

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).

Level 1 – Assessed Stocks	
Tier	Tier Classification and Methodology to Compute ABC
1. Assessment Information (10%)	<ol style="list-style-type: none"> 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%)	<ol style="list-style-type: none"> 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%)	<ol style="list-style-type: none"> 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 - Risk Analysis (10%)	<ol style="list-style-type: none"> 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 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. Inadequate data to support DCAC or DBSRA	
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.	
Level 5 – Unassessed Stocks. No reliable catch.	

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

<p>3. Stock Status (10%)</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>4. Productivity and Susceptibility - Risk Analysis (10%)</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>Level 2 - Unassessed Stocks. Reliable landings and life history information available</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>Level 3 - Unassessed Stocks. Inadequate data to support DBSRA</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>Level 4 – Unassessed Stocks. No reliable catch.</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"> 1. Will catch affect stock? <ol style="list-style-type: none"> 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? <ol style="list-style-type: none"> 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? <ol style="list-style-type: none"> 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? <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).

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