

## **Setting an ABC When an Assessment is no longer informative and Stock Status Changes from Known to Unknown**

Council Staff  
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The National Marine Fisheries Service provided guidance for considering changes in stock status from a known status to an unknown status (NOAA 2020) when a previously assessed stock faces assessment challenges. The changing from a known to unknown status can have an impact on setting the maximum sustainable yield and acceptable biological catch (ABC) level. The guidance document listed four scenarios for changing from a known to unknown stock status including: changes to management units, aging stock assessment, stock assessment does not provide sufficient information to support stock status recommendation, and stock assessment deviates from status determination criteria specified in the fishery management plan.

These four situations could also be considered when the Scientific and Statistical Committee (SSC) is developing ABC recommendations. ABCs must be set lower than the overfishing limit based on scientific uncertainty. Based on guidance in National Standard 1, each council should have an ABC Control Rule that describes how the ABC will be set compared to the overfishing limit. The South Atlantic Fishery Management Council developed different control rules for their fishery management plans (see Appendix 2-3 for ABC Control Rules in place in January 2023). In 2022, the SAFMC approved a revised ABC Control Rule for Snapper Grouper, Golden Crab, and Dolphin Wahoo FMPs to make the rule more clarify the incorporation of scientific uncertainty and management risk and allow for additional data-limited methods be considered. The ABC for formally assessed species would be adjusted from the overfishing limit using  $P^*$  that would be adjusted based on the stock assessment category, the Council's risk rating, and stock biomass. For unassessed species, the ABC Control Rule specifies convening the Category 4 Stocks Workgroup to review available data and methods to develop an OFL, if possible, and ABC (see Appendix 1). Until the amendment is approved through NOAA Fisheries, the current ABC Control Rule for the above FMPs is in effect (see Appendix 2). The current ABCs for unassessed species were established through Dolphin Wahoo Amendment 2, Golden Crab Amendment 5, and Snapper Grouper Amendments 17B, 25, 29, 35, and Regulatory Amendment 13 depending on the species. Assessed stock ABCs are updated as new stock assessments are accepted by the SSC.

The ABC Control Rule for Coastal Migratory Pelagics has not been updated since CMP Amendment 18 (GMFMC/SAFMC 2011). Unassessed species have a triaged approach starting with Depletion-Based Stock Reduction Analysis when landings and life history information is available, dropping to Depletion-Corrected Average Catch (DCAC), and finally an Only Reliable Catch Series (ORCS) ad hoc migratory group when there is not sufficient information for DCAC (See Appendix 3). For Spanish Mackerel in 2012, the SSC deviated from the ABC Control Rule and recommended using the third highest landings from 1999 to 2008 as the ABC (NOTE: Spanish Mackerel current ABC is based on SEDAR 28).

### **Changes to Management Units**

Changes to management units can result in needed changes to stock status. When new management units are created the ideal situation would have an assessment to define the stock status. However, this cannot be done in all cases. When new management units have not been assessed, the guidance recommends that stock status continue to be designated as the previous stock's designation.

Changes to management units have been rare for South Atlantic stocks but has been done twice in the past decade using genetic evidence to develop separate stocks assessments. Fortunately, in both instances when stocks were separated into genetic based management units, catch level recommendations were provided using either a stock assessment (Cobia) or data limited approaches and stock assessment (Hogfish GA-NC stock and EFL-FL Keys, respectively).

### **Aging Stock Assessment**

Updated stock status information is usually based on results of a stock assessment. However, in some instances, stock assessments are not updated on a regular basis and older assessments may not meet current expectations nor reflect current stock conditions. This could lead to a change in stock status. For example, stock status for Speckled Hind and Warsaw Grouper were changed from overfished to unknown.

Reviewing the basis for the ABC recommendation and considering additional information could help inform and support an updated ABC. This could be particularly important for stocks that have not been assessed since recreational estimates changed from Coastal Household Telephone Survey to Fishery Effort Survey. For some stocks, estimates of recreational catch and trends in catch changed when the survey methods changed. Backwards calibrations can be effective over the short term but can add significant uncertainty as time progresses. If catch levels need to be changed in response to new information being used to monitor the fishery and population, the SSC can apply the ABC Control Rule to develop catch level recommendations.

### **Stock Assessment Does Not Provide Sufficient Information to Support Stock Status Recommendation**

The SSC could reject a new assessment but accept a previous assessment with new data, reject the new assessment and use the previous assessment with no new data, or reject the new assessment and indicate the previous assessment was flawed. In situations where a newly conducted assessment is rejected as a basis for status determination and fishing level recommendations, the guidance document indicates an assessment at the next tier level down should be used to provide stock status recommendations. Similarly, catch level recommendations could also come from the next tier down assessment or an appropriate method from the FMP's ABC Control Rule, depending on the reason for the rejection.

If the new assessment is rejected but the previous assessment is used with no new data, the catch level recommendations could be based on the previous assessment for developing catch level recommendations. The SSC might want to review the catch level recommendations to make sure they are in line with long-term use. Many catch level recommendations are provided for short-term use (3 to 5 years).

If the new assessment and previous assessment are determined to be flawed, and there is no lower tier assessment to fall back on, the SSC may need to shift to setting the ABC based on a lower tier in the ABC Control Rule for the FMP.

### **Stock Assessment Deviates from Status Determination Criteria**

Status determination criteria are required through Magnuson Stevens Act for stocks or complexes managed by councils. These status determination criteria are established through each FMP. Councils

are responsible for adopting any changes in the status determination criteria in the FMP. Based on the procedural guidance, until the change is adopted by a council, the agency will maintain the last known stock status based on the criteria in the FMP.

## References

- GMFMC and SAFMC. 2011. Final amendment 18 to the fishery management plan for coastal migratory pelagic resources in the Gulf of Mexico and Atlantic regions including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. and South Atlantic Fishery Management Council. Charleston, South Carolina.
- National Marine Fisheries Service, 2020. National Marine Fisheries Service Procedure 01-101-11; Procedural Guidance for Changing Assessed Stock Status from Known to Unknown. <https://www.fisheries.noaa.gov/national/laws-and-policies/fisheries-management-policy-directives>
- SAFMC (South Atlantic Fishery Management Council). 2009. Comprehensive Ecosystem Based Amendment 1. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2010. Amendment 17B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2011. Comprehensive Annual Catch Limit (ACL) Amendment (Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2013. Regulatory Amendment 13 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2014. Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.
- SAFMC (South Atlantic Fishery Management Council). 2022. Draft Amendment 35 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

**Appendix 1. ABC Control Rule for Dolphin/Wahoo, Golden Crab, and Snapper Grouper Fishery Management Plans based on ABC Control Rule Amendment (Approved by Council in 2022 and sent to NMFS in 2023).**

**App 1 Table 1.** Acceptable biological catch control rule proposed in Dolphin/Wahoo Amendment 11, Golden Crab Amendment 11, and Snapper Grouper Amendment 45.

<b>Category</b>	<b>Criteria</b>	<b>ABC Determination</b>
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 formal stock assessment accepted to provide OFL and ABC recommendations (reviewed through SEDAR or SSC).	OFL and ABC will be developed according to the strategy proposed by the SSC's Data-Limited Working Group. The SSC will attempt to estimate OFL and its uncertainty using available data, applicable methods, and expert judgement. If an OFL and its uncertainty are defined, the SSC will apply P* to derive ABC. If an OFL is unable to be defined, the SSC will directly recommend an ABC. The process of updating OFLs and ABCs for unassessed stocks will occur over time as directed by the Council. The current OFL and ABC for unassessed species and species complexes will be maintained until updated levels are recommended by the SSC and approved by the Council.

**Stock Risk Ratings and ABC Recommendations for Unassessed Stocks (Category 4)**

- The SSC will work through groups of unassessed stocks to determine ABC recommendations.
- Prior to the SSC developing an ABC recommendation for a group of unassessed stocks, the SSC and AP will provide input on stock risk rating attributes and the Council will determine stock risk rating, as described for assessed stocks, without the benefit of the same level of biological information on the stock.

- When possible, OFL will be defined and the ABC control rule will be applied to the OFL and its distribution, as described for assessed stocks. However, in cases where OFL cannot be defined and the SSC recommends ABC directly, the SSC will describe in their report how they considered the Council’s stock risk rating in developing their recommendations.

**App 1 Table 2.** Summary of default risk tolerance (P\*) levels based on stock risk ratings and relative biomass levels.

<b>Stock Risk Rating</b>	<b>High Biomass</b> Biomass exceeds $B_{MSY}$ (or 110% $B_{MSY}$ per Sub-Alternative 2a)	<b>Moderate Biomass</b> Biomass is ABOVE the midpoint between $B_{MSY}$ and MSST	<b>Low Biomass</b> Biomass is below the midpoint between $B_{MSY}$ and MSST
Low	45%	45%	40%
Medium	45%	40%	30%
High	40%	30%	20%

**Appendix 2. ABC Control Rule for Snapper Grouper (Amendment 29), Dolphin Wahoo (DW Amendment 2), and Golden Crab (GC Amendment 5).**

**App 2 Table 1.** ABC Control Rule for Snapper Grouper FMP (SG Amendment 29).

<b>Level 1 – Assessed Stocks</b>	
<b>Tier</b>	<b>Tier Classification and Methodology to Compute ABC</b>
<b>1. Assessment Information (10%)</b>	<ol style="list-style-type: none"> <li>1. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%)</li> <li>2. Reliable measures of exploitation or biomass; no MSY benchmarks, proxy reference points. (2.5%)</li> <li>3. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%)</li> <li>4. Reliable catch history. (7.5%)</li> <li>5. Scarce or unreliable catch records. (10%)</li> </ol>
<b>2. Uncertainty Characterization (10%)</b>	<ol style="list-style-type: none"> <li>1. Complete. Key Determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%)</li> <li>2. High. Key Determinant – reflects more than just uncertainty in future recruitment. (2.5%)</li> <li>3. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%)</li> <li>4. Low. Distributions of <math>F_{MSY}</math> and MSY are lacking. (7.5%)</li> <li>5. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)</li> </ol>
<b>3. Stock Status (10%)</b>	<ol style="list-style-type: none"> <li>1. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%)</li> <li>2. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%)</li> <li>3. Stock is either overfished or overfishing. (5%)</li> <li>4. Stock is both overfished and overfishing. (7.5%)</li> <li>5. Either status criterion is unknown. (10%)</li> </ol>
<b>4. Productivity and Susceptibility - Risk Analysis (10%)</b>	<ol style="list-style-type: none"> <li>1. Low risk. High productivity, low vulnerability, low susceptibility. (0%)</li> <li>2. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%)</li> <li>3. High risk. Low productivity, high vulnerability, high susceptibility. (10%)</li> </ol>
<b>Level 2 - Unassessed Stocks. Reliable landings and life history information available</b>	
OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA). ABC derived from applying the assessed stocks rule to determine adjustment factor if possible, or from expert judgment if not possible.	
<b>Level 3 - Unassessed Stocks. Inadequate data to support DBSRA</b>	
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.	
<b>Level 4 - Unassessed Stocks. Inadequate data to support DCAC or DBSRA</b>	
OFL and ABC derived on a case by case basis. ORCS ad hoc migratory group is currently working on what to do when not enough data exist to perform DCAC.	
<b>Level 5 – Unassessed Stocks. No reliable catch.</b>	

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?
  - a. NO: Ecosystem Species (Council done this already, ACL Amend)
  - b. YES: Go to 2
2. Will increase (beyond current range of variability) in catch lead to decline or stock concerns?
  - a. NO: ABC = 3rd highest point in the 1999-2008 time series
  - b. YES: Go to 3
3. Is stock part of directed fishery or is it primarily bycatch for other species?
  - a. Directed: ABC = Median 1999-2008
  - b. 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.

**App 2. Table 2.** ABC Control Rule for Dolphin Wahoo (DW Amendment 2) and Golden Crab (GC Amendment 5).

Level 1 – Assessed Stocks	
Tier	Tier Classification and Methodology to Compute ABC
<b>1. Assessment Information (10%)</b>	<ol style="list-style-type: none"> <li>6. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%)</li> <li>7. Reliable measures of exploitation or biomass; no MSY benchmarks, proxy reference points. (2.5%)</li> <li>8. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%)</li> <li>9. Reliable catch history. (7.5%)</li> <li>10. Scarce or unreliable catch records. (10%)</li> </ol>
<b>2. Uncertainty Characterization (10%)</b>	<ol style="list-style-type: none"> <li>6. Complete. Key Determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%)</li> <li>7. High. Key Determinant – reflects more than just uncertainty in future recruitment. (2.5%)</li> <li>8. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%)</li> <li>9. Low. Distributions of <math>F_{MSY}</math> and MSY are lacking. (7.5%)</li> <li>10. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)</li> </ol>

<p><b>3. Stock Status (10%)</b></p>	<p>6. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%)</p> <p>7. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%)</p> <p>8. Stock is either overfished or overfishing. (5%)</p> <p>9. Stock is both overfished and overfishing. (7.5%)</p> <p>10. Either status criterion is unknown. (10%)</p>
<p><b>4. Productivity and Susceptibility - Risk Analysis (10%)</b></p>	<p>4. Low risk. High productivity, low vulnerability, low susceptibility. (0%)</p> <p>5. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%)</p> <p>6. High risk. Low productivity, high vulnerability, high susceptibility. (10%)</p>
<p><b>Level 2 - Unassessed Stocks. Reliable landings and life history information available</b></p>	
<p>OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA). ABC derived from applying the assessed stocks rule to determine adjustment factor if possible, or from expert judgment if not possible.</p>	
<p><b>Level 3 - Unassessed Stocks. Inadequate data to support DBSRA</b></p>	
<p>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.</p>	
<p><b>Level 4 – Unassessed Stocks. No reliable catch.</b></p>	
<p>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":</p> <ol style="list-style-type: none"> <li>1. Will catch affect stock?       <ol style="list-style-type: none"> <li>a. NO: Ecosystem Species (Council done this already, ACL Amend)</li> <li>b. YES: Go to 2</li> </ol> </li> <li>2. Will increase (beyond current range of variability) in catch lead to decline or stock concerns?       <ol style="list-style-type: none"> <li>a. NO: ABC = 3rd highest point in the 1999-2008 time series</li> <li>b. YES: Go to 3</li> </ol> </li> <li>3. Is stock part of directed fishery or is it primarily bycatch for other species?       <ol style="list-style-type: none"> <li>a. Directed: ABC = Median 1999-2008</li> <li>b. Bycatch/Incidental: If yes, go to 4.</li> </ol> </li> <li>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?</li> </ol> <p>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.</p>	



### Appendix 3. ABC Control Rule for Coastal Migratory Pelagics (CMP Amendment 18)

**App 3 Table 1.** ABC Control Rule for Coastal Migratory Pelagics (CMP Amendment 18).

<b>Level 1 – Assessed Stocks</b>	
<b>Tier</b>	<b>Tier Classification and Methodology to Compute ABC</b>
<b>1. Assessment Information (10%)</b>	<ul style="list-style-type: none"> <li>11. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%)</li> <li>12. Reliable measures of exploitation or biomass; no MSY benchmarks, proxy reference points. (2.5%)</li> <li>13. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%)</li> <li>14. Reliable catch history. (7.5%)</li> <li>15. Scarce or unreliable catch records. (10%)</li> </ul>
<b>2. Uncertainty Characterization (10%)</b>	<ul style="list-style-type: none"> <li>11. Complete. Key Determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%)</li> <li>12. High. Key Determinant – reflects more than just uncertainty in future recruitment. (2.5%)</li> <li>13. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%)</li> <li>14. Low. Distributions of <math>F_{MSY}</math> and MSY are lacking. (7.5%)</li> <li>15. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)</li> </ul>
<b>3. Stock Status (10%)</b>	<ul style="list-style-type: none"> <li>11. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%)</li> <li>12. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%)</li> <li>13. Stock is either overfished or overfishing. (5%)</li> <li>14. Stock is both overfished and overfishing. (7.5%)</li> <li>15. Either status criterion is unknown. (10%)</li> </ul>
<b>4. Productivity and Susceptibility - Risk Analysis (10%)</b>	<ul style="list-style-type: none"> <li>7. Low risk. High productivity, low vulnerability, low susceptibility. (0%)</li> <li>8. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%)</li> <li>9. High risk. Low productivity, high vulnerability, high susceptibility. (10%)</li> </ul>
<b>Level 2 - Unassessed Stocks. Reliable landings and life history information available</b>	
OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA). ABC derived from applying the assessed stocks rule to determine adjustment factor if possible, or from expert judgment if not possible.	
<b>Level 3 - Unassessed Stocks. Inadequate data to support DBSRA</b>	
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.	
<b>Level 4 - Unassessed Stocks. Inadequate data to support DCAC or DBSRA</b>	
OFL and ABC derived on a case by case basis. ORCS ad hoc migratory group is currently working on what to do when not enough data exist to perform DCAC.	