Amendment 18A

To the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region and Final Environmental Impact Statement with Regulatory Flexibility Act Analysis, Regulatory Impact Review, and Fishery Impact Statement

December 2011

South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
North Charleston, South Carolina 29405
(843) 571-4366
(843) 769-4520 (FAX)
Email (general): safmc@safmc.net
Website: www.safmc.net

National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 / FAX (727) 824-5308

A publication of the South Atlantic Fishery Management Council pursuant to
National Oceanic and Atmospheric Administration Award Number NA05NMF4410004

ABBREVIATIONS AND ACRONYMS

ABC	Acceptable biological catch
ACCSP	Atlantic Coastal Cooperative Statistics Program
ACL	Annual Catch Limits
ACT	Annual Catch Target
AM	Accountability Measure
APA	Administrative Procedures Act
ASMFC	Atlantic States Marine Fisheries Commission
B	A measure of stock biomass in either weight or other appropriate unit
B_{MSY}	The stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}
B_{OY}	The stock biomass expected to exist under equilibrium conditions when fishing at F_{OY}
B_{CURR}	The current stock biomass
CEA	Cumulative Effects Analysis
CEQ	Council on Environmental Quality
CFMC	Caribbean Fishery Management Council
CPUE	Catch per unit effort
CRP	Cooperative Research Program
CZMA	Coastal Zone Management Act
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EFH-HAPC	Essential Fish Habitat - Habitat Area of Particular Concern
EIS	Environmental Impact Statement
ESA	Endangered Species Act of 1973
F	A measure of the instantaneous rate of fishing mortality
$F_{30\%SPR}$	Fishing mortality that will produce a static SPR = 30%.
$F_{45\%SPR}$	Fishing mortality that will produce a static SPR = 45%.
F_{CURR}	The current instantaneous rate of fishing mortality
F_{MSY}	The rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}
F_{OY}	The rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of B_{OY}
FEIS	Final Environmental Impact Statement
FMP	Fishery Management Plan
FMU	Fishery Management Unit
FONSI	Finding of No Significant Impact
GMFMC	Gulf of Mexico Fishery Management Council
IFQ	Individual Fishing Quota
M	Natural mortality rate
MARFIN	Marine Fisheries Initiative
MARMAP	Marine Resources Monitoring Assessment and Prediction Program
MBTA	Migratory Bird Treaty Act

MFMT	Maximum Fishing Mortality Threshold
MMPA	Marine Mammal Protection Act of 1972
MRFSS	Marine Recreational Fisheries Statistics Survey
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	Minimum Stock Size Threshold
MSY	Maximum Sustainable Yield
NEPA	National Environmental Policy Act of 1969
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuary Act
NOAA	National Oceanic and Atmospheric Administration
OY	Optimum Yield
PQBM	Post Quota Bycatch Mortality
R	Recruitment
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
SAFE Report	Stock Assessment and Fishery Evaluation Report
SAMFC	South Atlantic Fishery Management Council
SDDP	Supplementary Discard Data Program
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SFA	Sustainable Fisheries Act
SIA	Social Impact Assessment
SPR	Spawning Potential Ratio
SSC	Scientific and Statistical Committee
TAC	Total allowable catch
TL	Total length
T_{MIN}	The length of time in which a stock could rebuild to B_{MSY} in the absence of fishing mortality
USCG	U.S. Coast Guard

AMENDMENT 18A TO THE FISHERY MANAGEMENT PLAN FOR THE SNAPPER GROUPER FISHERY OF THE SOUTH ATLANTIC REGION

INCLUDING AN ENVIRONMENTAL IMPACT STATEMENT, REGULATORY FLEXIBILITY ACT ANALYSIS, REGULATORY IMPACT REVIEW AND FISHERY IMPACT STATEMENT

Proposed actions:	Update the black sea bass rebuilding strategy, acceptable biological catch (ABC), annual catch limit (ACL) and annual catch target (ACT); establish an endorsement program for black sea bass pots; limit trap effort in the black sea bass pot fishery; implement measures to reduce bycatch in the black sea bass pot fishery; modify current black sea bass accountability measures; consider a black sea bass spawning season closure; establish a commercial trip limit for black sea bass; modify the current black sea bass size limits; and improve the accuracy, timing, and quantity of fisheries data.
Lead agency:	FMP Amendment – South Atlantic Fishery Management Council EIS - NOAA Fisheries Service
For Further Information Contact:	Robert K. Mahood South Atlantic Fishery Management Council 4055 Faber Place, Suite 201 North Charleston, SC 29405 866-SAFMC-10 Robert.Mahood@safmc.net Roy E. Crabtree, Ph.D. NOAA Fisheries, Southeast Region 263 13th Avenue South St. Petersburg, FL 33701 727-824-5301 Roy.Crabtree@noaa.gov
NOI for Amendment 18:	January 28, 2009 74 FR 4944
Scoping meetings held:	January 26, 2009 through February 5, 2009
Public Hearings held:	November 2-3, 5th, and 10-12, 2009 October 25-27, 2010
DEIS filed:	December 2, 2011
DEIS notice published:	December 9, 2011
DEIS Comments received by:	January 23, 2012
FEIS filed:	DATE TO BE FILLED IN
FEIS Comments received by:	DATE TO BE FILLED IN

ABSTRACT

The South Atlantic Fisheries Management Council (South Atlantic Council) is concerned that regulations implementing several recent snapper grouper amendments could increase the incentive to fish for black sea bass. Therefore, the South Atlantic Council is proposing management measures that would limit participation in the black sea bass component of the snapper grouper fishery and slow the rate of harvest to prevent the progressive shortening of the commercial and recreational fishing seasons. The South Atlantic Council is also concerned about the accuracy, timing, and quantity of fisheries data and is proposing management measures that would improve fisheries data.

Actions in Amendment 18A would:
Modify the rebuilding strategy, acceptable biological catch (ABC) , annual catch limit (ACL) and annual catch target (ACT)

- for black sea bass
- Limit participation in the black sea bass pot segment of the snapper grouper fishery through an endorsement program
- Establish an appeals process for fishermen excluded from the black sea bass pot endorsement program
- Allow transferability of black sea bass pot endorsements
- Limit effort in the black sea bass pot segment of the snapper grouper fishery
- Implement measures to reduce black sea bass bycatch
  Modify accountability measures for black sea bass
- Establish a spawning season closure for black sea bass
- Establish a commercial trip limit for black sea bass
- Modify the current commercial and/or recreational size limits; and
- Improve data reporting in the commercial and for-hire sectors of the snapper grouper fishery.

The Environmental Impact Statement (EIS) was been prepared to analyze the effects of implementing regulations to achieve the actions listed above.

TABLE OF CONTENTS

ABSTRACT iv
TABLE OF CONTENTS v
LIST OF APPENDICES x
LIST OF FIGURES xi
LIST OF TABLES xii
TABLE OF CONTENTS FOR ENVIRONMENTAL IMPACT STATEMENT xviii
SUMMARY 1
1 Introduction 1
1.1 Background 1
1.2 Purpose of the Proposed Action 3
1.3 Need for the Proposed Action 3
1.4 History of Management 4
1.5 Black Sea Bass Units of Weight (Conversion Details) 5
2 Actions and Alternatives 7
2.1 Action 1: Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass 7
2.1.1 Action 1a. Modify Rebuilding Strategy and Set ABC for Black Sea Bass ... 7
2.1.1.1 Comparison of Alternatives 10
2.1.2 Action 1b. Set an ACL for Black Sea Bass 11
2.1.2.1 Comparison of Alternatives 13
2.1.3 Action 1c. Set Annual Catch Targets (ACTs) for the Commercial Black Sea Bass Sector 15
2.1.3.1 Comparison of Alternatives 15
2.1.4 Action 1d. Set Annual Catch Targets (ACTs) for the Recreational Black Sea Bass Sector 16
2.1.4.1 Comparison of Alternatives 16
2.2 Action 2: Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery through an Endorsement Program 18
2.2.1 Comparison of Alternatives 19
2.3 Action 3: Establishment of an Appeals Process for Fishermen Excluded From the Black Sea Bass Pot Endorsement Program 22
2.3.1 Comparison of Alternatives 22
2.4 Action 4: Allow for Transferability of Black Sea Bass Endorsements 24
2.4.1 Comparison of Alternatives 24
2.5 Action 5: Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year 26
2.5.1 Comparison of Alternatives 26
2.6 Action 6: Implement Measures to Reduce Black Sea Bass Bycatch 28
2.6.1 Comparison of Alternatives 28
2.7 Action 7: Modify Accountability Measures for Black Sea Bass 30
2.7.1 Comparison of Alternatives 31
2.8 Action 8: Establish a Spawning Season Closure for Black Sea Bass 33
2.8.1 Comparison of Alternatives 33
2.9.1 Comparison of Alternatives 35

2.10 Action 10: Modify Commercial and/or Recreational Black Sea Bass Size Limits ... 37
2.10.1 Comparison of Alternatives ... 37
2.11 Action 11: Improvements to Commercial Data Reporting ... 39
2.11.1 Comparison of Alternatives ... 39
2.12 Action 12. Improvements to For-Hire Data Reporting ... 41
2.12.1 Comparison of Alternatives ... 41
3 Affected Environment ... 43
3.1 Habitat for Snapper Grouper Species ... 43
3.1.1 Essential Fish Habitat ... 43
3.1.2 Habitat Areas of Particular Concern ... 43
3.2 Biological and Ecological Environment ... 44
3.2.1 Species Most Impacted By This FMP Amendment ... 44
Black Sea Bass, *Centropristis striata* ... 44
3.2.2 Science Underlying the Management of Snapper Grouper Species Most Impacted By this FMP Amendment ... 45
3.2.2.1 Black sea bass assessment and stock status ... 46
3.3 Other Affected Council-Managed Species ... 47
3.3.1 Protected Species ... 47
3.3.1.1 Humpback and North Atlantic Right Whales ... 48
3.3.1.2 ESA-Listed Sea Turtles ... 49
3.3.1.3 ESA-Listed Marine Fish ... 51
3.3.1.4 ESA-Listed Marine Invertebrates ... 52
3.3.2 South Atlantic Snapper grouper Fishery Interactions with ESA-Listed Species ... 52
3.3.3 Designated Critical Habitat for ESA-Listed Species in the South Atlantic ... 53
3.4 Federal Fishery Management ... 54
3.5 State Fishery Management ... 55
3.6 Enforcement ... 56
3.7 Economic Environment ... 57
3.7.1 Economic Description of the Commercial Fishery ... 57
3.7.1.1 Number of Vessels, Harvest, and Revenue ... 57
3.7.1.3 Permits ... 58
3.7.2 Economic Description of the Recreational Sector of the Snapper Grouper Fishery ... 59
3.7.2.1 Harvest ... 59
3.7.2.2 Recreational Black Sea Bass Effort ... 61
3.7.2.3 Permits ... 65
3.7.2.4 Economic Value and Expenditures ... 66
3.7.2.5 Financial Operations of the Charter and Headboat Sectors ... 69
3.8 Social Environment ... 72
3.8.1 Communities in the South Atlantic ... 72
3.8.1.1 North Carolina ... 72
3.8.1.2 South Carolina ... 76
3.8.1.3 Georgia ... 78
3.8.1.4 Florida ... 79

3.8.2 Environmental Justice Considerations 82
4 Environmental Consequences 86
4.1 Action 1: Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass 86
4.1.1 Action 1a. Modify Rebuilding Strategy and Set ABC for Black Sea Bass .. 88
4.1.1.1 Biological Effects 91
4.1.1.2 Economic Effects 95
4.1.1.3 Social Effects 97
4.1.1.4 Administrative Effects 97
4.1.2 Action 1b. Set an ACL for the Black Sea Bass 98
4.1.2.1 Biological Effects 99
4.1.2.2 Economic Effects 101
4.1.2.3 Social Effects 102
4.1.2.4 Administrative Effects 102
4.1.3 Action 1c. Set Annual Catch Targets (ACTs) for the Commercial Black Sea Bass Sector 103
4.1.3.1 Biological Effects 103
4.1.3.2 Economic Effects 104
4.1.3.3 Social Effects 104
4.1.3.4 Administrative Effects 105
4.1.4 Action 1d. Set Annual Catch Targets (ACTs) for the Recreational Black Sea Bass Sector 105
4.1.4.1 Biological Effects 106
4.1.4.2 Economic Effects 107
4.1.4.3 Social Effects 107
4.1.4.4 Administrative Effects 107
4.1 108
4.2 Action 2: Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery through an Endorsement Program 109
4.2.1 Biological Effects 110
4.2.2 Economic Effects 116
4.2.3 Social Effects 116
4.2.4 Administrative Effects 121
4.3 Action 3: Establishment of an Appeals Process for Fishermen Excluded From th Black Sea Bass Pot Endorsement Program 123
4.3.1 Biological Effects 123
4.3.2 Economic Effects 124
4.3.3 Social Effects 124
4.3.4 Administrative Effects 124
4.4 Action 4: Allow for Transferability of Black Sea Bass Pot Endorsements . 126
4.4.1 Biological Effects 126
4.4.2 Economic Effects 127
4.4.3 Social Effects 129
4.4.4 Administrative Effects 131
4.5 Action 5: Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year 133

4.5.1 Biological Effects 133
4.5.2 Economic Effects 137
4.5.3 Social Effects 138
4.5.4 Administrative Effects 140
4.6 Action 6: Implement Measures to Reduce Black Sea Bass Bycatch 141
4.6.1 Biological Effects 141
4.6.2 Economic Effects 143
4.6.3 Social Effects 143
4.6.4 Administrative Effects 144
4.7 Action 7: Modify Accountability Measures for Black Sea Bass 145
4.7.1 Biological Effects 146
4.7.2 Economic Effects 148
4.7.3 Social Effects 149
4.7.4 Administrative Effects 149
4.8 Action 8: Establish a Spawning Season Closure for Black Sea Bass 151
4.8.1 Biological Effects 151
4.8.2 Economic Effects 155
4.8.3 Social Effects 160
4.8.4 Administrative Effects 163
4.9 Action 9: Establish a Commercial Trip Limit for Black Sea Bass 164
4.9.1 Biological Effects 164
4.9.2 Economic Effects 169
4.9.3 Social Effects 173
4.9.4 Administrative Effects 173
4.10 Action 10: Modify Commercial and/or Recreational Black Sea Bass Size Limits 174
4.10.1 Biological Effects 174
4.10.2 Economic Effects 176
4.10.3 Social Effects 177
4.10.4 Administrative Effects 178
4.11 Action 11: Improvements to Commercial Vessel Data Reporting 179
4.11.1 Biological Effects 180
4.11.2 Economic Effects 185
4.11.3 Social Effects 186
4.11.4 Administrative Effects 187
4.12 Action 12: Improvement to For-Hire Data Reporting 189
4.12.1 Biological Effects 189
4.12.2 Economic Effects 193
4.12.3 Social Effects 195
4.12.4 Administrative Effects 196
4.13 Research Recommendations 197
4.14 Socio-Cultural Research Needs 197
4.15 Ecosystem based management 199
5 Cumulative Effects 200
5.1 Biological 201
5.2 Socioeconomic Cumulative Impacts 213

6 Council Conclusions 215
6.1 Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass .. 215
6.1.1 Modify Rebuilding Strategy and Set ABC for Black Sea Bass 215
6.1.2 Set an ACL for Black Sea Bass 216
6.1.3 Set Annual Catch Targets (ACTs) for Commercial Black Sea Bass 216
6.1.4 Set Annual Catch Targets (ACTs) for Recreational Black Sea Bass..... 217
6.2 Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery through an Endorsement Program 217
6.3 Establishment of an Appeals Process for Fishermen Excluded from the Black Sea Bass Pot Endorsement Program 218
6.4 Allow for Transferability of Black Sea Bass Pot Endorsements 219
6.5 Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year 219
6.6 Implement Measures to Reduce Black Sea Bass Bycatch 220
6.7 Modify Accountability Measures for Black Sea Bass 220
6.8 Establish a Spawning Season Closure for Black Sea Bass 221
6.9 Establish a Commercial Trip Limit for Black Sea Bass 222
6.10 Modify Commercial and/or Recreational Black Sea Bass Size Limits 222
6.11 Improvements to Commercial Vessel Data Reporting 223
6.12 Improvement to For-Hire Data Reporting 223
7 List of Preparers 225
8 List of Agencies, Organizations, and Persons to Whom Copies of the Statement Were Sent 226
9 References 227
10 Index 237

LIST OF APPENDICES

Appendix A. Alternatives the Council Considered But Eliminated From Detailed Study, and a Brief Discussion of the Reasons For Their Elimination

Appendix B. Glossary

Appendix C. History of Management

Appendix D. Guide to the Atlantic Large Whale Take Reduction Plan

Appendix E. Bycatch Practicability Analysis

Appendix F. Fishery Impact Statement

Appendix G. Regulatory Flexibility Analysis

Appendix H. Regulatory Impact Review

Appendix I. Other Applicable Laws Including Environmental Justice

Appendix J. Other Things to Consider

Appendix K. Summary of Scoping Meetings

Appendix L. Projected Impacts of Amendment 18A on South Atlantic Black Sea Bass Season Length

Appendix M. Essential Fish Habitat and Move to Ecosystem Based Management

Appendix N. Responses to Comments on the DEIS

LIST OF FIGURES

Figure S-1. Spawning stock biomass compared with MSST and SSB_{MSY}. S-2
Figure S-2. Fishing mortality (F)/F_{MSY}. S-2
Figure S-2. Fishing mortality (F)/F_{MSY}. S-2
Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council. 1
Figure 3-1. North Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels. 73
Figure 3-2. South Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels. 76
Figure 3-3. Florida communities with substantial fishing activity. Identified by South Atlantic Advisory Panels. 80
Figure 4-1. Number of permits with black sea bass landings and estimated number of permits in North Carolina counties that qualify for an endorsement. Note: this information is based on home port recorded for the vessel associated with the permit. 118
Figure 4-2. Number of permits with black sea bass landings and estimated number of permits in South Carolina communities that qualify for an endorsement. Note: this information is based on home port recorded for the vessel associated with the permit. 119
Figure 4-3. Number of permits with black sea bass landings and estimated number of permits in Florida counties that qualify for an endorsement. Note: this information is based on home port recorded for the vessel associated with the permit. 120
Figure 4-4. Black sea bass spawning information from McGovern et al. (2002). 153

LIST OF TABLES

Table S-1. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014. 5
Table S-2. ACLs (lbs gutted weight) based on Constant Catch shifting to Constant F rebuilding strategy (Action 1a, Preferred Alternative 5). ACL values after 2014/2015 will be determined from an update assessment. 7
Table S-3. Values for Commercial ACT based on Preferred Alternative 2 in Action 1b. 8
Table S-4. Values for Recreational ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014. 9
Table S-5. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.** State based on homeport as identified on snapper-grouper permit application. 12
Table S-6. Number of South Atlantic Unlimited Snapper Grouper Permits per state that are expected to qualify for a Black Sea Bass Pot endorsement under **Preferred Sub-Alternative 2g**. 12
Table S-7. Number of vessels with landings of snapper grouper with pots; number of vessels with landings of snapper grouper who requested tags. Mean, minimum, maximum, median number of tags requested for vessels that fished pots; and mean, minimum, maximum number of pots fished for vessels that requested tags. 18
Table S-8. Number of days away from port, number of trips, total lbs of black sea bass landed (whole weight), and number of pots fished during 2005-2010. 20
Table S-9. Percentage of monthly landings for black sea bass during 2006/2007 through 2009/2010 fishing years. 24
Table S-10. Average catch per trip (lbs gutted weight) and percentage of landings from pots during fishing years (June – May) for 2006-2010. The 'Other' category is 99% hook and line gear. 26
Table S-11. Number of trips by gear for black sea bass taken during June-December 2008-2010. The 'Other' category is 99% hook and line gear. 27
Table S-12. Trip limit, number of trips, amount of pounds (gutted weight), and percent reduction in harvest provided by a trip limit during the June 2010 - May 2011 fishing year. Includes 31 permits that qualified for endorsements under Action 2 and vessels that caught black sea bass with hook and line gear. 28
Table S-13. Preliminary estimate of reduction in harvest of black sea bass for **headboat** sector associated with increased size limit. Based on data from 2009-2010 (n = 7,302). 30
Table S-14. Preliminary estimate of reduction in harvest of black sea bass for **MRFSS** associated with increased size limit. Based on data from 2009-2010 (n = 3,272)... 30
Table S-15. Preliminary estimate of reduction in harvest of black sea bass for **commercial** sector associated with increased size limit. Based on data from 2009-2011 (n = 8,767). 30
Table 1-1. Species in the Snapper Grouper Fishery Management Unit (FMU). 2
Table 1-2. Gutted Weight/Whole Weight Conversion Table for Black Sea Bass. 6

Table 2-1a. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014. 8
Table 2-1b. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014. 9
Table 2-1c. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014. 9
Table 2-2. Summary of effects of Action 1a alternatives under consideration. 11
Table 2-3. Annually increasing ACLs (lbs gutted weight) based on Constant Catch shifting to Constant F rebuilding strategy (Action 1a, Preferred Alternative 5). ACL values after 2014 will be determined from an update assessment. 12
Table 2-4a. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1). Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. 12
Table 2-4b. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1). Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. 12
Table 2-4c. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1). Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. 13
Table 2-5. Summary of effects of Action 1b alternatives under consideration..... 14
Table 2-6. Values for Commercial ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014. 15
Table 2-7. Summary of effects of Action 1c alternatives under consideration. 15
Table 2-8. Values for Recreational ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014. 16
Table 2-9. Summary of effects of Action 1d alternatives under consideration..... 17
Table 2-10. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.** State based on homeport as identified on snapper-grouper permit application. 19
Table 2-11. Number of South Atlantic Unlimited Snapper Grouper Permits per state that qualify for a Black Sea Bass Pot endorsement under **Preferred Alternative 2g**. ... 19
Table 2-12. Summary of effects of Action 2 alternatives under consideration..... 21
Table 2-13. Summary of effects of Action 3 alternatives under consideration..... 23
Table 2-14. Summary of effects of Action 4 alternatives under consideration..... 25
Table 2-15. Summary of effects of Action 5 alternatives under consideration..... 27
Table 2-16. Summary of effects of Action 6 alternatives under consideration..... 29
Table 2-17. Summary of effects of Action 7 alternatives under consideration..... 31
Table 2-18. Summary of effects of Action 8 alternatives under consideration..... 34

Table 2-19. Summary of effects of Action 9 alternatives under consideration..... 36
Table 2-20. Summary of effects of Action 10 alternatives under consideration..... 38
Table 2-21. Summary of effects of Action 11 alternatives under consideration..... 40
Table 2-22. Summary of effects of Action 12 alternatives under consideration..... 42
Table 3-1. Annual anticipated takes of ESA-listed species by the snapper-grouper fishery. 53
Table 3-2. Black sea bass sector performance statistics, logbook data, 2005-2010. 57
Table 3-3. Average annual economic activity associated with black sea bass harvest, 2005-2010. 58
Table 3-4. Number of commercial snapper grouper permits. 59
Table 3-5. Harvest (pounds whole weight) of black sea bass in the South Atlantic, by mode, 2005-2010. 60
Table 3-6. Harvest (pounds whole weight) of black sea bass in the South Atlantic, by state, 2005-2010. 60
Table 3-7. Average monthly distribution of black sea bass harvest (pounds ww) in the South Atlantic, by mode across all states, 2005-2010. The black sea bass fishing year starts in June. 61
Table 3-8. Average monthly distribution of black sea bass harvest (pounds whole weight) in the South Atlantic, by state across all modes, 2005-2010. The black sea bass fishing year starts in June. 61
Table 3-9. Recreational effort (trips) for black sea bass in the South Atlantic, by mode across all states, 2005-2010. 62
Table 3-10. Recreational effort (trips) for black sea bass in the South Atlantic, by state across all modes, 2005-2010. 63
Table 3-11. Average monthly distribution of recreational effort (trips) for black sea bass in the South Atlantic, by mode across all states, 2005-2010. The black sea bass fishing year starts in June. 64
Table 3-12. Average monthly distribution of recreational effort (trips) for black sea bass in the South Atlantic, by state across all modes, 2005-2010. The black sea bass fishing year starts in June. 64
Table 3-13. Southeast headboat angler days, 2005-06 through 2009-10. 65
Table 3-14. Number of South Atlantic for-hire snapper-grouper vessel permits, 2005-2010. 66
Table 3-15. Summary of black sea bass target trips (2005-2010 average) and associated economic activity (2008 dollars). Output and value added impacts are not additive. 69
Table 3-16. Federal commercial snapper grouper permits in North Carolina (2010). 73
Table 3-17. Cumulative black sea bass landings with pots in North Carolina counties. . 74
Table 3-18. Coastal recreational fishing license sales by year and type (Data source: NC Division of Marine Fisheries). 75
Table 3-19. Federal charter permits for snapper grouper in North Carolina (2010). 75
Table 3-20. Federal commercial snapper grouper permits in South Carolina (2010). 77
Table 3-21. Cumulative black sea bass landings with pots in South Carolina counties. . 77
Table 3-22. Federal charter permits for snapper grouper in South Carolina (2010). 77
Table 3-23. Sales of all saltwater recreational license types in South Carolina (Data Source: SC DNR). 78

Table 3-24. Federal commercial snapper grouper permits in Georgia (2010). 78
Table 3-25. Federal charter permits for snapper grouper in Georgia (2010). 79
Table 3-26. Federal commercial snapper grouper permits in Florida (2010). 81
Table 3-27. Cumulative black sea bass landings with pots in Florida counties. 81
Table 3-29. Environmental Justice thresholds (2010 U.S. Census data) for counties in the South Atlantic region. Only coastal counties (east coast for Florida) with minority and/or poverty rates that exceed the state threshold are listed. 84
Table 4-1. OFL values for South Atlantic black sea bass for the 2011 through 2016 fishing years. 88
Table 4-1a. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014. 89
Table 4-1b. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014. 90
Table 4-1c. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014. 90
Table 4-2. Annually increasing ACLs (lbs gutted weight) based on Constant Catch shifting to Constant F rebuilding strategy (Action 1a, Preferred Alternative 5). ACL values after 2014 will be determined from an update assessment. 98
Table 4-3a. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1a). Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. 99
Table 4-3b. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1a). Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. 99
Table 4-3c. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1a). Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. 99
Table 4-4. Values for Commercial ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014. 103
Table 4-5. Values for Recreational ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014. 105
Table 4-6. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.** State based on homeport as identified on snapper-grouper permit application. 110
Table 4-7. Number of South Atlantic Unlimited Snapper Grouper Permits per state that qualify for a Black Sea Bass Pot endorsement under **Preferred Alternative 2g**. . 110

Table 4-8. Number of vessels that fished pots and caught black sea bass during 1992-2010, and the number of vessels that currently have South Atlantic Unlimited Snapper Grouper Permits. 112
Table 4-9. Average catch per year, for years with positive landings, for active permits during 1999-2010, which also had landings during 2008, 2009, or 2010, and the number of permits that would not qualify that had landings every year from 1999 to 2010. 114
Table 4-10. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.** 120
Table 4-11. Number of vessels requesting tags; mean, minimum, maximum, and median number of tags/vessel requested. 134
Table 4-12. Number of vessels with landings of black sea bass with pots; number of vessels with landings of black sea bass who requested tags. Mean, minimum, maximum, median number of tags requested for vessels that fished pots; and mean, minimum, maximum number of pots fished for vessels that requested tags. 135
Table 4-13. Number of endorsements that would qualify under different landings level from Action 2, number of tags requested during 2008-2010, mean number of pots fished, and median number of pots fished. 136
Table 4-14. Number of pots fished per trip during 2008-2010 for 31 permits that would qualify for endorsements under Action 2. 137
Table 4-15. Range of black sea bass pots-per-trip averages by county and overall county average from 1999-2010 and 2008-2010. This information was based on data on average pots per trip for permits that will at least qualify for an endorsement under **Action 2, Alternative 2a**. 139
Table 4-16. Number of days away from port, number of trips, total lbs of black sea bass landed (whole weight), and number of pots fished during 2005-2010. 141
Table 4-17. Total number of pots per trip fished for the period 1/1/05-12/31/10. 142
Table 4-18. Percentage of monthly landings for black sea bass during 2006/2007 through 2009/2010 fishing years. 154
Table 4-19. Dockside revenues foregone as a result of Alternatives 2-5 based on 2007-2009 average landings data. 155
Table 4-20. Forgone net operating revenues (2009 dollars) due to the spawning closure alternatives. 156
Table 4-21. Reductions in CS and NOR due to spawning closure alternatives, 2010 dollars. 159
Table 4-22. Reductions in economic activities due to the spawning closure alternatives (2008 dollars). Output and value added impacts are not additive. 160
Table 4-23. Average catch per trip (pounds gutted weight) and percentage of landings from pots during fishing years (June – May) for 2006-2010. 165
Table 4-24. Number of trips by gear for black sea bass taken during June-December 2008-2010. Other category is 99% hook and line gear. NMFS logbook data (05/12/11). 165
Table 4-25. Projected month of black sea bass commercial closure is estimated to occur for the 2011 and 2012 fishing year based on various trip limit alternatives assuming 31 individuals qualify for endorsements under Action 1. Assumes 2,500 lb ww qualification level. Trip limits in gutted weight. 166

Table 4-26. Number of endorsements that qualify under Action 2, and estimated date commercial quota is met if the trip limit is 1,000 lbs gw (1,180 lbs ww). 166
Table 4-27. Trip limit, number of trips, amount of pounds (gutted weight), and percent reduction in harvest provided by a trip limit during June 2010 - May 2011 fishing year. Includes 31 permits that qualified for endorsements under Action 2 and vessels that caught black sea bass with potline gear. 168
Table 4-28. Dockside Revenue foregone as a result of Alternatives 2-9 based on 2010 average landings data. Values are in 2010 dollars. 170
Table 4-29. Dockside revenues foregone as a result of Alternatives 2-9 based on 2010 average landings data by gear for black sea bass. All values are in 2010 dollars. 172
Table 4-30. Dockside revenues foregone as a result of Alternatives 2-9 based on 2007-2010 average landings data, by state for black sea bass. All values are in 2010 dollars. 172
Table 4-31. Preliminary estimate of reduction in harvest of black sea bass for headboat sector associated with increased size limit. Based on data from 2009-2010 (n = 7,302). 175
Table 4-32. Preliminary estimate of reduction in harvest of black sea bass for MRFSS associated with increased size limit. Based on data from 2009-2010 (n = 3,272). 175
Table 4-33. Preliminary estimate of reduction in harvest of black sea bass for commercial sector associated with increased size limit. Based on data from 2009-2011 (n = 8,767). 175
Table 4-34. Summary of current data collection programs under Alternative 1..... 183
Table 5-1. The cause and effect relationship of fishing and regulatory actions for the snapper grouper fishery in the South Atlantic, within the time period of the Cumulative Effects Analysis (CEA) is shown below. 208

TABLE OF CONTENTS FOR ENVIRONMENTAL IMPACT STATEMENT

Abstract..…… ..iv

Summary……..S-1

Purpose and Need…….3

Actions and Alternatives……..7

Affected Environment…….43

Environmental Consequences……..87

Council Conclusions……....214

List of Preparers……...220

List of Agencies, Organizations, and Persons
to Whom Copies of the Statement were Sent……..221

References……222

Index……232

Why is the South Atlantic Council taking Action?

According to the most recent stock assessment black sea bass are no longer overfished (the number of black sea bass in the water is too low) because the current biomass is above the Minimum Stock Size Threshold (MSST) but still below the Spawning Stock Biomass (SSB) at Maximum Sustainable Yield (SSB_{MSY}) (**Figure S-1**). This means the stock is still rebuilding and the biomass must be increased to the SSB_{MSY} level by the end of the June 1, 2015 – May 31, 2016 fishing year. Black sea bass are undergoing slight overfishing (fish are being removed from the population too quickly) (**Figure S-2**).

Amendment 13C to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 13C) (SAFMC 2006) included management measures to reduce harvest of black sea bass, and Amendment 15A to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 15A) (SAFMC 2008a) included a rebuilding plan for black sea bass as required by the Magnuson-Stevens Fishery Conservation and Management Act. A combination of a rebuilding stock and effort shifts into the fishery for black sea bass have caused the commercial quota to be met earlier and earlier each fishing season. Amendment 17B to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 17B) (SAFMC 2010b) established strict accountability measures (AMs) for black sea bass that close the fishery when the commercial and recreational annual catch limits are met or projected to be met.

To prevent AMs from being triggered early each fishing season, and associated negative social and economic impacts, the South Atlantic Fishery Management Council (South Atlantic Council) has determined action should be taken to modify the current rebuilding strategy including the acceptable biological catch (ABC), the annual catch limit (ACL) and AMs, reduce participation and effort in the black sea bass pot segment of the snapper grouper fishery, and adjust the current system of accountability in the recreational sector. Additionally, Amendment 18A to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 18A) would consider measures to improve data reporting in the commercial and for-hire sectors of the snapper grouper fishery.

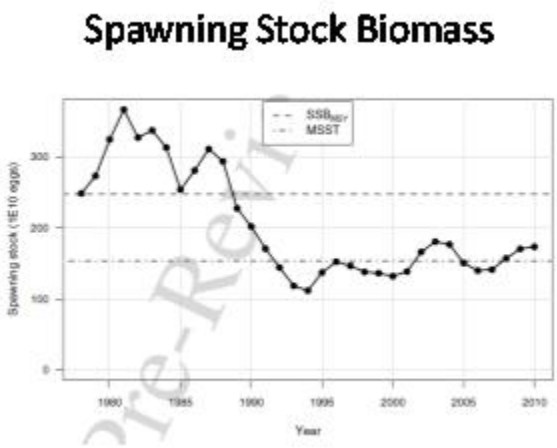


Figure S-1. Spawning stock biomass compared with the MSST and SSB_{MSY}.

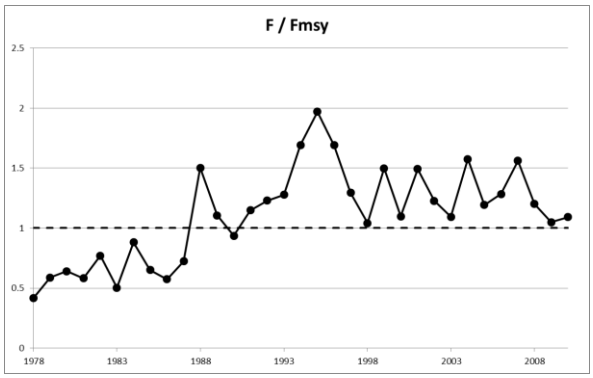
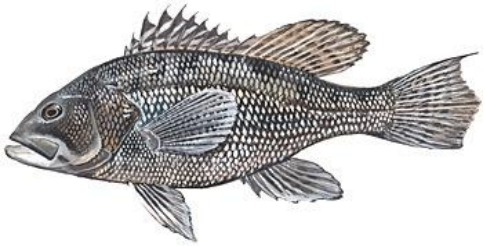


Figure S-2. Fishing mortality (F)/F_{MSY}.



Black Sea Bass

Purpose and Need of the Proposed Actions

The **purpose** of Amendment 18A is to limit participation and effort in the black sea bass pot fishery; limit bycatch in the black sea bass pot segment of the snapper grouper fishery; modify the current system of AMs; modify the current rebuilding strategy including ABC, ACL and AMs; consider a spawning season closure in addition to other management measures to reduce the rate of harvest of black sea bass; and improve the accuracy, timing, and quantity of fisheries data, while minimizing, to the maximum extent practicable, adverse socioeconomic impacts. These actions will address issues that have arisen as a result of a more stringent regulatory regime in the South Atlantic region.

The **need** for action in Amendment 18A is to reduce overcapacity in the black sea bass segment of the snapper grouper fishery. Recent amendments to the Snapper Grouper FMP have imposed more restrictive harvest limitations on snapper grouper fishermen. In an effort to identify other species to target, a greater number of fishermen may target black sea bass. An increase in effort in the black sea bass component of the snapper grouper fishery would intensify the "race to fish" that already exists, which has resulted in a shortened season for the commercial and recreational sectors. Furthermore, the commercial quota for black sea bass was met in 2009 and in 2010 before fishermen had a chance to fish during the portion of the year (November-February) that has historically been most productive. The South Atlantic Council is concerned an increasing effort on these species will deteriorate profits.

What Are the Proposed Actions?

There are 12 actions in Amendment 18A. Each *action* has a range of *alternatives*, including a "no action alternative" and a "preferred alternative". The range of alternatives must include at least the no action (to do nothing) and preferred (the South Atlantic Council's choice) alternatives.

Proposed Actions in Amendment 24

1. Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass
2. Limit Participation in the Black Sea Bass Pot Fishery Through an Endorsement Program
3. Establishment of an Appeals Process for Fishermen Excluded from the Black Sea Bass Pot Endorsement Program
4. Allow for Transferability of Black Sea Bass Pot Endorsements
5. Limit Effort in the Black Sea Bass Pot Fishery Each Permit Year
6. Implement Measures to Reduce Black Sea Bass Bycatch
7. Modify Accountability Measures for Black Sea Bass
8. Establish a Spawning Season Closure for Black Sea Bass
9. Establish a Commercial Trip Limit for Black Sea Bass
10. Modify Commercial and/or Recreational Black Sea Bass Size Limits
11. Improvements to Commercial Data Reporting
12. Improvements to For-Hire Data Reporting

Actions and Alternatives

Action 1. Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass

Action 1a. Modify Rebuilding Strategy and Set ABC for Black Sea Bass

Alternative 1 (No Action). Retain rebuilding strategy for black sea bass that maintains a constant catch throughout the remaining years of the rebuilding timeframe. The current ABC for black sea bass is 847,000 lbs whole weight (718,000 lbs gutted weight). Based on the current regulations in place the commercial ACL is 309,000 lbs gutted weight (gw) and the recreational ACL is 409,000 lbs gw for a combined ACL of 718,000 lbs gw.

Alternative 2. Establish a new constant catch rebuilding strategy with an ABC from the 2011 assessment and SSC review process.

Alternative 3. Define a rebuilding strategy for black sea bass that maintains a constant fishing mortality rate throughout the remaining years of the rebuilding timeframe.

Sub-Alternative 3a. $F = 75\%F_{MSY}$

Sub-Alternative 3b. $F = F_{rebuild}$ (by 2016)

The South Atlantic Council is considering modifying the rebuilding strategy for black sea bass because under the current rebuilding strategy harvest is not allowed to increase as the stock biomass improves. This causes the rate of harvest to increase as the population rebuilds and leads to early closures when quotas are met early in the fishing season.

Alternative 4. Define a rebuilding strategy for black sea bass that holds catch constant (847,000 lbs whole weight; recreational ACL = 409,000 lbs gw and commercial ACL = 309,000 lbs gw) in fishing years 2012/2013 and 2013/2014 and then changes to $F_{rebuild}$ fishing mortality rate throughout the remaining fishing seasons of the rebuilding timeframe. After the 2015/2016 fishing season the fishing mortality rate would be held constant until modified.

Preferred Alternative 5. Define a rebuilding strategy for black sea bass that holds catch constant (847,000 lbs whole weight; recreational ACL = 409,000 lbs gw and commercial ACL = 309,000 lbs gw) in fishing years 2012/2013 and 2013/2014 and then changes to $F_{rebuild}$ in 2014/2015. ($F_{rebuild}$ is defined as a constant fishing mortality strategy that maintains the 66% probability of recovery rate throughout the remaining fishing seasons of the rebuilding timeframe.) After the 2015/2016 fishing season the fishing mortality rate would be held constant until modified.

Table S-1. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014.

Fishing Year	Alternative 1	Alternative 2	Sub-Alternative 3a	Sub-Alternative 3b	Alternative 4	Preferred Alternative 5
2012/2013	718,000	973,729	746,610	746,610	718,000	718,000
2013/2014	718,000	973,729	881,356	881,356	718,000	718,000
2014/2015	718,000	973,729	1,023,729	1,023,729	1,144,915	***
2015/2016	718,000	973,729	1,134,746	1,134,746	1,212,712	***
2016/2017	718,000	973,729	1,215,254	1,215,254	1,266,102	***
Probability of Rebuilding by 2016/2017	66%	50%	<50%	50%	50%	66%

Note on values in Table S-1: Values under **Alternative 2** are based on Table 3.22 from SEDAR 25 (2011). Landings under **Sub-Alternative 3a** are assumed to equal those in **Sub-Alternative 3b** because the fishing mortality rate (F) for **Sub-Alternative 3a** (F= 0.48) is very similar to F for **Sub-Alternative 3b** (F = 0.52). It is likely that landings under **Sub-Alternative 3a** would be slightly greater than **Sub-Alternative 3b**. Values under **Sub-Alternative 3b** are based on Table 3.16 from SEDAR 25 (2011). Values under **Alternative 4** based on projection provided by the SEFSC dated November 4, 2011, and are based on $F_{rebuild}$ that allows an increase in harvest for 2012 fishing year. Values for 2014 to 2016 in **Preferred Alternative 5** would be determined from an updated assessment. A conversion factor of 1.18 used to convert whole weight values in assessment to gutted weight.

Impacts from Action 1a:

Biological Impacts

Alternative 1 (No Action) could result in unnecessary discards of black sea bass as biomass increases. However, release mortality of black sea bass is very low and actions were taken to reduce bycatch with increased mesh size in pots through Amendment 13C. Beneficial biological effects under **Alternative 1 (No Action)** include a more rapid rebuilding of the stock and increase in the average age and size structure compared to the other alternatives. **Alternative 2** would hold catch constant for the remaining years of the rebuilding plan and the ABC would not increase as the stock biomass increases. Based on results from SEDAR 25, the catch level could be increased from 718,000 lbs gw (~847,000 lbs ww) in the 2011/2012 fishing year to 973,729 lbs gw (1,149,000 lbs ww) in 2012/13 and then held steady through the remainder of the rebuilding period (end of 2015/2016 fishing year; **Table S-1**). **Alternative 3** would hold F constant and allow catch of black sea bass to increase as biomass of the stock increases**.** The current estimate of F_{MSY} is F = 0.698. **Sub-Alternative 3a** would hold the fishing mortality rate at 75% of F_{MSY}, which is very close to the fishing mortality rate under **Sub-Alternative 3b. Sub-Alternative 3b** would allow the greatest amount of harvest possible, while still having a 50% chance of rebuilding by 2016. The South Atlantic Council's Scientific and Statistical Committee (SSC) endorsed **Sub-Alternative 3b**, which assumes 150% of the allowable catch was met in the 2011 fishing year. The SSC stated that catch

should not increase after the 2013/2014 fishing year until a new stock assessment update has been completed. **Alternative 4** would use a modified approach for a black sea bass rebuilding strategy. Biological impacts of **Alternative 4** would be comparable to **Sub-Alternative 3b** since after the first two fishing seasons the allowable harvest would fall into line with what the allowable harvest would be under $F_{rebuild}$. **Preferred Alternative 5** would provide similar biological protection to the stock as **Alternatives 1 (No Action)** and **4** for the first two years. It is unknown how **Preferred Alternative 5** wouldwwould affect stock status beyond the first two years of implementation until after the South Atlantic Council's Science and Statistical Committee reviews the status of the stock from an updated stock assessment after 2013 and recommends a new ABC for black sea bass for the 2014/2015 fishing year and beyond.

Socioeconomic Impacts

Alternative 1 (No Action) and **Preferred Alternative 5** could result in the greatest negative economic impact for commercial fishermen. As the stock recovers and there are a greater number of larger fish, the current commercial ACL is being caught more quickly each year. The commercial season that began on June 1, 2011, lasted only 6 weeks. **Alternative 2**, which holds catch at a different constant level during the remainder of the rebuilding period, would have similar effects to **Alternative 1 (No Action)** and **Preferred Alternative 5**. Under constant F rebuilding strategy (**Alternative 3**), ACLs would generally increase with a rebuilding stock. The advantage of this strategy is as more fish become available with increased stock size, more fish can be removed from the population. **Alternative 3** would result in a smaller negative economic impact to commercial fishermen compared to **Alternative 1 (No Action)** and **Preferred Alternative 5** which would hold the fishing mortality rate (F) at a constant level for the remaining years of the rebuilding schedule. **Sub-Alternative 3a** is associated with less than 50 percent probability of rebuilding the stock within the rebuilding timeframe, and so may not be a viable alternative according to the requirements of the Magnuson-Stevens Act. **Sub-Alternative 3b** has a 50 percent probability of rebuilding the stock, but would provide for an ACL less than that of **Sub-Alternative 3a**. In the short-run, **Sub-Alternative 3a** may provide for a better economic scenario than **Sub-Alternative 3b**; the reverse may be expected over the long-run. **Alternative 4** has the potential to provide the greatest economic benefit to the fishermen as the commercial ACL could increase due to adjustments as the stock rebuilds.

Action 1b. Set an ACL for Black Sea Bass

Alternative 1 (No Action). Do not change the existing ACL for black sea bass.

Preferred Alternative 2. Set ACL = ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Alternative 3. Set ACL = 90%ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Alternative 4. Set ACL = 80%ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Table S-2. ACLs (lbs gutted weight) based on Constant Catch shifting to Constant F rebuilding strategy (Action 1a, Preferred Alternative 5). ACL values after 2014/2015 will be determined from an update assessment.

Constant Fishing Mortality Rate Options	Fishing Season	Combined ACL	Com. ACL (43%)*	Recreational ACL (57%)
Preferred Alternative 2 ACL=ABC=OY	2012/2013	718,000	309,000	409,000
	2013/2014	718,000	309,000	409,000
Alternative 3 ACL=90%ABC	2012/2013	646,200	277,866	368,334
	2013/2014	646,200	277,866	368,334
Alternative 4 ACL=80%ABC	2012/2013	574,400	246,992	327,408
	2013/2014	574,400	246,992	327,408

*Sector ACLs are based on the allocation formula used in Amendment 13C (SAFMC 2006) whereby the commercial quota is 43% of the total allowable catch (TAC) and the recreational allocation is 57% of the TAC.

Impacts from Action 1b.

Biological Impacts

Alternative 1 (No Action) would not change the existing ACL and OY for black sea bass. Based on a recommendation from the South Atlantic Council's SSC, Amendment 17B indicated that the ABC for overfished stocks is consistent with the value from the rebuilding plan. The Comprehensive ACL Amendment incorporated this definition of ABC for overfished stocks into the ABC Control Rule. The ABC for black sea bass is 718,000 lbs gw, which is equivalent to the ACL. **Alternative 2 (Preferred)** would set optimum yield (OY) equal to the ACL. National Standard 1 (NS1) establishes the relationship between conservation and management measures, preventing overfishing, and achieving OY from each stock, stock complex or fishery. Under **Alternatives 2 (Preferred)-4**, the ACL would be based on the ABC for black sea bass from SEDAR 25, which takes into consideration scientific uncertainty to ensure catches are maintained below a MSY/OFL level. **Preferred Alternative 2** is the least conservative option of all the alternatives under consideration in **Action 1b** by setting the ACL/OY equal to the ABC. The ACL would be divided into sector-specific ACLs based on the allocations of 43% commercial/57% recreational established in Amendment 13C to the FMP. **Preferred Alternative 2** would result in the greatest increase in overall allowable harvest over time while still allowing the stock to rebuild. **Preferred Alternative 2** would also provide no buffer between the ABC and the ACL. **Alternative 4** is the most risk adverse approach to setting a total ACL for black sea bass since it would create the largest buffer between ACL and ABC.

Socioeconomic Impacts

Since an ACL is a major constraint in the harvest or use of the black sea bass resource, **Preferred Alternative 2**, which provides for the highest ACL, would be expected to impose the least constraint on fishing activities. In principle, **Preferred Alternative 2** would allow the commercial and recreational sectors to generate the largest short-term

economic benefits from the use of the resource. Inasmuch as this alternative would still allow for the stock to rebuild within the rebuilding timeframe, benefits from this alternative may be expected to persist over time. Along similar reasoning, **Alternatives 3** and **4** would allow for lower economic benefits than **Preferred Alternative 2**, at least in the short term. Unless the stock rebuilds significantly faster under **Alternatives 3** or **4** so that ACLs could be substantially increased much sooner, long-term economic benefits derivable from these two alternatives would be lower than those from **Preferred Alternative 2**.

Action 1c. Set Annual Catch Targets (ACTs) for the Commercial Black Sea Bass Sector

Preferred Alternative 1 (No action). Do not set an ACT for the commercial black sea bass sector.

Alternative 2. Set the commercial ACT = 90% of the commercial sector ACL.

Alternative 3. Set the commercial ACT = 80% of the commercial sector ACL.

Table S-3. Values for Commercial ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014.

Fishing Year	Commercial ACL	Preferred Alternative 1	Alternative 2	Alternative 3
2012/2013	309,000	309,000	278,100	247,200
2013/2014	309,000	309,000	278,100	247,200

Impacts of Action 1c.

Biological Impacts

Preferred Alternative 1 (No Action) would not establish a commercial ACT. The South Atlantic Council concluded a commercial ACT for black sea bass was not needed because commercial sector landings are closely tracked in-season through a quota monitoring system that allows NOAA Fisheries Service to project when the commercial ACL is going to be met so the fishery can be closed before the commercial ACL is exceeded. Therefore, a commercial ACT for black sea bass is not necessary for the successful management of the commercial sector for black sea bass, and could result in an unnecessary burden. Setting a commercial ACT at either 90% or 80% of the ACL (**Alternatives 2** and **3,** respectively), would establish a reference point that could be used as an indicator that the ACL could be reached or exceeded, but would have no direct biological consequences at this time.

Socioeconomic Impacts

Preferred Alternative 1 (No Action) would not impose a buffer through the ACT and is less restrictive than **Alternatives 2** or **3**. With **Alternatives 2** and **3,** a buffer would be imposed which would reduce the harvest threshold further from the ACL. Therefore there is an increasing possibility of negative short-term socioeconomic effects going from **Preferred Alternative 1 (No Action)** to **Alternative 3**. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing

altogether. Although these are common responses to closures, it is not known how fishermen may respond if closures are anticipated for several different species or groups. There could be a domino effect as one closure forces them to switch to another species which closes as thresholds are met with the added fishing pressure. However, under **Preferred Alternative 1 (No Action)** there may be long-term socioeconomic impacts due to an overage that would not result in an increase in the subsequent year's ACL for black sea bass.

Action 1d. Set Annual Catch Targets (ACTs) for the Recreational Black Sea Bass Sector

Alternative 1. (No action). Do not set an ACT for the recreational black sea bass sector.

Alternative 2. Set the recreational ACT = 85% of the recreational sector ACL.

Alternative 3. Set the recreational ACT = 75% of the recreational sector ACL.

Preferred Alternative 4. The ACT equals recreational ACL*(1-PSE) or recreational ACL*0.5, whichever is greater.

Table S-4. Values for Recreational ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014.

Fishing Year	Recreational ACL	Alternative 2	Alternative 3	Preferred Alternative 4
2012/2013	409,000	347,650	306,750	357,548
2013/2014	409,000	347,650	306,750	357,548

Impacts of Action 1d.

Biological Impacts

Alternative 2, Alternative 3, and **Preferred Alternative 4** would establish reduced harvest levels designed to hedge against an ACL overage by providing a buffer between the ACT and ACL to account for management uncertainty. **Alternative 2** would establish an ACT that is 85% of the recreational ACL, which would create a 15% buffer between the two harvest levels. The same applies to **Alternative 3**, which would establish an ACT at a more conservative level than **Alternative 2** (75% of the ACL). Under **Alternative 3** the buffer between the ACL and ACT would be greater than that under **Alternative 2**, and theoretically there would be more time to act to prevent the ACL from being exceeded. **Preferred Alternative 4** would have the greatest biological benefit of the four alternatives by adjusting the ACL by 50% or one minus the average Percent Standard Error (PSE) from the recreational fishery for 2005-2009, whichever is greater. The lower the value of the PSE, the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACL with increasing variability and uncertainty in the landings data.

Socioeconomic Impacts

There is some expectation that ACTs used to trigger control measures would serve as cushions to effectively limit harvests and enable the stock to rebuild within the rebuilding timeframe. Long-term economic benefits would then ensue from a healthy stock. As long as long-term

economic benefits outweigh short-term costs, the fishing industry and society in general would be better off. Realization of long-term economic benefits depends on a host of factors, including the type of management regime adopted. These factors render relatively uncertain the long-term economic outcome of ACTs, at least from the standpoint of magnitudes.

Action 2. Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery through an Endorsement Program

Alternative 1 (No Action). Do not limit participation in the black sea bass pot segment of the snapper grouper fishery with the establishment of an endorsement program.

Alternative 2. Limit endorsements and tag distribution to entities with a valid or renewable South Atlantic Unlimited Snapper Grouper Permits on the effective date of the final rule whose *average* annual black sea bass landings using black sea bass pot gear between 1/1/99 and 12/31/10 were at least:

Sub-Alternative 2a - 500 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2b - 1,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2c - 2,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2d - 5,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2e - 10,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2f - 3,500 lb whole weight. Exclude Unlimited Snapper Grouper Permits with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Preferred Sub-Alternative 2g - 2,500 lbs whole weight. Exclude Unlimited Snapper Grouper Permits with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Alternative 3. No South Atlantic state shall have less than two entities that qualify for black sea bass pot endorsements, provided that no entity qualifies whose minimum average landings are:

Sub-Alternative 3a - 1,000 lbs whole weight

Sub-Alternative 3b - 2,000 lbs whole weight

South Atlantic Council's Decision:
Applicants must have a valid or renewable South Atlantic Unlimited Snapper Grouper Permit by the effective date of the final rule for Amendment 18A.

South Atlantic Council's Intent:
NMFS administratively prohibit transfers of South Atlantic Unlimited Snapper Grouper Permits for the necessary amount of time, not to exceed 45 days, until the new endorsements are required.

Table S-5. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.** State-based on homeport as identified on snapper-grouper permit application.

Using gutted weight landings							
	2a	**2b**	**2c**	**2d**	**2e**	**2f**	**Pref 2g**
North Carolina	25	21	19	10	6	11	16
South Carolina	16	12	9	3	2	5	6
Florida	9	8	6	5	1	5	6
Total	50	41	34	18	9	21	28
Using whole weight landings (Preferred)							
	2a	**2b**	**2c**	**2d**	**2e**	**2f**	**Pref 2g**
North Carolina	26	22	21	10	9	14	18
South Carolina	17	14	10	5	2	5	7
Florida	9	8	7	5	1	5	6
Total	52	44	38	20	12	24	31

Table S-6. Number of South Atlantic Unlimited Snapper Grouper Permits per state that are expected to qualify for a Black Sea Bass Pot endorsement under **Preferred Sub-Alternative 2g**.

Alternative	**State**	**Endorsements that would be issued (gw)**	**Endorsements that would be issued (ww)**
Preferred Sub-Alternative 2g- 2,500 lbs gw	North Carolina	16	18
	South Carolina	6	7
	Georgia	0	0
	Florida	6	6

Impacts from Action 2:

Biological Impacts

Any differences in biological impacts of the alternatives would be slight since the commercial sector would close when the commercial ACL is met or projected to be met, and all black sea bass pots would be removed from the water at that time. Release mortality of black sea bass is very low (7% hook and line; 1% black sea bass pots); therefore, an extended closed season imposed by a large number of participants in the black sea bass pot sector is not likely to have a negative effect on the stock. The greater the number of endorsements issued, the earlier the commercial sector would close under the current commercial ACL.

Socioeconomic Impacts

Sub-Alternatives 2a through **Preferred Sub-Alternative 2g** and **Alternative 3** would restrict participation in the black sea bass pot sector to those individuals who historically fished pots for black sea bass. As far fewer individuals fish pots than possess federal snapper grouper commercial permits, these alternatives could constrain participation in the black sea bass pot sector to a level that is more manageable and profitable.

Action 3: Establishment of an Appeals Process for Fishermen Excluded From the Black Sea bass Pot Endorsement Program

Alternative 1 (No Action). Do not specify provisions for an appeals process associated with the black sea bass endorsement program.

Preferred Alternative 2. A period of 90 days will be set aside to accept appeals to the black sea bass endorsement program starting on the effective date of the final rule. The Regional Administrator (RA) will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. The RA will determine the outcome of appeals based on NMFS logbooks. If NMFS logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS logbooks or state landings records to support their appeal.

> Because some fishermen may feel their logbook landings histories may have been incorrectly calculated resulting in disqualification for an endorsement, NOAA Fisheries Service intends to establish an appeal process through which fishery participants may challenge their exclusion from the endorsement program.

Alternative 3. A period of 90 days will be set aside to accept appeals to the black sea bass endorsement program starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. A special board composed of state directors/designees will review, evaluate, and make individual recommendations to the RA on appeals. Hardship arguments will not be considered. The special board and the RA will determine the outcome of appeals based on NMFS logbooks. If NMFS logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS logbooks or state landings records to support their appeal.

Impacts from Action 3:

Biological Impacts

Although black sea bass pot effort could potentially increase above the expected number of qualifying vessels under Action 2 due to issuance of endorsements by appealing omission from the program, those impacts on the biological environment including target and non-target species, and critical habitat are not likely to be significant. Furthermore, any endorsements issued through the appeals process would not increase black sea bass pot effort over the status quo, and thus would not increase the risk of fishing gear interactions with protected species.

Socioeconomic Impacts

Because **Preferred Alternative 2** would establish an appeals process, **Preferred Alternative 2** would be expected to result in greater social benefits than **Alternative 1 (No Action)**. It is assumed that the process would adequately identify appropriate qualifiers and not simply result in an increase in fishermen with endorsements.

Action 4: Allow for Transferability of Black Sea Bass Endorsements

Alternative 1 (No Action). Black sea bass pot endorsements (and tags) would not be allowed to be transferred if such a system were implemented.

Preferred Alternative 2. A valid black sea bass pot endorsement can be transferred between any two individuals or entities that hold a valid or simultaneously obtains a valid, meaning not expired, South Atlantic Unlimited Snapper Grouper Permit. The endorsement and associated landings history of black sea bass can be transferred regardless of whether or not the South Atlantic Unlimited Snapper Grouper Permit is transferred.

Preferred Sub-Alternative 2a. Transferability allowed upon program implementation.
Sub-Alternative 2b. Transferability not allowed during the first 2 years of the program.
Sub-Alternative 2c. Transferability not allowed during the first 3 years of the program.
Sub-Alternative 2d. Transferability not allowed during the first 5 years of the program.

Alternative 3. A valid black sea bass pot endorsement can be transferred between any two individuals or entities that hold a valid or simultaneously obtains a valid, meaning not expired, South Atlantic Unlimited Snapper Grouper Permit. The endorsement and associated landings history of black sea bass will be transferred only if the South Atlantic Unlimited Snapper Grouper Permit is transferred.

Sub-Alternative 3a. Transferability allowed upon program implementation.
Sub-Alternative 3b. Transferability not allowed during the first 2 years of the program.
Sub-Alternative 3c. Transferability not allowed during the first 3 years of the program.
Sub-Alternative 3d. Transferability not allowed during the first 5 years of the program.

Impacts from Action 4:

Biological Impacts

Among **Alternatives 1-3**, **Alternative 1 (No Action)** could have the greatest biological benefit for the black sea bass stock if it results in decreased landings of black sea bass due to endorsements becoming inactive because of an inability to transfer those endorsements to active fishery participants. **Preferred Alternative 2** and **Alternative 3**, which would allow transferability of a black sea bass endorsement, would not be expected to negatively impact the black sea bass stock. It is the South Atlantic Council's intent that all black sea bass landings reported using pot gear with an endorsement will be associated with the South Atlantic Unlimited Snapper Grouper Permit rather than the endorsement. Therefore, the endorsement would simply allow the eligible South Atlantic Unlimited Snapper Grouper Permit holders to fish for black sea bass using pot gear, with no landings history attached to it. The biological effects of **Preferred Alternative 2** and **Alternative 3** would be very similar as landings would be constrained by a quota. Therefore, the effects of **Preferred Alternative 2** and **Alternative 3** may be more economic and administrative than biological. **Preferred Sub-Alternative 2a** would allow fishermen to transfer an endorsement immediately upon program implementation.

Socioeconomic Impacts

Generally, it can be argued that social and economic benefits would be maximized the fewer the constraints placed on the transfer of an asset. Unencumbered transfer allows the largest pool of recipients, which would be expected to result in the payment of the highest price for the asset.

Action 5: Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year

Alternative 1 (No Action). Do not annually limit the number of black sea bass pots deployed or pot tags issued to holders of South Atlantic Unlimited Snapper Grouper Permits.

Alternative 2. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *100* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Alternative 3. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *50* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Alternative 4. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *25* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Preferred Alternative 5. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *35* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous fishing year. Endorsements will be automatically renewed at the same time the snapper grouper permit is renewed.

Table S-7. Number of vessels with landings of snapper grouper with pots; number of vessels with landings of snapper grouper who requested tags. Mean, minimum, maximum, median number of tags requested for vessels that fished pots; and mean, minimum, maximum number of pots fished for vessels that requested tags.

Year	# of Vessels that fished pots	# of Vessels that fished pots with tags	Mean # tags requested	Min # tags requested	Max # tags requested	Median # of tags requested	Mean # pots fished	Min # pots fished	Max # Pots Fished
2003	53	49	54	6	200	50	45	1	200
2004	59	52	56	6	200	50	43	2	160
2005	53	47	50	6	160	40	47	1	120
2006	53	46	49	4	150	49	47	1	176
2007	54	51	53	10	200	50	48	1	180
2008	50	49	54	6	200	50	35	1	150
2009	62	62	55	8	200	45	37	1	150
2010	51	50	51	7	200	40	62	1	302
Average	54	51	53	7	189	47	45	1	180

Source: NMFS permits office and NMFS logbook database 5/12/11.

Impacts from Action 5:

Biological Impacts

Limiting the number of pots that may be fished by any one endorsement holder would address the South Atlantic Council's concerns regarding the possibility of fishermen leaving large numbers of pots fishing for multiple days due to vessel or weather problems, which could unnecessarily kill black sea bass. Fishing large numbers of pots also increases the chance that pots could be lost and "ghost fishing" could occur. Furthermore, fishing large numbers of pots increases the chance of entanglement of pot lines with right whales and other protected species. The lower the limit on number of pots is set the more the biological environment will benefit. **Alternative 1 (No Action)** is considered the least biologically beneficial of all the alternatives considered. **Alternative 4** would result in the least number of pots allowed and the greatest biological benefit. **Preferred Alternative 5** falls within the range of these two alternatives.

Socioeconomic Impacts

In general, it is expected that the short-term economic benefits of **Alternatives 2-5** increases with the larger number of pots allowed per vessel. However, how the total number of pots in the fishery influences the catch per unit effort will ultimately determine the long-term economic impacts of these alternatives. It is possible that even a low number of pots per vessel could have negative economic impacts in the short and long-term if there are large numbers of vessels participating in the fishery. Assuming the catch per unit effort remains stable, **Alternative 2** would offer the greatest short-term economic benefits but probably the smallest long-term economic benefits since the total number of pots in the fishery is high. **Alternative 3** would have the next largest short-term

economic benefits (and next smallest long-term economic benefits) followed by **Alternative 2**, **Alternative 3**, **Preferred Alternative 5,** and **Alternative 4**.

Action 6. Implement Measures to Reduce Black Sea Bass Bycatch

Alternative 1 (No Action). Do not implement additional regulations stipulating when black sea bass pots must be removed from the water. Currently, fishermen are required to remove all pots once the quota has been reached.

Preferred Alternative 2. Black sea bass pots must be brought back to shore at the conclusion of each trip. "Brought back to shore" is defined as when the vessel with the pots has "returned to a dock, berth, beach, seawall, or ramp at the conclusion of each trip."

Alternative 3. Allow fishermen to leave pots in the water for no more than 72 hours.

Table S-8. Number of days away from port, number of trips, total lbs of black sea bass landed (whole weight), and number of pots fished during 2005-2010.

Away	Trip Freq	% Freq	Tot lbs	% Tot lbs	# Traps	% Traps
1	2,304	62.75%	1,194,358	46.72%	96,832	45.61%
2	993	27.04%	951,468	37.22%	71,176	33.53%
3	308	8.39%	341,267	13.35%	36,750	17.31%
4	49	1.33%	53,445	2.09%	6841	3.22%
5	9	0.25%	8,090	0.32%	465	0.22%
6	5	0.14%	4,059	0.16%	140	0.07%
7	3	0.08%	2,758	0.11%	54	0.03%
8	1	0.03%	1,146	0.04%	24	0.01%

Source: NMFS logbook database 5/12/11.

Impacts from Action 6:

Biological Impacts

Currently, there are instances where large numbers of pots may be left fishing for multiple days due to vessel or weather problems, which could unnecessarily kill black sea bass. Fishing large numbers of pots also increases the chance that pots could be lost and "ghost fishing" could occur. Therefore, limitations on the length of time pots can be left at sea would reduce the adverse effects of continued fishing by lost gear. Boat propellers and storms are common causes for pots being lost. Fishermen may not be able to retrieve pots during periods of inclement weather or vessel repairs. The longer the pots are in the water, the greater the opportunity for lost pots and entanglement with protected species. The biological benefit of **Preferred Alternative 2** would be greater than **Alternative 3** because most trips last one day. Therefore, under **Preferred Alternative 2**, pots would be in the water for the least amount of time and would have the least amount of risk for ghost fishing or entanglement with protected species.

Socioeconomic Impacts

Preferred Alternative 2 would not explicitly limit soak time because the length of a fishing trip would not be limited. However, **Preferred Alternative 2** may functionally limit soak time if fishermen prefer not to stay at sea longer while their pots soak or force them to stay longer at sea to maintain customary soak times. Further, under **Preferred Alternative 2**, a vessel could not return to port without retrieving all pots, even if the expected soak time was short. Only **Alternative 3** would explicitly limit soak time. However, almost all black sea bass pot trips are less than three days, so **Alternative 3** would be expected to have little to no adverse social or economic effects. **Preferred Alternative 2** and **Alternative 3** would be expected to help reduce bycatch, resulting in increased long-term social and economic benefits for affected species, but would restrict fishing flexibility.

Action 7. Modify Accountability Measures for Black Sea Bass

Alternative 1 (No Action).

Commercial
If the commercial sector black sea bass ACL is met or is projected to be met, independent of stock status, all subsequent purchase and sale of black sea bass is prohibited and harvest and/or possession is limited to the black sea bass bag limit.

Recreational
If black sea bass *is overfished* and the recreational sector ACL is met or is projected to be met, prohibit the harvest and retention of black sea bass. Compare the black sea bass recreational ACL with recreational black sea bass landings over a range of years. For 2010, use only 2010 landings. For 2011, use the average landings of 2010 and 2011. For 2012 and beyond, use the most recent three-year running average. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector black sea bass ACL in the following season by the amount of the overage.

Alternative 2. Remove the three-year running average provision used to determine recreational ACL overages. The recreational AM would be: If black sea bass *is overfished* and the recreational sector black sea bass ACL is met or is projected to be met, prohibit the harvest and retention of black sea bass. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector black sea bass ACL in the following season by the amount of the overage.

The South Atlantic Council is proposing revisions to the system of recreational AMs put in place for black sea bass through Amendment 17B in order to eliminate the use of the three-year running average, which is not ideally suited for rebuilding stocks, while still accounting for data and management uncertainty.

Preferred Alternative 3. For the recreational sector: Remove the three-year running average provision used to determine recreational ACL overages. The recreational AM would be: If the recreational sector black sea bass ACL is met or is projected to be met, independent of stock status, prohibit the harvest and retention of black sea bass. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector ACL in the following season by the amount of the overage.

For the commercial sector: If the commercial sector black sea bass ACL is met or is projected to be met, independent of stock status, all subsequent purchase and sale of black sea bass is prohibited and harvest and/or possession is limited to the black sea bass bag limit. If the commercial sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the commercial sector black sea bass ACL in the following season by the amount of the overage.

Note: For both the recreational and commercial sectors, ACL paybacks are not required when new projections are adopted that incorporate ACL overages and the ACLs are adjusted in accordance with those projections.

Impacts of Action 7:

Biological Impacts

Alternative 1 (No Action) would not change the current system of AMs to employ more appropriate methods for determining ACL overages. Because **Preferred Alternative 3** is the most biologically conservative of all options under consideration it is likely to result in the highest level of biological benefit. **Alternative 2** retains the authority of the Regional Administrator to prohibit recreational harvest in-season if the recreational ACL is projected to be met and if the stock is overfished. **Alternative 2** also retains the post-season provision that allows the Regional Administrator to reduce the recreational ACL for the fishing season following an ACL overage, regardless of stock status. The primary modification to the system of recreational AMs for black sea bass under **Alternative 2** is the elimination of the use of the three year running average to determine ACL overages. Variability in recreational data is accounted for under **Alternative 2** because corrective post-season action would ensure that any recreational ACL overage, regardless of cause, is taken into consideration when establishing the ACL for the following season. **Preferred Alternative 3** would benefit the biological environment since it would implement in-season AMs in the commercial and recreational sectors regardless of stock status, which would reduce the risk of exceeding the ACL. **Preferred Alternative 3** would also result in biological benefits because it would provide an opportunity to correct for any commercial ACL overages that did not exist previously.

Socioeconomic Impacts

Modifying the current suite of AMs for black sea bass would prevent unnecessarily stringent harvest restrictions from being implemented when they are not actually needed to prevent overfishing. Therefore, **Alternative 2** is likely to result in socioeconomic benefits in terms of decreased risk of market disruptions due to seasonal closures, shortened seasons, or reduced ACLs. **Preferred Alternative 3** may result in greater socioeconomic impacts than **Alternative 2** since it would close the recreational sector when the ACL is projected to be met regardless of stock status. Furthermore, **Preferred Alternative 3** could result in negative socioeconomic impacts for the commercial sector if the commercial ACL is exceeded. However, because there is an in-season provision to prevent ACL overages and the ACL is set to increase over the next two years (barring ACL overage), economic losses attributable to an ACL payback may ultimately be canceled out.

Action 8. Establish a Spawning Season Closure for Black Sea Bass

Preferred Alternative 1 (No Action). Do not implement a spawning season closure for black sea bass.

Alternative 2. Implement a March 1-April 30th spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 3. Implement an April 1st-May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 4. Implement a March 1st- May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Choosing a spawning season closure that coincides with right whale calving season could help prevent black sea bass gear interactions with protected species.

Alternative 5. Implement a May 1st- May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Table S-9. Percentage of monthly landings for black sea bass during 2006/2007 through 2009/2010 fishing years.

Month	MRFSS	HB	Comm	Total
June	15%	15%	6%	11%
July	11%	15%	5%	9%
August	11%	11%	6%	9%
September	4%	7%	5%	5%
October	4%	6%	7%	5%
November	10%	4%	13%	10%
December	10%	4%	16%	11%
January	4%	3%	14%	7%
February	4%	3%	12%	7%
March	8%	8%	8%	8%
April	8%	12%	5%	7%
May	13%	12%	3%	9%

March-May peak spawning season for black sea bass

Note: Data for the January-May 2010 portion of the 2009/2010 fishing year are estimated as the average of the 4 preceding years for MRFSS and Headboat (HB). For the commercial sector, landings were assumed to be 0 because the quota was met and the commercial sector closed on December 20, 2009.

Impacts of Action 8:

Biological Impacts

Preferred Alternative 1 (No Action) would offer no additional protections to black sea bass over the status quo since it would not implement a spawning season closure. Spawning individuals would not be protected from directed fishing effort, and therefore, **Preferred Alternative 1 (No Action)** is considered the least biologically beneficial alternative under consideration in this action. A spawning season closure could provide black sea bass with more spawning opportunities, which could contribute to recruitment success of a new year-class, help rebuild the stock more quickly, and result in a more stable and sustainable resource. **Alternatives 2-5** would establish various combinations of the peak spawning months reported. **Alternative 2** would establish a March 1-April 30 spawning season closure. This alternative would encompass a larger portion of the March-May peak spawning season for black sea bass than **Alternative 3** and **Alternative 4**. **Alternative 2** would likely have a greater biological benefit for black sea bass off Florida and Georgia than sub-alternatives that would close black sea bass later during the spawning season if spawning occurs earlier in the more southern latitudes. Furthermore, **Alternative 2** could have the additional benefit of minimizing buoy line gear interactions with right whales that migrate through the area during that time. **Alternative 5** would be expected to have the least amount of biological benefit for black sea bass off Florida and Georgia if there is a seasonal progression in spawning from south to north.

Socioeconomic Impacts

Preferred Alternative 1 (No Action) would not force the black sea bass component of the snapper grouper fishery to close on a certain date each year. Therefore, fishing may continue until the sector ACLs are met, and no economic disruption would occur as a result of an annual spawning season closure. However, in recent years, the commercial quota has been met before any of the spawning season closure alternatives, making it unlikely that the fishery would be open during any of the alternatives considered. However, an annual spawning season closure would be less disruptive to markets and would allow fishermen to plan ahead for the reoccurring closure, which may be perceived as a social and economic benefit. **Alternative 4** would result in the largest loss in dockside revenues while **Alternative 5** results in the smallest loss. While the spawning season closures in **Alternatives 2** and **3** are of the same approximate length, **Alternative 2** has a lower loss associated with it due to the lower amount of black sea bass harvested in March compared to May.

Action 9. Establish a Commercial Trip Limit for Black Sea Bass

Alternative 1 (No Action). Do not establish a commercial trip limit for black sea bass.

Alternative 2. Establish a 500 lbs gw (590 lbs ww) trip limit.

Alternative 3. Establish a 750 lbs gw (885 lbs ww) trip limit.

Preferred Alternative 4. Establish a 1,000 lbs gw (1,180 lbs ww) trip limit.

A commercial trip limit could prevent early commercial closures in future fishing seasons.

Alternative 5. Establish a 1,250 lbs gw (1,475 lbs ww) trip limit.

Alternative 6. Establish a 1,000 lbs gw (1,180 lbs ww) trip limit; reduce to 500 lbs gutted weight (590 lbs ww) when 75% of the commercial ACL (quota) is met.

Alternative 7. Establish a 2,000 lbs gw (2,360 lbs ww) trip limit.

Alternative 8. Establish a 2,500 lbs gw (2,950 lbs ww) trip limit.

Alternative 9. Establish a 250 lbs gw (295 ww) trip limit.

Table S-10. Average catch per trip (lbs gutted weight) and percentage of landings from pots during fishing years (June – May) for 2006-2010. The 'Other' category is 99% hook and line gear.

Year	All Gear	Pots	Other	% Pot Landings
2006	214	554	31	90.62%
2007	165	501	25	89.15%
2008	198	621	28	89.81%
2009	188	643	31	87.83%
2010	307	954	57	86.79%

Source: NMFS logbook data, 5/12/2011

Table S-11. Number of trips by gear for black sea bass taken during June-December 2008-2010. The 'Other' category is 99% hook and line gear.

Month	2008			2009			2010		
	All gear	Pots	Other	All Gear	Pots	Other	All Gear	Pots	Other
June	197	17	180	274	46	228	310	105	205
July	198	24	174	229	37	192	283	68	215
August	179	22	157	244	47	197	288	61	227
September	88	11	77	241	74	167	255	56	199
October	138	34	104	200	65	135	25	11	14
November	194	58	136	210	73	137	5	0	5
December	172	71	101	108	47	61	101	63	38
Total	1,166	237	929	1,506	389	1,117	1,267	364	903

Source: NMFS logbook data, 5/12/2011

Table S-12. Trip limit, number of trips, amount of pounds (gutted weight), and percent reduction in harvest provided by a trip limit during the June 2010 - May 2011 fishing year. Includes 31 permits that qualified for endorsements under Action 2 and vessels that caught black sea bass with hook and line gear.

Trip Limit (ww)	Trip Limit (gw)	2010				
		# Trips	% Trips	Pounds over trip (ww)	Pounds over trip (gw)	% Reduction
0	0	271	100.00%	272,068	230,566	100.00%
20	17	271	100.00%	266,648	225,973	98.01%
40	34	271	100.00%	261,228	221,380	96.02%
60	51	271	100.00%	255,808	216,786	94.02%
80	68	271	100.00%	250,388	212,193	92.03%
100	85	270	99.63%	244,968	207,600	90.04%
115	97	269	99.26%	240,931	204,179	88.56%
150	127	266	98.15%	231,564	196,241	85.11%
175	148	264	97.42%	224,960	190,644	82.69%
200	169	261	96.31%	218,393	185,079	80.27%
250	212	253	93.36%	205,534	174,181	75.55%
300	254	240	88.56%	193,188	163,719	71.01%
400	339	210	77.49%	170,766	144,717	62.77%
500	424	190	70.11%	150,696	127,708	55.39%
600	508	162	59.78%	133,087	112,785	48.92%
700	593	136	50.18%	118,226	100,191	43.45%
800	678	122	45.02%	105,350	89,279	38.72%
900	763	106	39.11%	93,916	79,589	34.52%
1,000	847	94	34.69%	83,940	71,135	30.85%
1,100	932	84	31.00%	74,945	63,513	27.55%
1,200	**1,017**	**79**	**29.15%**	**66,805**	**56,614**	**24.55%**
1,300	1,102	74	27.31%	59,198	50,168	21.76%
1,400	1,186	70	25.83%	51,968	44,040	19.10%
1,500	1,271	56	20.66%	45,771	38,789	16.82%
1,600	1,356	51	18.82%	40,436	34,268	14.86%
1,700	1,441	44	16.24%	35,674	30,233	13.11%
1,800	1,525	39	14.39%	31,536	26,726	11.59%
1,900	1,610	34	12.55%	27,793	23,553	10.22%
2,000	1,695	33	12.18%	24,393	20,672	8.97%
2,250	1,907	27	9.96%	16,943	14,359	6.23%
2,500	2,119	19	7.01%	10,850	9,194	3.99%
2,750	2,331	17	6.27%	6,492	5,502	2.39%

Source: NMFS logbook data, 5/12/2011

Impacts of Action 9:

Biological Impacts

The lower the trip limit the longer the commercial sector would be able to fish into the season. The higher the trip limit the more likely the commercial sector is to reach their ACL early in the season and cause regulatory discards to rise as black sea bass are caught while fishermen target other species still open to fishing. The preferred trip limit of 1,000 pounds gw is expected to extend fishing opportunities during the fishing season since it affects about 30% of trips and it is projected that the endorsement program, along with the preferred trip limit, would result in the fishing season closing in early to mid August during the 2012/2013 and 2013/2014 fishing seasons **(Appendix L**).

Socioeconomic Impacts

In general, for boats that bring in relatively large landings per trip, ex-vessel revenue losses are expected to occur. If a boat with historically larger landings adheres to the trip limit and does not increase the number of trips made, landings by these vessels would decrease compared to current landings as would ex-vessel revenues. Boats that bring in smaller landings per trip may or may not be impacted by the trip limits proposed. Boats that have not historically landed the proposed trip limits would not experience ex-vessel revenue losses. Others would likely reach the proposed trip limits and either experience revenue losses or make additional trips to increase landings. While additional trips would increase ex-vessel revenues, they would also increase costs and decrease net revenues (or profits). While some vessels may be able to increase their trips and net revenues, others would not be able to do so because they are too far from the fishing grounds to make additional trips worthwhile or costs are high enough to deter additional trips.

Action 10. Modify Commercial and/or Recreational Black Sea Bass Size Limits

Alternative 1 (No Action). Do not modify the current size limits of 12 inches total length (TL) for the recreational sector and 10 inches TL for the commercial sector.

Alternative 2. Modify the recreational size limit.

Preferred Sub-Alternative 2a. Increase the recreational size limit from 12" TL to 13" TL.

Alternative 3. Modify the commercial size limit.

Preferred Sub-Alternative 3a. Increase the commercial size limit from 10" TL to 11" TL.

Sub-Alternative 3b. Increase the commercial size limit from 10" TL to 12" TL.

Sub-Alternative 3c. Increase the commercial size limit from 10" TL to 11" TL in year 1 and then to 12" TL in year 2 onwards.

Table S-13. Preliminary estimate of reduction in harvest of black sea bass for **headboat** sector associated with increased size limit. Based on data from 2009-2010 (n = 7,302).

Release Mortality	Estimated Harvest Reductions 13 Inch (Sub-Alternative 2a)
0%	22.6
7%	20.9

Table S-14. Preliminary estimate of reduction in harvest of black sea bass for **MRFSS** associated with increased size limit. Based on data from 2009-2010 (n = 3,272).

Release Mortality	Estimated Harvest Reductions 13 Inch (Sub-Alternative 2a)
0%	20.3
7%	18.8

Table S-15. Preliminary estimate of reduction in harvest of black sea bass for **commercial** sector associated with increased size limit. Based on data from 2009-2011 (n = 8,767).

Release Mortality	Estimated Harvest Reductions	
	11 Inch (Sub-Alternative 3a)	12 Inch (Sub-Alternatives 3b and 3c)
0%	9.4	32.4
1%	9.3	32.1

Impacts of Action 10:

Biological

Increasing the minimum size limit would further restrict the rate at which black sea bass could be harvested throughout the season and potentially lengthen the amount of time fishermen would have to fish during the fishing season. Conversely, increasing the size limit could increase regulatory discards in both sectors which may contribute to an increase in bycatch mortality.

Socioeconomic

Increasing the black sea bass size limits is expected to result in greater profitability overall since larger fish would demand a higher price on the market. However, if on a per trip basis, fewer fish are able to be retained the quality of each trip may decrease.

Action 11. Improvements to Commercial Data Reporting

Preferred Alternative 1 (No Action). Retain existing data reporting systems for the commercial sector.

Under this alternative, as implemented by Amendment 15B to the Snapper Grouper FMP, a private recreational vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, is required to maintain and submit fishing records; requires a vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, to carry an observer and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service. Note: Refer to the table in **Section 4.11.1** for a complete list of current data reporting requirements.

Alternative 2. Require all vessels with a Federal snapper grouper commercial permit to have an electronic logbook tied to the vessel's GPS onboard the vessel.

(Note: Alternative 2 would require 100% of vessels to have an electronic logbook; whereas, current data reporting programs only require electronic logbooks if selected.)

Standard Atlantic Fisheries Information System (**SAFIS)** is a real-time, web-based reporting system for commercial landings on the Atlantic coast. It is comprised of three applications:

- Electronic Dealer Reports (eDR) - A forms based application collecting information from the dealers (landings, condition and price).
- Electronic Trip Reports (eTRIPS) - A Web-based application collecting data from fisherman (catch and effort) including gear used, fishing areas, and catch disposition.
- SAFIS Management System (SMS) - A Web-based application providing administrative tools to SAFIS administrators for management of user accounts, participants, permits etc.

Alternative 3. Provide the option for fishermen to submit their logbook entries electronically via an electronic version of the logbook made available online.

Alternative 4. Require that commercial landings and catch/effort data be submitted in accordance with ACCSP standards, using the SAFIS system.

(Note: Alternative 4 would require that 100% of dealers and fishermen report electronically using the SAFIS system.)

Impacts of Action 11:

Biological Impacts

Preferred Alternative 1 (No Action) would not require any additional reporting for the commercial sector. However, a generic reporting amendment is currently under development and would include reporting provisions for the commercial sector of the snapper grouper fishery. Therefore, in the long run the benefits of improved data reporting requirements would still be realised. There are no direct biological impacts from establishing a standardized reporting methodology. However, indirect impacts resulting from **Alternatives 2-4** would provide a better understanding of the composition and magnitude of catch and bycatch; enhance the quality of data provided for stock assessments; increase the quality of assessment output; provide better estimates of interactions with protected species; better limit commercial catches to the commercial ACL; and lead to better decisions regarding additional measures that might be needed to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

Socioeconomic Impacts

In the near term, **Preferred Alternative 1 (No Action)** would result in the least negative socioeconomic impacts since it would require no modification to the current reporting requirements in the commercial sector. In general, an increase in the quantity and/or quality of data increases long-term economic benefits through improvements to management of the stocks. Electronic logbooks (**Alternative 2**), in particular, are seen as a low cost alternative to video monitoring and observers. While paper logbook submittal is already required, **Alternative 3** would provide fishermen the option to submit their logbooks online. While**Alternative 3** would likely be the least expensive alternative for fishermen, **Alternative 4** would vary by individual.

Action 12. Improvements to For-Hire Data Reporting

Alternative 1 (No Action). Retain existing data reporting systems for the for-hire sector.

Note: Refer to Table 4-13 in Amendment 18A for a complete list of current data reporting requirements.

Preferred Alternative 2. Require *selected* vessels with a Federal For-Hire Permit to report landings data electronically; NOAA Fisheries Service is authorized to require weekly or daily reporting as required.

Alternative 3. Require vessels operating with a Federal For-Hire permit to maintain a logbook for discard characteristics (e.g., size and reason for discarding), *if selected*.

Alternative 4. Require that for-hire landings and catch/effort data be submitted in accordance with the ACCSP standards, using the SAFIS system.

Impacts of Action 12:

Biological Impacts

Preferred Alternative 2 and **Alternative 3** identify options for monitoring catch and effort, which are more specific than what was specified in Amendment 15B to the Snapper Grouper FMP. There are no direct biological impacts from establishing a standardized reporting methodology. However, indirect impacts resulting from **Preferred Alternative 2** and **Alternative 3** would provide a better understanding of the composition and magnitude of catch and bycatch; enhance the quality of data provided for stock assessments; increase the quality of assessment output; provide better estimates of interactions with protected species; better limit recreational catches to the recreational ACLs; and lead to better decisions regarding additional measures that might be needed to reduce bycatch. **Preferred Alternative 2** would require all vessels with a Federal for-hire permit to report landings electronically if selected. Amendment 15B to the Snapper Grouper FMP also implemented an action that requires commercial, for-hire, and private vessels to install an ELB and/or video monitoring equipment provided by NOAA Fisheries Service, if selected.

Alternative 3 would differ from the status quo **Alternative 1 (No Action)** by also requiring logbooks for the charter portion of the for-hire fishery. As landings from charterboats often dominate catches in the for-hire sector, **Alternative 3** would provide a better understanding of the composition and magnitude of catch and bycatch, leading to better data for stock assessment and better decisions regarding measures needed manage fish resources and reduce bycatch. **Alternative 4** would require for-hire trip reports to be submitted in accordance with the Atlantic Coastal Cooperative Statistics Program (ACCSP) standards using the Standard Atlantic Fisheries Information System (SAFIS) system. **Alternative 4** would require selected vessels to report electronically (computer or fax) through the SAFIS and require weekly or daily reporting when it is anticipated a quota was going to be met. Beneficial biological impacts would be provided by **Alternative 4** as data are provided more quickly from the fishermen and dealers to

NMFS and fishery managers. In addition to monitoring quotas in a more timely fashion than under the current quota monitoring system, the SAFIS has the potential to improve the quality of data and stock assessments.

Socioeconomic Impacts

Potentially affected by the various alternatives are 1,690 vessels with for-hire permits and 224 vessels with both commercial and for-hire permits. About 92% of these vessels have homeports in the four states under the jurisdiction of the South Atlantic Council. The rest are located in the Gulf States or other States on the east coast. Most of these vessels (about 66%) are located in Florida. It is worth recalling that only a sample of these vessels would be directly affected by **Preferred Alternative 2** or **Alternative 3** in any one year. **Alternative 4**, on the other hand, would affect practically all these vessels. For **Preferred Alternative 2**, the incremental cost of electronic reporting, especially the weekly frequency option, would likely be minimal and would accrue only to a subset of headboats selected to report. The incremental cost to charterboats would likely be higher for those selected to report as there are currently no federal logbook reporting requirements on charterboats; charterboats are required to complete logbooks in the State of South Carolina. **Alternative 3** would require selected for-hire vessels to maintain a logbook for discard characteristics. Understandably, this alternative cannot be considered as a stand-alone alternative in the sense of replacing **Alternative 1 (No Action)** because of the more limited information covered in this alternative. As a supplement to either **Alternative 1 (No Action)** or **Preferred Alternative 2, Alternative 3** can provide the necessary information regarding incidental mortality of stocks due to the operations of for-hire vessels. However, this alternative could impose some real cost burden on charterboats, although the incremental cost may not be that much when taken relative to the reporting requirement under **Preferred Alternative 2**.

Alternative 4 is similar to **Preferred Alternative 2** in terms of the extent and quality of data that would be generated. The requirement under this alternative, however, would apply to all for-hire vessels and not just a subset of these vessels as in **Preferred Alternative 2**. Thus, the quality of data would likely be higher under **Alternative 4** than under **Alternative 1 (No Action)** or **Preferred Alternative 2**. Alternatively, **Alternative 4** would likely incur higher costs than either **Alternative 1 (No Action)** or **Preferred Alternative 2**. The higher the frequency of data reporting, the higher would be the compliance and administration costs. Related to administration in general and administration cost in particular, it is to be noted that under **Alternative 4** the SAFIS system would have to be expanded to cover reporting by the for-hire sector. In addition, some administrative controls would have to be instituted so that the data collection objectives of ACCSP, NOAA Fisheries Service, and the South Atlantic Council would be met. These controls could potentially involve requiring strict adherence to SAFIS system reporting as a condition for renewals of federal for-hire permits.

1 Introduction

1.1 Background

Management of the federal snapper grouper fishery located off the South Atlantic in the 3-200 nautical mile (nm) U.S. Exclusive Economic Zone (EEZ) (**Figure 1-1**) is conducted under the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 1983). The FMP and its amendments are developed under the Magnuson-Stevens Fishery Conservation and Management Act, other applicable federal laws, and executive orders (E.O.s) and affect the management of 73 species (**Table 1-1**). The purpose of the FMP, as amended, is to manage the snapper grouper fishery for optimum yield (OY) and to allocate harvest among user groups while preventing overfishing and conserving marine resources.

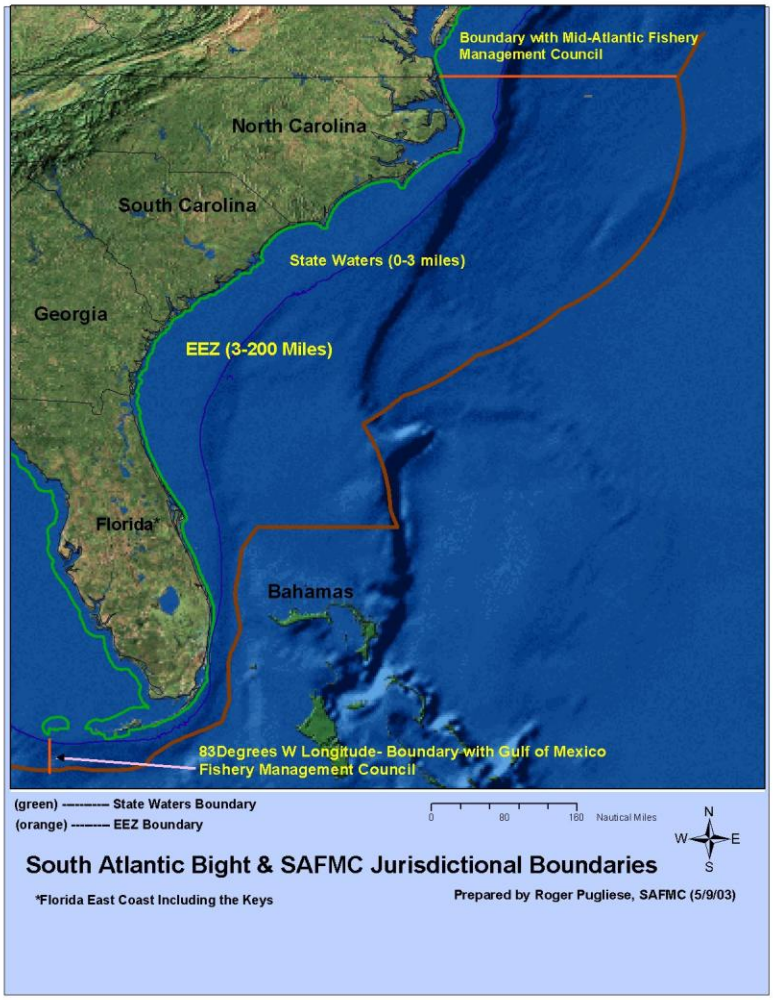


Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

Table 1-1. Species in the Snapper Grouper Fishery Management Unit (FMU).

Almaco jack, *Seriola rivoliana*
Atlantic spadefish, *Chaetodipterus faber*
Banded rudderfish, *Seriola zonata*
Bank sea bass, *Centropristis ocyurus*
Bar jack, *Caranx ruber*
Black grouper, *Mycteroperca bonaci*
Black margate, *Anisotremus surinamensis*
Black sea bass, *Centropristis striata*
Black snapper, *Apsilus dentatus*
Blackfin snapper, *Lutjanus buccanella*
Blue runner, *Caranx crysos*
Blueline tilefish, *Caulolatilus microps*
Bluestriped grunt, *Haemulon sciurus*
Coney, *Cephalopholis fulva*
Cottonwick, *Haemulon melanurum*
Crevalle jack, *Caranx hippos*
Cubera snapper, *Lutjanus cyanopterus*
Dog snapper, *Lutjanus jocu*
French grunt, *Haemulon flavolineatum*
Gag, *Mycteroperca microlepis*
Golden tilefish, *Lopholatilus chamaeleonticeps*
Goliath grouper, *Epinephelus itajara*
Grass porgy, *Calamus arctifrons*
Gray (mangrove) snapper, *Lutjanus griseus*
Gray triggerfish, *Balistes capriscus*
Graysby, *Cephalopholis cruentata*
Greater amberjack, *Seriola dumerili*
Hogfish, *Lachnolaimus maximus*
Jolthead porgy, *Calamus bajonado*
Knobbed porgy, *Calamus nodosus*
Lane snapper, *Lutjanus synagris*
Lesser amberjack, *Seriola fasciata*
Longspine porgy, *Stenotomus caprinus*
Mahogany snapper, *Lutjanus mahogoni*
Margate, *Haemulon album*
Misty grouper, *Epinephelus mystacinus*
Mutton snapper, *Lutjanus analis*
Nassau grouper, *Epinephelus striatus*
Ocean triggerfish, *Canthidermis sufflamen*
Porkfish, *Anisotremus virginicus*
Puddingwife, *Halichoeres radiatus*
Queen snapper, *Etelis oculatus*
Queen triggerfish, *Balistes vetula*
Red grouper, *Epinephelus morio*
Red hind, *Epinephelus guttatus*
Red porgy, *Pagrus pagrus*
Red snapper, *Lutjanus campechanus*
Rock hind, *Epinephelus adscensionis*
Rock Sea Bass, *Centropristis philadelphica*
Sailors choice, *Haemulon parra*
Sand tilefish, *Malacanthus plumieri*
Saucereye porgy, *Calamus calamus*
Scamp, *Mycteroperca phenax*
Schoolmaster, *Lutjanus apodus*
Scup, *Stenotomus chrysops*
Sheepshead, *Archosargus probatocephalus*
Silk snapper, *Lutjanus vivanus*
Smallmouth grunt, *Haemulon chrysargyreum*
Snowy grouper, *Epinephelus niveatus*
Spanish grunt, *Haemulon macrostomum*
Speckled hind, *Epinephelus drummondhayi*
Tiger grouper, *Mycteroperca tigris*
Tomtate, *Haemulon aurolineatum*
Yellow jack, *Caranx bartholomaei*
Yellowedge grouper, *Epinephelus flavolimbatus*
Yellowfin grouper, *Mycteroperca venenosa*
Yellowmouth grouper, *Mycteroperca interstitialis*
Yellowtail snapper, *Ocyurus chrysurus*
Vermilion snapper, *Rhomboplites aurorubens*
Warsaw grouper, *Epinephelus nigritus*
White grunt, *Haemulon plumieri*
Whitebone porgy, *Calamus leucosteus*
Wreckfish, *Polyprion americanus*

1.2 Purpose of the Proposed Action

The purpose of Amendment 18A to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 18A) is to limit participation and effort in the black sea bass pot fishery, limit bycatch in the black sea bass pot segment of the snapper grouper fishery, modify the current system of accountability measures, modify the current rebuilding strategy (including the acceptable biological catch (ABC), annual catch limits (ACLs) and annual catch targets (ACTs)) to account for an increasing biomass; consider management measures such as a spawning season closure, a trip limit, and modified size limits; and improve the accuracy, timing, and quantity of fisheries data, while minimizing, to the maximum extent practicable, adverse socioeconomic impacts. These actions will address issues that have arisen as a result of a more stringent regulatory regime in the South Atlantic region.

1.3 Need for the Proposed Action

The need for action in Amendment 18A is to reduce overcapacity and reduce the rate of harvest in the black sea bass pot component of the snapper grouper fishery. Recent amendments to the Snapper Grouper FMP have imposed more restrictive harvest limitations on snapper grouper fishermen. In an effort to identify other species to target, a greater number of fishermen may target black sea bass. An increase in effort in the black sea bass pot segment of the snapper grouper fishery would intensify the "race to fish" that already exists, which has resulted in a shortened season for the commercial and recreational sectors. Furthermore, the commercial quota for black sea bass was met in 2009, 2010, and 2011 before fishermen had a chance to fish during the portion of the year (November-February) that has historically been most productive. The South Atlantic Fishery Management Council (South Atlantic Council) is concerned that an increase in effort on these species will deteriorate profits while recognizing that the Magnuson-Steven Act states that economics cannot be the sole reason to take action.

The actions proposed in Amendment 18A are listed below:

1. Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass
2. Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Through an Endorsement Program
3. Establishment of an Appeals Process for Fishermen Excluded from the Black Sea Bass Pot Endorsement Program
4. Allow for Transferability of Black Sea Bass Pot Endorsements
5. Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year
6. Implement Measures to Reduce Black Sea Bass Bycatch
7. Modify Accountability Measures for Black Sea Bass
8. Establish a Spawning Season Closure for Black Sea Bass
9. Establish a Commercial Trip Limit for Black Sea Bass
10. Modify Commercial and/or Recreational Black Sea Bass Size Limits
11. Improvements to Commercial Data Reporting

12. Improvements to For-Hire Data Reporting

1.4 History of Management

Below is a summary of the amendments to the Snapper Grouper FMP which contained actions affecting black sea bass and data collection efforts.

The original Snapper Grouper FMP (SAFMC 1983) included size limits for black sea bass (8” total length (TL)). Trawl gear, primarily targeting vermilion snapper, was prohibited starting in January 1989. Fish traps (not including black sea bass pots) and entanglement nets were prohibited starting in January 1992. Bag limits (10 vermilion snapper; 5 groupers) and size limits (10” TL recreational vermilion snapper; 12” TL commercial vermilion snapper; 12” TL recreational & commercial red porgy) were also implemented in January 1992. Quotas and trip limits for snowy grouper and golden tilefish were implemented in July 1994; tilefish were also added to the 5-grouper aggregate bag limit. A controlled access program for the commercial fishery was implemented fully beginning in 1999. In February 1999, red porgy regulations were 14” TL size limit and 5 fish bag limit and commercial closure during March and April; black sea bass size limit increased to 10” TL and a 20-fish bag limit was included. All harvest of red porgy was prohibited from September 8, 1999 until August 28, 2000. Beginning on August 29, 2000 red porgy regulations included a January through April commercial closure, 1 fish bag limit, and 50 pound commercial bycatch allowance May through December.

Snapper Grouper Regulatory Amendment 5 (SAFMC 1992b) modified the definition of black sea bass pots and allowed multi-gear trips; and allowed retention of incidentally caught fish.

Snapper Grouper Amendment 8 (SAFMC 1997) established a limited entry system for the snapper grouper fishery.

Snapper Grouper Amendment 9 (SAFMC 1998) increased the black sea bass minimum size limit from 8" TL to 10" TL for both recreational and commercial fishermen, and established a recreational bag limit of 20 black sea bass per person per day. Required escape vents and escape panels with degradable fasteners in black sea bass pots.

Snapper Grouper Amendment 13C to the Snapper Grouper FMP (SAFMC 2006) implemented actions to end or phase out overfishing of the snowy grouper, golden tilefish, vermilion snapper, and black sea bass stocks, and to increase catches of red porgy to a level consistent with the approved stock rebuilding plan in federal waters of the South Atlantic.

Snapper Grouper Amendment 15A to the Snapper Grouper FMP (SAFMC 2008a) established rebuilding plans and Sustainable Fishery Act parameters for snowy grouper, black sea bass, and red porgy.

Snapper Grouper Amendment 15B (SAFMC 2008b) prohibited the sale of bag limit sales of snapper grouper species, established allocations and adjusted the quotas for red porgy, and snowy grouper, and extended the renewal periods for Federal Commercial Snapper Grouper Permits.

Snapper Grouper Amendment 17B (SAFMC 2010b) established annual catch limits, and accountability measures for species undergoing overfishing.

Snapper Grouper Regulatory Amendment 9 (SAFMC 2011b) reduced the bag limit for black sea bass from 15 fish per person per day to 5 fish per person per day.

Specific details on these and all the other regulations implemented in the snapper grouper fishery can be found in **Appendix C. History of Management**.

Management Objectives
The following are the fishery management plan objectives for the snapper grouper fishery as specified by the South Atlantic Council. These were last updated in Snapper Grouper FMP Amendment 17A (SAFMC 2010a).

1. Prevent overfishing.
2. Collect necessary data.
3. Promote orderly utilization of the resource.
4. Provide for a flexible management system.
5. Minimize habitat damage.
6. Promote public compliance and enforcement.
7. Mechanism to vest participants.
8. Promote stability and facilitate long-run planning.
9. Create market-driven harvest pace and increase product continuity.
10. Minimize gear and area conflicts among fishermen.
11. Decrease incentives for overcapitalization.
12. Prevent continual dissipation of returns from fishing through open access.
13. Evaluate and minimize localized depletion.
14. End overfishing of snapper grouper stocks undergoing overfishing.
15. Rebuild stocks declared overfished.

1.5 Black Sea Bass Units of Weight (Conversion Details)

During public hearings for Amendment 18A several commenters requested clarification of the use of gutted weight (gw) versus whole weight (ww) for black sea bass in Amendment 18A, since different units of weight are used for different applications. **Table 1-2** summarizes how each unit of weight (gw and ww) is used and by whom. Also

included are examples for converting gw to ww and ww to gw using the established 1.18 conversion factor.

Table 1-2. Gutted Weight/Whole Weight Conversion Table for Black Sea Bass.

Entity	Use of gw vs. ww	Purpose for Reporting in gw or ww
Southeast Fisheries Science Center	Gutted Weight	Quotas and ACL are in gutted weight. The SEFSC expresses landings in gutted weight for quota monitoring purposes.
Fishermen	Whole Weight	Fishermen land and sell harvested black sea bass to dealers whole.
Dealers	Whole Weight	Dealers purchase black sea bass from fishermen whole.
Regulatory Text	Gutted Weight	Commercial quota/ACLs and recreational ACLs are provided as gw the regulatory text. *
Conversion Factor Calculations **Conversion Factor = 1.18**		
Example 1: 500 lbs gw → ww	500 x 1.18 = 590 lbs ww	
Example 2: 500 lbs ww → gw	500/1.18 = 423.73 lbs gw	

*Recently, there has been an initiative to make the weight units in the regulatory text consistent throughout, and the overall movement has been towards using ww rather than gw. However, this is an ongoing process, and often the gw is included as a parenthetical in the regulations for clarification where necessary.

2 Actions and Alternatives

Section 2.1 outlines alternatives considered by the South Atlantic Fishery Management Council (South Atlantic Council) in this amendment and provides a summary of their environmental consequences (environmental consequences of the alternatives are described in detail in **Section 4.0**). These alternatives were identified and developed through multiple processes, including the scoping process, public hearings and/or comments, interdisciplinary plan team meetings, and meetings of the South Atlantic Council, the South Atlantic Council's Snapper Grouper Committee, Snapper Grouper Advisory Panel, and Scientific and Statistical Committee. Alternatives the South Atlantic Council considered but eliminated from detailed consideration during development of this amendment are described in **Appendix A**.

2.1 Action 1: Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass

2.1.1 Action 1a. Modify Rebuilding Strategy and Set ABC for Black Sea Bass

Alternative 1 (No Action). Retain rebuilding strategy for black sea bass that maintains a constant catch throughout the remaining years of the rebuilding timeframe. The current ABC for black sea bass is 847,000 lbs whole weight (718,000 lbs gutted weight). Based on the current regulations in place the commercial ACL is 309,000 lbs gutted weight (gw) and the recreational ACL is 409,000 lbs gw for a combined ACL of 718,000 lbs gw.

Alternative 2. Establish a new constant catch rebuilding strategy with an ABC from the 2011 assessment and SSC review process.

Alternative 3. Define a rebuilding strategy for black sea bass that maintains a constant fishing mortality rate throughout the remaining years of the rebuilding timeframe.

Sub-Alternative 3a. $F = 75\%F_{MSY}$

Sub-Alternative 3b. $F = F_{rebuild}$ (by 2016)

Alternative 4. Define a rebuilding strategy for black sea bass that holds catch constant (847,000 pounds whole weight; recreational ACL = 409,000 lbs gw and commercial ACL = 309,000 lbs gw) in fishing years 2012/2013 and 2013/2014 and then changes to $F_{rebuild}$ fishing mortality rate throughout the remaining fishing seasons of the rebuilding timeframe. After the 2015/2016 fishing season the fishing mortality rate would be held constant until modified.

Preferred Alternative 5. Define a rebuilding strategy for black sea bass that holds catch constant (847,000 pounds whole weight; recreational ACL = 409,000 lbs gw and commercial ACL = 309,000 lbs gw) in fishing years 2012/2013 and 2013/2014 and then changes to $F_{rebuild}$ in 2014/2015. ($F_{rebuild}$ is defined as a constant fishing mortality strategy that maintains the 66% probability of recovery rate throughout the remaining fishing seasons of the rebuilding timeframe.) After the 2015/2016 fishing season the fishing mortality rate would be held constant until modified.

*Note: Sector ACLs are based on the allocation formula used in Amendment 13C (SAFMC 2006) whereby the commercial quota is 43% of the TAC and the recreational allocation is 57% of the TAC.

For both the recreational and commercial sectors, ACL paybacks are not required when new projections are adopted that incorporate ACL overages and the ACLs are adjusted in accordance with those projections. Beyond the 2013/2014 fishing season (when the rebuilding strategy switches over to $F_{rebuild}$) for years when there is no assessment, the ACL would not automatically increase if the ACL has been exceeded during the previous fishing year.

Table 2-1a. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014.

Fishing Year	Alternative 1	Alternative 2	Sub-Alternative 3a*	Sub-Alternative 3b*	Alternative 4**	Preferred Alternative 5
2012/2013	718,000	1,058,475	899,153	899,153	718,000	718,000
2013/2014	718,000	1,058,475	975,424	975,424	718,000	718,000
2014/2015	718,000	1,058,475	1,081,356	1,081,356	1,330,508	***
2015/2016	718,000	1,058,475	1,178,814	1,178,814	1,325,424	***
2016/2017	718,000	1,058,475	1,252,542	1,252,542	1,343,220	***
Probability of Rebuilding by 2016/2017	70%	50%	<50%	50%	50%	66%

Note on values in Table 2-1a, 2-1b and 2-1c: Values under **Alternative 2** are based on Table 3.22 from SEDAR 25 (2011). Landings under **Sub-Alternative 3a** are assumed to equal those in **Sub-Alternative 3b** because the fishing mortality rate (F) for **Sub-Alternative 3a** (F= 0.48) is very similar to F for **Sub-Alternative 3b** (F = 0.52). It is likely that landings under **Sub-Alternative 3a** would be slightly greater than **Sub-Alternative 3b**. Values under **Sub-Alternative 3b** are based on Table 3.16 from SEDAR 25 (2011). Values under **Alternative 4** based on projection provided by the SEFSC dated November 4, 2011, and are based on $F_{rebuild}$ that allows an increase in harvest for 2012 fishing year. Values for 2014 to 2016 in **Preferred Alternative 5** would be determined from an updated assessment. A conversion factor of 1.18 used to convert whole weight values in assessment to gutted weight.

Table 2-1b. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014.

Fishing Year	Alternative 1	Alternative 2	Sub-Alternative 3a	Sub-Alternative 3b	Alternative 4	Preferred Alternative 5
2012/2013	718,000	973,729	746,610	746,610	718,000	718,000
2013/2014	718,000	973,729	881,356	881,356	718,000	718,000
2014/2015	718,000	973,729	1,023,729	1,023,729	1,144,915	***
2015/2016	718,000	973,729	1,134,746	1,134,746	1,212,712	***
2016/2017	718,000	973,729	1,215,254	1,215,254	1,266,102	***
Probability of Rebuilding by 2016/2017	66%	50%	<50%	50%	50%	66%

Table 2-1c. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014.

Fishing Year	Alternative 1	Alternative 2	Sub-Alternative 3a*	Sub-Alternative 3b*	Alternative 4**	Preferred Alternative 5
2012/2013	718,000	887,288	604,237	604,237	718,000	718,000
2013/2014	718,000	887,288	788,983	788,983	718,000	718,000
2014/2015	718,000	887,288	963,559	963,559	951,695	***
2015/2016	718,000	887,288	1,088,983	1,088,983	1,082,203	***
2016/2017	718,000	887,288	1,176,271	1,176,271	1,171,186	***
Probability of Rebuilding by 2016/2017	61%	50%	<50%	50%	50%	66%

2.1.1.1 Comparison of Alternatives

Alternative 1 (No Action) and **Preferred Alternative 5** could result in unnecessary discards of black sea bass as biomass increases. However, release mortality of black sea bass is very low and actions were taken to reduce bycatch with increased mesh size in pots through Amendment 13C. Beneficial biological effects under **Alternative 1 (No Action)** and **Preferred Alternative 5** include a more rapid rebuilding of the stock and increase in the average age and size structure compared to the other alternatives. **Alternative 2** would hold catch constant for the remaining years of the rebuilding plan and the ABC would not increase as the stock biomass increases. This is based on the assumption that the final 2011/2012 catch level will be approximately 150% of the ACL. The catch level would be higher or lower depending on the level of overage of the ACL in the 2011/2012 fishing year (**Tables 2-1a** and **2-1c**). **Alternative 3** would hold F constant and allow catch of black sea bass to increase as biomass of the stock increases**.** The current estimate of F_{MSY} is F = 0.698. **Sub-Alternative 3a** would hold the fishing mortality rate at 75% of F_{MSY}, which is very close to the fishing mortality rate under **Sub-Alternative 3b. Sub-Alternative 3b** would allow a higher level of harvest over the full time period than **Alternative 2**, while still having a 50% chance of rebuilding by 2016. The South Atlantic Council's Scientific and Statistical Committee (SSC) has endorsed the ABC that assumes 150% of the ACL was harvested in the 2011/2012 fishing year with the caveat that ABC is specified for only the 2012/2013 and 2013/2014 fishing years (**Table 2-1b**). **Alternative 4** would use a modified F approach for a black sea bass rebuilding strategy. Biological impacts of **Alternative 4** would be comparable to **Sub-Alternative 3b** since after the first two fishing seasons the allowable harvest would fall into line with what the allowable harvest would be under $F_{rebuild}$.

Alternative 1 (No Action) could have the greatest negative economic impact on commercial fishermen. **Preferred Alternative 5** would be no different from the status quo in terms of economic impact for the first two fishing seasons. It is unknown what the economic impacts of **Preferred Alternative 5** would be in subsequent years. As the stock recovers and there are a greater number of larger fish, the current commercial ACL is being caught more quickly each fishing year. The commercial season that began on June 1, 2011, lasted only about 6 weeks. **Alternative 2**, which holds catch at a different constant level during the remainder of the rebuilding period, would have similar effects to **Alternative 1 (No Action)**. Under constant F rebuilding strategy (**Alternative 3**), ACLs would generally increase with a rebuilding stock. The advantage of this strategy is as more fish become available with increased stock size, more fish can be removed from the population. **Alternative 3** would not provide as much of a negative economic impact to commercial fishermen as would **Alternative 1 (No Action)** in that it would adjust the F at a constant level for the remaining years of the rebuilding schedule. **Sub-Alternative 3a** is associated with less than 50 percent probability of rebuilding the stock within the rebuilding timeframe, and so may not be a viable alternative. **Sub-Alternative 3b** has a 50 percent probability of rebuilding the stock, but would provide for an ACL less than that of **Sub-Alternative 2** in the first two years. In the short-run, **Sub-Alternative 3a** and **Sub-Alternative 3b** may provide for better economic scenarios than **Sub-Alternative 2**; the reverse may be expected over the long-run. **Alternative 4** has the

potential to provide the greatest economic benefit to the fishermen as the commercial ACL could increase due to adjustments to F (after the first two years) as the stock rebuilds.

Table 2-2. Summary of effects of Action 1a alternatives under consideration.

	Alternatives				
	Alt. 1 (No Action)	**Alt. 2**	**Alt. 3**	**Alt4.**	**Alt. 5 Preferred**
Biological	+	+	+	+	+
Economic	-	+	+	+	-
Social	-	+	+	+	-
Administrative	+	-	-	-	+

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse; (+-) some beneficial and some adverse effect

2.1.2 Action 1b. Set an ACL for Black Sea Bass

Alternative 1 (No Action). Do not change the existing ACL for black sea bass.

Preferred Alternative 2. Set ACL = ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Alternative 3. Set ACL = 90%ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Alternative 4. Set ACL = 80%ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Table 2-3. Annually increasing ACLs (lbs gutted weight) based on Constant Catch shifting to Constant F rebuilding strategy (Action 1a, Preferred Alternative 5). ACL values after 2014 will be determined from an update assessment.
Note: ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Constant Fishing Mortality Rate Options	Fishing Season	Combined ACL	Com. ACL (43%)*	Recreational ACL (57%)
Preferred Alternative 2 ACL=ABC=OY	2012/2013	718,000	309,000	409,000
	2013/2014	718,000	309,000	409,000
Alternative 3 ACL=90%ABC	2012/2013	646,200	277,866	368,334
	2013/2014	646,200	277,866	368,334
Alternative 4 ACL=80%ABC	2012/2013	574,400	246,992	327,408
	2013/2014	574,400	246,992	327,408

*Sector ACLs are based on the allocation formula used in Amendment 13C (SAFMC 2006) whereby the commercial quota is 43% of the TAC and the recreational allocation is 57% of the TAC.

Table 2-4a. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1). Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year.

Fishing Season	Fishing Mortality Rate	Combined ACL	Commercial ACL (43%)	Recreational ACL (57%)
2012/2013	F = 0.382 F_{MSY}	718,000	309,000	409,000
2013/2014	F = 0.324 F_{MSY}	718,000	309,000	409,000
2014/2015	F = 0.55 F_{MSY}	1,330,508	572,118	758,390
2015/2016	F = 0.55 F_{MSY}	1,325,424	569,932	755,492
2015/2016	F = 0.55 F_{MSY}	1,343,220	577,585	765,635

Values based on projections conducted by the SEFSC dated November 4, 2011.

Table 2-4b. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1). Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year.

Fishing Season	Fishing Mortality Rate	Combined ACL	Commercial ACL (43%)	Recreational ACL (57%)
2012/2013	0.458	718,000	309,000	409,000
2013/2014	0.372	718,000	309,000	409,000
2014/2015	0.51	1,144,915	492,313	652,602
2015/2016	0.51	1,212,712	521,466	691,246
2016/2017	0.51	1,266,102	544,424	721,678

Values based on projections conducted by the SEFSC dated November 4, 2011.

Table 2-4c. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1). Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year.

Fishing Season	Fishing Mortality Rate	Combined ACL	Commercial ACL (43%)	Recreational ACL (57%)
2012/2013	0.567	718,000	309,000	409,000
2013/2014	0.436	718,000	309,000	409,000
2014/2015	0.46	951,695	409,229	542,466
2015/2016	0.46	1,082,203	465,347	616,856
2016/2017	0.46	1,171,186	503,610	667,576

Values based on projections conducted by the SEFSC dated November 4, 2011.

2.1.2.1 Comparison of Alternatives

Alternative 1 (No Action) would not change the existing ACL and OY for black sea bass. Based on a recommendation from the South Atlantic Council's SSC, Amendment 17B indicates that the ABC for overfished stocks is consistent with the value from the rebuilding plan. If approved, the Comprehensive ACL Amendment would adopt this definition of ABC for overfished stocks into the ABC Control Rule. The ABC for black sea bass is 718,000 lbs gw, which is equivalent to the ACL. Amendment 15A specified an OY to equal the average yield associated with fishing at 75% of F_{MSY}. If the stock is overfished, Amendment 15A indicates F_{OY} equals the fishing mortality rate specified by the rebuilding plan designed to rebuild the stock to SSB_{MSY} within the approved schedule.

Preferred Alternative 2, **Alternative 3** and **Alternative 4** would set OY equal to the ACL. The ACL would be the limit that triggers AMs, and ACT, if specified, would be the management target for a fishery. Management measures for a fishery should, on an annual basis, prevent the ACL from being exceeded. The long-term objective is to achieve OY through annual achievement of an ACL or ACT. The NS1 guidelines state that if OY is set close to the maximum sustainable yield (MSY), the conservation and management measures in the fishery must have very good control of the amount of catch in order to achieve the OY without overfishing. MSY from the new assessment is 1.767 million lbs which is well above the current specification of OY/ACL. Setting OY equal to ACL would provide greater insurance that OY is achieved, overfishing is prevented, and the long-term average biomass is near or above B_{MSY}.

Under **Preferred Alternative 2**, **Alternative 3** and **Alternative 4**, the ACL and OY would be based on the ABC for black sea bass from SEDAR 25, which takes into consideration scientific uncertainty to ensure catches are maintained below a MSY/OFL level. **Preferred Alternative 2** is the least conservative option of all the alternatives under consideration in **Action 1b** by setting the ACL/OY equal to the ABC. The ACL would be divided into sector-specific ACLs based on the allocations of 43% commercial/57% recreational established in Amendment 13C to the FMP. **Tables 2-4a - 2-4c** illustrate the sector specific ACLs based on **Alternative 4** in **Action 1a**.

Preferred Alternative 2 would result in the greatest increase in overall allowable harvest over time while still allowing the stock to rebuild (**Table 2-3**) depending on the results from the updated assessment. **Preferred Alternative 2** would also provide no buffer between the ABC and the ACL; however, scientific uncertainty is taken into account with the specification of the ABC, and the South Atlantic Council has adopted a rebuilding strategy that has a 66% chance of rebuilding the stock by 2016. **Preferred Alternative 2** could result in the lowest biological benefit to right whales when compared to **Alternatives 3** and **4** if the black sea bass fishing season is extended into the right whale calving season. **Preferred Alternative 2** would also be expected to have a lower biological benefit to black sea bass than **Alternatives 3** and **4** since **Preferred Alternative 2** allows for the highest catch. However, **Preferred Alternative 2** identifies a harvest level for black sea bass that is expected to be sustainable and would not negatively impact the stock. **Alternative 3** would establish an ACL based on 90% of the ABC, which would result in a slightly more conservative ACL level and would leave a 10% buffer between ABC and the ACL. Choosing an ACL that is 90% of ABC may also increase the chance that the stock would rebuild within the rebuilding timeframe. **Alternative 4** is the most risk adverse approach to setting a total ACL for black sea bass because it provides the greatest buffer between ABC and ACL, which could reduce the likelihood of an overfishing event in the future.

Since an ACL is a major constraint in the harvest or use of the black sea bass resource, **Preferred Alternative 2**, which provides for the highest ACL, would be expected to impose the least constraint on fishing activities. In principle, **Preferred Alternative 2** would allow the commercial and recreational fishing sectors to generate the largest short-term economic benefits from the use of the resource. Inasmuch as this alternative would still allow for the stock to rebuild within the rebuilding timeframe, benefits due this alternative may be expected to persist over time. Along similar reasoning, **Alternatives 3** and **4** would allow for lower economic benefits than **Preferred Alternative 2**, at least in the short term. Unless the stock rebuilds significantly faster under **Alternatives 3** or **4** so that ACLs could be substantially increased much sooner, long-term economic benefits derivable from these two alternatives would be lower than those from **Preferred Alternative 2**.

Table 2-5. Summary of effects of Action 1b alternatives under consideration.

	Alternatives			
	Alt. 1 (No Action)	**Alt. 2 (Preferred)**	**Alt. 3**	**Alt4.**
Biological	+	+-	+	+
Economic	-	+	+	+
Social	-	+	+	+
Administrative	+	-+	-+	-+

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.1.3 Action 1c. Set Annual Catch Targets (ACTs) for the Commercial Black Sea Bass Sector

Preferred Alternative 1 (No Action). Do not set an ACT for the commercial black sea bass sector.

Alternative 2. Set the commercial ACT = 90% of the commercial sector ACL

Alternative 3. Set the commercial ACT = 80% of the commercial sector ACL.

Table 2-6. Values for Commercial ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014.

Fishing Year	Commercial ACL	Preferred Alternative 1	Alternative 2	Alternative 3
2012/2013	309,000	309,000	278,100	247,200
2013/2014	309,000	309,000	278,100	247,200

2.1.3.1 Comparison of Alternatives

Preferred Alternative 1 (No Action) would not establish a commercial ACT. The South Atlantic Council determined a commercial ACT for black sea bass was not needed because commercial sector landings are closely tracked in-season through a quota monitoring system. The quota monitoring system is used to project when the ACL is going to be met in order to close the fishery before the ACL is exceeded. For this reason, the South Atlantic Council chose not to establish ACTs for the commercial sector for black sea bass because it is not necessary to the successful management of the commercial sector for black sea bass, and could result in an unnecessary administrative burden. Setting a commercial ACT at either 90% or 80% of the ACL (**Alternatives 2** and **3,** respectively), would establish a reference point that could be used as an indicator that the ACL could be reached or exceeded.

Table 2-7. Summary of effects of Action 1c alternatives under consideration.

	Alternatives		
	Alt. 1 (No Action) (Preferred)	Alt. 2	Alt. 3
Biological	+-	+	+
Economic	+	-	-
Social	+	-	-
Administrative	+	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.1.4 Action 1d. Set Annual Catch Targets (ACTs) for the Recreational Black Sea Bass Sector

Alternative 1 (No Action). Do not set an ACT for the recreational black sea bass sector.

Alternative 2. Set the recreational ACT = 85% of the recreational sector ACL.

Alternative 3. Set the recreational ACT = 75% of the recreational sector ACL.

Preferred Alternative 4. The recreational ACT equals recreational ACL*(1-PSE) or recreational ACL * 0.5, whichever is greater.

Table 2-8. Values for Recreational ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014.

Fishing Year	Recreational ACL	Alternative 2	Alternative 3	(Preferred) Alternative 4
2012/2013	409,000	347,650	306,750	357,548
2013/2014	409,000	347,650	306,750	357,548

2.1.4.1 Comparison of Alternatives

Alternative 1 (No Action) would not establish an ACT for the recreational sector; and therefore, would not benefit the biological environment by creating a management reference point more conservative that than of the sector ACL.

Alternatives 2-4 would establish reduced harvest levels designed to hedge against an ACL overage and therefore, provide a buffer between the ACT and ACL, and account for management uncertainty. **Alternative 2** would establish an ACT that is 85% of the sector ACL, which would create a 15% buffer between the two harvest levels. If the ACT under **Alternative 2** is exceeded repeatedly and the ACL is also exceeded, the South Atlantic Council may consider associating some type of corrective or preventative AM with the ACT in order to prevent continued ACL overages. The same applies to **Alternative 3**, which would establish an ACT at a more conservative level than **Alternative 2** at 75% of the ACL. Under **Alternative 3** the buffer between the ACL and ACT would be greater than that under **Alternative 2**, and theoretically there would be more time to act to prevent the ACL from being exceed if the South Atlantic Council were to link an AM to the ACT in the future. **Preferred Alternative 4** would have the greatest biological benefit of the four alternatives by adjusting the ACL by 50% or one minus the average Percent Standard Error (PSE) from the recreational fishery during 2005-2009, whichever is greater. The lower the value of the PSE the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACL with increasing variability and uncertainty in the landings data.

There is some expectation that ACTs used to trigger control measures would serve as cushions to effectively limit harvests and enable the stock to rebuild within the rebuilding timeframe. Long-term economic benefits would then ensue from a healthy stock. As long as long-term economic benefits outweigh short-term costs, the fishing industry and society in general would be better off. Realization of long-term economic benefits depends on a host of factors, including the type of management regime adopted. These factors render relatively uncertain the long-term economic outcome of ACTs, at least from the standpoint of magnitudes. It appears that a prudent action to take would be to properly manage short-term costs. Relatively large short-term costs, such as those that may occur under more restrictive ACTs (e.g., **Alternative 3**), may not be totally outweighed by long-term benefits. There is therefore weak economic rationale for adopting such type of restrictive control measures.

Table 2-9. Summary of effects of Action 1d alternatives under consideration.

	Alternatives			
	Alt. 1 (No Action)	**Alt. 2**	**Alt. 3**	**Alt4. Preferred**
Biological	-	+	+	+
Economic	+	-	-	-
Social	+	-	-	-
Administrative	+	-	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.2 Action 2: Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery through an Endorsement Program

Alternative 1 (No Action). Do not limit participation in the black sea bass pot segment of the snapper grouper fishery with the establishment of an endorsement program.

Alternative 2. Limit endorsements and tag distribution to entities with a valid or renewable South Atlantic Unlimited Snapper Grouper Permits on the effective date of the final rule whose *average* annual black sea bass landings using black sea bass pot gear between 1/1/99 and 12/31/10 were at least:

Sub-Alternative 2a - 500 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2b - 1,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2c - 2,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2d - 5,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2e - 10,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2f - 3,500 lb whole weight. Exclude Unlimited Snapper Grouper Permits with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Preferred Sub-Alternative 2g - 2,500 lbs whole weight. Exclude Unlimited Snapper Grouper Permits with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Alternative 3. No South Atlantic state shall have less than two entities that qualify for black sea bass pot endorsements, provided that no entity qualifies whose minimum average landings are:

Sub-Alternative 3a - 1,000 lbs whole weight

Sub-Alternative 3b - 2,000 lbs whole weight

Table 2-10. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.** State based on homeport as identified on snapper-grouper permit application.

Using gutted weight landings							
	2a	**2b**	**2c**	**2d**	**2e**	**2f**	**Preferred 2g**
North Carolina	25	21	19	10	6	11	16
South Carolina	16	12	9	3	2	5	6
Florida	9	8	6	5	1	5	6
Total	50	41	34	18	9	21	28
Using whole weight landings (Preferred)							
	2a	**2b**	**2c**	**2d**	**2e**	**2f**	**Preferred 2g**
North Carolina	26	22	21	10	9	14	18
South Carolina	17	14	10	5	2	5	7
Florida	9	8	7	5	1	5	6
Total	52	44	38	20	12	24	31

Table 2-11. Number of South Atlantic Unlimited Snapper Grouper Permits per state that qualify for a Black Sea Bass Pot endorsement under **Preferred Alternative 2g**.

Alternative	**State**	**Endorsements that would be issued (gw)**	**Endorsements that would be issued (ww)**
Preferred Sub-Alternative 2g - 2,500 lbs gw.	North Carolina	16	18
	South Carolina	6	7
	Georgia	0	0
	Florida	6	6

2.2.1 Comparison of Alternatives

Alternative 1 (No Action) could have negative effects by perpetuating the current derby fishing conditions as more individuals become involved in the fishery resulting in the quota being met even more quickly. The biological effects of **Alternatives 1-3** could be similar since the fishery would close when the quota is met regardless of the number of participants. **Alternative 1 (No Action)** could have the greatest biological effect because the quota would be met quickly and gear would be removed from the water for the

longest period of time. Conversely, if there were a large number of pots in the water at the same time, this could increase the chance of entanglement with protected species.

Alternative 2 would restrict participation in the black sea bass pot sector to those individuals who historically fished pots for black sea bass. As far fewer individuals fish pots than possess federal snapper grouper commercial permits, **Alternative 2** would constrain participation in the pot sector to a level that is more manageable and profitable. **Alternative 2** and **Alternatives 2a-Preferred 2g** propose to limit participation in the black sea bass pot sector based on average landings of black sea bass caught with pot gear between January 1, 1999 and December 31, 2010. **Alternatives 2a-Preferred 2g** would specify average landings requirements of 500, 1,000, 2,000, 2,500, 3,500, 5,000, and 10,000 pounds. As the landing requirement increases, the number of qualifying individuals decreases.

The sub-alternative that would result in the fewest number of black sea bass pot endorsements being issued is **Sub-Alternative 2e**, which requires that a minimum of 10,000 pounds ww of black sea bass be harvested using pot gear between January 1, 1999 and December 31, 2010. Under **Sub-Alternative 2e** a total of 12 black sea bass pot endorsements would be issued to South Atlantic Unlimited Snapper Grouper Permit holders. Reducing the number of individuals who are able to harvest black sea bass using pot gear to such a small number could likely extend opportunities to fish for black sea bass well into the fishing year, which begins on June 1. Because overall harvest of black sea bass is controlled by the ACLs implemented in Amendment 17B (SAFMC 2010b) and by the updated rebuilding strategy, if approved, in this amendment, the number of black sea bass pot endorsements issued is not likely to adversely affect the black sea bass stock or jeopardize rebuilding efforts. Currently, 50 to 60 individuals fish for black sea bass with pots each year; therefore, **Preferred Alternative 2g** would reduce the number of fishery participants who currently fish for black sea bass using pot gear by 38-48%. The average catch per year for the 31 South Atlantic Unlimited Snapper Grouper Permits that would qualify for endorsements under **Preferred Sub-Alternative 2g** is 361,788 lbs gw (**Table 4-9)**. It is expected that by reducing the number of entities able to fish with black sea bass pots to 31, proposing the limit on the number of pots allowed to be used to 35, proposing a commercial trip limit of 1,000 pounds gw, the commercial quota should be met later in the fishing season (i.e., later in July or in August as opposed to early July).

Table 2-12. Summary of effects of Action 2 alternatives under consideration.

	Biological Impacts	**Economic Impacts**	**Social Impacts**	**Administrative Impacts**
Alternative 1	+	+-	-	+
Alternative 2	+	+-	+-	-
Alternative 2a	+	+	+	+
Alternative 2b	+	+-	+-	-
Alternative 2c	+	+-	+-	-
Alternative 2d	+	+-	+-	-
Alternative 2e	+	+-	+-	-
Alternative 2f.	+	+-	+-	-
Preferred Alternative 2g.	+	+-	+-	-
Alternative 3	-	+-	+-	-
Alternative 3a	-	+-	+-	-
Alternative 3b	-	+-	+-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effects

2.3 Action 3: Establishment of an Appeals Process for Fishermen Excluded From the Black Sea Bass Pot Endorsement Program

Alternative 1 (No Action). Do not specify provisions for an appeals process associated with the black sea bass endorsement program.

Preferred Alternative 2. A period of 90 days will be set aside to accept appeals to the black sea bass endorsement program starting on the effective date of the final rule. The Regional Administrator (RA) will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. The Regional Administrator will determine the outcome of appeals based on NMFS logbooks. If NMFS logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS logbooks or state landings records to support their appeal.

Alternative 3. A period of 90 days will be set aside to accept appeals to the black sea bass endorsement program starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. A special board composed of state directors/designees will review, evaluate, and make individual recommendations to Regional Administrator on appeals. Hardship arguments will not be considered. The special board and the Regional Administrator will determine the outcome of appeals based on NMFS logbooks. If NMFS logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS logbooks or state landings records to support their appeal.

2.3.1 Comparison of Alternatives

Establishing an appeals process is an administrative action. Therefore, it is not anticipated to directly or indirectly affect the physical, biological or ecological environments in a positive or negative way. Because a black sea bass pot endorsement system is assumed to be an appropriate action and would be expected to result in increased social benefits relative to the absence of an endorsement system, social benefits would be expected to be maximized if all appropriate fishermen, i.e., those fishermen whose receipt of an endorsement will best achieve the objectives of the program, receive an endorsement. The exclusion of any appropriate fishermen would be expected to result in decreased social benefits. The absence of an appeals process, as would occur under **Alternative 1 (No Action)**, would be expected to increase the likelihood that one or more appropriate qualifiers would not receive an endorsement, resulting in less social benefits than would occur if an appeals process is established. Because **Preferred Alternative 2** would establish an appeals process, **Preferred Alternative 2** would be expected to result in greater social benefits than **Alternative 1 (No Action)**.

Table 2-13. Summary of effects of Action 3 alternatives under consideration.

	Establishment of Appeals Process		
	Alternative 1 (No Action)	**Preferred Alternative 2 Preferred**	**Alternative 3**
Biological	+	-	-
Economic	-	+	+
Social	-	+	+
Administrative	+	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effects

2.4 Action 4: Allow for Transferability of Black Sea Bass Endorsements

Alternative 1 (No Action). Black sea bass pot endorsements (and tags) would not be allowed to be transferred if such a system were implemented.

Preferred Alternative 2. A valid black sea bass pot endorsement can be transferred between any two individuals or entities that hold a valid or simultaneously obtains a valid, meaning not expired, South Atlantic Unlimited Snapper Grouper Permit. The endorsement and associated landings history of black sea bass can be transferred regardless of whether or not the South Atlantic Unlimited Snapper Grouper Permit is transferred.

Preferred Sub-Alternative 2a. Transferability allowed upon program implementation.
Sub-Alternative 2b. Transferability not allowed during the first 2 years of the program.
Sub-Alternative 2c. Transferability not allowed during the first 3 years of the program.
Sub-Alternative 2d. Transferability not allowed during the first 5 years of the program.

Alternative 3. A valid black sea bass pot endorsement can be transferred between any two individuals or entities that hold a valid or simultaneously obtains a valid, meaning not expired, South Atlantic Unlimited Snapper Grouper Permit. The endorsement and associated landings history of black sea bass will be transferred only if the South Atlantic Unlimited Snapper Grouper Permit is transferred.

Sub-Alternative 3a. Transferability allowed upon program implementation.
Sub-Alternative 3b. Transferability not allowed during the first 2 years of the program.
Sub-Alternative 3c. Transferability not allowed during the first 3 years of the program.
Sub-Alternative 3d. Transferability not allowed during the first 5 years of the program.

2.4.1 Comparison of Alternatives

Alternative 1 (No Action) would indirectly benefit the biological environment because it would not allow any additional black sea bass pot effort in the fishery after the initial endorsements are distributed to eligible South Atlantic Unlimited Snapper Grouper Permit holders. By limiting the number of endorsements and thus the number of pots to be deployed, risk of bycatch and protected species interactions decreases. There is likely to be no difference between **Preferred Alternative 2** and **Alternative 3** in the level of potential biological impact that could occur as a result of their implementation. It is the South Atlantic Council's intent that all black sea bass landings reported using pot gear with an endorsement will be associated with the South Atlantic Unlimited Snapper Grouper Permit rather than the endorsement. Therefore, the endorsement would simply allow the eligible South Atlantic Unlimited Snapper Grouper Permit holders to fish for black sea bass using pot gear, with no landings history attached to it.

Administratively, allowing for transferability is more burdensome than the no-action alternative since NOAA Fisheries Service Permit Office staff would be responsible for determining how transfers would be handled. NOAA Fisheries Service would be

responsible for notifying endorsement holders of transferability requirements through outreach efforts.

Table 2-14. Summary of effects of Action 4 alternatives under consideration.

	Transferability of Endorsements		
	Alternative 1 (No Action)	**Preferred Alternative 2 Preferred**	**Alternative 3**
Biological	+	-	-
Economic	-	+	+
Social	-	+	+
Administrative	+	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effects

2.5 Action 5: Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year

Alternative 1 (No Action). Do not annually limit the number of black sea bass pots deployed or pot tags issued to holders of snapper grouper commercial permits.

Alternative 2. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *100* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Alternative 3. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *50* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Alternative 4. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *25* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Preferred Alternative 5. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *35* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year. Endorsements will be automatically renewed at the same time the snapper grouper permit is renewed.

2.5.1 Comparison of Alternatives

Among **Alternatives 2 – Preferred Alternative 5**, **Alternative 2** would have the least beneficial effects to the biological environment as it would allow fishermen to fish up to 100 pots each year. For the 31 permits that qualify for endorsements, only 9% of the trips during 2008-2010 fished more than 100 pots. **Alternative 4** would have the greatest biological effect since it would allow fishermen to fish a maximum of 25 pots. Based on data from 2008-2010, 69% of the trips taken by those individuals who qualify for endorsements fished more than 25 pots. The biological benefit of **Alternative 3** would be greater than **Alternative 2** but less than **Alternative 4** and **Preferred Alternative 5** as it would allow fishermen to fish up to 50 pots. Twenty-one percent of the trips by individuals who qualify for endorsements under Action 2 fished more than 50 pots during 2008-2010. **Preferred Alternative 5** would allow 35 tags to be issued to each endorsement holder and would reduce the number of bass sea bass pot fished by 52% for those individuals who qualify for endorsements. Therefore, **Preferred Alternative 5**

would result in beneficial biological effects less than **Alternative 4** but greater than **Alternative 3**.

In general, it is expected that the short-term economic benefits of **Alternatives 2 – Preferred Alternative 5** increase with the larger number of traps allowed per vessel. However, how the total number of pots in the black sea bass segment of the snapper grouper fishery influences the catch per unit effort will ultimately determine the long-term economic impacts of these alternatives. It is possible that even a low number of pots per vessel could have negative economic impacts in the short and long-term if there are large numbers of vessels participating in the fishery. Assuming the catch per unit effort remains stable, **Alternative 2** would offer the greatest short-term economic benefits but probably the smallest long-term economic benefits since the total number of traps in the fishery is capped at the highest level.

If we assume that the number of pots carried per vessel is currently optimal for that individual vessel's operation, then any reduction in the number of pots would have a negative impact on the profitability of that operation. **Alternative 2** restricts the number of pots per vessel to 100. While most vessels carry less than 100 pots, those that currently carry more than 100 pots would be negatively impacted since they would be restricted to 100 pots. While the cost of vessel operations remain largely fixed, except crew and food costs, the number of pots, which are used to generate revenue have decreased. The overall economic benefit of any of the alternatives would be a summation of the individual changes in profits. Given that there are only a few vessels fishing greater than 100 pots, the negative economic impacts from alternatives with larger number of pots allowed per vessel would be expected to be less than the negative economic impact of the alternatives with smaller numbers of pots allowed per vessel. Actual estimation of each vessel's profitability requires vessel specific cost data for black sea bass vessels, which is not available at this point in time.

Table 2-15. Summary of effects of Action 5 alternatives under consideration.

	Alternatives				
	Alt. 1 (No Action).	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5 Preferred**
Biological	-	+	+	++	+
Economic	+	+-	+-	+-	+-
Social	+	-	-	-	+-
Administrative	-	-	-	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effects

2.6 Action 6: Implement Measures to Reduce Black Sea Bass Bycatch

Alternative 1 (No Action). Do not implement additional regulations stipulating when black sea bass pots must be removed from the water. Currently, fishermen are required to remove all pots once the quota has been reached.

Preferred Alternative 2. Black sea bass pots must be brought back to shore at the conclusion of each trip. "Brought back to shore" is defined as when the vessel with the pots has "returned to a dock, berth, beach, seawall, or ramp at the conclusion of each trip."

Alternative 3. Allow fishermen to leave pots in the water for no more than 72 hours.

2.6.1 Comparison of Alternatives

Alternative 1 (No Action) would perpetuate the biological risks associated with ghost fishing due to lost pots and entanglement with protected species to the extent they occur, particularly when gear is left at sea for long periods of time and therefore would have the least amount of biological benefit for the alternatives considered. The biological benefit of **Preferred Alternative 2** would be greater than **Alternative 3** because most trips last 1 day. Therefore, under **Preferred Alternative 2**, pots would be in the water for the least amount of time and would have the least amount of risk for ghost fishing or entanglement with protected species. The biological benefit of **Alternative 3** would be less than **Preferred Alternative 2** because it would allow fishermen to leave pots in the water for as long as 72 hours and would increase the chance that pots could be lost or could interact with protected species. Furthermore, under **Alternative 3**, fishermen would be able to return to the dock while pots soak decreasing the chance gear could be retrieved during bad weather. Selecting both **Preferred Alternative 2** and **Alternative 3** as preferred would have an intermediate biological effect in that a trip could last for as long as 72 hours but fishermen would not be able to return to the dock without their pots. However, as approximately 99% of the trips were 72 hours or less, a restriction on the length of the trip (**Alternative 3**) is not needed.

Given that **Preferred Alternative 2** and **Alternative 3** protect the biological resource as well as the surrounding ecosystem, the fishery would experience long-term economic benefits from these alternatives.

Table 2-16. Summary of effects of Action 6 alternatives under consideration.

	Alternatives		
	Alt. 1 (No Action)	**Alt. 2 Preferred**	**Alt. 3**
Biological	-	+	+
Economic	-	+	+
Social	+	+-	+-
Administrative	+	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.7 Action 7: Modify Accountability Measures for Black Sea Bass

Alternative 1 (No Action). Current accountability measures are as follows:

Commercial
If the commercial sector black sea bass ACL is met or is projected to be met, independent of stock status, all subsequent purchase and sale of black sea bass is prohibited and harvest and/or possession is limited to the black sea bass bag limit.

Recreational
If black sea bass *is overfished* and the recreational sector ACL is met or is projected to be met, prohibit the harvest and retention of black sea bass. Compare the black sea bass recreational ACL with recreational black sea bass landings over a range of years. For 2010, use only 2010 landings. For 2011, use the average landings of 2010 and 2011. For 2012 and beyond, use the most recent three-year running average. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector black sea bass ACL in the following season by the amount of the overage.

Alternative 2. Remove the three-year running average provision used to determine recreational ACL overages. The recreational AM would be: If black sea bass *is overfished* and the recreational sector black sea bass ACL is met or is projected to be met, prohibit the harvest and retention of black sea bass. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector black sea bass ACL in the following season by the amount of the overage.

Preferred Alternative 3. For the recreational sector: Remove the three-year running average provision used to determine recreational ACL overages. The recreational AM would be: If the recreational sector black sea bass ACL is met or is projected to be met, independent of stock status, prohibit the harvest and retention of black sea bass. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector ACL in the following season by the amount of the overage.

For the commercial sector: If the commercial sector black sea bass ACL is met or is projected to be met, independent of stock status, all subsequent purchase and sale of black sea bass is prohibited and harvest and/or possession is limited to the black sea bass bag limit. If the commercial sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the commercial sector black sea bass ACL in the following season by the amount of the overage.

Note: For both the recreational and commercial sectors, ACL paybacks are not required when new projections are adopted that incorporate ACL overages and the ACLs are adjusted in accordance with those projections. Beyond the 2013/2014 fishing season (when the rebuilding strategy switches over to $F_{rebuild}$) for years when there is no

assessment, the ACL would not automatically increase if the ACL has been exceeded during the previous fishing year.

2.7.1 Comparison of Alternatives

Alternative 1 (No Action) would not change the current system of AMs to employ more appropriate methods for determining ACL overages and modify the corrective actions taken if the ACL is projected to be met or exceeded.

Alternative 2 and **Preferred Alternative 3** retain the authority of the Regional Administrator to prohibit recreational harvest in-season if the recreational ACL is projected to be met and if the stock is overfished. **Alternative 2** and **Preferred Alternative 3** also retain the post-season provision that allows the Regional Administrator to reduce the recreational ACL for the fishing season following an ACL overage, regardless of stock status. The primary modification to the system of recreational AMs for black sea bass under **Alternative 2** and **Preferred Alternative 3** is the elimination of the use of the three year running average to determine ACL overages. Eliminating the three year average would result in a reduced risk of implementing overly conservative AMs when they are necessarily needed. As stated previously, the three-year running average could be heavily influenced by a single year's anomalously high or low landings, which may or may not be due to actual increased harvest or statistical variation. Variability in recreational data is accounted for under **Alternative 2** and **Preferred Alternative 3** because corrective post-season action would ensure that any recreational ACL overage, regardless of cause, is taken into consideration when establishing the ACL for the following season.

It is possible that the reduction in the subsequent year's ACL would be smaller under **Alternative 2** and **Preferred Alternative 3** than under **Alternative 1 (No Action)**, because a relatively high harvest in one year would not be carried over into the subsequent years for purposes of triggering the AM.

Under **Alternative 2** and **Preferred Alternative 3**, ACL increases under the rebuilding strategy would be contingent on total commercial and recreational harvest not exceeding the two sectors' combined ACL. While sector AM would still apply once the sector-specific ACL threshold is exceeded, the total ACL may still increase over time as provided in the rebuilding strategy. This would tend to compensate the economic losses to the recreational (or commercial) sector due to the application of AM. One downside of this provision is that relatively large economic benefits would be forgone in future years despite only marginally exceeding the total ACL in the current year. Given the AMs for both the recreational and commercial sectors, the probability of exceeding the total ACL by a small amount would be relatively high. If the sector AMs were timely applied, the probability of exceeding the total ACL would be low.

Table 2-17. Summary of effects of Action 7 alternatives under consideration.

	Alternatives		
	Alt. 1 (No Action)	**Alt. 2**	**Alt. 3 Preferred**
Biological	+	+	
Economic	-	+	
Social	-	+	
Administrative	-	+	

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.8 Action 8: Establish a Spawning Season Closure for Black Sea Bass

Preferred Alternative 1 (No Action). Do not implement a spawning season closure for black sea bass.

Alternative 2. Implement a March 1-April 30th spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 3. Implement an April 1st-May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 4. Implement a March 1st- May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 5. Implement a May 1st- May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

2.8.1 Comparison of Alternatives

Alternative 1 (No Action) would not establish a spawning season closure for black sea bass. A spawning season closure could provide black sea bass with more spawning opportunities, which could contribute to recruitment success of a new year-class, help rebuild the stock more quickly, and result in a more stable and sustainable resource. It is noted that the fishing year begins on June 1 and the current regulations implemented through Amendment 13C and the rebuilding plan implemented in Amendment 15A have resulted in the commercial quota being met before the black sea bass spawning season for the last two fishing years.

Alternative 4, which would close the months of March through May, would encompass a larger portion of the March-May peak spawning season for black sea bass than **Alternatives 2, 3 and 5**. Furthermore, **Alternativs 2 and 4** would likely have greater biological benefits for black sea bass off Florida and Georgia than sub-alternatives that would close black sea bass later during the spawning season since spawning occurs earlier in the more southern latitudes. March and April accounted for 15% of black sea bass landings during the 2006-2009 fishing years. Additionally, **Alternative 2** could result in ancillary benefits to right whales by minimizing the probability of gear interactions while right whales are migrating through the area during calving season (November 1 – April 1). **Alternative 3**, which would close the months of April and May, would not have as great a biological benefit as **Alternative 2** because it would not include the month of March when a large proportion of the population is in spawning condition. However, **Alternative 3** would likely have a greater biological benefit for black sea bass off North Carolina than **Alternative 2**, which would close the months of March and April. April and May accounted for 16% of the total landings during the 2006-2009 fishing year but only 8% of the commercial sector landings occurred during those months. Most commercial landings have historically occurred during November

through February. The biological benefit of **Alternative 4** would be greatest of all the alternatives considered because it would encompass the March-May period of peak spawning when the slightly different peak spawning periods in the South Atlantic are considered (McGovern et al. 2002). The biological benefit of **Alternative 5** would be least of the action alternatives because it would only close May when a small proportion of the population is in spawning condition relative to March and April. Only a small portion (3%) of the commercial landings occurred during May during the 2006-2009 fishing years. Furthermore, **Alternative 5** would be expected to have the least amount of biological benefit for black sea bass off Florida and Georgia if there is a seasonal progression in spawning from south to north.

The closures proposed in **Alternatives 2** and **4** would likely provide the greatest reduction in potential entanglement threats to large whales because they have the largest overlap with the migration and calving season (November 1-April 1). **Alternative 3** may also reduce entanglement risk, but since the period of overlap between the closure and migration/calving season is less than **Alternatives 2** and **4** it is likely to have fewer biological benefits. Conversely, **Alternative 5** is unlikely to provide any additional reduction in entanglement risks for large whales because the proposed closure would not occur during the period when large whales are present in the South Atlantic.

Alternative 4 results in the largest loss in dockside revenues while **Alternative 5** results in the smallest loss. While **Alternative 2** and **3** spawning season closures are the same approximate length, **Alternative 2** has the larger loss associated with it due to the relatively large amount of black sea bass harvested in March compared to May. With regard to the recreational fishery, **Alternative 4** is expected to result in the largest short-term economic losses followed by **Alternatives 3, 2,** and **5** in descending order. In general, implementation of a spawning season closure will result in long-term economic benefits for commercial and recreational fisheries with **Alternative 4** having the greatest long-term economic benefit and **Alternative 5** the smallest.

Table 2-18. Summary of effects of Action 8 alternatives under consideration.

	Alternatives				
	Alt. 1 (No Action) Preferred	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5**
Biological	-	+	+	+	+
Economic	+	-	-	-	-
Social	+	-	-	-	-
Administrative	+	-	-	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.9 Action 9: Establish a Commercial Trip Limit for Black Sea bass

Alternative 1 (No Action). Do not establish a commercial trip limit for black sea bass.

Alternative 2. Establish a 500 pounds gw (590 pounds ww) trip limit.

Alternative 3. Establish a 750 pounds gw (885 pounds ww) trip limit.

Preferred Alternative 4. Establish a 1,000 pounds gw (1,180 pounds ww) trip limit.

Alternative 5. Establish a 1,250 pounds gw (1,475 pounds ww) trip limit.

Alternative 6. Establish a 1,000 pounds gw (1,180 pounds ww) trip limit; reduce to 500 pounds gutted weight (590 pounds ww) when 75% of the commercial ACL (quota) is met.

Alternative 7. Establish a 2,000 pounds gw (2,360 pounds ww) trip limit.

Alternative 8. Establish a 2,500 pounds gw (2,950 pounds ww) trip limit.

Alternative 9. Establish a 250 pounds gw (295 ww) trip limit.

2.9.1 Comparison of Alternatives

Assuming 31 individuals would qualify for endorsements under the preferred alternative for **Action 2**, a 500-lb gw (590 lbs ww) trip limit (**Alternative 2**) may keep the fishery open into October during the 2012 fishing year, about three months longer than **Alternative 1 (No Action)** (**Table 4-25**) and would be expected to provide a 49% reduction in landings based on data from 2010 (**Table 4-27**). A trip limit of 750 lbs gw (885 lbs ww) would result in an September closure (**Alternative 3**) for the 2012 fishing year, and would be expected to reduce harvest by about 34%. **Preferred Alternative 4** (1,000 lbs gw) would reduce landings by 24% and result in a closure in August. Under **Alternative 5**, a trip limit of 1,000 lbs gw weight (1,250 lbs ww) would be expected to reduce harvest by about 17% resulting in a closure during August for the 2012 fishing year. **Alternative 6**, which would reduce a 1,000 pounds gutted weight trip limit to 500 pounds gutted weight when 75% of the quota is met would result in a closure that is likely to be further into the season compared to the status quo; however, projecting the exact closure months is not possible. The similarities among the alternatives are likely due to an average catch that is lower than the specified trip limits in **Alternatives 3-6**. Therefore, many trips are not constrained by the trip limits.

Alternative 7, a trip limit of 2,000 lbs gw (2,360 lbs ww), would only be expected to reduce harvest by 6%. Therefore, under **Alternative 7** the expected quota closure dates would be almost identical to **Alternative 1 (No Action)** and would have little effect on extending the black sea bass pot segment of the snapper grouper fishery. **Alternative 8** would establish a 2,500 lbs gw (2,775 lbs ww) trip limit. As with **Alternative 7**, a 2,500

lbs gw trip limit would provide little effect on extending the fishing season for black sea bass.

Alternative 9 would specify a 250 lb gw trip limit that would allow the black sea bass fishery to remain open through a large portion of the June-May fishing year, and into right whale calving season.

Trip limits may extend the time commercial fishermen have to fish during the fishing season, but they would also reduce the per trip yield for those who typically harvested more fish than under any one of the alternatives under consideration. Therefore, the benefits of being able to fish longer must be weighed against any reduced level of per-trip harvest. Fishermen may compensate for trip limits set lower than their typical harvest by making several trips in one day; however, this may be cost prohibitive considering some fishermen travel fairly far from shore and the increasing cost of fuel.

Table 2-19. Summary of effects of Action 9 alternatives under consideration.

	Alternatives								
	Alt. 1 (No Action)	**Alt. 2**	**Alt. 3**	**Alt. 4 Preferred**	**Alt. 5**	**Alt. 6**	**Alt. 7**	**Alt. 8**	**Alt. 9**
Biological	+-	+-	+-	+-	+-	+-	+-	+-	+-
Economic	+-	+-	+-	+-	+-	+-	+-	+-	+-
Social	+-	+-	+-	+-	+-	+-	+-	+-	+-
Administrative	-	+	+	+	+	-	-	+	+

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.10 Action 10: Modify Commercial and/or Recreational Black Sea Bass Size Limits

Alternative 1 (No Action). Do not modify the current size limits of 12 inches total length (TL) for the recreational sector and 10 inches TL for the commercial sector.

Alternative 2. Modify the recreational size limit.

Preferred Sub-Alternative 2a. Increase the recreational size limit from 12" TL to 13" TL.

Alternative 3. Modify the commercial size limit.

Preferred Sub-Alternative 3a. Increase the commercial size limit from 10" TL to 11" TL.

Sub-Alternative 3b. Increase the commercial size limit from 10" TL to 12" TL.

Sub-Alternative 3c. Increase the commercial size limit from 10" TL to 11" TL in year 1 and then to 12" TL in year 2 onwards.

2.10.1 Comparison of Alternatives

Alternatives 2 and **3** differ in that **Alternative 2** would increase the minimum size limit for the recreational sector, whereas, **Alternative 3** would increase the minimum size limit for the commercial sector. Increasing the size limit would theoretically decrease the rate of harvest by reducing the number of legal size fish able to be harvested. However, minimum size limits can have detrimental effects on fish stocks if they do not protect the older year classes. Recruitment problems can occur in a fishery that has fewer age classes than an un-fished population. Additionally, minimum size limits can encourage the harvest of older, larger fish, which have the greatest reproductive potential.

For the recreational sector, increasing the minimum size limit from 12 inches TL to 13 inches TL would result in a 20-22% harvest reduction for the headboat sector and an 19-20 % reduction in harvest for the private recreational/charterboat sector. The greatest reduction in harvest would be achieved by increasing the minimum size limit in the commercial sector to 12 inches TL under **Sub-Alternative 3b** or **3c**. Increasing the minimum size limit in the commercial sector would result in a maximum reduction in commercial harvest of 32.4%; therefore, **Sub-Alternatives 3b** and **3c** could be considered the most biologically beneficial of the size limit modification alternatives considered.

Alternative 2 has been estimated to reduce headboat harvest by 22.6%, assuming no discard mortality rate, or 20.9% assuming a 7% discard mortality rate. Harvest reduction in the shore, private/rental, and charterboat modes has been estimated at 20.3% under a zero percent discard mortality rate, or 18.8% under a 7% discard mortality rate. In terms of total recreational harvest and given the most recent years' relatively high harvest rate, the AM would likely apply resulting in no additional reduction in recreational harvest from increasing the size limit (**Alternative 2**).

Table 2-20. Summary of effects of Action 10 alternatives under consideration.

	Alternatives				
	Alt. 1 (No Action)	**Sub-Alt. 2a**	**Preferred Sub-Alt. 3a**	**Sub-Alt. 3b**	**Sub-Alt. 3c**
Biological	+	+	+	+	+
Economic	+-	-	-	-	-
Social	+-	-	-	-	-
Administrative	+	-	-	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effect

2.11 Action 11: Improvements to Commercial Data Reporting

Preferred Alternative 1 (No Action). Retain existing data reporting systems for the commercial sector.

Under this alternative, as implemented by Amendment 15B to the Snapper Grouper FMP, a commercial vessel with a federal permit, if selected by NOAA Fisheries Service, is required to maintain and submit fishing records; requires a vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, to carry an observer and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service. Note: Refer to the table in ***Section 4.11.1*** *for a complete list of current data reporting requirements.*

Alternative 2. Require all vessels with a Federal snapper grouper commercial permit to have an electronic logbook tied to the vessel's GPS onboard the vessel.

(Note: Alternative 2 would require 100% of vessels to have an electronic logbook; whereas, current data reporting programs only require electronic logbooks if selected.)

Alternative 3. Provide the option for fishermen to submit their logbook entries electronically via an electronic version of the logbook made available online.

Alternative 4. Require that commercial landings and catch/effort data be submitted in accordance with ACCSP standards, using the SAFIS system.

(Note: Alternative 4 would require that 100% of dealers and fishermen report electronically using the SAFIS system.)

2.11.1 Comparison of Alternatives

The South Atlantic Council decided to take no action on Action 11 at their December 2011 meeting because they decided to develop a new generic amendment that would address improvements to data reporting in all their Fishery Management Plans. It may be assumed that any alternative other than **Preferred Alternative 1 (No Action)** would contribute to more refined, complete, and timely information that can be used to inform future fishery management decisions, and would therefore, be socially and biologically beneficial. Administratively, however, each of the alternatives (with the exception of **Preferred Alternative 1**) seeks to improve fisheries statistics and may result in negative impacts to greater or lesser degrees**.** The no action includes current data reporting requirements including those implemented through Amendment 15B (SAFMC 2008b) to the Snapper Grouper FMP (74 FR 58902). Current reporting requirements do not include provisions for reporting by dealers, if selected. Under **Alternative 2** all vessels with snapper grouper federal permits would be required to have an electronic logbook tied to the vessel's GPS. It is likely that the economic and social impacts of this alternative would be high as purchasing, installing, and learning to use the equipment will take

significant resources. Furthermore, additional administrative impacts would be expected to collect and process data from electronic logbooks. **Alternative 3** is likely the least costly alternative and would likely result in timely and accurate data from the fishermen who chose to participate. **Alternative 4** would require dealers and fishermen to report through the SAFIS system. This alternative would result in reliable data at a cost to NOAA Fisheries Service. The SAFIS system has already been implemented in other regions with great success. Upon examination of overarching data needs and feasibility of the various alternatives, one may conclude that a combination of one or more these methods would provide the most well-rounded data collection program.

Economic effects resulting from **Alternatives 2-4** depend partially on whether fishermen or government pay for equipment needed to implement and maintain these alternatives. **Alternative 3** is expected to be least expensive to fishermen. **Alternative 2**, while less costly than observers and electronic monitoring, could be prohibitive for some fishermen depending on whether fishermen or government are expected to pay for implementation and upkeep. **Alternative 4** could be costly to those fishermen and dealers without access to a computer and internet service. **Alternatives 2-4** are expected to provide long-term economic and social benefits through improved fisheries management.

Table 2-21. Summary of effects of Action 11 alternatives under consideration.

	Alt. 1 (No Action) Preferred	**Alt. 2**	**Alt. 3**	**Alt. 4**
Biological	-	+	+	+
Economic	-	+-	+	+-
Social	-	+-	+	+-
Administrative	+	-	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effects

2.12 Action 12. Improvements to For-Hire Data Reporting

Alternative 1 (No Action). Retain existing data reporting systems for the for-hire sector.

Note: Refer to Table 4-13 in Amendment 18A for a complete list of current data reporting requirements.

Preferred Alternative 2. Require *selected* vessels with a Federal For-Hire Permit to report landings data electronically; NOAA Fisheries Service is authorized to require weekly or daily reporting as required.

Alternative 3. Require vessels operating with a Federal For-Hire permit to maintain a logbook for discard characteristics (e.g., size and reason for discarding), *if selected*.

Alternative 4. Require that for-hire landings and catch/effort data be submitted in accordance with the ACCSP standards, using the SAFIS system.

2.12.1 Comparison of Alternatives

It may be assumed that any alternative other than **Alternative 1 (No Action)** would contribute to more refined, complete, and timely information that can be used to inform future fishery management decisions, and would therefore, be socially and biologically beneficial. However, each of the alternatives differs in the amount and quality of data collected from the for-hire sector. Administratively, each of the alternatives to improve fishery statistics in the for-hire sector could result in negative impacts to greater or lesser degrees relative to one another**. Preferred Alternative 2** would require selected federally permitted for-hire snapper grouper vessels to report electronically. Under **Preferred Alternative 2**, the agency could select 100% of the fishery for reporting which would result in negative economic and social impacts to participants. **Alternative 3** would require fishermen to maintain a logbook for discard characteristics. This alternative would provide useful information on bycatch and discards but would not increase the overall data collection for the retained species. **Alternative 3** would be the least intrusive and most cost effective means of gathering discard information. However, it would not collect the amount or quality of information as **Preferred Alternative 2**, and would likely not contribute greatly to improving the current data collection program. **Alternative 3** would be most effective if combined with **Preferred Alternative 2** or **Alternative 4**. **Alternative 4** would implement the electronic reporting module through the SAFIS system, as developed by the ACCSP. This system has been implemented in other fisheries with success. The agency would specify the frequency of reporting and would incur the cost of implementation.

Preferred Alternative 2 and **Alternatives 3** and **4** are expected to provide long-term economic and social benefits through improved fisheries management. However, **Preferred Alternative 2** and **Alternative 4** might result in additional costs for some

fishermen without a computer or internet access. **Preferred Alternative 2** and **Alternatives 3** and **4** would all result in an additional administrative burden.

Table 2-22. Summary of effects of Action 12 alternatives under consideration.

	Alternatives			
	Alt. 1 (No Action)	**Alt. 2 Preferred**	**Alt. 3**	**Alt. 4**
Biological	-	+	+	+
Economic	+	+-	+	+-
Social	-	+-	+	+-
Administrative	+	-	-	-

(+) beneficial; (++) significantly beneficial; (-) adverse; (--) significantly adverse;
(+-) some beneficial and some adverse effects

3 Affected Environment

3.1 Habitat for Snapper Grouper Species

Information on the habitat utilized by species in the Snapper Grouper Complex is included in Volume II of the Fishery Ecosystem Plan (FEP) (SAFMC 2009b) and incorporated here by reference. Additional details are included in **Appendix M** and the FEP can be found at: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx.

3.1.1 Essential Fish Habitat

Essential fish habitat (EFH) is defined in the Reauthorized Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S. C. 1802(10)). Specific categories of EFH identified in the South Atlantic Bight, which are utilized by federally-managed fish and invertebrate species, include both estuarine/inshore and marine/offshore areas. Specifically, estuarine/inshore EFH includes: Estuarine emergent and mangrove wetlands, submerged aquatic vegetation, oyster reefs and shell banks, intertidal flats, palustrine emergent and forested systems, aquatic beds, and estuarine water column. Additionally, marine/offshore EFH includes: Live/hard bottom habitats, coral and coral reefs, artificial and manmade reefs, *Sargassum* species, and marine water column.

EFH utilized by snapper grouper species in this region includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs and medium to high profile outcroppings on and around the shelf break zone from shore to at least 183 meters [600 feet (but to at least 2,000 feet for wreckfish)] where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical fish complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for survival of larvae and growth up to and including settlement. In addition, the Gulf of Mexico Stream is also EFH because it provides a mechanism to disperse snapper grouper larvae.

For specific life stages of estuarine dependent and near shore snapper grouper species, EFH includes areas inshore of the 30-meter (100-foot) contour, such as attached macroalgae; submerged rooted vascular plants (seagrasses); estuarine emergent vegetated wetlands (saltmarshes, brackish marsh); tidal creeks; estuarine scrub/shrub (mangrove fringe); oyster reefs and shell banks; unconsolidated bottom (soft sediments); artificial reefs; and coral reefs and live/hard bottom habitats.

3.1.2 Habitat Areas of Particular Concern

Areas which meet the criteria for Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for species in the snapper grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely

periodic spawning aggregations; near shore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the *Oculina* Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and South Atlantic Council-designated Artificial Reef Special Management Zones (SMZs).

Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

In addition to protecting habitat from fishing related degradation though FMP regulations, the South Atlantic Council in cooperation with NOAA Fisheries Service actively comments on non-fishing projects or policies that may impact essential fish habitat. The South Atlantic Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. With guidance from the Advisory Panel, the South Atlantic Council has developed and approved habitat policies on: energy exploration, development, transportation and hydropower re-licensing; beach dredging and filling and large-scale coastal engineering; protection and enhancement of submerged aquatic vegetation; and alterations to riverine, estuarine and near shore flows, offshore aquaculture, invasive estuarine species, and invasive marine species (available at www.safmc.net).

3.2 Biological and Ecological Environment

3.2.1 Species Most Impacted By This FMP Amendment

The species most likely to be impacted by actions in Amendment 18A to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region is black sea bass. Actions in Amendment 18A to the Snapper Grouper FMP could limit participation and effort for the black sea bass portion of the snapper grouper fishery.

Black Sea Bass, *Centropristis striata*

Black sea bass occur in the Western Atlantic, from Maine to southeastern Florida, and in the eastern Gulf of Mexico (McGovern et al. 2002). Separate populations were reported to exist to the north and south of Cape Hatteras, North Carolina (Wenner et al. 1986). However, genetic similarities suggest this is one stock (McGovern et al. 2002). This species is common around rock jetties and on rocky bottoms in shallow water (Robins and Ray 1986) at depths from 2-120 meters (7-394 feet). Most adults occur at depths from 20-60 meters (66-197 feet) (Vaughan et al. 1995).

Maximum reported size is 66.0 centimeters (26.1”) total length and 3.6 kilograms (7.9 lbs) (McGovern et al. 2002). Maximum reported age is 10 years (McGovern et al. 2002);

however, ages as great as 20 years have been recorded in the Mid Atlantic region (Lavenda 1949). Natural mortality is estimated to be 0.30 (SEDAR 2 2003). The minimum size and age of maturity for females reported off the southeastern U.S. coast is 10.0 centimeters (3.6") standard length and age 0. All females are mature by 18.0 centimeters (7.1") standard length and age 3 (McGovern et al. 2002; **Table 3-1).** Wenner et al. (1986) report peak spawning occurs from March through May in the South Atlantic Bight. McGovern et al. (2002) indicate black sea bass females are in spawning condition during March-July, with a peak during March through May (McGovern et al. 2002). Some spawning also occurs during September and November. Spawning takes place in the evening. Black sea bass change sex from female to male (protogyny). Females dominate the first 5 year classes and individuals over the age of 5 are more commonly males. The size at maturity and the size at transition of black sea bass was smaller in the 1990s than during the early 1980s off the southeast U.S. Black sea bass appear to compensate for the loss of larger males by changing sex at smaller sizes and younger ages (McGovern et al. 2002).

The diet of black sea bass is generally composed of shrimp, crab, and fish (Sedberry 1988). Smaller black sea bass eat small crustaceans and larger individuals feed on decapods and fishes.

3.2.2 Science Underlying the Management of Snapper Grouper Species Most Impacted By this FMP Amendment

The status of black sea bass has been assessed through the Southeast Data, Assessment, and Review (SEDAR) process.

The SEDAR process consists of a series of workshops aimed at ensuring that each assessment is based on the best available scientific information. First, representatives from NOAA Fisheries Service, state agencies, and the South Atlantic Council, as well as experts from non-governmental organizations and academia, participate in a data workshop. The purpose of a data workshop is to assemble and review available fishery-dependent and fishery-independent data and information on a stock, and to develop consensus about what constitutes the best available scientific information on the stock, how that information should be used in an assessment, and what type of stock assessment model should be employed.

Second, assessment biologists from these agencies and organizations participate in a stock assessment workshop, where data from the data workshop are input into one or more stock assessment models (e.g., production, age-structured, length structured, etc.) to generate estimates of stock status and fishery status. Generally, multiple runs of each model are conducted: base runs and a number of additional runs to examine sensitivity of results to various assumptions (e.g., different natural mortality rates, different data sets/catch periods, etc.).

Finally, a stock assessment review workshop is convened to provide representatives from the Center for Independent Experts the opportunity to peer review the results of the stock assessment workshop. Representatives from NOAA Fisheries Service, the South Atlantic Council, and constituent groups may attend and observe the review but the actual review is conducted by the Center for Independent Experts. The South Atlantic Council's Scientific and Statistical Committee (SSC) then reviews the report of the stock assessment review workshop.

The review portion of the SEDAR process has helped improve the acceptance of stock assessments. However, continued lack of basic fishery data has resulted in uncertainty in the assessment results. Each SEDAR Review Panel has identified significant shortcomings in data and research (see Section 4.3 for a detailed list of research and data needs). In addition, not all of the reviews have been completed with 100% consensus.

3.2.2.1 Black sea bass assessment and stock status

SEDAR Assessments Past and PresentAssessment

Black Sea Bass was assessed at the second SEDAR (SEDAR 2 2003). Data for the SEDAR assessment were assembled and reviewed at a data workshop held during the week of October 7, 2002 in Charleston, South Carolina. The assessment utilized commercial and recreational landings, as well as abundance indices and life history information from fishery-independent and fishery-dependent sources. Six abundance indices were developed by the data workshop. Two CPUE indices were used from the NMFS headboat survey (1978-2001) and the MRFSS recreational survey (1992-1998). Four indices were derived from CPUE observed by the South Carolina MARMAP fishery-independent monitoring program ("Florida" trap index, 1981-1987; blackfish trap index, 1981-1987; hook and line index, 1981-1987; and chevron trap index, 1990-2001) (SEDAR 2 2003).

Age-structured and age-aggregated production models were applied to available data at the assessment workshop. The age-structured model was considered the primary model, as recommended by participants in the data workshop. The stock assessment indicated black sea bass was overfished and overfishing was occurring.

At the request of the South Atlantic Council, the SEDAR panel convened to update the 2003 black sea bass stock assessment, using data through 2003, and to conduct stock projections based on possible management scenarios (SEDAR Update #1 2005). The update indicated the stock was still overfished and overfishing was still occurring but results showed the stock was much more productive that previously indicated. The stock could be rebuilt to the biomass level capable of producing the maximum sustainable yield in 5 years if all fishing mortality were eliminated; previously this was estimated to take 11 years (SEDAR 2 2003).

SEDAR 25 (SEDAR 25 2011), completed in 2011 with data through 2010, updated the stock status of black sea bass. The South Atlantic Council's Scientific and Statistical Committee (SSC) certified the results during their November 8-10, 2011 meeting. The parameter results are as follows:

- MSY = 1.767 million pounds whole weight
- F_{MSY} = 0.698
- B_{MSY} = 5,399 mt = 11.9 million pounds whole weight
- SSB_{MSY} = 2.48 trillion eggs
- MSST = 1.54 trillion eggs

Stock Status

A new stock assessment for black sea bass (SEDAR 25 2011), completed in 2011 with data through 2010, indicates the stock is experiencing overfishing to a small extent. However, black sea bass are no longer overfished but the stock is not yet fully rebuilt and is still rebuilding towards the spawning stock biomass capable of producing MSY (SSB_{MSY}). The complete results of this new assessment may be found in SEDAR 25.

For black sea bass the most recent estimate of $F_{current}$ is from 2010 and is = 0.747 and F_{MSY} = 0.698 as the maximum fishing mortality threshold. Comparing these two numbers:

- $F_{current}$/MFMT = 0.747/0.698 = 1.070

This comparison is referred to as the **overfishing ratio**. If the ratio is greater than 1, then overfishing is occurring.

The black sea bass stock in the Atlantic is no longer **overfished**. For black sea bass, the estimated level of spawning stock biomass in 2010 was 1.73 trillion eggs. The Minimum stock size threshold (MSST) = 1.54 trillion eggs. Comparing these two numbers:

- SSB_{2010}/MSST = 1.123

This comparison is referred to as the **overfished ratio**. If the ratio is less than 1, then the stock is overfished.

3.3 Other Affected Council-Managed Species

Black sea bass are commonly taken on hook and line trips with species such as white grunt, vermilion snapper, gray triggerfish, red snapper, and red porgy. However, most black sea bass are taken with pots where the species makes up 90% of the catch. Other affected species in black sea bass pots include gray triggerfish and white grunt.

3.3.1 Protected Species

There are 31 different species of marine mammals that may occur in the exclusive economic zone (EEZ) of the South Atlantic region. All 31 species are protected under the Marine Mammal Protection Act (MMPA) and six are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). There are only three known interactions between the South Atlantic snapper grouper fishery and marine mammals. All three marine mammals were likely dolphins, all were caught in Florida on handline gear, and all three animals were released alive.

Recent scientific information suggests that large whales are potentially more vulnerable to entanglements in Mid-Atlantic fisheries (including black sea bass pots) than previously thought. New sighting data from 2008 and 2009 suggest the coastal waters of South Carolina, North Carolina, and possibly even Virginia may be used as birthing and calving areas for right whales. Data also suggest that some North Atlantic right whales make multiple intra-season trips between the Northeast and Southeast regions, instead of a single migration south in the winter and a return trip north in the spring and summer. Humpback and North Atlantic right whales are considered the most coastal of the large whale species, and it is these species that are most are risk of a potential interaction with the black sea bass pot fishery. Information on these large whales is provided below.

Other species protected under the ESA occurring in the South Atlantic include five species of sea turtle (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]). A discussion of these species is included below. Designated critical habitat for the *Acropora* corals and the North Atlantic right whale also occurs within the South Atlantic region.

3.3.1.1 Humpback and North Atlantic Right Whales

Humpback whales have relatively long pectoral fins that can reach up to 33% of their body length (Clapham 2002). The dorsal fin is small but highly variable in shape. Humpbacks are rorqual whales with ventral pleats. Adult females are generally longer than males. Adults average 45-50 ft in length; calves are 13-14 ft on average at birth (Clapham 2002). Humpbacks have between 270-400 baleen plates (Clapham 2002) and feed on a number of species of small schooling fishes, particularly sand lance and Atlantic herring, targeting fish schools and filtering large amounts of water for their associated prey. It is hypothesized humpback whales may also feed on euphausiids (krill) as well as capelin (Waring et al. 2009, Stevick et al. 2006).

Humpback whales from most Atlantic feeding areas calve and mate in the West Indies and migrate to feeding areas in the northwestern Atlantic during the summer months. Sightings are most frequent from mid-March through November between 41°N and 43°N, from the Great South Channel north along the outside of Cape Cod to Stellwagen Bank and Jeffrey's Ledge (CeTAP 1982), and peak in May and August. Small numbers of individuals may be present in this area year-round, including the waters of Stellwagen Bank.

In winter, whales from waters off New England, Canada, Greenland, Iceland, and Norway migrate to mate and calve, primarily in the West Indies, where spatial and genetic mixing among these groups does occur (Waring et al. 2009). Humpback whales use the Mid-Atlantic as a migratory pathway to and from the calving/mating grounds, but it may also be an important winter feeding area for juveniles. Since 1989, observations of juvenile humpbacks in the Mid-Atlantic have been increasing during the winter months, peaking January through March (Swingle et al. 1993). Biologists theorize that non-reproductive animals may be establishing a winter feeding range in the Mid-Atlantic since they are not participating in

reproductive behavior in the Caribbean. Strandings of humpback whales have increased between New Jersey and Florida since 1985, consistent with the increase in Mid-Atlantic whale sightings. Strandings were most frequent during September through April in North Carolina and Virginia waters, and were composed primarily of juvenile humpback whales of no more than 11 meters in length (Wiley et al. 1995).

Entanglements in fishing gear are a threat to humpback whales. Between 2003 and 2007, humpback whales were the most commonly observed entangled whale species (Glass et al. 2009). Photographs taken between 2000 and 2002 indicate that approximately half (48-57%) of photographed individuals (187 animals) appeared to show signs of prior entanglement in fishing gear (Robbins and Mattila 2004). Evidence suggests that entanglements have occurred at a minimum rate of 8-10% per year (Robbins and Mattila 2004).

North Atlantic right whales are likely to occur in the action area, from approximately November 1 through April 1. Historically, North Atlantic right whales have occurred in all the world's oceans from temperate to subarctic latitudes (Perry et al. 1999). North Atlantic right whales generally occur from the southeast United States to Canada (e.g., Bay of Fundy and Scotian Shelf) (Kenney 2002, Waring et al. 2009). They follow an annual pattern of migration between low latitude winter calving grounds and high latitude summer foraging grounds (Perry et al. 1999, Kenney 2002). Calving is known to occur in the winter months in coastal waters off of Georgia and Florida (Kraus et al. 1988). Limited surveys conducted along the mid-Atlantic suggest some mother-calf pairs use the area from Virginia to South Carolina as a wintering/calving area as well (NMFS 2005).

North Atlantic right whales are robust, with their girth at time exceeding 60% of total body length, and no dorsal fin. Their heads are relatively large, comprising approximately 25-33% of their entire body length. The upper jaw is somewhat arched with 200-270 baleen plates on each side of the upper jaw. Baleen plates are usually narrow and 7-9 ft long. North Atlantic right whales feed primarily on zooplankton but also feed on copepods, krill, and pterodpods. Right whales feed by skimming forward with mouths open, straining prey from the water. Feeding can occur anywhere in the water column and dives are typically 10-20 minutes (Kenney 2002).

North Atlantic right whales are vulnerable to ship strikes and entanglement in fishing gear. Fixed fishing gear, including sink gillnets, drift nets, and trap/pot gear are all known to entangle right whales (Kenney 2002). Entanglements in fishing gear are very common in right whales with approximately 73% of North Atlantic right whales some indications of being entangled in fishing gear at least once (Knowlton et al. 2008).

3.3.1.2 ESA-Listed Sea Turtles

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and travel widely throughout the South Atlantic. The following sections are a brief overview of the general life history characteristics of the sea turtles found in the South

Atlantic region. Several volumes exist that cover the biology and ecology of these species more thoroughly (i.e., Lutz and Musick (eds.) 1997, Lutz et al. (eds.) 2002).

Green sea turtle hatchlings are thought to occupy pelagic areas of the open ocean and are often associated with *Sargassum* rafts (Carr 1987, Walker 1994). Pelagic stage green sea turtles are thought to be carnivorous. Stomach samples of these animals found ctenophores and pelagic snails (Frick 1976, Hughes 1974). At approximately 20 to 25 cm carapace length, juveniles migrate from pelagic habitats to benthic foraging areas (Bjorndal 1997). As juveniles move into benthic foraging areas a diet shift towards herbivory occurs. They consume primarily seagrasses and algae, but are also know to consume jellyfish, salps, and sponges (Bjorndal 1980, 1997; Paredes 1969; Mortimer 1981, 1982). The diving abilities of all sea turtles species vary by their life stages. The maximum diving range of green sea turtles is estimated at 110 m (360 ft) (Frick 1976), but they are most frequently making dives of less than 20 m (65 ft.) (Walker 1994). The time of these dives also varies by life stage. The maximum dive length is estimated at 66 minutes with most dives lasting from 9 to 23 minutes (Walker 1994).

The **hawksbill's** pelagic stage lasts from the time they leave the nesting beach as hatchlings until they are approximately 22-25 cm in straight carapace length (Meylan 1988, Meylan and Donnelly 1999). The pelagic stage is followed by residency in developmental habitats (foraging areas where juveniles reside and grow) in coastal waters. Little is known about the diet of pelagic stage hawksbills. Adult foraging typically occurs over coral reefs, although other hard-bottom communities and mangrove-fringed areas are occupied occasionally. Hawksbills show fidelity to their foraging areas over several years (Van Dam and Diéz 1998). The hawksbill's diet is highly specialized and consists primarily of sponges (Meylan 1988). Gravid females have been noted ingesting coralline substrate (Meylan 1984) and calcareous algae (Anderes Alvarez and Uchida 1994), which are believed to be possible sources of calcium to aid in eggshell production. The maximum diving depths of these animals are not known, but the maximum length of dives is estimated at 73.5 minutes. More routinely, dives last about 56 minutes (Hughes 1974).

Kemp's ridley hatchlings are also pelagic during the early stages of life and feed in surface waters (Carr 1987, Ogren 1989). Once the juveniles reach approximately 20 cm carapace length they move to relatively shallow (less than 50m) benthic foraging habitat over unconsolidated substrates (Márquez-M. 1994). They have also been observed transiting long distances between foraging habitats (Ogren 1989). Kemp's ridleys feeding in these nearshore areas primarily prey on crabs, though they are also known to ingest mollusks, fish, marine vegetation, and shrimp (Shaver 1991). The fish and shrimp Kemp's ridleys ingest are not thought to be a primary prey item but instead may be scavenged opportunistically from bycatch discards or from discarded bait (Shaver 1991). Given their predilection for shallower water, Kemp's ridleys most routinely make dives of 50 m or less (Soma 1985, Byles 1988). Their maximum diving range is unknown. Depending on the life stage a Kemp's ridleys may be able to stay submerged anywhere from 167 minutes to 300 minutes, though dives of 12.7 minutes to 16.7 minutes are much more common (Soma 1985, Mendonca and Pritchard 1986,

Byles 1988). Kemp's ridleys may also spend as much as 96% of their time underwater (Soma 1985, Byles 1988).

Leatherbacks are the most pelagic of all ESA-listed sea turtles and spend most of their time in the open ocean, although they will enter coastal waters and are seen over the continental shelf on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherbacks feed primarily on cnidarians (medusae, siphonophores) and tunicates. Unlike other sea turtles, leatherbacks' diets do not shift during their life cycles. Because leatherbacks' ability to capture and eat jellyfish is not constrained by size or age, they continue to feed on these species regardless of life stage (Bjorndal 1997). Leatherbacks are the deepest diving of all sea turtles. It is estimated that these species can dive in excess of 1000 m (Eckert et al. 1989) but more frequently dive to depths of 50 m to 84 m (Eckert et al. 1986). Dive times range from a maximum of 37 minutes to more routines dives of 4 to 14.5 minutes (Standora et al. 1984, Eckert et al. 1986, Eckert et al. 1989, Keinath and Musick 1993). Leatherbacks may spend 74% to 91% of their time submerged (Standora et al. 1984).

Loggerhead hatchlings forage in the open ocean and are often associated with *Sargassum* rafts (Hughes 1974, Carr 1987, Walker 1994, Bolten and Balazs 1995). The pelagic stage of these sea turtles are known to eat a wide range of things including salps, jellyfish, amphipods, crabs, syngnathid fish, squid, and pelagic snails (Brongersma 1972). Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length they begin to live in coastal inshore and nearshore waters of the continental shelf throughout the U.S. Atlantic (Witzell 2002). Here they forage over hard- and soft-bottom habitats (Carr 1986). Benthic foraging loggerheads eat a variety of invertebrates with crabs and mollusks being an important prey source (Burke et al. 1993). Estimates of the maximum diving depths of loggerheads range from 211 m to 233 m (692-764ft.) (Thayer et al. 1984, Limpus and Nichols 1988). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Thayer et al. 1984, Limpus and Nichols 1988, Limpus and Nichols 1994, Lanyan et al. 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994, Lanyan et al. 1989).

3.3.1.3 ESA-Listed Marine Fish

Historically the **smalltooth sawfish** in the U.S. ranged from New York to the Mexico border. Their current range is poorly understood but believed to have contracted from these historical areas. In the South Atlantic region, they are most commonly found in Florida, primarily off the Florida Keys (Simpfendorfer and Wiley 2004). Only two smalltooth sawfish have been recorded north of Florida since 1963 [the first was captured off North Carolina in 1963 and the other off Georgia in 2002 (National Smalltooth Sawfish Database, Florida Museum of Natural History)]. Historical accounts and recent encounter data suggest that immature individuals are most common in shallow coastal waters less than 25 meters (Bigelow and Schroeder 1953, Adams and Wilson 1995), while mature animals occur in waters in excess of 100 meters (Simpfendorfer pers. comm. 2006). Smalltooth sawfish feed primarily on fish. Mullet, jacks, and ladyfish are believed to be their primary food resources (Simpfendorfer

2001). Smalltooth sawfish also prey on crustaceans (mostly shrimp and crabs) by disturbing bottom sediment with their saw (Norman and Fraser 1938, Bigelow and Schroeder 1953).

3.3.1.4 ESA-Listed Marine Invertebrates

Elkhorn (*Acropora palmata)* and staghorn (*A. cervicornis*) coral were listed as threatened under the ESA on May 9, 2006. The Atlantic *Acropora* Status Review (*Acropora* Biological Review Team 2005) presents a summary of published literature and other currently available scientific information regarding the biology and status of both these species.

Elkhorn and **staghorn** corals are two of the major reef-building corals in the wider Caribbean. In the South Atlantic region, they are found most commonly in the Florida Keys; staghorn coral occurs the furthest north with colonies documented off Palm Beach, Florida (26º3'N). The depth range for these species ranges from <1 m to 60 m. The optimal depth range for elkhorn is considered to be 1 to 5 m depth (Goreau and Wells 1967), while staghorn corals are found slightly deeper, 5 to 15 m (Goreau and Goreau 1973).

All Atlantic *Acropora* species (including elkhorn and staghorn coral) are considered to be environmentally sensitive, requiring relatively clear, well-circulated water (Jaap et al. 1989). Optimal water temperatures for elkhorn and staghorn coral range from 25° to 29°C (Ghiold and Smith 1990, Williams and Bunkley-Williams 1990). Both species are almost entirely dependent upon sunlight for nourishment, contrasting the massive, boulder-shaped species in the region (Porter 1976, Lewis 1977) that are more dependent on zooplankton. Thus, Atlantic *Acropora* species are much more susceptible to increases in water turbidity than some other coral species.

Fertilization and development of elkhorn and staghorn corals is exclusively external. Embryonic development culminates with the development of planktonic larvae called planulae (Bak et al. 1977, Sammarco 1980, Rylaarsdam 1983). Unlike most other coral larvae, elkhorn and staghorn planulae appear to prefer to settle on upper, exposed surfaces, rather than in dark or cryptic ones (Szmant and Miller 2006), at least in a laboratory setting. Studies of elkhorn and staghorn corals indicated that larger colonies of both species had higher fertility rates than smaller colonies (Soong and Lang 1992).

3.3.2 South Atlantic Snapper grouper Fishery Interactions with ESA-Listed Species

Sea turtles and smalltooth sawfish are vulnerable to entanglement in the hook-and-line and trap gears used in the black sea bass fishery. The impacts of the fishery on sea turtles were evaluated in the previous biological opinion on the entire South Atlantic snapper-grouper fishery. The biological opinion concluded the entire South Atlantic snapper-grouper fishery (including the black sea bass sector) was likely to adversely affect sea turtles and smalltooth sawfish, but not jeopardize their continued existence. **Table 3-1** illustrates the number of interactions estimated for South Atlantic snapper-grouper fishery and the type of interaction anticipated (i.e., lethal or non-lethal). Entanglement in the hook-and-line gear is the primary

route of effect to sea turtles from the snapper-grouper fishery as a whole. See Appendix I for a more detailed discussion of the ESA section 7 consultations on the South Atlantic snapper-grouper fishery.

Table 3-1. Annual anticipated takes of ESA-listed species by the snapper-grouper fishery.

Fishery	Sea Turtle Species					
	Loggerhead	**Leatherback**	**Kemp's Ridley**	**Green**	**Hawksbill**	**Smalltooth Sawfish**
South Atlantic Snapper Grouper	68-No more than 23 lethal	9-No more than 5 lethal	7-No more than 3 lethal	13-No more than 5 lethal	2-No more than 1 lethal	3 – All Non-Lethal

3.3.3 Designated Critical Habitat for ESA-Listed Species in the South Atlantic

In the South Atlantic, critical habitat has been designated for elkhorn and staghorn corals, and the North Atlantic right whale.

Four areas of critical habitat were designated for elkhorn and staghorn coral in Florida, Puerto Rico, St. Thomas/St. John, U.S.V.I, and St. Croix, U.S.V.I. Only the Florida area overlaps with the SAFMC's jurisdiction. The Florida unit contains three sub-areas: (1) The shoreward boundary for Florida sub-area A begins at the 6-ft (1.8 m) contour at the south side of Boynton Inlet, Palm Beach County at 26°32'42.5"N; then runs due east to the point of intersection with the 98-ft (30 m) contour; then follows the 98-ft (30 m) contour to the point of intersection with latitude 25°45'55"N, Government Cut, Miami-Dade County; then runs due west to the point of intersection with the 6-ft (1.8 m) contour, then follows the 6-ft (1.8 m) contour to the beginning point; (2) The shoreward boundary of Florida sub-area B begins at the MLW line at 25°45'55"N, Government Cut, Miami-Dade County; then runs due east to the point of intersection with the 98-ft (30 m) contour; then follows the 98-ft (30 m) contour to the point of intersection with longitude 82°W; then runs due north to the point of intersection with the South Atlantic Fishery Management Council (SAFMC) boundary at 24°31'35.75" N; then follows the SAFMC boundary to a point of intersection with the MLW line at Key West, Monroe County; then follows the MLW line, the SAFMC boundary (see 50 CFR 600.105(c)), and the COLREGS line (see 33 CFR 80.727. 730, 735, and 740) to the beginning point; and (3) The seaward boundary of Florida sub-area C (the Dry Tortugas) begins at the northern intersection of the 98-ft (30 m) contour and longitude 82°45'W; then follows the 98-ft (30 m) contour west around the Dry Tortugas, to the southern point of intersection with longitude 82°45'W; then runs due north to the beginning point.

The physical or biological feature of elkhorn and staghorn coral critical habitat essential to their conservation is substrate of suitable quality and availability to support larval settlement

and recruitment, and reattachment and recruitment of asexual fragments. Substrate of suitable quality and availability is defined as consolidated hardbottom or dead coral skeleton that is free from fleshy macroalgae cover and sediment cover, occurring in water depths from the mean high water (MHW) line to 30 meters (98 feet).

Critical habitat for the **North Atlantic right whale** has been designated off coastal Florida and Georgia; a small portion of which occurs overlaps SAFMC's jurisdiction. The unit is defined from the mouth of the Altamaha River, Georgia, to Jacksonville, Florida, out 15 nautical miles and from Jacksonville, Florida, to Sebastian Inlet, Florida, out five nautical miles. The area was designated because of its importance as a calving area. The physical or biological feature of the critical habitat essential to the conservation of North Atlantic right whales are related to water depth, water temperature, and bathymetry.

3.4 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within EEZ , an area extending 200 nautical miles from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

Responsibility for Federal fishery management decision-making is divided between the U.S. Secretary of Commerce and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary of Commerce (Secretary) is responsible for collecting and providing the data necessary for the councils to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws summarized in **Appendix I**. In most cases, the Secretary has delegated this authority to NOAA Fisheries Service.

The South Atlantic Council is responsible for conservation and management of fishery resources in Federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 miles offshore from the seaward boundary of the States of North Carolina, South Carolina, Georgia, and east Florida to Key West. The Council has thirteen voting members: one from NOAA Fisheries Service; one each from the state fishery agencies of North Carolina, South Carolina, Georgia, and Florida; and eight public members appointed by the Secretary. On the South Atlantic Council, there are two public members from each of the four South Atlantic States. Non-voting members include representatives of the U.S. Fish and Wildlife Service, U.S. Coast Guard, State Department, and Atlantic States Marine Fisheries Commission

(ASMFC). The South Atlantic Council has adopted procedures whereby the non-voting members serving on the Council Committees have full voting rights at the Committee level but not at the full Council level. Council members serve three-year terms and are recommended by State Governors and appointed by the Secretary of Commerce from lists of nominees submitted by State governors. Appointed members may serve a maximum of three consecutive terms.

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters, are open to the public. The South Atlantic Council uses a Science and Statistical Committee to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking.

3.5 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environment and Natural Resources. The Marine Resources Division of the South Carolina Department of Natural Resources regulates South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Marine Fisheries Division of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida's marine fisheries. Each state fishery management agency has a designated seat on the South Atlantic Council. The purpose of state representation at the South Atlantic Council level is to ensure state participation in Federal fishery management decision-making and to promote the development of compatible regulations in state and Federal waters.

The South Atlantic States are also involved through the Atlantic States Marine Fisheries Commission (ASMFC) in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of consistent state regulations to conserve coastal species. The ASFMC also is represented at the Council level, but does not have voting authority at the Council level.

NOAA Fisheries Service State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation Act) programs. Additionally, it works with the ASMFC to develop and implement cooperative State-Federal fisheries regulations.

3.6 Enforcement

Both the NOAA Fisheries Service Office for Enforcement (NOAA/OLE) and the United States Coast Guard (USCG) have the authority and the responsibility to enforce South Atlantic Council regulations. NOAA/OLE agents, who specialize in living marine resource violations, provide fisheries expertise and investigative support for the overall fisheries mission. The USCG is a multi-mission agency, which provides at sea patrol services for the fisheries mission.

Neither NOAA/OLE nor the USCG can provide a continuous law enforcement presence in all areas due to the limited resources of NOAA/OLE and the priority tasking of the USCG. To supplement at sea and dockside inspections of fishing vessels, NOAA entered into Cooperative Enforcement Agreements with all but one of the States in the Southeast Region (North Carolina), which granted authority to State officers to enforce the laws for which NOAA/OLE has jurisdiction. In recent years, the level of involvement by the States has increased through Joint Enforcement Agreements, whereby States conduct patrols that focus on Federal priorities and, in some circumstances, prosecute resultant violators through the State when a state violation has occurred.

NOAA General Counsel issued a revised Southeast Region Magnuson-Stevens Act Penalty Schedule in June 2003, which addresses all Magnuson-Stevens Act violations in the Southeast Region. In general, this Penalty Schedule increases the amount of civil administrative penalties that a violator may be subject to up to the current statutory maximum of $120,000 per violation.

3.7 Economic Environment

3.7.1 Economic Description of the Commercial Fishery

Additional information on the commercial snapper grouper fishery is contained in previous amendments [Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Regulatory Amendment 9 (SAFMC 2011b), and Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c)] and are incorporated herein by reference.

3.7.1.1 Number of Vessels, Harvest, and Revenue

Additional information on the commercial snapper grouper fishery is contained in Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Regulatory Amendment 9 (SAFMC 2011b), and the Comprehensive Annual Catch Limit Amendment (SAFMC 2011c) and is incorporated herein by reference. Select updated statistics are provided in **Tables 3-2** to **3-4**.

Table 3-2. Black sea bass sector performance statistics, logbook data, 2005-2010.

	2005	2006	2007	2008	2009	2010	Average
Trips with at least one lb of BSB	2,055	2,172	1,962	1,961	2,395	1,357	1,984
Number of vessels that landed BSB	240	220	260	259	286	214	247
Number of dealers that purchased BSB	87	102	128	116	112	107	109
BSB lbs, whole weight	460,425	526,828	410,151	438,795	635,468	449,591	486,876
Dockside BSB price (nominal $)	$2.03	$2.22	$2.41	$2.18	$2.12	$2.07	$2.17
Dockside BSB price (2010 $)	$2.27	$2.40	$2.53	$2.21	$2.15	$2.07	$2.27
BSB revenue (nominal $)	$934,929	$1,170,729	$988,610	$958,468	$1,346,063	$928,952	$1,054,625
BSB revenue (2010 $)	$1,043,865	$1,266,292	$1,039,695	$970,724	$1,368,142	$928,952	$1,102,945

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems

3.7.1.2 Economic Activity

Estimates of the average annual economic activity (impacts) associated with the commercial harvest of black sea bass were derived using the model developed for and applied in NMFS (2010) and are provided in **Table 3-3**. Business activity for the commercial sector is characterized in the form of full-time equivalent jobs, income impacts (wages, salaries, and self-employed income), and output (sales) impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors). The estimate of ex-vessel value is replicated from **Table 3-2**.

Table 3-3. Average annual economic activity associated with black sea bass harvest, 2005-2010.

Species	Average Revenue (millions)[1]	Total Jobs	Harvester Jobs	Output (Sales) Impacts (millions)[1]	Income Impacts (millions)[1]
Black Sea Bass	$1.103	205	27	$14.339	$6.189

[1]2010 dollars.
Source: NMFS SERO

3.7.1.3 Permits

A commercial permit is required to harvest or possess commercial quantities of snapper grouper from the EEZ. Black sea bass harvest is included in this permit requirement. There are two types of commercial snapper grouper permits, an unlimited permit, which is a transferable (subject to restrictions) that allows unlimited harvest of snapper grouper species, subject to trip limits or seasonal restrictions, and a non-transferable trip-limited permit that limits the owner to 225 lbs of snapper grouper harvest per trip. Both permits are limited access permits. The number of commercial snapper grouper permits for 2005-2010 are provided in **Table 3-4**. As seen in **Table 3-2**, data on the number of vessels landing black sea bass indicate that less than one-third of the snapper grouper permits have been used, on average, to harvest black sea bass over the period 2005-2010 (247 average vessels per year from **Table 3-2** divided by 846 average permits per year from **Table 3-4** equals a 29 percent average annual "participation rate"). While permits and vessels need not have one-to-one correspondence (a permit can be used on multiple vessels at different times during a year or across multiple years) and a vessel count from year-to-year may remain stable, yet different vessels may enter and exit a fishery from one year to another (for example, the 260 vessels in 2007 may not have included all of the 220 vessels from 2006). Potentially, though unlikely, every snapper grouper permit could have been associated with a vessel harvesting black sea bass at some point during 2005-2010. However, the data suggests that actual permit/vessel participation in black sea bass harvest is substantially less than potential participation.

Table 3-4. Number of commercial snapper grouper permits.

	Unlimited	Limited	Total
2005	748	198	946
2006	722	183	905
2007	695	165	860
2008	665	151	816
2009	640	144	784
2010	624	139	763
Average	682	163	846

Source: NMFS SERO Permits Data Base

3.7.2 Economic Description of the Recreational Sector of the Snapper Grouper Fishery

Additional information on the recreational sector of the snapper grouper fishery contained in previous or concurrent amendments is incorporated herein by reference [see Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Amendment 17A (SAFMC 2010a), Amendment 17B (SAFMC 2010b), Regulatory Amendment 9 (SAFMC 2011b), Regulatory Amendment 11 (SAFMC 2011a), Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c), and Amendment 24 (SAFMC 2011d)].

The proposed actions on the black sea bass segment of the snapper grouper fishery includes alternatives that would affect the recreational sector. As a result, the following discussion mainly addresses recreational fishing for black sea bass.

The recreational fishery is comprised of the private sector and for-hire sector. The private sector includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire sector is composed of the charterboat and headboat (also called partyboat) sectors. Charterboats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person.

3.7.2.1 Harvest

Recreational black sea bass harvest in the South Atlantic was variable during the 2005/2006 - 2009/2010 fishing years, averaging approximately 698,000 pounds (**Table 3-5**). On average the private/shore mode of fishing accounted for the largest harvests at approximately 454,000 pounds. Charter and headboat harvests were approximately 85,000 pounds and 159,000 pounds, respectively. Harvests by state also fluctuated during the same period (**Table 3-6**). On average, South Carolina accounted for most of the black sea bass harvest in the South Atlantic at approximately 235,000 pounds, followed closely by Florida at 223,000 pounds, North Carolina at 167,000 pounds, and Georgia at 73,000 pounds.

Table 3-5. Harvest (pounds whole weight) of black sea bass in the South Atlantic, by mode, 2005-2010.

Fishing Year	Charterboat	Headboat	Shore and Private/Rental Boat	Total
2005-06	99,744	150,342	565,101	815,187
2006-07	94,283	208,303	526,277	828,863
2007-08	68,834	120,436	466,383	655,653
2008-09	48,134	104,666	367,570	520,371
2009-10	116,121	209,513	343,245	668,879
Average	85,423	158,652	453,715	697,791

Table 3-6. Harvest (pounds whole weight) of black sea bass in the South Atlantic, by state, 2005-2010.

Fishing Year	Florida	Georgia	South Carolina	North Carolina
2005-06	281,894	67,451	258,031	207,811
2006-07	233,722	82,307	349,960	162,874
2007-08	215,361	74,392	192,136	173,764
2008-09	146,227	91,964	166,652	115,528
2009-10	238,394	47,869	205,902	176,713
Average	223,120	72,797	234,536	167,338

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab and MRFSS database, NOAA Fisheries, NMFS, SERO.

On average, overall harvest of black sea bass peaked in June and troughed in October (**Table 3-7** and **Table 3-8**). June was the peak month for black sea bass harvest by headboats and private/shore modes while May was the peak month for charterboats. The lowest harvest occurred in January/February for charterboats, January for headboats, and September/October for the private/shore mode. In general, relatively large harvest occurred in the period March through August for all fishing modes. For the shore/private mode, however, November and December also recorded relatively large harvest (**Table 3-7**).

There are observable differences across the various states on the specific months with recorded highest and lowest harvest of black sea bass (**Table 3-8**). North Carolina had the highest harvest in June and lowest in September; South Carolina had the highest harvest in April and lowest in January; Georgia had the highest harvest in June and lowest in January; and, Florida had the highest harvest in July and lowest in October.

Table 3-7. Average monthly distribution of black sea bass harvest (pounds ww) in the South Atlantic, by mode across all states, 2005-2010. The black sea bass fishing year starts in June.

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Charter	10,196	9,816	9,816	4,344	4,344	2,976	2,976	598	598	6,381	6,381	19,270
Headboat	22,480	19,264	13,611	9,081	8,279	5,162	5,130	3,542	4,681	11,834	20,303	21,506
Shore/Priv.	45,917	45,299	45,299	11,257	11,257	40,873	40,873	24,632	24,632	34,349	34,349	33,662
Total	78,593	74,380	68,727	24,681	23,880	49,011	48,979	28,771	29,910	52,564	61,033	74,438

Table 3-8. Average monthly distribution of black sea bass harvest (pounds whole weight) in the South Atlantic, by state across all modes, 2005-2010. The black sea bass fishing year starts in June.

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
NC	27,131	15,986	14,962	6,051	6,280	10,677	10,203	12,916	12,770	6,608	9,872	21,879
SC	21,816	19,754	17,193	8,372	8,337	20,173	19,216	132	389	23,275	28,246	21,328
GA	13,174	5,985	5,604	926	914	8,063	7,803	45	113	7,767	8,345	12,670
FL	16,472	32,655	30,968	9,333	8,350	10,098	11,758	15,677	16,638	14,914	14,570	18,561
Total	78,593	74,380	68,727	24,681	23,880	49,011	48,979	28,771	29,910	52,564	61,033	74,438

3.7.2.2 Recreational Black Sea Bass Effort

Recreational effort derived from the MRFSS database can be characterized in terms of the number of trips as follows:

1. Target effort - The number of individual angler trips, regardless of trip duration, where the intercepted angler indicated that the species was targeted as either the first or the second primary target for the trip. The species did not have to be caught.
2. Catch effort - The number of individual angler trips, regardless of trip duration and target intent, where the individual species was caught. The fish caught did not have to be kept.
3. All recreational trips - The total estimated number of recreational trips taken, regardless of target intent or catch success.

Estimates of annual black sea bass recreational effort in terms of target and catch trips are provided in **Tables 3-9** to **3-12**. Noticeable in these tables is the substantial difference between target and catch trips, with target trips being about 10 percent of catch trips. While many angler trips recorded harvest of black sea bass, much fewer angler trips recorded black sea bass as a target species.

The private/rental mode dominated all other fishing modes in both target and catch trips. The charter mode was the second dominant mode for target trips, but came in below the shore mode for catch trips. Total target trips declined over the years, particularly after the 2006-2007 fishing season. The decline in total catch trips started after the 2007-2008 fishing season (**Table 3-9**).

On average, there were more target trips recorded for South Carolina than any other states. Florida came in next, followed by North Carolina and Georgia. In terms of catch trips, North Carolina dominated all other states, followed by Florida, South Carolina, and Georgia (**Table 3-10**).

Table 3-9. Recreational effort (trips) for black sea bass in the South Atlantic, by mode across all states, 2005-2010.

Fishing Year	Charterboat	Private/Rental Boat	Shore	Total
Target Trips				
2005-06	2,944	36,304	1,319	40,567
2006-07	3,177	62,143	0	65,320
2007-08	6,220	54,798	2,773	63,790
2008-09	4,109	32,406	0	36,515
2009-10	2,881	30,884	0	33,766
Average	3,866	43,307	818	47,992
Catch Trips				
2005-06	39,681	501,546	109,018	650,245
2006-07	39,782	560,194	81,018	680,994
2007-08	41,339	606,233	72,075	719,648
2008-09	22,331	524,298	105,172	651,802
2009-10	38,944	384,316	89,622	512,882
Average	36,416	515,318	91,381	643,114

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3-10. Recreational effort (trips) for black sea bass in the South Atlantic, by state across all modes, 2005-2010.

Fishing Year	Florida	Georgia	South Carolina	North Carolina
Target Trips				
2005-06	6,987	3,018	18,858	11,704
2006-07	11,505	3,561	45,641	4,613
2007-08	13,923	10,868	33,025	5,974
2008-09	7,027	3,743	19,209	6,537
2009-10	7,232	5,716	10,139	10,678
Average	9,335	5,381	25,375	7,901
Catch Trips				
2005-06	174,685	33,821	137,991	303,748
2006-07	226,828	34,079	177,610	242,477
2007-08	253,733	62,340	170,559	233,017
2008-09	199,150	85,145	177,511	189,995
2009-10	163,313	38,237	120,050	191,283
Average	203,542	50,724	156,744	232,104

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

On average, target trips for black sea bass peaked in March, although April, May and June also registered some of the highest target trip levels. For catch trips, July and August were the peak months. February was the lowest month for both target trips and catch trips (**Table 3-11** and **Table 3-12**).

Charter target trips and catch trips peaked in May and troughed in January/February. Private target trips peaked in March/April and reached bottom in February. On the other hand, private catch trips peaked in July/August and reached their lowest levels in February. Shore mode target trips were relatively low; shore mode catch trips reached their highest levels in July/August and their lowest levels in February (**Table 3-11**).

Target trips in North Carolina were somewhat spread out evenly across the months, with the exception of September/October and January/February which registered low target trips. Target trips in South Carolina were even more spread out across the months, except for January/February which registered zero target trips. The distribution of target trips in Georgia closely mimics that of North Carolina. In Florida, target trips were high for the months of March through August. The distribution of catch trips in North Carolina did not follow the pattern of target trips. Catch trips were high in July and August, about mid-level in May, June, September and October, and relatively low in other months. The pattern of catch trips in South Carolina closely followed that of North Carolina. Catch trips in Georgia were relatively high in May and June and relatively low in other months, with January and February recording no catch trips. In Florida, catch trips were high in May through August and relatively low in other months (**Table 3-12**).

Table 3-11. Average monthly distribution of recreational effort (trips) for black sea bass in the South Atlantic, by mode across all states, 2005-2010. The black sea bass fishing year starts in June.

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Target Trips												
Charter	785	526	526	228	235	67	70	3	3	253	245	925
Private	4,838	3,945	3,945	2,863	2,959	3,641	3,762	897	821	5,423	5,248	4,963
Shore	0	0	0	0	0	0	0	139	125	282	273	0
Total	5,624	4,471	4,471	3,091	3,194	3,708	3,832	1,039	950	5,958	5,766	5,888
Catch Trips												
Charter	5,580	6,985	6,985	1,731	1,788	845	873	428	390	2,091	2,024	6,697
Private	62,572	67,637	67,637	45,941	47,472	32,750	33,841	16,018	14,581	30,225	29,250	67,393
Shore	10,545	18,613	18,613	7,685	7,942	2,167	2,239	1,852	1,676	4,404	4,262	11,383
Total	78,697	93,235	93,235	55,357	57,202	35,761	36,953	18,298	16,647	36,720	35,536	85,473

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Table 3-12. Average monthly distribution of recreational effort (trips) for black sea bass in the South Atlantic, by state across all modes, 2005-2010. The black sea bass fishing year starts in June.

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Target Trips												
NC	806	869	869	233	241	737	762	430	391	874	846	841
SC	3,423	2,240	2,240	2,111	2,181	2,157	2,229	0	0	2,767	2,678	3,349
GA	586	110	110	534	551	344	356	0	0	1,133	1,096	562
FL	808	1,253	1,253	214	221	469	485	609	558	1,184	1,146	1,135
Total	5,624	4,471	4,471	3,091	3,194	3,708	3,832	1,039	950	5,958	5,766	5,888
Catch Trips												
NC	27,147	42,749	42,749	26,410	27,291	9,984	10,317	2,672	2,431	5,674	5,491	29,189
SC	19,838	21,320	21,320	14,725	15,216	11,541	11,926	0	0	10,678	10,334	19,846
GA	8,612	5,511	5,511	3,403	3,517	2,142	2,214	0	0	5,077	4,913	9,825
FL	23,100	23,655	23,655	10,819	11,179	12,094	12,497	15,625	14,216	15,291	14,798	26,613
Total	78,697	93,235	93,235	55,357	57,202	35,761	36,953	18,298	16,647	36,720	35,536	85,473

Source: MRFSS, NOAA Fisheries, NMFS, SERO.

Similar analysis of recreational effort is not possible for the headboat sector because the headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats.
The average annual (2005-2010) number of headboat angler days is presented in **Table 3-13**. Due to confidentiality issues, Georgia estimates are combined with those of Florida. As shown in **Table 3-13**, the total (across all states) average number of headboat angler days has been variable but generally declining since 2007. Even if angler days in Florida were

separated from those in Georgia, Florida would still come out with the highest number of headboat angler days.

Table 3-13. Southeast headboat angler days, 2005-06 through 2009-10.

	South Atlantic			
	Florida/ Georgia	**North Carolina**	**South Carolina**	**Total**
2005-2006	170,871	32,526	44,248	247,645
2006-2007	154,802	27,327	57,474	239,603
2007-2008	152,320	28,094	60,538	240,952
2008-2009	121,631	16,543	42,982	181,156
2009-2010	128,565	19,353	40,703	188,621
Average	145,638	24,769	49,189	219,595

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab.

3.7.2.3 Permits

For-hire vessels are required to have a for-hire snapper grouper permit to fish for or possess snapper grouper species in the South Atlantic EEZ. The number of vessels with for-hire snapper grouper permits for the period 2005-2010 is provided in **Table 3-14**. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners obtain open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire permits issued for the South Atlantic snapper grouper fishery increased from 1,904 permits in 2005 to 2,104 permits in 2008, but subsequently decreased to 2,091 in 2009 and 1,815 in 2010. The majority of snapper grouper for-hire permitted vessels were home-ported in Florida; a relatively high proportion of these permitted vessels were also home-ported in North Carolina and South Carolina. Many vessels with South Atlantic for-hire snapper-grouper permits were homeported in states outside of SAFMC's area of jurisdiction, particularly in the Gulf states of Alabama through Texas. Although the number of vessels with South Atlantic for-hire snapper-grouper permits homeported in states outside of SAFMC's area of jurisdiction increased from 2005 to 2009, they still account for approximately the same proportion (9-10%) of the total number of permits. For-hire snapper-grouper permits in these other areas fell in 2010.

Table 3-14. Number of South Atlantic for-hire snapper-grouper vessel permits, 2005-2010.

Home Port State	2005	2006	2007	2008	2009	2010	Avg.
North Carolina	294	317	353	399	391	333	348
South Carolina	136	142	152	160	167	147	151
Georgia	37	36	37	35	36	28	35
Florida	1,267	1,304	1,312	1,310	1,280	1,110	1,264
Gulf States (AL-TX)	102	84	79	84	87	84	87
Other States	68	84	93	116	130	113	101
Total	1,904	1,967	2,026	2,104	2,091	1,815	1,985

For-hire permits do not distinguish charterboats from headboats. Based on a 1997 survey, Holland et al. (1999) estimated that a total of 1,080 charter vessels and 96 headboats supplied for-hire services in all South Atlantic fisheries during 1997. By 2010, the estimated number of headboats supplying for-hire services in all South Atlantic fisheries had fallen to 85, indicating a decrease in fleet size of approximately 11% between 1997 and 2010 (K. Brennan, Beaufort Laboratory, SEFSC, personal communication, Feb. 2011).

There are no specific permitting requirements for recreational anglers to harvest snapper grouper. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions.

3.7.2.4 Economic Value and Expenditures

Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus. The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (David Carter, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese et al. (2009), Dumas et al. (2009), Holland et al. (1999), and Sutton et al. (1999). Estimates of net operating revenue per angler trip (2009 dollars) on representative charter trips (average charter trip regardless of area fished) are $146 for Louisiana through east Florida, $135 for

east Florida, $156 for northeast Florida, and $128 for North Carolina. For charter trips into the EEZ only, net operating revenues are $141 in east Florida and $148 in northeast Florida. For full-day and overnight trips only, net operating revenues are estimated to be $155-$160 in North Carolina. Comparable estimates are not available for Georgia, South Carolina, or Texas.

Net operating revenues per angler trip are lower for headboats than for charterboats. Net operating revenue estimates for a representative headboat trip are $48 in the Gulf of Mexico (all states and all of Florida), and $63-$68 in North Carolina. For full-day and overnight headboat trips, net operating revenues are estimated to be $74-$77 in North Carolina. Comparable estimates are not available for Georgia and South Carolina.

These value estimates should not be confused with angler expenditures or the economic activity (impacts) associated with these expenditures. While expenditures for a specific good or service may represent a proxy or lower bound of value (a person would not logically pay more for something than it was worth to them), they do not represent the net value (benefits minus cost), nor the change in value associated with a change in the fishing experience.

Estimates of the economic activity (impacts) associated with recreational fishing for black sea bass were derived using average coefficients for recreational angling across all fisheries (species), as derived by an economic add-on to the MRFSS, and described and utilized in NMFS (2010). Business activity is characterized in the form of FTE jobs, income impacts (wages, salaries, and self-employed income), output (sales) impacts (gross business sales), and value-added impacts (difference between the value of goods and the cost of materials or supplies). Job and output (sales) impacts are equivalent metrics across both the commercial and recreational sectors. Income and value-added impacts are not equivalent, though similarity in the magnitude of multipliers may result in roughly equivalent values. Neither income nor value-added impacts should be added to output (sales) impacts because this would result in double counting. Job and output (sales) impacts, however, may be added across sectors.

Estimates of the average expenditures by recreational anglers are provided in NMFS (2010) and are incorporated herein by reference. Estimates of the average black sea bass recreational effort (2005-2010) and associated economic impacts (2008 dollars) are provided in **Table 3-15**. Target trips were used as the measure of recreational effort. As previously discussed, more trips may catch a species than target the species. Where such occurs, estimates of the economic activity associated with the average number of catch trips can be calculated based on the ratio of catch trips to target trips because the average output impact and jobs per trip cannot be differentiated by trip intent. For example, if the number of catch trips is about ten times the number of target trips for a particular state and mode, the estimate of the associated business activity would approximately equal ten times the estimate associated with target trips. **Tables 3-12** to **3-15** contain estimates of the average annual (2005-2010) black sea bass target trips and catch trips for each state and mode.

It should be noted that output impacts and value added impacts are not additive and the impacts for individual species should not be added because of possible duplication (some trips may target multiple species). Also, the estimates of economic activity should not be added across states to generate a regional total because state-level impacts reflect the economic activity expected to occur within the state before the revenues or expenditures "leak" outside the state, possibly to another state within the region. Under a regional model, economic activity that "leaks" from, for example, Florida into Georgia would still occur within the region and continue to be tabulated. As a result, regional totals would be expected to be greater than the sum of the individual state totals. Regional estimates of the economic activity associated with black sea bass recreational fishing are unavailable at this time.

The distribution of the estimates of economic activity by state and mode are consistent with the effort distribution with the exception that charter anglers, on average, spend considerably more money per trip than anglers in other modes. As a result, the number of charter trips can be a fraction of the number of private trips, yet generate similar estimates of the amount of economic activity. For example, as derived from **Table 3-15**, the average number of black sea bass charter target trips in South Carolina (3,346 trips) was only approximately 15% of the number of private trips (22,028), whereas the estimated output (sales) impacts by the charter anglers (approximately $1.1 million) was approximately 113% of the output impacts of the private trips (approximately $970,000).

As previously noted, the values provided in **Tables 3-12** to **3-15** only reflect effort derived from the MRFSS. Because the headboat sector in the Southeast is not covered by the MRFSS, the results in **Table 3-15** do not include estimates of the economic activity associated with headboat anglers. While estimates of headboat effort are available (see **Table 3-13**), species target information is not collected in the Headboat Survey, which prevents the generation of estimates of the number of headboat target trips for individual species. Further, because the model developed for NMFS (2011) was based on expenditure data collected through the MRFSS, expenditure data from headboat anglers was not available and appropriate economic expenditure coefficients have not been estimated. As a result, estimates of the economic activity associated with the headboat sector comparable to those of the other recreational sector modes cannot be provided.

Table 3-15. Summary of black sea bass target trips (2005-2010 average) and associated economic activity (2008 dollars). Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	East Florida
	Shore Mode			
Target Trips	0	0	0	818
Output Impact	$0	$0	$0	$23,368
Value Added Impact	$0	$0	$0	$13,567
Jobs	0	0	0	0
	Private/Rental Mode			
Target Trips	7,770	22,028	5,091	8,418
Output Impact	$424,114	$969,189	$79,540	$318,328
Value Added Impact	$239,145	$565,509	$48,248	$190,218
Jobs	5	11	1	3
	Charter Mode			
Target Trips	131	3,346	291	99
Output Impact	$50,996	$1,128,363	$18,293	$38,798
Value Added Impact	$28,619	$637,479	$10,677	$22,842
Jobs	1	14	0	0
	All Modes			
Target Trips	7,901	25,374	5,382	9,335
Output Impact	$475,110	$2,097,553	$97,834	$380,494
Value Added Impact	$267,764	$1,202,988	$58,925	$226,626
Jobs	5	25	1	4

Source: Effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2010).

3.7.2.5 Financial Operations of the Charter and Headboat Sectors

Holland et al. (1999) estimated that the charterboat fee in the South Atlantic ranged from $292 to $2,000. The actual cost depended on state, trip length, and the variety of services offered by the charter operation. Depending on the state, the average fee for a half-day trip ranged from $296 to $360, for a full day trip the range was $575 to $710, and for an overnight trip the range was $1,000 to $2,000. Most (>90 percent) Florida charter operators offered half-day and full-day trips and about 15 percent of the fleet offered overnight trips. In comparison, only about 3 percent of operations in the other South Atlantic states offered overnight trips.

For headboats, the average fee in Florida was $29 for a half-day trip and $45 for a full day trip. For North and South Carolina, the average base fee was $34 per person for a half-day

trip and $61 per person for a full day trip. Most of these headboat trips operated in Federal waters in the South Atlantic (Holland et al. 1999).

Capital investment in charter vessels averaged $109,301 in Florida, $79,868 for North Carolina, $38,150 for South Carolina and $51,554 for Georgia (Holland et al. 1999). Charterboat owners incur expenses for inputs such as fuel, ice, and tackle in order to offer the services required by their passengers. Most expenses incurred in 1997 by charter vessel owners were on crew wages and salaries and fuel. The average annual charterboat business expenditures incurred was $68,816 for Florida vessels, $46,888 for North Carolina vessels, $23,235 for South Carolina vessels, and $41,688 for vessels in Georgia in 1997. The average capital investment for headboats in the South Atlantic was approximately $220,000 in 1997. Total annual business expenditures averaged $135,737 for headboats in Florida and $105,045 for headboats in other states in the South Atlantic.

The 1999 study on the for-hire sector in the Southeastern U.S. presented two sets of average gross revenue estimates for the charter and headboat sectors in the South Atlantic (Holland et al. 1999). The first set of estimates were those reported by survey respondents and were as follows: $51,000 for charterboats on the Atlantic coast of Florida; $60,135 for charterboats in North Carolina; $26,304 for charterboats in South Carolina; $56,551 for charterboats in Georgia; $140,714 for headboats in Florida; and $123,000 for headboats in the other South Atlantic states (Holland et al. 1999). The authors generated a second set of estimates using the reported average trip fee, average number of trips per year, and average number of passengers per trip (for the headboat sector) for each vessel category for Florida vessels. Using this method, the resultant average gross revenue figures were $69,268 for charterboats and $299,551 for headboats. Since the calculated estimates were considerably higher than the reported estimates (22 percent higher for charterboats and 113 percent higher for headboats), the authors surmised that this was due to sensitivity associated with reporting gross receipts, and subsequent under reporting. Alternatively, the respondents could have overestimated individual components of the calculated estimates. Although the authors only applied this methodology to Florida vessels, assuming the same degree of under reporting in the other states results in the following estimates in average gross revenues: $73,365 for charterboats in North Carolina, $32,091 for charterboats in South Carolina; $68,992 for charterboats in Georgia; and $261,990 for headboats in the other South Atlantic states.

It should be noted that the study's authors were concerned that while the reported gross revenue figures may be underestimates of true vessel income, the calculated values could overestimate gross income per vessel from for-hire activity (Holland et al. 1999). Some of these vessels are also used in commercial fishing activities and that income is not reflected in these estimates.

A more recent study of the North Carolina for-hire fishery provides some updated information on the financial status of the for-hire fishery in the state (Dumas et al. 2009). Depending on vessel length, regional location, and season, charter fees per passenger per trip ranged from $168.14 to $251.59 for a full-day trip and from $93.63 to $123.95 for a half-day trip; headboat

fees ranged from $72.50 to $81.78 for a full-day trip and from $38.08 to $45 for a half-day trip. Charterboats generated a total of $55.7 million in passenger fees, $3.2 million in other vessel income (e.g., food and beverages), and $4.8 million in tips. The corresponding figures for headboats were $9.8 million in passenger fees, $0.2 million in other vessel income, and $0.9 million in tips. Non-labor expenditures (e.g., boat insurance, dockage fees, bait, ice, fuel) amounted to $43.6 million for charterboats and $5.3 million for headboats. Summing across vessel lengths and regions, charter vessels had an aggregate value (depreciated) of $120.4 million and headboats had an aggregate value (depreciated) of $10.2 million.

3.8 Social Environment

Descriptions of the social and cultural environment of the snapper grouper fishery are contained in Jepson et al. (2005) and Amendment 17B (SAFMC 2010b), and are incorporated herein by reference. Because so many communities in the South Atlantic benefit from snapper-grouper fishing, discussion of affected communities focuses on "indicator communities," defined as communities thought to be most heavily impacted by snapper-grouper regulations.

Indicator communities were identified primarily based on permit and employment activity using data obtained from the U.S. Bureau of the Census (Census) and from state and federal permitting agencies. Census data must be used with caution because it is collected every ten years and may not reflect shifting community demographics or key changes in business activity. Further, census estimates do not include seasonal visitors and tourists, those that live less than half the year in the surveyed area, and some types of labor, such as day laborers, undocumented crew members, or family members that help with bookkeeping responsibilities.

To help fill information gaps, members of the South Atlantic Council's Snapper-grouper Advisory Panel, Council members, and representatives from the angling public identified communities they believed would be most impacted by the management measures proposed in Amendment 13C on the species addressed by this amendment. Details of their designation of particular communities, and the factors considered in this designation, can be found in Amendment 13C (SAFMC 2006).

3.8.1 Communities in the South Atlantic

3.8.1.1 North Carolina

Overview

Of the four states in the South Atlantic region, North Carolina (**Figure 3-1**) is often recognized as possessing the most "intact" commercial fishing industry; that is, it is more robust in terms of viable fishing communities and fishing industry activity than the other three South Atlantic states. North Carolina offers a wide variety of fishing opportunities, including sound fishing, trolling for tuna, bottom fishing, and shrimping. Perhaps because of the wide variety of fishing opportunities, fishermen have been better able to adapt to regulations and coastal development pressures, adjusting their annual fishing patterns as times have changed. More detailed information on North Carolina fishing communities can be found in Amendment 17B (SAFMC 2010b).

Many fishermen in North Carolina work under the dual jurisdiction of the Mid-Atlantic Fishery Management Council and the South Atlantic Fishery Management Council.

Figure 3-1. North Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.

Commercial Fishing

There has been a steady decline in the number of federal commercial snapper grouper permits for North Carolina since 1999, with 194 unlimited commercial permits in 1999, but only 157 in 2010. Limited permits similarly declined from 36 to10 over the same period. Brunswick County and Carteret County have the largest number of permits, making up about half of all federal permits in North Carolina. The counties of New Hanover, Dare, Onslow, Pender, Beaufort, and Hyde are also home ports for vessels with snapper grouper permits in 2010 (**Table 3-16**).

Table 3-16. Federal commercial snapper grouper permits in North Carolina (2010).

Home Port (County)	Unlimited SG Permits	225 lb limit SG Permits	Total SG permits
Beaufort	6	0	6
Brunswick	43	2	45
Carteret	32	0	32
Dare	17	4	21
Hyde	2	1	3
New Hanover	19	1	20
Onslow	16	1	17
Pender	11	1	12
Total	147	10	157

North Carolina fishermen demographics are detailed in Cheuvront and Neal (2004). Ninety-eight percent of surveyed fishermen were white and 58% had completed some college or had graduated from college. Of those who chose to answer the question, 27% of respondents reported a household income of less than $30,000 per year, and 21% made at least $75,000 per year. On average, respondents had been fishing for 18 years, and had lived in their communities for 27 years.

Cheuvront and Neal (2004) also provided an overview of how North Carolina commercial snapper grouper fishermen carry out their fishery. Approximately 65% of surveyed fishermen indicated year-round fishing. Black sea bass was the second most targeted species after vermilion snapper. Fishermen also target gag grouper, king mackerel, red grouper, scamp, snowy grouper, grunts , triggerfish, and golden tilefish. Non-snapper/grouper complex species landed by at least 5% of the fishermen in any given month included Atlantic croaker, yellowfin tuna, bluefin tuna, dolphin, and shrimp.

In North Carolina, there are 52 SG permits with landings of black sea bass with pots from 2008-2010 (Source: 2010 ALS Data). Landings are the highest in Onslow County, particularly from vessels with the home port of the community of Sneads Ferry (**Table 3-17**). Pender County has the next highest landings during this time period, and most of these are from the communities of Hampstead and Topsail Beach.

Table 3-17. Cumulative black sea bass landings with pots in North Carolina counties.

County	Cumulative Landings 2008-2010 (lbs ww)
Brunswick County	29,085
Carteret County	97,815
New Hanover County	84,804
Onslow County	335,836
Pender County	157,462

Note: This information is based on the home port recorded for the vessel associated with the permit.

Recreational Fishing

Recreational fishing is well developed in North Carolina and, due to natural geography, is not limited to areas along the coast. Until more recently, black sea bass was not a highly targeted recreational species but was frequently caught, particularly by private anglers (see **Section 3.7.2.1** for more detail on recreational landings). Due to closings of other fisheries, it is likely that there is increased recreational pressure on black sea bass in North Carolina.

North Carolina offers several types of private recreational licenses for residents and visitors, and for different durations (10-day, annual, and lifetime). Non-resident recreational license sales are high, indicating how coastal recreational fishing is tied to coastal tourism in the state. In general recreational license sales have remained stable or increased, with the exception of annual non-resident license sales, which have declined in recent years (**Table 3-18**).

Table 3-18. Coastal recreational fishing license sales by year and type (Data source: NC Division of Marine Fisheries).

License Type	2007	2008	2009	2010
Annual Resident	23,793	19,222	19,398	20,254
Annual non-Resident	179,923	143,810	142,569	141,475
10-day Resident	40,255	39,110	45,724	47,619
10-day Non-Resident	131,105	125,564	132,193	137,066

Black sea bass are also important to the for-hire recreational sector, and are targeted along with other deepwater snapper grouper species on headboat trips. In 2010 there were 335 South Atlantic federal charter permits for snapper grouper registered to vessels home ported in North Carolina (**Table 3-19**). A majority of the charter permits are from Dare County, Brunswick County, and Carteret County, while a lesser quantity are in New Hanover and Onslow counties.

Table 3-19. Federal charter permits for snapper grouper in North Carolina (2010).

Home Port (County)	Charter SG Permits
Beaufort	5
Brunswick	72
Carteret	64
Chowan	1
Currituck	1
Dare	118
Guilford	1
Hyde	4
Mecklenburg	1
NA	1
New Hanover	35
Onslow	20
Pender	7
Rockingham	1
Rowan	1
Wake	3
Total	**335**

3.8.1.2 South Carolina

Overview

South Carolina communities with substantial fishing activity are less developed than those in North Carolina and, over the past 20 to 30 years, the state has seen much more tourist-oriented development along its coasts than Georgia or North Carolina. In Horry County, the urban area of Myrtle Beach has expanded greatly in the past few decades, and much of the coastal area has been developed as vacation homes, condominiums, and golf courses. The communities most impacted by this development are Little River, Murrells Inlet, Pawleys Island, and Georgetown, although the latter three are located in Georgetown County (**Figure 3-2**). The same is true of rapid developing Charleston County, and the cities and communities of McClellanville, Mt. Pleasant, Sullivans Island, Wadmalaw and Edisto Islands feel the impact of urban sprawl from the city of Charleston. Further south along the coast, the Hilton Head Island resort development has been the impetus for changing coastal landscapes in the small towns of Port Royal, Beaufort, St. Helena Island, and Bluffton. More information about South Carolina fishing communities can be found in Amendment 17B (SAFMC 2010b).

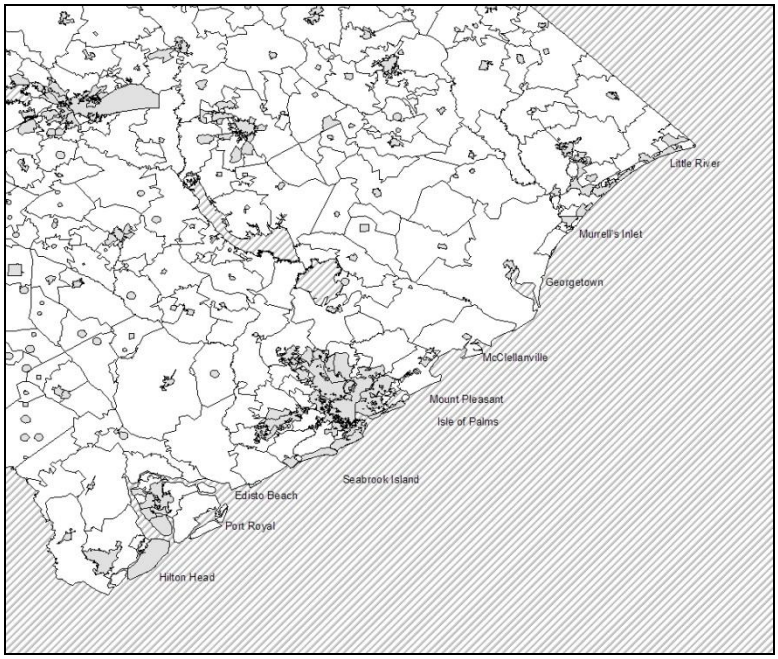


Figure 3-2. South Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.

Commercial Fishing

While pockets of commercial fishing activities remain in the state, most are being displaced by the development forces and associated changes in demographics. The number of unlimited commercial permits, however, increased from 74 in 1999 to 87 in 2004, but declined to 71 in 2010. The number of limited commercial permits decreased by over 75% from 12 to 3 since 1999 (**Table 3-20**).

Table 3-20. Federal commercial snapper grouper permits in South Carolina (2010).

Home Port (County)	Unlimited SG Permits	225 lb limit SG Permits	Total SG permits
Beaufort	2	1	3
Berkeley	1	0	1
Charleston	8	1	9
Georgetown	31	0	31
Hampton	1	0	1
Horry	28	1	29
Total	**71**	**3**	**74**

Horry County has the highest landings in South Carolina (**Table 3-30**), with most landings in the community of Little River. In Georgetown County, most landings are associated with the communities of Georgetown and Murrell's Inlet, while in Charleston County most landings are reported from the community of McClellanville.

Table 3-21. Cumulative black sea bass landings with pots in South Carolina counties.

County	Cumulative Landings 2008-2010 (lbs ww)
Charleston County	26,119
Georgetown County	85,675
Horry	170,790

Note: This information is based on the home port recorded for the vessel associated with the permit.

Recreational Fishing

Many areas that used to be dedicated to commercial fishing endeavors are now geared towards the private recreational angler and for-hire sector. The number of federal charter/headboat permits held by South Carolina residents increased from 41 in 1999 to 111 in 2004, and in 2010 there were 144 charter permits registered to vessels with home ports in South Carolina (**Table 3-22**). Most of the permits were based in Charleston or Georgetown County, with some permits also in the counties of Horry and Beaufort.

Table 3-22. Federal charter permits for snapper grouper in South Carolina (2010).

Home Port (County)	Charter SG Permits
Beaufort	18
Charleston	44
Georgetown	42
Horry	36
Other	4
Total	144

The majority of saltwater anglers fish for coastal pelagic species such as king mackerel, Spanish mackerel, tunas, dolphins, and billfish. A lesser number focus primarily on bottom fish such as snapper and groupers and often these species are the specialty of the headboats that run out of Little River, Murrells Inlet, and Charleston. There are 35 coastal marinas in the state and 34 sportfishing tournaments. South Carolina offers private recreational licenses for residents and visitors, and sales of all license types has nearly doubled since 2006 (**Table 3-23**).

Table 3-23. Sales of all saltwater recreational license types in South Carolina (Data Source: SC DNR).

Year	Number of Licenses Sold
2006	106,385
2007	119,255
2008	132,324
2009	124,193
2010	208,204

3.8.1.3 Georgia

Overview

Only one community in Georgia (Townsend) lands a substantial amount of snapper grouper species but in general black sea bass is not a significant part of the commercial harvest. Other parts of the state involved in the commercial harvest of seafood are focused on penaeid shrimp, blue crabs, and other finfish such as flounder, shad, croaker, and mullet. For more detailed information on Georgia fishing communities, see Amendment 17B (SAFMC 2010b).

Commercial Fishing

Unlike the pattern observed in many other areas, the number of unlimited commercial permits and limited commercial permits held by Georgia residents did not decrease from 1999 to 2004, with eight permits and one permit, respectively. In 2010, there were no limited commercial permits registered to Georgia vessels, and only 8 unlimited permits (**Table 3-24**). Many Georgia fishermen target shrimp or hold state commercial fishing permits. Landings of black sea bass by pot are minimal in Georgia, with a small quantity reported from McIntosh County.

Table 3-24. Federal commercial snapper grouper permits in Georgia (2010).

Home Port (County)	Unlimited SG Permits
Chatham	2
Dodge	1
McIntosh	5
Total	**8**

Recreational Fishing
As observed in other areas, the number of charter/headboat permits held by Georgia residents increase markedly from five permits in 1999 to 28 permits in 2010 (**Table 3-25**). However, the number of charter vessels is small relative to other states in the South Atlantic. Most of the charter operations are based in Savannah, Tybee Island, and around St Simons. For-hire fishing services and private recreational fishing are tied to coastal tourism in Georgia.

Table 3-25. Federal charter permits for snapper grouper in Georgia (2010).

Home Port (County)	Charter SG Permits
Bryan	4
Chatham	12
Clinch	1
Glynn	9
McIntosh	2
Total	**28**

3.8.1.4 Florida
Overview
Florida stands apart from other states in the South Atlantic region in fishing behaviors, history, and demographics. Florida has one of the fastest growing populations in the United States, estimated to increase each day by 750 to 1,000 new immigrants. Twenty-five percent of all vacation homes in the United States are located in Florida's coastal counties (Coastal Ocean Resource Economics 2005).

Along with being heavily populated on land, coastal waters off Florida are also heavily used by recreational users of all kinds. This growth of a leisured class occupying coastal areas has led, in part, to conflicts over natural resource access and use-rights. One example of this type of struggle was the conflict over the use of gillnets in state waters. The conflict culminated in a state-wide ban on the use of gillnets, which dealt a resounding blow to many Florida fishermen, ending in the loss of many commercial fishing properties and the displacement of many fishermen. There have also been conflicts between the "environmental community" and commercial fishermen over the closing of the *Oculina* Bank off of Florida's central coast, and the creation of both the Florida Keys National Marine Sanctuary and the Tortugas Sanctuary, both in the Florida Keys.

The natural geography of Florida also sets it apart from other South Atlantic states, particularly in the area from central Florida through the Keys. The weather is amenable to fishing almost year round, though hurricanes in 2004 and 2005 were particularly devastating and took a toll on all fisheries in the state, both east and west coast. There was also a cold water event that started near West Palm Beach in 2003, which moved up the east coast

causing a substantial decline in snapper grouper fishing that year. The continental shelf is much narrower in Florida than elsewhere in the region, allowing fishermen to access deep waters quickly and return the same day. Finally, the species of snapper grouper available to fishermen in southern Florida are different than further north, with yellowtail snapper, gag and black grouper, and other alternative species such as stone crab, spiny lobster, dolphin, kingfish, and billfish allow a greater variety of both commercial and recreational fishing opportunities. These fisheries are important to many Florida communities identified by the Snapper grouper Advisory Panel as shown in **Figure 3-3**.

Commercial and recreational fishermen in the Florida Keys commonly fish both Gulf and Atlantic sides, and work under dual jurisdiction of the South Atlantic Fishery Management Council and the Gulf of Mexico Fishery Management Council.

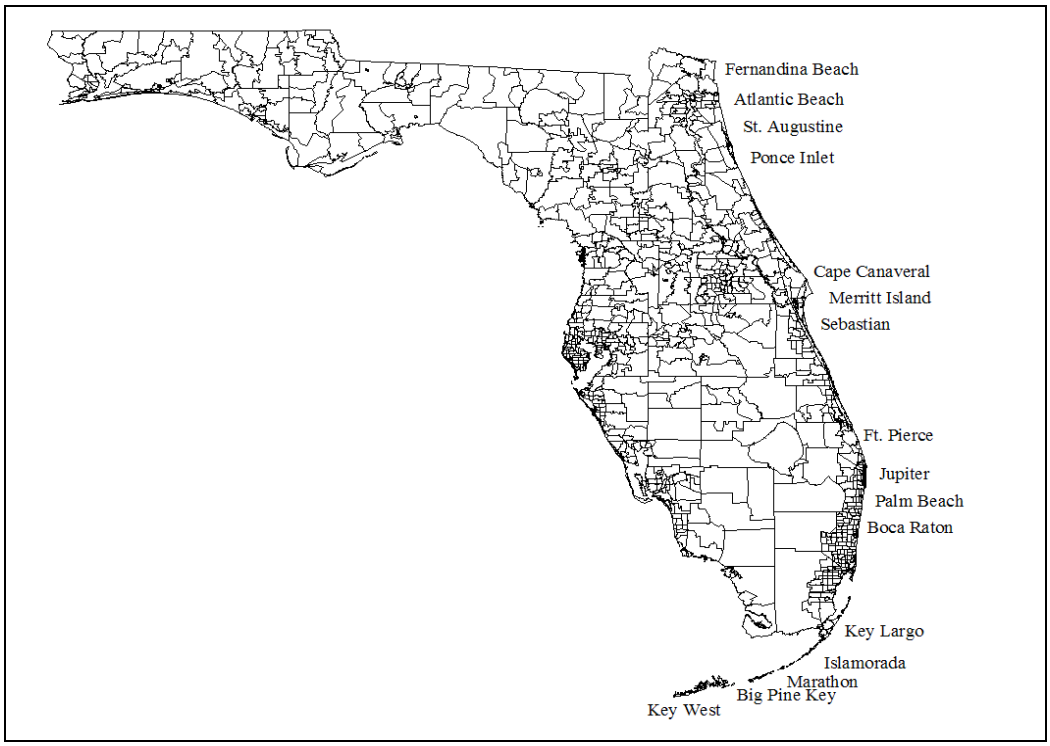


Figure 3-3. Florida communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.

Commercial Sector

Despite the high population growth rates and emphasis on a tourism economy in Florida, the commercial fishing sector in Florida is still robust in some areas. There are several important communities that target snapper grouper species such as Mayport, Jacksonville, and Cocoa Beach, along with Key West and Tavernier in the Florida Keys. Additional detailed information about Florida fishing communities can be found in Amendment 17B (SAFMC 2010b).

In 2010, 589 federal snapper grouper commercial permits were registered to vessels with home ports in Florida (**Table 3-26**). Monroe County (Florida Keys) has the most unlimited and limited permits. Miami-Dade, Palm Beach, Duval, Volusia and Brevard Counties are also home ports for snapper grouper vessels in the state.

Table 3-26. Federal commercial snapper grouper permits in Florida (2010).

Home Port (County)	Unlimited SG Permits	225 lb limit SG Permits	Total SG permits
Brevard	23	4	27
Broward	6	7	13
Duval	35	1	36
Indian River	9	5	14
Martin	10	1	11
Miami-Dade	56	11	67
Monroe	244	68	312
Nassau	2	0	2
Palm Beach	38	18	56
St Johns	12	3	15
St Lucie	8	5	13
Volusia	23	0	23
Total	**466**	**123**	**589**

Commercial harvest of black sea bass is not as prominent in Florida as in North Carolina and South Carolina, but Florida fishermen report that there is more interest in the fishery in more recent years and there are some commercial landings. Monroe County has the highest landings in Florida, followed by Miami-Dade County and Volusia County (**Table 3-27**). It should be noted that while these landings are associated with the listed home ports, the vessels may fish in other areas or states.

Table 3-27. Cumulative black sea bass landings with pots in Florida counties.

County	Cumulative Landings 2008-2010 (lbs WW)
Brevard County	Confidential
Duval County	2,191
Martin County	Confidential
Miami-Dade County	25,086
Monroe County	83,370
St. Johns County	Confidential
Volusia	22,335

Note: This information is based on the home port recorded for the vessel associated with the permit.

Recreational Sector
In 2010 there were 813 federal charter permits for snapper grouper issued to vessels with home ports in Florida (**Table 3-28**). Similar to federal commercial permits, Monroe County held the majority on charter permits, followed by Brevard, Palm Beach, Miami-Dade, Broward, and Volusia Counties.

Table 3-28. Federal charter permits for snapper grouper in Florida (2010).

Home Port (County)	Charter SG Permits
Brevard	85
Broward	52
Duval	20
Flagler	1
Indian River	26
Martin	20
Miami-Dade	63
Monroe	373
Nassau	11
Palm Beach	78
Putnam	2
Seminole	1
St Johns	24
St Lucie	16
Volusia	41
Total	**813**

In 2009, sales of marine recreational fishing license included 646,000 resident licenses and 384,000 non-resident licenses, totaling over $29 million in revenue (Florida Fish and Wildlife Conservation Commission 2011). Florida Fish and Wildlife Conservation Commission also reports that in 2008, eastern Florida recreational anglers took 11 million fishing trips: 6.4 million by private/rental boats, 4.6 million from shore, and 161,000 by party/charter boat.

3.8.2 Environmental Justice Considerations

Executive Order 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This executive order is generally referred to as environmental justice (EJ).

To evaluate EJ considerations for the proposed actions, information on poverty and minority rates is examined at the county level. Information on the race and income status for groups at the different participation levels (vessel owners, crew, dealers, processors, employees, employees of associated support industries, etc.) is not available. Because the proposed actions would be expected to affect fishermen and associated industries in several communities along the South Atlantic coast and not just those profiled, it is possible that other counties or communities have poverty or minority rates that exceed the EJ thresholds.

In order to identify the potential for EJ concern, the rates of minority populations (non-white, including Hispanic) and the percentage of the population that was below the poverty line were examined. The threshold for comparison that was used was 1.2 times the state average for minority population rate and percentage of the population below the poverty line. If the value for the community or county was greater than or equal to 1.2 times the state average, then the community or county was considered an area of potential EJ concern. Census data for the year 2000 were used. Estimates of the state minority and poverty rates, associated thresholds, and community rates are provided in **Table 3-29.**

Table 3-29. Environmental Justice thresholds (2010 U.S. Census data) for counties in the South Atlantic region. Only coastal counties (east coast for Florida) with minority and/or poverty rates that exceed the state threshold are listed.

State	County	Minority Rate	Minority Threshold*	Poverty Rate	Poverty Threshold*
Florida		**47.4**	**56.88**	**13.18**	**15.81**
	Broward	52.0	-4.6	11.7	4.11
	Miami-Dade	81.9	-34.5	16.9	-1.09
	Orange County	50.3	-2.9	12.7	3.11
	Osceola	54.1	-6.7	13.3	2.51
Georgia		**50.0**	**60.0**	**15.0**	**18.0**
	Liberty	53.2	-3.2	17.5	0.5
South Carolina		**41.9**	**50.28**	**15.82**	**18.98**
	Colleton	44.4	-2.5	21.4	-2.42
	Georgetown	37.6	4.3	19.3	-0.32
	Hampton	59.0	-17.1	20.2	-1.22
	Jasper	61.8	-19.9	9.9	-0.92
North Carolina		**39.1**	**46.92**	**15.07**	**18.08**
	Bertie	64.6	-25.50	22.5	-4.42
	Chowan	39.2	-0.1	18.6	-0.52
	Gates	38.8	0.3	18.3	-0.22
	Hertford	65.3	-26.2	23.5	-5.42
	Hyde	44.5	-5.4	16.2	1.88
	Martin	48.4	-9.3	23.9	-5.82
	Pasquotank	43.4	-4.3	16.3	1.78
	Perquimans	27.7	11.4	18.6	-0.52
	Tyrrell	43.3	-4.2	19.9	-1.82
	Washington	54.7	-15.6	25.8	-7.72

*The county minority and poverty thresholds are calculated by comparing the county minority rate and poverty estimate to 1.2 times the state minority and poverty rates. A negative value for a county indicates that the threshold has been exceeded.

Among the communities examined, based on available demographic information, there are no EJ concerns. As noted above, however, there may be additional communities beyond those profiled that could be affected by the actions in this proposed amendment. Because these communities have not been profiled, the absence of additional potential EJ concerns cannot be assumed and the total number of communities that exceed the thresholds is unknown.

However, while some communities expected to be affected by this proposed amendment may have minority or economic profiles that exceed the EJ thresholds and, therefore, may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. No adverse human health or environmental effects are expected to accrue to this proposed amendment, nor are these measures expected to result in increased risk

of exposure of affected individuals to adverse health hazards. The proposed management measures would apply to all participants in the affected area, regardless of minority status or income level, and information is not available to suggest that minorities or lower income persons are, on average, more dependent on the affected species than non-minority or higher income persons.

Black sea bass is an important commercial and recreational fishery throughout the South Atlantic region. The actions in this proposed amendment are expected to incur social and economic benefits to users and communities by implementing management measures that would contribute to rebuilding the black sea bass stock and to maintaining the commercial and recreational sectors of the fishery. Although there will be some short-term impacts due to limitation of participation, and implementation of catch limits and other management measures, the overall long-term benefits of rebuilding the black sea bass stock is expected to contribute to the social and economic health of South Atlantic communities.

Finally, the general participatory process used in the development of fishery management measures (e.g., scoping meetings, public hearings, and open South Atlantic Council meetings) is expected to provide sufficient opportunity for meaningful involvement by potentially affected individuals to participate in the development process of this amendment and have their concerns factored into the decision process. Specifically for the black sea bass fishery, public input has been considered

4 Environmental Consequences

4.1 Action 1: Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass

Overfishing Determination Criteria for Black Sea Bass

The 2007 Reauthorized Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) National Standard 1 Guidelines provide a definition of overfishing that allows overfishing to be determined in two ways, by a fishing mortality rate or by a level of catch:

> § 600.310(e)(2)(i)(B)
>
> *"Overfishing (to overfish) occurs whenever a stock or stock complex is subjected to a level of fishing mortality or annual total catch that jeopardizes the capacity of a stock or stock complex to produce maximum sustainable yield (MSY) on a continuing basis."*

The National Standard 1 Guidelines provide more detail about these two methods, and require that FMPs describe which method will be used to determine an overfishing status:

> § 600.310(e)(2)(ii)(A)
>
> *Status Determination Criteria to determine overfishing status. Each fishery management plan (FMP) must describe which of the following two methods will be used for each stock or stock complex to determine an overfishing status.*
>
> *(1) Fishing mortality rate exceeds maximum fishing mortality threshold (MFMT). Exceeding the MFMT for a period of 1 year or more constitutes overfishing. 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.*
>
> *(2) Catch exceeds the overfishing limit (OFL). Should the annual catch exceed the annual OFL for 1 year or more, the stock or stock complex is considered subject to overfishing.*

The OFL is defined as an annual level of catch that corresponds directly to the MFMT, and is the best estimate of the catch level above which overfishing is occurring. As the black sea bass stock rebuilds, the SSC has indicated OFL would be equal to the yield at F_{MSY} (F = 0.698). After the stock is rebuilt in 2016, the OFL would equal 1,497,000 lbs gw (1,767,000 lbs ww).

MFMT Method - Overfishing is occurring if fishing mortality exceeds the MFMT

Currently, the MFMT method is being used to determine if the black sea bass stock is undergoing overfishing. This method is a more direct way of comparing the current fishing rate to the maximum allowed rate of fishing, and it is less sensitive to recent fluctuations in

recruitment than the OFL method. The estimates of fishing mortality are based on the maximum annual fishing mortality at any age. However, fishing mortality rates cannot be directly measured. They must be calculated as part of a stock assessment or assessment update, thus fishing mortality rates are only available for years when assessments are conducted. The current fishing mortality reported in a Southeast data, assessment, and review (SEDAR) assessment has a lag time of one or more years. The most recent data used in assessments are usually the year prior to the year in which the analysis is conducted, and sometimes two years prior. The current fishing mortality rate for black sea bass in SEDAR 25 (2011) is the average of the most recent years (2009-2010) in the SEDAR assessment. Therefore, use of the "current fishing mortality" rate from a SEDAR stock assessment may not reflect the true status of the stock in years following a stock assessment, particularly if actions are taken to constrain effort and harvest.

OFL Method – Overfishing occurring if annual landings exceed the OFL

The OFL method is based on catch levels that are more easily understood by constituents than fishing mortality. Unlike fishing mortality rates, a determination can be made on an annual basis as soon as catch totals are available. However, the use of the OFL method might not be appropriate for stocks with highly variable recruitment that cannot be predicted and therefore incorporated into the forecast of stock condition on which the OFL is based.

Overfishing Definition for Black Sea Bass

Each of the two methods for determining overfishing has its benefits and drawbacks with MFMT being a better estimate of overfishing status in a year in which a stock is assessed and OFL a better estimate of overfishing status in years when a current estimate of fishing mortality is not available. Therefore, the South Atlantic Council proposes the use of both the MFMT and OFL as a metric to determine the overfishing status of black sea bass.

> **For black sea bass, overfishing will be determined on an annual basis by the MFMT and OFL. The estimate of F_{MSY} (MFMT) for black sea bass from SEDAR 25 is 0.698, while the corresponding OFL values increase as the stock rebuilds through the 2015/2016 fishing year. If either the MFMT (during an assessment year) or the OFL method (during a non-assessment year) is exceeded, the stock will be considered to be undergoing overfishing.**

Listed below are the OFL values for the 2012-2016 fishing years (**Table 4-1**). In the 2011 fishing year, the overfishing status of black sea bass is based on the MFMT.

Table 4-1. OFL values for South Atlantic black sea bass for the 2011 through 2016 fishing years.

Fishing year	Whole weight	Gutted weight
2011/2012	Based on MFMT	
2012/2013	1,529,000	1,295,763
2013/2014	1,644,000	1,393,220
2014/2015	1,830,000	1,550,847
2015/2016	1,947,000	1,650,000
2016/2017	2,021,000	1,712,712

4.1.1 Action 1a. Modify Rebuilding Strategy and Set ABC for Black Sea Bass

Alternative 1 (No Action). Retain rebuilding strategy for black sea bass that maintains a constant catch throughout the remaining years of the rebuilding timeframe. Currently, the ABC for black sea bass = 847,000 pounds whole weight or 717,797 pounds gutted weight. Based on the current regulations in place the commercial ACL is 309,000 pounds gutted weight (gw) and the recreational ACL is 409,000 pounds gw for a combined ACL of 718,000 pounds gw.

Alternative 2. Establish a new constant catch rebuilding strategy with an ABC from the 2011 assessment and SSC review process.

Alternative 3. Define a rebuilding strategy for black sea bass that maintains a constant fishing mortality rate throughout the remaining years of the rebuilding timeframe.

Sub-Alternative 3a. $F = 75\%F_{MSY}$

Sub-Alternative 3b. $F = F_{rebuild}$ (by 2016)

Alternative 4. Define a rebuilding strategy for black sea bass that holds catch constant (847,000 pounds whole weight; recreational ACL = 409,000 lbs gw and commercial ACL = 309,000 lbs gw) in fishing years 2012/2013 and 2013/2014 and then changes to $F_{rebuild}$ fishing mortality rate throughout the remaining fishing seasons of the rebuilding timeframe. After the 2015/2016 fishing season the fishing mortality rate would be held constant until modified.

Preferred Alternative 5. Define a rebuilding strategy for black sea bass that holds catch constant (847,000 pounds whole weight; recreational ACL = 409,000 lbs gw and commercial ACL = 309,000 lbs gw) in fishing years 2012/2013 and 2013/2014 and then changes to $F_{rebuild}$ in 2014/2015. ($F_{rebuild}$ is defined as a constant fishing mortality strategy that maintains the 66% probability of recovery rate throughout the remaining fishing seasons of the rebuilding timeframe.) After the 2015/2016 fishing season the fishing mortality rate would be held constant until modified.

Note: Sector ACLs are based on the allocation formula used in Amendment 13C (SAFMC 2006) whereby the commercial quota is 43% of the TAC and the recreational allocation is 57% of the TAC.

For both the recreational and commercial sectors, ACL paybacks are not required when new projections are adopted that incorporate ACL overages and the ACLs are adjusted in accordance with those projections. Beyond the 2013/2014 fishing season (when the rebuilding strategy switches over to $F_{rebuild}$) for years when there is no assessment, the ACL would not automatically increase if the ACL has been exceeded during the previous fishing year.

Table 4-1a. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014.

Fishing Year	Alternative 1	Alternative 2	Sub-Alternative 3a	Sub-Alternative 3b	Alternative 4**	Preferred Alternative 5
2012/2013	718,000	1,058,475	899,153	899,153	718,000	718,000
2013/2014	718,000	1,058,475	975,424	975,424	718,000	718,000
2014/2015	718,000	1,058,475	1,081,356	1,081,356	1,330,508	***
2015/2016	718,000	1,058,475	1,178,814	1,178,814	1,325,424	***
2016/2017	718,000	1,058,475	1,252,542	1,252,542	1,343,220	***
Probability of Rebuilding by 2016/2017	70%	50%	<50%	50%	50%	66%

Note on values in Table 4-1a, 4-1b and 4-1c: Values under **Alternative 2** are based on Table 3.22 from SEDAR 25 (2011). Landings under **Sub-Alternative 3a** are assumed to equal those in **Sub-Alternative 3b** because the fishing mortality rate (F) for **Sub-Alternative 3a** (F= 0.48) is very similar to F for Sub-**Alternative 3b** (F = 0.52). It is likely that landings under **Sub-Alternative 3a** would be slightly greater than **Sub-Alternative 3b**. Values under **Sub-Alternative 3b** are based on Table 3.16 from SEDAR 25 (2011). Values under **Alternative 4** based on projection provided by the SEFSC dated November 4, 2011, and are based on $F_{rebuild}$ that allows an increase in harvest for 2012 fishing year. Values for 2014 to 2016 in **Preferred Alternative 5** would be determined from an updated assessment. A conversion factor of 1.18 used to convert whole weight values in assessment to gutted weight.

Table 4-1b. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014.

Fishing Year	Alternative 1	Alternative 2	Sub-Alternative 3a	Sub-Alternative 3b	Alternative 4	Preferred Alternative 5
2012/2013	718,000	973,729	746,610	746,610	718,000	718,000
2013/2014	718,000	973,729	881,356	881,356	718,000	718,000
2014/2015	718,000	973,729	1,023,729	1,023,729	1,144,915	***
2015/2016	718,000	973,729	1,134,746	1,134,746	1,212,712	***
2016/2017	718,000	973,729	1,215,254	1,215,254	1,266,102	***
Probability of Rebuilding by 2016/2017	66%	50%	<50%	50%	50%	66%

Table 4-1c. Black sea bass ABCs (lbs gutted weight) for Alternatives 2-5. Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year. SSC approved projections for 2 years and requested an updated assessment before specifying an ABC beyond 2014.

Fishing Year	Alternative 1	Alternative 2	Sub-Alternative 3a*	Sub-Alternative 3b*	Alternative 4**	Preferred Alternative 5
2012/2013	718,000	887,288	604,237	604,237	718,000	718,000
2013/2014	718,000	887,288	788,983	788,983	718,000	718,000
2014/2015	718,000	887,288	963,559	963,559	951,695	***
2015/2016	718,000	887,288	1,088,983	1,088,983	1,082,203	***
2016/2017	718,000	887,288	1,176,271	1,176,271	1,171,186	***
Probability of Rebuilding by 2016/2017	61%	50%	<50%	50%	50%	66%

4.1.1.1 Biological Effects

Southeast Data, Assessment and Review (SEDAR) 25 (2011 Black Sea Bass Stock Assessment)

The following workshops were held for SEDAR 25 to assess black sea bass: April 26-28, 2011, data workshop in Charleston, South Carolina; June 21-23, 2011, assessment workshop in Beaufort, North Carolina; and October 11-13, 2011, review workshop in Charleston, South Carolina. The black sea bass stock assessment was conducted using 70,000 age samples that became available after the 2005 assessment update. Data used in the assessment includes life history data (age, sex, fecundity), discard mortality, natural mortality, and discards. Also used were multiple types of landings data including headboat landings from 1978-2010, Marine Recreational Fisheries Statistics Survey (MRFSS) landings from 1981-2010, commercial landings with handline gear from 1978-2010, commercial black sea bass pot landings from 1983-2010, and commercial trawl landings from 1978-1990. Discards were calculated using data from MRFSS, headboat and commercial logbooks. Indices of abundance were calculated based on the MARMAP survey, headboat landings, headboat at-sea observer discard data, and commercial logbook. Results of the 2011 black sea bass SEDAR 25 stock assessment indicate the stock is no longer overfished but is not rebuilt. The biomass of the stock is above the minimum stock size threshold (MSST), which is the level at which an overfished determination is triggered; however, stock size of black sea bass is below the biomass level at which the stock is considered to be rebuilt (B_{MSY}). Furthermore, the stock is undergoing overfishing to a minor degree according to 2009 and 2010 data ($F_{2009-2010}/F_{MSY} = 1.07$). The projection results, found in **Tables 4-1a-1c** come from SEDAR 25 (2011) and assume that 2011 fishing year landings equal 100% (**Table 4-1a**), 150% (**Table 4-1b**), and 200% (**Table 4-1c**) of the ACL, and the rebuilding probability is 50% by 2016.

The South Atlantic Council's Scientific and Statistical Committee (SSC) met in November 2011 to review SEDAR 25 (2011). The SSC indicated that it was satisfied with data used in the assessment and that uncertainties in the data were sufficiently explored. The SSC endorsed the use of this assessment as representing the best scientific information available.

Information provided to the SSC indicated that the commercial ACL of 309,000 lbs gw had been exceeded by about 5%, and the recreational ACL had been exceeded by at least 10%. Since two months of recreational data had not been provided, the SSC supported an ABC which assumes 150% of the allowable catch will be met in the 2011/2012 fishing year. Furthermore, the SSC stated the ABC should be specified for only the 2012/2013 and 2013/2014 fishing seasons. The SSC indicated an assessment update should be conducted before any adjustments are made to the ACL after the 2013/2014 fishing seasons. The SSC also endorsed the ABC based on a SEDAR projection that has a 50% probability of rebuilding by 2016.

Potential Impacts of Rebuilding Strategy Alternatives

Amendment 17B to the FMP set ABC Scientific and Statistical Committee (SSC) levels for snowy grouper, black sea bass, and red snapper consistent with the rebuilding plans. The Comprehensive ACL Amendment establishes a mechanism for setting ABC commonly referred to as an "ABC control rule" . The ABC for black sea bass is currently 847,000 lbs ww (718,000

lbs gw). Based on the outcome of SEDAR 25, under **Preferred Alternative 5** the ABC would remain at 718,000 lbs gw (847,000 lbs ww) for the 2012/2013 and 2013/204 fishing seasons (**Table 4-1b**).

The current rebuilding strategy **Alternative 1 (No Action)** for black sea bass was specified in Amendment 15A to the FMP (SAFMC 2008a). **Alternative 1 (No Action)** for black sea bass would maintain a constant catch throughout the rebuilding timeframe of 309,000 lbs gw and 409,000 gw for the commercial and recreational sectors, respectively without increasing allowable catch as the stock rebuilds. Like **Alternative 1 (No Action)**, **Preferred Alternative 5** would maintain the constant catch ACL 718,000 lbs gw (847,000 lbs ww) for the commercial and recreational sectors in the 2012/2013 and 2013/2014 fishing years. However, in contrast to **Alternative 1 (No Action)**, **Preferred Alternative 5** would allow catch to move to a constant fishing mortality strategy beginning in the 2014/2015 fishing year, which has a 66% chance of rebuilding the stock by the end of the 2015/2016 fishing year. However, based on the SSC's recommendation, the values for 2014/2015 and beyond would be specified from a future updated assessment. For fishing seasons following the 2013/2014 fishing year, the ACL would not automatically increase in fishing years following an ACL overage when no assessment has been completed.

Because **Alternative 1 (No Action)** and **Preferred Alternative 5** would not allow harvest to increase as the stock improves over the next two fishing seasons these are the most biologically preferable alternatives among the alternatives being considered. Based on 100% harvest of the 2011/2012 quota the black sea bass would have a 70% chance of rebuilding by the end of the 2015/2016 fishing year, based on 150% harvest of the 2011/2012 quota black sea bass would have a 66% chance of rebuilding, and if 200% of the 2011/2012 quota were harvested, black sea bass would have a 61% chance of rebuilding under **Alternative 1 (No Action) (Table 4-1a-1c)**. **Alternative 1 (No Action)** could result in unnecessary discards of black sea bass if harvest can increase while still allowing the stock to rebuild to B_{MSY} by the end of the 2015/2016 fishing year. However, release mortality of black sea bass is low, and actions were taken to reduce bycatch with increased mesh size in pots through Amendment 13C (SAFMC 2006). The recommended discard mortality for the black sea bass being used in SEDAR 25 is 7% for hook-and-line gear, 5% for 1 ½ inch panel black sea bass pots, and 1% for 2 inch panel black sea bass pots. **Preferred Alternative 5** would allow harvest to increase after 2014 if a future update assessment indicates the stock continues to rebuild. Beneficial biological effects include a more rapid rebuilding of the stock and increase in the average age and size structure compared to the other alternatives. Fishing at a lower fishing mortality rate may increase population robustness to environmental perturbations (Rothschild 1986). Also, older and larger females have greater reproductive potential because fecundity increases exponentially with size. Therefore, there is greater potential to more rapidly increase the number of young each year (recruitment) under **Alternative 1 (No Action)**.

Alternative 2 would hold catch constant for the remaining years of the rebuilding plan and the ABC would not increase as the stock biomass increases. The constant catch level under **Alternative 2** would be greater than **Alternative 1 (No Action);** based on projections from SEDAR 25, the catch level could be increased from 718,000 lbs gw (847,000 lbs ww) in the 2011/2012 fishing year to 1,058,475 lbs gw (1,249,000 lbs ww) in 2012/2013 and then held

steady through the remainder of the rebuilding period assuming that 2011/12 fishing year landings equal 100% of the ACL (**Table 4-1a**); values assuming 150% and 200% of the ACL being landed are shown in **Tables 4-1b** and **4-1c** respectively. **Alternative 2** is more conservative than **Alternative 3**, which would allow ABC to increase as the stock rebuilds. However, **Alternative 2** could allow for a greater initial increase in the ABC than would **Alternative 3**. Under **Alternative 2** there is 50% chance the stock could rebuild by the end of the rebuilding schedule. In theory, the net ecological effects of the choice of **Alternatives 1 (No Action)** through **3** would be positive, as the reef community would more closely represent that which would persist in a natural, or undisturbed state and the possibility of ecosystem overfishing would be reduced. As fishing pressure is reduced on the protected stock(s), fishermen may target other members of the reef fish ecosystem, which have fewer fishing restrictions. This displacement of effort may further disrupt community structure. The natural balance of an ecosystem cannot be fully restored as long as the ecosystem is subjected to fishing-related mortality. Additionally, there is some speculation that a disrupted community cannot be restored to pre-existing conditions, because it may change to a new climax community in a post-disturbed condition with a different suite of species.

Alternative 3 would hold the fishing mortality rate constant and allow the catch of black sea bass to increase as biomass increases**.** The current estimate of F_{MSY} is F = 0.698. **Sub-Alternative 3a** would hold the fishing mortality rate at 75% of F_{MSY}, which is very close to the fishing mortality rate under **Sub-Alternative 3b.** The estimate of 75%F_{MSY} is 0.52, which is slightly greater than $F_{rebuild}$ (0.46 to 0.50). There is a 50% probability the stock would rebuild to B_{MSY} under $F_{rebuild}$. Since the fishing mortality rate is slightly greater under F = 75%F_{MSY} than F = $F_{rebuild}$, the probability the stock would rebuild at F = 75%F_{MSY} would be slightly less than 50%. The Magnuson-Stevens Act requires that a rebuilding plan have a least a 50% chance of rebuilding the stock to B_{MSY} in the specified timeframe. Furthermore, the allowable harvest under **Sub-Alternative 3a** would only be slightly greater than **Sub-Alternative 3b**.

The South Atlantic Council had originally chosen **Sub-Alternative 3b** as their preferred rebuilding strategy alternative, which appeared in the draft environmental impact statement, published for public comment on December 9, 2012. **Sub-Alternative 3b** would allow the greatest amount of harvest possible, while still having a 50% chance of rebuilding by 2016. Assuming the allowable catch for the 2011/2012 fishing year is 150% of the ACL, the ABC specified in **Sub-Alternative 3b** would increase each fishing year from the current ABC of 718,000 gw (847,000 ww) to 1,215,254 lbs gw (1,434,000 lbs ww) at the start of the 2016/2017 fishing year when the stock is expected to be rebuilt (**Table 4-1b**). The ABC would not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL specified for the commercial and recreational sectors (Action 1b). **Sub-Alternative 3b** would reduce the number of dead discards slightly relative to the status quo (**Alternative 1 (No Action)**), since there would likely be increased opportunities to retain black sea bass. This option may also extend the fishing season slightly for the commercial and recreational sectors since it would increase the current level of harvest by approximately 28,610 pounds gw (~33,760 ww) in 20122013 based on estimates from SEDAR 25. The South Atlantic Council's SSC endorsed the ABC associated with **Sub-Alternative 3b**, which assumes 150% of the ACL was met in the 2011/2012 fishing year, with the caveat that ABC is specified for only the 2012/2013 and 2013/2014 fishing seasons. However, at their December 2011 meeting the South Atlantic

Council determined a more conservative rebuilding strategy alternative that incorporates a higher probability of rebuilding by the start of the 2016/2017 fishing year is more appropriate for the stock. Therefore, the preferred rebuilding strategy alternative was changed from **Sub-Alternative 3b** to **Preferred Alternative 5**, which would hold catch at the current level for the 2012/2013 and 2013/2014 fishing years, and would have a 66% chance of rebuilding the stock to B_{MSY} by 2016**.** An updated stock assessment would need to be conducted to identify the ABC and ACL levels in years following the 2013 fishing year**.**

Alternative 4 would use a modified F approach for a black sea bass rebuilding strategy, and would have a 50% chance of rebuilding stock by the end of the rebuilding schedule in 2016. This alternative would maintain the status quo landings level for 2 years and then move to the $F_{rebuild}$ level for the remainder of the rebuilding period (**Table 4-1a-1c**). Landings would gradually increase for the remaining years of the rebuilding schedule and would be held constant until modified. Biological impacts of **Alternative 4** would be comparable to **Sub-Alternative 3b** since after the first two fishing seasons the allowable harvest would fall into line with what the allowable harvest would be under $F_{rebuild}$**.**

Preferred Alternative 5 would have a 66% probability of rebuilding and is more biologically conservative than the other alternatives. The values for the 2014/2015 fishing years and beyond would be specified from an updated assessment.

Environmental factors such as weather, currents, and water temperature may affect the survival of eggs and larvae, causing poor recruitment even when large numbers of offspring are produced. Thus, alternatives, which allow the population to more rapidly attain a greater number of older, larger fishes in the population, also provides additional protections against recruitment failure due to several years of poor environmental conditions for eggs and larvae, creating a more robust population. Delaying rebuilding could make stocks more susceptible to adverse environmental conditions that might affect recruitment success, or to unanticipated errors in parameter estimates, which could result in excessive fishing.

Rebuilding strategy alternatives that do not allow increased harvest as the stock rebuilds could be more beneficial to endangered and threatened species than those alternatives that would allow harvest to increase as the stock rebuilds. In the last two years, the commercial quota for the June-May fishing year has ended prior to the North Atlantic right whale migration and calving season thus reducing the risk to critically endangered right whales from entanglement in black seas bass pot vertical lines. Right whale calving season off North Carolina is November 1 - April 30, and November 15 - April 15 off South Carolina, Georgia, and Florida. Furthermore, it is likely the recreational ACL for black sea bass for the June 1, 2012 to May 31, 2013 would be met in October 2012 given the preferred alternative for the reduced number of endorsements in Action 2 and the preferred trip limit alternative in Action 9. Increasing harvest over time could extend the fishing seasons for the commercial and recreational sectors so that they overlap with the timing of the North Atlantic right whale migration and calving season. Allowing a higher level of harvest, especially in the black sea bass pot sector, could eventually lead to the presence of pot gear along the right whale migration and in calving grounds. The co-occurrence of large whales and vertical lines associated with black sea bass pot gear could increase the risk of entanglement. The risk of vertical line interactions with endangered large whales could be

reduced if trap pot lines in the water column were significantly reduced. Some of the actions proposed in this amendment (i.e., seasonal closures, trap retrieval requirements, etc.), if implemented, could potentially reduce the risk of entanglement to large whales. However, it is currently unclear how great a reduction in entanglement risk would be achieved by these actions.

4.1.1.2 Economic Effects

Modifying the rebuilding strategy for black sea bass would not directly alter the current harvest or use of the resource. Since there would be no direct effects on resource harvest or use, there would be no direct economic effects on fishery participants, associated industries or communities. Direct economic effects only accrue to actions that alter harvest or other use of the resource. Specifying a rebuilding strategy, however, would establish a course of action that would condition future management adjustments. In this sense, specifying or modifying a rebuilding strategy may be considered to have indirect economic effects on fishery participants.

Although the economic impacts of management adjustments due to any of the rebuilding strategy alternatives will be evaluated at the time they are proposed, there are some general economic statements that may be made about the various alternatives. Under a constant catch strategy (**Alternative 1** (**No Action**)) and **Preferred Alternative 5**, the ACL would likely be reached sooner when the stock starts to rebuild. This would likely trigger AM applications that would have adverse short-term economic consequences. What would baffle many fishing participants in this case is the application of stringent regulatory measures when more fish are observed in the waters and the rate of harvest has been increasing.harvested. In general, however, ACLs would be increased over time when scientifically justified.

Alternative 1 (No Action) potentially would have the greatest negative economic impact for commercial fishermen. As the stock recovers and there are a greater number of larger fish, the current commercial ACL is being caught more quickly each year. The commercial season that began on June 1, 2011, lasted only about 6 weeks. When fishermen land the entire ACL in such a short period of time it tends to result in depressed ex-vessel prices paid to the fishermen. If the commercial ACL remains at the current level and actions are not taken to reduce the number of individuals who fish with black sea bass pots, future seasons could be as short or shorter resulting in more derby-style fishing, which could result in lower ex-vessel price at the dock. **Preferred Alternative 5**, which would hold catch at current levels for the 2012-2013 and 2013-2014 fishing years, and **Alternative 2**, which holds catch at a different constant level during the remainder of the rebuilding period, would have similar effects to **Alternative 1 (No Action**.

Under constant F rebuilding strategy (**Alternative 3**), ACLs would generally increase with a rebuilding stock. The advantage of this strategy is as more fish become available with increased stock size, more fish can be removed from the population. Of course, some uncertainties remain especially if results from more recent stock assessments differ significantly from those of the previous ones. A rebuilding strategy based on constant fishing mortality could provide relatively more stable ACL configuration over the rebuilding period. This could allow fishing participants to plan their fishing operations/activities over a longer time horizon.

Alternative 3 would not provide as much of a negative economic impact to commercial fishermen as would **Alternative 1 (No Action)** in that it would adjust the F at a constant level for the remaining years of the rebuilding schedule. As long as the stock status is improving, this alternative would result in allowing the fishermen to catch more fish as the stock rebuilds, resulting in increased catch levels, and presumably greater profit. However, any increase in profit realized from a larger commercial ACL that could result from this alternative could be offset if the derby fishery continues as it did in 2011. The provision for the ACL not to automatically increase in the year following one where the total ACL is exceeded would provide some cushion for the rebuilding to remainbe on track. There is a possibility that this cushion may be excessive, since rebuilding the stock would still be on track so long as the ACL overage is less than the planned increase. It may be noted, however, that the provision pertains only to an automatic increase and so would not necessarily preclude the South Atlantic Council and NOAA Fisheries Service from implementing an ACL increase, possibly equal to the planned ACL increase in the current year less than the ACL overage in the previous year. **Sub-Alternative 3a** is associated with less than 50 percent probability of rebuilding the stock within the rebuilding timeframe, and so may not be a viable alternative due to requirements of the Magnuson-Stevens Act. **Sub-Alternative 3b** has a 50 percent probability of rebuilding the stock, but would provide for an ACL less than that of **Sub-Alternative 3a**. In the short-run, **Sub-Alternative 3a** may provide for better economic scenario than **Sub-Alternative 3b**; the reverse may be expected over the long-run.

Alternative 4 has the potential to provide the greatest economic benefit to the fishermen as the commercial ACL could increase due to adjustments to F as the stock rebuilds. Like with **Alternative 3**, the potential economic benefits of **Alternative 4** could be offset by other fishery characteristics such as continued short derby-style seasons. The potential advantage of **Alternative 4** over **Alternative 3** is the possibility of allowing for an increasing fishing mortality over time to the extent the rebuilding target is met at the end of the rebuilding period. Thus, ACLs could also increase over time under **Alternative 4** more than under **Alternative 3**. Given the current conditions of relatively low ACLs and fishery closures, a higher ACL may be expected to provide more economic benefits.

Preferred Alternative 5 would have impacts equal to **Alternative 1 (no action)** and **4** for the first two years. The value for 2014/2015 and beyond is expected to be similar to **Alternatives 3** and **4. Preferred Alternative 5** has a 66% probability of rebuilding and would have the highest long term economic benefits.

Based on past discussions/actions of the South Atlantic Council and NOAA Fisheries Service, a constant catch strategy would generally start with a higher ACL than a constant fishing mortality strategy (**Alternative 2**). Hence, in the short-term the economic implications of a constant catch strategy would be better than those of the constant fishing mortality strategy (**Alternative 3**). Over time ACLs under a constant fishing mortality strategy would increase and may eventually be higher than those under a constant catch strategy. This becomes then a classic case of comparing the economic benefits over time of a constant catch strategy to those of a constant fishing mortality strategy. At present, dataare not available to make the comparison.

4.1.1.3 Social Effects

The rebuilding strategies for overfished stocks, such as black sea bass, require trade-offs of long-term and short-term biological benefits, which are directly tied to long-term and short-term social benefits. A more conservative rebuilding strategy would likely result in short-term negative social impacts such as loss of income and decreased fishing opportunities due to lower target fishing mortality. However, the resulting larger sustainable biomass once the stock is rebuilt is expected to produce long-term social benefits, including stable and sustainable livelihoods for commercial fishermen and the for-hire sector; consistent product for fish houses and restaurants; and private recreational fishing opportunities.

Alternative 1 (No Action) would maintain the current constant catch rebuilding strategy and not allow harvest to increase during the rebuilding period, which with the expected long-term biological benefits would also likely result in the most substantial long-term social benefits. Conversely, the most substantial short-term social effects that could negatively impact fishermen due to limited harvest are most likely with **Alternative 1 (No Action)**. **Alternative 2** would establish a new constant catch rebuilding strategy with an ABC that is lower or higher than the current ABC, based on SEDAR 25 projections.

Alternatives 3 and **4** both incorporate flexibility into the rebuilding plan for black sea bass. Although **Alternatives 1 (No Action)** and **2** are expected to result in long-term social and biological benefits from rebuilding black sea bass, there is a possibility that the harvest limit is more restrictive than necessary. By allowing adjustments as the stock increases under **Alternatives 3** and **4**, there would likely be more fishing opportunities, employment opportunities, and sustained participation in the black sea bass fishery. **Sub-Alternative 3a** and **Sub-Alternative 3b** use different fishing mortality rates, but result in similar harvest limits, and would have similar social effects. **Preferred Alternative 5** would use a similar method as **Alternative 4** except with a fishing mortality that would allow the 66% probability of rebuild to be met, and would be expected to produce similar effects on the fishermen.

4.1.1.4 Administrative Effects

Alternative 1 (No Action) would not adjust the current rebuilding strategy according to the outcome of the new SEDAR 25 assessment. There would be no change to the current ABC, which is the harvest level defined under the current rebuilding plan, and the total ACL would not increase to allow more harvest between now and when the rebuilding schedule ends in 2016. The progressive shortening of the commercial and recreational fishing seasons would likely continue and require the continued distribution of closure notices for each sector as their ACLs are met before the end of the fishing season. **Preferred Alternative 5** would allow for changes to the ACL after the 2014 fishing year; therefore, the administrative effects of **Preferred Alternative 5** would be greater than **Alternative 1 (No Action)**. **Alternative 2** would hold catch constant, but that catch level would likely be higher than the current catch level based on preliminary results from the draft assessment report for SEDAR 25. Both sectors may still harvest the ACL, though higher it may be, before the end of the fishing season; and thus would result in the same administrative tasks needed to notify the fishery of subsequent in-season closures as identified under **Alternative 1 (No Action)**. **Alternative 3** and its sub-alternatives

could result in administrative impacts associated with notifying the fishery of annual increases to the ACLs as well as in-season closure notices if the ACLs continue to be harvested before the end of the fishing season. Therefore, **Alternative 3** is likely to result in the greatest administrative cost and time burden when compared to the other two alternatives under consideration.

4.1.2 Action 1b. Set an ACL for the Black Sea Bass

Alternative 1 (No Action). Do not change the existing ACL for black sea bass.

Preferred Alternative 2. Set ACL = ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Alternative 3. Set ACL = 90%ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Alternative 4. Set ACL = 80%ABC = OY. This results in sector ACLs based on the existing allocations. ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Table 4-2. Annually increasing ACLs (lbs gutted weight) based on Constant Catch shifting to Constant F rebuilding strategy (Action 1a, Preferred Alternative 5). ACL values after 2014 will be determined from an update assessment.
Note: ACLs will not increase automatically in a subsequent year if the present year's projected catch has exceeded the total ACL.

Constant Fishing Mortality Rate Options	Fishing Season	Combined ACL	Com. ACL (43%)[1]	Recreational ACL (57%)
Preferred Alternative 2 ACL=ABC=OY	2012/2013	718,000	309,000	409,000
	2013/2014	718,000	309,000	409,000
Alternative 3 ACL=90%ABC	2012/2013	646,200	277,866	368,334
	2013/2014	646,200	277,866	368,334
Alternative 4 ACL=80%ABC	2012/2013	574,400	246,992	327,408
	2013/2014	574,400	246,992	327,408

[1]Sector ACLs are based on the allocation formula used in Amendment 13C (SAFMC 2006) whereby the commercial quota is 43% of the TAC and the recreational allocation is 57% of the TAC.
* Values for 2014/2015 to 2016/2017 in **Preferred Alternative 2** would be determined from an updated assessment.

Table 4-3a. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1a). Based on projections that assume 100% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year.

Fishing Season	Fishing Mortality Rate	Combined ACL	Commercial ACL (43%)	Recreational ACL (57%)
2012/2013	0.382	718,000	309,000	409,000
2013/2014	0.324	718,000	309,000	409,000
2014/2015	0.55	1,330,508	572,118	758,390
2015/2016	0.55	1,325,424	569,932	755,492
2016/2017	0.55	1,343,220	577,585	765,635

Values based on projection conducted by the SEFSC dated November 4, 2011.

Table 4-3b. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1a). Based on projections that assume 150% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year.

Fishing Season	Fishing Mortality Rate	Combined ACL	Commercial ACL (43%)	Recreational ACL (57%)
2012/2013	0.458	718,000	309,000	409,000
2013/2014	0.372	718,000	309,000	409,000
2014/2015	0.51	1,144,915	492,313	652,602
2015/2016	0.51	1,212,712	521,466	691,246
2016/2017	0.51	1,266,102	544,424	721,678

Values based on projection conducted by the SEFSC dated November 4, 2011.

Table 4-3c. ACLs (lbs gutted weight) based on annually modified F (Alternative 4, Action 1a). Based on projections that assume 200% of ACL (commercial and recreational) met in June 2011-May 2012 fishing year.

Fishing Season	Fishing Mortality Rate	Combined ACL	Commercial ACL (43%)	Recreational ACL (57%)
2012/2013	0.567	718,000	309,000	409,000
2013/2014	0.436	718,000	309,000	409,000
2014/2015	0.46	951,695	409,229	542,466
2015/2016	0.46	1,082,203	465,347	616,856
2016/2017	0.46	1,171,186	503,610	667,576

Values based on projection conducted by the SEFSC dated November 4, 2011.

4.1.2.1 Biological Effects

Alternative 1 (No Action) would not change the existing ACL and OY for black sea bass. Based on a recommendation from the South Atlantic Council's SSC, Amendment 17B indicates that the ABC for overfished stocks is consistent with the value from the rebuilding plan. The Comprehensive ACL Amendment adopted this definition of ABC for overfished stocks into the ABC Control Rule. The ABC for black sea bass is 718,000 lbs gw, which is equivalent to the ACL. Currently, the ACL for black sea bass is equal to the ABC. Amendment 15A specified an OY to equal the average yield associated with fishing at 75% of F_{MSY}. If the stock is overfished,

Amendment 15A indicates F_{OY} equals the fishing mortality rate specified by the rebuilding plan designed to rebuild the stock to SSB_{MSY} within the approved schedule.

Alternatives 2 (Preferred)-4 would set OY equal to the ACL. National Standard 1 (NS1) establishes the relationship between conservation and management measures, preventing overfishing, and achieving OY from each stock, stock complex or fishery. The NS1 guidelines discuss the relationship of the overfishing limit (OFL) to maximum sustainable yield (MSY) and annual catch target (ACT) or ACL to OY. The OFL is an annual amount of catch that corresponds to the estimate of maximum fishing mortality threshold (MFMT) applied to a stock or complex's abundance; MSY is the long-term average of such catches. The ACL would be the limit that triggers accountability measures (AMs), and ACT, if specified, would be the management target for a fishery. Management measures for a fishery should, on an annual basis, prevent the ACL from being exceeded. The long-term objective is to achieve OY through annual achievement of an ACL or ACT. The NS1 guidelines state that if OY is set close to MSY, the conservation and management measures in the fishery must have very good control of the amount of catch in order to achieve the OY without overfishing. Setting OY equal to ACL would provide greater insurance that OY is achieved, overfishing is prevented, and the long-term average biomass is near or above B_{MSY}.

Under **Alternative 2 (Preferred)**, the ACL and OY would be based on the ABC for black sea bass from SEDAR 25, which takes into consideration scientific uncertainty to ensure catch is maintained below a MSY/OFL level. **Preferred Alternative 2** is the least conservative option of all the alternatives under consideration in **Action 1b** by setting the ACL/OY equal to the ABC. The ACL would be divided into sector-specific ACLs based on the allocations of 43% commercial/57% recreational established in Amendment 13C to the FMP (**Table 4-2**). **Tables 4-3a-3c** illustrate the sector specific ACLs based on **Alternative 4** in **Action 1a**.

Preferred Alternative 2 would result in the greatest increase in overall allowable harvest over time while still allowing the stock to rebuild (**Table 4-3a-3c**). **Preferred Alternative 2** would also provide no buffer between the ABC and the ACL. Creating a buffer between the ACL/OY and ABC would provide greater assurance that overfishing is prevented and the long-term average biomass is near or above B_{MSY}. However, the ABC is based on the preferred rebuilding strategy alternative in Action 1a, which has a 66% chance of rebuilding the stock to SSB_{MSY} by the end of the 2015/2016 fishing year, and takes into account scientific uncertainty from the assessment. The NS1 guidelines indicate ACLs may be set very close to the ABC. Setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. ACTs, which are not required, can also be set below the ACLs to account for management uncertainty and provide greater assurance overfishing does not occur. The preferred alternative in **Action 1d** would establish an ACT for the recreational sector.

The higher the overall ACL is each year the greater the chance of the fishing season being extended beyond the time it has taken the fishery to harvest the ACLs in the past. Along with the preferred trip limit of 1,000 pounds gw (1,180 lbs ww; **Action 9**) and the proposed endorsement program (**Action 2**), the fishing season could potentially be extended enough to overlap with the North Atlantic right whale calving season. The greater the probability that vertical lines

associated with black sea bass pot gear is present at the same time as migrating right whales off the east coast, the greater the risk of entanglement for right whales, or other large whales in the area. Therefore, **Preferred Alternative 2** could result in the lowest biological benefit to right whales when compared to **Alternatives 3** and **4** if the black sea bass fishing season is extended into the right whale calving season. **Preferred Alternative 2** would also be expected to have a lower biological benefit to black sea bass than **Alternatives 3** and **4** since **Preferred Alternative 2** allows for the highest catch. However, **Preferred Alternative 2** identifies a harvest level for black sea bass that is expected to be sustainable and would not negatively impact the stock.

Alternative 3 would establish an ACL based on 90% of the ABC, which would result in a slightly more conservative ACL level and would leave a 10% buffer between ABC and the ACL. Choosing an ACL that is 90% of ABC may also increase the chance that the stock would rebuild within the required timeframe. **Alternative 4** is the most risk adverse approach to setting a total ACL for black sea bass. **Alternative 4** would result in 80% of the ABC being designated as the ACL. This alternative is the most likely to rebuild the stock before the end of the 2015/2016 fishing year rebuilding schedule end date, and is therefore, considered the most biologically beneficial. **Alternative 4** would also increase the ACL by the least amount over time, and would ultimately be responsible for extending the fishing season by the least amount of time compared to other alternatives under consideration. As the length of the fishing season is reduced, the potential for large whale entanglements also decreases. Conversely, the more the fishing season over laps the period of the year that large whales are more prevalent in the South Atlantic region, the greater the potential increase in entanglements.

4.1.2.2 Economic Effects

Since an ACL is a major constraint in the harvest or use of the black sea bass resource, **Preferred Alternative 2**, which provides for the highest ACL, would be expected to impose the least constraint on fishing activities. In principle, **Preferred Alternative 2** would allow the commercial and recreational fishing sectors to generate the largest short-term economic benefits from the use of the resource. Inasmuch as this alternative would still allow for the stock to rebuild within the rebuilding timeframe, benefits due this alternative may be expected to persist over time. Along similar reasoning, **Alternatives 3** and **4** would allow for lower economic benefits than **Preferred Alternative 2**, at least in the short term. Unless the stock rebuilds significantly faster under **Alternatives 3** or **4** so that ACLs could be substantially increased much sooner, long-term economic benefits derivable from these two alternatives would be lower than those from **Preferred Alternative 2**.

There exist certain issues which may tend to limit the economic benefits from higher and increasing ACLs over time, particularly in conjunction with other restrictions on the fishery such as trip limits and size limits. If higher ACLs were able to effectively extend the fishing season for black sea bass, gear interactions with whales during the calving season may occur. If such events transpire, additional restrictions may be imposed on the fishery. If higher ACLs were maintained and, for example, seasonal/area closures were imposed, trip limits may be adjusted higher and size limits may be decreased to allow the commercial and recreational sectors to harvest their respective ACLs. Possibly, more fish would be harvested by the commercial sector over a short period of time, which may in turn lead to lower ex-vessel prices for black sea bass,

lower vessel revenues, and likely lower profits over time. A management system that could effectively rationalize effort in the sense of being redirected to the open season/area at the same or lower cost and with minimal market disruption would be necessary to allow higher ACLs to result in larger economic benefits over the long term.

4.1.2.3 Social Effects

Although an administrative action, defining the OY for a species or species complex establishes a management target for allowable harvests. If defined as a percentage (less than one) of the maximum sustainable yield, the target would incorporate a protective buffer to help ensure the biological health of the resource is not threatened, thereby helping support stable environmental, economic, and social benefit streams. The larger the buffer, the greater the certainty of biological protection. However, an excessively large buffer (i.e., a buffer that exceeds the biological variability of the resource, environmental challenges, and potential for fishery-induced problems) would result in overly restrictive harvest allowances, leading to foregone social benefits. While none of the relevant biological parameters are ever likely known with certainty, the best OY specification would be expected to balance the risk and costs of being insufficiently conservative against the costs of potentially unnecessarily "leaving fish in the water", all decisions on which incorporate best available knowledge of the biology of the resource, environmental challenges, and the harvest capabilities of the fishing sectors. **Preferred Alternative 2** sets the OY equal to the ACL, which establishes a buffer between the ACL/OY and the MSY/OFL level and could result in underutilized resource. In regard to the ACL, in general the higher the ACL, the greater the short-term social and economic benefits that would be expected to accrue, assuming long-term recovery and rebuilding goals are met. Adhering to stock recovery and rebuilding goals is assumed to result in net long-term positive social and economic benefits. **Alternative 1 (No Action)** would retain the current ACL for black sea bass, and likely would lead to foregoing long-term social benefits. **Preferred Alternative 2** sets the ACL equal to the ABC, the highest possible ACL, and would result in fewer short-term social impacts than under **Alternatives 3** and **4**, which each set the ACL at a percentage of the ABC.

4.1.2.4 Administrative Effects

Alternative 1 (No Action) would not modify the current ABC, ACL, or OY for black sea bass, and the current situation of progressively shortened fishing seasons would be perpetuated. Under this scenario, there would be no change in administrative burden from the status quo since notices would continue to be required to inform fishery participants of in-season closures. Administrative impacts of **Alternatives 2 (Preferred)**, **3,** and **4**, would be the same since each would modify the current ABC, ACLs, and OY by varying degrees of biological conservativeness. The same administrative tasks such as in-season closure notices, and notification of increased ACLs would be required for each alternative. The only difference between the three alternatives is poundage associated with each ACL increase. Therefore, no single alternative under **Action 1b** would incur a greater or lesser administrative impact than the other alternatives under consideration.

4.1.3 Action 1c. Set Annual Catch Targets (ACTs) for the Commercial Black Sea Bass Sector

Preferred Alternative 1 (No action). Do not set an ACT for the commercial black sea bass sector.

Alternative 2. Set the commercial ACT = 90% of the commercial sector ACL.

Alternative 3. Set the commercial ACT = 80% of the commercial sector ACL.

Table 4-4. Values for Commercial ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014.

Fishing Year	Commercial ACL	Preferred Alternative 1	Alternative 2	Alternative 3
2012/2013	309,000	309,000	278,100	247,200
2013/2014	309,000	309,000	278,100	247,200

* Values for 2014/2015 to 2016/2017 would be determined from an updated assessment

4.1.3.1 Biological Effects

Preferred Alternative 1 (No Action) would not establish a commercial ACT. The South Atlantic Council felt a commercial ACT for black sea bass was not needed because commercial sector landings are closely tracked in-season through a quota monitoring system and project when the ACL is going to be met in order to close the fishery before the ACL is exceeded. For this reason, the South Atlantic Council chose not to establish ACTs for the commercial sector of other snapper grouper species in the Comprehensive ACL Amendment. Therefore, a commercial ACT for black sea bass is not necessary for the successful management of the commercial sector for black sea bass, and could result in an unnecessary administrative burden. Setting a commercial ACT at either 90% or 80% of the ACL (**Alternatives 2** and **3,** respectively), would establish a reference point that could be used as an indicator that the ACL could be reached or exceeded.

Establishing an ACT that is 80% of the ACL may be perceived as a more conservative target level of harvest than an ACT that is 90% of the ACL. However, because no corrective or preventive action would be triggered once an ACT is met or projected to be met; no direct biological impact would be expected. Alternately, if tracking the ACT through time reveals a trend in ACT and ACL overages, the entire system of ACTs and ACLs would be reevaluated and some corrective action may be linked to the ACT in the future to prevent the ACL from being exceeded. The NS1 guidelines recommend a performance standard by which the efficacy of any system of ACLs and AMs can be measured and evaluated. According to the guidelines:

> *…if catch exceeds the ACL for a given stock or stock complex more than once in the last four years, the system of ACLs and AMs should be re-evaluated, and modified if necessary, to improve its performance*

and effectiveness (74 FR 3178).

If an evaluation concludes that the ACL is being chronically exceeded, and post-season AMs are repeatedly needed to correct for ACL overages, any changes to the system of ACTs, ACLs, and associated AMs could be done through a regulatory amendment based on the framework procedures for the snapper grouper fishery. The updated framework procedure implemented through Amendment 17B (SAFMC 2010b) could be utilized to modify management measures such as bag limits, trip limits, seasonal closures, and gear prohibitions in a timely manner. Using the regulatory amendment process to implement such changes, if needed, is the most timely method of addressing issues associated with repeated ACL overages through permanent regulations.

Establishing a commercial ACT is not expected to negatively impact any species listed under the Endangered Species Act (ESA). Because the ACT alternatives would be used as management reference points rather than actionable limits on fishing, no biological benefit on endangered or threatened species or the habitats thereof are expected from this action.

4.1.3.2 Economic Effects

The greatest economic benefit for commercial fishermen would be to set an ACT as close to the ACL as possible. If an ACT was exceeded and accountability measures were triggered, any gains from the excess landings in one year would be offset by potential reductions in the next. It is in the commercial fishermen's best economic interest to catch the total landings allowed by an ACT, or the ACL if ACT = ACL. Setting an ACT lower than the ACL may prevent future overage paybacks, but will limit potential economic gains in each fishing year.

4.1.3.3 Social Effects

It is the setting of an ACT where social and economic considerations might enter the equation as management uncertainty is evaluated. Setting ACTs is utilized in fisheries where there may be management uncertainty that adds risk to reaching target harvest levels beyond the biological risks. It usually entails a further reduction in harvest levels to ensure catch remains at or below the ACL and does not wildly fluctuate. For fisheries where information is scarce and management is uncertain, it becomes a real possibility that there can be negative short term impacts that may not have been necessary if thresholds are too restrictive. In other fisheries, which have more certainty in management and monitoring of catch, a more precise harvest level can be set with certainty and reduce volatility in the fishery. Additionally, the ACT is associated with the AMs, which can have significant impacts on the social environment if the AMs include restrictions or closures.

Preferred Alternative 1 would not impose that buffer through the ACT and is less restrictive than **Alternatives 2** or **3**. With **Alternatives 2** and **3,** a buffer could be imposed which would reduce the harvest threshold further from the ACL. Therefore there is an increasing possibility of negative short-term social effects going from **Preferred Alternative 1** to **Alternative 3**. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Although these are common responses to

closures, it is not known how fishermen may respond if closures are anticipated for several different species or groups. There could be a domino effect as one closure forces them to switch to another species which closes as thresholds are met with the added fishing pressure. However, under **Preferred Alternative 1** there may be long-term social impacts due to an overage that would not result in an increase in the subsequent year's ACL for black sea bass.

4.1.3.4 Administrative Effects

Preferred Alternative 1 (No Action) would not establish an ACT for the commercial sector. Because the commercial sector for the black sea bass segment of the snapper grouper fishery is already tracked through the quota monitoring system, in-season management for the commercial sector is feasible without the use of an ACT. Establishing an ACT for the commercial sector as would be done under **Alternatives 2** and **3**, would result in an increased administrative burden beyond the status quo, since an additional reference point would need to be monitored. Because the commercial sector is monitored through the quota monitoring system, the use of an ACT would result in a currently unnecessary administrative burden. If the South Atlantic Council should determine the use of an ACT is appropriate in the future, they may choose in implement a commercial ACT through a framework action/regulatory amendment based in the updated framework procedures for the snapper grouper fishery included in Amendment 17B (SAFMC 2010b).

4.1.4 Action 1d. Set Annual Catch Targets (ACTs) for the Recreational Black Sea Bass Sector

Alternative 1. No action. Do not set an ACT for the recreational black sea bass sector.

Alternative 2. Set the recreational ACT = 85% of the recreational sector ACL.

Alternative 3. Set the recreational ACT = 75% of the recreational sector ACL.

Preferred Alternative 4. The ACT equals recreational ACL*(1-PSE) or recreational ACL*0.5, whichever is greater.

Table 4-5. Values for Recreational ACT based on Preferred Alternative 2 in Action 1b. SSC approved projections for 2 years; an updated assessment would be conducted before specifying an ABC beyond 2014.

Fishing Year	Recreational ACL	Alternative 2	Alternative 3	Alternative 4
2012/2013	409,000	347,650	306,750	357,548
2013/2014	409,000	347,650	306,750	357,548

4.1.4.1 Biological Effects

Tracking landings in the recreational sector can be a difficult task given the level of uncertainty associated with recreational landings data. An ACT for the recreational sector could be used as a management reference point to track performance of recreational management measures. Though none of the ACT alternatives are associated with a corrective or preventative action, they could be used to trigger such harvest control actions in the future when recreational data can be used for in-season management, if the South Atlantic Council feels it is appropriate. **Alternative 1 (No Action)** would not establish an ACT for the recreational sector, and therefore, would not benefit the biological environment by creating a management reference point more conservative that than of the sector ACL.

Alternatives 2 – Preferred Alternative 4 would establish reduced harvest levels designed to hedge against an ACL overage and therefore, provide a buffer between the ACT and ACL, and account for management uncertainty. **Alternative 2** would establish an ACT that is 85% of the sector ACL, which would create a 15% buffer between the two harvest levels. If the ACT under **Alternative 2** is exceeded repeatedly and the ACL is also exceeded, the South Atlantic Council may consider associating some type of AM with the ACT in order to prevent continued ACL overages for the sector. The same applies to **Alternative 3**, which would establish an ACT at a more conservative level than **Alternative 2** at 75% of the ACL. Under **Alternative 3** the buffer between the ACL and ACT would be greater than that under **Alternative 2**, and theoretically there would be more time to act to prevent the ACL from being exceed if the South Atlantic Council were to link an AM to the ACT in the future. As stated previously, tracking recreational landings in-season is currently extremely difficult given variables such as the time between reporting and processing of landings data, and data collection methods under the MRFSS. Improvements are being made to the recreational landings tracking system in the new Marine Recreational Information Program (MRIP).

Preferred Alternative 4 would have the greatest biological benefit of the four alternatives by adjusting the ACL by 50% or one minus the average Percent Standard Error (PSE) from the recreational fishery for 2005-2009, whichever is greater. Annual values of PSE for black sea bass during 2005-2009 were: 11.7; 13.2; 11.9; 13.5; and 12.6 for an average of 12.58. The lower the value of the PSE the more reliable the landings data. By using PSE in **Preferred Alternative 4**, more precaution is taken in the estimate of the ACL with increasing variability and uncertainty in the landings data. If preventative AMs are linked to an ACT, establishing an ACT below the recreational ACL could also reduce the need to close or implement post-season AMs that are meant to correct for an ACL overage if management measures are specified to limit expected catches to the ACT.

The ACT would serve as a performance measure. If the ACT is continually exceeded, additional AMs may need to be implemented to reduce harvest pursuant to National Standard 1 guidelines for performance standards. If it was determined by the South Atlantic Council and its SSC that the management measures in place are not constraining catch to a target level, adjustments could be made through a future regulatory amendment.

4.1.4.2 Economic Effects

At present, ACTs are mainly used as a management reference point to track performance of the management measures imposed on the recreational sector. In the event they are used to trigger certain control measures on the recreational sector, they would in effect act like ACLs though in a more restrictive way. Their economic effects then would be similar in nature, not necessarily in magnitude, to those of the ACL alternatives. Under such condition, **Alternative 1 (no action)** would have the same effects as any of the ACL alternatives. If ACL were equal to ABC, **Alternative 2** would be less restrictive than some of the ACL alternatives while **Alternative 3** and possibly **Preferred Alternative 4** would be more restrictive. If ACL were lower than ABC, then **Alternatives 2, 3,** and **Preferred Alternative 4** would be more restrictive than any of the ACL alternatives. The short-run positive (negative) economic effects of ACTs would generally be smaller (larger) than those of the ACL alternatives.

There is some expectation that ACTs used to trigger control measures would serve as cushions to effectively limit harvests and enable the stock to rebuild within the rebuilding timeframe. Long-term economic benefits would then ensue from a healthy stock. So long as long-term economic benefits outweigh short-term costs, the fishing industry and society in general would be better off. Realization of long-term economic benefits depends on a host of factors, including the type of management regime adopted. These factors render relatively uncertain the long-term economic outcome of ACTs, at least from the standpoint of magnitudes. It appears that a prudent action to take would be to properly manage short-term costs. Relatively large short-term costs, such as those that may occur under more restrictive ACTs (e.g., **Alternative 3**), may not be totally outweighed by long-term benefits. There is therefore weak economic rationale for adopting such type of restrictive control measures.

4.1.4.3 Social Effects

The general effects on the social environment of an ACT for the recreational sector would be similar to the effects described in **Section 4.1.3.3**. **Alternative 1 (No Action)** would not implement a recreational ACT and there would be no additional social impact on the recreational sector. The variations in **Alternatives 2 – Preferred Alternative 4** impose a buffer, as a certain percentage of the ACL, and it would be expected that short-term negative social effects would accrue as the buffer increased in **Alternatives 2 – Preferred Alternative 4**. **Preferred Alternative 4** would provide flexibility but the relative social effects are unknown.

4.1.4.4 Administrative Effects

Alternative 1 (No Action) would not establish an ACT for the recreational sector of the black sea bass segment of the snapper grouper fishery. Potential administrative impacts of **Alternatives 2 - Preferred Alternative 4** would likely be minimal since no direct action is triggered if the ACT is met or exceeded. As applied to black sea bass, the recreational ACT would act as a reference point by which performance of associated management actions may be measured. If the South Atlantic Council determined the recreational ACT should be linked to some type of corrective or preventative action in the future, the AM could be modified through a

framework action/Regulatory amendment based in the updated framework procedures for snapper grouper contained in Amendment 17B (SAFMC 2010b).

4.2 Action 2: Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery through an Endorsement Program

Alternative 1 (No Action). Do not limit participation in the black sea bass pot segment of the snapper grouper fishery with the establishment of an endorsement program.

Alternative 2. Limit endorsements and tag distribution to entities with a valid or renewable South Atlantic Unlimited Snapper Grouper Permit on the effective date of the final rule whose *average* annual black sea bass landings using black sea bass pot gear between 1/1/99 and 12/31/10 were at least:

Sub-Alternative 2a - 500 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2b - 1,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2c - 2,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2d - 5,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2e - 10,000 lbs whole weight. Exclude those with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Sub-Alternative 2f - 3,500 lb whole weight. Exclude Unlimited Snapper Grouper Permits with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Preferred Sub-Alternative 2g - 2,500 lbs whole weight. Exclude Unlimited Snapper Grouper Permits with no reported commercial landings of black sea bass using black sea bass pot gear between January 1, 2008, and December 31, 2010.

Alternative 3. No South Atlantic state shall have less than two entities that qualify for black sea bass pot endorsements, provided that no entity qualifies whose minimum average landings are:

Sub-Alternative 3a - 1,000 lbs whole weight

Sub-Alternative 3b - 2,000 lbs whole weight

4.2.1 Biological Effects

The number of permits qualifying for an endorsement under **Alternative** 2 is shown in **Table 4-**6. Qualifying permits by state are shown in **Table 4-**7.

Table 4-6. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.** State based on homeport as identified on snapper-grouper permit application.

Using gutted weight landings							
	2a	**2b**	**2c**	**2d**	**2e**	**2f**	**Preferred 2g**
North Carolina	25	21	19	10	6	11	16
South Carolina	16	12	9	3	2	5	6
Florida	9	8	6	5	1	5	6
Total	50	41	34	18	9	21	28
Using whole weight landings (Preferred)							
	2a	**2b**	**2c**	**2d**	**2e**	**2f**	**Preferred 2g**
North Carolina	26	22	21	10	9	14	18
South Carolina	17	14	10	5	2	5	7
Florida	9	8	7	5	1	5	6
Total	52	44	38	20	12	24	31

Table 4-7. Number of South Atlantic Unlimited Snapper Grouper Permits per state that qualify for a Black Sea Bass Pot endorsement under **Preferred Alternative 2g**.

Alternative	**State**	**Endorsements that would be issued (gw)**	**Endorsements that would be issued (ww)**
Preferred Sub-Alternative 2g - 2,500 lbs gw.	North Carolina	16	18
	South Carolina	6	7
	Georgia	0	0
	Florida	6	6

The South Atlantic Council is concerned increased restrictions imposed through Amendments 13C, 16, 17A, and 17B to the Snapper Grouper FMP including a commercial quota for black sea bass, commercial quota for vermilion snapper, and seasonal closure for shallow water groupers could serve as an incentive for a greater number of fishermen with federal snapper grouper

commercial permits to fish pots for black sea bass. Currently, tags for black sea bass pots can be issued to any fisherman who possesses an Unlimited or 225-pound trip-limited Snapper Grouper Permit. Most black sea bass commercial landings (89%) during 2005-2010 were caught with pots, with the remainder taken with hook-and-line gear. The number of vessels that fished pots and caught black sea bass has varied during 1992 to 2008 from 50 in 2008 to 92 in 1997 (**Table 4-8**); however, not all of these vessels currently have active South Atlantic Unlimited Snapper Grouper Permits. The number of vessels fishing black sea bass pots with active South Atlantic Unlimited Snapper Grouper Permits increased from 50 in 2008 to 62 in 2009. In 2010, there were 598 fishermen who possessed South Atlantic Unlimited Snapper Grouper Permits; however, only 51 of these individuals fished black sea bass pots that year. Some of these vessels fished pots but did not request tags. Therefore, the potential exists for increased participation in pot fishing for black sea bass.

An increase in the number of individuals who fish black sea bass pots could increase the rate at which the quota is met and deteriorate profits for current participants in that segment of the snapper grouper fishery. During the June 2009 to May 2010 fishing year, the 309,000 pound gutted weight (gw) commercial quota was met in December 2009, and in October 2010 during the June 2010 to May 2011 fishing year. The quota was met and black sea bass closed July 15, 2011, during the June 2011 to May 2012 fishing year. Therefore, the fishery does not have the capacity to support any increased participation in the black sea bass pot sector without earlier closures of the fishery.

In December 2008, the South Atlantic Council requested NOAA Fisheries Service issue a control date of December 4, 2008. The control date may be used as a benchmark date for participation in a fishery by the South Atlantic Council to limit participation in the future; anyone entering the black sea bass pot segment of the snapper grouper fishery after the specified date may not be guaranteed continued participation. Previously, control dates were also established in 2005 and 1997. The South Atlantic Council requested these control dates be used as alternatives to possibly limit participation in the black sea bass segment of the snapper grouper fishery.

A limited access system was imposed on the snapper grouper fishery in December 1998. Currently, the only valid commercial vessel permits for South Atlantic snapper grouper are those that have been issued under the limited access criteria specified in the Snapper Grouper FMP. A commercial vessel permit for South Atlantic snapper grouper is either a transferable South Atlantic Unlimited Snapper Grouper Permit or a 225 pound trip-limited commercial permit. A continuous permit number (cpnum) was assigned to each limited access snapper grouper permit, which did not exist during the federal open access snapper grouper permit period (1992-1998). Therefore, landings can be associated with the limited access permit through the cpnum and the vessel identification number beginning in December 1998. However, it is more difficult to determine landings associated with a permit without a cpnum and associated vessel identification number prior to December 1998, especially with regard to determining which of those permits remains active today.

At their March 2009 meeting, the South Atlantic Council recognized the difficulty in tracking landings without a cpnum and indicated an alternative, which considered the 1997 control date, be moved to Appendix A as an alternative eliminated from detailed consideration. The South

Atlantic Council also indicated this control date is old and did not adequately consider present participation in the black sea bass pot portion of the snapper grouper fishery.

Alternative 1 (No Action) would result in the greatest biological benefit for black sea bass, when compared to the other alternatives under consideration, because the quota would be met quickly and gear would be removed from the water for the longest period of time. Conversely, if **Alternative 1 (No Action)** resulted in a large number of pots in the water at the same time, this could increase the chance of entanglement with protected species. However, the early closure of black sea bass in 2009, 2010, and 2011 along with the requirement that pots be removed from the water when the quota is met provides protection to endangered large whales from entanglement in black sea bass pot lines during their annual migration and calving season. Right whale calving season off North Carolina is November 1 - April 30, and November 15 - April 15 off South Carolina, Georgia, and Florida.

Table 4-8. Number of vessels that fished pots and caught black sea bass during 1992-2010, and the number of vessels that currently have South Atlantic Unlimited Snapper Grouper Permits.

Year	# vessels*	# active permits
1992	52	
1993	71	
1994	86	
1995	68	
1996	80	
1997	92	
1998	76	
1999	71	54
2000	70	54
2001	59	50
2002	53	46
2003	52	50
2004	56	54
2005	51	49
2006	50	45
2007	55	53
2008	50	49
2009	62	56
2010	51	51

*Source: NMFS logbook data 5-12-2011

Alternatives 2 and **3** would limit participation in the commercial sector for black sea bass by establishing endorsements and tag distribution to black sea bass pot fishermen with valid or renewable South Atlantic Unlimited Snapper Grouper Permits who met specific landings criteria between January 1, 1999 and December 31, 2010. **Alternatives 2** and **3** would restrict participation in the black sea bass pot sector to those individuals who have demonstrated past and present participation in the black sea bass pot portion of the snapper grouper fishery. As far

fewer individuals fish pots than possess South Atlantic Unlimited Snapper Grouper Permits, these alternatives could constrain participation in the black sea bass pot sector to a level that is more manageable and profitable under the current harvest limits.

Sub-Alternatives 2a-2g would establish qualifying criteria based on a range of average harvest levels of 500 to 10,000 lbs ww of black sea bass with pots, which South Atlantic Unlimited Snapper Grouper Permit holders would have needed to harvest between January 1, 1999 and December 31, 2010 to qualify for a black sea bass pot endorsement. All of the **Alternative 2** sub-alternatives exclude those permit holders who had no reported commercial landings of black sea bass with pot gear between January 1, 2008 and December 31, 2010. The sub-alternatives under **Alternative 2** would result in issuance of 12-52 black sea bass pot endorsements, depending on the qualifying poundage chosen by the South Atlantic Council under their preferred sub-alternative. The lowest qualifying poundage is 500 lbs ww, (**Sub-Alternative 2a**), which would allow the most black sea bass pot endorsements to be issued (52 endorsements) to qualifying South Atlantic Unlimited Snapper Grouper Permit holders. Allowing 52 endorsements to be issued to South Atlantic Unlimited Snapper Grouper Permit holders would not decrease the rate at which the commercial quota is harvested since approximately 52 fishery participants are using pot gear to harvest black sea bass under the status quo.

The sub-alternative that would result in the fewest number of black sea bass pot endorsements being issued is **Sub-Alternative 2e**, which requires that a minimum of 10,000 lbs ww of black sea bass be harvested using pot gear between January 1, 1999 and December 31, 2010. Under **Sub-Alternative 2e** a total of 12 black sea bass pot endorsements would be issued to South Atlantic Unlimited Snapper Grouper Permit holders. Reducing the number of individuals who are able to harvest black sea bass using pot gear to such a small number would likely extend opportunities to fish for black sea bass for those who qualify for endorsements further into the fishing year, which begins on June 1. Because overall harvest of black sea bass is controlled by the ACLs implemented in Amendment 17B (SAFMC 2010b) and by the updated rebuilding strategy, if approved, in this amendment, the number of black sea bass pot endorsements issued is not likely to adversely affect the black sea bass stock or jeopardize rebuilding efforts. Therefore, reducing the number of entities allowed to fish for black sea bass using pot gear to 12, is not biologically necessary.

It is estimated that a level between the lowest and highest number of endorsements that would be issued under the **Alternative 2** sub-alternatives is likely the most appropriate choice to slow the rate of harvest enough to extend opportunities to fish further into the fishing year without excluding a significant number of entities that have historically landing large quantities of black sea bass using pot gear. Prior to the South Atlantic Council finalizing Amendment 18A at their December 2011 meeting, the preferred endorsement action alternative was **Sub-Alternative 2f**, which required that fishermen have average annual historical landings greater than 3,500 pounds ww between January 1, 1999 and December 31, 2010, which also appeared as the preferred sub-alternative in the draft environmental impact statement (DEIS) published on December 9, 2011. Subsequent to the publication of the DEIS, the South Atlantic Council determined that limiting the number of black sea bass pot endorsement to 24 (using ww) would eliminate too many fishermen from the pot segment of the fishery who had historically fished large quantities of black sea bass with pot gear. Therefore, at their December 2011 meeting, the South Atlantic

Council chose to change their preferred sub-alternative from **Sub-Alternative 2f** to **Preferred Sub-Alternative 2g**.

Preferred Sub-Alternative 2g would limit participation in the black sea bass pot sector to individuals with active South Atlantic Unlimited Snapper Grouper Permits who had average annual landings of 2,500 lbs ww of black sea bass in pots between January 1, 1999 and December 31, 2010. Based on data from January 1999, when the 2-for-1 limited entry system was enacted until December 31, 2010, 31 vessels would meet this criterion (**Table 4-6**). Currently, 50 to 60 individuals fish for black sea bass with pots each year; therefore, **Preferred Sub-Alternative 2g** would reduce the number of fishery participants who currently fish for black sea bass using pot gear by half. The average catch per year for the 31 South Atlantic Unlimited Snapper Grouper Permits that would qualify for endorsements under **Preferred Sub-Alternative 2g** is 361,788 lbs gw (426,909 lbs ww) (**Table 4-9**). It is expected that by reducing the number of entities able to fish with black sea bass pots to 31, proposing the limit on the number of pots allowed to be used to 35, proposing a commercial trip limit of 1,000 lbs gw (1,180 lbs ww), the commercial quota should be met later in the fishing season (i.e., August as opposed to July).

Table 4-9. Average catch per year, for years with positive landings, for active permits during 1999-2010, which also had landings during 2008, 2009, or 2010, and the number of permits that would not qualify that had landings every year from 1999 to 2010.

Vessels with Highest Landings	Ave. Landings per Year (ww)	Ave. Landings per Year (gw)	Number of Vessels that Would Not qualify for an Endorsement but Had Landings Every Year from 1999-2010
Top 52	510,290	432,449	0
Top 44	484,125	410,275	0
Top 38	460,934	390,622	0
Top 31	426,909	361,788	1
Top 24	369,106	312,802	1
Top 20	343,419	291,033	2
Top 12	279,651	236,992	6

Using the average of landings over the 12 year time span allows years with no landings or exceptionally low landings to influence the average resulting in lower numbers of fishery participants that would meet the landings criteria under each of the sub-alternatives. The South Atlantic Council also considered using total pounds landed during the same 12 year time period for the eligibility criteria (**Appendix A**); however, total landings results in consistently higher numbers of individuals that would qualify for an endorsement that would be issued.

As stated previously, this action does not increase the overall level of allowable harvest, but rather modifies fishing behavior in such a way as to slow the rate of harvest in order for fishermen to be able to fish for a longer period time during the fishing season. Biologically, establishing an endorsement program in addition to limiting the number of black sea bass pot

tags that each endorsement holder may receive and implementing a 1,000 lb gw (1,180 lbs ww) trip limit, is not likely to negatively impact target or non-target species. For the black sea bass stock, issuance of a controlled number of black sea bass pot endorsements alone could be considered a biologically neutral action with no adverse or beneficial effects on the species or its habitat.

Alternative 3 was designed to ensure the endorsement program would not discriminate between residents of different states by allowing South Atlantic Unlimited Snapper Grouper Permit holders with qualifying landings histories in each South Atlantic State to participate. A resident of a state can be defined in several ways: by the mailing address associated with the permit; by the home port associated with the permit; or by where fish are landed. For the purposes of this analysis the home port and mailing address are used to determine eligible permits for each state under **Alternative 3**. Location where fish are landed was not used since permits can be transferred between individuals from different states. Examination of the number of permits by state for qualifying permits was determined to be the same for mailing address and home port. As illustrated in **Table 4-7**, under **Preferred Alternative 2g** all states that would have qualifying holders of South Atlantic Unlimited Snapper Grouper Permits would have the same number of qualifying permit holders under both **Alternative 3** sub-alternatives. Therefore, if the South Atlantic Council maintains its choice of **Preferred Alternative 2g** for this action, choosing a sub-alternative under **Alternative 3** is not necessary. Only if the South Atlantic Council were to choose **Alternative 2e** would it be necessary to also select an **Alternative 3** sub-alternative to ensure that at least two permit holders in Florida would be included in the endorsement program based on the **Alternative 3** qualifying criteria. Georgia has no qualifying South Atlantic Unlimited Snapper Grouper Permits holders regardless of the qualifying criteria chosen under either **Alternative 2** or **Alternative 3**.

Because the commercial sector is managed with a sector ACL that if exceeded, would trigger corrective management action, biological impacts on the black sea bass stock are expected to be negligible under **Alternative 3**. Alternately, if the establishment of an endorsement program significantly extends the fishing season, black sea bass pot fishing may occur during the spawning season. Increased fishing pressure during the spawning season could potentially disrupt spawning activity and deplete the spawning stock. It is unlikely; however, given the significant reduction in fishing effort that would result from the endorsement program, that black sea bass pot fishing during spawning season would jeopardize the rebuilding efforts for the stock.

The overall effect of this action on protected species is currently unknown. If reducing the number of participants in the fishery reduces the overall effort, then potential entanglements risks to sea turtles would likely also be reduced. However, if a reduction in participants causes more effort or more traps to be fished by the remaining participants, the potential for interactions with sea turtles could increase. Likewise, if reducing the number of participants extends the fishing season from the time of year it currently operates (i.e., outside large whale migration and calving seasons) into the time when large whales are migrating and calving, there may be an increased risk of large whale entanglements. Some of the actions proposed in this amendment (i.e., seasonal closures, trap retrieval requirements, etc.), if implemented, could potentially reduce the

risk of entanglement to large whales. However, it is currently unclear how great a reduction in entanglement risk will be achieved by these actions.

4.2.2 Economic Effects

In the 2008/2009 fishing year, the last year in which the fishery remained open almost an entire calendar year, 50 vessels fished for black sea bass with pot gear (**Table 4-8**. The 2010/2011 fishing season lasted approximately five months and 51 vessels participated in the fishery before the ACL was met. Under **Alternative 1 (No Action)**, over time, this number could be much greater due to the restricted landings and seasons allowed for other stocks. **Alternative 1 (No Action)** is expected to reduce profits for current participants and possibly reduce aggregate profitability of the fishery. The rationale for considering **Alternatives 2 (Sub-Alternatives 2a-2g)** was to limit participation to some level lower than would occur under **Alternative 1 (No Action)**. However, since the level of participation under **Alternative 1 (No Action)**, while expected to increase, is unknown, the difference in profitability between the alternatives is also largely unknown. Since the maximum number of participants under alternatives are capped at different levels, the opportunities for long-term profits are predictable and do differ among alternatives. As stated above, **Alternatives 2a-2g**, which would result in 12-12-52 vessels able to fish for black sea bass with pot gear, depending on the sub-alternative chosen. In general, an average minimum poundage requirement yields a lower number of participants for all sub-alternatives. **Sub-Alternatives 3a-3b** impacts are the same as **Sub-Alternatives 2b-2c**; no Georgia participants meet any of the requirements under **Alternatives 2** or **3**.

Distributional changes between alternatives deal with who benefits and who does not benefit as the result of the various alternatives, sub-alternatives, and options. In general, choosing an alternative that allows for a smaller number of vessels than currently fish for black sea bass to continue fishing, could increase average vessel profitability. Choosing an alternative that allows for a larger number of vessels than currently fish for black sea bass to fish for black sea bass, could decrease average vessel profitability. It should be noted, however, that a higher average vessel profitability associated with fewer participants would not necessarily ensure higherhigher industry profitability unless some form of rationalization of effort among the remaining participants is adopted.

4.2.3 Social Effects

Although this proposed action would not limit total black sea bass harvest, restricting participation may affect the total amount of black sea bass harvested as well as change product flow through communities and dealers. If the harvesters with traditionally higher landings receive tags and endorsements, as may be expected, total black sea bass harvest and the landing patterns through communities where most black sea bass is landed should not be affected. It is possible; however, that smaller harvests of black sea bass by some fishermen make up a larger portion of total harvests by these fishermen or sales activity in some communities by some dealers. As a result, while a limit on tag and endorsement distribution should preserve and possibly increase the social benefits for the more active producers and dealers, and associated communities, absent fishermen who receive tags and endorsements, landing black sea bass in

multiple ports and selling to multiple dealers in the same city, reduced social and economic benefits may be experienced by some communities and dealers in addition to the losses experienced by fishermen who do not qualify for tags and endorsements.

Alternative 1 (No Action) would not make any changes to the current participation level in the black sea bass segment of the snapper grouper fishery. As a result, all current fishing participants would be allowed to continue and no changes in status quo social benefits would be expected. However, increased target effort by fishermen in response to increased restrictions on other species could create excessive pressure on the black sea bass resource as well as displace traditional harvesters. While ACLs and AMs should be effective in protecting the biological health of the resource, from the perspective that traditional fishing participation and patterns results in greater social benefits, changes in harvest participation and patterns away from these traditional users, businesses, and communities would be expected to result in lower social benefits than protection and preservation of the more traditional participation and harvest patterns.

The following discussion first describes the expected differences between the sub-alternatives under **Alternative 2** and without consideration of the options under each alternative that establish alternative qualification based on amount of harvests (500-10,000 lbs; **Sub-Alternatives 2a-2g**).

Alternative 2 would establish an endorsement to harvest black sea bass with pots, and would be expected to help preserve the social and economic benefits that accrue to harvests by traditional participants. Some of the fishing effort by new entrants may be due to speculation (exploring fishing success for a new species), while some new effort may be a response to reduced harvests or harvest opportunities for other species in an attempt to recover benefits lost in other fisheries (mitigation effort). While **Alternative 2** would result in a reduction in social and economic benefits to these fishermen, the elimination of mitigation effort may carry a greater social and economic weight due to its cumulative implications; these fishermen have experienced reduced harvest opportunities for other species and would be prevented from mitigating these losses by harvesting alternative species. Preservation or protection of harvest rights by “more” historic participants is presumed however, to result in increased social and economic benefits, though no quantitative dependence criteria are factored into the presumption.

Sub-Alternatives 2a-2g attempt to address the issue of dependency on black sea bass and consistent participation. The higher the minimum poundage qualification threshold, the fewer the number of tag and endorsement qualifiers. As a result, because the minimum poundage thresholds increase through the variations, the number of qualifiers would be expected to progressively decrease within each alternative “group”. It is possible; however, that the same number of qualifiers, though not the same individual vessels, could qualify under different minimum poundage thresholds across different alternatives.

North Carolina is the dominant state with the largest commercial black sea bass landings and most permit holders. **Figure 4-1** shows the number of permit holders in each county that are expected to qualify under each sub-alternative compared to the number of permits with landings since 1999 (gray bar), and the number of permits with landings in 2008-2010 (red bar). The

number of permits estimated to qualify under **Preferred Sub-Alternative 2g** is shown with a yellow bar for each county. Carteret County and Onslow County have the highest numbers of permits with long-term (gray bar) and recent (red bar) landings. Relative to other counties, more Onslow County permit holders are expected to qualify for an endorsement under **Sub-Alternatives 2a-2c** and **Preferred Sub-Alternative 2g**, but when the landings requirements are 3,500 lbs (**Sub-Alternative 2f)** or higher (**Sub-Alternatives 2d** and **2e)**, the number drops to four or less qualifying permits. In Carteret County, the number of qualifying permits drops as the landings requirement increases, and even with **Preferred Sub-Alternative 2g**, only five permits would be expected to receive endorsements. Pender, New Hanover and Brunswick Counties have fewer permits with recent black sea bass landings than Carteret County or Onslow County with only 1-3 permits qualifying for endorsements under **Sub-Alternatives 2a-2g (Preferred).** Overall, the lower the minimum average pounds required under the sub-alternatives, the higher the number of permits that qualify.

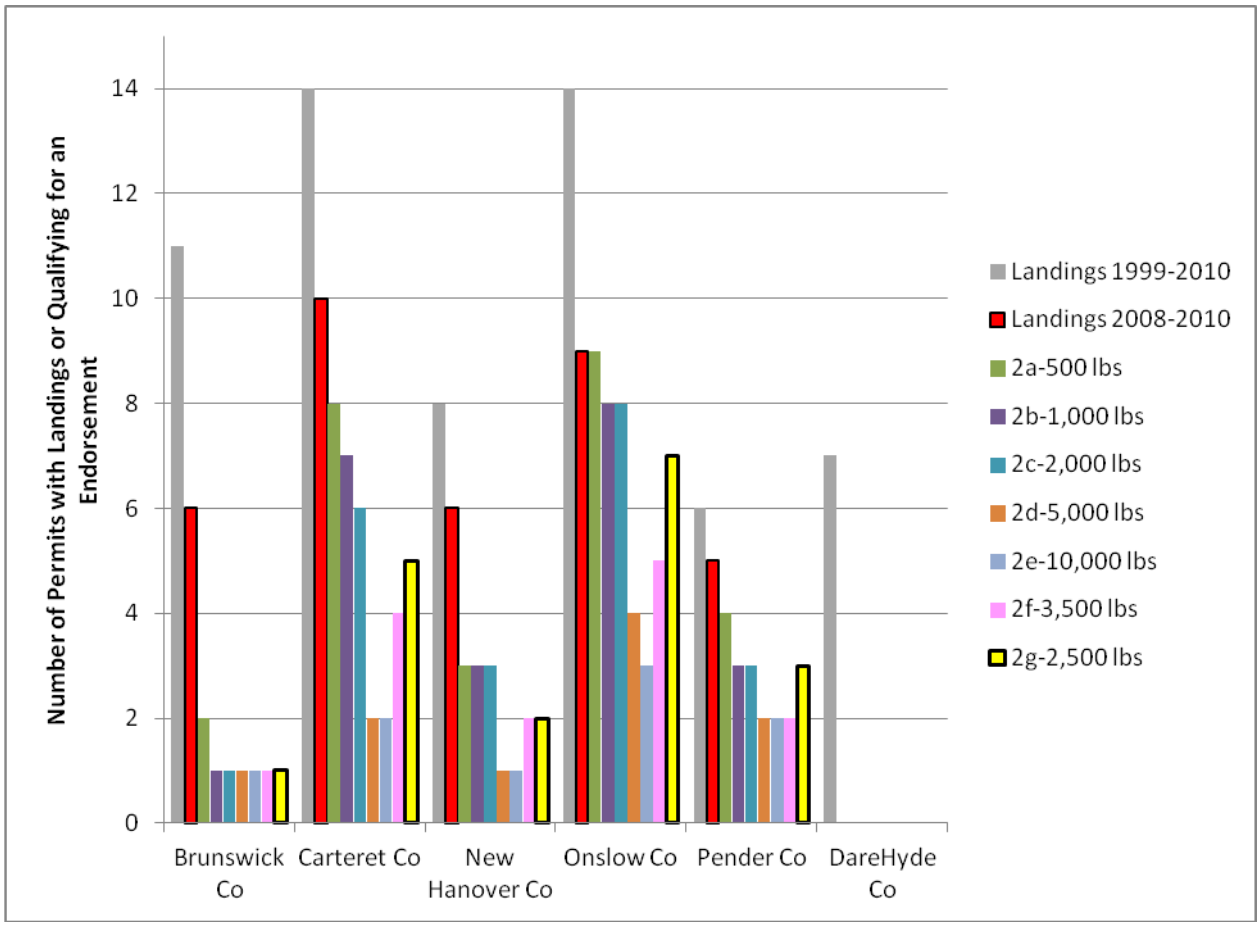


Figure 4-1. Number of permits with black sea bass landings and estimated number of permits in North Carolina counties that qualify for an endorsement. Note: this information is based on home port recorded for the vessel associated with the permit. Weights are in ww.

South Carolina has the second highest black sea bass pot landings. **Figure 4-2** shows the number of permit holders in each community that may qualify under each sub-alternative

compared to the number of permits with landings since 1999 (gray bar), and the number of permits with landings in 2008-2010 (red bar). The number of permits estimated to qualify under **Preferred Sub-Alternative 2g** is shown with a yellow bar for each county. Charleston County fishermen are not expected to qualify under **Sub-Alternatives 2d-2g (Preferred)**, and Murrell's Inlet may not receive endorsements under **Sub-Alternatives 2c-2g (Preferred)**. Georgetown and Little River would receive endorsements for the most eligible permits, but it is expected that three or four permits, respectively, would qualify in either community under **Preferred Sub-Alternative 2g**.

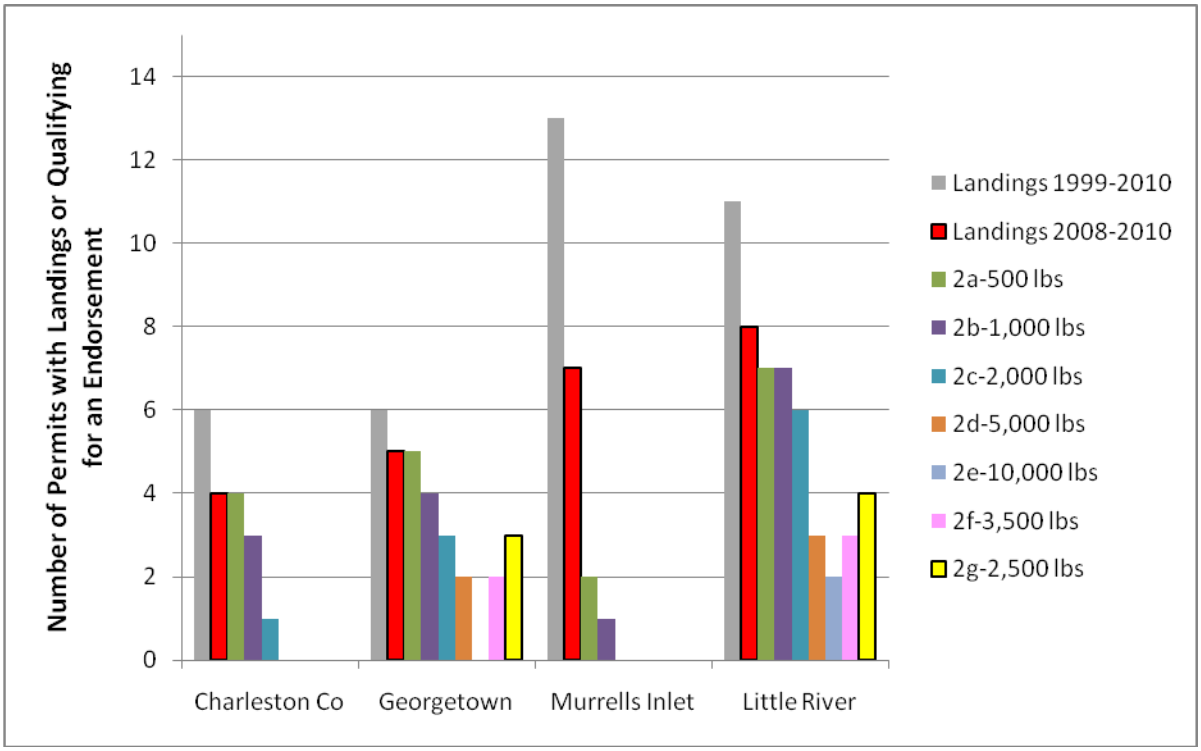


Figure 4-2. Number of permits with black sea bass landings and estimated number of permits in South Carolina communities that qualify for an endorsement. Note: this information is based on home port recorded for the vessel associated with the permit. Weights are in ww.

Florida has low landings compared to North Carolina and South Carolina, but there has been an increase in black sea bass landings for the state. **Figure 4-3** displays community-level analysis for Florida counties similar to **Figures 4-1** and **4-2**, with the yellow bar indicating **Preferred Sub-Alternative 2g**. Miami and Monroe County have the highest percentage of eligible permits that would qualify under most sub-alternatives, and for **Sub-Alternatives 2c-2f** and **Preferred Sub-Alternative 2g** there would be the same proportion (4 permit holders) that wouldl qualify for an endorsement. Volusia County, which has the highest number of eligible permit holders (permits with landings in 2008-2010) for Florida, would have a very small proportion of eligible permits qualify under **Sub-Alternatives 2a-2c** and **2g (Preferred)**, and none would receive an endorsement under **Sub-Alternatives 2d-2f**.

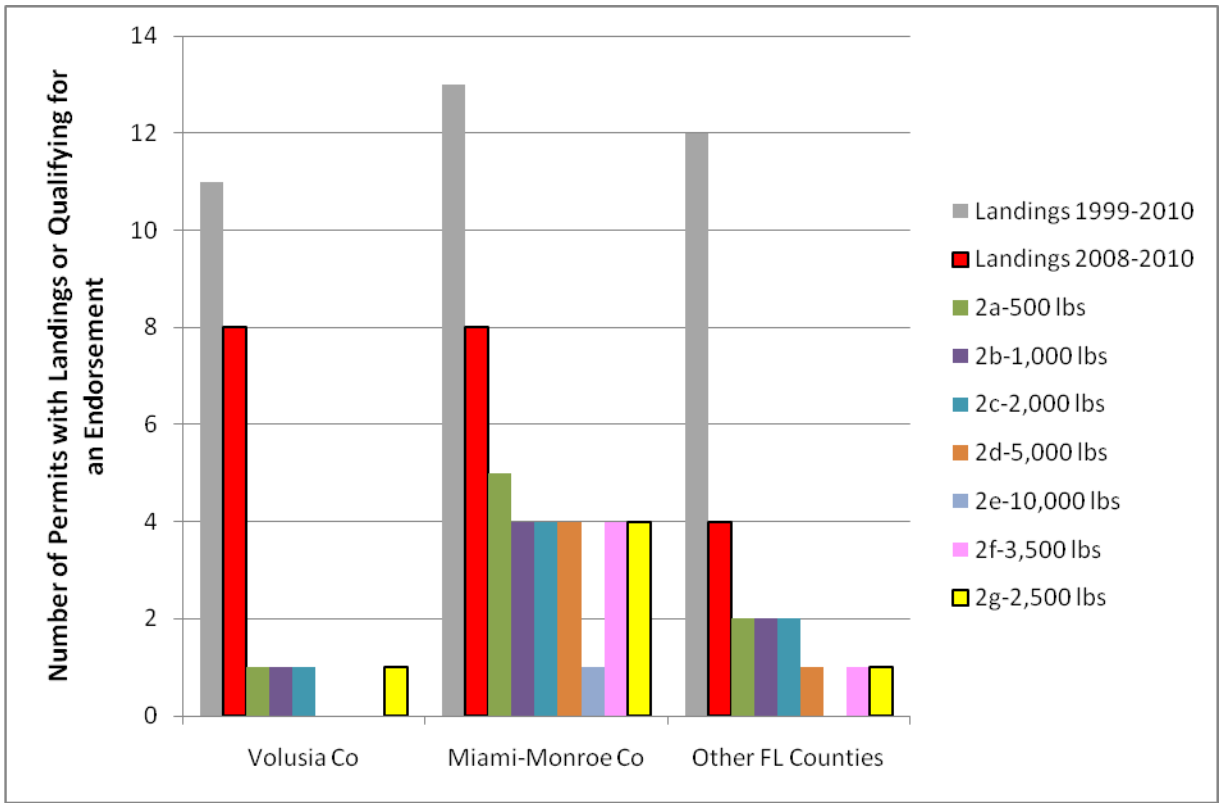


Figure 4-3. Number of permits with black sea bass landings and estimated number of permits in Florida counties that qualify for an endorsement. Note: this information is based on home port recorded for the vessel associated with the permit. Weights are in ww.

Georgia is not expected to receive an endorsement under any sub-alternative.

Under **Alternative 3**, each state would receive at least two endorsements, if the requirements of **Sub-Alternative 3a** or **3b** were met. **Table 4-10** shows the number of permits in each state that qualifies under **Sub-Alternatives 2a-2g (Preferred)**. There are at least two permits qualifying in each state under each sub-alternative except for Florida under **Alternative 2e**. Additionally, Georgia does not qualify for an endorsement under any sub-alternative, nor do Georgia permit holders meet the criteria under **Sub-Alternatives 3a** or **3b.**

Table 4-10. Number of permits qualifying for an endorsement under each sub-alternative in **Alternative 2.**

	2a	**2b**	**2c**	**2d**	**2e**	**2f**	**Preferred 2g**
North Carolina	26	22	21	10	9	14	18
South Carolina	18	15	10	5	2	5	7
Florida	8	7	7	5	1	5	6

Regardless of the minimum poundage threshold adopted, the more flexible the method of harvest tabulation, the more vessels would be expected to qualify. As a result, a fisherman could have substantive landings several years ago (or in a single year), but subsequently ceased harvesting black sea bass with pot gear, and still qualify to receive tags and endorsements. This could lead to a fisherman who has ceased harvesting black sea bass with pot gear being allowed to resume participation when others who may have more recently recorded harvests are excluded. This situation may raise equity concerns, along with **Alternative 3**, because while fishermen in one state may qualify for an endorsement, fishermen in another state with the same or more landings may not receive an endorsement.

Additionally, if endorsements are transferable (Action 4), it is expected that endorsements will flow to individuals who place the most value on the privilege to harvest black sea bass with pots. In this way, the market will determine distribution of the endorsements regardless of initial allocation (Knapp 2011), and this may or may not result in a specific number of endorsements in each state. Therefore, the proposed allocation of endorsements under **Alternative 3** would likely not produce the intended social benefits.

4.2.4 Administrative Effects

Alternative 1 (No Action), would result in the least administrative impact as it would not change the level of participation or the distribution of black sea bass pot tags and endorsements. **Sub-Alternatives 2a-2g** would limit participation in the black sea bass fishery to individuals with active federal snapper grouper commercial permits who caught black sea bass in pots between January 1, 1999, and December 31, 2010 with some minimum level of average annual landings between 500 and 10,000 lbs ww. The administrative impacts for this action would primarily be borne by the NOAA Fisheries Service Permits Office and the Sustainable Fisheries Division.

If approved, Sustainable Fisheries Division staff would identify the 31 qualifying South Atlantic Snapper Grouper Unlimited Snapper Grouper Permit holders that would receive an endorsement. The Permits Office would then notify each permit holder of their eligibility and issue the endorsement. The administrative time and cost burden associated with this action and **Preferred Sub-alternative 2g** is likely to be moderate. The difference between the administrative burdens associated with each alternative differs only in the number of endorsements needed to be issued under each sub-alternative. This difference is not expected to result in any large disparity between the administrative impacts of **Sub-Alternatives 2a-2g** and **Alternatives 3**. However, it is likely that the lower the number of endorsements issued the lower the administrative burden will be in the short-term for initial issuance, and in the long-term for future endorsement transfers.

General characteristics of the black sea bass pot endorsement

Black sea bass pot endorsements would be limited entry and independently transferable under the preferred transferability alternative under Action 4, though fishery participants would not be allowed to fish for black sea bass with pot gear without also having a valid (not expired) South

Atlantic South Atlantic Unlimited Snapper Grouper Permit. In other words, the black sea bass pot endorsement must be associated with a valid South Atlantic South Atlantic Unlimited Snapper Grouper Permit in order for it to be effective. Each black sea bass pot endorsement would be assigned a unique number and endorsements would be issued with an expiration date to coincide with the expiration date of the South Atlantic South Atlantic Unlimited Snapper Grouper Permit issued to the same vessel. The black sea bass pot endorsements would be renewed automatically with the associated South Atlantic South Atlantic Unlimited Snapper Grouper Permit. The endorsement must be valid in order to fish legally with black sea bass pots.

Initial issuance of black sea bass pot endorsements
list of qualified vessels would be established as of the publication date of the final rule. . NOAA Fisheries Service Permits Office would then determine which of those vessels would still have valid South Atlantic South Atlantic Unlimited Snapper Grouper Permit at the start date of the fishing season, June 1, 2012. This may require prioritizing renewal or transfer requests for qualified South Atlantic Unlimited Snapper Grouper Permits in advance of the effective date of the final rule. Upon publication of the final rule in the *Federal Register*, all transfers of South Atlantic South Atlantic Unlimited Snapper Grouper Permits among qualifying vessels would be frozen for a period of time in order to establish a stable universe of qualified vessels and permits to which black sea bass pot endorsements would automatically be issued via United States Postal Service. The freeze on transfers for this group of vessels would not exceed a 45-day time period, until endorsements are issued to all qualified vessels. NOAA Fisheries Service Permits Office would automatically issue black sea bass pot endorsements to the qualified South Atlantic Unlimited Snapper Grouper Permit holders along with a letter of explanation prior to the endorsements becoming effective. South Atlantic Unlimited Snapper Grouper permit holders of qualified but expired permits would be issued a letter notify them of the need to renew their South Atlantic Unlimited Snapper Grouper Permit in order to receive the black sea bass pot endorsement. The Office of Sustainable Fisheries would conduct some form of outreach, possibly in the form of letters, to non-qualifying South Atlantic Unlimited Snapper Grouper Permit holders with black sea bass landings using pot gear to notify them of their ineligibility for the endorsement program. Instructions for the appeals process, outlined under Action 3 of this document, would be included in the non-eligibility outreach materials. Those individuals who hold South Atlantic Unlimited Snapper Grouper Permits that do not qualify for a black sea bass pot endorsement would also be notified that any black sea bass pot tags they have are no longer valid for use with their South Atlantic Unlimited Snapper Grouper Permit.

Renewal details for black sea bass pot endorsements

In order to renew a black sea bass pot endorsement, the vessel owner requesting such renewal must already possess or simultaneously obtain a valid South Atlantic Unlimited Snapper Grouper Permit. Black sea bass pot endorsements would be renewed automatically with their associated South Atlantic Unlimited Snapper Grouper Permit with matching expiration dates. If the vessel owner renews the South Atlantic Unlimited Snapper Grouper Permit at the same time they obtain a black sea bass pot endorsement, the endorsement will be issued with the same expiration date as the South Atlantic Unlimited Snapper Grouper Permit. An endorsement may not be renewed if the vessel does not have or will not simultaneously obtain a South Atlantic Unlimited Snapper Grouper Permit.

4.3 Action 3: Establishment of an Appeals Process for Fishermen Excluded From th Black Sea Bass Pot Endorsement Program

Alternative 1 (No Action). Do not specify provisions for an appeals process associated with the black sea bass endorsement program.

Preferred Alternative 2. A period of 90 days will be set aside to accept appeals to the black sea bass endorsement program starting on the effective date of the final rule. The Regional Administrator (RA) will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. The RA will determine the outcome of appeals based on NMFS logbooks. If NMFS logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS logbooks or state landings records to support their appeal.

Alternative 3. A period of 90 days will be set aside to accept appeals to the black sea bass endorsement program starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. A special board composed of state directors/designees will review, evaluate, and make individual recommendations to the RA on appeals. Hardship arguments will not be considered. The special board and the RA will determine the outcome of appeals based on NMFS logbooks. If NMFS logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS logbooks or state landings records to support their appeal.

4.3.1 Biological Effects

Establishing an appeals process is largely an administrative action. Therefore, it is not anticipated to directly affect the physical, biological or ecological environments in a positive or negative manner. **Alternative 1 (No Action)** would indirectly benefit the biological environment because it would not allow any additional black sea bass pot effort in that portion of the snapper grouper fishery after the initial endorsements are distributed to eligible South Atlantic Unlimited Snapper Grouper Permit holders. By limiting the number of endorsements and thus the number of pots to be deployed, risk of bycatch and protected species interactions decreases. There is likely to be no difference between **Preferred Alternative 2** and **Alternative 3** in the level of potential biological impact that could occur as a result of their implementation. In theory, the RA would reach the same conclusion regardless of how the appeals process is executed because both alternatives do not allow for consideration of hardship claims and the decision to issue an endorsement would be based on logbook data and landings records.

Indirect effects on the biological environment may be caused if additional South Atlantic Unlimited Snapper Grouper Permit holders are issued black sea bass pot endorsements as a result of implementing an appeals process. Though black sea bass pot effort could potentially increase above the expected number of qualifying vessels (31) due to issuance of endorsements through appeals, those impacts on the biological environment including target and non-target species, and critical habitat are not likely to be significant. Furthermore, overall harvest of black sea bass

would be constrained by the sector ACLs and AMs contained in this amendment, if approved and implemented through rulemaking. Therefore, regardless of how many endorsements are issued through appeals, the only discernable biological impact could be reaching the commercial quota earlier in the fishing season, which could help protect spawning individuals, and protected species. The more endorsements that are issued through the appeals process the earlier the commercial season is likely to close.

4.3.2 Economic Effects

The adoption of **Alternative 1 (No Action)** would not include establishment of an appeals process for the endorsement program. **Preferred Alternative 2** serves to provide a mechanism to appeal exclusion from initial inclusion in the endorsement program.

Economic impacts of an appeals program are largely determined by the number of appeals received. Fishermen excluded from the endorsement program who decide to appeal may incur costs associated with trying to prove their case. However, access to NMFS logbook landings or state trip tickets should be at little or no cost to a fisherman. But some complications may arise in the case of transferred permits for then the new permit owner may not have access to NMFS logbook landings for landings contributed by the previous owner. Access to state trip tickets in this situation would depend on the respective state's rule on access to trip ticket information.

4.3.3 Social Effects

Because a black sea bass endorsement system is assumed appropriate and would be expected to result in increased social benefits relative to the absence of an endorsement system, social benefits would be expected to be maximized if all appropriate fishermen, i.e., those fishermen whose receipt of an endorsement will best achieve the objectives of the program, receive an endorsement. The exclusion of any appropriate fishermen would be expected to result in decreased social benefits. The absence of an appeals process, as would occur under **Alternative 1 (No Action)**, would be expected to increase the likelihood that one or more appropriate qualifiers would not receive an endorsement, resulting in less social benefits than would occur if an appeals process is established. Because **Preferred Alternative 2** and **Alternative 3** would establish an appeals process, both alternatives would be expected to result in greater social benefits than **Alternative 1 (No Action)**. It is assumed that the process will adequately identify appropriate qualifiers and not simply result in an increase in fishermen with endorsements. The issuance of endorsements to non-qualified fishermen would be expected to reduce the benefits of the endorsement system.

4.3.4 Administrative Effects

Alternative 1 (No Action) could cause administrative difficulties by failing to provide a formal process to use in resolving the complaints of those who challenge eligibility or initial allocation decisions. The appeals processes, described in **Preferred Alternative 2** would be developed by NOAA Fisheries Service and would be similar to appeals processes developed for other limited

access privilege programs. It is expected that any appeals process would be somewhat burdensome to administer. Directions on how potential appellants should peruse requesting an appeal consideration by the RA would need to be disclosed to fishery participants via fishery bulletin on in a letter issued to those fishery participants who had previously landed black sea bass but did not qualify for an endorsement, which would be distributed by the Office of Sustainable Fisheries. When an application for an appeal is received by the agency, a certain amount of staff time, dependent upon the nature of the appeal, would be required to review logbook records and verify the eligibility of applicant. Additional time would be required by the RA for making the final determination as to whether or not each appeal applicant should or should not be issued a black sea bass endorsement. Overall, a moderate short-term impact may be expected as a result of this action depending upon the number of appeals received by NOAA Fisheries Service. Because the appeals process is limited to 90-days, any administrative burden associated with the review of appeals applications would be limited to a finite amount of time that is not likely to extend far beyond the 90-day time period.

4.4 Action 4: Allow for Transferability of Black Sea Bass Pot Endorsements

Alternative 1 (No Action). Black sea bass pot endorsements (and tags) would not be allowed to be transferred if such a system were implemented.

Preferred Alternative 2. A valid black sea bass pot endorsement can be transferred between any two individuals or entities that hold a valid or simultaneously obtains a valid, meaning not expired, South Atlantic Unlimited Snapper Grouper Permit. The endorsement and associated landings history of black sea bass can be transferred regardless of whether or not the South Atlantic Unlimited Snapper Grouper Permit is transferred.

Preferred Sub-Alternative 2a. Transferability allowed upon program implementation.
Sub-Alternative 2b. Transferability not allowed during the first 2 years of the program.
Sub-Alternative 2c. Transferability not allowed during the first 3 years of the program.
Sub-Alternative 2d. Transferability not allowed during the first 5 years of the program.

Alternative 3. A valid black sea bass pot endorsement can be transferred between any two individuals or entities that hold a valid or simultaneously obtains a valid, meaning not expired, South Atlantic Unlimited Snapper Grouper Permit. The endorsement and associated landings history of black sea bass will be transferred only if the South Atlantic Unlimited Snapper Grouper Permit is transferred.

Sub-Alternative 3a. Transferability allowed upon program implementation.
Sub-Alternative 3b. Transferability not allowed during the first 2 years of the program.
Sub-Alternative 3c. Transferability not allowed during the first 3 years of the program.
Sub-Alternative 3d. Transferability not allowed during the first 5 years of the program.

4.4.1 Biological Effects

Alternative 1 (No Action) would not allow for transferability of black sea bass endorsements and could result in decreased participation in the black sea bass commercial sector over time as fishermen with endorsements exit the fishery permanently. Decreased participation could result in a corresponding decrease in effort and landings of black sea bass, and could extend fishing opportunities further into the fishing season. However, it is also possible that effort would not decrease with decreased participation and the same amount of black sea bass would be caught, albeit with fewer participants. Therefore, among **Alternatives 1-3**, **Alternative 1 (No Action)** could have the greatest biological benefit for the black sea bass stock if it results in decreased landings of black sea bass. However, actions have been taken to end overfishing of black sea bass in Amendments 13C and 17B to the Snapper Grouper FMP. A new benchmark assessment (SEDAR 25), has been completed and determined the stock is no longer overfished, and is rebuilding but is not yet fully rebuilt. Since this action is administrative and does not establish immediate harvest objectives, it will not directly affect the protected species.

Preferred Alternative 2 and **Alternative 3**, which would allow transferability of a black sea bass endorsement, would not be expected to negatively impact the black sea bass stock. The biological effects of **Preferred Alternative 2** and **Alternative 3**would be very similar as

landings would be constrained by a quota. Therefore, the effects of **Preferred Alternative 2** and **Alternative 3** may be more economic and administrative than biological.

Preferred Alternative 2 would allow transfer of valid black sea bass endorsements among individuals who hold South Atlantic Snapper Grouper South Atlantic Unlimited Snapper Grouper Permits independent of each other. For example, the endorsement could be transferred to another person holding a valid (not expired) South Atlantic Unlimited Snapper Grouper Permit without also transferring the permit, and vice versa. **Alternative 3** would allow transfer of a valid endorsement *only* if the South Atlantic Snapper Grouper South Atlantic Unlimited Snapper Grouper Permit is *also* being transferred, and both must be transferred to the *same* entity. The permit could not be transferred to one entity while the endorsement is transferred to another. Under **Alternative 3**, the permit and the endorsement would be linked indefinitely.

Under both alternatives, it is the South Atlantic Council's intent that all landings of black sea bass with pot gear be associated with the South Atlantic Unlimited Snapper Grouper Permit, rather than the endorsement. The subject endorsement would simply entitle its holder to harvest black sea bass using black sea bass pot gear. Those without the endorsement would not be allowed to do so. Any landings of black sea bass using pot gear by individuals who hold an endorsement would be added to the landings of the South Atlantic Snapper Grouper Permit to which the endorsement is linked. If the endorsement is transferred the landings of black sea bass that were made using the endorsement would not transfer with the endorsement. The endorsement would have no associated landings value.

Sub-Alternatives (Preferred) 2a-2d and **3a-3d** would place a time constraint on when transfer of endorsements could begin. **Sub-Alternatives (Preferred) 2a** and **3a** would allow for transferability of permits to take place immediately upon implementation and this is expected to maximize economic benefits but have the least amount of biological benefit for black sea bass since endorsements would most likely be transferred to entities planning to fish them as opposed to the endorsement possibly not being fished for two or more years after implementation. **Sub-Alternatives 2d** and **3d** could have the greatest positive biological effect because it would involve the longest time period before an endorsement could be transferred, and may result in several endorsements not being used until the transfer time limit has been reached. It is possible an individual might not be able to go fishing in a particular year and since fishermen would not be able to transfer an endorsement, there could be a resulting benefit to the resource. However, as stated under **Alternative 1 (No Action)**, effort might not show a corresponding decrease with the number of participants in the fishery. Allowing black sea bass pot endorsements to be transferred under conditions outlined for each of the action alternatives would not be expected to increase or decrease black sea bass pot gear interactions with protected species.

4.4.2 Economic Effects

Alternative 1 (No Action) would not allow for transferability of black sea bass endorsements and would therefore result in decreased participation in the black sea bass fishery over time as fishermen with endorsements exit the fishery permanently. While they will be able to sell their federal commercial snapper grouper permit, they would not be able to sell their black sea bass

endorsement which could result in difficultly selling their permit, vessel, and gear since permits are often sold with the vessel and gear.

Preferred Alternative 2 and **Alternative 3** would provide the opportunity for new entrants without an increase in the overall number of participants. **Preferred Alternative 2** would allow transfer of black sea bass endorsements among individuals who hold federal commercial snapper grouper permits. **Preferred Sub-Alternatives 2a-2d** under **Preferred Alternative 2** would put a time constraint on when transfer of endorsements could begin. The rationale behind delaying transferability of catch privilege assets, like endorsements, is to allow people time to develop an understanding of the value of the endorsements before selling them. In general, the value of an asset under a catch share program increases over time as people come to understand the possibilities for improved management of the fishery and the impact that might have on the asset. That is, if catch shares appear to be resulting in better stock management or greater ex-vessel prices, quota share tends to increase. However, an endorsement program does not have the same characteristics as quota share and therefore a two year or more delay in transferability allowances might not be necessary. An endorsement program would decrease the race to fish that is expected to occur under **Alternative 1 (No Action)**. Therefore, there could be an increase in ex-vessel price (and therefore the value of an endorsement) if loss of quality has been a result of the race to fish occurring in recent years and ex-vessel prices have declined. Increases in the precision of stock management are possible due to a cap on the number of participants but not to the same degree as that expected under a catch share program which is often accompanied by increases in monitoring and enforcement that enable better stock management.

Conceptually, the degree of transfer flexibility influences the aggregate profitability of the fishery and the average individual profitability. The greater the degree of transferability allowed, the greater the value of the permit is expected. Also, the greater the degree of transferability allowed, the greater the profitability of the individual who owns the permit because they have the ability to sell their permit when they need to switch to more profitable fisheries or when they are unable to fish. However, lack of participation could benefit the fishermen remaining in the fishery. Considering the above, **Preferred Alternative 2** and **Alternative 3** would enhance profitability for fishermen who qualify for black sea bass endorsements. However, **Sub-Preferred Alternatives 2a-2d** and **Sub-Alternatives 3a-3d** will likely influence the degree of enhancement to profitability possible. **Preferred Sub-Alternative 2a** and **Sub-Alternative 3a** would allow for transferability of permits to take place immediately upon implementation and this is expected to maximize economic benefits. **Sub-Alternatives 2d** and **3d** would allow for the longest delay in transferability allowances. While this might allow for people to best assess the value of the gear endorsements and make more accurate permit market transactions, it would delay transfers that could benefit fishermen. **Sub-Alternatives 2b, 2c, 3b,** and **3c** would fall in between **Sub-Alternatives 2a (Preferred)/3a** and **2d/3d** with regard to expected economic benefits.

The major economic impact differences between **Preferred Alternative 2** and **Alternative 3** lie in the decision whether to require transfer of the South Atlantic Unlimited Snapper Grouper Permit and landings history for black sea bass along with the black sea bass pot endorsement. **Preferred Alternative 2** is the more lenient of the two alternatives. It would not require a transfer of the South Atlantic Unlimited Snapper Grouper Permit. Theoretically, a fisherman

under the **Preferred Alternative 2** scenarios could continue to fish for species other than black sea bass, in the snapper grouper complex should the black sea bass pot endorsement be transferred. Under **Alternative 3**, the South Atlantic Unlimited Snapper Grouper Permit associated with the black sea bass pot endorsement must be transferred at the same time. **Alternative 3** limits the flexibility of fishermen to continue fishing should they decide to transfer the black sea bass pot endorsement. Such an action could cause some fishermen to be less willing to transfer the endorsement as such transfers may primarily occur as they leave commercial fishing altogether. However, as long as the black sea bass fishery remains lucrative, the combination of the permit and the endorsement transferred together might bring a higher price on the open market than either would separately. Conversely, it would cost a new entrant into the fishery even more to buy into the fishery. **Alternative 3** would prevent a current South Atlantic Unlimited Snapper Grouper Permit holder from augmenting his current permit with a black sea bass pot endorsement because of the requirement to purchase of another South Atlantic Unlimited Snapper Grouper Permit along with the endorsement.

If participation remains steady over the years of the program during which transferability is not allowed under some sub-alternatives in **Preferred Alternative 2** and **Alternative 3**, aggregate profitability of the fishery could remain steady. If, however, landings drop due to people leaving the fishery and not transferring the endorsement due to restrictions, aggregate profitability would decline. However, at the same time, individual average profitability could increase because there would be less people sharing the same amount of landings as under **Alternative 1 (No Action)**.

4.4.3 Social Effects

The trade-off of social benefits associated with transferability options relate to considerations of whether social benefits would be enhanced if participation in this component of the snapper grouper fishery can only decrease over time (**Alternative 1 (No Action)**) and how delay in allowing transfer may affect the social benefit stream (**Preferred Sub-Alternatives 2a -2d** and **3a-3d)**. An underlying assumption for the proposed endorsement requirement to harvest commercial quantities of black sea bass and the proposed change in the fishing year is that social benefits will increase relative to the current management system. None of the endorsement qualification alternatives encompass eliminating all participation and harvest. As such, the implied conclusion is that some level of non-zero participation (and harvest) would maximize social and economic benefits (as long as the resource is not overfished). Although it would take time for such to occur, an inability to transfer black sea bass endorsements, as would be the case under **Alternative 1 (No Action)**, would mean that, absent subsequent action, the number of entities harvesting black sea bass would decrease over time as fishermen retire or cease harvesting black sea bass for other reasons, eventually ending in no participants or legal commercial harvest using pot gear. This would be inconsistent with the expectation that active participation, at some unspecified level, and harvest would be expected to result in greater social and economic benefits. As a result, **Alternative 1 (No Action)** would be expected to result in reduced social benefits relative to the other alternatives. In all likelihood, however, the adoption of **Alternative 1 (No Action)** would result in subsequent future management action to allow new participation in this segment of the snapper grouper fishery.

Generally, social benefits that are tied to economic outcomes would be maximized the fewer the constraints placed on the transfer of an asset. Unencumbered transfer allows the largest pool of recipients, which would be expected to result in the payment of the highest price for the asset. As previously stated, **Preferred Alternative 2** and **Alternative 3** require the recipient hold a valid commercial South Atlantic Unlimited Snapper grouper permit. This restriction would be expected to reduce social benefits by an indeterminate amount relative to placing no restrictions on transfer by not allowing anyone to purchase an endorsement. Although allowing an entity that could not use (harvest fish with) the endorsement may seem illogical because, absent fixed associated harvest rights (catch or quota shares), removing an endorsement from active use would not affect the amount of available harvest, an entity that did not possess a valid commercial snapper grouper permit would only acquire an endorsement if positive benefits were expected to accrue. These benefits could be associated with the possibility of simply reducing effort or "taking" a boat off the water. Regardless of the nature of benefits, these benefits would be expected to be equal to or greater than the benefits of continuing to harvest black sea bass under the endorsement, otherwise the endorsement would be sold/transferred to someone who expected to harvest black sea bass with pot gear.

Preferred Alternative 2 would not require a black sea bass endorsement be transferred with a snapper grouper permit, but **Alternative 3** ties the endorsement to the initial permit. As a result, the total number of participants (across both endorsement categories) would not be affected, because of the potential change in performance (distribution on harvests across vessels and gear sectors) and associated product flow through dealers and communities would not change.

Any ability to transfer endorsements may result in equity criticisms, similar to complaints associated with transferable catch share programs. Although the black sea bass endorsement would not contain an entitlement to a specific harvest quantity, it would bestow asset rights to the recipient because endorsement possession would enable harvest, and the recipient would possess a new marketable asset. The value of this asset (the endorsement) would represent a windfall profit for the endorsement recipient, in addition to any benefits from actual harvests, a circumstance that may seem inequitable to entities denied an endorsement upon their initial issuance. While transferability would allow those denied an endorsement, or others in the snapper grouper fishery who previously did not harvest black sea bass by pot gear, an opportunity to acquire an endorsement and harvest black sea bass, they could do so only if they purchased the endorsement, the value of which is unknown at this time. The market price would be expected to increase the lower the total number of endorsements and the higher the total value of harvests. The absence of specific harvest entitlements (catch shares) may keep transfer prices lower than they otherwise may be, even if the harvest history is also transferred, while speculation on the potential development of a catch share program may increase transfer prices (if the transfer includes the harvest history).

The magnitude of equity criticisms would be expected to increase with the value of the windfall and could increase with the immediacy of the windfall. Allowing someone to receive and immediately sell an endorsement could be considered more unfair than requiring they keep it, whether fished or not, for a period of time before transfer is allowed. Further, because the intent of the endorsement program is to return harvests to historic patterns, delayed transfer rights increases the likelihood that endorsement recipients actually use the endorsement (i.e., harvest

black sea bass) and help achieve the expected social and economic benefits of a return to historic harvest patterns. These considerations are relevant to examination of **Sub-Alternatives 2a (Preferred) - 2d** and **Sub-Alternatives 3a-3d**. The determination of which option is preferable hinges on a comparison of the benefits of maximum flexibility (**Sub-Alternative 2a (Preferred)** and **Sub-Alternative 3a**) with the benefits of "stability" (presumed to accrue to allowing this segment of the snapper grouper fishery to adjust to operation under the new endorsement system), as would occur under **Sub-Alternatives 2b-2d** and **3b-3d,** and how long of a period of stability is sufficient. As previously stated, generally, social and economic benefits are expected to be greater the broader the freedom to manage one's assets (freedom to sell the endorsement without time constraints), notwithstanding the previous discussion on equity concerns. This is particularly true as situations can arise where a decision to stop fishing is not discretionary, as may be the case should an adverse health situation or personal financial crisis arise. So, to the extent that reduced ability to transfer the endorsements results in reduced benefits, the longer the restriction applies, the greater the expected reduction in social benefits. To the extent that benefits are increased with stability, and in this case stability refers to who the participants are and not their number, the appropriate question is at what point do the benefits of allowing transfer exceed the benefits of stability.

4.4.4 Administrative Effects

Establishing an endorsement program (Action 2) will have some level of administrative burden on the agency related to developing and administering the program as well as providing information to the fishing community on the program. Adding transferability allowances to the endorsements (Action 4) will increase the administrative burden, requiring processing of transfer requests. The least administratively burdensome alternative would be **Alternative 1 (No action)** which would not allow endorsement transferability. **Alternatives 2** and **3** would allow some form of transferability between users. These alternatives are expected to have similar administrative impacts. **Preferred Alternative 2** would allow endorsements to be transferred *independent* of the South Atlantic Unlimited Snapper Grouper Permit with which they are associated, where **Alternative 3** would link the endorsement to the associated South Atlantic Unlimited Snapper Grouper Permit in such a way as to only allow the endorsement to be transferred if the South Atlantic Unlimited Snapper Grouper Permit is also being transferred. Under **Alternative 3**, the South Atlantic Unlimited Snapper Grouper Permit and the endorsement would need to be transferred to the same entity. In other words, the South Atlantic Unlimited Snapper Grouper Permit could not be transferred to one entity while the associated endorsement is transferred to another entity holding a valid South Atlantic Unlimited Snapper Grouper Permit.

It is difficult to anticipate the number of endorsement transfers that would occur under either **Alternative 2** or **Alternative 3**. Because **Alternative 3** would require the transfer of an South Atlantic Unlimited Snapper Grouper Permit in addition to the endorsement, some additional administrative burden may be associated with that alternative. **Sub-Alternatives 2b-2d** and **Sub-Alternatives 3b-3d** specify waiting periods before transferability will be allowed. **Preferred Sub-Alternative 2a** and **Sub-Alternative 3a** would allow for endorsement transferability immediately and could result in a moderate increase in administrative burden due to the fact that transfers may happen immediately after implementation rather than 2, 3, or 5 years after implementation. The addition of the waiting periods as described in **Sub-**

Alternatives 2b-2d, and **3b-3d** would not increase or decrease the administrative burden in the long term (beyond 5 years). **Sub-Alternatives 2b-2d** and **3b-3d** allow for a period of time in which transferability is not allowed, which may alleviate some of the administrative burden in the short term. However, once the waiting period is over, the administrative burden related to endorsement transfers would be same as under **Sub-Alternatives 2a** and **3a**.

Details of black sea bass endorsement transfers

Under **Preferred Alternative 2** and **Alternative 3**, the vessel owner must already possess or simultaneously obtain a valid (not expired) South Atlantic Unlimited Snapper Grouper Permit in order to get a black sea bass pot endorsement. Under **Preferred Alternative 2**, a black sea bass pot endorsement that is issued to a vessel that has a South Atlantic Unlimited Snapper Grouper Permit, and then transfers the South Atlantic Unlimited Snapper Grouper Permit without the endorsement will automatically be void, i.e., an endorsement held by a vessel with no South Atlantic Unlimited Snapper Grouper Permit is not valid. If a South Atlantic Snapper Grouper Permit is transferred away from a vessel also holding a black sea bass pot endorsement, and then a new South Atlantic Unlimited Snapper Grouper Permit is obtained, the new South Atlantic Unlimited Snapper Grouper Permit would get the expiration date of the black sea bass pot endorsement. A black sea bass pot endorsement issued to a vessel that already has an Unlimited South Atlantic Permit would be issued with an expiration date to match the South Atlantic Unlimited Snapper Grouper Permit. It is important to note that under **Preferred Alternative 2**, expired endorsements for vessels that do not have a valid South Atlantic Unlimited Snapper Grouper Permit are not allowed to be transferred to another vessel with a South Atlantic Unlimited Snapper Grouper Permit or be renewed; thus, those expired endorsements would be orphaned and unable to be fished.

4.5 Action 5: Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year

Alternative 1 (No Action). Do not annually limit the number of black sea bass pots deployed or pot tags issued to holders of snapper grouper commercial permits.

Alternative 2. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *100* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Alternative 3. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *50* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Alternative 4. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *25* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous permit year.

Preferred Alternative 5. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to *35* per vessel each permit year. NOAA Fisheries Service will issue new identification tags each permit year that will replace the tags from the previous fishing year. Endorsements will be automatically renewed at the same time the snapper grouper permit is renewed.

4.5.1 Biological Effects

The South Atlantic Council is concerned increased restrictions imposed through Amendments 13C, 16, 17A, and 17B to the Snapper Grouper FMP including a commercial quota for black sea bass, commercial quota for vermilion snapper, and spawning season closure for shallow water grouper species could increase the incentive to fish more black sea bass pots per trip. Currently, there is no limit on the number of tags issued to fishermen who target black sea bass or the number of pots that can be fished. The South Atlantic Council is further concerned about the possibility of fishermen leaving large numbers of pots fishing for multiple days due to vessel or weather problems, which could unnecessarily kill black sea bass. Fishing large numbers of pots also increases the chance that pots could be lost and “ghost fishing” could occur. Furthermore, increases in vertical lines especially during November - April, either as a result of no limit on pots fished or a fishing season extension, increases the chance of mortality or serious injury from entanglement of pot lines with right whales and other protected species.

Without a limitation on the annual number of pot tags distributed to a fisherman, any number of pots could be deployed. During 2003 to 2010, the average number of vessels requesting tags for pots was 139 and the average number of tags requested per vessel per year was 40 (**Table 4-11**). The number of vessels requesting tags increased in 2008 and again in 2010. Although some

fishermen requested as many as 200 tags per year, the number of vessels with recorded landings of black sea bass with pots was much less that the number of vessels requesting tags (**Table 4-12**).

Alternative 1 (No Action), by not limiting the number of black sea bass pots deployed or pot tags issued to holders of federal commercial snapper grouper vessel permits, could result in adverse impacts to protected species. Under all alternatives, including **Alternative 1 (No Action)**, the restrictions mandated by the Atlantic Large Whale Take Reduction Plan (ALWTRP) final rule (72 FR 57104) would still apply to black sea bass fishermen in the South Atlantic. The ALWTRP is designed reduce the risk of serious injury to or mortality of large whales due to incidental entanglement in commercial fishing gear. ATWTRP regulations pertain to the universal regulations (no floating buoy lines, no wet storage of gear), gear marking requirements, sinking ground-lines, floatation, and buoy lines with a weak link, etc. The black sea bass pot fishery already adheres to all regulations stipulated in the ALWTRP. Currently, the goal of the Atlantic Large Whale Take Reduction Team is to update the ALWTRP to further reduce risk from co-occurrence of whales and vertical line (i.e., trap lines). For specifics of the ATWTRP regulations as they apply to the South Atlantic black sea bass fishery, see **Appendix D** or the whale take reduction website: http://www.nero.noaa.gov/whaletrp/

Table 4-11. Number of vessels requesting tags; mean, minimum, maximum, and median number of tags/vessel requested.

Year	Number of Vessels Requesting tags	Mean # Tags Requested	Min # tags requested	Max # tags requested
2003	133	36	4	200
2004	133	40	4	200
2005	132	36	4	200
2006	133	35	4	150
2007	134	39	5	200
2008	147	41	1	500
2009	141	45	2	500
2010	159	44	7	500
Average	139	40	4	306

Source: NMFS permits office.

Table 4-12. Number of vessels with landings of black sea bass with pots; number of vessels with landings of black sea bass who requested tags. Mean, minimum, maximum, median number of tags requested for vessels that fished pots; and mean, minimum, maximum number of pots fished for vessels that requested tags.

Year	# of Vessels that fished pots	# of Vessels that fished pots with tags	Mean # tags requested	Min # tags requested	Max # tags requested	Median # of tags requested	Mean # pots fished	Min # pots fished	Max # Pots Fished
2003	53	49	54	6	200	50	45	1	200
2004	59	52	56	6	200	50	43	2	160
2005	53	47	50	6	160	40	47	1	120
2006	53	46	49	4	150	49	47	1	176
2007	54	51	53	10	200	50	48	1	180
2008	50	49	54	6	200	50	35	1	150
2009	62	62	55	8	200	45	37	1	150
2010	51	50	51	7	200	40	62	1	302
Average	54	51	53	7	189	47	45	1	180

Source: NMFS permits office and NMFS logbook database 5/12/11.

The South Atlantic Council's preferred alternative under Action 2 of this document would issue black sea bass pot tags to 31 entities that qualify for the black sea bass endorsement (**Table 4-6**). No tags would be issued to an entity unless they hold a valid black sea bass pot endorsement. **Alternatives 2** and **3** are not likely to result in substantial biological benefit since the mean number of pots fished for the 31 individuals who would qualify under Action 2 ranged between 39 and 45 for the 2008-2010 fishing years (**Table 4-13**). Though the maximum number of pots fished per vessel in recent years well exceeds 100, the average number of pots fished per vessel rarely exceeds 50. Therefore, limiting the number of tags that each permit holder may obtain per season to 100 or 50 is likely to do little to reduce effort the pot sector of the fishery. Based on the number of mean pots fished in recent years (**Table 4-12**), **Alternatives 4** and **5 (Preferred Alternative 5)** would have beneficial impacts to the biological environment by reducing the number of pots fished per trip. **Alternatives 4** and **5 (Preferred Alternative 5)** could decrease the adverse impact of pots fishing for multiple days if a fisherman was unable to retrieve large numbers of pots due to inclement weather or vessel difficulties, reduce the number of lost pots and ghost fishing, and reduce the potential for entanglement of pot lines with protected species, particularly right whales.

Table 4-13. Number of endorsements that would qualify under different landings level from Action 2, number of tags requested during 2008-2010, mean number of pots fished, and median number of pots fished.

Landings (ww)	# Endorsements	Avg # Tags Requested			Mean # Pots Fished			Median # Pots Fished		
		2008	2009	2010	2008	2009	2010	2008	2009	2010
500 lbs	52	54	53	55	37	41	43	30	30	30
1,000 lbs	44	57	59	60	35	40	43	24	25	29
2,000 lbs	38	63	65	66	39	44	44	32	40	40
(Preferred) 2,500 lbs	31	69	72	72	39	45	45	32	40	40
3,000 lbs	27	69	73	71	40	48	49	32	40	46
3,500 lbs	24	72	73	69	40	48	49	32	40	48
5,000 lbs	20	73	77	71	40	48	50	32	40	48
10,000 lbs	12	80	86	74	47	57	58	40	50	48

Among **Alternatives 2 – 5 (Preferred)**, **Alternative 2** would have the least beneficial effects to the biological environment as it would allow fishermen to fish up to 100 pots each year. For the 31 permits that qualify for endorsements, only 9% of the trips during 2008-2010 fished more than 100 pots (**Table 4-14**). **Alternative 4** would have the greatest biological effect since it would allow fishermen to fish a maximum of 25 pots. Based on data from 2008-2010, 69% of the trips taken by those individuals who qualify for endorsements fished more than 25 pots. The biological benefit of **Alternative 3** would be greater than **Alternative 2** but less than **Alternatives 4** and **5 (Preferred)** as it would allow fishermen to fish up to 50 pots. Twenty-one percent of the trips by individuals who qualify for endorsements under Action 2 fished more than 50 pots during 2008-2010. **Preferred Alternative 5** would allow 35 tags to be issued to each endorsement holder and would reduce the number of bass sea bass pot fished by 52% for those individuals who qualify for endorsements. Therefore, **Preferred Alternative 5** would result in beneficial biological effects less than **Alternative 4** but greater than **Alternative 3**.

Alternative 1 (No Action) would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2 – 5 (Preferred)** are unlikely to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2 – 5 (Preferred)** on sea turtles and smalltooth sawfish are unclear. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease. The same reasoning holds true for large whale entanglements. If the action does result in a decrease in the number of pots fished than the likelihood of large whale entanglements is likely to decrease also. However, as noted above, if more fishing effort occurs during a time of year when whales are more common in the South Atlantic, even a decrease in the number of pots fished may not result in an actual decreased risk of entanglement.

Table 4-14. Number of pots fished per trip during 2008-2010 for 31 permits that would qualify for endorsements under Action 2.

Number of Pots	Number of Trips	Cumulative Freq	Percent Freq	Cumulative Percent
<11	123	123	10%	10%
11 to 15	46	169	4%	14%
16-20	142	311	11%	25%
21-25	75	386	6%	31%
26-30	181	567	14%	45%
31-35	32	599	3%	48%
36-40	203	802	16%	64%
41-50	186	988	15%	79%
51-60	106	1,094	8%	88%
61-70	4	1,098	0%	88%
71-80	11	1,109	1%	89%
81-90	13	1,122	1%	90%
91-100	9	1,131	1%	91%
>100	118	1,249	9%	100%

Source: NMFS logbook database 5/12/11.

4.5.2 Economic Effects

In general, it is expected that the short-term economic benefits of **Alternatives 2-5 (Preferred)** would increase with the larger number of pots allowed per vessel. However, how the total number of pots in the fishery influences the catch per unit effort would ultimately determine the long-term economic impacts of these alternatives. It is possible that even a low number of pots per vessel could have negative economic impacts in the short and long-term if there are large numbers of vessels participating in the fishery. Assuming the catch per unit effort remains stable, **Alternative 2** would offer the greatest short-term economic benefits but probably the smallest long-term economic benefits since the total number of pots in the fishery has the lowest cap at 100 pots. **Alternative 3** would have the next largest short-term economic benefits (and next smallest long-term economic benefits) followed by **Preferred Alternative 5**, and **Alternative 4**, in that order.

If we assume that the number of pots carried per vessel is currently optimal for that individual vessel's operation, then any reduction in the number of pots would have a negative impact on the profitability of that operation. **Alternative 2** restricts the number of pots per vessel to 100. While most vessels carry less than 100 pots, those that currently carry more than 100 pots would be negatively impacted since they will be restricted to 100 pots. Although the cost of vessel operations remain largely fixed, except crew and food costs, the number of pots, which are used to generate revenue have decreased. The overall economic benefit of any of the alternatives will be a summation of the individual changes in profits. Given that there are only a few vessels fishing greater than 100 pots, the negative economic impacts from alternatives with larger number of pots allowed per vessel are expected to be less than the negative economic impact of

the alternatives with smaller numbers of pots allowed per vessel. Actual estimation of each vessel's profitability requires vessel specific cost data, which are not available at this point in time.

Had the 100 black sea bass pot cap of **Alternative** 2 been in effect during the years 2008 to 2010, approximately 9% of all black sea bass trips taken would have had to reduce the number of pots they fished (**Table 4-14)**. Similarly according to **Table 4-14**, under **Alternative 3** (50 pot cap), 21% of trips would have been affected; **Alternative 4** (25 pot cap) would have reduced the number of pots on 69% of the trips; and **Preferred Alternative 5** (35 pot cap) would have reduced the number of pots on 52% of the trips taken from 2008 to 2010.

4.5.3 Social Effects

Social effects would be expected to accrue to changes in the amount of gear allowed or the manner in which it is allowed to be used if the changes affect normal fishing practices (behavior) and subsequent harvests. The intent of this action is to limit effort and prevent an increase in the number of pots used by black sea bass pot fishermen in response to increased restrictions on other species and reduce the potential adverse effects of lost pots and long soak times. While the proposed measures may indirectly result in the reduction in harvests for some vessels, as well as limit the potential for harvest increases by fishermen, no specific harvest reductions or limits are proposed. Thus, no direct adverse social effects associated with explicit harvest reductions would be expected on average (across all current participants) and the primary social effects of the alternative limits may be largely due to reduced fishing flexibility and interference with personal fishing or business practices. These effects may take the form of reduced independence, lower job satisfaction, reduced time to engage in other activities, or increased costs, among other effects. The latter two potential effects might accrue if the proposed limits induce alteration of the normal fishing patterns, such as the frequency and duration of trips, as well as the time pattern of pot deployment, soak time, and retrieval.

Alternative 1 (No Action) would not impose any new restrictions on the number of black sea bass pots fished or tags issued and, as a result, would not be expected to result in any short-term social effects on fishermen, associated businesses, or communities.

Alternatives 2-5 (Preferred) would limit the number of pots fished (deployed) or at sea (on the vessel) by requiring each pot have an identification tag and limit the number of tags issued per vessel per year. **Alternatives 2-4** and **Preferred Alternative 5** would establish immediate tag limits (100, 50, 25, or 35 tags). Among **Alternatives 2-4** and **Preferred Alternative 5**, the short-term adverse social effects would be expected to vary directly with the severity of the limit. **Table 4-15** shows the lowest and highest pot-per-trips averages from 1999-2010, and also in the three most recent years (2008-2010). Additionally, a county average during the different periods is shown. There is a wide range of pots/trip for black sea bass fishermen and large differences between the county averages.

In North Carolina, the highest county average is in New Hanover County, with 86 pots/trip from 1999-2010, and 89 pots/trip in the most recent three years. This area would be the most impacted by the limits in **Alternatives 3, 4**, and **Preferred Alternative 5**. Based on the county

average, Pender County would likely experience impacts from **Alternative 4** or **Preferred Alternative 5**, but would not be as affected by **Alternatives 2-3**, since the more recent county average is 56 pots/trip. Brunswick, Carteret, and Onslow Counties each have a lower county average (24, 23, and 30 pots/trip, respectively). In general, black sea bass fishermen in these areas would be expected to experience minimal social impacts from **Alternatives 2-4**, and **Preferred Alternative 5.**

Table 4-15. Range of black sea bass pots-per-trip averages by county and overall county average from 1999-2010 and 2008-2010. This information was based on data on average pots per trip for permits that will at least qualify for an endorsement under **Action 2, Alternative 2a**.

	1999-2010			**22008-2010**		
	Lowest Pots/Trip Average	**Highest Pots/Trip Average**	**Average # of Pots/Trip**	**Lowest of Pots/Trip Average**	**Highest Pots/Trip Average**	**Average # of Pots/Trip**
North Carolina						
Brunswick Co	20	34	27	20	28	24
Carteret Co	7	47	24	6	67	23
New Hanover Co	67	101	86	60	128	89
Onslow Co	18	42	28	7	49	30
Pender Co	19	81	45	16	110	56
South Carolina						
Charleston Co	5	18	12	6	12	9
Georgetown Co	6	14	8	7	20	10
Horry Co	6	29	20	8	29	20
Florida						
Miami/Monroe	10	117	51	5	56	25
Other Counties	10	16	13	14	25	20

In South Carolina, the more recent county averages for pots/trips are relatively low when compared to North Carolina counties. For Charleston, Georgetown, and Horry Counties, the fishermen would be expected to experience minimal social impacts from **Alternatives 2-4**, and **Preferred Alternative 5** due to the low averages of pots per trip. In Florida, there would likely be minimal social impacts from **Alternatives 2-4**, and **Preferred Alternative 5.** No permits with home ports in Georgia are expected to qualify for a black sea bass pot endorsement; no impacts on Georgia fishermen or communities will result from this action.

4.5.4 Administrative Effects

Alternative 1 (No Action) would maintain the status quo where each person holding a federal commercial snapper grouper permit holder could request as many black sea bass tags as they desire. Because the number of tags allowed to be requested would remain unbounded by a specific limit, **Alternative 1 (No Action)** could potentially be the most administratively burdensome alternative under consideration. It is assumed that the lower the tag limit is set, the fewer tags may be requested and lower the administrative burden. Therefore, **Alternative 4** is likely to result in the lowest cost and time requirement for processing tag request transaction. Conversely, **Alternative 2** (100 tags per vessel) would be the most administratively burdensome of all the alternatives; however, the increased burden is likely to be small since the majority of fishery request less than 100 tags per fishing season. **Alternatives 2 – 5 (Preferred)** could constitute an increased burden to law enforcement since they would need to ensure that each pot deployed was within the legal limit. The burden to law enforcement would increase under the South Atlantic Council choice of **Preferred Alternative 5** because the number of traps allowed to be deployed was not previously limited, and this action would constitute a new regulation for the pot sector of the fishery.

4.6 Action 6: Implement Measures to Reduce Black Sea Bass Bycatch

Alternative 1 (No Action). Do not implement additional regulations stipulating when black sea bass pots must be removed from the water. Currently, fishermen are required to remove all pots once the quota has been reached.

Preferred Alternative 2. Black sea bass pots must be brought back to shore at the conclusion of each trip. "Brought back to shore" is defined as when the vessel with the pots has "returned to a dock, berth, beach, seawall, or ramp at the conclusion of each trip."

Alternative 3. Allow fishermen to leave pots in the water for no more than 72 hours.

4.6.1 Biological Effects

The "soak-time" is determined through the method of fishing. Black sea bass pot fishermen deploy gear in three primary manners (Tom Burgess pers. comm.). The most common form of fishing (63% of all trips; **Table 4-16**) is to deploy pots in the morning and retrieve them later in the day after a soak time of about 7 hours. Most of the remaining trips are for multiple days (37%; **Table 4-16**). A few fishermen leave 100-150 pots out all season and collect them at the conclusion of the fishing season. However, most fishermen on multi-day trips deploy pots at night and retrieve them the next morning for a soak time of about 17 hours. During 2005-2010, only 24 fishermen deployed more than 55 pots for an average of 99 pots deployed per trip (**Table 4-17**).

Table 4-16. Number of days away from port, number of trips, total lbs of black sea bass landed (whole weight), and number of pots fished during 2005-2010.

Away	Trip Freq	% Freq	Total lbs	% Total lbs	# Traps	% Traps
1	2,304	62.75%	1,194,358	46.72%	96,832	45.61%
2	993	27.04%	951,468	37.22%	71,176	33.53%
3	308	8.39%	341,267	13.35%	36,750	17.31%
4	49	1.33%	53,445	2.09%	6841	3.22%
5	9	0.25%	8,090	0.32%	465	0.22%
6	5	0.14%	4,059	0.16%	140	0.07%
7	3	0.08%	2,758	0.11%	54	0.03%
8	1	0.03%	1,146	0.04%	24	0.01%

Source: NMFS logbook database 5-12-11.

Table 4-17. Total number of pots per trip fished for the period 1/1/05-12/31/10.

	Average pots < 55	**Average pots ≥ 55**
No. of vessels	97	24
Average pots/trip	32	99

Source: NMFS logbook database 5-12-11.

Currently, there are instances where large numbers of pots may be left fishing for multiple days due to vessel or weather problems, which could unnecessarily kill black sea bass. Fishing large numbers of pots also increases the chance that pots could be lost and "ghost fishing" could occur. Therefore, limitations on the length of time pots can be left at sea would reduce the adverse effects of continued fishing by lost gear. Boat propellers and storms are common agents causing pots to be lost. Fishermen may not be able to retrieve pots during periods of inclement weather or vessel repairs. Furthermore, fishing large numbers of pots increases the chance of entanglement of pot lines with right whales and other protected species. The longer the pots are in the water, the greater the opportunity for lost pots and entanglement with protected species.

Preferred Alternative 2 would require that black sea bass pots be brought back to shore at the conclusion of a trip but would place no time limit on the length of the trip. Because fishermen may not be able to retrieve their pots during bouts of inclement weather, it is the South Atlantic Council's intent that fishermen be allowed to leave their pots in the water in order to return to port safely during foul weather situations. **Alternative 3** would put a time limit of 72 hours for how long a pot could remain in the water. **Alternative 1 (No Action)** would continue the risks of ghost fishing due to lost pots and entanglement with protected species, particularly when gear is left at sea for long periods of time and therefore would have the least amount of biological benefit for the alternatives considered. The biological benefit of **Preferred Alternative 2** would be greater than **Alternative 3** because most trips last one day. Therefore, under **Preferred Alternative 2**, pots would be in the water for the least amount of time and would have the least amount of risk for ghost fishing or entanglement with protected species.

The biological benefit of **Alternative 3** would be less than **Preferred Alternative 2** because it would allow fishermen to leave pots in the water for as long as 72 hours and would increase the chance pots could be lost or could interact with protected species. Furthermore, under **Alternative 3** fishermen would be able to return to the dock, while pots soak decreasing the chance gear could be retrieved during bad weather. Selecting both **Preferred Alternative 2** and **Alternative 3** as preferred would have an intermediate biological effect in that a trip could last for no longer than 72 hours but fishermen would not be able to return to the dock without their pots. However, as approximately 98% of the trips were 72 hours or less (**Table 4-16**), a restriction on the length of the trip (**Alternative 3**) is not needed. **Alternative 1 (No Action)** would perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Preferred Alternative 2** and **Alternative 3** are unlikely to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. Reductions in the amount of time vertical lines (i.e., buoy lines) remain in the water, especially from November 1 - April 11, is likely to reduce the risk of whale entanglements in black sea bass pots.

4.6.2 Economic Effects

Alternative 1 (No Action) would not implement new regulations that limit the soak time of black sea bass pots and thus would not reduce bycatch in the fishery. **Preferred Alternative 2** and **Alternative 3** would further restrict fishing flexibility by limiting pot soak time. **Preferred Alternative 2** would not explicitly limit soak time because the length of a fishing trip would not be limited. However, **Preferred Alternative 2** may functionally limit soak time if fishermen prefer not to stay at sea longer while their pots soak or force them to stay longer at sea to maintain customary soak times. Further, under **Preferred Alternative 2**, a vessel could not return to port without retrieving all pots, even if the expected soak time was still expected to be short. Only **Alternative 3** would explicitly limit soak time. However, almost all black sea bass pot trips are less than three days, so **Alternative 3** would be expected to have little to no adverse social or economic effects. While notice of the suspension of these requirements would be logical in the event of pending severe weather, such as a tropical depression or hurricane, the absence of specific procedures in the event of engine problems may create additional problems for fishermen.

Given that **Preferred Alternative 2** and **Alternative 3** protect the biological resource as well as the surrounding ecosystem, by helping to reduce bycatch, the fishery would experience long-term economic benefits from these alternatives.

4.6.3 Social Effects

Alternative 1 (No Action) would not impose any new restrictions on the black sea bass pot fishery and, as a result, would not be expected to result in any short-term adverse social effects on fishermen, associated businesses, or communities. In the long term, however, the absence of new restrictions on pot fishing would be expected to result in continued bycatch problems for other species, potential resource problems for these stocks, and associated decreased social and economic benefits associated with the fisheries for these species.

Preferred Alternative 2 and **Alternative 3** would be expected to help reduce bycatch, resulting in increased long-term social and economic benefits for affected species, but would restrict fishing flexibility. **Preferred Alternative 2** would not explicitly limit soak time because the length of a fishing trip would not be defined or limited. However, **Preferred Alternative 2** may functionally limit soak time if fishermen prefer not to stay at sea while their pots soak for extensive periods of time or force them to stay longer at sea to maintain customary soak times. Further, under **Preferred Alternative 2** a vessel could not return to port without retrieving all pots, even if the soak time was still expected to be short. Only **Alternative 3** would explicitly limit soak time. However, almost all black sea bass pot trips are less than three days, so **Alternative 3** would be expected to have little to no adverse social effects associated with alteration of normal fishing behavior. Absent suspension of the pot recovery requirement under certain conditions, both alternatives could result in hardship or safety issues in the event of engine problems or severe weather requiring the vessel to return to port prior to retrieving all pots. While notice of the suspension of these requirements would be logical in the event of

pending severe weather, such as a tropical storm or hurricane, the absence of specific procedures in the event of engine problems may create additional operational problems for fishermen.

4.6.4 Administrative Effects

Alternative 1 (No Action) would not implement new regulations that limit the soak time of black sea bass pots and thus would not reduce bycatch in pot segment of the fishery. **Alternative 1 (No Action)** would not impose any new administrative burden on the agency or the industry, and thus would not require increased enforcement efforts for monitoring when pots are pulled from the water. **Preferred Alternative 2** and **Alternative 3** would require a minimal administrative burden on Southeast Regional Office staff through the development of fishery bulletins and announcements. However, these alternatives would increase enforcement responsibilities in this fishery. **Alternative 3** would be difficult to enforce as the Office of Law Enforcement has stated that limitation on gear soak time is almost impossible to enforce. **Preferred Alternative 2** would be the easiest alternative to enforce given that the term "brought back to shore" is clearly defined in the regulations.

4.7 Action 7: Modify Accountability Measures for Black Sea Bass

Alternative 1 (No Action). Current accountability measures are as follows:

Commercial
If the commercial sector black sea bass ACL is met or is projected to be met, independent of stock status, all subsequent purchase and sale of black sea bass is prohibited and harvest and/or possession is limited to the black sea bass bag limit.

Recreational
If black sea bass *is overfished* and the recreational sector ACL is met or is projected to be met, prohibit the harvest and retention of black sea bass. Compare the black sea bass recreational ACL with recreational black sea bass landings over a range of years. For 2010, use only 2010 landings. For 2011, use the average landings of 2010 and 2011. For 2012 and beyond, use the most recent three-year running average. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector black sea bass ACL in the following season by the amount of the overage.

Alternative 2. Remove the three-year running average provision used to determine recreational ACL overages. The recreational AM would be: If black sea bass *is overfished* and the recreational sector black sea bass ACL is met or is projected to be met, prohibit the harvest and retention of black sea bass. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector black sea bass ACL in the following season by the amount of the overage.

Preferred Alternative 3. For the recreational sector: Remove the three-year running average provision used to determine recreational ACL overages. The recreational AM would be: If the recreational sector black sea bass ACL is met or is projected to be met, independent of stock status, prohibit the harvest and retention of black sea bass. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector ACL in the following season by the amount of the overage.

For the commercial sector: If the commercial sector black sea bass ACL is met or is projected to be met, independent of stock status, all subsequent purchase and sale of black sea bass is prohibited and harvest and/or possession is limited to the black sea bass bag limit. If the commercial sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the commercial sector black sea bass ACL in the following season by the amount of the overage.

Note: For both the recreational and commercial sectors, ACL paybacks are not required when new projections are adopted that incorporate ACL overages and the ACLs are adjusted in accordance with those projections. Beyond the 2013/2014 fishing season (when the rebuilding strategy switches over to $F_{rebuild}$) for years when there is no assessment, the ACL would not automatically increase if the ACL has been exceeded during the previous fishing year.

4.7.1 Biological Effects

Snapper Grouper Amendment 17B (Amendment 17B) (SAFMC 2010b) implemented commercial and recreational AMs for black sea bass. Subsequent to the implementation of Amendment 17B, the South Atlantic Council determined the methodology employed by the system of AMs under Amendment 17B may not be the most appropriate way to constrain harvest at or below the sector ACLs and it could unnecessarily penalize the participants in the commercial and recreational sectors of the black sea bass segment of the snapper grouper fishery. Therefore, at their June 2011 meeting, the South Atlantic Council requested that AMs for black sea bass be re-examined in this amendment to incorporate more flexibility into the current AMs as is appropriate for this rebuilding fishery.

The recreational black sea bass AMs outlined in Amendment 17B employed the use of a three year running average whereby the recreational landings from the first year (2010) would be compared to the recreational ACL of 409,000 pounds gw to determine if the ACL was exceeded for that year. In the second year (2011), the average landings of 2010 and 2011 would be compared to the ACL to determine if an overage had occurred for that year. In year three (2012), the average recreational landings for 2010, 2011, and 2012 would be compared to the ACL to determine if the recreational ACL for that year had been exceeded. For every year thereafter, recreational landings from the most recent three years would be compared to the ACL to determine if the ACL has been exceed. Additionally, if the recreational ACL is exceeded, and black sea bass are overfished, recreational harvest would be prohibited and if the ACL is exceeded, regardless of stock status, the ACL for the season following an ACL overage shall be reduced by the amount of the overage.

Using a three year running average of recreational landings to determine if the recreational ACL has been exceeded in any given year is not likely to be the most appropriate means of determining such overages. As Amendment 17B states, the three year running average was intended to account for variability in the recreational data collection and associated data uncertainty. However, exceptionally high recreational landings in a single year could significantly influence the running average for several years into the future in addition to reducing the ACL in the season following an overage. Therefore, using the three year running average has the potential to penalize the recreational sector once when the ACL is met or is projected to be met and in subsequent years when the the average value is calculated. This situation could result in the possible triggering of unnecessary AMs creating unintended socioeconomic consequences and lowered ACLs that are not biologically needed. Because of the issues presented by the use of a three year average, the South Atlantic Council proposed new AM alternatives that do not include this method of determining whether or not the recreational ACL has been exceeded. Since this action will only change the methods used to determine if AMs are required, and does not establish immediate harvest objectives, it will not directly affect the protected species.

Alternative 1 (No Action) would not change the current system of AMs to employ more appropriate methods for determining ACL overages and modify the corrective actions taken if the ACL is projected to be met or exceeded. **Alternative 2** retains the ability of the Regional Administrator to prohibit recreational harvest in-season if the recreational ACL is projected to be

met and if the stock is overfished. Under **Alternative 2**, if the stock is not overfished and there is a large overage of the recreational ACL, there would be a reduction in the ACL the following year. If the stock is not overfished, however, no in-season action would be taken to prevent the ACL from being exceeded, which could have adverse biological consequences if the ACL is repeatedly exceeded. Alternately, **Alternative 2** does include a post-season payback if the ACL is exceeded regardless of the stock's status. This payback provision would help to correct for ACL overages should they occur, but it is biologically preferable to also have an in-season provision in place to prevent the ACL from being exceeded in the first place. An in-season closure for the recreational sector could help prevent significant reductions of the following year's ACL. The biological effects of **Preferred Alternative 3** would be expected to be more beneficial than **Alternative 2** since **Preferred Alternative 3** would prohibit recreational harvest in-season regardless of the overfished status if the ACL is projected to be met. As a result, the magnitude of an overage of the recreational ACL under **Preferred Alternative 3** would be expected to be less than **Alternative 2**, and less of a post-season correction would be needed in the following year.

Alternative 2 and **Preferred Alternative 3** also retain the recreational post-season provision that allows the Regional Administrator to reduce the recreational ACL for the fishing season following an ACL overage, regardless of stock status. The primary modification to the system of recreational AMs for black sea bass under **Alternative 2** and **Preferred Alternative 3** is the elimination of the use of the three year running average to determine ACL overages. Eliminating the three year average would result in a reduced risk of implementing overly conservative AMs. As stated previously, the three year running average could be heavily influenced by a single year's anomalously high or low landings, which may or may not be due to actual increased harvest or statistical variation.

Preferred Alternative 3 would also implement a payback provision if the commercial ACL is exceeded, regardless of stock status. Under **Alternative 1 (No Action)**, there is no payback if the ACL is exceeded. Therefore, biological effects of **Preferred Alternative 3** would be greater than **Alternative 1 (No Action)** because **Preferred Alternative 3** would reduce the commercial ACL in the fishing year following an ACL overage regardless of stock status. However, since a quota monitoring system is in place, any overage of the commercial ACL is expected to be small. Therefore, if the stock is not overfished, a small overage of the ACL would not be expected to have large negative biological effects. However, if the stock is overfished, a large overage of the commercial ACL could affect stock rebuilding if there were no payback the following fishing year.

At their December 2011 meeting, the South Atlantic Council clarified when the use of payback provisions in the commercial and recreational sectors would and would not be utilized. It is the South Atlantic Council's intent to not require post-season ACL paybacks in years when new projections, such as those created for stock assessments, are adopted that incorporate ACL overages and the ACLs are adjusted based on those projections. Therefore, because the projections done for the most recent stock assessment for black sea bass (SEDAR 25) accounted for the ACL overage from the 2011/2012 fishing year, no payback is necessary in either the recreational or commercial sectors for the 2012/2013 fishing year. If the 2012/2013 sector

ACL(s) are exceeded, then sector-specific paybacks in the form of reduced sector ACLs for the 2013/2014 fishing year would be implemented.

4.7.2 Economic Effects

Accountability measures would have direct economic effects on fishing participants, because they would affect the allowed harvest or fishing opportunities for black sea bass. These economic effects would generally be immediate with in-season AMs and would be delayed if only post-season AMs were implemented. The no action alternative (**Alternative 1**) may be generally characterized as a mix of in-season and post-season AMs. If the stock is overfished, this AM would have immediate economic effects on the offending sector in the first year, i.e., 2010-2011 fishing year, if the sector's ACL were exceeded or projected to be exceeded. This just happened with the recreational closure on February 12, 2011. In subsequent years, the AM measure would be modified, since the ACL would be compared to the average 2 or 3 years of recreational landings. Regardless of stock status, exceeding the ACL would trigger an AM that would reduce the subsequent year's recreational ACL by the amount of overage. Considering the relatively high recreational landings of black sea bass in the most recent years, the averaging method would tend to result in relatively high landings that could trigger an AM application even if the ACL were not exceeded in the current year. In essence, the near-term expectations under **Alternative 1 (No Action)** would be an increasing level of economic losses. Over time, if the stock were rebuilt and the ACL were not adjusted upward, the expectation under **Alternative 1 (No Action)** would also be an increasing level of economic losses. However, if the ACL were adjusted upward in the future, the averaging feature would provide some level of stability in the application of AMs.

Alternative 2 would differ from **Alternative 1 (No Action)** only by dropping the averaging method in evaluating whether or not the recreational is exceeded. Noting that the recreational sector harvested over its ACL in the most recent year, the near-term expectation under this alternative would be short-term economic losses even without the averaging feature. It is possible that the reduction in the subsequent year's ACL would be smaller under **Alternative 2** than under **Alternative 1 (No Action)**, because a relatively high harvest in one year would not be carried over into the subsequent years for purposes of triggering the AM.

Preferred Alternative 3 may result in slightly higher economic losses for the recreational sector since in-season AMs would be triggered regardless of the overfished status of the stock. **Preferred Alternatives 3** also includes a payback provision for the commercial sector, which does not exist under the status quo. **Preferred Alternative 3** would trigger a post-season AM if the commercial or recreational sector ACL is exceeded regardless of the overfished status of black sea bass. Economic losses that may result from **Preferred Alternative 3** would take the form of diminished fishing opportunities caused by potential early in-season closures in the recreational sector, and lowered ACLs following a season in which the ACL was exceeded.

Under all the AM alternatives, ACL increases under the rebuilding strategy would be contingent on total commercial and recreational harvest not exceeding the two sectors' combined ACL. While sector AMs would still apply once the sector-specific ACL threshold is exceeded, the total

ACL may still increase over time as provided in the rebuilding strategy. This would tend to compensate for the economic losses to the recreational (or commercial) sector due to the application of AMs. One downside of this provision is that relatively large economic benefits would be forgone in future years despite only marginally exceeding the total ACL in the current year. Given the AMs for both the recreational and commercial sectors, the probability of exceeding the total ACL by a small amount would be relatively high. If the sector AMs were timely applied, the probability of exceeding the total ACL would be low.

4.7.3 Social Effects

The setting of AMs can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest. The long-term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior that can extend beyond the fishery.

Alternative 1 (No Action) would maintain AMs implemented in Amendment 17B, which would provide less flexibility in management of black sea bass harvest in order to meet rebuilding goals for the fishery, and maintain the three-year average method for the recreational AMs. In general, this method could produce long-term social impacts, specifically in that the recreational harvest in one year could continue to affect AMs in subsequent years, and reduce recreational effort and fishing opportunities.

Alternative 2 would implement recreational AMs that reduce the subsequent season if the ACL is exceeded, which would reduce recreational fishing opportunities. An early closure could reduce employment opportunities for the for-hire sectors, and reduced social benefits from recreational fishing. However, as the black sea bass stock rebuilds and when the stock is no longer overfished through establishment of AMs, there will be long-term social benefits. Overall, any reduced fishing opportunities may produce negative social effects, while closures will contribute to rebuilding the black sea bass resource, which is expected to result in positive long-term social effects.

Preferred Alternative 3 would have similar social impacts as **Alternative 2** in regards to outcomes associated with early closures. However, **Preferred Alternative 3** incorporates the overages into the quota projections and ACLs. This removes the possibility that the recreational and/or commercial sector will be penalized twice for an overage, which is expected to generate more social benefits than **Alternative 2** because this method would be more likely to allow fishing opportunities and maximized season length.

4.7.4 Administrative Effects

Alternative 1 (No Action) is likely to be the most administratively burdensome alternative of the two AM alternatives considered because it would require ongoing recalculations of the three year average recreational landings. However, **Alternative 2** would result in only a slightly lower

staff time burden when compared to **Alternative 1 (No Action)** since all other provisions of the status quo recreational AM would still apply. The time associated with averaging the most recent three years recreational landings of black sea bass is not considered an overly burdensome administrative task. **Preferred Alternative 3** incorporates two new provisions, an in-season closure for the recreational sector when the ACL is projected to be met regardless of the overfished status of black sea bass, and a post-season ACL payback for the commercial sector to be implemented in fishing years following an ACL overage. Since **Preferred Alternative 3** adds two provisions but eliminates the use of the three year running average for the recreational sector, the administrative impacts of **Preferred Alternative 3** may be very similar to those under **Alternative 1 (No Action)**. In the future, there will likely be years when the post-season payback is not necessary even if there is an overrun, since stock assessments are completed periodically and the associated projections would take into account any ACL overages during a given fishing year. Administrative impacts would be greatest in fishing years where both an in-season closure and a post-season payback is required. The administrative burden would be compounded if both of these events were to take place for both sectors.

4.8 Action 8: Establish a Spawning Season Closure for Black Sea Bass

Preferred Alternative 1 (No Action). Do not implement a spawning season closure for black sea bass.

Alternative 2. Implement a March 1-April 30th spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 3. Implement an April 1st-May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 4. Implement a March 1st- May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Alternative 5. Implement a May 1st- May 31st spawning season closure for black sea bass; would apply to commercial and recreational sectors.

Note: The following impact analyses were conducted using data from the 2006/2007 through 2009/2010 fishing years when fishing did occur during the months considered for closure (**Table 4-18**). Data for the January-May 2010 portion of the 2009/2010 fishing year are estimated as the average of the 4 preceding years for MRFSS and Headboat (HB). For the commercial sector, landings were assumed to be zero because the commercial quota was met and the commercial sector closed on December 20, 2009. These analyses indicate the level of impacts anticipated if fishing occurs during the months considered for the spawning season closure.

In the short term, there will be no impacts from any of these alternatives because of early closures. The commercial sector closed on December 20, 2009 in the 2009/2010 fishing year, on October 7, 2010 in the 2010/2011 fishing year, and on July 15, 2011 in the 2011/2012 fishing year. The recreational sector closed on February 12, 2011 in the 2010/2011 fishing year and on October 17, 2011 in the 2011/2012 fishing year. The South Atlantic Council is considering changes to the AMs for the recreational sector that may continue to close the recreational sector when their ACL is taken; since black sea bass are no longer overfished, this is not currently required for the 2012/2013 fishing year.

4.8.1 Biological Effects

Snapper Grouper Regulatory Amendment 9 (SAFMC 2011b) included an alternative to implement a spawning season closure for black sea bass. The South Atlantic Council did not choose a spawning season closure as a preferred alternative at that time; however, the South Atlantic Council requested that the issue be revisited in this amendment. A spawning season closure could provide black sea bass with more spawning opportunities, which could contribute to recruitment success of a new year-class, help rebuild the stock more quickly, and result in a more stable and sustainable resource. It is noted that the current regulations implemented through Amendment 13C have resulted in a commercial closure of black sea bass prior to the peak spawning season as the commercial quota for the June 1 2009-May 31 2010 fishing year was met in December 2009; the commercial quota for the June 1 2010-May 31 2011 fishing year

was met in October 2010, and the commercial quota for the June 2011-May 31, 2012 was met in July 2011. During the June 2010-May 2011 fishing year, the commercial sector opened back up for two weeks in December 2009 because the commercial quota had not been met when the commercial sector closed in October 2010.

Preferred Alternative 1 (No Action) would provide no additional protections for black sea bass, bycatch species, or protected species. Compared to the other spawning season alternatives under consideration **Preferred Alternative 1 (No Action)** is considered the least biologically beneficial. However, as noted previously, in the past three fishing seasons the fishery has closed early, and in most cases a spawning season closure would not have been needed because the commercial fishery had been closed by the proposed start dates. However, in the future, if the ACL is increased and efforts to control effort and harvest rates in the fishery are successful, there is a chance the fishery would be open longer into the fishing season and fishing could occur during the spawning season closures included in the Action 8 alternatives. If this were to occur, the South Atlantic Council could consider a spawning season closure again at a future time through another FMP amendment or framework action. There is nothing that would preclude the South Atlantic Council from revisiting the possibility of implementing a spawning season closure in the future if needed.

Alternatives 2-5 would consider alternatives for various spawning season closures for the commercial and recreational sectors. However, in consideration of **Alternatives 2-5**, it should be noted that there is evidence of a change in peak spawning of black sea bass with spawning occurring earlier in the year in the more southern latitudes. Hood et al. (1994) reported that black sea bass females in the Gulf of Mexico spawn during December through April with highest incidence of hydrated oocytes occurring during January and March. Further north in the South Atlantic, McGovern et al. (2002) indicate black sea bass females spawn during January to June with peak spawning occurring during March-April (**Figure 4-4**). Sedberry et al. (2006) stated that in the South Atlantic spawning females occur during most months of the year with a major spawning period of February through April. In the Mid-Atlantic Bight, spawning progresses seasonally from south to north, and starts as early as April off the coast of North Carolina and Virginia (Able et al. 1995). Spawning continues from June through October, peaking in August. Steimle et al. (1999) states spawning in the Middle Atlantic Bight population occurs from May to July during inshore migrations, but can extend to October-November.

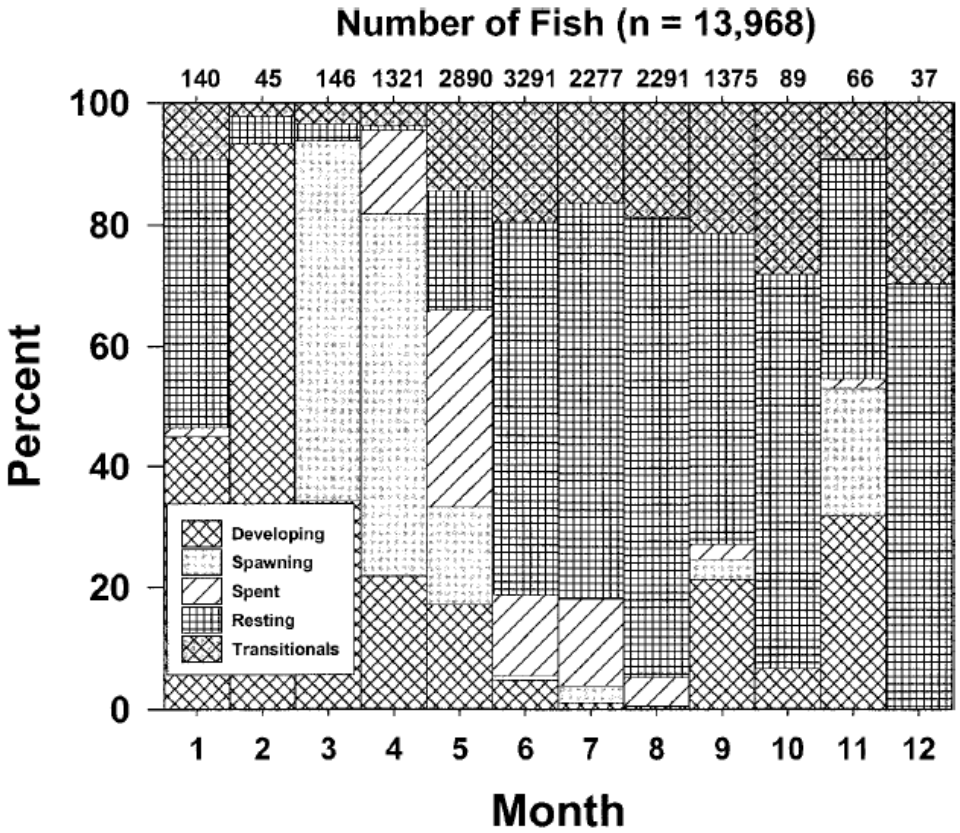


Figure 4-4. Black sea bass spawning information from McGovern et al. (2002). The figure shows monthly gonadal stage percentages for 13,969 female black sea bass captured between 31°20´N and 34°00´N, 1978-1998. The number collected and examined each month is given at the top of the bar.

McGovern et al. (2002) did not report spawning season by state; however, sample size for October through March was small (**Figure 4-4**) and most black sea bass during those months were obtained through fishery-dependent sampling in South Carolina. Given the evidence provided by the literature of a south to north progression in spawning, it is likely that peak spawning of black sea bass off Florida and Georgia may occur earlier than during March-May. Furthermore, peak spawning of black sea bass off North Carolina may occur later than March-May.

Alternatives 2-5 would establish various combinations of the peak spawning months reported by McGovern et al. (2002). **Alternative 2** would establish a March 1-April 30 spawning season closure. This alternative would encompass a larger portion of the March-May peak spawning season for black sea bass than **Alternative 3** and **Alternative 5**. Furthermore, **Alternative 2** would likely have a greater biological benefit for black sea bass off Florida and Georgia than sub-alternatives that would close black sea bass later during the spawning season since spawning occurs earlier in the more southern latitudes. March and April accounted for 15% of black sea bass landings during the 2006-2009 fishing years. **Alternative 3**, which would close the months of April and May, would not have as great a biological benefit as **Alternative 2** because it would not include the month of March when a large proportion of the population is in spawning

condition. However, **Alternative 3** would likely have a greater biological benefit for black sea bass off North Carolina than **Alternative 2**, which would close the months of March and April. April and May accounted for 16% of the total landings during the 2006-2009 fishing year but only 8% of the commercial sector occurred during those months (**Table 4-18**). Most commercial landings have historically occurred during November through February. The biological benefit of **Alternative 4** would be greatest of all the alternatives considered because it would encompass the March-May period of peak spawning when all information for the South Atlantic is considered (McGovern et al. 2002). The biological benefit of **Alternative 5** would be least of the action alternatives because it would only close May when a small proportion of the population is in spawning condition relative to March and April. Only a small portion (3%) of the commercial landings occurred during May during the 2006-2009 fishing years (**Table 4-18**). Furthermore, **Alternative 5** would be expected to have the least amount of biological benefit for black sea bass off Florida and Georgia since there is a seasonal progression in spawning from south to north. Thus, in terms of biological benefit to black sea bass, the order of sub-alternatives from greatest benefit to least is: **Alternative 4**; **Alternative 2**; **Alternative 3**; and **Alternative 5**.

Table 4-18. Percentage of monthly landings for black sea bass during 2006/2007 through 2009/2010 fishing years.

Month	MRFSS	HB	Comm	Total
6	15%	15%	6%	11%
7	11%	15%	5%	9%
8	11%	11%	6%	9%
9	4%	7%	5%	5%
10	4%	6%	7%	5%
11	10%	4%	13%	10%
12	10%	4%	16%	11%
1	4%	3%	14%	7%
2	4%	3%	12%	7%
3	8%	8%	8%	8%
4	8%	12%	5%	7%
5	13%	12%	3%	9%

Note: Data for the January-May 2010 portion of the 2009/2010 fishing year are estimated as the average of the 4 preceding years for MRFSS and Headboat (HB). For the commercial sector, landings were assumed to be 0 because the quota was met and the commercial sector closed on December 20, 2009.

Preferred Alternative 1 (No Action) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2-5** are unlikely to have adverse effects on listed *Acropora* species. Black sea bass pots are prohibited south of St. Lucie Inlet, Florida. The northern extent of the range of *Acropora* in Florida is West Palm Beach, south of the black sea bass trapping boundary. Because the range of *Acropora* and the black sea bass pot fishery do not overlap, black sea bass pots will not interact with *Acropora* colonies. Previous ESA consultations determined the hook-and-line sector of the snapper grouper fishery

was not likely to adversely affect *Acropora* species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species. If **Alternatives 2-5** reduce the total amount of black sea bass fishing effort, then the likelihood of interactions between that sector of the fishery and sea turtles is likely to decrease. However, if the alternatives simply displace effort to other months and do not actually reduce the fishing effort, they will likely perpetuate the existing level of entanglement risks.

The closures proposed in **Alternatives 2** and **4** would likely provide the greatest reduction in potential entanglement threats to large whales because they have the largest overlap with the migration and calving season (November 1-April 1). **Alternative 3** may also reduce entanglement risk, but since the period of overlap between the closure and migration/calving season is less than **Alternatives 2** and **4** it is likely to have fewer biological benefits. Conversely, **Alternative 5** is unlikely to provide any additional reduction in entanglement risks for large whales because the proposed closure would not occur during the period when large whales are present in the South Atlantic.

4.8.2 Economic Effects

Commercial Sector

Alternatives 2-5 propose a spawning season closure for commercial and recreational sectors. **Table 4-19** shows the commercial short-term economic effects in the form of foregone dockside revenues of each sub-alternative. **Alternative 4** results in the largest loss in dockside revenues while **Alternative 5** results in the smallest loss. While the spawning season closures in **Alternatives 2** and **3** are of the same approximate length, **Alternative 2** has the larger loss associated with it due to the relatively large amount of black sea bass harvested in March compared to May. On average, 2007-09 dockside revenues amounted to about $1.6 million for black sea bass. Revenue reductions may also be expected to result in profit reductions but the magnitude of effects cannot be estimated with available information.

Preferred Action 1 (No Action) will not have an economic impact in the foreseeable future because the fishing year is unlikely to extend into the spawning season. There could be economic impacts in the future should the commercial black sea bass ACL increase in future years to an extent that the fishing year extends into the spawning season. **Table 4-19** shows the impacts for the last fishing season that did extend into the spawning season had there been a spawning season closure in place at the time.

Table 4-19. Dockside revenues foregone as a result of Alternatives 2-5 based on 2007-2009 average landings data.

Alternative	Total revenue loss in 2009 dollars (ex-vessel revenue)
2 (March 1 - April 30)	$182,000
3 (April 1 - May 31)	$96,000
4 (March 1 - May 31)	$212,000
5 (May 1 – May 31)	$47,000

In general, implementation of a spawning season closure will result in long-term economic benefits for the commercial sector with **Alternative 4** having the greatest long-term economic benefit and **Alternative 5** the smallest. However, as mentioned above in the Biological Effects section, biological benefits will vary by state and the economic benefits could follow that same pattern depending on how much movement of black sea bass there is between states.

Recreational Sector

The short-term effects on net operating revenues of for-hire vessels are shown in **Table 4-20**. Based on total effects, **Alternative 4** would result in the largest forgone net operating revenues and **Alternative 5**, the lowest. This result is almost as expected since **Alternative 4** would impose a three-month closure and **Alternative 5**, a one-month closure. **Alternatives 2** and **3** would impose a two-month closure. The same pattern of effects can be observed for headboats but not quite for charterboats. For headboats, **Alternative 4** would result in the largest forgone net operating profits and **Alternative 5**, the lowest. For charterboats, **Alternative 4** would result in the largest effects and **Alternative 2**, the lowest. Based on 2007-2009 data, charterboat anglers indicated higher target trips for black sea bass in May than in March and April combined.

The estimated effects presented in **Table 4-20** may overestimate actual effects if the for-hire fishing vessels are able to shift their effort (trips) to the open season. It is possible, though, that those re-scheduled trips would not totally recoup losses incurred from being unable to fish for black sea bass during the closed months.

Preferred Action 1 (No Action) will not have an economic impact in the foreseeable future because the recreational fishing year is unlikely to extend into the spawning season. There could be economic impacts in the future should the recreational black sea bass ACL increase in future years to an extent that the fishing year extends into the spawning season. **Table 4-20** shows the impacts for one of the last fishing seasons that did extend into the spawning season had there been a spawning season closure in place at the time.

Table 4-20. Forgone net operating revenues (2009 dollars) due to the spawning closure alternatives.

Alternative	Charterboat	Headboat	Total
2 (March 1 - April 30)	$112,640	$134,109	$246,749
3 (April 1 - May 31)	$189,138	$151,989	$341,127
4 (March 1 - May 31)	$246,381	$210,950	$457,331
5 (May 1 – May 31)	$133,741	$76,841	$210,582

Based on 2007-2009 MRFSS data, **Alternative 2** would result in a loss of approximately 70,000 black sea bass. Using a CS value of $31 per fish, this calculates to a loss of approximately $2.17 million. A loss of 80,000 black sea bass $(2.48 million) is expected under **Alternative 3** while 115,000 black sea bass ($3.57 million) and 45,000 sea bass ($1.4 million) would not be caught under **Alternatives 4** and **5**, respectively.

The economic effects of the alternatives for spawning closure are examined by evaluating their resulting expected changes in consumer surplus (CS) to anglers and net operating revenue

(NOR) to the for-hire sector. A constant CS value of $32 per fish (Haab et al. 2009) and constant NOR value of $128 per angler trip for charterboats and $68 per angler trip (day) for headboats (Dumas et al. 2009) are used. These values, expressed this time in constant 2010 dollars, are the same values used in analyzing the economic effects of this amendment's spawning closure alternatives on the recreational sector. This is the same methodology employed in, among others, Amendment 17A (SAFMC 2010a), Amendment 17B (SAFMC 2010b), Regulatory Amendment 9 (SAFMC 2011b), and Amendment 24 (SAFMC 2011d). The basic sources of data are MRFSS for harvest and target trip data for the shore, charter, and private modes and the Headboat Survey for harvest and trips for headboats.

There are at least four important limitations that need to be recognized in the current analysis. First, the baseline years considered are the fishing years 2007-2008 through 2009-2010, since complete data for the 2010-2011 fishing season are not yet available. This baseline then would not take into account the recreational closure that occurred from February 12, 2011 through the end of the fishing season on May 31, 2011 (ACL-based closure). The spawning closures considered in this amendment may or may not fully replace the ACL-based closure, and no comparison of the effects of the spawning closure alternatives against those of the ACL-based closure is attempted in the current analysis. Second, the effects of the various alternatives are estimated without consideration of the potential change in angler behavior in response to new regulations. This behavioral change can potentially reduce some of the negative effects of the various alternatives. For example, anglers may target other species or shift effort to the open months to target black sea bass and other available species. Third, there are uncertainties in the CS and NOR values as well as in some variables (e.g., harvests, target trips) that are not incorporated into the quantitative estimates. When combined, these uncertainties would have relatively unknown consequences on the resulting estimates of economic effects. Fourth, the current analysis focuses solely on short-term effects, and thus makes comparison of alternatives based on the short-term effects on CS and NOR.

Relative to the baseline, the spawning closure alternatives may be expected to result in short-term reductions in CS to recreational anglers and NOR to the for-hire sector. Results for each alternative presented in **Table 4-21** are all reductions in CS and NOR. On the assumption that anglers would not compensate reductions in black sea bass harvest by targeting other species or increasing their effort to target black sea bass during the open months, the tabulated reductions in CS and NOR may be overestimates of actual impacts.

The overall magnitude of economic effects would directly correlate with the length of the closure. **Alternative 4**, which would impose a three-month spawning closure, would result in the largest reduction at approximately $5.7 million (CS+NOR). On the other end is **Alternative 5**, which would impose a one-month spawning closure that would result in total effects of approximately $2.3 million (CS+NOR). This finding would also hold true whether only either CS or NOR were used for comparison. Of the two alternatives that would impose a two-month closure, **Alternative 3** would result in larger effects than **Alternative 2**. Again, this result would hold true whether only either CS or NOR were considered. In all alternatives, CS reductions would account for most of the effects, with NOR effects being but a small fraction of their corresponding CS effects.

Based on overall economic effects (CS+NOR), all alternatives would result in the largest negative effects on the private/shore mode and least on the charterboat sector. Although the alternatives would affect both the charter and headboat sectors twice, one for CS reduction and another for NOR reduction, the private/shore mode would still bear the largest effects. This result is mainly driven by the far larger harvest level of the private/shore mode than any other modes.

The pattern of effects of the alternatives across the states would slightly differ from that of the overall effects (**Table 4-22**). **Alternative 4** would still result in the largest effects for all states. In addition, **Alternative 5** would result in the smallest effects for all states, except North Carolina. For this particular state, the smallest effects would come from **Alternative 2.**

There are some variations in the effects of the various alternatives across the states. **Alternative 2** would result in the largest CS effects on South Carolina and smallest CS effects on North Carolina. In terms of NOR effects, **Alternative 2** would have the largest effects on Georgia/Northeast Florida and smallest on North Carolina. For **Alternative 3**, the largest CS effects would fall on South Carolina and smallest on Georgia/Northeast Florida. NOR effects of this alternative would be largest on South Carolina and smallest on Georgia/Northeast Florida. The CS effects of **Alternative 4** would be largest on South Carolina and smallest on Georgia/Northeast Florida while the NOR effects would be largest on South Carolina and smallest on North Carolina.

Considering both CS and NOR effects, **Alternative 2** would have the largest effects on South Carolina and smallest on North Carolina; **Alternative 3** would have the largest effects on South Carolina and smallest on Georgia/Northeast Florida; **Alternative 4** would have the largest effects on South Carolina and smallest on Georgia/Northeast Florida; and, **Alternative 5** would have its largest effects on South Carolina and smallest on Georgia/Northeast Florida. In sum, all alternatives would have their largest effects on South Carolina and, with the exception of **Alternative 3**, least on Georgia/Northeast Florida.

In general, implementation of a spawning season closure would result in long-term economic benefits for the recreational (and commercial) sector with **Alternative 4** having the greatest long-term economic benefit and **Alternative 5** the smallest. However, as mentioned above in the Biological Effects section, biological benefits will vary by state and the long-term economic benefits could follow that same pattern.

In addition to the economic effects discussed above, spawning closures would also affect the economic activities in the affected areas. **Table 4-22** presents these impacts in terms of output, value added, and full-time employment for the four states in the South Atlantic. These reductions were derived using expected reductions in target trips due to the spawning closure alternatives. Due to the limitation of the economic activities model used, these effects exclude the effects from the reductions in headboat trips. All the numbers represent reductions in economic activities.

Although the estimation of effects on economic activities share some of the same variables as the estimation of CS and NOR effects, there are some differences in the relative magnitude of

effects. Reductions in output and value added would be largest with **Alternative 4** and smallest with **Alternative 5**, except for South Carolina, which would have the smallest reduction with **Alternative 2**. These relative magnitudes of effects would be the same for all states.

For all alternatives, South Carolina would be expected to experience the largest reduction in economic activities and Georgia/Northeast Florida, the smallest.

Table 4-21. Reductions in CS and NOR due to spawning closure alternatives, 2010 dollars.

FISHING MODE	Consumer Surplus (CS)				Net Operating Revenue (NOR)				TOTAL
	NC	SC	GA/ NEFL	FL	NC	SC	GA/ NEFL	FL	
Alternative 2: March 1-April 30 Closure									
Priv/Sh.	$126,806	$1,018,690	$267,266	$580,539					$1,993,300
ChartB	$86,050	$94,328	$141,332	$6,482	$0	$33,152	$9,515	$21,077	$391,936
HeadB	$180,661	$274,112	$80,651	$387,147	$11,083	$44,915	$69,888	$15,288	$1,063,744
TOTAL	$393,517	$1,387,130	$489,249	$974,167	$11,083	$78,067	$79,403	$36,365	$3,448,980
Alternative 3: April 1-May 31 Closure									
Priv/Sh.	$257,223	$579,383	$389,655	$743,013					$1,969,275
ChartB	$219,727	$291,754	$100,417	$33,965	$4,575	$121,033	$4,679	$10,366	$786,517
HeadB	$281,472	$480,469	$97,440	$357,163	$21,718	$57,739	$72,618	$12,207	$1,380,827
TOTAL	$758,422	$1,351,607	$587,512	$1,134,141	$26,293	$178,773	$77,297	$22,573	$4,136,619
Alternative 4: March 1-May 31 Closure									
Priv/Sh.	$320,626	$1,088,728	$523,289	$1,033,283					$2,965,925
ChartB	$262,752	$338,918	$171,083	$37,206	$4,575	$137,881	$9,515	$21,077	$983,007
HeadB	$334,293	$555,957	$129,984	$550,123	$24,518	$72,134	$105,548	$20,165	$1,792,722
TOTAL	$917,671	$1,983,603	$824,355	$1,620,611	$29,093	$210,015	$115,063	$41,242	$5,741,654
Alternative 5: May 1-May 31 Closure									
Priv/Sh.	$193,820	$70,038	$256,022	$452,744					$972,625
ChartB	$176,702	$244,590	$29,750	$30,725	$4,575	$104,729	$0	$0	$591,071
HeadB	$153,632	$281,845	$49,333	$162,976	$13,435	$27,219	$35,660	$4,877	$728,978
TOTAL	$524,154	$596,474	$335,106	$646,445	$18,010	$131,948	$35,660	$4,877	$2,292,674

Table 4-22. Reductions in economic activities due to the spawning closure alternatives (2008 dollars). Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia/ Northeast Florida	East Florida
	Alternative 2: March 1-April 30 Closure			
Target Trips	1,782	5,028	3,611	941
Output Impact	$97,268	$297,169	$59,913	$94,008
Value Added Impact	$54,846	$171,776	$36,236	$55,604
Jobs	1	4	1	1
	Alternative 3: April 1-May 31 Closure			
Target Trips	2,057	4,670	1,964	1,398
Output Impact	$124,327	$482,866	$32,433	$81,547
Value Added Impact	$70,067	$275,835	$19,620	$48,448
Jobs	1	6	0	1
	Alternative 4: March 1-May 31 Closure			
Target Trips	2,962	7,225	3,798	1,877
Output Impact	$173,725	$633,694	$62,835	$129,403
Value Added Impact	$97,921	$363,023	$38,008	$76,755
Jobs	2	8	1	1
	Alternative 5: May 1-May 31 Closure			
Target Trips	1,180	2,197	187	936
Output Impact	$76,458	$336,525	$2,922	$35,395
Value Added Impact	$43,075	$191,247	$1,772	$21,150
Jobs	1	4	0	0

Source: Effort data from the MRFSS, economic activity results calculated by NMFS SERO using the model developed for NMFS (2010).

4.8.3 Social Effects

In general, season closures would affect fishermen by changing fishing behavior and seasonal patterns, and overall reducing effort during the closed period. Because a spawning season closure would be expected to result in better protection of the reproduction capabilities of a resource, the health and sustainability of the resource would be expected to be enhanced. As a result of the enhanced resource protection and a healthier sustainable resource, long-term social and economic benefits would be expected to increase.

The proposed black sea bass spawning closure is intended to enhance the opportunity for mature fish to spawn and is not intended to affect (reduce) total mortality; fishermen would be expected to change their fishing patterns, resulting in shifted black sea bass effort and harvests to the remaining open period, to the extent such is possible/practical, and normal total harvests. While

such behavioral change would not be expected to have a substantive effect on total benefits associated with black sea bass harvests, some distributional effects may occur if the effort shift results in changes in activity (including species mix of commercial landings and recreational service demand) across ports, communities, dealers, or associated businesses. However, because total harvest and activity is not expected to be substantively affected, no significant direct effects on social benefits associated with black sea bass harvests would be expected.

However, total black sea bass harvests, and associated social and economic benefits, could be reduced if the length or timing of the closure makes it difficult to fully compensate or shift harvests to another period, or concurrent closures for other species severely limit substitution opportunities during the closed period. Some fishermen may prefer to have closures for multiple species overlap, allowing them to take scheduled breaks, concentrate more on vessel/gear maintenance, or engage in other activities. Other fishermen may need or prefer to fish every month and prefer closures for primary target or revenue species not overlap so that one or more alternative key species are available year-round. The longer the closure, the larger the amount of harvest that likely will need to be shifted to remaining open months. Similarly, the longer the closure, the greater the potential overlap with closures for other key species. If the black sea bass spawning closure results in an inability for the full quota to be harvested, or occurs when opportunities to harvest other species are limited, increased jeopardy to fishing businesses could occur, with the associated loss of social and economic benefits that accrues to increased personal stress and business failure.

Other factors to consider in the decision to establish a spawning closure are whether a spawning closure is appropriate from a biological perspective for the resource (i.e., is spawning sufficiently seasonal that protection is warranted), or appropriate from a management perspective (spawning may be seasonal, but the species may spawn, on average, at a smaller size than is harvested, such that sufficient spawning occurs prior to harvest and a closure may not be necessary from this perspective; however, spawning closure benefits could still accrue if the current fishery is affecting sex ratios), and identifying the appropriate period. Selecting the appropriate period to close from a biological perspective increases the likelihood that the long-term biological benefits, and associated social and economic benefits, will be realized. As discussed in **Section 3.2.1.1**, seasonal spawning does appear to occur for black sea bass, a spawning closure is appropriate from a management perspective, and peak black sea bass spawning is believed to occur in March through May, with most spawning occurring in March and April.

The alternative proposed spawning closures will be discussed from the perspective of the potential effects discussed above and it is assumed that a spawning closure is appropriate for black sea bass. Because **Alternative 1 (No Action)** would not establish a spawning closure, no change in fishing activity or patterns, or associated social and economic benefits, would precipitate. However, black sea bass would not receive the stock benefits that a spawning closure may provide and, assuming these would translate into a more stable and sustainable resource, **Alternative 1 (No Action)** would be expected to result in reduced long-term social benefits than an appropriate spawning closure.

Because **Alternative 2** would close the fishery during the two months when most spawning is expected to occur, March and April, most of the potential spawning protection benefits would be

expected to be realized. Among the alternatives considered, only **Alternative 4** would be expected to result in greater spawning protection. Based on 2006-2009 fishing-year data (**Table 4-18** and **Figure 4-4**), on average, approximately 15% of the total recreational and commercial ACL is harvested in March-April, and would have to be shifted to open months. Recreational anglers would be expected to bear a greater proportionate burden of affected harvest than commercial fishermen under all scenarios considered (**Alternatives 2-5**) as can be seen by comparing the commercial dockside revenue (**Table 4-19**) to the recreational forgone net operating revenue (**Table 4-20**). For example, **Alternative 2** (March 1-April 30th) would result in a commercial loss of $182,000 versus a recreational loss of $246,749. Corresponding closures during this period would be shallow water grouper and red snapper for both months and both sectors, vermilion snapper for the recreational sector in March, greater amberjack for the commercial sector in April, and red porgy for the commercial sector in January - April (the harvest of goliath grouper and Nassau grouper is also prohibited year-round for both sectors, but neither species has been subject to recent harvest activity and, therefore, are not considered relevant to further consideration). Harvest of speckled hind and warsaw grouper is also prohibited through actions taken through Amendment 17B.

Alternative 3 would be expected to result in reduced spawning protection, and associated long-term social benefits, than **Alternative 2**, while slightly increasing the amount of black sea bass harvest needed to be shifted, approximately 16% of the total recreational and commercial ACL, increasing the possibility of foregone harvests and reduced social and economic benefits. However, the vermilion snapper closure for the recreational sector would no longer overlap the black sea bass closure, increasing substitution opportunities.

As previously stated, of the alternatives considered, **Alternative 4** would be expected to result in the greatest spawning protection, but the 3-month closure would require the largest shift of harvests, approximately 24% of the total recreational and commercial ACL to the remaining months to maintain total harvest, and the largest possibility of foregone harvests and reduced associated social and economic benefits. No additional overlapping closures would be encountered by extension of the closure into May, and access to the shallow water grouper fishery would be available in May, increasing substitution opportunities, and associated benefits, for both sectors.

Alternative 5 would be expected to result in the least spawning protection and associated social and economic benefits. Less than 10% of the commercial and recreational black sea bass average annual harvests would have to be shifted to open months, increasing the likelihood that benefits associated with harvesting the ACL would not be foregone. The only potentially significant overlapping closure under **Alternative 5** would be red snapper for both sectors.

It should be noted that in the previous discussion, unharvested ACL is assumed to result in foregone social and economic benefits. While there may be stock benefits associated with not harvesting the ACL, this assessment assumes that the assigned ACL sufficiently accounts for the biological needs of the resource, with appropriate harvest buffer, such that any unharvested portion of the ACL will not result in increased long-term harvests or associated social and economic benefits. As a result, not allowing the fishery to harvest the full ACL will only result in reduced benefits.

In summary, each of **Alternatives 2-5** would be expected to result in increased spawning protection relative to **Alternative 1 (No Action)** and associated long-term social and economic benefits. **Alternative 2** would be expected to result in greater social benefits than **Alternative 3** because it would close what appear to be the more appropriate spawning months, even though the amount of transferred black sea bass harvest would be similar and **Alternative 3** would result in less closure overlap with other species. **Alternative 4** would be expected to result in the greatest social benefits associated with resource protection, but may result in the highest likelihood of the full ACL not being harvested, resulting in foregone short-term social and economic benefits. **Alternative 5** would require the least behavioral changes by black sea bass fishermen and the least potential shore-side adjustments by associated businesses and communities, but would be expected to result in the least spawning protection and associated long-term social benefits.

4.8.4 Administrative Effects

Because there was not previously a spawning season closure in place for black sea bass, additional law enforcement efforts may be required to compel fishery participants to comply with a new mandate. No other administrative impacts are expected to result from the implementation of any of pawning season closures included under **Alternatives 2-5.**

4.9 Action 9: Establish a Commercial Trip Limit for Black Sea Bass

Alternative 1 (No Action). Do not establish a commercial trip limit for black sea bass.

Alternative 2. Establish a 500 pounds gw (590 pounds ww) trip limit.

Alternative 3. Establish a 750 pounds gw (885 pounds ww) trip limit.

Preferred Alternative 4. Establish a 1,000 pounds gw (1,180 pounds ww) trip limit.

Alternative 5. Establish a 1,250 pounds gw (1,475 pounds ww) trip limit.

Alternative 6. Establish a 1,000 pounds gw (1,180 pounds ww) trip limit; reduce to 500 pounds gutted weight (590 pounds ww) when 75% of the commercial ACL (quota) is met.

Alternative 7. Establish a 2,000 pounds gw (2,360 pounds ww) trip limit.

Alternative 8. Establish a 2,500 pounds gw (2,950 pounds ww) trip limit.

Alternative 9. Establish a 250 pounds gw (295 ww) trip limit.

4.9.1 Biological Effects

In part due to effort shifts as a result of Amendments 13C and 16, the black sea bass 309,000 pound gw commercial quota for the June 1, 2009-May 31, 2010 fishing year was met in December 2009, October 2010 for the June 1, 2010-May 31, 2011 fishing year; and July for the June 1, 2011-May 31, 2012 fishing year. **Alternative 1 (No Action)** would not implement any regulations to slow down the rate at which the quota is being met for black sea bass. However, measures that reduce the number of individuals who can fish with pots (**Action 2**), and a restriction on the number of black sea bass pots that can be fished (**Action 5**) could reduce the rate the quota is met. The increase in landings during recent fishing years appears to be the result of increased effort and increased catch per trip in 2010. The average catch per pot was similar during 2008 and 2009 (**Table 4-23**). Furthermore, the number of trips that fished black sea bass pots increased in the 2009 and 2010 fishing years (**Table 4-24**). There was also an increase in the number of trips that caught black sea bass with other gear types (predominantly hook and line).

Table 4-23. Average catch per trip (pounds gutted weight) and percentage of landings from pots during fishing years (June – May) for 2006-2010.
Other category is 99% hook and line gear. NMFS logbook data (05/12/11).

Year	All Gear	Pots	Other	% Pot Landings
2006	214	554	31	90.62%
2007	165	501	25	89.15%
2008	198	621	28	89.81%
2009	188	643	31	87.83%
2010	307	954	57	86.79%

Table 4-24. Number of trips by gear for black sea bass taken during June-December 2008-2010.
Other category is 99% hook and line gear. NMFS logbook data (05/12/11).

	2008			2009			2010		
Month	All gear	Pots	Other	All Gear	Pots	Other	All Gear	Pots	Other
6	197	17	180	274	46	228	310	105	205
7	198	24	174	229	37	192	283	68	215
8	179	22	157	244	47	197	288	61	227
9	88	11	77	241	74	167	255	56	199
10	138	34	104	200	65	135	25	11	14
11	194	58	136	210	73	137	5	0	5
12	172	71	101	108	47	61	101	63	38
Total	1,166	237	929	1,506	389	1,117	1,267	364	903

Action 9 would consider a single trip limit for black sea bass harvested with black sea bass pot and hook and line gear. Assuming 31 individuals would qualify for endorsements under **Action 2**, a 500-lbs gw (590 lbs ww) trip limit (**Alternative 2**) would keep the fishery open into October during the 2012/2013 fishing year and about three months longer than **Alternative 1 (No Action)** (**Table 4-25**) and would be expected to provide a 49% reduction in landings based on data from 2010 (**Table 4-27**). A trip limit of 750 lbs gw (885 lbs ww) (**Alternative 3**) would result in a September closure for the 2012/2013 fishing year, and would be expected to reduce harvest by about 34%. Under **Preferred Alternative 4**, a trip limit of 1,000 lbs gw weight (1,180 lbs ww) would be expected to reduce harvest by about 24% resulting in a closure during August for the 2012/2013 fishing year. Under **Alternative 5**, a trip limit of 1,000 lbs gw weight (1,250 lbs ww) would be expected to reduce harvest by about 17% resulting in a closure during August for the 2012 fishing year. **Alternative 6**, which would reduce a 1,000 pounds gw trip limit to 500 pounds gw when 75% of the quota is met would result in a closure that is later in the fishing season compared to the status quo; however, projecting the approximate months of a possible closure under this alternative is not possible. The similarities among the alternatives are likely due to an average catch that is lower than the specified trip limits in **Alternatives 3-6**. Therefore, many trips are not constrained by the trip limits. **Table 4-26** shows when a seasonal closure would occur if the trip limit was 1,000 lbs gw (1,180 lbs ww) and if the number of endorsements was changed to the preferred alternative under **Action 2**.

Alternative 7, a trip limit of 2,000 lbs gw (2,360 lbs ww), would only be expected to reduce harvest by 6%. Therefore, under **Alternative 7** the expected quota closure dates would be almost identical to **Alternative 1 (No Action)** and would have little effect of extending the black sea bass fishery. **Alternative 8** would establish a 2,500 lbs gw (2,775 lbs ww) trip limit. As with **Alternative 7**, a 2,500 lbs gw trip limit would provide little effect on extending the fishing season for black sea bass.

Table 4-25. Projected month of black sea bass commercial closure is estimated to occur for the 2011 and 2012 fishing year based on various trip limit alternatives assuming 31 individuals qualify for endorsements under Action 1. Assumes 2,500 lb ww qualification level. Trip limits in gutted weight.

Fishing Year	**Alternative 1** No trip limit.	**Alternative 2** 500 pounds trip limit.	**Alternative 3** 750 pounds trip limit.	**Preferred Alternative 4** 1,000 pounds trip limit.	**Alternative 5** 1,250 pounds trip limit.	**Alternative 6** 1,000 pounds trip limit reduce to 500 pounds trip limit when 75% quota met.
June 2012-May 2013	July (July-Sept)	Oct (Aug-Feb)	Sept (July-Dec)	Aug (July-Oct)	Aug (July-Oct)	X
June 2013-May 2014	July (June-Aug)	Oct (Aug-Feb)	Aug (July-Dec)	July (July-Oct)	July (July-Sept)	X

Table 4-26. Number of endorsements that qualify under Action 2, and estimated date commercial quota is met if the trip limit is 1,000 lbs gw (1,180 lbs ww).

		2012-2013 Fishing Season		**2013-2014 Fishing Season**	
Landings (ww)	**# Endorsements**	**UCL**	**Mean**	**UCL**	**Mean**
500 lbs	52	July	Aug	July	July
1,000 lbs	44	July	Aug	July	July
2,000 lbs	38	July	Aug	July	July
(Preferred) 2,500 lbs	31	July	Aug	July	July
3,000 lbs	27	July	Aug	July	Aug
3,500 lbs	24	July	Aug	July	Aug
5,000 lbs	20	July	Sept	July	Sept
10,000 lbs	12	Sept	Nov	Sept	Nov

Alternative 7 would establish a 2,000 lbs gw (2,360 lbs ww) trip limit. **Table 4-27** reveals that less than 4% of trips for those who qualify endorsements or caught black sea bass with hook and line gear during 2001 had catches at or greater than this trip level. Therefore, under **Alternative 7** the expected quota closure dates would be almost identical to **Alternative 1 (No Action)** and would have little effect of extending the black sea bass fishery. **Alternative 8** would establish a 2,500 lbs gwweight (2,775 lbs wwweight) trip limit. As with **Alternative 7**, a 2,500 lbs gw trip limit would provide little effect on extending the fishing season for black sea bass.

Alternative 9 would specify a 250 lb gw trip limit that would allow the black sea bass fishery to remain open through a large portion the June-May fishing year, and into right whale calving season. **Action 2** includes alternatives that would limit the number of fishermen who can fish black sea bass pots. If the number of participants in the fishery were lowered, the trip limit required to keep the commercial black sea bass sector open all year would be lower (**Table 4-27**).

Action 5 includes alternatives to limit the number of pots that can be fished and **Action 6** includes an alternative that would require fishermen return pots to shore at the conclusion of a trip. There is a possibility that fishermen would exceed the trip limit when retrieving pots and fishermen would have to empty the catch from the pots. Although release mortality of black sea bass from pots is considered to be very low, some mortality would be expected if fishermen were to release fish from pots after a trip limit is met.

The biological effects of the different trip limit alternatives on the black sea bass stock would be very similar. Fishing for black sea bass would stop when a quota is met. Incidental catch and mortality of black sea bass after a quota was met would be expected to be minor since all pots must be removed from the water when a quota is met, catch of black sea bass with hook and line gear is small with respect to black sea bass pot gear, and release mortality is very low. However, low trip limits could have negative impacts on right whales if it resulted in an extension of the June-May fishing season into November-April; thereby, increasing the chance of entanglement of right whales with lines from pot gear. **Alternatives 2** and **9** could result in a year-round fishery for black sea bass and therefore have the greatest negative biological effect on right whales. Higher trip limits alternatives including **Preferred Alternative 5**, would have less of a negative biological effect on right whales since they provide little extension to the length of the fishing season.

Alternative 1 (No Action), 7, and **8** would likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2-9** are unlikely to have adverse effects on listed *Acropora* species. Black sea bass pots are prohibited south of St. Lucie Inlet, Florida. The northern extent of the range of *Acropora* in Florida is West Palm Beach, south of the black sea bass trapping boundary. Because the range of *Acropora* and the black sea bass pot fishery do not overlap, black sea bass pots will not interact with *Acropora* colonies. Previous ESA consultations determined the hook-and-line sector of the snapper grouper fishery (including effort targeting black sea bass) was not likely to adversely affect *Acropora* species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species.

The impacts of the remaining alternatives on sea turtles and smalltooth sawfish will likely depend on how overall fishing effort changes. If smaller trip limits simply mean less effort is used for each trip but the total number of trips increases, then changes in the likelihood of interactions between the species and the fishery are unlikely to occur. Conversely, if greater trip limits means more effort is exerted during a given trip, but fewer trips occur each year, the likelihood of interactions may also remain the same. If the alternatives reduce the overall levels of effort in the fishery, then potential of interactions is likely to decrease.

Table 4-27. Trip limit, number of trips, amount of pounds (gutted weight), and percent reduction in harvest provided by a trip limit during June 2010 - May 2011 fishing year. Includes 31 permits that qualified for endorsements under Action 2 and vessels that caught black sea bass with potline gear.

Trip Limit (ww)	Trip Limit (gw)	2010				
		# Trips	% Trips	Pounds over trip (ww)	Pounds over trip (gw)	% Reduction
0	0	271	100.00%	272,068	230,566	100.00%
20	17	271	100.00%	266,648	225,973	98.01%
40	34	271	100.00%	261,228	221,380	96.02%
60	51	271	100.00%	255,808	216,786	94.02%
80	68	271	100.00%	250,388	212,193	92.03%
100	85	270	99.63%	244,968	207,600	90.04%
115	97	269	99.26%	240,931	204,179	88.56%
150	127	266	98.15%	231,564	196,241	85.11%
175	148	264	97.42%	224,960	190,644	82.69%
200	169	261	96.31%	218,393	185,079	80.27%
250	212	253	93.36%	205,534	174,181	75.55%
300	254	240	88.56%	193,188	163,719	71.01%
400	339	210	77.49%	170,766	144,717	62.77%
500	424	190	70.11%	150,696	127,708	55.39%
600	508	162	59.78%	133,087	112,785	48.92%
700	593	136	50.18%	118,226	100,191	43.45%
800	678	122	45.02%	105,350	89,279	38.72%
900	763	106	39.11%	93,916	79,589	34.52%
1,000	847	94	34.69%	83,940	71,135	30.85%
1,100	932	84	31.00%	74,945	63,513	27.55%
1,200	1,017	79	29.15%	66,805	56,614	24.55%
1,300	1,102	74	27.31%	59,198	50,168	21.76%
1,400	1,186	70	25.83%	51,968	44,040	19.10%
1,500	1,271	56	20.66%	45,771	38,789	16.82%
1,600	1,356	51	18.82%	40,436	34,268	14.86%
1,700	1,441	44	16.24%	35,674	30,233	13.11%
1,800	1,525	39	14.39%	31,536	26,726	11.59%
1,900	1,610	34	12.55%	27,793	23,553	10.22%
2,000	1,695	33	12.18%	24,393	20,672	8.97%
2,250	1,907	27	9.96%	16,943	14,359	6.23%
2,500	2,119	19	7.01%	10,850	9,194	3.99%
2,750	2,331	17	6.27%	6,492	5,502	2.39%

Currently, the black sea bass fishing season is closing before large whale migration/calving season begins, and no whale entanglement risk is present. **Alternatives 3-6** are projected to extend the current fishing season into August or September at the latest. These alternatives are not likely to result in fishing during the migration/calving season (right whale calving season off North Carolina is November 1 - April 30, and November 15 - April 15 off South Carolina, Georgia, and Florida.) the potential for whale entanglements is unlikely to increase relative to the existing season. If under **Alternatives 7-8** the fishery continues to close before the migration/calving season, these alternatives are likely to have most benefit to large whale by completely reducing the risk of entanglement. **Alternative 9** is likely to lead to the greatest risk of large whale entanglement simply because the fishery would remain open during the entire migration/calving season. Some of the actions proposed in this amendment (i.e., seasonal closures, trap retrieval requirements, etc.), if implemented, could potentially reduce the risk of entanglement to large whales that may result from **Alternative 9**. However, it is currently unclear how great a reduction in entanglement risk would be achieved by these actions.

4.9.2 Economic Effects

Table 4-27 shows the approximate number of pounds in excess landed for trips in the 2010/2011 season for the different alternatives in **Action 9**. Using the data from **Table 4-27** and from **Table 3-2**, showing the average price of $2.17 per pound, one can estimate the amount of revenue commercial black sea bass pot fishermen would have forfeited on those trips and are shown in **Table 4-28**. However, the numbers in **Table 4-28** only represent the amount they would have lost on those trips. Had trip limits been in place, it is likely the season would have been extended and the fishermen would have recouped the amount they would have forfeited on the earlier trips. In addition, it is possible some trip limits would be low enough to make it unprofitable for vessels to undertake more trips to totally recoup landings and revenues forgone per trip. Further, even if those additional trips are taken so as to totally recoup revenue losses, it is likely total costs would be higher since it is likely the cost per trip would remain about the same but more trips taken would mean more additional costs.

Alternative 6 is unlike the rest of the alternatives in that it allows the trip limit to remain at 1,000 lbs gw and then drop to 500 lbs gw once 75% of the commercial ACL is projected to be taken. In practice, this will be difficult to accomplish due to the time lag between landings, reporting, and federal notice requirements to let fishermen know when the trip limit will drop to 500 lbs gw. Because of this added uncertainty, dollar value estimates are less certain for **Alternative 6** than they are for other alternatives in this action. Had **Alternative 6** been the management method in place during the 2010/2011 season, approximately 200 more trips with a 500 lb gw trip limit could have taken place.

In early October 2010, the ACL was projected to be met and the commercial season was closed. Evaluation of dealer data indicated that the quota had not been met. Commercial fishing for black sea bass reopened for a two week period in December 2010 to allow fishermen to catch the remaining commercial ACL. Calculations for **Alternative 6** are based on the trips that took place in 2010. Had the 1,000 lb gw trip limit been in place in 2010, 75% of the ACL would have

been landed at about the time of the October closure. The projections in **Tables 4-28** through **4-30** assume that all trips taken after the October closure would have been limited to 500 lbs gw.

Table 4-28. Dockside Revenue foregone as a result of Alternatives 2-9 based on 2010 average landings data. Values are in 2010 dollars.

	June 2010 - May 2011 Fishing Year					
	Trip Limit (in pounds gutted weight)	**# Trips Over the Limit**	**% Trips Over the Limit**	**Pounds over the Limit**	**% Pounds Over the Limit**	**Approximate Revenue Lost on Trips Over**
Alternative 2	500	255	18.79%	166,372	43.67%	$361,027
Alternative 3	750	156	11.50%	116,514	30.58%	$252,835
Preferred Alternative 4	1,000	114	8.40%	83,133	21.82%	$191,249
Alternative 5	1,250	85	6.26%	57,607	15.12%	$125,007
Alternative 6	1,000, then reduced to 500 once 75% of ACL is taken	137	10.10%	108,270	35.04%	$234,946
Alternative 7	2,000	34	2.51%	17,789	4.67%	$38,602
Alternative 8	2,500	14	1.03%	6,389	1.68%	$13,864
Alternative 9	250	383	28.22%	245,507	64.44%	$532,750

Source: NMFS Logbook Data, 10/14/2011

Using this methodology, short-term economic effects of the trip limits were made in the form of ex-vessel revenues. This analysis cannot account for the fact that vessels may make more trips as a result of a smaller trip limit. However, fishermen, who are able to, are likely to make more trips in order to maintain current landings and profit levels. Therefore, the results listed in **Table 4-28** could be an overestimation of ex-vessel revenue losses.

In general, for boats that bring in relatively larger landings per trip, ex-vessel revenue losses are expected to occur. If a boat with historically larger landings adheres to the trip limit and does not increase the number of trips made, landings by these vessels would decrease compared to current landings as will ex-vessel revenues. Boats that bring in smaller landings per trip may or may not be impacted by the trip limits proposed. Most trips that land black sea bass as part of their total trip landings are not specifically targeting that species. Black sea bass are frequently caught commercially with other reef species, most notably with vermilion snapper and gag (NMFS Logbook Data, 10/14/2011). The total pounds of those two species landed on trips where black sea bass were also caught was 381,234 pounds, compared to 381,009 pounds of black sea bass.

The majority of commercial vessels that land black sea bass have not historically landed the proposed trip limits and will not experience ex-vessel revenue losses. Others, primarily those who target black sea bass with pots will likely reach the proposed trip limits and either experience revenue losses or make additional trips to increase landings. While additional trips will increase ex-vessel revenues, they will also increase costs and decrease net revenues (or profits). Some vessels may be able to increase their trips and net revenues; however, others will not be able to do so because they are too far from the fishing grounds to make additional trips worthwhile or costs are high enough to deter additional trips. It should be noted that trip limit regulations apply per day so any potential increase in trips would have to be on other days since multiple trips in the same day are prohibited (50CRF622.44).

Alternative 9 (250 lbs gw trip limit) has the largest short-term negative economic effects in the form of foregone dockside revenues while **Alternative 2** has the second largest negative effect. **Alternatives 3, 6, 4 (Preferred), 5, 7,** and **8** have the next largest economic losses in descending order (**Table 4-28**). In general, the smaller the trip limit, the larger the economic losses. However, smaller trip limits could have some economic benefit in that fish houses and dealers would possibly be able to maintain some supply for a longer period of the season and could possibly receive higher prices for their product since the market would not be flooded with an excess of black sea bass over a short period of time. Without making additional trips, fishery wide ex-vessel revenues will decrease, as will profit levels. If fishermen who are able to, make additional trips, their costs will increase making increasing profit levels harder than under **Alternative 1 (No Action)**. If we assume that fishermen under current conditions are maximizing their profitability, then trip limits will certainly lead to profit losses for the fishery as a whole. These profit losses cannot be estimated unfortunately because cost data exists for the snapper grouper fishery as a whole and does not exist for vessels that target specific species, like black sea bass.

Alternatives 2-9 would impact different gear groups differently. **Table 4-29** shows the dockside revenues foregone as a result of **Alternatives 2-9** for pot and hook and line gear users. As the trip limit increases, dockside revenue losses decrease. No hook and line trips were over the trip limit in **Alternative 6** until 75% of the ACL had been reached and the trip limit dropped from 1,000 to 500 pounds.

Table 4-29. Dockside revenues foregone as a result of Alternatives 2-9 based on 2010 average landings data by gear for black sea bass. All values are in 2010 dollars.

Alternative	Pot Gear - Total revenue loss in 2009 dollars (ex-vessel revenue)	Hook and Line - Total revenue loss in 2009 dollars (ex-vessel revenue)
Alternative 1 (No Action)	$0	$0
Alternative 2 (500 pounds gw)	$400,000	$6,000
Alternative 3 (750 pounds gw)	$281,000	$3,000
Preferred Alternative 4 (1,000 pounds gw)	$201,000	$2,000
Alternative 5 (1,250 pounds gw)	$139,000	$1,000
Alternative 6 (1,000 pounds gw reduced to 500 pounds gw when 75% of quota met)	$260,000	$4,000
Alternative 7 (2,000 pounds gw)	$43,000	$0
Alternative 8 (2,500 pounds gw)	$16,000	$0
Alternative 9 (250 pounds gw)	$581,000	$18,000

Source: NMFS Logbook Data (10/14/2011).

With regard to short-term economic effects by state, **Table 4-30** shows dockside revenue losses by state. The table indicates that revenue losses will be experienced primarily by North Carolina with significant impacts to South Carolina and to Florida/Georgia. As expected, in general, the higher the trip limit, the smaller the revenue loss.

Table 4-30. Dockside revenues foregone as a result of Alternatives 2-9 based on 2007-2010 average landings data, by state for black sea bass. All values are in 2010 dollars.

Alternative	North Carolina	South Carolina	Georgia and East Florida
Alternative 1 (No Action)	$0	$0	$0
Sub-Alternative 2 (500 pounds gw)	$223,000	$92,000	$90,000
Alternative 3 (750 pounds gw)	$152,000	$62,000	$70,000
Preferred Alternative 4 (1,000 pounds gw)	$104,000	$44,000	$54,000
Alternative 5 (1,250 pounds gw)	$69,000	$32,000	$39,000
Alternative 6 (1,000 pounds gw reduced to 500 pounds gw when 75% of quota met)	$141,000	$63,000	$60,000
Alternative 7 (2,000 pounds gw)	$23,000	$10,000	$10,000
Alternative 8 (2,500 pounds gw)	$10,000	$4,000	$2,000
Alternative 9 (250 pounds gw)	$344,000	$136,000	$119,000

(Source: NMFS Logbook Data, 10/14/2011).

4.9.3 Social Effects

The social costs of a trip limit would be associated with the economic costs of this type of management, but social benefits would be tied to a longer fishing season by extending the time it takes to reach the ACL. Overall, **Alternative 1 (No Action)** would not be expected to generate negative short-term social impacts due to economic costs associated with trip limits, but the shortened season that the black sea bass fishery has experienced in recent years would continue. Limiting harvests per trip, as would occur under **Alternatives 2-9**, would be expected to alter the profitability of some trips. In order for a trip limit to be effective in reducing the pace of harvest, it must reduce the harvest of that species on some trips. This could result in increased harvest of this species on other trips by the same or other vessels, or increased harvest of other species as compensation, with potentially deleterious effects on these species or other fishermen who typically harvest these species. Normally, however, even with compensation, the expectation is that total trip revenues are reduced for some fishermen, jeopardizing normal fishing behavior, revenues, and social benefits. The potential economic effects of the proposed black sea bass trip limits are described in **Section 4.9.2**, noting that these estimates do not incorporate potential compensating effort or harvest behavior. In general, it is assumed for the purposes of this discussion that the greater the economic losses, the greater the social losses. Beyond this assumption, available data do not support a definitive determination of which alternative trip limit would be expected to result in greater social benefits. In general, the lowest proposed trip limit of 250 lbs gw (**Alternative 9**) would have the least significant short-term impact on the fishermen, but also be the least likely to contribute to a longer fishing season. The highest proposed trip limit 2,500 lbs gw (**Alternative 8**) would be least likely to require fishermen to change harvest patterns, but also least likely to lengthen the season. Additionally, lower trip limits would impact larger operations more than the smaller vessels in terms of economic efficiency of the trips. The trip limit of 1,000 lbs gw under **Preferred Alternative 4** would have more impacts on the larger vessels than **Alternatives 5, 7** and **8,** but also will be more likely to contribute to a longer fishing season than the trip limits under **Alternatives 2, 3,** and **9**.

4.9.4 Administrative Effects

Alternative 1 (No Action) would require no additional time or cost beyond the status quo and would therefore, result in the lowest impact on the administrative environment. **Alternatives 2-5** and **7-9** only differ in the number of pounds associated with the trip limit, and therefore, would likely result in equal administrative burdens associated with notifying fishery participants and enforcement. If **Alternative 6** were chosen as a preferred alternative, a trip limit reduction notice would need to be distributed when monitoring efforts indicate 75% of the commercial ACL is projected to be met. Therefore, **Alternative 6** is considered the most administratively burdensome of the trip limit alternatives considered. Because the commercial sector of the black sea bass segment of the snapper grouper fishery did not previously have a trip limit, establishing a trip limit would constitute an additional enforcement burden beyond the status quo alternative. Enforcement efforts associated with trip limits may entail minimum to moderate staff time and cost carry out based on the additional layer of compliance trip limit present during dockside and at-sea inspections.

4.10 Action 10: Modify Commercial and/or Recreational Black Sea Bass Size Limits

Alternative 1 (No Action). Do not modify the current size limits of 12 inches total length (TL) for the recreational sector and 10 inches TL for the commercial sector.

Alternative 2. Modify the recreational size limit.

Preferred Sub-Alternative 2a. Increase the recreational size limit from 12" TL to 13" TL.

Alternative 3. Modify the commercial size limit.

Preferred Sub-Alternative 3a. Increase the commercial size limit from 10" TL to 11" TL.

Sub-Alternative 3b. Increase the commercial size limit from 10" TL to 12" TL.

Sub-Alternative 3c. Increase the commercial size limit from 10" TL to 11" TL in year 1 and then to 12" TL in year 2 onwards.

4.10.1 Biological Effects

Alternative 1 (No Action) would not modify the current black sea bass size limits of 12 inches total length (TL) for the recreational sector, which was implemented through Amendment 13C to the Snapper Grouper FMP (SAFMC 2006), or the 10 inches TL black sea bass minimum size limit for the commercial sector. A new stock assessment was recently completed for black sea bass (SEDAR 25) and results indicate the stock is no longer overfished but is still undergoing overfishing and is still rebuilding to the biomass at MSY. **Alternatives 2** and **3** differ in that **Alternative 2** would increase the minimum size limit for the recreational sector, whereas, **Alternative 3** would increase the minimum size limit for the commercial sector.

Increasing the minimum size limit would theoretically decrease the rate of harvest by reducing the number of legal size fish able to be harvested. However, minimum size limits can have detrimental effects on fish stocks if they do not protect the older year classes. Recruitment problems can occur in a fishery that has fewer age classes than an un-fished population. Additionally, minimum size limits can encourage the harvest of older, larger fish, which have the greatest reproductive potential. The update of the black sea bass SEDAR assessment (SEDAR Assessment Update #1 2005) shows that the 10 inch minimum size limit instituted in 1999 allowed biomass of the stock to persist in a heavily fished environment because the minimum size limit was large enough to protect several year classes of spawning fish. The age and size at 50% maturity for female black sea bass is 7 inches TL and 1 year, respectively. Black sea bass are 3 years old when they reach a size of 10 inches TL.

Discard mortality can also limit the effectiveness of specific management measures if fishermen catch and discard black sea bass when targeting co-occurring species. However, SEDAR 25 indicates release mortality of black sea bass is very low (7% hook and line; 1% black sea bass pot), suggesting minimum size limits and other management measures that create regulatory discards can be an effective management tool for black sea bass. McGovern and Meister (1999) report a recapture rate of 10.2% for 10,462 that were tagged during 1993-1998 suggesting

survival of released black sea bass is high. The South Atlantic Council's Scientific and Statistical Committee (SSC) has supported the use of minimum size limits for black sea bass.

There would be little difference in the biological effects of adjusting the minimum size limit for the alternatives being considered because ACLs are in place for the commercial and recreational sectors, which would prevent overfishing from occurring. An AM is enacted if the ACL is met or is projected to be met. Furthermore, release mortality is estimated to be very low for black sea bass. Therefore, incidental catch of black sea bass when fishermen target co-occurring species would not be expected to have negative biological effects.

Table 4-31. Preliminary estimate of reduction in harvest of black sea bass for headboat sector associated with increased size limit. Based on data from 2009-2010 (n = 7,302).

Release Mortality	Estimated Harvest Reductions
	13 Inch (Sub-Alternative 2a)
0%	22.6
7%	20.9

Table 4-32. Preliminary estimate of reduction in harvest of black sea bass for MRFSS associated with increased size limit. Based on data from 2009-2010 (n = 3,272).

Release Mortality	Estimated Harvest Reductions
	13 Inch (Sub-Alternative 2a)
0%	20.3
7%	18.8

Table 4-33. Preliminary estimate of reduction in harvest of black sea bass for commercial sector associated with increased size limit. Based on data from 2009-2011 (n = 8,767).

Release Mortality	Estimated Harvest Reductions	
	11 Inch (Sub-Alternative 3a)	12 Inch (Sub-Alternative 3b and 3c)
0%	9.4	32.4
1%	9.3	32.1

For the recreational sector, increasing the minimum size limit from 12 inches TL to 13 inches TL would result in a 20-22 percent21-23% harvest reduction for the for-hire sector and an 19-20 percent% reduction in harvest for the private recreational sector (**Tables 4-31** and **4-32**). The greatest reduction in harvest would be achieved by increasing the minimum size limit in the commercial sector to 12 inches TL under **Sub-Alternative 3b** or **3c**. Increasing the minimum size limit in the commercial sector would result in a maximum reduction in commercial harvest of 32.4 percent;%; therefore, **Sub-Alternatives 3b** and **3c** could be considered the most biologically beneficial of the size limit modification alternatives considered. **Preferred Alternative** 3a would reduce the commercial harvest by 9%Though increasing the minimum size limit would result in increased regulatory discards, bycatch mortality in the black sea bass

segment of the snapper grouper fishery is very low, and regulatory discards are unlikely to contribute to overfishing or jeopardize rebuilding efforts.

Alternative 1 (No Action) would likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2-3** and their sub-alternatives are unlikely to have adverse effects on listed *Acropora* species. Black sea bass pots are prohibited south of St. Lucie Inlet, Florida. The northern extent of the range of *Acropora* in Florida is West Palm Beach, south of the black sea bass trapping boundary. Because the range of *Acropora* and the black sea bass pot fishery do not overlap, black sea bass pots will not interact with *Acropora* colonies. Previous ESA consultations determined the hook-and-line sector of the snapper grouper fishery (including effort targeting black sea bass) was not likely to adversely affect *Acropora* species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species.

The impacts of **Alternatives 2-3** and their sub-alternatives on sea turtles, smalltooth sawfish, and large whales will likely depending on changes to overall fishing effort. If smaller size limits actually lead to a reduction in overall effort, then the potential of interactions between protected species and the fishery is likely to decrease. However, if changes in the overall size limits does not change the overall amount of effort, then the current levels of interactions between protected species and the fishery on a whole are unlikely to change.

4.10.2 Economic Effects

Commercial Sector Effects

Alternative 1 (no action) would not have any additional impact on the fishery. **Alternative 2** may have some impacts on the commercial fishery. **Sub-Alternative 3** was chosen to raise the size limit in the commercial fishery. The size of the impact of such an action would be difficult to measure. However, the larger the difference between the allowable size limit between sectors, the greater would be the advantage to the sector that had the smaller size limit.

In general, short term economic losses are experienced in a fishery like black sea bass when the size limit is increased. The length of the short term loss is dependent on the growth rate of the fish and the size of the increase. The size of the short term economic impact increases as you go from **Sub-Alternative 3a, 3c**, to **3b**, respectively. Conversely, in the black sea bass fishery, fishermen are usually paid a higher price per pound for larger fish. Allowing fish to become larger before they are harvested would allow the fishermen to receive a higher price. If the size limit is increased, the fish will get larger and weigh more; therefore, it will take fewer fish to meet the ACL. Increasing the size limit and not putting trip limits into place as in **Action 9, Alternative 1 (no action)**, would likely exacerbate the recent trend towards shorter and shorter seasons, leading to a derby fishery and depressed prices.

Recreational Sector Effects

In principle, **Alternative 1 (no action)** would not entail any changes to the economic status of the recreational sector. **Alternative 2** has been estimated to reduce headboat harvest by 22.6 percent, assuming no discard mortality rate, or 20.9 percent, assuming a 7 percent discard mortality rate. Harvest reduction in the shore, private/rental, and charterboat modes has been estimated at 20.3 percent under a zero percent discard mortality rate, or 18.8 percent under a 7 percent discard mortality rate. In terms of total recreational harvest and given the most recent years' relatively high harvest rate, the AM would likely apply resulting in no additional reduction in recreational harvest from increasing the size limit (**Alternative 2**). It is possible, though, that the harvest reduction due to the size limit increase would extend the recreational fishing season. Whether this would result in net economic benefits to the recreational sector depends largely on the interplay of benefits from additional fishing days and the cost of fishing during the regular season (fishing days without the size limit increase) and extended seasons (additional fishing days due to the size limit increase).

An extended fishing season would allow more fishing trips to be undertaken by recreational anglers through the various fishing platforms. Additional trips would generate more revenues and likely profits to the for-hire sector and more consumer surplus to anglers fishing in private and for-hire boats. On the other hand, the quality of the fishing experience may decrease from being compelled to throw back undersize fish. If the reduction in the quality of the fishing experience were substantial enough to result in some trip cancellations, for-hire revenues and profits may be impaired. In addition, reduction in the quality of the fishing experience would result in lower angler consumer surplus per fishing trip. The net effects of such an increase in benefits and costs due to the size limit change cannot be ascertained given current information.

4.10.3 Social Effects

Similar to regulations that could restrict harvest, such as ACLs, bag limits and trip limits, an increase in the minimum size for black sea bass is expected to produce negative social effects in the short term, but positive social effects in the long term. The negative social effects for the commercial sector will generally be associated with the economic impacts of the change in minimum size limit, as there may be fewer fish that can be retained for sale. For the recreational sector, the size limit will also reduce the number of fish that can be kept, which may impact recreational fishing experiences and have an economic impact on the for-hire sector. The long-term social benefits would be associated with the biological benefits of a larger minimum size, as the black sea bass stock rebuilds.

Alternative 1 (No Action) would likely have few or no social effects, because the current size limits would not be changed. **Alternative 2** and **Preferred Sub-Alternative 2a** would affect only the recreational sector. **Tables 4-31** and **4-32** show that harvest is estimated to be reduced between 24% for the headboat and private recreational sectors, and this may impact for-hire vessels and other businesses associated with recreational fishing. Overall, the increase in minimum size may have some impacts on recreational fishing opportunities by limiting the number of fish that can be retained, but is expected to produce long-term social benefits by contributing to the health of the black sea bass stock.

Alternative 3 and **Sub-Alternatives 3a (Preferred)-3c** would increase the minimum size limit for commercial fishermen, and is expected to reduce harvest by about 9 % for an 11-inch TL minimum and 32 % for a 12-inch TL minimum size limit (see (**Table 4-30**). **Sub-Alternative 3b** would have more impact on commercial fishermen than **Preferred Sub-Alternative 3a**. Although **Sub-Alternative 3c** allows for a two-year process to a 12-inch TL minimum size limit, at the second year the social effects on the commercial sector would be similar to those produced by **Sub-Alternative 3b.** Overall, it is expected that a change in the minimum size requirement would result in long-term social benefits associated with the health of the black sea bass stock.

4.10.4 Administrative Effects

Modifying the current recreational and/or commercial minimum size limits for black sea bass would not require any additional time or cost to implement. Because there is already a size limit in place for each sector no additional enforcement effort would be required beyond the status quo; the minimum size measurement would simply change. Therefore, all alternatives considered under this action, including **Action 1 (No Action),** would result in similar, yet negligible, impacts on the administrative environment.

4.11 Action 11: Improvements to Commercial Vessel Data Reporting

Preferred Alternative 1 (No Action). Retain existing data reporting systems for the commercial sector.

Under this alternative, as implemented by Amendment 15B to the Snapper Grouper FMP, a commercial vessel with a federal permit, if selected by NOAA Fisheries Service, is required to maintain and submit fishing records; requires a vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, to carry an observer and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service. Note: Refer to the table in ***Section 4.11.1*** *for a complete list of current data reporting requirements.*

Alternative 2. Require all vessels with a Federal snapper grouper commercial permit to have an electronic logbook tied to the vessel's GPS onboard the vessel.

(Note: Alternative 2 would require 100% of vessels to have an electronic logbook; whereas, current data reporting programs only require electronic logbooks if selected.)

Alternative 3. Provide the option for fishermen to submit their logbook entries electronically via an electronic version of the logbook made available online.

Alternative 4. Require that commercial landings and catch/effort data be submitted in accordance with ACCSP standards, using the SAFIS system.

Note: Alternative 4 would require that 100% of dealers and fishermen report electronically using the Standard Atlantic Fisheries Information System (**SAFIS).** SAFIS is a real-time, web-based reporting system for commercial landings on the Atlantic coast (http://www.accsp.org/safis.htm). It is comprised of three applications:

- Electronic Dealer Reports (eDR) - A forms based application collecting information from the dealers (landings, condition and price).
- Electronic Trip Reports (eTRIPS) - A Web-based application collecting data from fisherman (catch and effort) including gear used, fishing areas, and catch disposition.
- SAFIS Management System (SMS) - A Web-based application providing administrative tools to SAFIS administrators for management of user accounts, participants, permits etc.

The partners (States, Councils, USFWS, NMFS, Commissions, DC Fisheries and Wildlife Division) of the Atlantic Coastal Cooperative Statistics Program (ACCSP) created SAFIS to meet the increasing need for real-time commercial landings data. Through a cooperative, consensus driven process, ACCSP developed a set of data collection standards. All program partners have agreed to these standards and have been adopted for almost all aspects of fisheries dependant data collection. A process has been put into place to fund research and implementation of these standards in the partner agencies.

Since its creation in 2003, SAFIS has been used to report data for the majority of states in the Northeast (North Carolina north participate in the program). The State of Rhode Island first adopted SAFIS in February 2003. SAFIS was then adopted by Maryland for landings data and

quota monitoring of important finfish and shellfish species. NOAA Fisheries Northeast Region launched SAFIS for federally permitted seafood dealers in May 2004. Connecticut, Massachusetts, New Hampshire and Maine now use SAFIS. ACCSP continues to work with New York, Delaware, New Jersey to accommodate specific industry needs.

- SAFIS provides up-to-date information on species caught and their impact on fisheries and quotas
- SAFIS allows confidential access to data-of-record by fisherman and dealers
- SAFIS fulfills State and Federal reporting requirements through online data entry and reporting
- SAFIS management tools facilitate maintenance of partner-owned data such as participants, online permits, and vessels.

SAFIS management tools facilitate maintenance of partner-owned data such as participants, online permits, and vessels.

Program Partner SAFIS Implementation

Electronic Dealer Reporting (eDR): A web based application that collects landings data from dealers. This includes species, disposition and price.

Electronic Trip Reporting (eTRIPS): A web based application that compiles catch and effort data from fishers. Trip reports, or logbooks in some fisheries, provide catch and effort data from a permitted fishing entity (fisher of a vessel) or a single vessel. A trip is any single event where fishing was attempted, regardless of catch. Trips may be categorized as commercial, party/charter or recreational.

Voluntary Angler Logbooks (eLOGBOOK): A web based application that collects data from private recreational anglers on a voluntary basis.

Electronic One Trip Ticket (e-1Ticket): A web based application providing the ability to collect trip/effort/catch data and simultaneously create a dealer report. This application was released into production in January 2011.

4.11.1 Biological Effects

The South Atlantic Council decided to take no action on Action 11 at their December 2011 meeting because they decided to develop a new generic amendment that would address improvements to data reporting in all their FMPs. **Preferred Alternative 1 (No Action)** would retain existing data reporting systems for the commercial sector including new regulations implemented through Amendment 15B to the Snapper Grouper FMP, which include a requirement for private recreational vessels that fish in the exclusive economic zone (EEZ), if selected by NOAA Fisheries Service, to maintain and submit fishing records; and requires a vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, to carry an observer and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service (**Table 4-34**). For the South Atlantic snapper grouper commercial fishery, current regulations (50CFR § 622.5) require commercial and recreational for-hire participants in

the South Atlantic snapper grouper fishery, who are selected by the Southeast Science and Research Director (SRD), to maintain and submit a fishing record on forms provided by the SRD. Bycatch data on protected species are currently collected in the commercial snapper grouper fishery through the supplementary discard form. In 1990, the Southeast Fisheries Science Center (SEFSC) initiated a logbook program for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic. **Preferred Alternative 1 (No Action)** would continue to obtain fishing effort information as well as protected species interactions via a logbook.

In 2001, a separate bycatch reporting logbook was added to include numbers on the average size of discarded fish by species. Discard data are collected using a supplemental form that is sent to a 20% stratified random sample of the active permit holders. The sample selections are made in July of each year and the selected fishermen/vessels are required to complete and submit the form for the trips they make during August through July of the following year. Fishermen are not selected for the next four years after they submit a discard form for a year. However, over a five-year period, 100% of snapper grouper permit holders will have been required to report in one of the five years. In addition, information is collected on protected species interactions. The key advantage of logbooks is the ability to use them to cover all fishing activity relatively inexpensively. However, in the absence of any observer data, there are concerns about the accuracy of logbook data in collecting bycatch information. Biases associated with logbooks primarily result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest (particularly of bycatch species), and from low compliance rates. Many fishermen may perceive that accurate reporting will result in restricted fishing effort or access. This results in a disincentive for reporting accurate bycatch data and an incentive to under-report or not report. Therefore, logbook programs are more useful in recording information on infrequently caught species and providing estimates of total effort by area and season that can then be combined with observer data to estimate total bycatch.

Commercial quotas are monitored by the SEFSC. Landings data are obtained from dealers. Dealer selections are made for a calendar year based on the production for the previous year. Selected dealers are notified that they must report landings by the 5th of a following month, even if no purchases were made. The SEFSC provides periodic reports to NOAA Fisheries Service SERO and the South Atlantic Council (at least prior to each South Atlantic Council meeting). In addition, timing of possible closures is estimated. Periodically, quota monitoring data are compared to general canvas landings data for the same dealers. The purpose is to determine if selected dealers provide an acceptable percentage of total reported landings. The review of the general canvass landings data are also used to identify new dealers handling quota species. If new dealers are identified or if the percentage of landings accounted for by selected dealers drops below a specified percentage, additional dealers would be required to report landings.

Dealers have two options for submitting data: (1) a paper form faxed to SEFSC or (2) online reporting. To enter and use the online system, the dealer uses a valid user login ID and password. This system is secure and only users with valid user IDs and passwords can access it. Furthermore, the user ID and password is unique for each dealer and will only allow access to the data entered by an individual using that password. All entries are logged on a tracking database and each time a user enters the system and makes a change to the data, that entry, and

the changes are recorded, along with the date and time the changes were made. Instructions are provided to the dealers on how to use the online system.

Some data are also collected through cooperative research projects. Cooperative research with the commercial and recreational sectors on bycatch was identified as a high priority item at the Southeast Bycatch Workshop during May 2006. There is clearly a need to characterize the entire catch of commercial fishermen and compare differences in abundance and species diversity to what is caught in fishery-independent gear. As we move towards a multi-species management approach, these types of data are essential. In addition, estimates of release mortality are needed for stock assessments but currently this is not being measured for fishery-dependent data. It is anticipated that additional cooperative research projects will be funded in the future to enhance the database on bycatch in the snapper grouper fishery in the South Atlantic.

Cooperative research projects between science and industry are being used to a limited extent to collect bycatch information on the snapper grouper fishery in the South Atlantic. For example, Harris and Stephen (2005) characterized the entire (retained and discarded) catch of reef fishes from a selected commercial fisherman in the South Atlantic including total catch composition and disposition of fishes that were released. The Gulf and South Atlantic Fisheries Foundation, Inc. obtained funding to conduct a fishery observer program within the snapper grouper vertical hook-and-line (bandit rig) fishery of the South Atlantic United States. Through contractors they randomly placed observers on cooperating vessels to collect a variety of data quantifying the participation, gear, effort, catch, and discards within the fishery.

Research funds for observer programs, as well as gear testing and testing of electronic devices are also available each year in the form of grants from the Foundation, Marine Fisheries Initiative (MARFIN), Saltonstall-Kennedy (S-K) program, and the Cooperative Research Program (CRP). Efforts are made to emphasize the need for observer and logbook data in requests for proposals issued by granting agencies. A condition of funding for these projects is that data are made available to the Councils and NOAA Fisheries Service upon completion of a study.

Included in **Preferred Alternative 1 (No Action)** would be the measures implemented through AmendmentthroughAmendment 15B (SAFMC 2008b) (**Table 4-34**). The South Atlantic Council's preferred alternative in Amendment 15B to the Snapper Grouper FMP allows for the implementation of interim programs to monitor and assess bycatch in the South Atlantic snapper grouper fishery until the Atlantic Coastal Cooperative Statistical Program (ACCSP) Release, Discard and Protected Species (Bycatch) Module can be fully implemented. Funding shortfall prevent full implementation by the SEFSC). The interim programs or first phase of the alternative would allow for the collection of bycatch information utilizing a variety of methods and sources when Amendment 15B to the Snapper Grouper FMP was implemented as follows:

1. Require that selected vessels carry observers (It is the South Atlantic Council's intent that NOAA Fisheries Service and grant-funded programs would cover the cost of observers on snapper grouper vessels.)

2. Require selected vessels to employ electronic logbooks or video monitoring (It is the Council's intent that NOAA Fisheries Service and grant-funded programs cover the cost of purchase and installation of these units.)
3. Utilize bycatch information collected in conjunction with grant-funded programs such as MARFIN and Cooperative Research Program (CRP). Require that raw data are provided to NOAA Fisheries Service and the Council.
4. Request that bycatch data collected by states are provided to NOAA Fisheries Service and the Council. Many states may have collected data on snapper grouper bycatch in the past. Furthermore, some states may be currently collecting bycatch data through studies that are conducted in state waters.
5. Develop outreach and training programs to improve reporting accuracy by fishermen.

Table 4-34. Summary of current data collection programs under Alternative 1.

Sector	Submit SRD Reporting Forms if Selected	Must Submit SRD Reporting Form for Each Trip	Carry Observers if Selected	Maintain Electronic Logbook if Selected	Must Provide Offloading, Purchase, and Sales Records if Selected	Carry Video Monitoring System if Selected	MRFFS Participation if Selected
Commercial	Yes	Yes	Yes	Yes		Yes	N/A
For-hire	Yes	Yes	Yes	Yes		Yes	Yes

Preferred Alternative 1 (No Action) would not require that commercial vessels with a snapper grouper permit use the SAFIS system or vessel monitoring systems (VMS). Previously, the South Atlantic Council had selected **Alternative 3** as its preferred alternative under this action. However, at their December 2011 meeting, the South Atlantic Council was presented with information from Southeast Fisheries Science Center staff indicating than an omnibus data reporting system is currently being explored, and would soon be under development. This new system would include detailed reporting requirements for the commercial sector of the snapper grouper fishery, as well as improved dealer reporting provisions. In light of this information the South Atlantic Council determined that an omnibus data reporting amendment would be a more appropriate vehicle for addressing improvements to commercial data reporting in the snapper grouper fishery, and changed their preferred alternative from **Alternative 3** to **Alternative 1(No Action)**.

Alternatives 2-4 identify options for monitoring catch and effort, which are more specific than what was specified in Amendment 15B to the Snapper Grouper FMP. There are no direct biological impacts from establishing a standardized reporting methodology. However, indirect impacts resulting from **Alternatives 2-4** would provide a better understanding of the composition and magnitude of catch and bycatch; enhance the quality of data provided for stock assessments; increase the quality of assessment output; provide better estimates of interactions with protected species; better limit commercial catches to the commercial ACL; and lead to

better decisions regarding additional measures that might be needed to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

Alternatives 2-4 differ in type, amount, and quality of data they would provide. **Alternative 2** would require all vessels with a federal snapper grouper commercial permit to have an electronic logbook tied to the vessel's GPS onboard the vessel. This alternative differs from **Preferred Alternative 1 (No Action)** in that currently a vessel would only be required to use an electronic logbook if it were selected.

The South Atlantic Council tested the use of electronic logbook reporting using the Thistle Marine HMS-110 unit to examine the magnitude and spatial distribution of fishing effort and species composition (O'Malley 2003). The project was implemented on two commercial snapper grouper vessels in South Carolina and North Carolina from May 2002 through November 2002. Over 4,000 high spatial and temporal resolution data points on commercial catch and effort representing 19 fishing trips were captured. The Thistle box allows fishermen to record all species encountered as well as the disposition of released specimens. A comparison of electronic versus paper reporting for a single trip indicates more than twice the number of species than recorded on the trip ticket (O'Malley 2003). Catch per unit of effort (CPUE) can be expressed in different ways for this fishery and the Thistle logbook device can be configured to record all of the parameters necessary to calculate different types of CPUE. These could include catch per trip/day/hour fished, catch per hook/line/reel fished, or catch per man-trip/man-day/man-hour. The Thistle electronic logbook is also set up to record fish lengths. Electronic logbooks have the potential to automatically collect information on date, time, location, and fishing times. Detailed location information would be very useful as more area closures are considered. The current logbook grids are not very usable given the large area and lack of detailed location data. Information (species, length, and disposition) of released species can be manually entered into the system at the end of a fishing event. If the electronic format prompts a fisherman to record data as bycatch occurs, an electronic logbook may provide better estimates of bycatch than a paper logbook. However, for electronic logbooks, like paper logbooks, biases may result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest.

Alternative 3 would provide the option for fishermen to submit their logbook entries electronically through an electronic version of the logbook made available online. Paper logbooks have been required for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic since 1990. In 2001, a separate bycatch reporting logbook was added to include numbers on the average size of discarded fish by species. However, in the absence of any observer data, there are concerns about the accuracy of these logbook data. Biases associated with paper logbooks primarily result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest. There is also a delay in the time in which logbook data are provided via mail to the SEFSC. Electronic logbooks could be completed more easily than paper logbooks and allow for quicker delivery of data to the SEFSC). Therefore, **Alternative 3** has the potential to increase the accuracy of logbook data and speed with which it could delivered to the SEFSC. However, since data would

usually not be entered until the end of a fishing trip, some bias from inaccuracy would be expected. Therefore, **Alternative 3** would be expected to provide data with increased accuracy relative to **Preferred Alternative 1 (No Action)** but with less accuracy than **Alternative 2**, which would allow information to be recorded at the end of a fishing event. Furthermore, like paper logbooks, biases could still be expected due to inaccuracy in reporting of species that are caught in large numbers or are of little economic interest.

Alternative 4 would require commercial landings and catch/effort data to be submitted in accordance with the ACCSP standards weekly or daily as required, using the Standard Atlantic Fisheries Information System (SAFIS) system. SAFIS is a real-time, web-based reporting system for commercial landings on the Atlantic coast and is currently being used from North Carolina northwards to track quotas. It is comprised of three applications:

- Electronic Dealer Reports (eDR) - A forms based application collecting data from the dealers (landings including condition and price).
- Electronic Trip Reports (eTRIPS) - A Web-based application collecting data from fisherman (catch and effort) including gears used, fishing areas, and catch disposition.
- SAFIS Management System (SMS) - A Web-based application providing administrative tools to SAFIS administrators for management of user accounts, participants, permits etc.

Data reported through SAFIS is fed into the ACCSP Data Warehouse. Daily reports can be automatically provided tracking landings; these data can be made available to the public so they have a real-time estimate of quota remaining. This becomes increasingly important as the number of quota-managed species increases. Beneficial biological impacts would be provided by **Alternatives 4** as data are provided more quickly from the fishermen and dealers to NOAA Fisheries Service and fishery managers. In addition to monitoring quotas in a more timely fashion than under the current quota monitoring system, the SAFIS has the potential to improve the quality of data and stock assessments.

Alternatives 1-4 are unlikely to have adverse effects on ESA-listed species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to ESA-listed species. Data collected under **Alternatives 2-4** may indirectly benefit ESA-listed species by improving the quality and quantity of data available for evaluating the impacts of the fishery on protected species.

4.11.2 Economic Effects

In general, an increase in the quantity and/or quality of data increases long-term economic benefits through improvements to management of the stocks. Electronic logbooks (**Alternative 2**), in particular, are seen as a low cost alternative to video monitoring and observers. While paper logbook submittal is already required, **Alternative 3** would provide fishermen the option to submit their logbooks online. While **Alternative 3** would likely be the least expensive alternative for fishermen, **Alternative 4** would vary by individual. **Alternative 4** would require dealers and fishermen to enter landings data on a daily, weekly, or monthly basis to an online site. If a dealer or fisherman does not have access to a computer, he would have to buy one or

borrow one. This could be prohibitive for some dealers and fishermen if borrowing through the library, fish house, or a friend is not an option. However, the cost of a computer might total only $500. The cost to fishermen of **Alternative 2** is somewhat unknown. While pilot electronic logbook programs have provided fishermen with electronic logbook equipment, it is unknown if there are available funds to provide electronic logbooks to the entire fishery. Some costs may be passed on to the fishermen.

Alternative 2 would provide a small amount of additional data in the form of detailed location information and could provide length and condition information on discards. **Alternative 3** would provide no additional data, although, the data may be ready for usage quicker than under **Preferred Alternative 1 (No Action)**. Compared to the other alternatives, **Alternative 4** provides the greatest increase in the quantity of data collected and therefore expected improvement in management of the fishery. Therefore, there are greater long-term economic benefits associated with this alternative. As stated above, **Alternative 4** would improve the quality of data available over **Alternatives 1, 2** and **3**. This would result in higher economic benefits under **Alternative 4** compared to **Alternatives 1, 2,** and **3**.

Implementation of AMs with pay-back for quota overages makes accurate reporting more important. If a quota is exceeded, that amount of harvest could be reduced from the following year's commercial quota. This would have a negative economic impact on fishermen. The current quota monitoring system continues to result in overages and as the number of species under quota management increases, it will be more difficult to accurately track commercial quotas under **Preferred Alternative 1 (No Action)**.

4.11.3 Social Effects

In general terms, it is assumed that while data collections programs or obligations may be individually burdensome on fishery participants, better data reporting is assumed to support better management through improved stewardship of the biological resource and the timely development and implementation of management action that meet resource targets while minimizing adverse social and economic consequences. In sum, better management, from both the resource and fishery perspective, is assumed to result in greater long-term social and economic benefits. It is not possible to state with any certainty when the amount and type of available data is sufficient for optimal assessment and management purposes so, for the purposes of this discussion, it is assumed that continued improvements in resource stewardship and fishery management will continue to be made with more data. All alternatives under consideration, with the exception of **Preferred Alternative 1 (No Action)**, are assumed to constitute improvements to current data collection requirements. Because each of these alternatives would improve data collection relative to **Preferred Alternative 1 (No Action)**, it is assumed that each would result in greater long-term social benefits than **Preferred Alternative 1 (No Action)**.

Alternative 2 and **Alternative 3** apply to snapper grouper fishermen, whereas **Alternative 4** also applies to snapper grouper dealers. As a result, effects comparison should be limited to comparisons within the two sub-groups.

All vessels with a Federal snapper grouper permit are required to submit trip logbooks, with electronic reporting required if the vessel is selected. As a result, all vessels could be selected and required to submit electronic logbooks, though such has not occurred to date. Under **Alternative 2,** all logbooks would have to be submitted electronically. **Alternative 3** would give fishermen the discretion to choose the reporting method that they prefer, paper or electronic. At this time, while it is assumed that it is the intent of the Council that the responsibility for the financial burden of the cost and installation of the electronic logbook lie with grant or government funds, such is not certain, and long-term subscription or maintenance costs may still likely be the responsibility of the vessel. However, given the current mandatory logbook (paper) reporting for this fishery, other than learning how to operate an electronic logbook, the use and submission of the required information may be less burdensome than the current paper logbooks. Electronic reporting may also support both more timely and accurate reporting though, for the purpose of this discussion, it is assumed both methods accurately reflect actual harvest (and both require mandatory reporting of all trips by all vessels) and the primary benefit of electronic reporting is the data is submitted as the trip occurs rather than as part of monthly submissions. As a result of these considerations, **Alternative 2** would be expected to place a greater operational burden on more entities than **Alternative 3**, while resulting in better total data and management due to the more inclusive scope of data collection. Because the Science Center could still select a vessel for required electronic reporting, **Alternative 3** would not be expected to reduce the reporting burden to fishermen who are selected. However, the establishment of an electronic reporting system may result in adequate choice behavior to submit logbooks via this method sufficient to decrease the need for vessel selection for mandatory reporting via electronic logbooks.

Although **Alternative 4** would place an increased operational burden on more entities, the individual burden from a work-load perspective may be minimal. Because computers have become more mainstream in both private and business life, it is expected that virtually all dealers currently have, or have easy access to, most of the necessary hardware, internet accessibility, and skills to provide the required information. Use of these tools has become normal in today's business world. With the provision of access to the appropriate internet interface (i.e., the ability to sign into the web-based reporting site), compliance with any new requirements should result in minimal to no additional burden on these entities, resulting in no to minimal adverse social, or economic, impacts on these entities. It should also be noted that the difference between the two alternatives may be illusory as, operationally, all dealers could be selected for reporting under **Preferred Alternative 1 (No Action)**, a decision that would be at the discretion of NMFS. Thus, the functional outcome of **Alternative 4** relative to **Preferred Alternative 1 (No Action)** on dealers, similar to **Alternative 2** for fishermen, could be identical.

4.11.4 Administrative Effects

Under **Preferred Alternative 1 (No Action)** no administrative impacts would be incurred outside of the status-quo. Though the newly proposed data reporting amendment is likely to be a large undertaking administratively, it will prevent inconsistencies between what may have been

implemented through this amendment and what would be implemented through the omnibus amendment in the future. Additionally, because the data reporting amendment would be dedicated solely to data improvement actions across fisheries, a much more detailed outline of what data would be gathered, by whom, and how it would be obtained would be included in that amendment. **Alternatives 2** and **3** would result in a significant administrative burden to the agency as it would require the development of an electronic reporting system. Under all of the action alternatives**,** the agency would develop the electronic reporting system and receive compliance from the Paperwork Reduction Act Office, which requires significant effort. **Alternative 3** would be the least administratively burdensome on the agency and fishermen in that it would be a voluntary program and it is assumed that those that participate have some familiarity with a computer and electronic logbook programs. NOAA Fisheries Service would need compliance with the Paperwork Reduction Act and would produce educational materials explaining the program. **Alternative 4** would rely on the ACCSP to collect data through the SAFIS system. This system is currently operating in the Northeast Region (North Carolina northwards) and has been tested. The administrative burden on the agency is unknown at this time as it is not clear how the agency would be involved in the program. **Alternative 4** would require compliance with the Paperwork Reduction Act and would result in an economic cost to the Southeast Regional Office. However, there would be economic savings to the SEFSC because they would no longer be tracking the commercial quotas.

4.12 Action 12: Improvement to For-Hire Data Reporting

Alternative 1 (No Action). Retain existing data reporting systems for the for-hire sector.

Note: Refer to **Table 4-34** for a complete list of current data reporting requirements.

Preferred Alternative 2. Require *selected* vessels with a Federal For-Hire Permit to report landings data electronically; NOAA Fisheries Service is authorized to require weekly or daily reporting as required.

Alternative 3. Require vessels operating with a Federal For-Hire permit to maintain a logbook for discard characteristics (e.g., size and reason for discarding), *if selected*.

Alternative 4. Require that for-hire landings and catch/effort data be submitted in accordance with the ACCSP standards, using the SAFIS system.

Note: See Action 11 for a description of the SAFIS system.

4.12.1 Biological Effects

Alternative 1 (No Action) would retain existing data reporting systems for the for-hire sector. This would include those data collection measures implemented by Amendment 15B to the Snapper Grouper FMP including a requirement for a vessel, if selected, that fishes in the exclusive economic zone (EEZ), to maintain and submit fishing records; and to carry observers and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service. Harvest and bycatch in the private and for-hire charter vessel sector has been consistently monitored by Marine Recreational Fishery Statistics Survey (MRFSS) since its inception. The survey uses a combination of random digit dialed telephone intercepts of coastal households for effort information and dock-side intercepts for individual trips for catch information to statistically estimate total catch and discards by species for each sub-region, state, mode, primary area, and wave. Bycatch is enumerated by disposition code for each fish caught but not kept (B2). Prior to 2000, sampling of the charter vessel sector resulted in highly variable estimates of catch. However, since 2000, a new sampling methodology has been implemented. A 10 percent sample of charter vessel captains is called weekly to obtain trip level information. In addition, the standard dockside intercept data are collected from charter vessels and charter vessel clients are sampled through the standard random digital dialing of coastal households. Precision of charter vessel effort estimates has improved by more than 50% due to these changes (Van Voorhees et al. 2000). Additional improvements are scheduled for MRFSS in the next few years:

<u>Program Overview</u>

The Marine Recreational Information Program, or MRIP, is the new way NOAA Fisheries Service is counting and reporting marine recreational catch and effort. It is a customer-driven initiative that will not only produce better estimates, but will do so through a process grounded in

the principles of transparency, accountability and engagement. MRIP replaces the Marine Recreational Fisheries Statistics Survey, or MRFSS, which has been in place since the 1970s.

MRIP is designed to meet two critical needs.

- Provide the detailed, timely, scientifically sound estimates that fisheries managers, stock assessors and marine scientists need to ensure the sustainability of ocean resources.
- Address head-on stakeholder concerns about the reliability and credibility of recreational fishing catch and effort estimates.

MRIP explicitly recognizes that the numbers produced do not exist in a vacuum, that they have real impacts on the lives and livelihoods of millions of Americans.

What will MRIP Do?

MRIP will reduce potential bias and increase the accuracy, timeliness and spatial resolution of recreational catch and effort estimates. MRIP is also intended to increase customer and stakeholder confidence in those estimates. MRIP will not be a fisheries management "silver bullet"; it is the commitment to a process in which end users' needs are a top consideration. We can't predict how much different individual estimates for any given stock or wave may be under MRIP, but we do know that the **quality of the estimates** will be significantly enhanced because the numbers are generated through a newly refined, more statistically robust process.

Improved system of surveys

MRIP is a system of coordinated data collection programs designed to address specific regional needs for recreational fishing information. This regional approach based on a nationally consistent standard will ensure that the appropriate, targeted, place-based information is being collected to best meet the needs of managers and stakeholders, and that it is being done in a scientifically rigorous way.

Although NOAA Fisheries Service is ultimately responsible for making MRIP work, the program's design has relied extensively on input and commitment from independent scientists, partner agencies, fishing groups, conservation organizations and individuals who served on MRIP working groups. Their efforts were heavily informed by dozens of meetings NOAA Fisheries Service held over an 18-month period with fishermen, data partners and other stakeholders from every region of the country.

Looking Forward

NOAA Fisheries Service envisions MRIP as a program that is part of the best and most trusted marine data collection system available. One in which people are confident in the integrity of the information they receive, managers have the appropriate tools in hand to effectively do their critical work, and stakeholders are engaged and empowered partners in the data collection process.

At its core, MRIP is built on the recognition that no single agency can effectively safeguard our ocean resources. Rather, the effort requires the buy-in, cooperation and engagement of a broad network of stakeholders.

Harvest from headboats is monitored by NOAA Fisheries Service at SEFSC's Beaufort Laboratory. Collection of discard data began in 2004. Daily catch records (trip records) are filled out by the headboat operators or in some cases by NOAA Fisheries Service approved headboat samplers based on personal communication with the captain or crew. Headboat trips are sub-sampled for data on species lengths and weights. Biological samples (scales, otoliths, spines, reproductive tissues, stomachs) are obtained as time permits. Lengths of discarded fish are occasionally obtained but these data are not part of the headboat database.

Included in **Alternative 1 (No Action)** would be the measures established in Amendment 15B to the Snapper Grouper FMP (**Table 4-34**). The South Atlantic Council's preferred alternative in Amendment 15B to the Snapper Grouper FMP allows for the implementation of interim programs to monitor and assess bycatch in the South Atlantic snapper grouper fishery until the Atlantic Coastal Cooperative Statistics Program (ACCSP) Release, Discard and Protected Species (Bycatch) Module can be fully funded. The interim programs or first phase of the alternative would allow for the collection of bycatch information utilizing a variety of methods and sources through Amendment 15B to the Snapper Grouper as follows:

1. Require that selected vessels carry observers funded by the agency.
2. Require selected vessels to employ electronic logbooks or video monitoring funded by the agency.
3. Utilize bycatch information collected in conjunction with grant-funded programs such as MARFIN and Cooperative Research Program (CRP). Require that raw data are provided to NOAA Fisheries Service and the Council.
4. Request that bycatch data collected by states are provided to NOAA Fisheries Service and the South Atlantic Council. Many states may have collected data on snapper grouper bycatch in the past. Furthermore, some states may be currently collecting bycatch data through studies that are conducted in state waters.
5. Develop outreach and training programs to improve reporting accuracy by fishermen.

Alternative 1 (No Action) would not require that for-hire vessels use the Standard Atlantic Fisheries Information System (SAFIS) system or vessel monitoring systems (VMS). This would include those data collection measures in place as well as those implemented by Amendment 15B that includes all vessels, if selected, that fish in the EEZ, be required to maintain and submit fishing records; and to carry observers and install an electronic logbook ELB and/or video monitoring equipment provided by NOAA Fisheries Service.

Preferred Alternative 2 and **Alternative 3** identify options for monitoring catch and effort, which are more specific than what was specified in Amendment 15B to the Snapper Grouper FMP. There are no direct biological impacts from establishing a standardized reporting methodology. However, indirect impacts resulting from **Preferred Alternative 2** and **Alternative 3** would provide a better understanding of the composition and magnitude of catch and bycatch; enhance the quality of data provided for stock assessments; increase the quality of assessment output; provide better estimates of interactions with protected species; better track recreational ACLs; and lead to better decisions regarding additional measures that might be needed to reduce bycatch. Management measures that affect gear and effort for a target species

can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

Preferred Alternative 2 would require all vessels with a Federal for-hire permit to report landings electronically if selected. Amendment 15B to the Snapper Grouper FMP also implemented an action that requires commercial, for-hire, and private vessels to install an ELB and/or video monitoring equipment provided by NOAA Fisheries Service, if selected. Therefore, **Preferred Alternative 2** only differs from what was implemented through Amendment 15B to the Snapper Grouper FMP by not specifying the type of electronic equipment that would be used to report landings.

The South Atlantic Council tested the use of electronic logbook reporting using the Thistle Marine HMS-110 unit to examine the magnitude and spatial distribution of fishing effort and species composition (O'Malley 2003). The project was implemented on two commercial snapper/grouper vessels in South Carolina and North Carolina from May 2002 through November 2002. Over 4,000 high spatial and temporal resolution data points on commercial catch and effort representing 19 fishing trips were captured. The Thistle box allows fishermen to record all species encountered as well as the disposition of released specimens. A comparison of electronic versus paper reporting for a single trip indicates more than twice the number of species than recorded on the trip ticket (O'Malley 2003). Catch per unit of effort (CPUE) can be expressed in different ways for this fishery and the Thistle logbook device can be configured to record all of the parameters necessary to calculate different types of CPUE. These could include catch per trip/day/hour fished, catch per hook/line/reel fished, or catch per man-trip/man-day/man-hour. The Thistle electronic logbook is also set up to record fish lengths. Electronic logbooks have the potential to automatically collect information on date, time, location, and fishing times. Information (species, length, and disposition) of released species can be manually entered into the system at the end of a fishing event. If the electronic format prompts a fisherman to record data as bycatch occurs, an electronic logbook may provide better estimates of bycatch than a paper logbook. However, for electronic logbooks, like paper logbooks, biases may result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest.

Alternative 3 would require vessels operating with a for-hire permit to maintain a logbook for discard characteristics (e.g., the size and reason for discarding), if selected. Harvest from headboats has been monitored by NOAA Fisheries Service at SEFCS's Beaufort Laboratory since 2004. Daily catch records (trip records) are filled out by the headboat operators or in some cases by NOAA Fisheries Service approved headboat samplers based on personal communication with the captain or crew. Fish lengths and biological samples are also collected. **Alternative 3** would differ from the status quo **Alternative 1** by also requiring logbooks for the charter portion of the for-hire fishery. As landings from charter boat often dominate catches in the for-hire sector, **Alternatives 3** would provide a better understanding of the composition and magnitude of catch and bycatch, leading to better data for stock assessment and better decisions regarding measures needed manage fish resources and reduce bycatch.

Alternative 4 would require for-hire trip reports to be submitted in accordance with the ACCSP standards using the SAFIS system. **Alternative 4** would require selected vessels to report

electronically (computer or fax) through the SAFIS and require weekly or daily reporting when it is anticipated a quota was going to be met. SAFIS is a real-time, web-based reporting system for commercial landings on the Atlantic coast. It is comprised of three applications:

- Electronic Dealer Reports (eDR) - A forms based application collecting information from the dealers (landings, condition and price).
- Electronic Trip Reports (eTRIPS) - A Web-based application collecting data from fisherman (catch and effort) including gear used, fishing areas, and catch disposition.
- SAFIS Management System (SMS) - A Web-based application providing administrative tools to SAFIS administrators for management of user accounts, participants, permits etc.

Data reported through SAFIS is fed into the ACCSP Data Warehouse. Beneficial biological impacts would be provided by **Alternative 4** as data are provided more quickly from the fishermen and dealers to NMFS and fishery managers. In addition to monitoring quotas in a more timely fashion than under the current quota monitoring system, the SAFIS has the potential to improve the quality of data and stock assessments.

The impacts on ESA-listed species from **Alternatives 1-4** for the for-hire sector will be the same as those noted in Section 4.11.1

4.12.2 Economic Effects

Section 4.12.1 above provides, among others, a description of the data that would be generated under **Alternative 1 (no action)** and the additional data that could be generated under the other alternatives. In general, an increase in the quantity and/or quality of data offers the potential to increase economic benefits, particularly in the long term.

The various alternatives differ in the type and quality of information that can be collected. Generally, collecting more and better information may be associated with the more costly alternative, regardless of who bears the actual cost burden, i.e., the government or the industry. **Alternative 1 (No Action)** requires many data, as described in **Table 4-34**, to be provided by for-hire vessels. Each of the other alternatives would require additional data or similar data of relatively higher quality. **Preferred Alternative 2** would require selected for-hire vessels to electronically report data on a weekly or daily basis. A weekly reporting frequency is likely to affect charterboats more than headboats as the latter are already subject to more frequent reporting requirement. It may be noted, though, that 10% of charter captains are contacted weekly to obtain trip level information. A daily reporting requirement, however, would introduce an additional burden on both charterboats and headboats. The electronic method of reporting would be an added requirement on both charterboats and headboats. Together, the electronic and the higher frequency reporting may be expected to generate data that are of higher quality than what is currently done. To the extent that headboats are already subject to paper logbook reporting, the incremental cost of electronic reporting, especially the weekly frequency option, would likely be minimal and would accrue only to a subset of headboats selected to report. On the other hand, the incremental cost to charterboats would likely be higher for those selected to report as there are currently no logbook reporting requirements on charterboats.

Alternative 3 would require selected for-hire vessels to maintain a logbook for discard characteristics. Understandably, this alternative cannot be considered as a stand-alone alternative in the sense of replacing **Alternative 1 (No Action)** because of the more limited information covered in this alternative. As a supplement to either **Alternative 1 (No Action)** or **Preferred Alternative 2, Alternative 3** can provide the necessary information regarding incidental mortality of stocks due to the operations of for-hire vessels. Such information would be vital as an input to stock assessments and as input to the development of better management measures. The incremental cost of this alternative would be relatively low to headboats, which are already subject to logbook reporting. On the other hand, this alternative could impose some real cost burden on charterboats, although the incremental cost may not be that much when taken relative to the reporting requirement under **Preferred Alternative 2**.

Alternative 4 is similar to **Preferred Alternative 2** in terms of the extent and quality of data that would be generated. The requirement under this alternative, however, would apply to all for-hire vessels and not just a subset of these vessels as in **Preferred Alternative 2**. Thus, the quality of data would likely be higher under **Alternative 4** than under **Alternative 1 (No Action)** or **Preferred Alternative 2**. Alternatively, **Alternative 4** would likely incur higher costs than either **Alternative 1 (No Action)** or **Preferred Alternative 2**. The higher the frequency of data reporting, the higher would be the compliance and administration costs. Related to administration in general and administration cost in particular, it is to be noted that under **Alternative 4** the SAFIS system would have to be expanded to cover reporting by the for-hire sector. In addition, some administrative controls would have to be instituted so that the data collection objectives of ACCSP, NOAA Fisheries Service and the South Atlantic Council would be met. These controls could potentially involve requiring strict adherence to SAFIS system reporting as a condition for renewals of federal for-hire permits.

Potentially affected by the various alternatives are 1,690 vessels with for-hire permits and 224 vessels with both commercial and for-hire permits. About 92% of these vessels have homeports in the four states under the jurisdiction of the South Atlantic Council. The rest are located in the Gulf States or other States on the east coast. Most of these vessels (about 66%) are located in Florida. It is worth recalling that only a sample of these vessels would be directly affected by **Preferred Alternative 2** or **Alternative 3** in any one year. **Alternative 4**, on the other hand, would affect practically all these vessels.

Noting that the data generated by the various alternatives would specifically address the needed data about the stock and the way the for-hire sector impacts the stocks, economic benefits that can be expected from the various alternatives would be realized through improvement in the management of the stocks. Eventually, however, the data collection programs under any of the alternatives could be utilized to generate economic information about the for-hire sector. Such information would greatly aid in devising management measures that could achieve a better balance between the need to manage the recovery and sustainability of the stocks and the adverse economic effects on the for-hire sector they would entail. In addition, such information could be utilized to enhance the economic benefits the for-hire sector derives from the snapper-grouper fishery through the development of better management systems. Given the description of the various alternatives, this economic information is unlikely to be collected on a routine basis but

can nevertheless be added to the required data the for-hire vessels have to provide on a periodic basis

4.12.3 Social Effects

The general effects of improved data reporting, as well as the expected effects of **Alternative 1 (No Action)**, are discussed in **Section 4.12.1**.

Preferred Alternative 2 would place an increased operational burden on entities selected and required to submit electronic reports. However, it is assumed that the individual burden would be minimal, as discussed in **Section 4.12.2.** It has not been determined who would pay for the necessary systems, though it might be assumed, similar to the alternatives for the commercial sector, that it is the intent of the South Atlantic Council that the responsibility for the financial burden of the cost and installation of the electronic logbook lie with grant or government funds. Long-term subscription or maintenance costs would still likely be the responsibility of the vessel. Because the headboat sector is currently required to submit paper logbooks, the incremental burden of an electronic logbook would not be as great for this sector compared to the charter sector, as any required electronic reporting would replace existing requirements. The data collected via electronic logbook may still, however, be more accurate and received more quickly, resulting in greater management benefits, with associated social benefits, than the current system.

Alternative 3 would limit the collection of new information to discard data. As a result, the burden associated with the documentation of this information would not be as great as under **Preferred Alternative 2** and **Alternative 4;** however, in general, the amount of information collected would be less than the information collected under **Preferred Alternative 2** and **Alternative 4**, even if all vessels are selected for reporting. Specifically, **Alternative 3** would not result in improvement of harvest information relative to either alternative. While **Alternative 3** might adequately complement the existing mandatory data requirements for the headboat sector (logbook harvest and effort data), **Alternative 3** would only improve the collection of bycatch information for the charter sector. As a result, the social benefits of improved data collection and fishery management would be expected to be less under **Alternative 3** relative to **Preferred Alternative 2** (the ACCSP standards, which would apply under **Alternative 4**, include bycatch). While **Alternative 3** could be combined (adopted in tandem) with **Preferred Alternative 2**, **Preferred Alternative 2** deals with the form or manner and frequency of reporting and not content. As a result, bycatch information could be included in the data elements required to be reported under **Preferred Alternative 2** and the adoption of **Preferred Alternative 2** with **Alternative 3** should not be necessary to have both electronic reporting and the collection of bycatch data.

Alternative 4 would be expected to increase the reporting burden on for-hire vessels, while increasing the quality and utility of data. As such, the effects of **Alternative 4** would be expected to be similar to those of **Preferred Alternative 2,** while possibly imposing a greater burden because the requirements of **Preferred Alternative 2** would be imposed only on selected vessels. While the increased reporting burden would be expected to result in reduced social benefits to affected entities, the improved data quality and utility would be expected to result in

improved management (better and more timely fishery and impact assessments resulting in improved regulations) relative to **Alternative 1 (No Action)**. Overall, the social benefits of improved management would be expected to exceed the reduced benefits associated with increased reporting burden. The actual magnitude of effects would, however, be dependent upon the as yet unspecified reporting frequency, with more frequent reporting increasing the reporting burden, while improving the quality and utility of the data, and subsequent management decisions.

It should also be noted that the adoption of **Alternative 4** could be viewed by some as inappropriate as it would require the use of a program over which neither the South Atlantic Council nor NOAA Fisheries Service has direct control and which currently lacks an interface designed for the for-hire sector. However, NOAA Fisheries Service and the Councils are partners in ACCSP and sit as Coordinating Council members. While the adoption of **Preferred Alternative 2** would similarly require the development of an appropriate interface, the expected burden would fall on NOAA Fisheries Service or could be provided by ACCSP. Requiring the use of SAFIS for reporting by for-hire vessels would both expand its use to a sector not currently covered (and for which no appropriate user interface exists), and would, essentially impose the burden of program expansion on the ACCSP. While both the South Atlantic Council and NOAA Fisheries Service are participants in the ACCSP development process, due to its' cooperative design, direct control is lacking. As a result, the selection of **Alternative 4** could result in the adoption of a management requirement that cannot be implemented with any certainty. While this could be described as an administrative concern, adverse social effects accrue to management decisions viewed as inappropriate or impractical.

4.12.4 Administrative Effects

Alternative 1 (No Action) would result in no new administrative impacts that were not considered in Amendment 15B to the Snapper Grouper FMP. **Preferred Alternative 2** would select vessels to report electronically which would be administratively burdensome on the agency and fishermen. The agency could select 100% of the vessels for reporting which would be administratively burdensome on the fishermen and the agency. **Alternative 3** would require vessels to maintain a logbook for discard characteristics, (e.g., size and reason for discarding). As with the other reporting alternatives, **Alternative 3** would require compliance with the Paperwork Reduction Act. **Preferred Alternative 2** and **Alternative 3** would result in a significant administrative burden to the agency as it would require the development of an electronic reporting system and discard logbook. Under these alternatives**,** the agency would develop the electronic reporting system and receive compliance from the Paperwork Reduction Act Office, which requires significant effort. **Alternative 4** is functionally the same as **Preferred Alternative 2**, in that the electronic reporting will be done through the SAFIS system which has been tested and used in other regions.

4.13 Research Recommendations

- Age sampling from commercial, headboat, and MRFSS.
- Increased fishery independent sampling.
- Update fecundity information by age and length.
- Age structured models that will take into consideration historical landings.
- Estimates of release mortality by depth and fishery.
- Determine if changes in fishing operations, including species composition of the landings, might reflect catch ability of black sea bass that has not been taken into account by the assessment.
- Index of recruitment.
- Estimate the magnitude, direction, geographic extent, timing, and management implications of mixing north and south of Cape Hatteras.
- Behavioral dynamics associated with reproduction should be investigated with respect to the effects of size selective harvesting.

4.14 Socio-Cultural Research Needs

Socio-cultural research needs that have been identified by the South Atlantic Council's Scientific and Statistical Committee are as follows:

1. Identification, definition and standardization of existing datasets to meet short-term social analysis needs (e.g. behavioral networks based on annual rounds). Centrally locate these datasets so they are accessible to researchers and managers (realizing the constraints imposed by confidentiality);

2. Development of new variables to meet long-term social analytical needs (e.g., community health, individual health, decision-making patterns, cumulative impacts of endogenous, exogenous, and regulatory factors);

3. Longitudinal Data – monitoring needs, including historical, ethnographic, and quantitative data over time;

4. Traditional ecological knowledge/local fisheries knowledge (TEK/LFK) constructions along with scientific ecological knowledge (SEK);

5. State data (license/permit data; social survey type data) and coordination between agencies/levels;

6. Better integration of social, biological and economic variables in modeling efforts; and

7. Better efforts to include humans and human behavior in the ecosystem-based framework (e.g., representation of humans as keystone predators in the system);

Economic research needs that have been identified by the South Atlantic Council's Scientific and Statistical Committee are as follows:

The following issues were identified as being impediments to conducting economic research:

- Confidentiality of state data and data collected through federal research projects.
- Data collected through certain agency grants cannot be distributed without dealing with confidentiality issues.
- The inability to display confidential data.

Commercial

1. Explore the feasibility of developing computable general equilibrium models, which can incorporate the entire economy and important ecosystem components (medium priority, high cost).
2. Develop an input output model for the South Atlantic commercial fisheries. This model should be similar to the NOAA Fisheries Service model for other regions on shore-based communities (medium priority, high cost).
3. Consider alternative ways to collect data on both a social and economic basis e.g. partnerships to develop projects (high priority, medium cost).
4. Ensure availability, improve upon and collect basic data: catch, employment, effort, price, cost/earnings (very high priority, high cost).
5. Opportunity costs - rely on the studies completed in the past on the next best jobs. Include collection of data to estimate worker satisfaction bonus.
6. Integrated biological, social and economic models including dynamic optimization models.
7. Demand analysis – include the effects of imports. Studies of value added product e.g. branding and marketing strategies.
8. Include data collection and analysis on the processing sector, retail sector.
9. Research on the economic and social effects of capacity reduction.
10. Employment in the primary and secondary sectors of the fishing industry that also includes research on household budgets.
11. Cumulative impacts – economic and social.
12. Models to predict fishing behavior in the face of fishing regulations. This would include description of fishing rounds on a seasonal basis and fishing behavioral networks.
13. Non-consumptive and non-use benefits of marine protected species and essential fish habitat/habitat areas of particular concern. Also, measure the socio-cultural benefits of these species.
14. Research on live product/whole weight conversion factors on a seasonal basis possibly through the TIP program or through other biological sampling programs.

Recreational

1. Assess the feasibility of developing benefits transfer models from existing data and the MRFSS. Complete recreational demand models that are more relevant for fisheries management. These models should focus on policy relevant variables (bag, size limits, individual species and species groups). (high priority, low/medium cost)
2. Develop random utility models for predicting participation changes, economic value and behavior of recreational fishermen. (high priority, high cost for data collection).
3. Develop targeted input-output model to estimate the effects of policy changes on the economic impacts of recreational fishing. Will provide information on jobs, wages,

income on affected sectors such as lodging, restaurants, bait and tackle shops, marinas, boats (medium priority, high cost).

4. Include categories/motivations of recreational anglers in models outlined in items 1 and 2 (medium priority, high cost).
5. Collect data on motivations/behavioral patterns of recreational fishermen. (medium priority, high cost).
6. Characterize participants in subsistence fisheries. (low priority, high cost).
7. Develop Valuation models and I/O models for tournament fishing. (medium priority, high cost).
8. Develop cost-earnings model for the for-hire sector (charter and headboat). (high priority, high cost). NOAA Fisheries Service is currently conducting a study.

4.15 Ecosystem based management

1. Conduct analyses to facilitate the economic valuation of ecosystem services (very high priority, high cost).
2. Explore the use of Ecopath and Ecosim (very high priority, high cost).

5 Cumulative Effects

As directed by the National Environmental Policy Act (NEPA), federal agencies are mandated to assess not only the indirect and direct impacts, but the cumulative impacts of proposed actions as well. NEPA defines a cumulative impact as *"the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time"* (40 C.F.R. 1508.7). Cumulative effects can either be additive or synergistic. A synergistic effect is when the combined effects are greater than the sum of the individual effects.

Various approaches for assessing cumulative effects have been identified, including checklists, matrices, indices, and detailed models (MacDonald 2000). The Council on Environmental Quality (CEQ) offers guidance on conducting a Cumulative Effects Analysis (CEA) in a report titled "Considering Cumulative Effects under the National Environmental Policy Act." (CEQ 1997). The report outlines 11 items for consideration in drafting a CEA for a proposed action.

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.
2. Establish the geographic scope of the analysis.
3. Establish the timeframe for the analysis.
4. Identify the other actions affecting the resources, ecosystems, and human communities of concern.
5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.
6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.
7. Define a baseline condition for the resources, ecosystems, and human communities.
8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.
9. Determine the magnitude and significance of cumulative effects.
10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.
11. Monitor the cumulative effects of the selected alternative and adapt management.

This CEA for the biophysical environment will follow a modified version of the 11 steps. Cumulative effects for the socio-economic environment will be analyzed separately.

5.1 Biological

SCOPING FOR CUMULATIVE EFFECTS

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.

The CEQ cumulative effects guidance states that this step is done through three activities. The three activities and the location in the document are as follows:

I. The direct and indirect effects of the proposed actions **(Section 4)**;
II. Which resources, ecosystems, and human communities are affected **(Section 3)**; and
III. Which effects are important from a cumulative effects perspective **(information revealed in this cumulative Effects Analysis (CEA)**).

2. Establish the geographic scope of the analysis.

The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West, which is also the South Atlantic Council's area of jurisdiction. The extent of boundaries also would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. The ranges of affected species are described in **Section 3.2.1**. **Section 3.1** describes the essential fish habitat designation and requirements for species affected by this amendment.

3. Establish the timeframe for the analysis.

The snapper grouper fishery was first federally managed when the FMP was implemented in 1983. Since that time many management measures for black sea bass and data collection efforts have been promulgated through the rulemaking process. Socioeconomic and biological data in this amendment goes through the 2010 calendar year. Subsequent impacts of actions implemented through Amendment 18A, if approved, will continually be monitored for effectiveness in the future.

4. Identify the other actions affecting the resources, ecosystems, and human communities of concern (the cumulative effects to the human communities are discussed in Section 4).

Listed are other past, present, and reasonably foreseeable actions occurring in the South Atlantic region. These actions, when added to the proposed management measures, may result in cumulative effects on the biophysical environment.

I. Fishery-related actions affecting snapper grouper species:

A. Past

The reader is referred to **Appendix C. History of Management of the Snapper Grouper Fishery** for past regulatory activity for the fish species being impacted by this amendment. These include bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system. A brief summary of the recent past amendments follows.

Amendment 13C (SAFMC 2006) addressed overfishing of black sea bass and implemented several management measures to limit harvest of the species in commercial and recreational sectors. Amendment 13C specified a commercial quota of 477,000 lbs gutted weight (563,000 lbs whole weight) in year 1; 423,000 lbs gutted weight (gw) (499,000 lbs whole weight (ww)) in year 2; and 309,000 lbs gutted weight (364,000 lbs whole weight) in year 3 onwards until modified. This was based on a Total Allowable Catch (TAC) of 1,110,000 lbs gw (1,310,000 lbs ww) in year 1; 983,000 lbs gw(1,160,000 lbs gw) in year 2; and 718,000 lbs gutted weight (847,000lbs ww) in year 3 onwards until modified. After the commercial quota is met, all purchase and sale is prohibited and harvest and/or possession is limited to the bag limit. Amendment 13C also required use of at least 2 inch mesh for the entire back panel of black sea bass pots, and changed the fishing year from the calendar year to June 1 through May 31. Additionally, Amendment 13C required that black sea bass pots be removed from the water when the quota is met.

Amendment 15A (SAFMC 2008a) to the Snapper Grouper Fishery Management Plan was approved by the South Atlantic Fishery Management Council (South Atlantic Council) during its December 2007 meeting submitted to NOAA Fisheries Service for approval by the Secretary of Commerce. The amendment was developed by the South Atlantic Council to: 1) update management reference points for snowy grouper, black sea bass, and red porgy; 2) modify rebuilding schedules for snowy grouper and black sea bass; 3) define rebuilding strategies for snowy grouper, black sea bass, and red porgy; and 4) redefine the minimum stock size threshold for the snowy grouper stock. The amendment was approved March 14, 2008.

Amendment 15B (SAFMC 2008b) to the Snapper Grouper FMP became effective on December 16, 2009. Management measures in Amendment 15B include: prohibition of the sale of bag limit caught snapper grouper species for fishermen not holding a federal commercial permit for South Atlantic snapper grouper; an action to adopt, when implemented, the ACCSP release, discard and protected species module to assess and monitor bycatch; allocations for snowy grouper; and management reference points for golden tilefish. Biological benefits from Amendment 15B are not expected to result in a significant cumulativebiological effect when added to anticipated biological impacts under Amendment 18A.

Amendment 16 (SAFMC 2009a) to the Snapper Grouper FMP was implemented on July 29, 2009 and established a: January-April spawning season closure for gag and shallow water

groupers; quota for gag that shuts down shallow water groupers when quota is met; reduction of 5 grouper aggregate to 3 fish per person per day; reduction of 2 gag or black grouper combined to 1 gag or black grouper combined; reduction in vermilion snapper quota; November-March recreational closure for vermilion snapper; and a reduction in vermilion snapper bag limit from 10 to 5 fish per person per day. The expected effects of these measures include significant reductions in landings and overall mortality of several shallow water snapper grouper species including, gag, black grouper, red grouper, and vermilion snapper. Management measures in Amendment 16 do not apply to black sea bass therefore the management measures proposed by Amendment 16 will not add to the management burden for this species. However, the snapper grouper fishery as a whole has been subject to increased regulation and the measures proposed in Amendment 18A will add to the overall regulatory burden of the fishery.

Amendment 17B SAFMC 2010b), which was implemented on January 31, 2011, includes action that: Establish ACLs, annual catch targets, and AMs for 8 species experiencing overfishing; modify management measures to limit total mortality to the ACL; and update the framework procedure for specification of total allowable catch. One of the management measures prohibited the harvest and possession of deep water snapper-grouper species (snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper, and silk snapper) at depths greater than 240 feet. The intent was to reduce bycatch of speckled hind and warsaw grouper.

Regulatory Amendment 9 (SAFMC 2011b) reduced the recreational bag limit for black sea bass from 15 fish per person per day to 5 fish per person per day, implemented a trip limit of 1,000 lbs gw for gag, a trip limit of 1,500 lbs gw for vermilion snapper, and increased the trip limit for greater amberjack from 1,000 lbs to 1,200 lbs gw. These measures were intended to prevent the progressive shortening of fishing seasons for black sea bass, gag, and vermilion snapper, and increase per trip yield for greater amberjack.

Regulatory Amendment 11 (SAFMC 2011a) is currently under review by the Secretary of Commerce. The amendment eliminates a current restriction on the possession or harvest of some deepwater snapper grouper species in waters greater than 240 feet deep. The regulation was originally implemented in January 2011 to help protect speckled hind and warsaw grouper; however, data indicate that the closure may not significantly reduce bycatch of these species while the socioeconomic impacts of the closure are significant in some areas. The South Atlantic Council will re-address measures to reduce bycatch of speckled hind and warsaw grouper in Comprehensive Ecosystem-Based Amendment 3.

B. Present

Amendment18B to the Snapper Grouper FMP is currently under development. This amendment would limit effort in the golden tilefish fishery through an endorsement program.

The Comprehensive ACL Amendment (SAFMC 2011c, currently under review, was developed to specify ACLs and AMs for species in the FMPs for Snapper Grouper, Dolphin Wahoo, *Sargassum*, and Golden Crab that are not undergoing overfishing. The Comprehensive ACL Amendment would also remove some species from South Atlantic snapper grouper fishery management unit, consider multi-species groupings, establish ABC control rules , specify allocations among the commercial, recreational, and for-hire sectors for species not undergoing overfishing, and modify management measures to limit total mortality to the ACL. The South Atlantic Council approved the document for review by the Secretary of Commerce at their September 2011 meeting and submitted the document for formal review on October 14, 2011. The Notice of Availability of the Amendment was published on October 20, 2011 with comments due no later than 5 pm EST on December 19, 2011.

C. Reasonably Foreseeable Future

Though several amendments to the snapper grouper FMP are under development or review, such as Amendments 22 (long-term red snapper management) and 24 (SAFMC 2011d; red grouper rebuilding plan), none are likely to contribute to or reduce the cumulative impacts of actions contained in Amendment 18A.

II. Non-Council and other non-fishery related actions, including natural events affecting snapper grouper species.

A. Past
B. Present
C. Reasonably foreseeable future

In terms of natural disturbances, it is difficult to determine the effect of non-Council and non-fishery related actions on stocks of snapper grouper species. Annual variability in natural conditions such as water temperature, currents, food availability, predator abundance, etc. can affect the abundance of young fish, which survive the egg and larval stages each year to become juveniles (i.e., recruitment). This natural variability in year class strength is difficult to predict as it is a function of many interactive and synergistic factors that cannot all be measured (Rothschild 1986). Furthermore, natural factors such as storms, red tide, cold water upwelling, etc. can affect the survival of juvenile and adult fishes; however, it is very difficult to quantify the magnitude of mortality these factors may have on a stock. Alteration of preferred habitats for snapper grouper species could affect survival of fish at any stage in their life cycles. However, estimates of the abundance of fish, which utilize any number of preferred habitats, as well as, determining the impact habitat alteration may have on snapper grouper species, is problematic.

The snapper grouper ecosystem includes many species, which occupy the same habitat at the same time. For example, black sea bass co-occur with vermilion snapper, tomtate, scup, red porgy, white grunt, red snapper, red grouper, scamp, gag, and others. Therefore, many snapper grouper species are likely to be caught and suffer some mortality when regulated since they will be incidentally caught when fishermen target other co-occurring species. Other natural events such as spawning seasons, and aggregations of fish in spawning

condition can make some species especially vulnerable to targeted fishing pressure. Such natural behaviors are discussed in further detail in **Section 3.2** of this document, and are hereby incorporated by reference.

As noted in **Section 4** of this document, actions to reduce effort in the commercial sector of the black sea bass fishery could inadvertently lead to black sea bass pots being fished during right whale calving season, November 1 through April 15. It is difficult to predict changes in fishing behavior and in the black sea bass pot sector well into the future. Under the current preferred rebuilding strategy alternative, the ACL would increase after the 2014/2015 fishing season until 2016 if the previous season's ACL was not exceeded and if an updates stock assessment is conducted as required by the SSC. Subsequent increases in the commercial ACL could potentially lengthen the fishing season to the point where black sea bass pots could co-occur with migrating right whales, increasing the risk of entanglement over the status quo. In addition to this risk, right whales are also susceptible to ship strikes along the east coast since they often travel through busy shipping lanes. Furthermore, vertical line gear interactions in the northeast region of their migration route are also known to cause several right whale entanglements but not from the black sea bass pot sector. The 2011 Atlantic Large Whale Take Reduction Team Scoping Document lists a total of five right whale entanglements in fishing gear in 2010 and eight entanglements since June 2011 (NMFS 2011). Ship strikes, and gear interactions in the northeast region and in the southeast regions, individually, have the potential to cause harm to right whales; if combined, the cumulative impact could be considered serious given the extremely small population estimates for the species.

AFFECTED ENVIRONMENT

5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.

In terms of the biophysical environment, the resources/ecosystems identified in earlier steps of the CEA are the fish populations directly or indirectly affected by the regulations. This step should identify the trends, existing conditions, and the ability to withstand stresses of the environmental components.

The species most likely to be impacted by actions in Amendment 18A is black sea bass. Actions in Amendment 18A could limit participation and effort in the black sea bass portion of the snapper grouper fishery. A description of the communities identified through scoping for this amendment and their ability to adapt to and withstand stress resulting from the cumulative impacts of this and other fishery management actions are discussed in **Section 3.8** of this document. In the long-term, actions in this amendment and others mentioned in this CIA are likely to benefit the affected communities by promoting sustainable harvests levels, which would support steady market conditions and allow fishermen who are heavily vested in the snapper grouper fishery to continue fishing into the future.

The trends in condition of black sea bass are determined through the Southeast Data, Assessment and Review (SEDAR) process. As of 2004 (the last year of data used in the previous stock assessment), the black sea bass stock in the South Atlantic was undergoing

overfishing and was **overfished**. Actions were taken in Amendments 13C and 17B to the Snapper Grouper FMP to end overfishing of black sea bass. More information on the SEDAR Assessments for these species can be found in **Section 3.2.2**. A new stock assessment for black sea bass (SEDAR 25) indicates black sea bass are no longer overfished but are still rebuilding to the biomass capable of producing MSY and are undergoing overfishing to a minor degree.

6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.

This step is important in outlining the current and probable stress factors on snapper grouper species identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the resources cannot be sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

Fish populations

Quantitative definitions of overfishing and overfished for black sea bass were identified in Amendments 11 (SAFMC 1998a) and 12 (SAFMC 2000) to the Snapper Grouper FMP; numeric values of thresholds for overfishing and overfished for black sea bass were updated/modified in Amendment 15A (SAFMC 2008a). These values includes maximum sustainable yield (MSY), the fishing mortality rate that produces MSY (F_{MSY}), the biomass or biomass proxy that supports MSY (B_{MSY}), the minimum stock size threshold below which a stock is considered to be overfished (MSST), the maximum fishing mortality threshold above which a stock is considered to be undergoing overfishing (MFMT), and optimum yield (OY). Amendment 18A to the Snapper Grouper FMP updates thresholds for black sea bass based on the most recent assessment, SEDAR 25 (2011).

Climate change

Global climate changes could have significant effects on Atlantic fisheries. However, the extent of these effects is not known at this time, specifically for the Atlantic. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (IPCC 2007; Kennedy et al. 2002).

Actions from this amendment could decrease the carbon footprint from fishing if some fishermen stop or reduce their number and duration of trips due to the establishment of catch limits and other measures that could restrict fishing effort to ensure overfishing does not occur. It is unclear how climate change would affect species in the Atlantic. Climate change

can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly impact species in the future, but the level of impacts cannot be quantified at this time, nor is the timeframe known in which these impacts will occur. Actions in this document are expected to reduce or cap harvest of species managed by the Council; thus these actions may partially mitigate the negative impacts of global climate change on these species.

The Snapper Grouper fishery is heavily regulated which impacts the human communities. The social and cultural environment is described in **Section 3.8**. It is expected that short-term losses resulting from the cumulative impacts of this and the other snapper grouper regulatory actions mentioned in this CIA will result in long-term benefits to the communities that are heavily dependent upon the snapper grouper fishery for revenue and infrastructure support.

7. Define a baseline condition for the resources, ecosystems, and human communities.

The purpose of defining a baseline condition for the resource, ecosystems, and human communities in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. The Southeast Data Assessment and Review (SEDAR) assessments show trends in biomass, fishing mortality, fish weight, and fish length going back to the earliest periods of data collection. For some species such as snowy grouper, assessments reflect initial periods when the stock was above B_{MSY} and fishing mortality was fairly low. However, some species such as black sea bass were heavily exploited or possibly overfished when data were first collected. As a result, the assessment must make an assumption of the biomass at the start of the assessment period thus modeling the baseline reference points for the species. The baseline condition of the communities most impacted by this and other snapper grouper regulatory actions is contained in **Section 3.8** of this document.

DETERMINING THE ENVIRONMENTAL CONSEQUENCES OF CUMULATIVE EFFECTS

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

Table 5-1. The cause and effect relationship of fishing and regulatory actions for the snapper grouper fishery in the South Atlantic, within the time period of the Cumulative Effects Analysis (CEA) is shown below.

Time period/dates	Cause	Observed and/or Expected Effects
1960s-1983	Growth overfishing of many reef fish species.	Declines in mean size and weight of many species including black sea bass.
August 1983	4" trawl mesh size to achieve a 12" TL commercial vermilion snapper minimum size limit (SAFMC 1983).	Protected youngest spawning age classes.
Pre-January 12, 1989	Habitat destruction, growth overfishing of vermilion snapper.	Damage to snapper grouper habitat, decreased yield per recruit of vermilion snapper.
January 1989	Trawl prohibition to harvest fish (SAFMC 1988).	Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many reef species including vermilion snapper, and gag.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	Prohibited gear: fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. Size/Bag limits: 10" TL vermilion snapper (recreational only); 12" TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20" TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991a).	Protected smaller spawning age classes of vermilion snapper.
Pre-June 27, 1994	Damage to *Oculina* habitat.	Noticeable decrease in numbers and species diversity in areas of *Oculina* off FL
July 1994	Commercial quotas and trip limits for snowy grouper and golden tilefish. Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA;	Put limit on fishing mortality of snowy grouper and golden tilefish. Initiated the recovery of snapper grouper species in OECA.

Time period/dates	Cause	Observed and/or Expected Effects
	SAFMC 1993)	
1992-1999	Declining trends in biomass and overfishing continue for a number of snapper grouper species including vermilion snapper and gag.	Spawning potential ratio for vermilion snapper and gag is less than 30% indicating that they are overfished.
February 24, 1999	Gag and black: 24" total length (recreational and commercial); 2 gag or black grouper bag limit within 5 grouper aggregate; March-April commercial closure. Vermilion snapper: 11" total length (recreational). Aggregate bag limit of no more than 20 fish/person/day for all snapper grouper species without a bag limit (1998a).	F for gag vermilion snapper remains declines but is still above F_{MSY}.
October 23, 2006	Snapper grouper FMP Amendment 13C (SAFMC 2006)	Commercial vermilion snapper quota set at 1.1 million lbs gutted weight; recreational vermilion snapper size limit increased to 12" TL to prevent vermilion snapper overfishing
Effective February 12, 2009	Snapper grouper FMP Amendment 14 (SAFMC 2007)	Use marine protected areas (MPAs) as a management tool to promote the optimum size, age, and genetic structure of slow growing, long-lived deepwater snapper grouper species (e.g., speckled hind, snowy grouper, warsaw grouper, yellowedge grouper, misty grouper, golden tilefish, blueline tilefish, and sand tilefish). Gagand vermilion snapper occur in some of these areas.
Effective March 20, 2008	Snapper grouper FMP Amendment 15A (SAFMC 2008a)	Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Effective Dates Dec 16, 2009, to Feb 16, 2010.	Snapper grouper FMP Amendment 15B (SAFMC 2008b)	End double counting in the commercial and recreational reporting systems by prohibiting the sale of bag-limit caught snapper grouper, and minimize impacts on sea turtles and smalltooth sawfish.
Effective Date July 29, 2009	Snapper grouper FMP Amendment 16 (SAFMC 2009a)	Protect spawning aggregations and snapper grouper in spawning condition by increasing the length of the spawning season closure, decrease discard mortality by requiring the use

Time period/dates	Cause	Observed and/or Expected Effects
		of dehooking tools, reduce overall harvest of gag and vermilion snapper to end overfishing.
Effective Date January 4, 2010	Red Snapper Interim Rule	Prohibit commercial and recreational harvest of red snapper from January 4, 2010, to June 2, 2010 with a possible 186-day extension. Reduce overfishing of red snapper while long-term measures to end overfishing are addressed in Amendment 17A.
Effective Date December 3, 2010	Snapper Grouper FMP Amendment 17A (SAFMC 2010a)	SFA parameters for red snapper; ACLs and ACTs ; management measures to limit recreational and commercial sectors to their ACTs; accountability measures. Establish rebuilding plan for red snapper.
Effective Date May 31, 2011	Snapper Grouper FMP Regulatory Amendment 10 (SAFMC 2011a)	Eliminate snapper grouper closed area approved in Amendment 17A
Effective Date January 31, 2011	Snapper Grouper FMP Amendment 17B (SAFMC 2010b)	ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; accountability measures, for species undergoing overfishing; deepwater species closure (> 240 feet) to reduce bycatch of speckled hind and warsaw grouper.
Target 2012	Snapper Grouper FMP Regulatory Amendment 11 (SAFMC 2011a)	Modify closure for deepwater species approved in Amendment 17B.
Target June 2012	Snapper Grouper FMP Amendment 18A (SAFMC 2011e)	Prevent overcapitalization in the black sea bass, modify the rebuilding strategy and AMs, and improve data collection timeliness and data quality.
Target 2012	Amendment 18B (under development)	Establish an endorsement program for golden tilefish.
Target 2011/2012	Comprehensive ACL Amendment (SAFMC 2011c)	ACLs, ACTs, and accountability measures for species not experiencing overfishing; accountability measures; remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.
Target 2012	Snapper Grouper FMP Amendment 20A (SAFMC 2011f) and 20B (Wreckfish; under development)	Review the current ITQ program and update the ITQ program as necessary to comply with MSA LAPP requirements.
Effective July 15, 2011	Snapper Grouper FMP Regulatory Amendment 9 (SAFMC 2011b	Establish or modify trip limits for vermilion snapper, gag, and greater amberjack; and reduce bag limit for black sea bass.

Time period/dates	Cause	Observed and/or Expected Effects
Target 2013	Snapper Grouper FMP Amendment 22	Modify management measures for red snapper as the stock rebuilds.
Target June 2012	Snapper Grouper FMP Amendment 24 (SAFMC 2011d)	Establish a rebuilding plan for red grouper.

Right whale Background:

- The North Atlantic right whale is one of the world's most endangered large whales, with an estimated population of less than 400 individuals. NMFS has previously stated that the "loss of even a single individual may contribute to the extinction of the species".
- NMFS has cited entanglements in commercial fishing gear as one of the most significant threats to the right whale's survival and recovery. Yet, almost every year since 2002, at least one entangled right whale has been found dead or so gravely injured that death is deemed likely.
- In addition to right whales, fishing gear used by the American lobster, northeast multispecies, monkfish, and spiny dogfish fisheries continues to injure and kill endangered humpback, fin, and sei whales.
- Northeast Region is under suit by Defenders of Wildlife, the Humane Society of the United States and the Whale and Dolphin Conservation Society in the federal district court for Massachusetts.

The threat from ship strikes in particular has escalated and appears to be jeopardizing the continued existence of the species. In 18 months between 2004 and 2006, 8 right whale deaths were reported, at least 4 of which were confirmed or suspected to be the result of ship strikes. The loss of 8 whales in less than a year and a half represents nearly 3 times the annual average. Even more disturbing, 6 of these 8 whales were reproductively mature females, 3 of which were carrying near-term fetuses at the time they were killed.

As noted in **Section 4** of this document, actions to reduce effort in the commercial sector of the black sea bass fishery could inadvertently, at some point in the future, possibly lead to black sea bass pots being fished during right whale calving season, which starts November 1 off North Carolina each year, and November 15 off South Carolina, Georgia, and Florida each year. It is difficult to predict changes in fishing behavior and in the pot segment of the black sea bass fishery as a whole well into the future. Under the current preferred rebuilding strategy alternative, the ACL would increase each fishing season until 2016 if the previous season's ACL was not exceeded. Subsequent increases in the commercial ACL could potentially lengthen the fishing season to the point where black sea bass pots could co-occur with migrating right whales, increasing the risk of entanglement over the status quo. However, the commercial fishery closed on July 15th after beginning on June 1st this year. Remaining effort in the fishery is expected to be more than sufficient to harvest the available commercial ACL before November.

In addition to this risk, right whales are also susceptible to ship strikes along the east coast since they often travel through busy shipping lanes. Furthermore, vertical line gear interactions in the northeast region of their migration route are also suspected of causing several right whale entanglements. The 2011 Atlantic Large Whale Take Reduction Team Scoping Document lists a total of five right whale entanglements in fishing gear in 2010 and eight entanglements since June 2011 (NMFS 2011). Ship strikes, and gear interactions in the northeast region and in the southeast regions, individually, have the potential to cause harm to right whales; if combined, the cumulative impact could be considered serious given the extremely small population estimates for the species.

9. Determine the magnitude and significance of cumulative effects.

Proposed management actions, as summarized in **Section 2** of this document, would limit participation, effort and reduce bycatch in the black sea bass fishery, modify the black sea bass rebuilding strategy, modify the black sea bass system of AMs, and improve fishery statistics and data collection in the commercial and for hire fisheries. These management actions in Amendment 18A to the Snapper Grouper FMP are intended to address issues that have remained after the implementation of previous amendments. Species in the snapper grouper fishery management unit (FMU) are assessed on a routine basis and stock status may change as new information becomes available. In addition, changes in management regulations, fishing techniques, social/economic structure, etc. can result in shifts in the percentage of harvest between user groups over time. As such, the South Atlantic Council has determined that certain aspects of the current management system remain inappropriate and should be restructured. Detailed discussions of the magnitude and significance of the preferred alternatives appear in **Section 4** of this consolidated document. Below is a short summary of the biological significance and magnitude of each of the preferred alternatives chosen, and a brief discussion of their combined effect on the snapper grouper FMU and the ecosystem. When viewed in totality, the actions in this amendment would benefit black sea bass by reducing participation through development of limiting the number of black sea bass pot tag limits/vessel at 35, requiring black sea bass pots be returned at the end of each trip, and the endorsement program. These measures will reduce bycatch and ghost fishing which will benefit the black sea bass resource.

10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.

The cumulative effects on the biophysical environment are expected to be positive. Avoidance, minimization, and mitigation are not applicable.

11. Monitor the cumulative effects of the selected alternative and adopt management.

The effects of the proposed action are, and will continue to be, monitored through collection of data by NOAA Fisheries Service, states, stock assessments and stock assessment updates, life history studies, and other scientific observations.

5.2 Socioeconomic Cumulative Impacts

A description of the human environment, including a description of commercial and recreational snapper grouper fisheries and associated key fishing communities is contained in **Section 3**. A description of the history of management of the snapper grouper fishery is contained in **Appendix C** and is incorporated herein by reference. Participation in and the economic performance of the black sea bass sector of the snapper grouper fishery have been affected by a combination of regulatory, biological, social, and external economic factors. Regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Gear restrictions, notably fish trap and longline restrictions, have also affected harvests and economic performance. The limited access program implemented in 1998/1999 substantially affected the number of participants in the fishery. Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have played a role in determining the changing composition of the fishery. Additional factors, such as changing career or lifestyle preferences, stagnant to declining ex-vessel fish prices due to imports, increased operating costs (e.g., gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for non-fishery uses have impacted both the commercial and recreational fishing sectors.

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. In general, it can be stated, however, that the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing, in tandem with other adverse influences, the likelihood of economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and industries. Some reverse of this trend is possible and expected. The establishment of an endorsement program for black sea bass and modification to the rebuilding strategy are expected to result in long-term positive impacts on the fishery and associated fishing communities. By limiting the number of participants in the fishery, limiting the effort in the fishery, and increasing allowable harvest as the stock rebuilds, overcapitalization may be avoided and derby conditions which have recently developed in the fishery may diminish.

A detailed description of the expected social and economic impacts of the actions in this amendment are contained elsewhere in **Section 4**, the Initial Regulatory Impact Review Analysis, the Regulatory Impact Review, and the Fishery Impact Statement, which are incorporated herein by reference. Current and future amendments are expected to add to this cumulative effect. Namely, the Comprehensive ACL Amendment is expected to further reduce harvest for commercial and recreational fishermen through management measures in that document.

Finally, the space industry in Florida centered on Cape Canaveral is experiencing severe difficulties due to the ramping down and cancellation of the Space Shuttle Program. This program's loss coupled with additional fishery closures will negatively impact this region. However, declining economic conditions due to decline in the space industry may lessen the pace of waterfront development and associated adverse socialand economic pressures on fishery infrastructure.

6 Council Conclusions

6.1 Modify Rebuilding Strategy, ABC, ACLs, and ACTs for Black Sea Bass

6.1.1 Modify Rebuilding Strategy and Set ABC for Black Sea Bass

The acceptable biological catch for black sea bass was specified by the South Atlantic Fishery Management Council's (South Atlantic Council) Science and Statistical Committee (SSC) for fishing years 2012/2013 and 2013/2014 at 746,610 lbs gutted weight (gw) and 881,356 lbs gw, respectively, using the Council's approved ABC Control Rule and latest assessment results. The SSC reviewed Amendment 18A and SEDAR 25 at their November 8-10, 2011 meeting in Charleston, SC. This was based on the results of SEDAR 25 which showed the stock of black sea bass was no longer overfished;, however, there remains some overfishing, and the stock still is rebuilding to the biomass at MSY. The SSC based it's ABCs on a 50% probability of recovering the stock by the end of the 2015/2016 fishing year. The SSC was willing to make recommendations for only two fishing years based on the available data. They expressed a desire to see an updated assessment prior to making ABC recommendations for the 2014/2015 season and beyond. The South Atlantic Council cannot exceed the catch level recommendation of its SSC.

The South Atlantic Council chose to specify a lower ABC that would have an increased probability of rebuilding equal to 66%, and hold constant the value of ABC from the previous stock assessment of 718,000 lbs gw for the 2012/2103 and 2013/2014 fishing years (**Preferred Alternative 5**). Further refinements to the ABC will be considered after the SSC makes recommendations for fishing years beyond 2013/214 pending an updated stock assessment. The South Atlantic Council chose a precautionary approach to increase the probability the stock would be recovered by the end of the ten year rebuilding timeframe specified in Amendment 15A to the Snapper Grouper FMP and avoid having to take even more drastic measures in the final three years of the rebuilding schedule.

The Snapper Grouper Advisory Panel (AP) met prior to the completion of SEDAR 25, but recommended that the Council choose the alternative which would give the fishermen the greatest amount of fish possible over time that would lead to rebuilding of the stock by 2016.

The SSC recommended that the Council be more conservative in setting the ABC, ACL or ACTs as necessary because they determined that more precaution was needed somewhere in the setting of values to help protect against landings which might exceed an ABC based on a 50% probability of success.

The South Atlantic Council concluded that **Preferred Alternative 5** best meets the purpose and need to implement measures expected to prevent overfishing and achieve optimum yield (OY) while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.1.2 Set an ACL for Black Sea Bass

The South Atlantic Council chose **Preferred Alternative 2** that set ACL = ABC = OY. They concluded that choosing a more conservative ABC in **Action 1a** would provide the additional protection necessary to ensure rebuilding would occur on time. Furthermore, the South Atlantic Council chose a rebuilding strategy that would have a 66% chance of rebuilding the stock by the end of the rebuilding timeframe. Therefore, by choosing **Preferred Alternative 2** for this action, they could be as liberal as possible.

The Snapper Grouper Advisory Panel recommended the South Atlantic Council select **Alternative 2** as its **preferred**.

The Council's SSC warned the Council that they needed to select a buffer among the ABC, ACL, and ACTs that would provide protection to the stock knowing the Council's **Preferred Alternative 2** would set the ACL equal to the ABC.

The South Atlantic Council concluded that **Preferred Alternative 2** best meets the purpose and need to implement measures expected to prevent overfishing and achieve optimum yield (OY) while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.1.3 Set Annual Catch Targets (ACTs) for Commercial Black Sea Bass

No ACT was set for the commercial sector of the black sea bass fishery (**Preferred Alternative 1 – No Action**). The Council concluded that improvements are being implemented such that the commercial sector landings will be more closely tracked in-season through a quota monitoring system and the process exists to project when the ACL is going to be met in order to close the fishery before the ACL is exceeded. To impose an ACT on this sector of the fishery could cause undue hardship among fishermen and was considered an unnecessary administrative burden.

The Snapper Grouper Advisory Panel recommended the South Atlantic Council select **Alternative 1 – No Action** as its **preferred**.

The SSC's comments on **Action 1b**, setting an ACL, regarding establishing a buffer apply to this action, as well.

The South Atlantic Council concluded that **Preferred Alternative 1 (No Action)** best meets the purpose and need to implement measures expected to prevent overfishing and achieve OY while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.1.4 Set Annual Catch Targets (ACTs) for Recreational Black Sea Bass

Tracking landings in the recreational sector can be a difficult task given the level of uncertainty associated with recreational landings data. An ACT for the recreational sector could be used as a management reference point to track performance of recreational management measures. Though none of the ACT alternatives are associated with a corrective or preventative action, they could be used to trigger such harvest control actions in the future when recreational data can be used for in-season management, if the South Atlantic Council concludes it is appropriate. Therefore, the South Atlantic Council chose **Preferred Alternative 4** which in effect would reduce the landings target for the recreational sector from 409,000 lbs gw to 359,229 gw in an attempt to reduce the likelihood that the ACL overages which have occurred in the past in the recreational sector would not continue into the future. The Council concluded that improvements are being implemented such that the recreational sector landings will be more closely tracked through MRIP and the process exists to project when the ACL is going to be met in order to close the fishery before the ACL is exceeded.

The Snapper Grouper Advisory Panel expressed support for the South Atlantic Council's selected **Preferred Alternative 4**.

The SSC's comments on **Action 1b**, setting an ACL, regarding establishing a buffer apply to this action, as well.

The South Atlantic Council concluded that **Preferred Alternative 4** best meets the purpose and need to implement measures expected to prevent overfishing and achieve optimum yield (OY) while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.2 Limit Participation in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery through an Endorsement Program

The South Atlantic Council is concerned increased restrictions imposed through Amendments 13C, 16, 17A, and 17B to the Snapper Grouper FMP including a commercial quota for black sea bass, commercial quota for vermilion snapper, and seasonal closure for shallow water groupers could serve as an incentive for a greater number of fishermen with federal snapper grouper commercial permits to fish pots for black sea bass. Yet at the same time, the South Atlantic Council wished to allow those fishermen who were currently participating in the fishery to remain doing so. The South Atlantic Council also had a strong desire to attempt to increase the length of the commercial fishing season, which in 2011/2012 lasted approximately 45 days. The South Atlantic Council concluded that reducing participation through implementing an endorsement program would help reach the goal of extending the season.

The South Atlantic Council concluded the fishery could sustain about 30 fishermen participating in the black sea bass pot sector, given the further restrictions they approved. Therefore, the South Atlantic Council chose **Preferred Sub-Alternative 2g** as its preferred alternative. The choice of **Preferred Sub-Alternative 2g** guaranteed inclusion of fishermen from North Carolina, South Carolina, and Florida, but not from Georgia. The State of Georgia did not have any fishermen who would have qualified for an endorsement under any of the alternatives considered for this action.

The Snapper Grouper AP did not support the establishment of an endorsement program. They felt that other management measures in the amendment should be used to slow down the harvest of black sea bass and extend the season.

The SSC preferred that the South Atlantic Council take action that would allow virtually all fishermen who participated in the black sea bass pot sector to continue to do so, while prohibiting new entrants. They would have preferred the South Atlantic Council chose a variation of **Sub-Alternative 2a** as their preferred alternative.

The South Atlantic Council concluded that **Preferred Sub-Alternative 2g** best meets the purpose and need to implement measures expected to limit participation in the black sea bass pot sector and extend the fishing season while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.3 Establishment of an Appeals Process for Fishermen Excluded from the Black Sea Bass Pot Endorsement Program

The South Atlantic Council chose **Preferred Alternative 2** for establishing an appeals process for fishermen who might have been incorrectly excluded from receiving an endorsement. The chosen alternative represents an administrative action that is consistent with other appeals processes currently administered by the Southeast Regional Office of NOAA Fisheries Service.

The Snapper Grouper Advisory Panel supported the Council's **Preferred Alternative 2** for establishing an appeals process for appeals. The Science and Statistical Committee chose not to comment on this action as they saw it as primarily administrative in nature.

The South Atlantic Council concluded that **Preferred Alternative 2** best meets the purpose and need to implement measures expected to limit participation in the black sea bass pot sector and extend the fishing season while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.4 Allow for Transferability of Black Sea Bass Pot Endorsements

The South Atlantic Council's choice of **Preferred Sub-Alternative 2a** would allow transfer of valid black sea bass endorsements among individuals who hold South Atlantic Unlimited Snapper Grouper Permits independent of each other. It is the South Atlantic Council's intent that all landings of black sea bass with pot gear be associated with the South Atlantic Unlimited Snapper Grouper Permit, rather than the endorsement. The subject endorsement would simply entitle its holder to harvest black sea bass using black sea bass pot gear. Those without the endorsement would not be allowed to do so. Any landings of black sea bass using pot gear by individuals who hold an endorsement would be added to the landings of the South Atlantic Snapper Grouper Permit to which the endorsement is linked. If the endorsement is transferred the landings of black sea bass that were made using the endorsement would not transfer with the endorsement. The endorsement would have no associated landings value. .

The Snapper Grouper Advisory Panel chose **Alternative 1 (No Action)** as their recommendation to the Council.

The Science and Statistical Committee did not specifically endorse one alternative over any others in this action. The Socioeconomic Panel of the Science and Statistical Committee felt that as long as the endorsements had monetary value the fishermen ought to be allowed to treat them as a commodity and be allowed to transfer or sell them.

The South Atlantic Council concluded that **Preferred Sub-Alternative 2a** best meets the purpose and need to implement measures expected to limit participation in the black sea bass pot sector and extend the fishing season while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.5 Limit Effort in the Black Sea Bass Pot Segment of the Snapper Grouper Fishery Each Permit Year

Currently, there is no limit on the number of tags issued to fishermen who target black sea bass or the number of pots that can be fished. The South Atlantic Council is concerned about the possibility of fishermen leaving large numbers of pots fishing for multiple days due to vessel or weather problems, which could unnecessarily kill black sea bass. Fishing large numbers of pots also increases the chance that pots could be lost and "ghost fishing" could occur. Furthermore, increases in vertical lines especially during November - April, either as a result of no limit on pots fished or a fishing season extension, increases the chance of mortality or serious injury from entanglement of pot lines with right whales and other protected species. The South Atlantic Council's **Preferred Alternative 5** would limit the number of pot tags that would be issued to fishermen holding black sea bass pot endorsements each permit year. to 35. Under this alternative, about half of the trips will require fishermen to use fewer pots.

The Snapper Grouper Advisory Panel supported the South Atlantic Council's chosen **Preferred Alternative 5**.

The SSC stated the regulation that requires all traps to be brought in after every trip may take care of the issue of how many traps a fisherman can have at any time. Other than reducing right whale interactions, there is no reason for implementing this regulation, especially in light of the regulation requiring all traps being brought in after each trip. In the context of the other regulations being considered, this one may not help the Council reach its intended goal of extending the length of the fishing season. Requiring fishermen to bring traps back after a trip may be very difficult to enforce.

The South Atlantic Council concluded that **Preferred Alternative 5** best meets the purpose and need to implement measures expected to limit participation in the black sea bass pot sector and extend the fishing season while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.6 Implement Measures to Reduce Black Sea Bass Bycatch

The South Atlantic Council considered alternatives that would limit the amount of soak time black sea bass pots would be allowed. By choosing **Preferred Alternative 2**, the South Atlantic Council chose the method currently used on the majority of fishing trips (roughly 63%) which is to bring back all pots at the end of each trip. Without this limitation on soak time fishermen could leave pots in the water indefinitely as long as the commercial season for black sea bass remained open. The South Atlantic Council had concerns that not restricting soak time increases the chance that pots could be lost and "ghost fishing" could occur. Also a reduction in the number of vertical pot lines in the water would decrease any possibility of interactions with endangered marine mammals such as the right whale.

The Snapper Grouper Advisory Panel supported the South Atlantic Council's selection of **Preferred Alternative 2.**

The SSC did not comment on this action.

The South Atlantic Council concluded that **Preferred Alternative 2** best meets the purpose and need to implement measures expected to reduce bycatch in the black sea bass pot sector and extend the fishing season while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.7 Modify Accountability Measures for Black Sea Bass

The South Atlantic Council chose to modify its accountability measures (AMs) for black sea bass that had been set in Amendment 17B (SAFMC 2010b). Subsequent to the

implementation of Amendment 17B, the South Atlantic Council determined the methodology employed by the system of AMs under Amendment 17B may not be the most appropriate way to constrain harvest at or below the sector ACLs and it could unnecessarily penalize the participants in the commercial and recreational sectors of the black sea bass component of the snapper grouper fishery.

The South Atlantic Council's **Preferred Alternative 3** adjusts the AMs by eliminating the use of the three year running average for determining whether the recreational ACL had been exceeded, specifies that payback of overages occur regardless of stock status for both the recreational and commercial sectors, and stipulates that ACL paybacks would not be required when new projections are adopted that incorporate ACL overages and the ACLs are adjusted in accordance with those projections. The modified AM also includes a payback provision for the commercial sector, and gives the Regional Administrator the authority to close the recreational sector when the recreational ACL is projected to be met.

The Snapper Grouper Advisory Panel and the majority of public comments supported **Preferred Alternative 3**.

The South Atlantic Council concluded that **Preferred Alternative 3** best meets the purpose and need to implement measures expected to prevent overfishing and achieve optimum yield (OY) while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.8 Establish a Spawning Season Closure for Black Sea Bass

The South Atlantic Council chose **Preferred Alternative 1 (No Action)** based on information that indicated that black sea bass do not form large spawning aggregations like many other snapper grouper species are known to do (McGovern et al. 2002; Sedberry et al. 2006). It was also noted that the peak of the spawning for black sea bass occurred at different times of the year, in late winter/early spring off of Georgia and Florida and primarily in spring off of the Carolinas.

Not setting a spawning season closure should not have an impact on spawning of black sea bass, nor the potential for right whale interactions as early closures of the fishery are expected for at least the next several years.

The Snapper Grouper AP supported the notion of having a spawning season closure if it would protect the stock until it was rebuilt.

The South Atlantic Council's SSC as well as many public hearing comments indicated support for a spawning season closure at least until the stock has been rebuilt.

The South Atlantic Council concluded that **Preferred Alternative 1 (No Action)** best meets the purpose and need to implement measures expected to prevent overfishing and achieve

optimum yield (OY) while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.9 Establish a Commercial Trip Limit for Black Sea Bass

Alternative 4 (Preferred) allows for fishermen to land no more than 1,000 lbs gw weight (1,180 lbs ww). The South Atlantic Council preferred this alternative as a way to balance out the desire to extend the commercial fishing year and yet allow commercial black sea bass pot fishermen to have economically profitable trips. Had this trip limit been in place during the 2011/2012 fishing year, the season would have been extended by a few weeks.

In general, the Snapper Grouper Advisory Panel and public hearing comment did support some version of trip limits as a way to extend the season.

The South Atlantic Council's SSC did not endorse the use of trip limits because they are not economically efficient. Fishermen would have to stop fishing once the 1,000 lbs gw trip limit was met and return to port. If they were allowed to continue fishing, they could economize on trip costs which could offset any ex-vessel price reductions that would have been encountered from larger landings.

The South Atlantic Council concluded that **Preferred Alternative 4** best meets the purpose and need to implement measures expected to extend the fishing season while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.10 Modify Commercial and/or Recreational Black Sea Bass Size Limits

Increasing the minimum size limit would theoretically decrease the rate of harvest by reducing the number of legal size fish able to be harvested, and thus potentially extend the length of the fishing season. Black sea bass have a relatively low regulatory discard mortality rate (1-7%). The vast majority of any undersized fish returned to the water would survive. However, as the stock continues to recover, the benefits of lengthening the season would be reduced as greater number of larger fish become available. The South Atlantic Council's chosen **Preferred Sub-Alternative 2a** and **Sub-Alternative 3a** increases the both the recreational and commercial minimum size limits by one inch each.

While public hearing comments were divided on the usefulness of increasing size limits for black sea bass, the Snapper Grouper Advisory Panel supported increasing the minimum size limit.

The SSC stated that it does support increasing the size limit because larger fish are more valuable. Due to the extent of rebuilding and availability of BSB, however, increasing the

size limit may not extend the season. Also, larger fish may have higher discard mortality. Increasing the minimum size may increase discards and the size of discarded fish.

The South Atlantic Council concluded that **Preferred Sub-Alternatives 2a** and **3a** best meet the purpose and need to implement measures expected to extend the fishing season while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.11 Improvements to Commercial Vessel Data Reporting

The South Atlantic Council considered various approaches to improving commercial data reporting in the snapper grouper fishery. The Council's **Preferred Action 1 (No Action)** is not an indication the Council does not want to work towards improving commercial data collection. On the contrary, the South Atlantic Council has instructed staff to begin work on the development of a more comprehensive fishery management plan amendment to work towards improvements in data collection across all fisheries. The South Atlantic Council preferred to wait until this later amendment to address these issues.

There was significant support from the South Atlantic Council's SSC, Snapper Grouper Advisory Panel and public hearing comments for the South Atlantic Council to find ways to improve commercial data collection, particularly in the timeliness of gathering and reporting the data.

The South Atlantic Council concluded that **Preferred Alternative 1 (No Action)** best meets the purpose and need to implement measures expected to prevent overfishing and achieve optimum yield (OY) while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

6.12 Improvement to For-Hire Data Reporting

The South Atlantic Council considered several approaches to help improve for-hire data reporting. **Preferred Alternative 2** slightly differs from an action in Snapper Grouper Amendment 15B (SAFMC 2008b) in that it does not require any specific type of electronic equipment to report landings. The South Atlantic Council preferred to allow the new Marine Recreational Information Program for gathering recreational angling data to have time to determine whether it will be sufficient for reporting for-hire landings data.

There was significant support from the South Atlantic Council's SSC, Snapper Grouper Advisory Panel and public hearing comments for the South Atlantic Council to find ways to improve recreational data collection, particularly in the timeliness of gathering and reporting the data.

The South Atlantic Council concluded that **Preferred Alternative 2** best meets the purpose and need to implement measures expected to prevent overfishing and achieve optimum yield (OY) while minimizing, to the extent practicable, adverse biological, social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

7 List of Preparers

Name	Title	Agency	Division	Location
Myra Brouwer	Fishery Scientist	SAFMC	N/A	SAFMC
David Dale	EFH Specialist	NMFS	HC	SERO
Rick DeVictor	Environmental Impact Scientist	SAFMC	N/A	SAFMC
Otha Easley	Enforcement Specialist	NMFS	LE	SERO
Karla Gore	Natural Resource Management Specialist	NMFS	SF	SERO
David Keys	Regional NEPA Coordinator	NMFS	F/SER	SERO
Andy Herndon	Biologist	NMFS	PR	SERO
Stephen Holiman	Economist	NMFS	SF	SERO
Tony Lamberte	Economist	NMFS	SF	SERO
Andrew Herndon	Fishery Biologist	NMFS	PR	SERO
Jack McGovern	Fishery Biologist	NMFS	SF	SERO
Carolyn Sramek	Permits	NMFS	SF	SERO
Kari MacLauchlin	Social Scientist	SAFMC	N/A	SAFMC
Brian Cheuvront	Economist	SAFMC	N/A	SAFMC
Monica Smit-Brunello	Attorney Advisor	NOAA	GC	SERO
Jim Waters	Economist	NMFS	Economics	SEFSC
Kate Michie	Plan Coordinator	NMFS	SF	SERO
Gregg Waugh	Deputy Director	SAFMC	N/A	SAFMC
Erik Williams	Stock Assessment Biologist	NMFS	SF	SEFSC

8 List of Agencies, Organizations, and Persons to Whom Copies of the Statement Were Sent

Responsible Agency

Amendment 18A:
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
Charleston, South Carolina 29405
(843) 571-4366 (TEL)
Toll Free: 866-SAFMC-10
(843) 769-4520 (FAX)
safmc@safmc.net

Environmental Impact Statement:
NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 (TEL)
(727) 824-5320 (FAX)

List of Agencies, Organizations, and Persons Consulted

SAFMC Law Enforcement Advisory Panel
SAFMC Snapper grouper Advisory Panel
SAFMC Scientific and Statistical Committee
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Georgia Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
North Carolina Division of Marine Fisheries
North Carolina Sea Grant
South Carolina Sea Grant
Georgia Sea Grant
Florida Sea Grant
Atlantic States Marine Fisheries Commission
Gulf and South Atlantic Fisheries Development Foundation
Gulf of Mexico Fishery Management Council
National Marine Fisheries Service
- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

9 References

Able, K.W., M.P. Fahay, and G.R. Shepherd. 1995. Early life history of black sea bass, *Centropristis striata*, in Mid-Atlantic Bight and a New Jersey estuary. Fish. Bull., U.S. 93:429-445.

Acropora Biological Review Team. 2005. Atlantic *Acropora* Status Review Document. Report to National Marine Fisheries Service, Southeast Regional Office. March 3. 152 p + App.

Adams, W.F. and C. Wilson. 1995. The status of the smalltooth sawfish, *Pristis pectinata* Latham 1794 (Pristiformes: Pristidae) in the United States. Chondros 6(4): 1-5.

Anderes Alvarez, B.A., and I., Uchida. 1994. Study of the Hawksbill turtle (*Eretmochelys imbricata)* stomach content in Cuban waters. *In*: Study of the Hawksbill turtle in Cuba (I), Ministry of Fishing Industry, Cuba.

Bak, R.P.M., J.J.W.M. Brouns, and F.M.L. Hayes. 1977. Regeneration and aspects of spatial competition in the scleractinian corals *Agaricia agaricites* and *Monastrea annularis*. Proceedings of the 3rd International Coral Reef Symposium, Miami, pp 143-148.

Bigelow, H.B. and W.C. Schroeder. 1953. Sawfishes, guitarfishes, skates and rays, pp. 1-514. In: Tee-Van, J., C.M Breder, A.E. Parr, W.C. Schroeder and L.P. Schultz (eds). Fishes of the Western North Atlantic, Part Two. Mem. Sears Found. Mar. Res. I.

Bjorndal, K.A. 1980. Nutrition and grazing behavior of the green sea turtle, *Chelonia mydas*. Marine Biology. 56:147.

Bjorndal, K.A. 1997. Foraging ecology and nutrition of sea turtles. In: Lutz, P.L. and J.A. Musick (eds.), The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Bolten, A.B. and G.H., Balazs. 1995. Biology of the early pelagic stage – the "lost year." In: In: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles, Revised edition. Smithsonian Institute Press, Washington, D.C., 579.

Brongersma, L.D. 1972. European Atlantic Turtles. Zool. Verhand. Leiden, 121:318.

Burke, V.J., E.A. Standora, and S.J. Morreale. 1993. Diet of juvenile Kemp's ridley and loggerhead sea turtles from Long Island, New York. Copeia: 1176.

Byles, R.A. 1988. Behavior and Ecology of Sea Turtles from Chesapeake Bay, Virginia. Ph.D. dissertation, College of William and Mary, Williamsburg, VA.

Carr, A. 1986. Rips, FADS, and little loggerheads. BioScience 36:92.

Carr, A. 1987. New perspectives on the pelagic stage of sea turtle development. Conservation Biology, 1:103.

CeTAP. 1982. A characterization of marine mammals and turtles in the mid- and north Atlantic areas of the U.S. outer continental shelf. Cetacean and Turtle Assessment Program, University of Rhode Island. Final Report #AA551-CT8-48 to the Bureau of Land Management, Washington, DC, 538 pp.

CEQ. 1997. Council on Environmental Quality. Considering Cumulative Effects Under the National Environmental Policy Act. U.S. Council on Environmental Quality, Washington, DC. 64 pp.

Cheuvront, B. and M. Neal. 2004. A Social and Economic Analysis of Snapper grouper Complex Fisheries in North Carolina South of Cape Hatteras. A report for the NC Technical Assistance to the SAFMC, Task 5: NEPA Related Activities, Contract No. SA-03-03-NC. Morehead City, NC.50 pages.

Clapham, P.J. 2002. Humpback Whales (*Megaptera novaeangliae*). Pp 589-592. *In*: W.F. Perrin, B. Würsig, and J.G.M Thewissen (eds) *Encyclopedia of Marine Mammals*. Academic Press, San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo. 1414 pp.

Coastal Ocean Resource Economics 2005 (http://marineeconomics.noaa.gov/NSRE/NSRE2005.html)

Dumas, C.F., J.C. Whitehead, C.E. Landry, and J.H. Herstine. 2009. "Economic Impacts and Recreation Value of the North Carolina For-Hire Fishing Fleet." North Carolina Sea Grant FRG Grant Report 07-FEG-05.

Eckert, S.A., D.W. Nellis, K.L. Eckert, and G.L. Kooyman. 1986. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*) during internesting intervals at Sandy Point, St. Croix, U.S. Virgin Islands. Herpetologica 42:381.

Eckert, S.A., K.L. Eckert, P. Ponganis, and G.L. Kooyman. 1989. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*). Canadian Journal of Zoology, 67:2834.

Frick, J. 1976. Orientation and behavior of hatchling green turtles (*Chelonia mydas*) in the sea. Animal Behavior, 24:849.

Florida Fish and Wildlife Conservation Commission (FWC) 2011. The economic impact of saltwater fishing in Florida. Available at http://myfwc.com/conservation/value/saltwater-fishing/

Ghiold, J. and S.H. Smith. 1990. Bleaching and recovery of deep-water, reef-dwelling invertebrates in the Cayman Islands, BWI. Caribbean Journal of Science 26: 52-61.

Glass A.H., T.V.N Cole, and M. Garron. 2009. Mortality and serious injury determinations for baleen whale stocks along the United States eastern seaboard and adjacent Canadian Maritimes, 2003-2007 (2nd Edition). US Dep Commerce, Northeast Fish Sci Cent Ref Doc. 09-04; 19 p.

Goreau, T.F. and J.W. Wells. 1967. The shallow-water Scleractinia of Jamaica: revised list of species and their vertical range. Bulletin of Marine Science 17: 442-453.

Goreau, T.F. and N.I. Goreau. 1973. Coral Reef Project--Papers in Memory of Dr. Thomas F. Goreau. Bulletin of Marine Science 23: 399-464

Haab, T.C., R. Hicks, K. Schnier, and J.C. Whitehead. 2009. "Angler Heterogeneity and the Species-Specific Demand for Recreational Fishing in the Southeastern United States." Draft Final Report Submitted for MARFIN Grant #NA06NMF4330055.

Harris, P.J. and J. Stephen. 2005. Final Report Characterization of commercial reef fish catch and bycatch off the southeast coast of the United States. CRP Grant No. NA03NMF4540416

Holland, S. M., A. J. Fedler, and J. W. Milon. 1999. The Operation and Economics of the Charter and Headboat Fleets of the Eastern Gulf of Mexico and South Atlantic Coasts. University of Florida Office of research, Technology, and Graduate Education. Report prepared for the National Marine Fisheries Service. Grant Number NA77FF0553.

Hood, P.B., M.F. Godcharles, and R.S. Barco. 1994. Age, growth, reproduction, and the feeding ecology of black sea bass, *Centropristis striata* (Pisces, Serranidae), in the eastern Gulf of Mexico. Bull Mar Sci 54:24–37.

Hughes, G.R. 1974. The sea-turtles of south-east Africa. II. The biology of the Tongaland loggerhead turtle *Caretta caretta* L. with comments on the leatherback turtle *Dermochelys coriacea* L. and green turtle *Chelonia mydas* L. in the study region. Oceanographic Research Institute (Durban) Investigative Report. No. 36.

IPCC. 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.

Jaap, W.C., W.G. Lyons, P. Dustan, and J.C. Halas. 1989. Stony coral (*Scleractinia* and *Milleporina*) community structure at Bird Key Reef, Ft. Jefferson National Monument, Dry Tortugas, Florida. Florida Marine Research Publication 46: 31.

Jepson, M., K. Kitner, A. Pitchon, W.W. Perry, and B. Stoffle. 2005. Potential fishing communities in the Carolinas, Georgia, and Florida: An effort in baseline profiling and mapping. NOAA Technical Report No. (TBD).

Keinath, J.A. and J.A., Musick. 1993. Movements and diving behavior of a leatherback sea turtle, *Dermochelys coriacea*. Copeia, 1993:1010. Koenig, C.C. 2001. *Oculina* Banks: Habitat, fish populations, restoration and enforcement: Report to the South Atlantic Fishery Management Council.

Kennedy, V. S., R. R. Twilley, J. A. Kleypas, J. H. Cowan, Jr., S. R. Hare. 2002. Coastal and Marine Ecosystems & Global Climate Change: Potential Effects on U.S. Resources. Pew Center on Global Climate Change. 52 p.

Kenney, R.D. 2002. North Atlantic, North Pacific and Southern Right Whales. pp. 806-813, *In*: W.F. Perrin, B. Würsig, and J.G.M. Thewissen (eds.). Encyclopedia of Marine Mammals. Academic Press, San Diego, CA.

Knapp, G. 2011. Local Permit Ownership in Alaska Salmon Fisheries. *Marine Policy* 35:658-66.

Knowlton, A.R., L. A. Cooper, P. K. Hamilton, M. K. Marx, H. M. Pettis, and S. D. Kraus. 2008. Analysis of scarring on North Atlantic right whales *(Eubalaena glacialis)*: Monitoring rate of entanglement interaction 1980 – 2004. Final report to the Northeast Fisheries Science Center, NMFS, Contract No. EA133F-03-SE-0323. New England Aquarium: 25pp.

Kraus, S.D., M.J. Crone, and A.R. Knowlton. 1988. The North Atlantic right whale. Pages 684-98 *in* W.J. Chandler, ed. Audbon wildlife report 1988/1989. Academic Press, San Diego, CA.

Lanyon, J.M., C.J. Limpus, and H. Marsh. 1989. Dugongs and turtles: grazers in the seagrass system. In: Larkum, A.W.D, A.J., McComb and S.A., Shepard (eds.) Biology of Seagrasses. Elsevier, Amsterdam, 610.

Lavenda, N. 1949. Sexual differences and normal protogynous hermaphroditism in the Atlantic sea bass *Centropristes striatus*. Copeia (3):185-194.

Lewis, J.B. 1977. Suspension feeding in Atlantic reef corals and the importance of suspended particulate matter as a food source. Proceedings of the 3rd International Coral Reef Symposium 1: 405-408.

Liese, C. D.,W. Carter, and R. Curtis. 2009. "Surveying the For-Hire Sector: Economic Heterogeneity in the Southeast Charter Boat Industry". Submitted to the Proceedings of the 5th World Recreational Fishing Conference.

Limpus, C.J. and N. Nichols. 1988. The southern oscillation regulates the annual numbers of green turtles (*Chelonia mydas*) breeding around northern Australia. Australian Journal of Wildlife Research, 15:157.

Limpus, C.J. and N. Nichols. 1994. Progress report on the study of the interaction of El Niño Southern Oscillation on annual *Chelonia mydas* numbers at the southern Great Barrier Reef rookeries. In: Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.

Lutz, P.L. and J.A. Musick (eds.). 1997. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Lutz, P.L., J.A. Musick, and J. Wyneken. 2002. The Biology of Sea Turtles, Volume II. CRC Press, Boca Raton, Florida.

MacDonald, L.H. 2000. Evaluating and managing cumulative effects: process and constraints. Environmental Management 26(3): 299-315.

Márquez-M, R. 1994. Synopsis of biological data on the Kemp's ridley turtles, *Lepidochelys kempii* (Garman, 1880). NOAA Technical Memo, NMFS-SEFSC-343. Miami, FL.

McGovern, J.C. and H.M. Meister. 1999. Data Report on MARMAP Tagging Activities From the Southeast Coast of the United States. MARMAP Data Report.

McGovern, J.C., M. R. Collins, O. Pashuk, and H.S. Meister. 2002. Changes in the life history of black sea bass, Centropristis striata, from the southeastern United States during 1978-1998. N. Am. J. Fish. Manag. 22:1151–1163.

Mendonca, M.T. and P.C.H. Pritchard. 1986. Offshore movements of post-nesting Kemp's ridley sea turtles (*Lepidochelys kempi*). Herpetologica, 42:373.

Meylan, A. 1984. Feeding Ecology of the Hawksbill turtle (*Eretmochelys imbricata*): Spongivory as a Feeding Niche in the Coral Reef Community. Dissertation, University of Florida, Gainesville, FL.

Meylan, A. 1988. Spongivory in hawksbill turtles: a diet of glass. Science 239:393-395.

Meylan, A.B. and M. Donnelly. 1999. Status justification for listing the hawksbill turtle (*Eretmochelys imbricata*) as critically endangered on the 1996 IUCN Red List of Threatened Animals. Chelonian Conservation and Biology 3(2): 200-204.

Mortimer, J.A. 1981. The feeding ecology of the West Caribbean green turtle (*Chelonia mydas*) in Nicaragua. Biotropica 13:49.

Mortimer, J.A. 1982. Feeding ecology of sea turtles. In: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles. Smithsonian Institute Press, Washington, D.C.

NMFS. 2005. Recovery Plan for the North Atlantic Right Whale (*Eubalaena glacialis*). National Marine Fisheries Service, Silver Spring, MD.

NMFS. 2010. Fisheries Economics of the United States, 2009. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-F/SPO-118. 172p. Available at: https://www.st.nmfs.noaa.gov/st5/publications/index.html.

NMFS 2011. Developing conservation measures intended to reduce the risk of serious injury and mortality of large whales due to entanglements in vertical line. Atlantic Large Whale Take Reduction Plan. Northeast Regional Office, 55 Great Republic Drive, Gloucester, Massachusetts 01930.

Norman, J. R. and F. C. Fraser. 1938. Giant Fishes, Whales and Dolphins. W. W. Norton and Company, Inc, New York, NY. 361 pp.

Ogren, L.H. 1989. Distribution of juvenile and subadult Kemp's ridley turtles: Preliminary results from the 1984-1987 surveys. In: C.W. Caillouet Jr. and A.M. Landry Jr. (eds.) Proceedings from the 1st Symposium on Kemp's ridley Sea Turtle Biology, Conservation, and Management. Sea Grant College Program, Galveston, TX. 116.

O'Malley, K. 2003. South Atlantic Fishery Management Council Snapper/Grouper Electronic Logbook Final Report. Technology Planning & Management Corporation Mill Wharf Plaza, Suite 208, Scituate, Massachusetts 02066, www.tpmc.com.

Paredes, R.P. 1969. Introduccion al Estudio Biologico de *Chelonia mydas* agassizi en el Perfil de Pisco, Master's thesis, Universidad Nacional Federico Villareal, Lima, Peru.

Perry, S.L., D.P. DeMaster, and G.K. Silber. 1999. The great whales: History and status of six species listed as endangered under the U.S. Endangered Species Act of 1973. Mar. Fish. Rev. Special Edition. 61(1): 59-74.

Porter, J.W. 1976. Autotrophy, heterotrophy, and resource partitioning in Caribbean reef corals. Amer. Nat. 110: 731-742

Robins, C.R. and G.C. Ray. 1986. A field guide to Atlantic coast fishes of North America. Houghton Mifflin Company, Boston, U.S.A. 354 p.

Robbins, J. and D. Mattila. 2004. Estimating humpback whale (*Megaptera novaeangliae*) entanglement rates on the basis of scar evidence: Report to the Northeast Fisheries Science Center, National Marine Fisheries Service. Order number 43EANF030121. 21 pp.

Rothschild, B.J. 1986. Dynamics of Marine Fish Populations. Harvard University Press. Cambridge, Massachusetts. 277pp.

Rylaarsdam, K.W. 1983. Life histories and abundance patterns of colonial corals on Jamaican reefs. Mar. Ecol. Prog. Ser. 13: 249-260.

SAFMC (South Atlantic Fishery Management Council). 1983. Fishery Management Plan, Regulatory Impact Review and Final Environmental Impact Statement for the Snapper grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1988. Amendment Number 1, Environmental Assessment and Regulatory Impact Review for the Fishery Management Plan for the Snapper grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 63 pp.

SAFMC (South Atlantic Fishery Management Council). 1992b. Regulatory Amendment 5 to the Fishery Management Plan for the Snapper grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1993. Amendment Number 6, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 155 pp.

SAFMC (South Atlantic Fishery Management Council). 1997. Amendment Number 8, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 124 pp.

SAFMC (South Atlantic Fishery Management Council). 1998a. Amendment Number 9, Final Supplemental 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, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 246 pp.

SAFMC (South Atlantic Fishery Management Council). 1998b. Amendment Number 11, Final Environmental Assessment, 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, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 311 pp.

SAFMC (South Atlantic Fishery Management Council). 1998c. Final Habitat Plan for the South Atlantic Region: Essential Fish Habitat Requirements for Fishery Management

Plans of the South Atlantic Fishery Management Council. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 457 pp.

SAFMC (South Atlantic Fishery Management Council). 2000. Amendment Number 12, Final Supplemental 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, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 307 pp.

SAFMC (South Atlantic Fishery Management Council). 2006. Amendment Number 13C, Final Environmental Assessment, 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, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 631 pp.

SAFMC (South Atlantic Fishery Management Council). 2007. Final Amendment Number 14, 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). 2008a. Amendment Number 15A, 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. 325 pp.

SAFMC (South Atlantic Fishery Management Council). 2008b. Amendment Number 15B, 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. 325 pp.

SAFMC (South Atlantic Fishery Management Council). 2009a. Amendment Number 16, 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). 2009b. Fishery Ecosystem Plan for 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). 2010a. Amendment 17A, 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 Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010b. 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). 2011a. Regulatory Amendment 11 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). 2011b. Regulatory Amendment 9 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). 2011c. Comprehensive Annual Catch Limit (ACL) Amendment for 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). 2011d. Amendment 24 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.

Sammarco, P.W. 1980. *Diadema* and its relationship to coral spat mortality: grazing, competition, and biological disturbance. Journal of Experimental Marine Biology and Ecology 45: 245-272.

SEDAR Update #1. 2005. Report of Stock Assessment: Black Sea Bass. SEDAR Update Process #1. Assessment Workshop of March 15-17, 2005. Beaufort, North Carolina. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 2-SAR2. 2003. Complete Assessment and Review Report of South Atlantic Vermilion Snapper. Results of a series of workshops convened between October 2002 and February 2003. South Atlantic Fishery Management Council, One Southpark Circle #306, Charleston, SC 29414. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 25. 2011. Stock Assessment Report. South Atlantic Black Sea Bass. October 2011. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. Available from the SEDAR website:

http://www.sefsc.noaa.gov/sedar/download/SEDAR25_BlackSeaBass_SAR.pdf?id=DOCUMENT

Sedberry, G.R. 1988. Food and feeding of black sea bass, *Centropristis striata*, in live bottom habitats of the South Atlantic Bight. J. Elisha Mitchell Sci. Soc. 104(2): 35-50.

Sedberry, G. R., O. Pashuk, D. M. Wyanski, J. A. Stephen and P. Weinbach. 2006. Spawning locations for Atlantic reef fishes off the Southeast U.S. Proceedings of the Guf and Caribbean Fisheries Institute 57:463-514.

Shaver. D.J. 1991. Feeding ecology of wild and head-started Kemp's ridley sea turtles in south Texas waters. Journal of Herpetology, 25:327.

Simpfendorfer, C.A. 2001. Essential habitat of the smalltooth sawfish, *Pristis pectinata*. Report to the National Fisheries Service's Protected Resources Division. Mote Marine Laboratory Technical Report (786) 21pp.

Simpfendorfer, C.A. and T.R. Wiley. 2004. Determination of the distribution of Florida's remnant sawfish population, and identification of areas critical to their conservation. Mote Marine Laboratory Technical Report, July 2, 2004 37 pp.

Soma, M. 1985. Radio biotelemetry system applied to migratory study of turtle. Journal of the Faculty of Marine Science and Technology, Tokai University, Japan, 21:47.

Soong, K. and J.C. Lang. 1992. Reproductive integration in coral reefs. Biol. Bull. 183: 418-431.

Standora, E.A., J.R. Spotila, J.A. Keinath, and C.R. Shoop. 1984. Body temperatures, diving cycles, and movements of a subadult leatherback turtle, *Dermochelys coriacea*. Herpetologica 40:169.

Steimle, F.W., C.A. Zetlin, P.L. Berrien, and S. Chang. 1999. Black sea bass, *Centropristis striata*, life history and habitat characteristics. NOAA Tech. Mem. NMFS-NE-143.

Sutton, S.G., R.B. Ditton, J.R. Stoll, and J.W. Milon. 1999. A cross-sectional study and longitudinal perspective on the social and economic characteristics of the charter and party boat fishing industry of Alabama, Mississippi, Louisiana, and Texas. Texas A&M Univ., College Station, TX. Memo. Rpt. 198 p.

Stevick, P.T., J. Allen, P.J. Clapham, S.K. Katona, F. Larsen, J. Lien, D.K. Mattila, P.J. Palsboll, R. Sears, J. Sigurjonsson, T.D. Smith, G. Vikingsson, N. Oien, P.S. Hammond. 2006. Population spatial structuring on the feeding grounds in North Atlantic humpback whales (*Megaptera novaeangliae*). Journal of Zoology. 270(2006) 244-255.

Swingle, W.M., S.G. Barco, T.D. Pitchford, W.A. McLellan, and D.A. Pabst. 1993. Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia. Marine Mammal Science, 9:309-315.

Szmant, A.M. and M.W. Miller. 2006. Settlement preferences and post-settlement mortality of laboratory cultured and settled larvae of the Caribbean hermatypic corals *Montastraea faveolata* and *Acropora palmata* in the Florida Keys, USA. Proceedings of the 10th International Coral Reef Symposium.

Thayer, G.W., K.A. Bjorndal, J.C. Ogden, S.L. Williams, and J.C., Zieman. 1984. Role of large herbivores in seagrass communities. Estuaries, 7:351.

Van Dam, R. and C. Diéz. 1998. Home range of immature hawksbill turtles (*Eretmochelys imbricata*) at two Caribbean islands. Journal of Experimental Marine Biology and Ecology, 220(1):15-24.

Van Voorhees, D., J.W. Schlechte, D.M. Donaldson, T.R. Sminkey, K.J. Anson, J.R. O'Hop, M.D.B. Norris, J.A. Shepard, T. Van Devender, and R.F. Zales, II. 2000. The new Marine Fisheries Statistics Survey method for estimating charter boat fishing effort. Abstracts of the 53rd Annual Meeting of the Gulf and Caribbean Fisheries Institute.

Vaughan, D.S., M.R. Collins, and D.J. Schmidt. 1995. Population characteristics of the U.S. South Atlantic black sea bass *Centropristis striata*. Bulletin of Marine Science 56:250-267.

Walker, T.A. 1994. Post-hatchling dispersal of sea turtles. p. 79. In: Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.

Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel (eds). 2009. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2009. NOAA Tech Memo NMFS NE 213; 528 p.

Wenner, C.A., W.A. Roumillat and C.W. Waltz. 1986. Contributions to the life history of black sea bass, *Centropristis striata*, off the southeastern United States. Fish. Bull. 84(3): 723-741.

Wiley, D.N., R.A. Asmutis, T.D. Pitchford, and D.P. Gannon. 1995. Stranding and mortality of humpback whales, *Megaptera novaeangliae*, in the Mid-Atlantic and southeast United States, 1985-1992. Fishery Bulletin 93(1): 196-205.

Williams, E.H. and L. Bunkley-Williams. 1990. The world-wide coral reef bleaching cycle and related sources of coral mortality. Atoll Research Bulletin 335: 1-71.

Witzell, W.N. 2002. Immature Atlantic loggerhead turtles (*Caretta caretta*): suggested changes to the life history model. Herpetological Review 33(4):266-269. Zhao, B. and J.C. McGovern. 1997. Temporal variation in sexual maturity and gear-specific sex ratio of the vermilion snapper, *Rhomboplites aurorubens*, in the South Atlantic Bight. Fish. Bull. 95: 837-848.

10 Index

ABC Control Rule 7, 13, 92, 100, 208, 219
Acceptable Biological Catch 100
Acceptable biological catch (ABC)...iv, 1, 2, 4, 5, 6, 7, 8, 9, 3, 7, 8, 9, 10, 13, 14, 88, 89, 90, 91, 92, 94, 97, 100, 101, 103, 219, 220
Accountability measures (AMs) iv, 1, 22, 23, 3, 14, 30, 31, 147, 148
ACL 100
Administrative effects 98
Administrative Effects 103, 105, 108, 122, 126, 133, 142, 146, 176, 182, 192, 200
Administrative Effects.....151
Administrative Effects.....165
Allocations.....89
AM 100
Annual catch level (ACL) 10
Annual catch limit (ACL).iv, 1, 2, 4, 6, 7, 8, 9, 12, 22, 23, 25, 28, 33, 3, 8, 10, 11, 12, 13, 14, 15, 16, 17, 20, 30, 31, 88, 89, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 106, 107, 108, 116, 118, 147, 148, 150, 152, 154, 164, 172, 174, 176, 179, 181
Annual catch limit (ACL).....1, 7, 13, 14, 105, 107, 195
Annual catch limit (ACL).....7
Annual catch limit (ACL).....214
Annual catch target (ACT) ..iv, 8, 9, 10, 15, 16, 101, 103, 104, 105, 106, 107, 108
Appeals process.....125, 126
Appeals process.....iv, 14, 22, 125
Atlantic Coastal Cooperative Statistics Program (ACCSP)..31, 33, 34, 41, 183, 184, 195
Atlantic States Marine Fisheries Commission .i
Atlantic States Marine Fisheries Commission (ASMFC) 56
Accountability measures (AMs).....100
Biological effects..5, 7, 8, 9, 12, 14, 15, 18, 20, 23, 25, 28, 30, 32, 33, 91, 100, 103, 107, 111, 125, 128, 135, 143, 148, 153, 166, 178, 184, 193, 205
Biological effects.....206
Black sea bass pots ...11, 17, 18, 20, 21, 18, 20, 26, 27, 28, 95, 110, **112**, 135, 136, 137, 141, 143
by Marine Recreational Fishery Statistics Survey (MRFSS).....193
Bycatch 2, 5, 20, 32, 33, 28, 143, 185
Commercial 8, 22, 26, 29, 31, 32, 15, 30, 35, 37, 39, 57, 103, 147, 166, 178, 179, 183
Coral 52, 53, 138, 144, 156, 169, 180, 212
Critical habitat 53
Cumulative effects.....204
Cumulative effects.....210, 211, 217
Cumulative effects.....205
Cumulative effects.....216
Data reporting.....31, 32, 33, 39, 41, 183, 193
Economic effects 6, 8, 9, 10, 13, 14, 15, 18, 21, 23, 25, 28, 30, 32, 34, 95, 101, 104, 108, 117, 126, 129, 139, 145, 172, 180, 190, 197, 217
Economic environment.....57
Economic Effects.....150, 157
Essential fish habitat (EFH).....43
Effects
Cumulative effects.....212
social 202
Effort.....2, 17, 3, 24, 26, 61, 63, 135
Eligibility.....126
Endangered Species Act (ACT) 138
Endangered Species Act (ESA).....48, 53, 156, 169
Endangered Species Act (ESA).....104
Endorsement ..iv, 11, 12, 13, 14, 15, 18, 19, 20, 22, 24, 35, 110, 111, **114**, 121, 122, 128
Enforcement.....56, 146
Environmental justice 83
Essential fish habitat..... i
Essential fish habitat (EFH).....44
Exclusive economic zone (EEZ) 17
Exclusive Economic Zone (EEZ) 54
Exclusive economic zone (EEZ) 1
Fishery management plan (FMP) 1, 7, 44
Fishery management plan (FMP) 1, 3
Florida..25, 34, 55, 80, **120**, 141, 156, 169, 180
FMP 44
For-hire 33, 34, 41, 65, 69, 193
Georgia 25, 34, 55, 78, **121**, 141
Gulf of Mexico 43

Habitat Areas of Particular Concern (HAPCs) 44
Headboat.....29, 153, 179
Headboats 195
Magnuson-Stevens Fishery Conservation and Management Act .....ii, 1, 43, 54, 86
Marine Mammal Protection Act (MMPA) 48
Marine Recreational Fisheries Statistics Survey (MRFSS) 24, 29, 107, 153, 179
Marine Recreational Information Program (MRIP) 193
Marine Recreational Information Program (MRIP) 107
Maximum fishing mortality threshold (MFMT) 86, 87, 210
Maximum sustainable yield (MSY) ..1, 13, 100
Maximum sustainable yield (MSY), ...210
Minimum stock size threshold (MSST) ...1, 47, 210
Maximum fishing mortality threshold (MFMT) 100
National Environmental Policy Act.....ii
NOAA Fisheries Service 44
National Standard 1 .....7, 100, 101
NOAA Fisheries Service ..8, 17, 33, 34, 24, 26, 40, 55, 185
North Carolina ...33, 55, 72, **118**, 140, 184, 188
Overfished 211, 212, 213
Overfishing.....13, 101, 212, 213, 214
Optimum yield (OY) .6, 7, 1, 13, 100, 102, 210
Overfished 1, 22, 47, 147
overfishing.....100, 101, 213
Overfishing.....1, 47, 86
Overfishing level (OFL) 13
Overfishing limit (OFL) 86, 87, 88, 100
Permit 33, 34, 24, 58, 65
Permits.....15, 17, 112
Protected species 18, 20, 14, 20, 28, 33, 34, 48, 50, 52, 95, 137, 144, 156, 169, 180, 213
Purpose and need.....2, 3
Recreational 9, 22, 16, 30, 37, 59, 106, 147, 178
Sargassum.....43, 44
Science and Statistical Committee (SSC)...5, 6, 55
Scientific and Statistical Committee (SSC) 7, 8, 10, 46, 47, 86, 91, 92, 179
Sea turtles 48, 50, 51, 53, 157, 169, 180
Size limit.....iv, 29, 30, 4, 37, 178
Social effects.6, 8, 9, 10, 13, 14, 15, 18, 21, 23, 25, 28, 30, 32, 34, 97, 102, 105, 108, 117, 126, 131, 140, 145, 151, 162, 176, 181, 190, 199, 217
Social environment 72
South Atlantic Fishery Management Counciliv, 8, 18, 1, 7, 44, 55, **112**, 135
South Atlantic Fishery Management Council 205
South Carolina 34, 55, 76, **119**, 141, 188
Southeast Data Assessment and Review (SEDAR) 13, 45, 46, 87, 91, 92, 97, 98, 178, 210, 211
Southeast Fisheries Science Center (SEFSC) 185, 186, 189
Spawning season closure ...iv, 2, 24, 25, 33, 34, 153
Spawning stock biomass.....1
Special Management Zones (SMZs) 44
Scoping 209
Sea turtles 53
Standard Atlantic Fisheries Information System (SAFIS) .31, 33, 34, 39, 40, 41, 183, 184
Summary.....162
Transferability 15, 16, 24, 128, 134
Trip limit.....iv, 26, 27, 28, 35, 36, 166, 171
Whale.....54
Whales. 18, 14, 20, 33, 48, 49, 53, 95, 101, **113**, 136, 137, 138, 144, 157, 169, 172, 209, 215