence for communities smaller than a county.

The assessment of community dependence needs to consider the cumulative effects of dependence on multiple species/fisheries. For example, although Jacksonville, FL, is listed in the lower (directed trips < 45%) dependence category in Table 2 of Attachment 4b, Jacksonville makes the "top ten communities" list for 4 of the 7 species in Table 2. How does having a lower dependence for many species (such as Jacksonville) compare with having a higher dependence for fewer species (such as South Beach, FL, which has higher dependence, but for only a single species)?

5. Recreational accountability measure modifications

5.1. Document

Attachment 5. Discussion document on recreational accountability measure modifications

5.2. Overview

The South Atlantic Fishery Management Council (Council) is proposing modifications to recreational (rec) accountability measures (AMs) so they would be consistent across species as much as practicable in order to simplify them and avoid unintended negative social and economic effects. At the June 2018 meeting, the Council decided to include only species in the Snapper Grouper and Dolphin Wahoo fishery management plans (FMP). Coastal Migratory Pelagics (CMP) species were not included for several reasons: 1) the recreational sector does not typically meet its recreational ACL; and 2) AMs currently are managed differently for these species. In the last year the Council has taken this amendment out for scoping and worked on revising/refining the actions and alternatives. The Council seeks input from the SEP on the social and economic efficacy of these actions and whether there are other related issues that the Council ought to consider. Council staff will provide an overview of the amendment and facilitate SEP review of the amendment.

5.3. Presentation

John Hadley, SAFMC staff

5.4. ACTIONS

Discuss and provide feedback to staff on appropriate social and economic considerations for modifying recreational accountability measures.

Discussion Questions:

Purpose and Need

1. Is the Purpose and Need statement fully inclusive of all of the concepts the Council needs to consider when modifying recreational accountability measures?
    a. Are there other social or justice issues that should be considered?
    b. Are there other economic issues that should be considered?

The Purpose statement seems reasonable. The Need statement should be revised to refer to the recreational sector rather than recreational anglers. The SEP discussed whether the Need statement should address equity among recreational sub-sectors, with no formal recommendation to that effect.

Action 1

2. Scoping comments received pointed out that in season closures cause disruptions in the for-hire sector. Anglers sometimes book trips with the idea of being able to target specific species. Another issue is that in season closures are confusing and anglers would like some consistency across species/species groupings.
    a. Are there other social/economic considerations the Council should consider either by retaining or removing in season closures?

The use of post-season accountability measures seems more practical than in-season accountability measures for several reasons. As the overview document pointed out, in-season AMs are likely to cause major disruptions for businesses that rely on advance bookings and for consumers who book those fishing trips and plan vacations around those bookings. In-season AMs also increase the administrative burden on NMFS to monitor recreational catches so that seasons can be closed when quotas are filled. However, in-season AMs are inherently better in matching management with each year's fishing conditions. Post-season AMs increase the chance of a management mismatch between last year's management requirements and this year's fishing conditions.

Action 2

3. The Council will need to choose at least one accountability measure from **Action 1** or **Action 2**, as per MSA requirements. From a socioeconomic perspective, which type of AM, a possible in season closure versus a modification to allowable fishing behavior in the following season, would best meet the purpose and need for the amendment?

The use of fixed and pre-announced season opening and closing dates would minimize disruptions for businesses and fishermen with regard to advance bookings for fishing trips. Fixed

seasons also reduce the administrative burden on NMFS to monitor recreational catches and adjust seasons on a real-time basis. The disadvantage of fixed open and close dates is the possibility of a major overage in catch (including discards) if catch rates are higher than anticipated and the fishery cannot be closed. This outcome would cause reductions in season length and recreational benefits during the following year, or as pointed out in the overview document, extreme overages could eliminate recreational seasons for the next one or two years.

4. One of the stated purposes of the amendment is to provide stability across seasons. If any of the **Alternative 5** or **6** sub-alternatives are chosen, whether or not a species is affected could fluctuate from year to year due to changes in its PSE from one year to the next. While this does not happen frequently for most species, the potential is there. Others argue that catch level estimates are more reliable for those species that have a lower PSE and that modifications to ACLs or allowable fishing behavior should be restricted only to those species whose MRIP catch estimates are less reliable.
    a. What recommendation does the SEP have for the Council when it comes to taking into account catch estimate reliability when determining whether an AM ought to be implemented?

The use of PSE in setting AMs differs according to whether the Council chooses to consider PSE as a measure of risk to the fish population due to large and variable recreational catches, or a measure of risk to the recreational fishery due to changes in management associated with sampling error when estimating recreational catches. Alternatives 5 and 6 indicate that modifications to ACLs or seasons should only be applied to species with high PSE. The presumption is that sample sizes are large and that the resulting estimates of total recreational catches reflect the true variability in the fishery. In this case, large variability in estimated recreational catches suggests that more restrictive management is needed to protect the fish population when catches are estimated to exceed the ACL. On the other hand, the SEP suggested that large uncertainty in estimated recreational catches (i.e., high PSE) could reflect sampling error due to small sample size rather than highly variable catches and that more information is needed before more restrictive management is implemented. In this case, one would expect an AM to be triggered for species with the most reliable estimates (i.e., when PSE is low) and less likely to trigger an AM for species with extremely unreliable estimates (i.e., when PSE is high).

The SEP did not reach consensus on the appropriate role of PSE in setting AMs, but the question might be resolved by comparing sample sizes for species with low PSE against sample sizes for species with high PSE. Uncertainty in recreational catches may reflect highly variable actual catches if high PSEs are associated with large sample sizes. Otherwise, uncertainty in recreational catches may reflect sampling error due to the outsized effects of individual observations if high PSEs tend to be associated with small sample sizes. Council staff provided several numerical examples in the meeting overview document of how the various AMs might work. A simulation study with the corresponding PSEs could provide some answers to the questions raised by the SEP (e.g., see Proceedings of the Workshop on Percent Standard Error (PSE) of Recreational Fishing Data).

5. Are there other alternatives or sub-alternatives that the Council ought to consider implementing as post season AMs that would better take into account social and economic considerations?

The correct interpretation about the source of high PSE determines the direction of the inequality in Alternatives 5 and 6. The wording is correct if large uncertainty in estimated recreational catches reflects highly variable actual catches. In this case, modifications to ACLs or seasons should only be applied to species with high PSE. On the other hand, the wording "ANNUAL PSE IS GREATER THAN" should be changed to "ANNUAL PSE IS LESS THAN" if large uncertainty in estimated recreational catches reflects sampling error.

One SEP member suggested that if PSE primarily reflects sampling error, then Alternative 4a could be used to adjust next year's recreational ACL for species with the most reliable estimates (i.e., when PSE is low), and to use Alternative 4b to adjust next year's season length without changing the recreational ACL for species with unreliable estimates of recreational catches (i.e., when PSE is high).

The MRIP uses 50% or greater to define a high PSE, so using that number would keep the AM synchronized with that program's standards.

The wording of Alternative 3d probably needs to be changed to include the notion that the recreational ACL must be exceeded as well as the total ACL for commercial and recreational sectors.

Action 3

6. Should the Council consider **Alternative 2** and either of the sub-alternatives as their preferred course of action, are there other sub-alternatives the Council ought to consider?
7. What are the economic and social benefits or costs associated with either of the alternatives?

A requirement to specify fishing seasons for all snapper-grouper species (Alternative 2a) could represent a significant administrative burden. The SEP supports sub-alternative 2b in order to maximize background economic certainty, which is almost always a positive outcome for an economic sector. The SEP suggests that an AM should be triggered if the ACL is exceeded in the past year if this would maintain optimum yield, given measures to address uncertainty of the estimates. However, note that alternative 2b could result in fishing seasons in some years and not in other years, which would increase instability in regulations across seasons and confusion among the fishing public.

As noted above, the use of fixed and pre-announced season opening and closing dates would minimize disruptions for businesses and fishermen with regard to advance bookings for fishing trips. Fixed seasons also reduce the administrative burden on NMFS to monitor recreational landings and adjust seasons on a real-time basis. The disadvantage of fixed open and close dates is the possibility of a major overage in catches if catch rates are higher than anticipated and the fishery cannot be closed. This outcome would cause reductions in season length and

recreational benefits during the following year, or as pointed out in the overview document, extreme overages could eliminate recreational seasons for the next one or two years.

Action 4

8. Are there other alternatives or sub-alternatives that the Council ought to take into account for implementing as post season AMs that would better take into account social and economic considerations?

The SEP suggests that Alternatives be chosen to conform to whatever is adopted for snapper-grouper.

Action 5

9. What are the economic and social benefits or costs associated with either of the alternatives?
10. In the past, the recreational sector has not exceeded its ACL for either dolphin or wahoo. However, recently revised MRIP catch estimates indicate that this could be a possibility in the future. Even though this hasn't occurred in the past, should the Council implement measures in the event it could happen in the future?

The SEP recommends that the Council should implement a protocol to account for overages if they should occur in the future.

SEP RECOMMENDATIONS:

6. Technical memorandum on the economics of the commercial snapper grouper fishery

6.1. Document

Attachment 6a. NOAA Technical Memorandum: Economics of the U.S. South Atlantic Snapper-Grouper Fishery - 2016
Attachment 6b. Presentation slides for SEP discussion of technical memorandum on the economics of the commercial snapper grouper fishery

6.2. Overview

In the fall of 2018, the Southeast Fisheries Science Center (SEFSC) released the technical memorandum *Economics of the U.S. South Atlantic Snapper-Grouper Fishery – 2016* (***Attachment 6a***). The tech memo provides summary information and economic estimates for the snapper grouper fishery as a whole and for specific Segments of Interest (SOI) that consist of species or groups of species within the snapper grouper management complex. The Committee will receive a summary presentation from the SEFSC on the methods and major findings from the tech memo (***Attachment 6b***).

6.3. Presentation

Dr. Christopher Liese, SEFSC staff

6.4. ACTIONS

Review the analysis, discuss the uncertainties, and determine if it is the best scientific information available.

Discussion Questions:

1. Among the findings in the tech memo are estimates of net revenue and net cash flow that are potentially useful for better analyzing the economic effects of fishery management actions on the commercial sector. These results are intended to be incorporated into amendments to the Snapper Grouper Fishery Management Plan either by reference or direct application to estimate net economic effects to commercial participants and net costs or benefits. In doing so, it is assumed that this tech memo represents best scientific information available.
    a. Does the SEP agree that the tech memo should be considered best scientific information available?

2. Does the SEP have any additional recommendations?

SEP RECOMMENDATIONS:

SEP members agreed that the advance in analysis and presentation of data are significant and represent a substantive step forward over the gross revenue measures currently used. They also encouraged the expanded use of this approach. There was unanimously agreement that this approach represents "Best Scientific Information Available."

A member of the SSC observing the presentation noted the need to carefully scrub information presented to comply with NOAA confidentially rules.

Regarding future presentation of this work, discussion focused on the need to present this information comprehensively, and to keep in mind the audience, which while not economist, are individuals well versed in reading and interpreting data, and it may not do justice to the work to overly simplify it.

7. Social and economic components of Fishery Performance Reports

7.1. Document

Attachment 7. Fishery performance report overview

7.2. Overview

The purpose of fishery performance reports (FPR) is to assemble information from the South Atlantic Fishery Management Council (Council) fishery advisory panel members' experience and observations on the water and in the marketplace to complement scientific and landings data. The FPRs are provided to the Scientific and Statistical Committee (SSC) and the Socioeconomic Panel (SEP) to complement stock assessment reports and aid in developing stock status recommendations. They can also be useful to inform future Council management decisions. Additionally, the FPRs are posted publicly on the Council's website. Council staff will present background information on the FPRs that have already been developed by Council staff using input from Advisory Panel discussions.

7.3. Presentation

Christina Wiegand, SAFMC staff

7.4. ACTIONS

Discuss and provide feedback to staff on appropriate social and economic considerations for modifying Fishery Performance Reports.

Discussion Questions:

1. FPRs are time consuming to conduct and summarize. It can be challenging to balance completing FPRs with other Council priorities.
    a. Is there a way to streamline the FPR process to make it more effective and efficient?

The SEP finds these reports to be very valuable, and but their value will build over time as time progresses away from the year of record. This type of data collection is inherently time-consuming in their inception (due in part because of the history that needs to be compiled), but this time investment should decrease over time as they simply need to be updated with new AP data.

In group interviews and focus groups, the interviewer should note the most important items and address those first if possible before the group becomes fatigued.

2. What improvements could be made to the discussion questions to produce more valuable information? Is the wording appropriate or are the question too ambiguous? Is the order of the questions appropriate? Are there additional social or economic questions that should be considered?

The SEP is most interested in what data can be gathered on the circumstances that emerge around increases or decreases in landings (Yandle and Crosson note their wreckfish case study as an example of this). These may be caused by biological conditions, but they may also be caused by economic changes (primarily in price) for the fishery of focus in relation to other fisheries that may become more or less appealing than the one under discussion. The causes

may also be meteorological such as hurricanes or extended seasonal high winds preventing offshore fishing.

The SEP suggests bringing this issue before the SSC, specifically to ask what types of information would be useful for inclusion in stock assessments during the SEDAR process and during the SSC's setting of ABCs.

3. In some cases, one or more advisory panel members may dominate the conversation. There is concern that this will result in a narrow picture of the fishery. Additionally, there are concerns about how the social desirability effect (respondents will answer in a way they think will make the look good) may influence advisory panel responses given the public nature of meetings.
    a. How can staff encourage active and honest participation from advisory panel members?

The SEP agrees that this is one of the challenges of focus groups and difficult to prevent. However, panel members suggested the following strategies:

- *Recognize and encourage regionally specific expertise in order to engage all members while respecting input (e.g. "Ok, now we understand what happened in Florida, was that also what you saw in the Carolinas?")*
- *Providing questions ahead of the AP meeting allows everyone to formulate their own thoughts, which will make them less likely to be influenced by social desirability effect and makes quieter members more comfortable*
- *Consider classic classroom management strategies for managing the crowd*

4. Council staff would like to ensure the FPR process avoids the expectancy effect (getting responses that staff expect because they have shaped responses through their expectations).
    a. How can staff work to improve the FPR process to ensure a complete and unbiased picture of the fishery, particularly when summarizing advisory panel input?

Staff is already including the pulling of direct quotes. Summarizing the meeting minutes has the potential for shaping responses, but staff is consciously avoiding this. Best practices (if feasible for staff time) would be to use qualitative data software to qualitatively analyze the transcripts and responses to ensure against researcher bias.

A member of the SSC commented that when looking at FPRs for the Mid-Atlantic ABC, they often find data in them that is not available in other reports or formats. He suggests that while all these questions are valid, perhaps all are not immediately useful to the SSC. However, this is also problematic in that it prevents truly open-ended responses or may accidentally miss important information when some questions are not used.

5. How should the information gathered during the FPR process be presented so that it is beneficial/engaging for both scientists and managers? Should fishermen and/or the general public be considered as an audience?
    a. For example, using an interactive website to house all completed FPRs as well as the background information provided for each report. https://testsafmcouncil.shinyapps.io/FPRAll/

The SEP agrees that "the Shiny App" approach demonstrated is an excellent way to convey the data for scientists and managers in a simple-to-use manner. This is likely to be very useful in future situations when information is needed to be presented quickly and this is already prepared and accurate.

6. Currently, FPRs are being completed before a stock assessment and/or to provide a baseline for a fishery. There is no other standard timeline for when FPRs are to be reviewed by advisory panels. Stocks are projected to be reassessed every four years with interim analyses done between assessments. Additionally, given the similarity of the discussion questions, there is a concern that advisory panel members will experience fatigue if FPRs are conducted at every meeting.
    a. How often should FPRs be updated to keep the content relevant and useful?

Conduct AP panels reviews when the data workshop of a stock assessment is complete and ask the APs to help explain what is being seen in the data. If conducted prior to the stock assessment, their responses will likely be more deliberately slanted at influencing the upcoming stock assessment. Conduct these more regularly than every 4 years, so that information is still fresh in people's minds.
The SEP noted that it enjoys online data tools.

7. Many species remain unassessed through the SEDAR process. These species often have lower levels of landings than the assessed species.
    a. When should FPRs be done for species that have not been assessed? Is there a recommendation for how often these should be updated?

Rather than exhaust the APs through low-catch species, the SEP recommends considering Kari McLaughlin's cluster analysis of species/seasons/trips to solicit feedback on those groupings.

8. Recreational reporting and MyFishCount survey results

8.1. Document

Attachment 8a. MyFishCount Survey Methods
Attachment 8b. MyFishCount Survey Results Presentation

8.2. Overview

MyFishCount is an app designed for recreational fishermen to report various aspects of their trip ranging from effort, gear type, species, and length. The webportal was available for use in the fall of 2017 and the app in the summer of 2018. To gauge fishermen's perceptions of electronic reporting, two surveys were conducted. The SEP reviewed the survey at the February 2018 meeting and the SEP comments were included in the survey. The first survey was conducted in March 2018 (before 2018 red snapper season) and the second survey was conducted in November 2018 (after 2018 red snapper season). The results of the surveys will be presented.

Presentation

Dr. Chip Collier, SAFMC staff
Erin Spencer, Graduate student with UNC-Chapel Hill

8.3. Actions

Discuss and provide recommendations to staff on future electronic reporting surveys and potential biases in the current surveys.

Discussion Questions:

1. How often should surveys on MyFishCount be conducted to track fishermen's perceptions? Should surveys be conducted when management is considering electronic reporting requirements, annually, or every other year?
2. Are there additional questions that should be included in future surveys to better understand fishermen's perception of electronic reporting?
3. What is the potential impact of identified biases and are there additional biases that should be considered?

SEP RECOMMENDATIONS:

The SEP suggests that a survey on MFC be conducted annually until a reliable pattern of results is established. If an annual survey is conducted and nothing new is learned, then the survey effort could be reduced to every other year.

The SEP also suggests breaking up the question on anglers' perceptions of this type of self-reported data, for example "How reliable is the data that your report in MFC?" and "How reliable do you think the data self-reported by others is?"

The SEP recommends that reports on the survey include information compare survey respondents with MFC user data to determine how representative the survey of users is to the users (e.g., state of residence). Beyond that, any reports should emphasize that MFC is citizen science data and citizen science biases apply.

9. Other Business

10. Opportunity for Public Comment

11. Report and Recommendations Review

12. Next SEP Meeting

- Spring 2020, Charleston SC