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Amendment 18 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region

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ABBREVIATIONS AND ACRONYMS

ABC	Acceptable biological catch
ACCSP	Atlantic Coastal Cooperative Statistics Program
ACL	Annual Catch Limits
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
GFMC	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
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 18 TO THE FISHERY MANAGEMENT PLAN FOR THE
SNAPPER-GROUPERFISHERY OF THE SOUTH ATLANTIC REGION**

**INCLUDING A DRAFT ENVIRONMENTAL IMPACT STATEMENT, INITIAL
REGULATORY FLEXIBILITY ANALYSIS, DRAFT REGULATORY IMPACT
REVIEW AND DRAFT SOCIAL IMPACT ASSESSMENT/FISHERY IMPACT
STATEMENT**

Proposed actions:	Limit participation and effort in the golden tilefish fishery; modifications to management of the black sea bass pot fishery; extend the range of the snapper-grouper FMP north and designate EFH in new areas; separate snowy grouper quota into regions/states; separate the gag recreational allocation into regions/states; change the golden tilefish fishing year; and improve the accuracy, timing, and quantity of fisheries statistics.
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ABSTRACT

At its December 2008 meeting, the South Atlantic Fishery Management Council (Council) voted to address several issues associated with the snapper-grouper fishery of the South Atlantic region. In recent years, it has been noted that some snapper-grouper species (blueline tilefish and snowy grouper) are becoming more common in the northern part of their range. In order to manage snapper-grouper occurring north of the North Carolina/Virginia line, the Council's area of jurisdiction for the snapper-grouper fishery management unit must be extended to encompass the full range of those species. The Council is also concerned that regulations implementing several recent snapper-grouper amendments could increase the incentive to fish for golden tilefish or black sea bass. Therefore, the Council is proposing management measures that would limit participation in these two sectors of the snapper-grouper fishery.

Seasonal variations between South Atlantic states have the potential to give fishermen in southern states an advantage when fishing for snapper-grouper species during winter months. As a result, the bulk of recreational allocations and commercial quotas may be caught by fishermen in southern states while those in the northern part of the region are unable to fish. To remedy this imbalance, the Council is considering separating the snowy grouper quota into regions, and separating the recreational allocation for gag in to regions.

Actions in Amendment 18 also adjust the golden tilefish fishing year start date in order to allow for harvest by longline vessels in South Carolina and North Carolina and hook and line vessels, and to require improvements to current data reporting requirements.

Actions in Amendment 18 would:

- Extend the range of the snapper-grouper FMP north
- Limit participation and effort in the golden tilefish fishery
- Modifications to management of the black sea bass pot fishery
- Separate snowy grouper quota into regions/states
- Separate the gag recreational allocation into regions/states
- Change the golden tilefish fishing year
- Improve the accuracy, timing, and quantity of fisheries statistics
- Designate EFH in new northern areas

This Draft Environmental Impact Statement (DEIS) has been prepared to analyze the effects of implementing regulations as listed above. Comments on this DEIS will be accepted for 45 days from publication of the Notice of Availability (NOA) in the Federal Register.

TABLE OF CONTENTS

ABSTRACT.....	IV
SUMMARY.....	XVII
1 Introduction.....	1-1
1.1 Background.....	1-1
1.2 Purpose and Need	1-3
1.3 History of Management	1-7
1.4 Management Objectives.....	1-19
2 Alternatives.....	2-1
2.1 Description of Alternatives.....	2-1
2.1.1 Action 1: Extend Snapper-Grouper FMU Northward	2-1
2.1.2 Comparison of Alternatives	2-2
2.1.2. Action 2: Limit Participation in the Golden Tilefish Fishery	2-3
2.1.2.1 Comparison of Alternatives	2-5
2.1.3 Action 3: Modifications to Management of the Black Sea Bass Pot Fishery	2-6
2.1.3.1 Comparison of Alternatives	2-7
2.1.4 Action 4: Separate Snowy Grouper Commercial Quota into Regions/States	2-8
2.1.4.1 Comparison of Alternatives	2-8
2.1.5 Action 5: Separate gag recreational allocation into regions/states	2-9
2.1.5.1 Comparison of Alternatives	2-9
2.1.6 Action 6: Adjust Golden Tilefish Fishing Year	2-10
2.1.6.1 Comparison of Alternatives	2-11
2.1.6.2 Council Conclusion.....	2-12
2.1.7 Action 7: Improvements to Data Reporting.....	2-12
2.1.7.1 Commercial.....	2-12
2.1.7.1.1 Comparison of Alternatives	2-13
2.1.7.1.2 Council Conclusion.....	2-14
2.1.7.2 For-Hire.....	2-14
2.1.7.2.1 Comparison of Alternatives	2-14
2.1.7.2.2 Council Conclusion.....	2-15
2.1.7.3 Private Recreational	2-15
2.1.7.3.1 Comparison of Alternatives	2-15
2.1.7.3.2 Council Conclusion.....	2-16
2.1.8 Action 8: Designate EFH and EFH-HAPCs for Snapper-Grouper in Extended Jurisdictional Areas Under Action 1.....	2-16
2.1.8.1 Comparison of Alternatives	2-16
2.1.8.2 Council Conclusions.....	2-17
3 Affected Environment.....	3-1
3.1 Habitat.....	3-1
3.1.1 Inshore/Estuarine Habitat.....	3-1
3.1.2 Offshore Habitat.....	3-1
3.1.3 Essential Fish Habitat	3-3
3.1.3.1 Habitat Areas of Particular Concern	3-3
3.2 Biological/Ecological Environment.....	3-4
3.2.1 Species Most Impacted By This FMP Amendment.....	3-4
3.2.1.1 Gag, <i>Mycteroperca microlepis</i>	3-4

3.2.1.2	Snowy Grouper, <i>Epinephelus niveatus</i>	3-5
3.2.1.3	Golden Tilefish, <i>Lopholatilus chamaeleonticeps</i>	3-6
3.2.1.4	Black Sea Bass, <i>Centropristis striata</i>	3-7
3.2.2	Science Underlying the Management of Snapper-Grouper Species Most Impacted By This FMP Amendment	3-7
3.2.2.1	Gag assessment and stock status	3-8
3.2.2.2	Black sea bass assessment and stock status	3-9
3.2.2.3	Snowy grouper assessment and stock status	3-10
3.2.2.4	Golden tilefish assessment and stock status	3-12
3.2.3	Other Affected Council-Managed Species	3-13
3.3	Protected Species	3-13
3.3.1	ESA-Listed Sea Turtles	3-14
3.3.2	ESA-Listed Marine Fish	3-16
3.3.3	ESA-Listed Marine Invertebrates	3-16
3.3.4	South Atlantic Snapper-Grouper Fishery Interactions with ESA-Listed Species	3-17
3.4	Administrative Environment	3-19
3.4.1	Federal Fishery Management	3-19
3.4.2	State Fishery Management	3-20
3.5	Enforcement	3-21
3.6	Human Environment	3-22
3.6.1	Economic Description of the Commercial Fishery	3-22
3.6.1.1	Gear and Fishing Behavior, South Atlantic Snapper grouper Fishery... 3-22	
3.6.1.2	Landings, Ex-vessel Value, Price, and Effort, South Atlantic Snapper grouper Fishery	3-23
3.6.1.3	Northeast Commercial Fishery for Snapper grouper	3-26
3.6.1.4	Economic Impacts	3-34
3.6.1.5	South Atlantic Snapper grouper Fishery by State	3-36
3.6.1.6	South Atlantic Snapper grouper Fishery by Gear	3-39
3.6.1.7	The South Atlantic Commercial Fishery for Gag	3-41
3.6.1.8	The South Atlantic Commercial Fishery for Golden Tilefish	3-47
3.6.1.9	The South Atlantic Commercial Fishery for Snowy Grouper	3-51
3.6.1.10	The South Atlantic Commercial Fishery for Black Sea Bass	3-55
3.6.2	Economic Description of the Recreational Fishery	3-59
3.6.2.1	Harvest	3-59
3.6.2.2	Effort	3-66
3.6.2.3	Permits	3-70
3.6.2.4	Economic Value and Expenditures	3-71
3.6.2.5	Financial Operations of the Charter and Headboat Sectors	3-72
3.6.3	Social and Cultural Environment	3-74
3.6.3.1	Communities in the Mid-Atlantic and New England	3-75
3.6.4	Communities in the South Atlantic	3-90
3.6.4.1	North Carolina	3-90
3.6.4.2	South Carolina	3-101
3.6.4.3	Georgia	3-104

3.6.4.4	Florida.....	3-107
4	Environmental Consequences.....	4-1
4.1	Extend FMU.....	4-1
4.1.1	Biological Effects.....	4-1
4.1.2	Economic Effects.....	4-9
4.1.3	Social Effects.....	4-9
4.1.4	Administrative Effects.....	4-11
4.1.5	Council's Conclusions	4-11
4.2	Limit Participation and Effort in the Golden Tilefish Fishery.....	4-12
4.2.1	Biological Effects.....	4-13
4.2.2	Economic Effects.....	4-14
4.2.3	Social Effects.....	4-14
4.2.4	Administrative Effects.....	4-16
4.2.5	Council's Conclusions	4-16
4.3	Modifications to Management of the Black Sea Bass Pot Fishery.....	4-16
4.3.1	Biological Effects.....	4-17
4.3.2	Economic Effects.....	4-21
4.3.3	Social Effects.....	4-22
4.3.4	Administrative Effects.....	4-24
4.3.5	Council's Conclusions	4-25
4.4	Separate Snowy Grouper Quota into Regions/States.....	4-26
4.4.1	Biological Effects.....	4-26
4.4.2	Economic Effects.....	4-27
4.4.3	Social Effects.....	4-27
4.4.4	Administrative Effects.....	4-27
4.4.5	Council's Conclusions	4-28
4.5	Separate Gag Recreational Allocation into Regions/States.....	4-28
4.5.1	Biological Effects.....	4-28
4.5.2	Economic Effects.....	4-33
4.5.3	Social Effects.....	4-34
4.5.4	Administrative Effects.....	4-34
4.5.5	Council's Conclusions	4-35
4.6	Change Golden Tilefish Fishing Year.....	4-35
4.6.1	Biological effects.....	4-35
4.6.2	Economic effects.....	4-37
4.6.3	Social effects.....	4-38
4.6.4	Administrative effects.....	4-40
4.6.5	Council Conclusions	4-40
4.7	Improve Accuracy, Timing, and Quantity of Fisheries Statistics.....	4-40
4.7.1	Commercial.....	4-40
4.7.1.1	Biological Effects.....	4-41
4.7.1.2	Economic Effects.....	4-45
4.7.1.3	Social Effects.....	4-46
4.7.1.4	Administrative Effects.....	4-47
4.7.1.5	Council's Conclusions	4-48
4.7.2	For-Hire.....	4-48

4.7.2.1	Biological Effects.....	4-48
4.7.2.2	Economic Effects.....	4-51
4.7.2.3	Social Effects.....	4-51
4.7.2.4	Administrative Effects.....	4-53
4.7.2.5	Council's Conclusions	4-53
4.7.3	Private Recreational.....	4-53
4.7.3.1	Biological Effects.....	4-53
4.7.3.2	Economic Effects.....	4-53
4.7.3.3	Social Effects.....	4-54
4.7.3.4	Administrative Effects.....	4-54
4.7.3.5	Council's Conclusions	4-54
4.8	Designate Snapper-Grouper EFH In New Northern FMP Areas.....	4-54
4.8.1	Biological Effects.....	4-54
4.8.2	Economic Effects.....	4-56
4.8.3	Social Effects.....	4-56
4.8.4	Administrative Effects.....	4-57
4.8.5	Council Conclusions	4-57
4.9	Research Recommendations.....	4-57
4.9.1	Golden tilefish.....	4-57
4.9.2	Socio-cultural Research Needs.....	4-57
4.10	Cumulative Effects.....	4-60
4.10.1	Biological.....	4-61
4.10.2	Socioeconomic.....	4-68
4.11	Bycatch Practicability Analysis.....	4-71
4.11.1	Population Effects for the Bycatch Species.....	4-71
4.11.1.1	Background.....	4-71
4.11.1.2	Commercial Fishery.....	4-72
4.11.1.3	Recreational Fishery.....	4-75
4.11.1.4	Finfish Bycatch Mortality.....	4-76
4.11.1.5	Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality.....	4-77
4.11.1.6	Ecological Effects Due to Changes in the Bycatch.....	4-80
4.11.1.7	Changes in the Bycatch of Other Fish Species and Resulting Population and Ecosystem Effects.....	4-81
4.11.1.8	Effects on Marine Mammals and Birds.....	4-82
4.11.1.9	Changes in Fishing, Processing, Disposal, and Marketing Costs..	4-83
4.11.1.10	Changes in Fishing Practices and Behavior of Fishermen.....	4-83
4.11.1.11	Changes in Research, Administration, and Enforcement Costs and Management Effectiveness.....	4-84
4.11.1.12	Changes in the Economic, Social, or Cultural Value of Fishing Activities and Non-Consumptive Uses of Fishery Resources.....	4-84
4.11.1.13	Changes in the Distribution of Benefits and Costs.....	4-85
4.11.1.14	Social Effects.....	4-85
4.11.1.15	Conclusion.....	4-85
4.12	Unavoidable Adverse Effects.....	4-86
4.13	Effects of the Fishery on the Environment.....	4-86

4.14	Damage to Ocean and Coastal Habitats.....	4-86
4.15	Relationship of Short-Term Uses and Long-Term Productivity.....	4-88
4.16	Irreversible and Irretrievable Commitments of Resources	4-88
4.17	Monitoring and Mitigation Measures	4-88
4.18	Unavailable or Incomplete Information.....	4-88
5	Regulatory Impact Review	5-1
6	Initial Regulatory Flexibility Analysis.....	6-1
7	Fishery Impact Statement and Social Impact Assessment.....	7-1
7.1	Fishery Impact Statement	7-1
7.2	Social Impact Assessment.....	7-1
7.2.1	Introduction.....	7-1
7.2.2	Problems and Methods.....	7-2
7.2.3	Environmental Justice Considerations.....	7-3
8	Other Applicable Law.....	8-1
8.1	Administrative Procedure Act.....	8-1
8.2	Coastal Zone Management Act.....	8-1
8.3	Endangered Species Act	8-1
8.4	Executive Order 12612: Federalism	8-2
8.5	Executive Order 12866: Regulatory Planning and Review	8-2
8.6	Executive Order 12898: Environmental Justice	8-3
8.7	Executive Order 12962: Recreational Fisheries	8-3
8.8	Executive Order 13089: Coral Reef Protection	8-3
8.9	Executive Order 13158: Marine Protected Areas	8-4
8.10	Marine Mammal Protection Act	8-4
8.11	Migratory Bird Treaty Act and Executive Order 13186.....	8-5
8.12	National Environmental Policy Act.....	8-6
8.13	National Marine Sanctuaries Act.....	8-6
8.14	Paperwork Reduction Act.....	8-6
8.15	Regulatory Flexibility Act	8-7
8.16	Small Business Act	8-7
8.17	Public Law 99-659: Vessel Safety	8-7
9	List of Preparers.....	9-1
10	List of Agencies, Organizations, and Persons To Whom Copies of the Statement Are Sent	10-1
11	References.....	11-1
12	Index	12-1
13	Appendix A. Alternatives Considered but Rejected.....	13-1

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.** Essential Fish Habitat and Movement towards Ecosystem-Based Management
- Appendix D.** South Atlantic Research and Monitoring Priorities 2009
- Appendix E.** Summary of Monitoring Option
- Appendix F.** Logbook and Headboat Reporting Grids Including MPA Designations
- Appendix G.** Draft Golden Tilefish Limited Access Privilege (LAP) Program Exploratory Workgroup Report
- Appendix H.** Atlantic Large Whale Take Reduction Plan Regulations Affecting Black Sea Bass Pot Gear

LIST OF FIGURES

Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.	1-1
Figure 2-1. FMU alternatives.....	2-3
Figure 3-2.--Northeast Landings of Snapper grouper.....	3-28
Figure 3-3.--Northeast Landings of Grouper.....	3-28
Figure 3-4.--Northeast Landings of Triggerfish.....	3-28
Figure 3-5.--Northeast Landings of Snapper.....	3-28
Figure 3-6. Northeast statistical areas.....	3-31
Source: Map of statistical areas used for reporting commercial catch.....	3-31
Figure 3-7. Northeast Snapper grouper Landings and Trips.....	3-32
Figure 3-8. Northeast Snapper Grouper Days at Sea and Trips.....	3-33
Figure 3-9. Northeast Snapper Grouper Landings and Boats.....	3-33
Figure 3-13. Annual landings and dockside revenues for gag, 1993-2006.	3-41
Figure 3-14. Average monthly landings of gag for the 1993-1998 and 2001-2006 periods.....	3-42
Figure 3-15. Distribution of trips and landings per boat per year, based on trips that reported at least one pound of gag (averages for 2001-2006).	3-45
Figure 3-16. Location of Ocean City, Maryland (US Census Bureau 2000a).	3-76
Figure 3-17. Location of Montauk, New York.....	3-81
Figure 3-18. Location of Narragansett, Rhode Island (US Census Bureau 2000).....	3-85
Figure 3-19. North Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.	3-90
Figure 3-20. Hatteras Island and Village, Outer Banks, North Carolina.....	3-93
Figure 3-21. Map of Roanoke Island, North Carolina, showing Wanchese and Manteo. 3-94	
Figure 3-22. Area of Carteret County, North Carolina, showing Morehead City, Atlantic Beach (at the red star), and Beaufort.	3-96
Figure 3-23. General area of Sneads Ferry, North Carolina.....	3-99
Figure 3-24. South Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.....	3-101
Figure 3-25. Little River, South Carolina, and surrounding area.	3-103
Figure 3-26. Florida communities with substantial fishing activity. Identified by South Atlantic Advisory Panels.	3-107
Figure 3-27. Area map of Cape Canaveral, Florida.....	3-110
Figure 3-28. Marathon, Florida.....	3-112
Figure 4-1. Fishery Management Unit (FMU) alternatives.....	4-3

LIST OF TABLES

Table 1-1. Species in the snapper-grouper Fishery Management Unit (FMU).	1-2
Table 1-2. Commercial and recreational limitations on the harvest and landings of tilefish and groupers in Virginia.	1-3
Table 1-3. Current Data Collection Programs 50 CFR 622.5	1-7
Table 1-4 History of management.	1-10
Table 2-1. Summary of effects of Action 1 alternatives under consideration.	2-2
Table 2-2. Summary of effects of Action 2 alternatives under consideration.	2-6
Table 2-3 Summary of effects of Action 3 alternatives under consideration.	2-8
Table 2-4 Summary of effects of Action 4 alternatives under consideration.	2-9
Table 2-5 Summary of effects of Action 5 alternatives under consideration.	2-10
Table 2-6. Summary of effects of Action 6 alternatives under consideration.	2-12
Table 2-7. Summary of effects of Action 7.1 alternatives under consideration.	2-13
Table 2-8. Summary of effects of Action 7.2 alternatives under consideration.	2-14
Table 2-9 Summary of effects of Action 7.3 alternatives under consideration.	2-15
Table 2-11 Summary of effects of Action 9 alternatives under consideration.	2-17
Table 3-1. Sea turtle incidental take data from the supplementary discard data program (SDDP) for the Southeast U.S. Atlantic.....	3-18
Table 3-2. Three year South Atlantic anticipated takes of ESA-Listed species for snapper-grouper gear.	3-18
Table 3-3. Annual landings and dockside (ex-vessel) revenues for trips with at least one pound of species in the snapper grouper fishery management unit in the South Atlantic, 2003-2007.	3-24
Table 3-4. Fishing effort and distribution of landings for trips with at least one pound of species in the snapper grouper fishery management unit in the South Atlantic, 2003- 2007.....	3-25
Table 3-5. Northeast average annual commercial landing of snapper grouper species (thousand pounds, round weight), by region and species, and by region and gear. ...	3-28
Table 3-6. Northeast average annual commercial landing of snapper grouper species (thousand pounds, round weight), by region of landing and selected areas of capture.	3-30
Table 3-7. Average annual landings and dockside revenues for trips with at least one pound of species in the snapper grouper fishery, averages for 2003-2007 by state. .	3-36
Table 3-8. Average annual landings (in thousands of pounds, whole weights) on trips that landed at least one pound of snapper grouper species: averages for 2003-2007, by state and species group.....	3-37
Table 3-9. Average annual dockside revenues (thousand 2007 dollars) for trips that landed at least one pound of snapper grouper species: averages for 2003-2007 by state and species group.....	3-39
Table 3-10. Annual landings and dockside revenues for trips with at least one pound of species in the snapper grouper fishery by primary gear, 2003-2007	3-40

Table 3-11. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of gag, 2003-2007.	3-43
Table 3-12. Annual landings and dockside revenues on trips with gag as the top source of trip revenue, 2003-2007.	3-44
Table 3-13. Annual landings and dockside revenues on trips with gag as a lesser source of trip revenue, 2003-2007.	3-45
Table 3-14. Annual landings of gag for trips with at least one pound of gag, by region and primary gear, 2003-2007.	3-46
Table 3-15. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of golden tilefish, 2003-2007.	3-47
Table 3-16. Annual landings and dockside revenues on trips with golden tilefish as the top source of trip revenue, 2003-2007.	3-48
Table 3-17. Annual landings and dockside revenues on trips with golden tilefish as a lesser source of trip revenue, 2003-2007.	3-49
Table 3-18. Annual landings of golden tilefish for trips with at least one pound of golden tilefish, by region and primary gear, 2003-2007.	3-50
Table 3-19. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of snowy grouper, 2003-2007.	3-51
Table 3-20. Annual landings and dockside revenues on trips with snowy grouper as the top source of trip revenue, 2003-2007.	3-52
Table 3-21. Annual landings and dockside revenues on trips with snowy grouper as a lesser source of trip revenue, 2003-2007.	3-53
Table 3-22. Annual landings of snowy grouper for trips with at least one pound of snowy grouper, by region and primary gear, 2003-2007.	3-54
Table 3-23. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of black sea bass, 2003-2007.	3-55
Table 3-24. Annual landings and dockside revenues on trips with black sea bass as the top source of trip revenue, 2003-2007.	3-56
Table 3-25. Annual landings and dockside revenues on trips with black sea bass as a lesser source of trip revenue, 2003-2007.	3-57
Table 3-26. Annual landings of black sea bass for trips with at least one pound of black sea bass, by region and primary gear, 2003-2007.	3-58
Table 3-27. U.S. imports of snappers and groupers, 2003-2006.	3-59
Table 3-28. Harvest of snapper grouper species by mode in the South Atlantic, 2003-2007.	3-60
Table 3-29. Harvest of snapper grouper species by state in the South Atlantic, 2003-2007.	3-60
Table 3-30. Harvest of snapper grouper species by mode in the Mid-Atlantic, 2003-2007.	3-60
Table 3-31. Harvest of snapper grouper species by state in the Mid-Atlantic, 2003-2007.	3-61
Table 3-32. Harvest of snapper grouper species by mode in New England, 2003-2007. ...	3-62
Table 3-33. Harvest of snapper grouper species by state in New England, 2003-2007. ...	3-62

Table 3-34. South Atlantic average harvest (lbs) of 10 species in this amendment, by mode, 2003-2007.	3-63
Table 3-35. South Atlantic average harvest (lbs) of 10 species in this amendment, by state, 2003-2007.	3-63
Table 3-36. Mid-Atlantic average harvest (lbs) of 10 species in this amendment, by mode, 2003-2007.	3-64
Table 3-37. Mid-Atlantic average harvest (lbs) of 10 species in this amendment, by state, 2003-2007.	3-64
Table 3-38. New England average harvest (lbs) of 10 species in this amendment, by mode, 2003-2007.	3-65
Table 3-39. New England average harvest (lbs) of 10 species in this amendment, by state, 2003-2007.	3-65
Table 3-40. Recreational effort for the snapper grouper fishery in the South Atlantic, in thousand trips, by mode, 2003-2007.	3-66
Table 3-41. Recreational effort for the snapper grouper fishery in the South Atlantic, in thousand trips, by state, 2003-2007.	3-67
Table 3-42. Recreational effort for the snapper grouper fishery in the Mid-Atlantic, in thousand trips, by mode, 2003-2007.	3-67
Table 3-43. Recreational effort for the snapper grouper fishery in the Mid-Atlantic, in thousand trips, by state, 2003-2007.	3-67
Table 3-44. Recreational effort for the snapper grouper fishery in New England, in thousand trips, by mode, 2003-2007.	3-68
Table 3-45. Recreational effort for the snapper grouper fishery in New England, in thousand trips, by state, 2003-2007.	3-68
Table 3-46. South Atlantic average recreational effort for 10 species in this amendment, in thousand trips, by mode, 2003-2007.	3-69
Table 3-47. South Atlantic average recreational effort for 10 species in this amendment, in thousand trips, by state, 2003-2007.	3-69
Table 3-48. Estimate of headboat angler days for the U.S. South Atlantic.	3-70
Table 3-49. South Atlantic snapper grouper for-hire permit holders by home port state, 2003-2007.	3-71
Table 3-50. Summary of expenditures on saltwater trips.	3-72
Table 3-51. Top three communities in North Carolina, listed by species, for commercial cumulative landings for 2005-2007.	3-92
Table 4-1. Commercial and recreational limitations on the harvest and landings of tilefish and groupers in Virginia.	4-2
Table 4-2a. Recreational landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) from Mid-Atlantic.	4-5
Table 4-2b. Commercial landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) in Mid-Atlantic.	4-7
Table 4-3. Recreational landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) from New England.	4-8
Table 4-4. Commercial landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) in New England.	4-8
Table 4-5. Number of vessels requesting tags; mean, minimum, maximum, and median number of tags/vessel requested.	4-18

Table 4-6. 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 fishermen who fished with pots; and mean, minimum, maximum number of pots fished.	4-19
Table 4-7. Number of days away from port, number of trips, total lbs of black sea bass landed (whole weight) and number of pots fished during 2005-2007.	4-20
Table 4-8. Pots per trip fished (1/1/05-12/31/06) as defined by the two levels in Alternative 7.	4-20
Table 4-9. Number of pots fished per trip during 2005-2007.	4-21
Table 4-18. Headboat landings (pounds whole weight) and % of gag by region, for the South Atlantic during 2003-2007.	4-29
Table 4-19. Estimated discards (B2) and % of gag by region, for the South Atlantic during 2003-2007.	4-29
Table 4-20. Estimated harvest (A+B1, pounds whole weight) and percent standard error (PSE) of gag in state vs. federal waters (EEZ) in the South Atlantic during 2003-2007.	4-31
Table 4-21. Estimated harvest (A+B1, pounds whole weight) of gag by region, in state vs. federal waters (EEZ), in the South Atlantic during 2003-2007.	4-31
Table 4-21. List of habitat types covered by the South Atlantic Fishery Management Council's (SAFMC) as Essential Fish Habitat (EFH) and EFH Habitat Areas of Particular Concern (HAPC) for the Snapper-Grouper Fishery Management Plan (FMP).	4-55
Table 4-22 The cause and effect relationship of fishing and regulatory actions within the time period of the Cumulative Effects Analysis (CEA).	4-65
Table 4-23 Percentage of commercial catch by gear based on data from 2004-2007. .	4-71
Table 4-24 Landings (lbs whole weight) during 2007 for commercial (ALS), headboat (HB), MRFSS, and HB MRFSS combined.	4-71
Table 4-25. Snapper grouper fishery effort for South Atlantic.	4-72
Table 4-26 Annual number of trips reporting discard of Amendment 18 species.	4-73
Table 4-27 Percentage of trips that discarded Amendment 18 species.	4-73
Table 4-28 Average number (unexpanded) of Amendment 18 species.	4-73
Table 4-29 Expanded number of discarded Amendment 18 species.	4-73
Table 4-30 The 50 most commonly discarded species during 2003-2007 for the South Atlantic.	4-74
Table 4-31. Estimated number total catch (A+B1+B2), harvests (A+B1), and released (B2) fish in numbers for the South Atlantic during 2003-2007.	4-76
Table 4-32. Total fish released alive or dead on sampled headboat trips during 2004-2007.	4-76
Table 7-1. Environmental Justice Thresholds (2000 U.S. Census data).	7-5

TABLE OF CONTENTS FOR THE ENVIRONMENTAL IMPACT STATEMENT

Abstract.....	
Summary	
Purpose and need.....	
Alternatives	
Affected environment.....	
Environmental consequences.....	
List of preparers.....	
List of agencies, organizations, and persons to whom copies of the statement are sent.....	
Index.....	

SUMMARY

The South Atlantic Fishery Management Council is proposing, in Amendment 18, to either alter current management measures or implement new management measures that would address several issues which have arisen within the snapper-grouper fishery of the South Atlantic region.

Actions proposed in Amendment 18 would:

- Extend the range of the snapper-grouper FMP northward
- Limit participation and effort in the golden tilefish fishery
- Modifications to management of the black sea bass pot fishery
- Separate snowy grouper quota into regions/states
- Separate the gag recreational allocation into regions/states
- Change the golden tilefish fishing year
- Improve the accuracy, timing, and quantity of fisheries statistics
- Designate EFH in new areas

The Reauthorized Magnuson-Stevens Fishery Conservation and Management Act requires that United States fisheries be managed to optimize yield while maintaining sustainability of the resource.

Alternatives Being Considered

The Council's current alternatives are listed in **Section 2.0** and are hereby incorporated by reference. Alternatives to the proposed actions the Council considered in developing this amendment but decided not to pursue are described in **Appendix A**.

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) is conducted under the Fishery Management Plan for the Snapper-Grouper Fishery (SAFMC 1983) (Figure 1-1). The fishery management plan (FMP) and its amendments are developed under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens 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.

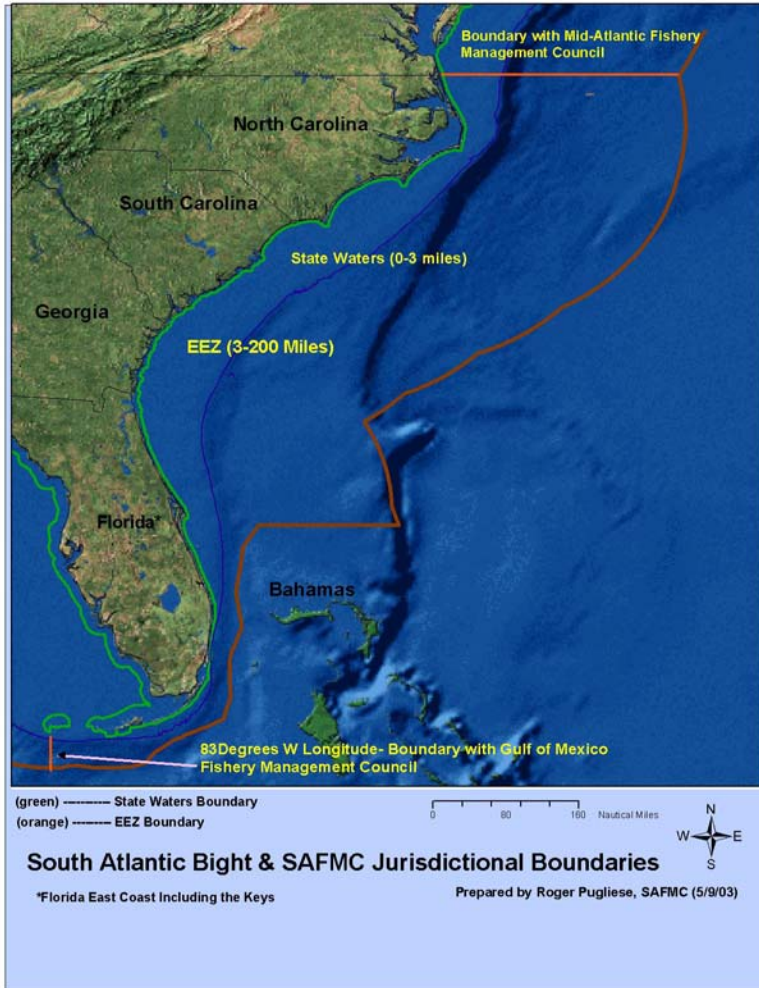


Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

Table 1-1. Species in the snapper-grouper Fishery Management Unit (FMU).

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

1.2 Purpose and Need

The need for action through Amendment 18 is due to the continually changing nature of the fishery, and the need to comply with new Magnuson-Stevens Act requirements. Species in the 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 Council has determined that certain aspects of the current management system remain inappropriate and should be restructured. More specifically, these proposed actions would:

- Extend the range of the snapper-grouper FMP north
- Limit participation and effort in the golden tilefish fishery
- Modifications to management of the black sea bass pot fishery
- Separate snowy grouper quota into regions/states
- Separate the gag recreational allocation into regions/states
- Change the golden tilefish fishing year
- Improve the accuracy, timing, and quantity of fisheries statistics.
- Designate EFH in new northern areas

Issues addressed in Amendment 18

Northward expansion of several snapper-grouper species

The Council is concerned about a northward expansion of a fishery for snapper and grouper species resulting in large catches of tilefish and groupers. The Council's Snapper-Grouper Advisory Panel (AP) presented information documenting increasing catches of blueline tilefish and snowy grouper off the coast of Virginia. In addition, Virginia reported state records of recreationally caught blueline tilefish and snowy grouper in recent years. In response, the Virginia Marine Resources Commission has since established commercial and recreational limits on the harvest and landing of tilefish and grouper off the coast of Virginia (Table 1-1).

Table 1-2. Commercial and recreational limitations on the harvest and landings of tilefish and groupers in Virginia.

	Groupers	Tilefish
Commercial	175 pounds/vessel/day	300 pounds/vessel/day
Recreational	1 fish/person/day	7 fish/person/day
The following species are considered a grouper: black, goliath, misty, Nassau, red, snowy, tiger, warsaw, yellowedge, yellowfin, and yellowmouth grouper; gag, coney, graysby, red hind, rock hind, scamp, speckled hind, wreckfish. The following species are considered a tilefish: blueline, golden, and sand tilefish.		

The Council is considering extending the range of the snapper-grouper fishery management plan for some species northward in order to conserve and manage these species. The current boundaries would not be changed for black sea bass, golden tilefish, and scup since they are currently considered separate stocks north and south of Cape Hatteras, North Carolina. These three species are covered by Mid-Atlantic Council fishery management plans. In addition, it has been suggested snapper-grouper species are becoming more common in the northern part of their range in response to increases in average water temperature due to global warming (Parker and Dixon, 1998).

Potential for effort increases in the golden tilefish fishery

Recent amendments to the Snapper-Grouper FMP have imposed more restrictive harvest limitations on snapper-grouper fishermen. In an effort to find other species to target, fishermen could increase participation in the golden tilefish fishery. An increase in participation in the golden tilefish fishery would intensify the “race to fish” that already exists in the fishery and result in a shortened season. The fishing seasons in recent years have already been shortened to such a degree that North Carolina and South Carolina longline fishermen, who are typically unable to fish until April or May due to weather conditions, and hook and line fishermen, who in some areas typically do not fish until the fall, are increasingly unable to participate in the fishery. Current regulations for golden tilefish establish a 4,000 pound trip limit until 75% of the quota is caught, after which, a 300 pound trip limit is imposed. The Council is concerned an increase in participation in this fishery will deteriorate profits for current golden tilefish fishermen and shift the ability to participate further away from North Carolina and South Carolina longline and hook and line golden tilefish fishermen. In addition, more participants will make it more difficult to track the commercial quota and prevent overages.

Modifications to management of the black sea bass pot fishery

The Council is concerned increased restrictions imposed through Snapper-Grouper Amendments 13C and 16 including a commercial quota for black sea bass, could increase the incentive to fish more pots. 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. An increase in participation in the black sea bass fishery would also deteriorate profits for current participants in that fishery. In December, the Council requested NMFS issue a control date of December 4, 2008. The control date sets a date in time the Council could use to limit participation; anyone entering the black sea bass pot fishery after the specified date may not be guaranteed continued participation. The Council is further concerned about the possibility of fishermen leaving large numbers of traps fishing for multiple days due to vessel or weather problems, which could unnecessarily kill many black sea bass. Fishing large numbers of traps also increases the chance that traps could be lost and “ghost fishing” could occur. Furthermore, fishing large numbers of traps increases the chance of entanglement of pot lines with right whales and other protected species.

Unfair fishing advantage for snowy grouper in southern states

The reduction in commercial quota amounts for snowy grouper in Snapper-Grouper Amendment 13C increased the probability that the quotas could be met before the start of the fishing season in some areas of the South Atlantic. Concern has been expressed that fishermen in Southern areas of the Council's jurisdiction could have an advantage in filling the quota over fishermen in areas to the north due to better weather in winter. However, the snowy grouper quota has not been met since reduced trip limits and quotas were implemented in 2006. In addition, harvest restrictions in other fisheries could amplify this effect with increased fishing effort in the deepwater fishery.

Unfair fishing advantage for gag in southern states

Amendment 17, which is under review, proposes to establish Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs) for gag in the recreational sector. Various alternatives have Accountability Measures (AMs) which could close the fishery or reduce the length of the following fishing season in the recreational sector when an ACL or ACT is met. The Council is concerned fishermen in some areas could have an advantage and catch part of the allowable catch sooner than those in other areas.

Change Golden Tilefish Fishing Year

Current regulations for golden tilefish establish a 4,000 pound trip limit until 75% of the quota is caught, after which, a 300 pound trip limit is imposed. Longline vessels typically fish for golden tilefish at the start of the year when the trip limit is 4,000 pounds. Longline boats are typically larger than bandit reel vessels and need the larger trip limit to make a profitable trip. In years past, the quota would not be met until late in the year giving both Florida fishermen, who begin fishing in January or February, and North Carolina and South Carolina fishermen, who typically are unable to fish until April or May due to weather conditions, the opportunity to make several trips before the trip limit drops to 300 pounds. However, in recent years, effort has increased due to restrictions in the shark longline fishery and the golden tilefish quota has been reached in late summer and the trip limit has dropped even sooner in the year. As a result, fishing opportunities for South Carolina longline fishermen have been significantly reduced. At the same time hook and line fishermen in Florida have been unable to participate since the season closes before they enter in September.

Improvement to Fisheries Statistics

Section 303(a)(8) requires that "in the case of a fishery management plan that, after January 1, 1991, is submitted to the Secretary for review under section 304(a) (including any plan for which an amendment is submitted to the Secretary for such review) or is prepared by the Secretary, assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan". In addition, the ACL Final Rule (74 FR 3211:) provides the following guidance on fisheries data: "(i) *Fisheries data*. In their FMPs, or associated public documents such as SAFE reports as appropriate, Councils must describe general data collection methods, as well as any specific data

collection methods used for all stocks in the fishery, and EC species, including: (1) Sources of fishing mortality (both landed and discarded), including commercial and recreational catch and bycatch in other fisheries; (2) Description of the data collection and estimation methods used to quantify total catch mortality in each fishery, including information on the management tools used (i.e., logbooks, vessel monitoring systems, observer programs, landings reports, fish tickets, processor reports, dealer reports, recreational angler surveys, or other methods); the frequency with which data are collected and updated; and the scope of sampling coverage for each fishery; and (3) Description of the methods used to compile catch data from various catch data collection methods and how those data are used to determine the relationship between total catch at a given point in time and the ACL for stocks and stock complexes that are part of a fishery.”

The goal of this action is to improve the accuracy, timing, and quantity of fisheries statistics collected by the current data collection programs for fisheries managed by the Council. To accomplish this goal, the Council believes modifications should be made to the current data collection programs (Table 1-6). Data elements improved by the action may include, but are not limited to: Landings; discards; effort; biological sampling of landings and discards; fishery independent information; and economic and social characterization of the fisheries.

Table 1-3. Current Data Collection Programs 50 CFR 622.5

	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
Snapper-Grouper -commercial -for-hire -private rec.	Yes		Yes	Yes		Yes	Yes
Coastal Migratory Pelagics	Yes						
Wreckfish		Yes (for each trip)			Yes		
Golden Crab	Yes						
Dolphin Wahoo	Yes						
Shrimp - rock - penaeid	Yes						
Dealers -snapper-grouper -coastal migratory pelagics -wreckfish -golden crab - dolphin wahoo - shrimp	Yes (submitted on a monthly basis)				Yes		

EFH for Snapper-Grouper in Areas Covered by the Northward Jurisdictional Expansion

The proposed action to expand the Snapper-Grouper FMP northward requires new EFH areas and EFH Habitat Areas of particular Concern (HAPCs) be identified and designated for consultation purposes. Therefore, the Council is considering designating new snapper-grouper EFH and EFH HAPCs in the Mid-Atlantic and New England areas.

1.3 History of Management

The snapper-grouper fishery is highly regulated; some of the species included in this amendment have been regulated since 1983. The original Snapper-Grouper Fishery Management Plan (SAFMC 1983) included size limits for black sea bass (8" 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.

Most recently, Snapper-Grouper Amendment 15A (SAFMC 2008a) established rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.

Snapper-Grouper Amendment 13C (SAFMC 2006) implemented the following regulatory 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:

- Snowy Grouper: Decrease the annual commercial quota over three years (Year 1 = 2006) from 151,000 pounds gutted weight (lbs gw) to 84,000 lbs gw in year 3; decrease the commercial trip limit over three years from 275 lbs gw to 100 lbs gw in year 3; and limit possession to 1 per person per day within the 5-grouper per person per day aggregate recreational bag.
- Golden Tilefish: Reduce the annual commercial quota to 295,000 lbs gw; reduce the commercial trip limit to 4,000 lbs gw, which would decrease to 300 lbs gw if 75 percent of the quota were taken by September 1; and limit possession to 1 per person per day within the 5-grouper per person per day aggregate recreational bag limit.
- Vermilion Snapper: Establish an annual commercial quota of 1,100,000 lbs gw; and increase the recreational minimum size limit from 11-inch total length (TL) to 12-inch TL.
- Black Sea Bass: Establish and decrease an annual commercial quota, over three years from 477,000 lbs gw to 309,000 lbs gw in year 3; require the use of at least 2-inch mesh for the entire back panel of pots; remove pots from the water once the commercial quota is met; change commercial and recreational fishing years from the calendar year to June 1 through May 31; establish a recreational allocation which would decrease over three years from 633,000 lbs gw to 409,000 lbs

gw in year 3; increase the recreational size limit from 10-inch TL to 12-inch TL over two years; and reduce the recreational bag limit from 20 to 15 per person per day.

Red Porgy: Increase the commercial trip limit during May through December to 120 fish; establish a commercial quota of 127,000 lbs gw; and increase the recreational bag limit from 1 to 3 red porgy per person per day.

Specific details on these and all the other regulations implemented in the snapper-grouper fishery are shown below in Table 1-x.

Table 1-4 History of management.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
FMP (1983)	08/31/83	PR: 48 FR 26843 FR: 48 FR 39463	-12" limit – red snapper, yellowtail snapper, red grouper, Nassau grouper -8" limit – black sea bass -4" trawl mesh size -Gear limitations – poisons, explosives, fish traps, trawls -Designated modified habitats or artificial reefs as Special Management Zones (SMZs)
Regulatory Amendment #1 (1986)	03/27/87	PR: 51 FR 43937 FR: 52 FR 9864	-Prohibited fishing in SMZs except with hand-held hook-and-line and spearfishing gear. -Prohibited harvest of goliath grouper in SMZs.
Amendment #1 (1988)	01/12/89	PR: 53 FR 42985 FR: 54 FR 1720	-Prohibited trawl gear to harvest fish south of Cape Hatteras, NC and north of Cape Canaveral, FL. -Directed fishery defined as vessel with trawl gear and ≥200 lbs s-g on board. -Established rebuttable assumption that vessel with s-g on board had harvested such fish in EEZ.
Regulatory Amendment #2 (1988)	03/30/89	PR: 53 FR 32412 FR: 54 FR 8342	-Established 2 artificial reefs off Ft. Pierce, FL as SMZs.
Notice of Control Date	09/24/90	55 FR 39039	-Anyone entering federal wreckfish fishery in the EEZ off S. Atlantic states after 09/24/90 was not assured of future access if limited entry program developed.
Regulatory Amendment #3 (1989)	11/02/90	PR: 55 FR 28066 FR: 55 FR 40394	-Established artificial reef at Key Biscayne, FL as SMZ. Fish trapping, bottom longlining, spear fishing, and harvesting of Goliath grouper prohibited in SMZ.
Amendment #2 (1990)	10/30/90	PR: 55 FR 31406 FR: 55 FR 46213	-Prohibited harvest/possession of goliath grouper in or from the EEZ -Defined overfishing for goliath grouper and other species

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Emergency Rule	8/3/90	55 FR 32257	-added wreckfish to the FM -fishing year beginning 4/16/90 -commercial quota of 2 million pounds -commercial trip limit of 10,000 pounds per trip
Fishery Closure Notice	8/8/90	55 FR 32635	-the fishery was closed because the commercial quota of 2 million pounds was reached
Emergency Rule Extension	11/1/90	55 FR 40181	-extended the measures implemented via emergency rule on 8/3/90
Amendment #3 (1990)	01/31/91	PR: 55 FR 39023 FR: 56 FR 2443	-Add wreckfish to the FMU; -Defined optimum yield and overfishing -Required permit to fish for, land or sell wreckfish; -Required catch and effort reports from selected, permitted vessels; -Established control date of 03/28/90; -Established a fishing year for wreckfish starting April 16; -Established a process to set annual quota, with initial quota of 2 million pounds; provisions for closure; -Established 10,000 pound trip limit; -Established a spawning season closure for wreckfish from January 15 to April 15; and -Provided for annual adjustments of wreckfish management measures;
Notice of Control Date	07/30/91	56 FR 36052	-Anyone entering federal snapper-grouper fishery (other than for wreckfish) in the EEZ off S. Atlantic states after 07/30/91 was not assured of future access if limited entry program developed.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #4 (1991)	01/01/92	PR: 56 FR 29922 FR: 56 FR 56016	<ul style="list-style-type: none"> -Prohibited gear: fish traps except black sea bass traps north of Cape Canaveral, FL; entanglement nets; longline gear inside 50 fathoms; bottom longlines to harvest wreckfish**; -powerheads and bangsticks in designated SMZs off S. Carolina. -defined overfishing/overfished and established rebuilding timeframe: red snapper and groupers ≤ 15 years (year 1 = 1991); other snappers, greater amberjack, black sea bass, red porgy ≤ 10 years (year 1 = 1991) -Required permits (commercial & for-hire) and specified data collection regulations -Established an assessment group and annual adjustment procedure (framework) -Permit, gear, and vessel id requirements specified for black sea bass traps. -No retention of snapper-grouper spp. caught in other fisheries with gear prohibited in snapper-grouper fishery if captured snapper-grouper had no bag limit or harvest was prohibited. If had a bag limit, could retain only the bag limit. -8" limit – lane snapper -10" limit – vermilion snapper (recreational only) -12" limit – red porgy, vermilion snapper (commercial only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany, and silk snappers -20" limit – red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers. -28" FL limit – greater amberjack (recreational only) -36" FL or 28" core length – greater amberjack (commercial only) -bag limits – 10 vermilion snapper, 3 greater amberjack -aggregate snapper bag limit – 10/person/day, excluding vermilion snapper and allowing no more than 2 red snappers -aggregate grouper bag limit – 5/person/day, excluding Nassau and goliath grouper, for which no retention (recreational & commercial) is allowed -spawning season closure – commercial harvest greater amberjack > 3 fish bag prohibited in April south of Cape Canaveral, FL -spawning season closure – commercial harvest mutton snapper > snapper aggregate prohibited during May and June -charter/headboats and excursion boat possession limits extended

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #5 (1991)	04/06/92	PR: 56 FR 57302 FR: 57 FR 7886	-Wreckfish: established limited entry system with ITQs; required dealer to have permit; rescinded 10,000 lb. trip limit; required off-loading between 8 am and 5 pm; reduced occasions when 24-hour advance notice of offloading required for off-loading; established procedure for initial distribution of percentage shares of TAC
Emergency Rule	8/31/92	57 FR 39365	-Black Sea Bass (bsb): modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Emergency Rule Extension	11/30/92	57 FR 56522	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #4 (1992)	07/06/93	FR: 58 FR 36155	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #5 (1992)	07/31/93	PR: 58 FR 13732 FR: 58 FR 35895	-Established 8 SMZs off S. Carolina, where only hand-held, hook-and-line gear and spearfishing (excluding powerheads) was allowed.
Amendment #6 (1993)	07/27/94	PR: 59 FR 9721 FR: 59 FR 27242	-commercial quotas for snowy grouper, golden tilefish -commercial trip limits for snowy grouper, golden tilefish, speckled hind, and warsaw grouper -include golden tilefish in grouper recreational aggregate bag limits -prohibited sale of warsaw grouper and speckled hind -100% logbook coverage upon renewal of permit -creation of the <i>Oculina</i> Experimental Closed Area -data collection needs specified for evaluation of possible future IFQ system
Amendment #7 (1994)	01/23/95	PR: 59 FR 47833 FR: 59 FR 66270	-12" FL – hogfish -16" TL – mutton snapper -required dealer, charter and headboat federal permits -allowed sale under specified conditions -specified allowable gear and made allowance for experimental gear -allowed multi-gear trips in N. Carolina -added localized overfishing to list of problems and objectives -adjusted bag limit and crew specs. for charter and head boats -modified management unit for scup to apply south of Cape Hatteras, NC -modified framework procedure
Regulatory Amendment #6 (1994)	05/22/95	PR: 60 FR 8620 FR: 60 FR 19683	Established actions which applied only to EEZ off Atlantic coast of FL: Bag limits – 5 hogfish/person/day (recreational only), 2 cubera snapper/person/day > 30" TL; 12" TL – gray triggerfish
Notice of Control Date	04/23/97	62 FR 22995	-Anyone entering federal bsb pot fishery off S. Atlantic states after 04/23/97 was not assured of future access if limited entry program developed.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #8 (1997)	12/14/98	PR: 63 FR 1813 FR: 63 FR 38298	<ul style="list-style-type: none"> -established program to limit initial eligibility for snapper-grouper fishery: Must demonstrate landings of any species in SG FMU in 1993, 1994, 1995 or 1996; and have held valid SG permit between 02/11/96 and 02/11/97. -granted transferable permit with unlimited landings if vessel landed \geq 1,000 lbs. of snapper-grouper spp. in any of the years -granted non-transferable permit with 225 lb. trip limit to all other vessels -modified problems, objectives, OY, and overfishing definitions -expanded Council's habitat responsibility -allowed retention of snapper-grouper spp. in excess of bag limit on permitted vessel with a single bait net or cast nets on board -allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.
Regulatory Amendment #7 (1998)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.
Interim Rule Request	1/16/98		-Council requested all Amendment 9 measures except black sea bass pot construction changes be implemented as an interim request under MSA
Action Suspended	5/14/98		-NMFS informed the Council that action on the interim rule request was suspended
Emergency Rule Request	9/24/98		-Council requested Amendment 9 be implemented via emergency rule
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #9 (1998)	2/24/99	PR: 63 FR 63276 FR: 64 FR 3624	<p>-<u>Red porgy</u>: 14" length (recreational and commercial); 5 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, in March and April.</p> <p>-<u>Black sea bass</u>: 10" length (recreational and commercial); 20 fish rec. bag limit; required escape vents and escape panels with degradable fasteners in bsb pots</p> <p>-<u>Greater amberjack</u>: 1 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, during April; quota = 1,169,931 lbs; began fishing year May 1; prohibited coring.</p> <p>-<u>Vermilion snapper</u>: 11" length (recreational)</p> <p>Gag: 24" length (recreational); no commercial harvest or possession > bag limit, and no purchase or sale, during March and April</p> <p>-<u>Black grouper</u>: 24" length (recreational and commercial); no harvest or possession > bag limit, and no purchase or sale, during March and April.</p> <p>-<u>Gag and Black grouper</u>: within 5 fish aggregate grouper bag limit, no more than 2 fish may be gag or black grouper (individually or in combination)</p> <p>-<u>All SG without a bag limit</u>: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runners</p> <p>-<u>Vessels with longline gear</u> aboard may only possess snowy, warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish.</p>
Amendment #9 (1998) resubmitted	10/13/00	PR: 63 FR 63276 FR: 65 FR 55203	-Commercial trip limit for greater amberjack
Regulatory Amendment #8 (2000)	11/15/00	PR: 65 FR 41041 FR: 65 FR 61114	-Established 12 SMZs at artificial reefs off Georgia; revised boundaries of 7 existing SMZs off Georgia to meet CG permit specs; restricted fishing in new and revised SMZs
Emergency Interim Rule	09/08/99, expired 08/28/00	64 FR 48324 and 65 FR 10040	-Prohibited harvest or possession of red porgy.
Emergency Action	9/3/99	64 FR 48326	-Reopened the Snapper-Grouper Amendment 8 permit application process
Amendment #10 (1998)	07/14/00	PR: 64 FR 37082 and 64 FR 59152 FR: 65 FR 37292	-Identified EFH and established HAPCs for species in the SG FMU.

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Amendment #11 (1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	<p>-MSY proxy: goliath and Nassau grouper = 40% static SPR; all other species = 30% static SPR</p> <p>-OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR</p> <p>-Overfished/overfishing evaluations: BSB: overfished (MSST=3.72 mp, 1995 biomass=1.33 mp); undergoing overfishing (MFMT=0.72, F1991-1995=0.95) Vermilion snapper: overfished (static SPR = 21-27%). Red porgy: overfished (static SPR = 14-19%). Red snapper: overfished (static SPR = 24-32%) Gag: overfished (static SPR = 27%) Scamp: no longer overfished (static SPR = 35%) Speckled hind: overfished (static SPR = 8-13%) Warsaw grouper: overfished (static SPR = 6-14%) Snowy grouper: overfished (static SPR = 5-15%) White grunt: no longer overfished (static SPR = 29-39%) Golden tilefish: overfished (couldn't estimate static SPR) Nassau grouper: overfished (couldn't estimate static SPR) Goliath grouper: overfished (couldn't estimate static SPR)</p> <p>-overfishing level: goliath and Nassau grouper = $F > F_{40\%}$ static SPR; all other species: $F > F_{30\%}$ static SPR</p> <p>Approved definitions for overfished and overfishing. MSST = $[(1-M) \text{ or } 0.5 \text{ whichever is greater}] * B_{msy}$. MFMT = F_{msy}</p>
Amendment #12 (2000)	09/22/00	PR: 65 FR 35877 FR: 65 FR 51248	-Red porgy: MSY=4.38 mp; OY=45% static SPR; MFMT=0.43; MSST=7.34 mp; rebuilding timeframe=18 years (1999=year 1); no sale during Jan-April; 1 fish bag limit; 50 lb. bycatch comm. trip limit May-December; modified management options and list of possible framework actions.
Amendment #13A (2003)	04/26/04	PR: 68 FR 66069 FR: 69 FR 15731	-Extended for an indefinite period the regulation prohibiting fishing for and possessing snapper-grouper spp. within the <i>Oculina</i> Experimental Closed Area.
Notice of Control Date	10/14/05	70 FR 60058	-The Council is considering management measures to further limit participation or effort in the commercial fishery for snapper-grouper species (excluding Wreckfish).

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Amendment #13C (2006)	10/23/06	PR: 71 FR 28841 FR: 71 FR 55096	<p>- End overfishing of snowy grouper, vermilion snapper, black sea bass, and golden tilefish. Increase allowable catch of red porgy. Year 1 = 2006.</p> <p>1. Snowy Grouper Commercial: Quota (gutted weight) = 151,000 lbs gw in year 1, 118,000 lbs gw in year 2, and 84,000 lbs gw in year 3 onwards. Trip limit = 275 lbs gw in year 1, 175 lbs gw in year 2, and 100 lbs gw in year 3 onwards.</p> <p>Recreational: Limit possession to one snowy grouper in 5 grouper per person/day aggregate bag limit.</p> <p>2. Golden Tilefish Commercial: Quota of 295,000 lbs gw, 4,000 lbs gw trip limit until 75% of the quota is taken when the trip limit is reduced to 300 lbs gw. Do not adjust the trip limit downwards unless 75% is captured on or before September 1.</p> <p>Recreational: Limit possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit.</p> <p>3. Vermilion Snapper Commercial: Quota of 1,100,000 lbs gw.</p> <p>Recreational: 12" size limit.</p> <p>4. Black Sea Bass Commercial: Commercial quota (gutted weight) of 477,000 lbs gw in year 1, 423,000 lbs gw in year 2, and 309,000 lbs gw in year 3 onwards. Require use of at least 2" mesh for the entire back panel of black sea bass pots effective 6 months after publication of the final rule. Require black sea bass pots be removed from the water when the quota is met. Change fishing year from calendar year to June 1 – May 31.</p> <p>Recreational: Recreational allocation of 633,000 lbs gw in year 1, 560,000 lbs gw in year 2, and 409,000 lbs gw in year 3 onwards. Increase minimum size limit from 10" to 11" in year 1 and to 12" in year 2. Reduce recreational bag limit from 20 to 15 per person per day. Change fishing year from the calendar year to June 1 through May 31.</p> <p>5. Red Porgy Commercial and recreational</p> <ol style="list-style-type: none"> 1. Retain 14" TL size limit and seasonal closure (retention limited to the bag limit); 2. Specify a commercial quota of 127,000 lbs gw and prohibit sale/purchase and prohibit harvest and/or possession beyond the bag limit when quota is taken and/or during January through April; 3. Increase commercial trip limit from 50 lbs ww to 120 red porgy (210 lbs gw) during May through December; 4. Increase recreational bag limit from one to three red porgy per person per day.
Notice of Control Date	3/8/07	72 FR 60794	-The Council may consider measures to limit participation in the snapper-grouper for-hire fishery

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Amendment #14 (2007) Sent to NMFS 7/18/07	TBD	PR: 73 FR 32281 TBD	-Establish eight deepwater Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deepwater snapper-grouper species.
Amendment #15A (2007)	3/14/08	73 FR 14942	- Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Amendment #15B (2008b)	TBD	TBD	- Prohibit the sale of bag-limit caught snapper-grouper species. -Reduce the effects of incidental hooking on sea turtles and smalltooth sawfish. - Adjust commercial renewal periods and transferability requirements. - Implement plan to monitor and assess bycatch, - Establish reference points for golden tilefish. - Establish allocations for snowy grouper (95% com & 5% rec) and red porgy (50% com & 50% rec).
Amendment #16 (SAFMC 2008c)	July 29, 2009	PR: 74 FR 6257 FR: 74 FR 30964	-Specify SFA parameters for gag and vermilion snapper -For gag grouper: Specify interim allocations 51%com & 49%rec; rec & com spawning closure January through April; directed com quota=348,440 pounds gutted weight; reduce 5-grouper aggregate to 3-grouper and 2 gag/black to 1 gag/black and exclude captain & crew from possessing bag limit. -For vermilion snapper: Specify interim allocations 68%com & 32%rec; directed com quota split Jan-June=168,501 pounds gutted weight and 155,501 pounds July-Dec; reduce bag limit from 10 to 4 and a rec closed season October through May 15. In addition, the NMFS RA will set new regulations based on new stock assessment. -Require de-hooking tools.
Amendment #17A (TBD)	TBD	TBD	-Specify an ACL and an AM for red snapper with management measures to reduce the probability that catches will exceed the stocks' ACL -Specify a rebuilding plan for red snapper -Specify status determination criteria for red snapper -Specify a monitoring program for red snapper
Amendment #17B (TBD)	TBD	TBD	-Specify ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing. -Modify management measures as needed to limit harvest to the ACL or ACT. -Update the framework procedure for specification of total allowable catch.
Notice of Control Date	December 4, 2008	TBD	Establishes a control date for the golden tilefish fishery of the South Atlantic
Notice of Control Date	December 4, 2008	TBD	Establishes control date for black sea bass pot fishery of the South Atlantic
Amendment 18 (TBD)	TBD	TBD	Extend the range of the snapper-grouper FMP north and designate EFH in new areas; limit participation

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			and effort in the golden tilefish fishery; modifications to management of the black sea bass pot fishery; separate snowy grouper quota into regions/states; separate the gag recreational allocation into regions/states; change the golden tilefish fishing year; and improve the accuracy, timing, and quantity of fisheries statistics
Amendment 20 (TBD)	TBD	TBD	
Comprehensive ACL Amendment	TBD	TBD	Establish ABC control rules, establish ABCs, ACTs, and AMs for species not undergoing overfishing; remove some species from South Atlantic FMUs; specify allocations among the commercial, recreational, and for-hire sectors for species not undergoing overfishing; limit the total mortality for federally managed species in the South Atlantic to the ACTs, and address spiny lobster issues.

1.4 Management Objectives

The following are the fishery management plan objectives for the snapper-grouper fishery as specified by the Council. These were last updated in Snapper-Grouper FMP Amendment 8 (June 1996).

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.

2 Alternatives

Section 2.1 outlines alternatives considered by the Council in this amendment and compares 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 Council, the Council's Snapper-Grouper Committee, Snapper-Grouper Advisory Panel, and Scientific and Statistical Committee. Alternatives the Council considered but eliminated from detailed study during the development of this amendment are described in **Appendix A**.

2.1 Description of Alternatives

2.1.1 Action 1: Extend Snapper-Grouper FMU Northward

Alternative 1 (no action). Do not change the current management boundaries of the Snapper-Grouper FMU.

Alternative 2. Extend the management boundaries for all species in the Snapper-Grouper FMU northward to include the Mid-Atlantic Council's jurisdiction (except for black sea bass, golden tilefish, and scup). The South Atlantic Fishery Management Council will specify the MSY, ABC, MSST, OFL, ACL, and ACT for species in the fishery management unit. In addition, the South Atlantic Council will specify the allocation by sectors for each species and/or fishery and by Council area. A portion of the ACL/ACT for each species and/or fishery will be allocated to the northern zone with separate allocation for the Mid-Atlantic area. The Mid-Atlantic Council will specify management measures to limit total mortality to the ACL/ACT specified for their area. The actions specified by the Mid-Atlantic Council will not have to be reviewed and/or approved by the South Atlantic Council. However, NMFS (SERO and/or NERO) must ensure that the actions will keep total mortality at or below the ACL/ACT specified for the Mid-Atlantic Council's area.

Alternative 3. Extend the management boundaries for all species in the Snapper-Grouper FMU northward to include the Mid-Atlantic and New England Council's jurisdiction (except for black sea bass, golden tilefish, and scup). The South Atlantic Fishery Management Council will specify the MSY, ABC, MSST, OFL, ACL, and ACT for species in the fishery management unit. In addition, the South Atlantic Council will specify the allocation by sectors for each species and/or fishery and by Council area. A portion of the ACL/ACT for each species and/or fishery will be allocated to the northern zone with separate allocations for the Mid-Atlantic and New England Council areas. The Mid-Atlantic Council will specify management measures to limit total mortality to the ACL/ACT specified for their area, and the New England Council will specify management measures to limit total mortality to the ACL/ACT specified for their area. The actions specified by the Mid-Atlantic and New England Councils will not have to be

reviewed and/or approved by the South Atlantic Council. However, NMFS (SERO and/or NERO) must ensure that the actions will keep total mortality at or below the ACL/ACT specified for each Council's area.

2.1.2 Comparison of Alternatives

Alternative 1 (No Action) would not extend the snapper grouper FMU northward, and the Council would not track or develop management regulations for snapper grouper species caught north of the Virginia/North Carolina line. Anecdotal information indicates landings of snowy grouper and blueline tilefish are increasing in the Mid-Atlantic region.

Alternative 2 would provide a means by which the Council may recommend management measures for these species even though they are being caught north of the Council's area of jurisdiction. **Alternative 3** would extend the management boundary further north into the Northeast Fishery Management Council's area of jurisdiction. The South Atlantic snapper grouper fishery is a limited access fishery and if the fishermen in northern areas are required to purchase a South Atlantic permit to participate in the fishery, vessel owners will need to obtain a permit two snapper grouper permits. If permits are managed and administered by SERO and/or NERO, the process could have less of an impact to fishermen. Under the first scenario, due to the cost of snapper grouper federal permits and low occurrence of snapper grouper species in the Mid-Atlantic region, the action to extend management boundaries to the north is likely to keep commercial landings at current levels. Furthermore, recreational anglers would have to adhere to bag and size limits for snapper grouper species. Therefore, under both **Alternatives 2 and 3** biological impacts are expected to be beneficial; however, socioeconomic impacts could be greater than those under **Alternative 1 (No Action)**. Under the scenario whereby new permits are distributed into the northern areas by SERO and/or NERO, the socioeconomic impacts could be unchanged from the status quo but, as a result, commercial and recreational effort might increase.

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

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

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

2.1.1.2 Council Conclusions

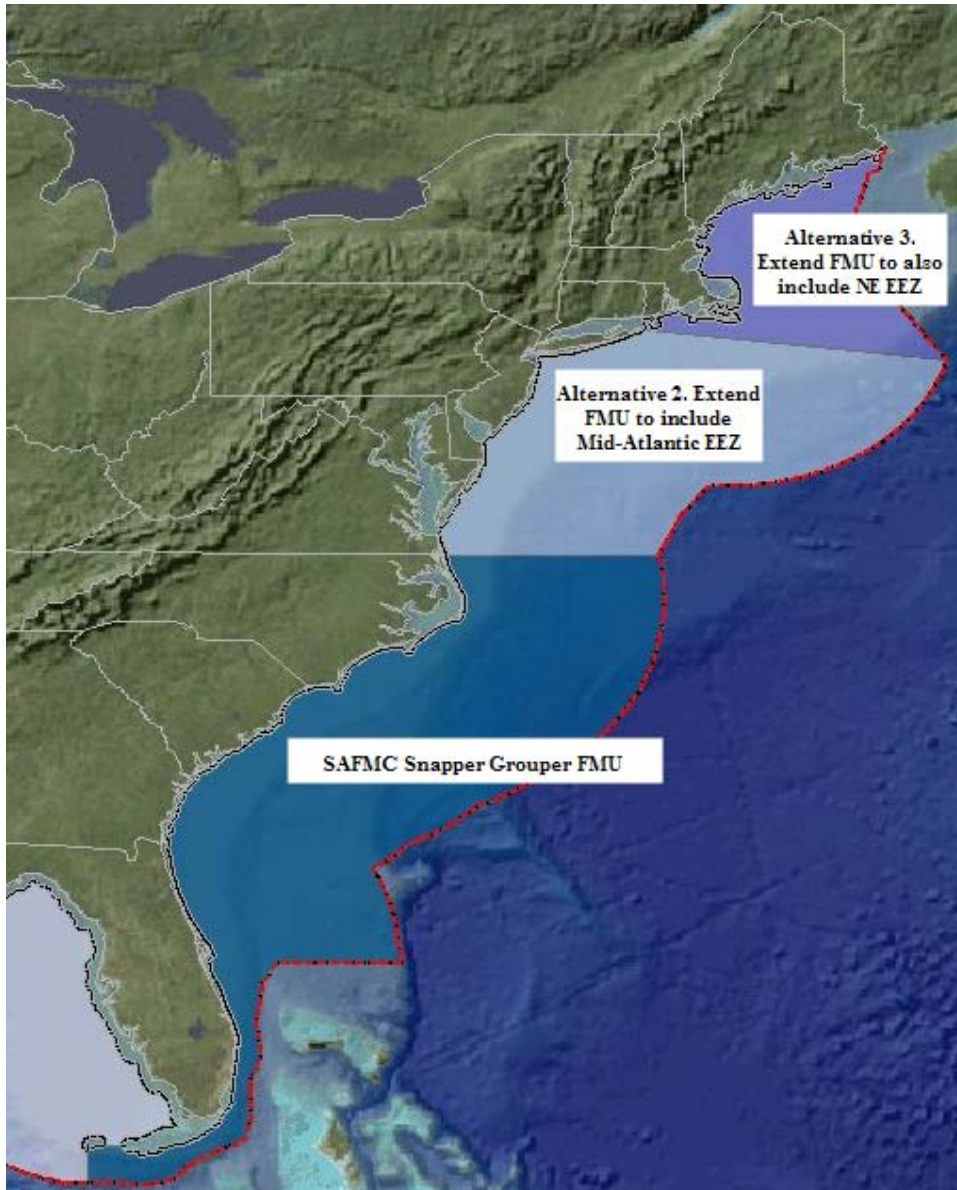


Figure 2-1. FMU alternatives.

2.1.2. Action 2: Limit Participation in the Golden Tilefish Fishery

Alternative 1. No-Action. Do not limit participation and effort in the golden tilefish fishery.

Alternative 2. Limit participation and effort in the golden tilefish fishery through the implementation of a LAP program.

Alternative 3. Distribute golden tilefish gear specific endorsements for snapper-grouper permit holders that qualify under the eligibility requirements stated below. Only snapper-grouper permit holders with a golden tilefish longline endorsement or a golden tilefish hook and line endorsement associated with their snapper-grouper permit will be allowed to possess golden tilefish. The commercial quota would be allocated as 10% to those holding golden tilefish hook and line endorsements and 90% to those holding golden tilefish longline endorsements. Also, change the start date to August 1st. *Logbooks to check catch history and trip tickets to verify.*

Golden Tilefish Hook and Line Endorsement Eligibility Requirements

Sub-Alternative 3A. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1,000 pounds ww (with hook and line gear) when the individual's best three of five years from 2001-2005 are aggregated.

Sub-Alternative 3B. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds ww (with hook and line gear) when the individual's best three of five years from 2001-2005 are aggregated.

Sub-Alternative 3C. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds ww (with hook and line gear) when the individual's landings from 2001-2005 are averaged.

Sub-Alternative 3D. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds ww (with hook and line gear) when the individual's landings from 1999-2007 are averaged.

Sub-Alternative 3E. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1000 pounds ww (with hook and line gear) when the individual's landings from 1999-2007 are averaged.

Golden Tilefish Longline Endorsement Eligibility Requirements

Sub-Alternative 3F. To receive a golden tilefish longline endorsement, the individual must have a total of 2,000 pounds ww golden tilefish caught (with longline gear) between January 2005 and November 2007.

Sub-Alternative 3G. To receive a golden tilefish longline endorsement, the individual must have a total of 5,000 pounds ww golden tilefish caught (with longline gear) between 2005 and 2007.

Sub-Alternative 3H. To receive a golden tilefish longline endorsement, the individual must have an average of 5,000 pounds ww golden tilefish caught (with longline gear) between 2005 and 2007.

Sub-Alternative 3I. To receive a golden tilefish longline endorsement, the individual must have an average of 5,000 pounds ww using best 3 of 5 years golden tilefish caught (with longline gear) between 2003 and 2007.

Sub-Alternative 3J. To receive a golden tilefish longline endorsement, the individual must have an average of 10,000 pounds ww using best 3 of 5 years golden tilefish caught (with longline gear) between 2003 and 2007.

2.1.2.1 Comparison of Alternatives

Alternative 1 (No Action) would maintain the current level of effort in the golden tilefish fishery, and may allow overcapitalization of the fishery in the future by doing so. **Alternatives 2** through **3c** would all reduce or maintain the current level of effort and/or prevent overcapitalization in the fishery by limiting the number of fishery participants at any one time. The biological and socioeconomic effects of **Alternative 2**, and **Alternative 3** would be similar in that they would both likely create a catch level requirement as a qualifying criterion to determine the initial number of fishery participants. The resulting biological and socioeconomic impacts would simply be a function of the catch requirement. The higher the catch requirement, the greater the biological and socioeconomic impact would be. Therefore, **Alternative 3a.** would be more biologically beneficial than **Alternative 3b**, and **Alternative 3a.** would incur greater negative socioeconomic impacts than **Alternative 3b** since a greater portion of the current golden tilefish fishermen would be excluded from the hook and line segment of the fishery. **Alternative 3c.** would distribute about 10 longline endorsements. Based on a 90 percent allocation of the commercial ACT for golden tilefish (249,639 pounds gw), catch in this sector would be in line with the total landings by longline vessels in 2005. Additional alternatives (**Alternatives 3d-3j**) have been added that will be analyzed when data is made available to do so.

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

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

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

2.1.2.2 Council Conclusions

2.1.3 Action 3: Modifications to Management of the Black Sea Bass Pot Fishery

Alternative 1 (no action). Do not annually limit the number of black sea bass pots deployed or pot tags issued to holders of Federal snapper-grouper vessel 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 NMFS. Limit the black sea bass pot tags annually to 100 per vessel. NMFS will issue new identification tags each fishing year that will replace the tags from the previous fishing 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 NMFS. Limit the black sea bass pot tags annually to 50 per vessel. Require that new identification tags be issued each fishing 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 NMFS. Limit the black sea bass pot tags annually to 25 per vessel. Require that new identification tags be issued each fishing year.

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 NMFS. Limit the black sea bass pot tags annually to 100 per vessel in year 1, 50 in year 2, and 25 in year 3 and onwards until modified. Require that new identification tags be issued each fishing year.

Alternative 6. 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 NMFS. Limit the black sea bass pot tags annually to 100 per vessel in year 1 and 50 in year 2 and onwards until modified. NMFS will issue new identification tags each fishing year that will replace the tags from the previous fishing year.

Alternative 7. Black sea bass pots must be brought back to shore at the conclusion of each trip.

Alternative 8. Allow fishermen to leave pots in the water for no more than 72 hours.

2.1.3.1 Comparison of Alternatives

Alternative 2 is the least conservative of all the alternatives in the long-term, and would therefore be the least biologically beneficial. Short-term biological and socioeconomic impacts of **Alternative 2** would be equal to **Alternatives 5** and **6** in year one; after which, **Alternatives 5** and **6** become more biologically beneficial than **Alternative 2** since they would reduce the number of traps allowed on any one vessel in successive years. Biological and socioeconomic impacts of **Alternative 3** would be moderate when compared to **Alternatives 2, 4, 5, and 6**. **Alternative 3** would be more biologically beneficial than **Alternative 2**, but less biologically beneficial than **Alternatives 4 and 5**. **Alternative 3** would have the same biological and socioeconomic impact as **Alternative 6** after the first year of implementation. **Alternative 4** would be the most biologically conservative and socioeconomically negative alternative in the short-term, and would have the same impacts as **Alternative 5** after year 2 of implementation. **Alternatives 5 and 6** only differ in their long-term impacts since **Alternative 5** would reduce the number of tags issued to 50 after the first year of implementation and reduce the number of tags again to 25 after the second year of implementation. **Alternative 6** would only reduce the number of tags to 50 after the first year of implementation, and therefore is the least biologically beneficial when compared to **Alternative 5**, but would also incur slightly less negative socioeconomic impacts than **Alternative 5**.

Alternatives 7 and 8 are not related to reducing or controlling fishing effort, but are aimed at reducing bycatch in the fishery. Each would limit the soak time of black sea bass pots and would therefore reduce bycatch associated with trap fishing.

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

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

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

2.1.3.2 Council Conclusions

2.1.4 Action 4: Separate Snowy Grouper Commercial Quota into Regions/States

Alternative 1. (No-Action). Do not separate snowy grouper commercial quota into regions/states.

Alternative 2. Separate snowy grouper commercial quota into regions where Florida and Georgia encompass one region and South Carolina and North Carolina encompass another region.

Alternative 3. Separate snowy grouper commercial quota by state.

2.1.4.1 Comparison of Alternatives

Alternative 1 (No Action) would allow the current seasonal advantage for Georgia and Florida fishermen to persist. **Alternatives 2 and 3** would both remedy this situation, and allow fishermen in North Carolina and South Carolina equal opportunity to catch snowy grouper until the regional or stat quota is met. Regional quotas may be slightly easier to track than state quotas because tracking becomes markedly more difficult the smaller each quota is. Having said this, there is still concern regarding the ability to accurately

track such small quotas even on the regional level. Biologically, impacts of **Alternatives 2 and 3** would be about the same and neither are likely to negatively affect the population. The socioeconomic benefits are expected to be small if any because of the low number of fishermen actually targeting snowy grouper.

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

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

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

2.1.4.2 Council Conclusions

2.1.5 Action 5: Separate gag recreational allocation into regions/states

Alternative 1. No-Action. Do not separate gag recreational allocation into regions/states.

Alternative 2. Separate gag recreational allocation into regions where Florida and Georgia encompass one region and South Carolina and North Carolina encompass another region.

Alternative 3. Separate gag recreational allocation into states.

2.1.5.1 Comparison of Alternatives

Alternative 1 (No Action) would allow the current seasonal advantage for Georgia and Florida fishermen to persist. **Alternatives 2 and 3** would both remedy this situation, and allow recreational fishermen in North Carolina and South Carolina equal opportunity to catch snowy grouper until the regional or state allocation is met. Regional allocations may be slightly easier to track than state quotas because tracking becomes markedly more

difficult the smaller each quota is. Having said this, there is still concern regarding the ability to accurately track such small allocation even on the regional level. Recreational landings are tracked using MRFSS data, which comes from a survey-based estimate. MRFSS data in any application contain a high degree of uncertainty, therefore dividing that data into smaller components for the purposes of tracking recreational landings would increase the level of uncertainty. Due to the increased uncertainty associated with dividing the allocation by region or state, the biological benefits of **Alternatives 2 and 3** would be considered to be less than **Alternative 1 (No Action)**. Measurable socioeconomic benefits are expected to be small if any. However, regional or state management may help some fishermen feel there is an improvement in equity in distribution of allocation.

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

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

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

2.1.5.2 Council Conclusions

2.1.6 Action 6: Adjust Golden Tilefish Fishing Year

Alternative 1 (No Action). Retain existing January 1st start date for the golden tilefish fishing year.

Alternative 2. Change the start of the golden tilefish fishing year from January 1st to September 1st.

Sub-alternative 2A. Remove the 300 lb. trip limit when 75% of the quota is taken.

Alternative 3. Change the start of the golden tilefish fishing year from January 1st to August 1st.

Sub-alternative 3A. Remove the 300 lb. trip limit when 75% of the quota is taken.

Alternative 4. Change the start of the golden tilefish fishing year from January 1st to May 1st.

Sub-alternative 2A. Remove the 300 lb. trip limit when 75% of the quota is taken.

Alternative 5. Close the longline fishery when the 300 pound trip limit for golden tilefish goes into effect.

2.1.6.1 Comparison of Alternatives

Alternative 1 (No Action) would not change the current start date of the golden tilefish fishing year from January 1st. **Alternatives 2-4** would change the start date of the fishing golden tilefish fishing year. Doing so would address concerns raised during public testimony for Snapper Grouper Amendment 13C in which several Florida-based hook and line fishermen expressed concern that an early closure could prevent them from harvesting golden tilefish from September through November, which is the time they have historically participated in the fishery. **Alternatives 2-4** would allow a large number of fishermen/vessels to target golden tilefish after other quotas have potentially been met and this could result in a discard/release mortality of speckled hind, warsaw grouper, and snowy grouper exceeding the ACTs. **Alternative 2** would begin the fishing year in September and would allow the maximum number of golden tilefish to be caught with commercial hook and line gear, therefore, Alternative 2 is also the least biologically beneficial when compared to **Alternatives 3 and 4**, which would begin the fishing year in August and May respectively. The earlier the fishing year begins the less golden tilefish would be caught by the hook and line sector because the chance of meeting the quota earlier in the fall would increase proportionately with earlier fishing year start dates.

The latest option for the fishing year start date (**Alternative 2**) would be the most socioeconomically beneficial alternative for those fishermen using hook and line gear in the southern portion of the South Atlantic region. **Sub-alternatives 2a. – 4a.** would also be socioeconomically beneficial since they would remove the 300 lb. trip limit when 75% of the quota is taken. This will ensure that commercial golden tilefish fishermen would not risk initiating trips that might not be profitable if the 300 lb. trip limit were implemented while they are out on the water. **Alternative 5** would close the longline fishery when the 300 lb trip limit goes into effect, effectively replacing the trip limit step down system for the longline fishery with a closure and allowing the hook and line sector to continue fishing under the 300 lb trip limit. This would benefit the hook and line sector since they would not be competing against the longline sector in catching the quota

at the end of the fishing year. The biological impacts of **Alternative 5** would likely be neutral; however the, socioeconomic impacts would be beneficial for the hook and line sector and negative for the commercial longline sector.

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

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

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

2.1.6.2 Council Conclusion

2.1.7 Action 7: Improvements to Data Reporting

2.1.7.1 Commercial

Note: The Council may choose more than one alternative as their preferred.

Alternative 1 (No Action). Retain existing data reporting systems for the commercial sector. Refer to Table 1-3 for a list of current data reporting programs.

Alternative 2. Require federally permitted snapper-grouper dealers, *if selected*, to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 3. Require all permitted snapper-grouper dealers to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 4. Require all vessels with a Federal snapper-grouper Commercial Permit to have an electronic logbook tied to the vessel's GPS onboard the vessel

Alternative 5. Require vessels with a Federal snapper-Grouper Commercial Permit, *if selected*, to have a NMFS-approved observer onboard while fishing for snapper-grouper in the South Atlantic EEZ.

Alternative 6. Provide the option for fishermen to submit their logbook entries electronically via an electronic version of the logbook made available online.

2.1.7.1.1 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. Administratively, however, each of the alternatives to improve fisheries statistics would incur negative impacts to greater or lesser degrees. **Alternatives 2 and 3** differ in the level of dealer participation. **Alternative 2** would require permitted dealers to report electronically *if selected*, and **Alternative 3** would require all permitted dealers to report electronically. The administrative burden would be less under **Alternative 2** since only a subset of all permitted snapper grouper dealers would be required to report electronically. **Alternative 4** would incur a level of administrative impact equal to that under **Alternative 3** since all vessels with snapper grouper federal permits would be required to have an electronic logbook tied to the vessel's GPS. **Alternative 5** could be the most costly data gathering method of all the alternatives considered dependant upon the number of vessels selected to carry observers. **Alternative 6** is likely the least costly alternative. 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.

Table 2-7. Summary of effects of Action 7.1 alternatives under consideration.

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

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

2.1.7.1.2 Council Conclusion

2.1.7.2 For-Hire

Alternative 1 (No Action). Retain existing data reporting systems for the for-hire sector. Refer to Table 1-3 for a complete list of current data reporting requirements.

Alternative 2. Require all vessels with a Federal For-Hire Permit to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 3. Require *selected* vessels with a Federal For-Hire Permit to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 4. 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*.

2.1.7.2.1 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 do differ in the amount and quality of data collected from the for-hire sector. Administratively, each of the alternatives to improve fisheries statistics in the for-hire sector would incur negative impacts to greater or lesser degrees relative to one another. **Alternative 2** would require all federally permitted for-hire snapper grouper vessels to report electronically; whereas, **Alternative 3** would only require a random subset of federally permitted for-hire vessels to report electronically. The amount of data gathered under Alternative 2 would be greater than under **Alternative 3**; however, it may not be necessary to require *every* vessel report electronically if the subset of sector permittees is large enough to yield statistically significant data. Therefore, **Alternative 2** may incur greater economic and administrative hardship than is necessary to improve the current data collection regime. **Alternative 4** 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 **Alternatives 2** or **3**, and would likely not contribute greatly to improving the current data collection program. **Alternative 4** would be most effective if combined with **Alternatives 2** or **3**.

Table 2-8. Summary of effects of Action 7.2 alternatives under consideration.

	Alternatives

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

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

2.1.7.2.2 Council Conclusion

2.1.7.3 Private Recreational

Alternative 1 (no action). Retain existing data reporting systems for the private recreational sector. Refer to Table 1-3 for a complete list of current data reporting requirements.

Alternative 2. Implement a voluntary logbook for discard characteristics (e.g., size and reason for discarding) for vessels with a state recreational fishing license.

2.1.7.3.1 Comparison of Alternatives

Alternative 1 (No Action) would not add to or improve the recreational data collection as it exists in its current condition. Data uncertainties and gaps would persist, and MRFSS would remain the main source of recreational landings data. **Alternative 2** would implement a voluntary logbook for discard characteristics which would provide some data beyond what is currently collected from the recreational sector. Because the program would be voluntary and a fishery dependant source of information, it is difficult to predict the level of participation or quality of the information recorded in the logbooks.

Table 2-9 Summary of effects of Action 7.3 alternatives under consideration.

	Alternatives

	Alternative 1. (No Action).	Alternative 2. Preferred.
Biological	-	+
Economic	+	-+
Social	-	+
Administrative	+	-

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

2.1.7.3.2 Council Conclusion

2.1.8 Action 8: Designate EFH and EFH-HAPCs for Snapper-Grouper in Extended Jurisdictional Areas Under Action 1.

Alternative 1. No-Action. Do not designate snapper-grouper EFH EFH-HAPCs in new jurisdictional areas encompassed in Action 1.

Alternative 2. Designate EFH and EFH-HAPCs for snapper-grouper in the northern areas encompassed in Action 1.

Alternative 3. Track the MAFMC's EFH and EFH-HAPC designations.

2.1.8.1 Comparison of Alternatives

If the Council chooses **Alternative 2 or 3** under **Action 1.** , then Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPCs) would need to be specified for the areas north of North Carolina. Members of the IPT responsible for habitat issues have discussed this and agreed that it would be most efficient to consolidate the EFH review, update, and revision under the Comprehensive Ecosystem-Based Amendment II. This maximizes the efficiency of refining the designations as well as looking comprehensively at overlaps among species, gaps that need to be close, etc. Scoping for the CE-BA II will take place in January/February 2009 and completion is anticipated by the end of 2009. Therefore this works well with the timing for Snapper-Grouper Amendment 18 with a target implementation date of January 1, 2010.

Note: This needs to be discussed at the Council level. It might not make sense to have the EFH action in a separate document.

Table 2-11 Summary of effects of Action 9 alternatives under consideration.

	Alternatives				
	Alternative 1. (No Action).	Alternative 2. Preferred.	Alternative 3.	Alternative 4	Alternative 5
Biological					
Economic					
Social					
Administrative					

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

2.1.8.2 Council Conclusions

3 Affected Environment

3.1 Habitat

3.1.1 Inshore/Estuarine Habitat

Many deepwater snapper-grouper species utilize both pelagic and benthic habitats during several stages of their life histories; larval stages of these species live in the water column and feed on plankton. Most juveniles and adults are demersal and associate with hard structures on the continental shelf that have moderate to high relief (e.g., coral reef systems and artificial reef structures, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings). Juvenile stages of some snapper-grouper species also utilize inshore seagrass beds, mangrove estuaries, lagoons, oyster reefs, and embayment systems. In many species, various combinations of these habitats may be utilized during diurnal feeding migrations or seasonal shifts in cross-shelf distributions. More detail on these habitat types is found in Sections 3.2.1 and 3.2.2 of the Council's Habitat Plan (SAFMC 1998e).

3.1.2 Offshore Habitat

Predominant snapper-grouper offshore fishing areas are located in live bottom and shelf-edge habitats, where water temperatures range from 11° to 27° C (52° to 81° F) due to the proximity of the Gulf Stream, with lower shelf habitat temperatures varying from 11° to 14° C (52° to 57° F). Water depths range from 16 to 27 meters (54 to 90 feet) or greater for live-bottom habitats, 55 to 110 meters (180 to 360 feet) for the shelf-edge habitat, and from 110 to 183 meters (360 to 600 feet) for lower-shelf habitat areas.

The exact extent and distribution of productive snapper-grouper habitat on the continental shelf north of Cape Canaveral is unknown. Current data suggest from 3 to 30 percent of the shelf is suitable habitat for these species. These live-bottom habitats may include low relief areas, supporting sparse to moderate growth of sessile invertebrates, moderate relief reefs from 0.5 to 2 meters (1.6 to 6.6 feet), or high relief ridges at or near the shelf break consisting of outcrops of rock that are heavily encrusted with sessile invertebrates such as sponges and sea fan species. Live-bottom habitat is scattered irregularly over most of the shelf north of Cape Canaveral, Florida, but is most abundant offshore from northeastern Florida. South of Cape Canaveral, the continental shelf narrows from 56 to 16 kilometers (35 to 10 miles) wide, thence reducing off the southeast coast of Florida and the Florida Keys. The lack of a large shelf area, presence of extensive, rugged living fossil coral reefs, and dominance of a tropical Caribbean fauna are distinctive benthic characteristics of this area.

Rock outcroppings occur throughout the continental shelf from Cape Hatteras, North Carolina to Key West, Florida (MacIntyre and Milliman 1970; Miller and Richards 1979; Parker *et al.* 1983), which are principally composed of limestone and carbonate sandstone

(Newton *et al.* 1971), and exhibit vertical relief ranging from less than 0.5 to over 10 meters (33 feet). Ledge systems formed by rock outcrops and piles of irregularly sized boulders are also common. Parker *et al.* (1983) estimated that 24% (9,443 km²) of the area between the 27 and 101 meters (89 and 331 feet) isobaths from Cape Hatteras, NC to Cape Canaveral, FL is reef habitat. Although the benthic communities found in water depths between 100 and 300 meters (328 and 984 feet) from Cape Hatteras, NC to Key West, FL is relatively small compared to the whole shelf, this area, based upon landing information of fishers, constitutes prime reef fish habitat and probably significantly contributes to the total amount of reef habitat in this region.

Man-made artificial reef structures are also utilized to attract fish and increase fish harvests; however, research on man-made reefs is limited and opinions differ as to whether or not these structures promote an increase of ecological biomass or merely concentrate fishes by attracting them from nearby, natural un-vegetated areas of little or no relief.

The distribution of coral and live hard bottom habitat as presented in the SEAMAP Bottom Mapping Project is a proxy for the distribution of the species within the snapper-grouper complex. The method used to determine hard bottom habitat relied on the identification of reef obligate species including members of the snapper-grouper complex. The Florida Fish and Wildlife Research Institute (FWRI), using the best available information on the distribution of hard bottom habitat in the south Atlantic region, prepared ArcView maps for the four-state project. These maps, which consolidate known distribution of coral, hard/live bottom, and artificial reefs as hard bottom, are included in Appendix E of the Habitat Plan (SAFMC 1998e). These maps are also available on the Internet at the Council's following Internet Mapping System website: http://ocean.floridamarine.org/efh_coral/ims/viewer.htm.

The South Carolina Department of Natural Resources, NOAA/Biogeographic Characterization Branch, and the South Atlantic Fishery Management Council cooperatively generated additional information on managed species' use of offshore fish habitat. Plots of the spatial distribution of offshore species were generated from the Marine Resources Monitoring, Assessment, and Prediction Program (MARMAP) data (Figures 35-41) in the Habitat Plan (SAFMC 1998e). The plots should be considered as point confirmation of the presence of each species within the scope of the sampling program. These plots, in combination with the hard bottom habitat distributions presented in Appendix E of the Habitat Plan (SAFMC 1998e), can be employed as proxies for offshore snapper-grouper complex distributions in the south Atlantic region. Maps of the distribution of snapper-grouper species by gear type based on MARMAP data can be generated through the Council's Internet Mapping System at the following web address: http://ocean.floridamarine.org/efh_coral/ims/viewer.htm.

3.1.3 Essential Fish Habitat

Essential fish habitat (EFH) is defined in the Magnuson-Stevens Fishery Conservation and Management 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 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 meters (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.

3.1.3.1 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 Council-designated Artificial Reef Special Management Zones (SMZs). Areas that meet the criteria for designating essential fish habitat-habitat areas of particular concern include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

In addition to protecting habitat from fishing related degradation through FMP regulations, the Council, in cooperation with NOAA Fisheries, actively comments on non-fishing projects or policies that may impact essential fish habitat. The 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 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 (Appendix C of Habitat Plan; SAFMC 1998e).

3.2 Biological/Ecological Environment

3.2.1 Species Most Impacted By This FMP Amendment

3.2.1.1 Gag, *Mycteroperca microlepis*

Gag occur in the Western Atlantic from North Carolina to the Yucatan Peninsula, and throughout the Gulf of Mexico. Juveniles are sometimes observed as far north as Massachusetts (Heemstra and Randall 1993). Gag commonly occur at depths of 39-152 m (131-498 ft) (Heemstra and Randall 1993) and prefer inshore-reef and shelf-break habitats (Hood and Schlieder 1992). Bullock and Smith (1991) indicated gag probably do not move seasonally between reefs in the Gulf of Mexico, but show a gradual shift toward deeper water with age. McGovern *et al.* (2005) reported extensive movement of gag along the Southeast United States. In a tagging study, 23% of the 435 recaptured gag moved distances greater than 185 km (100 nautical miles). Most of these individuals were tagged off South Carolina and were recaptured off Georgia, Florida, and in the Gulf of Mexico (McGovern *et al.* 2005).

Gag are probably estuarine dependent (Keener *et al.* 1988; Ross and Moser 1995; Koenig and Coleman 1998; Strelcheck *et al.* 2003). Juveniles (age 0) occur in shallow grass beds along Florida's east coast during the late spring and summer (Bullock and Smith 1991). Sea grass is also an important nursery habitat for juvenile gag in North Carolina (Ross and Moser 1995). Post-larval gag enter South Carolina estuaries when they are 13 mm (0.5 inches) TL and 40 days old during April and May each year (Keener *et al.* 1988), and utilize oyster shell rubble as nursery habitat. Juveniles remain in estuarine waters throughout the summer and move offshore as water temperatures cool during September and October. Adults are often seen in shallow water 5-15 m (16-49 ft) above the reef (Bullock and Smith 1991) and as far as 40-70 km (22-38 nautical miles) offshore.

Huntsman *et al.* (1999) indicated gag are vulnerable to overfishing since they are long-lived, late to mature, change sex, and aggregate to spawn. The estimated natural mortality rate is 0.14 (SEDAR 10 2007). Maximum reported size for gag is 145 cm (57.5 inches) TL and 36.5 kg (81 pounds) (Heemstra and Randall 1993), and maximum reported age is 26 years (Harris and Collins 2000). Gag is a sequential hermaphrodite,

changing sex from female to male with increased size and age (Coleman *et al.* 1996; McGovern *et al.* 1998; Coleman *et al.* 2000). All individuals less than 87.5 cm (34.7 inches) TL are females. At 105.0 cm (41.6 inches) TL, 50% of fishes are males. Almost all gag are males at sizes greater than 120.0 cm (47.5 inches) TL (McGovern *et al.* 1998).

Along the southeastern United States (1994-1995), size at first maturity is 50.8 cm (20.2 inches) TL, and 50% of gag females are sexually mature at 62.2 cm (24.7 inches) (McGovern *et al.* 1998). According to Harris and Collins (2000), age-at-first-maturity is 2 years, and 50% of gag are mature at 3 years. For data collected during 1978-1982 off the southeastern United States, McGovern *et al.* (1998) reported the smallest mature females were 58.0 cm (22.9 inches) TL and 3 years old. Hood and Schlieder (1992) indicated most females reach sexual maturity at ages 5-7 in the Gulf of Mexico. Off the southeastern United States, gag spawn from December through May, with a peak in March and April (McGovern *et al.* 1998). Duration of planktonic larvae is about 42 days (Keener *et al.* 1988; Koenig and Coleman 1998; Lindeman *et al.* 2000). McGovern *et al.* (1998) reported the percentage of male gag landed by commercial fishermen decreased from 20% during 1979-1981 to 6% during 1995-1996. This coincided with a decrease in the mean length of fish landed. A similar decrease in the percentage of males was reported in the Gulf of Mexico (Hood and Schleider 1992; Coleman *et al.* 1996).

Adults are sometimes solitary, and can occur in groups of 5 to 50 individuals. They feed primarily on fishes, crabs, shrimp, and cephalopods (Heemstra and Randall 1993), and often forage in small groups far from the reef ledge (Bullock and Smith 1991). Juveniles feed primarily on crustaceans, and begin to consume fishes when they reach about 25 mm (1 inch) in length (Bullock and Smith 1991; Mullaney 1994).

3.2.1.2 Snowy Grouper, *Epinephelus niveatus*

Snowy grouper occur in the Eastern Pacific and the Western Atlantic from Massachusetts to southeastern Brazil, including the northern Gulf of Mexico (Robins and Ray 1986). It is found at depths of 30-525 m (98-1,722 ft). Adults occur offshore over rocky bottom habitat. Juveniles are often observed inshore and occasionally in estuaries (Heemstra and Randall 1993).

The snowy grouper is a protogynous species. The smallest, youngest male examined by Wyanski *et al.* (2000) was 72.7 cm (28.8 in) TL and age 8. The median size and age of snowy grouper was 91.9 cm (34.5 in) and age 16. The largest specimen observed was 122 cm (48 in) TL and 30 kg (66 lbs), and 27 years old (Heemstra and Randall 1993). The maximum age reported by Wyanski *et al.* (2000) is 29 years for fish collected off of North Carolina and South Carolina. Radiocarbon techniques indicate that snow grouper may live for as long as 40 years (Harris, South Carolina Department of Natural Resources, personal communication). Wyanski *et al.* (2000) reported that 50% of the females are mature at 54.1 cm (21.3 in) TL and 5 years of age. The smallest mature female was 46.9 cm (18.5 in) TL, and the largest immature female was 57.5 cm (22.6 in) TL.

Females in spawning condition have been captured off western Florida during May, June, and August (Bullock and Smith 1991). In the Florida Keys, ripe individuals have been observed from April to July (Moore and Labinsky 1984). Spawning seasons reported by other researchers are as follows: South Atlantic (north of Cape Canaveral), April through September (Wyanski *et al.* 2000) and April through July (Parker and Mays 1998); and South Atlantic (south of Cape Canaveral), May through July (Manooch 1984). Wyanski *et al.* (2000) reported that snowy grouper spawn at depths from 176 to 232 m (577 to 761 ft) off South Carolina. Adults feed on fishes, gastropods, cephalopods, and crustaceans (Heemstra and Randall 1993).

3.2.1.3 Golden Tilefish, *Lopholatilus chamaeleonticeps*

Golden tilefish are distributed throughout the Western Atlantic, occurring as far north as Nova Scotia, to southern Florida, and in the eastern Gulf of Mexico (Robins and Ray 1986) (Table 3-1). According to Dooley (1978), golden tilefish occurs at depths of 80-540 meters (263-1,772 feet). Robins and Ray (1986) report a depth range of 82-275 meters (270-900 feet) for golden tilefish. It is most commonly found at about 200 meters (656 feet), usually over mud or sand bottom but, occasionally, over rough bottom (Dooley 1978).

Maximum reported size is 125 centimeters (50”) total length and 30 kilograms (66 lbs) (Dooley 1978; Robins and Ray 1986). Maximum reported age is 40 years (Harris *et al.* 2001). Radiocarbon aging indicate golden tilefish may live for at least 50 years (Harris, South Carolina Department of Natural Resources, personal communication). A recent SEDAR assessment estimate natural mortality (M) at 0.08 (SEDAR 4 2004). Golden tilefish spawn off the southeast coast of the U.S. from March through late July, with a peak in April (Table 3-1; Harris *et al.* 2001). Grimes *et al.* (1988) indicate peak spawning occurs from May through September in waters north of Cape Canaveral. Golden tilefish primarily prey upon shrimp and crabs, but also eat fishes, squid, bivalves, and holothurians (Dooley 1978).

3.2.1.4 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) (Table 3-1). 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; Froese and Pauly 2003). Natural mortality is estimated to be 0.30 (SEDAR 2 2003b). 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 gag, black sea bass, golden tilefish, and snowy grouper has been recently 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 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 Gag assessment and stock status

SEDAR assessment

The stock of gag off the United States South Atlantic was assessed during a SEDAR assessment workshop, held at the Wyndham Grand Bay Hotel, Miami, Florida, on May 1–5, 2006. The workshop's objectives were to complete the SEDAR 10 benchmark assessment of gag and to conduct stock projections. Participants in the benchmark assessment included state, federal, and university scientists, as well as Council members and staff, and various observers. All decisions regarding stock assessment methods and acceptable data were made by consensus (SEDAR 10 2007).

Available data on the stock included abundance indices, recorded landings, and samples of annual size compositions and age compositions from fishery-dependent sources. Three fishery-dependent abundance indices were developed by the data workshop: one from the NOAA Fisheries Service headboat survey, one from the commercial logbook program, and one from the MRFSS survey. There were no usable fishery-independent

abundance data for this stock of gag. Landings data were available from all recreational and commercial fisheries. The assessment included data through 2004.

A forward projecting statistical model of catch at age was used as the primary assessment model. In addition, an age-aggregated production model was used to investigate results under a different set of model assumptions. The assessment workshop developed two base runs: one assuming a time-varying catch-ability and one assuming constant catch-ability for the fishery dependent indices. Each base run of the catch-at-age model was used for estimation of benchmarks and stock status.

Stock projections were evaluated under five scenarios starting in 2008. Each scenario applied the current fishing mortality rate (F) in years 2005–2007. Starting in 2008, the five projection scenarios included: (1) current F, (2) F_{MSY} , (3) 85% of F_{MSY} , (4) 75% of F_{MSY} , and (5) 65% of F_{MSY} .

Status

The gag stock in the Atlantic is undergoing **overfishing** as of 2004 (last year of data in the stock assessment). This means fish are being removed more quickly than the stock can replace them such that the maximum sustainable yield (MSY) cannot be achieved. The Council compares the current fishing mortality rate (F) to the level of fishing mortality that would result in overfishing (maximum fishing mortality threshold or MFMT) and if the current F is greater than the MFMT, overfishing is occurring. For gag the most recent estimate of the fishing mortality rate (F) is from 2004 and was = 0.310. The Council is using the fishing mortality rate that would produce the maximum sustainable yield ($F_{MSY} = 0.237$) as the maximum fishing mortality threshold. Comparing these two numbers:

- $F_{2004}/MFMT = 0.310/0.237 = 1.309$

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

The gag stock in the Atlantic was not **overfished** as of the start of 2005. This means that the spawning stock biomass (pounds of spawning fish in the water) has not been reduced below the level that could produce the maximum sustainable yield. The Council compares the current spawning stock biomass (SSB) to the level of spawning stock biomass that could be rebuilt to the level to produce the MSY in 10 years. This is referred to as the minimum spawning stock biomass or MSST. For gag, the estimated level of spawning stock biomass in 2005 was 7,470,000 pounds gutted weight (gw). The Minimum stock size threshold (MSST) = 6,816,000 pounds gw. Comparing these two numbers:

- $SSB_{2005}/MSST = 7,470,000/6,816,000 = 1.096$

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

3.2.2.2 Black sea bass assessment and stock status

SEDAR assessment

Black Sea Bass was assessed at the second SEDAR (SEDAR 2 2003b). 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 2003b).

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 than 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 2003b).

Stock Status

The black sea bass stock in the Atlantic is undergoing **overfishing** and is **overfished** as of 2004 (last year of data in the stock assessment update). For black sea bass the most recent estimate of the fishing mortality rate is from 2003 and was $F_{2003} = 2.64$ and $F_{MSY} = 0.429$ as the maximum fishing mortality threshold. Comparing these two numbers:

- $F_{2003}/F_{MSY} = 2.64/0.429 = 6.15$

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 **overfished**. For black sea bass, the estimated level of spawning stock biomass in 2005 was 4,099,884 pounds whole weight. The Minimum stock size threshold (MSST) = 10,511,633 pounds whole weight. Comparing these two numbers:

- $SSB_{2005}/MSST = 4,099,884/10,511,633 = 0.39$

If the ratio is less than 1, then the stock is overfished.

3.2.2.3 Snowy grouper assessment and stock status

SEDAR assessment

The data workshop convened in Charleston, SC during the week of November 3, 2003 to examine data from eight deep-water species for assessment purposes (SEDAR 4 2004). The group determined that data were adequate to conduct assessments on snowy grouper and tilefish. Four indices were available for snowy grouper including a logbook index, headboat index, MARMAP trap index, and MARMAP short longline index. The assessment workshop chose not to use the logbook index for snowy grouper since this species forms aggregations and has been known to be taken in large numbers over wrecks. Commercial and recreational landings as well as life history information from fishery-independent and fishery-dependent sources were used in the assessment.

Estimates were made of several time series of management interest. These include annual exploitation rate, fishing mortality rate, total landings, number of recruits, mature biomass, and total biomass. Results show a population beginning a decline as early as 1966, reaching its lowest levels in the most recent years. Increasing exploitation of snowy grouper begins at about the same time as the population decline, which coincides with an increase in the reported landings of snowy grouper.

Stock Status

The snowy grouper stock in the Atlantic is undergoing **overfishing** and is **overfished** as of 2004 (last year of data in the stock assessment). For snowy grouper the most recent estimate of the fishing mortality rate is from 2002 and was $F_{2002} = 0.154$ and $F_{MSY} = 0.05$ as the maximum fishing mortality threshold. Comparing these two numbers:

- $F_{2002}/F_{MSY} = 0.154/0.05 = 3.08$

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

The snowy grouper stock in the Atlantic is **overfished**. For snowy grouper, the estimated level of spawning stock biomass in 2003 was 869,503 pounds whole weight. The Minimum stock size threshold (MSST) = 3,498,735 pounds whole weight. Comparing these two numbers:

- $SSB_{2003}/MSST = 869,503/3,498,735 = 0.25$

If the ratio is less than 1, then the stock is overfished. In the absence of fishing it was determined that it would take 13 years to rebuild the stock to B_{MSY} . The maximum recommended rebuilding time is 34 years based on the formula: T_{MIN} (13 years) + one generation time (21 years).

The estimated stock status for snowy grouper in 2002 is quite low, median of 18% for $SSB(2002)/SSB_{MSY}$. This corresponds to a stock status in 2002 relative to the virgin stock size [$SSB(2002)/SSB_{virgin}$] of about 5%. The input data for the assessment model do not include a consistent abundance index that covers the whole time period of the model. The headboat CPUE and length composition data extends back to 1972, but changes in the fishery make interpretation of the observed trends in this index difficult. The headboat fishery moved inshore during the data period and consequently selectivity in the fishery changed. In the age-structured modeling, this was accommodated by dividing the headboat index into three time periods: with constant selectivity in 1972–1976, a possibly different constant selectivity in 1992–2002, and selectivity varying

between them in 1977–1991. The other abundance indices do not start until 1990 or later. Therefore, the model must rely on data sources other than abundance indices for determining stock status.

Other data that provide information on stock status are the average weight and length from the fisheries landings as well as the observed age and length composition data. The 2002 average weights and lengths from the commercial fisheries suggest the population is at very low levels. The average weight and length in 2002 from the handline fishery suggests the population is near 11% and 3% of SSB_{MSY} , respectively. The average weight and length in 2002 from the longline fishery suggests the population is near 44% and 28% of SSB_{MSY} , respectively. The length composition data from the most recent years (2000–2002) also suggests a depleted population of snowy grouper. The observed length distributions are skewed toward smaller fish compared to an equilibrium, virgin state length composition.

3.2.2.4 Golden tilefish assessment and stock status

There two indices of abundance available for the golden tilefish stock assessment. A fishery-independent index was developed from MARMAP horizontal longlines (SEDAR 4 2004). A fishery-dependent index was developed from commercial logbook data during the data workshop. Commercial and recreational landings as well as life history information from fishery-independent and fishery-dependent sources were used in the assessment. A statistical catch-at-age model and a production model were used to assess the golden tilefish population.

Exploitation status in 2002 was analyzed relative to the maximum fishing mortality threshold (MFMT; limit reference point in F). The MFMT was assumed equal to EMS_Y or F_{MSY} , depending on the measure of exploitation. Stock status in 2002 was estimated relative to SSB_{MSY} and to maximum spawning size threshold (MSST). The MSST was computed as a fraction c of SSB_{MSY} . Restrepo *et al.* (1998) recommend a default definition for that fraction: $c = \max(1 - M, 1/2)$, where M is the natural mortality rate. However, this definition does not account for age-dependent M , as was used in this assessment. Hence to accommodate the default definition, a constant M was computed that would correspond to an age-dependent M , by providing the same proportion of survivors at the maximum observed age [$M = -\log(P)/A$, where P is the proportion survivors at maximum observed age A]. This value of constant M was computed uniquely for each of the MCB runs.

Overfishing of golden tilefish ($F > MFMT$) began in the early 1980's and has continued in most years since then. The population responded to the fishing with a steady population decline to levels near SSB_{MSY} starting in the mid-1980's. The median value of $E(2002)/EMS_Y$ is 1.55, with a 10th to 90th percentile range of [0.77,3.25]. The median value of $F(2002)/F_{MSY}$ is 1.53, with a range of [0.72,3.31]. The median value of $SSB(2002)/SSB_{MSY}$ is 0.95, with a range of [0.61,1.53]. The median value of $SSB(2002)/MSST$ is 1.02, with a range of [0.65,1.67].

It appears likely that overfishing was occurring in 2002; however it is less clear whether the stock was overfished in 2002. The data do not include an abundance index that covers the entire assessment period. To determine stock status, therefore, the assessment

must rely in part on other data sources, such as average weight and length from landings as well as the observed age and length composition data. This was explored in the following way: Assuming an equilibrium age-structure, the predicted average weight of landed fish from commercial fisheries is portrayed as a function of stock status. The average weight in 2002 from the handline fishery suggests that the population is near 52% of SSB_{MSY} ; the average weight in 2002 from the longline fishery suggests that the population is near 100.1% of SSB_{MSY} . Taken together, these results are consistent with those from the assessment model that the stock is on the border between overfished and not overfished, and that the variability around the point estimate of stock status includes both possibilities. The length composition data from the most recent years (2000 to 2002) also suggests that golden tilefish SSB is near SSB_{MSY} . Observed length distributions are skewed toward smaller fish as compared to an equilibrium virgin length composition, but correspond to the predicted length composition at SSB_{MSY} . Under $F=0$, the median projection depicts a tilefish stock that recovers to SSB_{MSY} within one year.

3.2.3 Other Affected Council-Managed Species

Gag and vermilion snapper are targeted by fishermen and are commonly taken on trips together. Red grouper, scamp, blueline tilefish, red snapper, gray triggerfish, greater amberjack, white grunt, and others are also targeted by commercial fishermen and are taken on trips with gag and vermilion snapper. Gag and vermilion snapper are commonly taken on trips by recreational fishermen with white grunt, black sea bass, red snapper, gray triggerfish, and red porgy. A detailed description of the life history of these species is provided in the snapper-grouper SAFE report (NMFS 2005).

3.3 Protected Species

There are 31 different species of marine mammals that may occur in the EEZ of the South Atlantic region. All 31 species are protected under the MMPA and six are also listed as endangered under the 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. 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 also occurs within the South Atlantic region.

The impacts of the South Atlantic snapper grouper fishery on ESA-listed species have been evaluated in a biological opinion on the continued authorization of snapper grouper fishing under the South Atlantic Snapper Grouper Fishery Management Plan and Amendment 13C (NMFS 2006), and during subsequent informal ESA section 7 consultations. The biological opinion stated the fishery was not likely to adversely affect

any critical habitat or marine mammals (see NMFS 2006 for discussion on these species). However, the opinion did state that the snapper grouper fishery would adversely affect sea turtles and smalltooth sawfish. A discussion of these species is included below.

NOAA Fisheries Service conducted an informal section 7 consultation on July 9, 2007, evaluating the impacts of the South Atlantic snapper grouper fishery on ESA-listed *Acropora* species. The consultation concluded that the continued operation of the snapper grouper fishery was not likely to adversely affect newly listed *Acropora* species. On November 26, 2008, a final rule designating *Acropora* critical habitat was published in the *Federal Register*. A memo dated December 2, 2008, evaluated the effects of the continued authorization of the South Atlantic snapper grouper fishery on *Acropora* critical habitat pursuant to section 7 of the ESA. The evaluation concluded the proposed actions are not likely to adversely affect *Acropora* critical habitat.

3.3.1 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 known 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, Lanyon *et al.* 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994, Lanyon *et al.* 1989).

3.3.2 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).

3.3.3 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 (26°3'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).

3.3.4 South Atlantic Snapper-Grouper Fishery Interactions with ESA-Listed Species

Sea turtles are vulnerable to capture by bottom longline and vertical hook-and-line gear. The magnitude of the interactions between sea turtles and the South Atlantic snapper-grouper fishery was evaluated in NMFS (2006) using data from the Supplementary Discard Data Program (SDDP). Three loggerheads and three unidentified sea turtles were caught on vertical lines; one leatherback and one loggerhead were caught on bottom longlines, all were released alive (Table 3-1). The effort reported program represented between approximately 5% and 14% of all South Atlantic snapper-grouper fishing effort. These data were extrapolated in NMFS (2006) to better estimate the number of interactions between the entire snapper-grouper fishery and ESA-listed sea turtles. The extrapolated estimate was used to project future interactions (Table 3-2).

The SDDP does not provide data on recreational fishing interactions with ESA-listed sea turtle species. However, anecdotal information indicates that recreational fishermen occasionally take sea turtles with hook-and-line gear. The biological opinion also used the extrapolated data from the SDDP to estimate the magnitude of recreational fishing on sea turtles (Table 3-2).

Smalltooth sawfish are also considered vulnerable to capture by bottom longline and vertical hook-and-line gear based on their capture in other southeast fisheries using such gear (Poulakis and Seitz 2004; Simpfendorfer and Wiley 2004). SDDP data does not include any reports of smalltooth sawfish being caught in the South Atlantic commercial snapper-grouper fishery. There are no other documented interactions between smalltooth sawfish and the South Atlantic commercial snapper-grouper fishery. However, the potential for interaction, led NOAA Fisheries Service to estimate future interactions between smalltooth sawfish and the snapper-grouper fishery in the 2006 biological opinion (Table 3-2).

Regulations proposed under snapper grouper amendment 15B (74 FR 31225; June 30, 2009) would require all commercial or charter/headboat vessels with a South Atlantic snapper-grouper permit, carrying hook-and-line gear on board, to possess required

literature and release gear to aid in the safe release of incidentally caught sea turtles and smalltooth sawfish.

Table 3-1. Sea turtle incidental take data from the supplementary discard data program (SDDP) for the Southeast U.S. Atlantic.

Reporting Period	Month	Logbook Statistical Grid	Species Caught	Number Caught	Discard Condition
<i>Vertical Hook-and-Line Sea Turtle Catch Data</i>					
8/1/01-7/31/02	April	2482	Unidentified	1	Alive
8/1/01-7/31/02	November	3377	Loggerhead	1	Alive
8/1/02-7/31/03	February	2780	Loggerhead	1	Alive
8/1/02-7/31/03	November	3474	Loggerhead	1	Alive
8/1/02-7/31/03	November	3476	Unknown	1	Alive
8/1/02-7/31/03	December	3476	Unknown	1	Alive
<i>Bottom Longline Sea Turtle Catch Data</i>					
8/1/01-7/31/02	August	3674	Leatherback	1	Alive
8/1/03-7/31/04	January	3575	Loggerhead	1	Unknown

Source: SEFSC Supplementary Discard Data Program

Table 3-2. Three year South Atlantic anticipated takes of ESA-Listed species for snapper-grouper gear.

Species	Amount of Take	Total
Green	Total Take	39
	Lethal Take	14
Hawksbill	Total Take	4
	Lethal Take	3
Kemp's ridley	Total Take	19
	Lethal Take	8
Leatherback	Total Take	25
	Lethal Take	15
Loggerhead	Total Take	202
	Lethal Take	67
Smalltooth sawfish	Total Take	8
	Lethal Take	0

Source: NMFS 2006

3.4 Administrative Environment

3.4.1 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 the U.S. Exclusive Economic Zone (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 Section 7.0. In most cases, the Secretary has delegated this authority to NOAA Fisheries Service.

The South Atlantic Fishery Management 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 Council uses a Scientific 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.

3.4.2 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 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.

3.5 Enforcement

Both the National Oceanic and Atmospheric Administration (NOAA) Fisheries 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.

3.6 Human Environment

3.6.1 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 2007), Amendment 15B (SAFMC 2008), and Amendment 16 (SAFMC 2008)] and is incorporated herein by reference.

3.6.1.1 Gear and Fishing Behavior, South Atlantic Snapper grouper Fishery

The commercial snapper grouper fishery utilizes vertical lines, longlines, black sea bass pots/traps, spears, and powerheads (i.e., spears with spring-loaded firearms). Vertical lines are used from the North Carolina/Virginia border to the Atlantic side of Key West, Florida. The majority of hook and line fishermen use either electric or hydraulic reels (bandit gear) and generally have 2-4 bandit reels per boat. The majority of the bandit fleet fishes year round for snapper grouper with the only seasonal differences in catch associated with the regulatory spawning season closures in March and April for gag. Most fluctuations in fishing effort in this fishery are a result of the weather. Trips can be limited during hurricane season and also during the winter months from December through March. Some fishermen stop bandit fishing to target king mackerel when they are running.

The Council allows the use of bottom longlines north of St. Lucie Inlet, Florida, in depths greater than 50 fathoms. Bottom longline gear is used to target snowy grouper and golden tilefish. Longline boats are typically bigger than bandit boats, their trips are longer, and they cost more to operate because they operate farther offshore. A longline spool generally holds about 15 miles of cable. Longlines are fished from daylight to dark because sea lice eat the flesh of hooked fish at night. The fishery is operated year long with little or no seasonal fluctuation barring hurricane disruption.

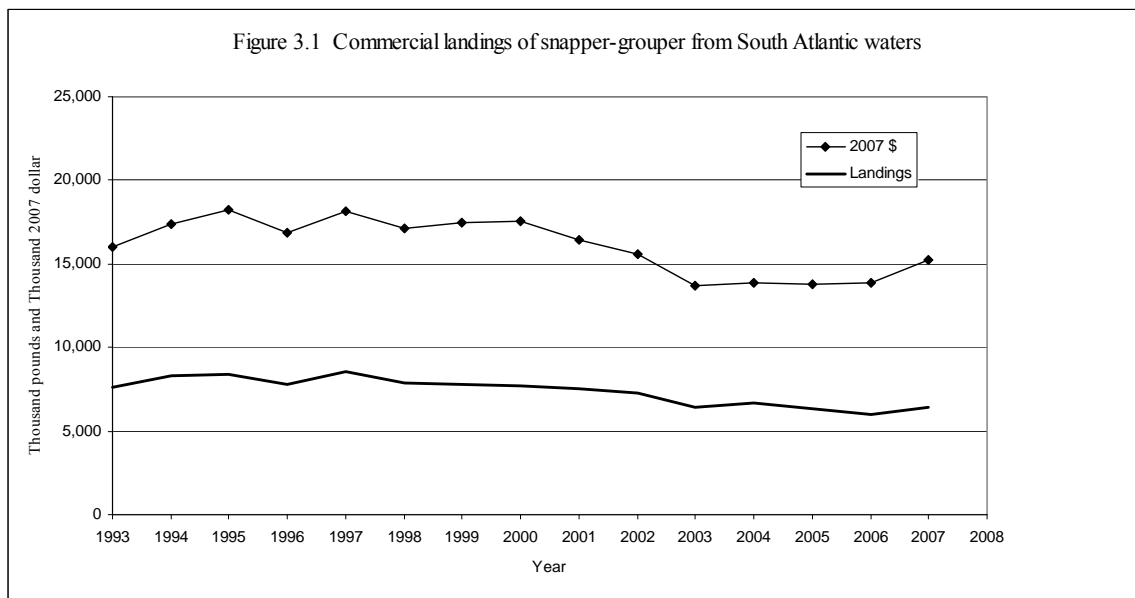
Spears or powerheads are most commonly used off Florida and are illegal for killing snapper grouper species in South Carolina and in Special Management Zones.

Black sea bass pots are used exclusively to target black sea bass, though bycatch of other snapper grouper species is allowed. The pots have mesh size, material, and construction restrictions to facilitate bycatch reduction. All sea bass pots must have a valid identification tag attached and more than 87% of tags in April 2003 were for vessels with homeports in North Carolina. Fishing practices vary by buoy practices, setting/pulling strategies, number of pots set, and length of set, with seasonal variations. The South Carolina pot fishery is mainly a winter fishery with short soak times (in some cases about an hour) and relatively few pots per boat. Most trips are day trips with pots being

retrieved before heading to port. The North Carolina pot fishery also is primarily a winter fishery with some fishermen continuing to pot through the summer. North Carolina fishermen tend to use more pots than those in South Carolina. Although most North Carolina trips with sea bass pots last one day, more pots are left to soak for several days than in South Carolina. Many participants in the black sea bass fishery are active in other fisheries, including the recreational charter fishery during the summer months. Many snapper grouper permit holders maintain pot endorsements but are not active in the pot fishery.

3.6.1.2 Landings, Ex-vessel Value, Price, and Effort, South Atlantic Snapper grouper Fishery

Landings of all species in the snapper grouper management unit averaged 6.4 million pounds from 2003 through 2007, with an average annual dockside value of \$13.0 million in current year dollars and \$13.8 million in 2007 dollars (Table 3-5).¹ Since 1993, landings of snapper grouper have exhibited a downward trend with year-to-year variation (Figure 3-1).



The shallow water groupers and mid-shelf snappers are the largest species groups by volume and value within the snapper grouper fishery. Vermilion snapper in the mid-shelf

¹ Fishermen are required to report their landings by species by trip to NOAA Fisheries Service Southeast Fisheries Science Center logbook program. However, they do not report prices or revenues on their logbook sheets. Therefore, trip revenues were approximated as reported landings from individual logbook reports multiplied by average monthly prices for each species as calculated from the NOAA Fisheries Service Accumulated Landings System (ALS). To obtain values in 2007 dollars, the BLS Consumer Price Index for urban dwellers was used to adjust for the effects overall price inflation in the U.S. economy at the consumer level.

snapper group is the largest volume species in the fishery, and accounts for 13% of total landings and 16% of dockside revenues on trips with at least one pound of snapper grouper species. Gag is the largest volume shallow water grouper, and accounts for 7% of total landings and 11% of dockside revenues on trips that landed at least one pound of snapper grouper species. Fishermen also landed an average of 1.9 million pounds of non-snapper grouper species worth \$2.3 million in 2007 dollars on trips that landed at least one pound of species in the snapper grouper management unit. These trips included trips that targeted species in the snapper grouper management unit and trips that landed snapper grouper species while targeting non-snapper grouper species.

Table 3-3. Annual landings and dockside (ex-vessel) revenues for trips with at least one pound of species in the snapper grouper fishery management unit in the South Atlantic, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
Trips with at least one pound of snapper grouper						
Landings of snapper grouper, thousand pounds, whole wt	6,471	6,693	6,365	6,112	6,528	6,434
Dockside revenue from snapper grouper, thousand current \$	\$12,214	\$12,155	\$12,316	\$13,069	\$15,435	\$13,038
Dockside revenue from snapper grouper, thousand 2007 \$	\$13,762	\$13,340	\$13,078	\$13,431	\$15,426	\$13,807
Price/lb (whole wt) for snapper grouper	\$1.89	\$1.82	\$1.93	\$2.14	\$2.36	\$2.03
BLS Producer price index for #2 diesel fuel, index=100 for 2007	43	54	80	92	100	67
Landings of other species, same trips, thousand pounds	2,092	1,651	1,751	2,116	2,122	1,946
Dockside revenue from other species, same trips, thousand 2007 \$	\$2,149	\$2,001	\$2,225	\$2,394	\$2,738	\$2,301
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Landings and dockside revenues varied between 2003 and 2007 for species in the snapper grouper management unit (Table 3-3). While lower in 2007 than in 2003, the numbers for trips, days away from port and vessels varied during 2003-2006 (Table 3-4). Part of the variation in snapper grouper landings overall appears to be attributable to landings of vermilion snapper, which experienced a significant decline in 2003 due to unusually cold water temperatures in the summer and fall of 2003. Landings of vermilion snapper recovered in 2004 and 2005, declined in 2006, and recovered in 2007.

Table 3-4. Fishing effort and distribution of landings for trips with at least one pound of species in the snapper grouper fishery management unit in the South Atlantic, 2003-2007.

Item	2003	2004	2005	2006	2007	Average
Trips with at least one pound of snapper grouper						
Number of trips	16,545	15,045	13,756	13,224	14,753	14,665
Days away from port	27,556	24,820	22,794	23,160	24,216	26,296
Number of vessels landing snapper grouper	931	905	857	868	889	890
Number of vessels landing 101-1,000 lbs of snapper grouper	245	225	242	258	261	246
Number of vessels landing 1001-5000 lbs of snapper grouper	270	263	239	228	225	245
Number of vessels landing 5,001-10,000 lbs of snapper grouper	104	96	86	64	86	87
Number of vessels landing 10,001-50,000 lbs of snapper grouper	152	133	123	127	134	134
Number of vessels landing more than 50,000 lbs of snapper grouper	20	32	29	27	28	27
Number of permitted vessels	1059	1001	909	874	877	944
Number of vessels with transferable permits*	828	782	721	697	718	749
Number of vessels with non-transferable permits	231	219	188	177	159	195
Number of dealer permits	271	269	268	251		265
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008 and NOAA Fisheries Service, Southeast Regional Office permits database. *Because of possible problems in estimation for 2006, the number of vessels with transferable permits seems low (697).						

The number of boats with snapper grouper permits has exhibited a mostly downward trend since 1999 (1,251 permits). There were 1,059 permits in 2003 and 877 in 2007 (Table 3-6). Two types of permits were created with the limited access program for the snapper grouper fishery that was implemented in 1998. The number of transferable permits that allow an unlimited harvest per trip was 828 in 2003 and 718 in 2007 compared with 938 in 1999. The number of vessels with non-transferable permits with a 225-pound trip limit declined year-by-year from 313 in 1999 to 213 in 2003 and 159 in

2007. The number of transferable permits declined, in part, because new entrants into the fishery must buy two permits and retire one as the condition for entry into the fishery. Furthermore, it is likely that the number of vessels in the snapper grouper fishery declined for economic reasons. For example, fuel prices doubled between 2003 and 2005 and continued to increase through mid-2008. By contrast, average annual prices for species in the snapper grouper management unit were relatively flat (Table 3-3, average annual prices represented by the ratio of annual commercial revenues to landings in current year dollars). The number of fish dealers with permits to operate in the snapper grouper fishery reached a maximum in 2003 (271) and has declined since then (Table 3-4, data through 2006).

From 2003 through 2007, an average of 890 boats averaged 14,665 trips per year on which at least one pound of snapper grouper species was landed (Table 3-4). On average, 246 boats landed 101 – 1,000 pounds of snapper grouper species annually; 245 boats landed 1,001 - 5,000 pounds; 87 boats landed 5,001 - 10,000 pounds; 134 boats landed 10,001 – 50,000 pounds; and 27 boats landed at least 50,000 pounds of snapper grouper species.

3.6.1.3 Northeast Commercial Fishery for Snapper grouper

Along the U.S. Atlantic coast, commercial landings of snapper grouper species occur mostly in North Carolina through the Florida east coast, and the fisheries are managed in this geographic context by the South Atlantic Fishery Management Council (SAFMC). However, some commercial fishing for snapper grouper does occur farther north. The landings in northeast Atlantic states are predominantly black sea bass, golden tilefish and scup, for which the fisheries are managed by the New England and Middle Atlantic Fishery Management Councils.² Approximately 1-4 percent of the total is for species that have been managed traditionally within the geographic context of southeast fisheries by the SAFMC.

The analysis in this section is based on the NOAA Fisheries, Northeast Fisheries Science Center's (Woods Hole, MA) Commercial Fisheries Data Base (CFDBS). Excluding the three leading CFDBS-reported species of snapper grouper (black sea bass, golden tilefish and scup), landings are summarized by region (New England, Middle Atlantic and North Carolina) for species, gear, and area fished. Next, data are summarized for trips and vessels. All summaries are for trips with landings of at least one pound of snapper grouper.

Excluding the three leading species (black sea bass, golden tilefish and scup) and counting data for trips with at least one pound of snapper grouper, annual landings in northeast Atlantic states were approximately 0.30 to 0.54 million pounds during 1997-

² During 1997-2007, the annual landings of snapper grouper as a whole were approximately 7 to 12-13 million pounds (round weight; ex-vessel value, \$10-\$20 million in 2007 dollars). Ex-vessel values in 2007 dollars were obtained using the BLS Consumer Price Index for Urban Wage Earners.

2007 (Figure 3-2, 484,000 pounds at \$914,000 in 2007).³ The recent upward trend in ex-vessel value is attributable largely to the relative prices and pounds landed for three species groups, grouper, triggerfish and snapper. Grouper landings and ex-vessel value fell and then reached their 1997 levels by 2007 (Figure 3-3, approximately 123,000 pounds at \$364,000 in 2007).⁴ Landing of triggerfish, which are much lower in price, fell significantly (Figure 3-4, they were approximately 38,000 pounds at \$46,000 in 2007). On the other hand, snapper landings were much higher in 2007 than in 1997 and close to grouper (Figure 3-5, approximately 114,000 pounds at \$306,000 in 2007).⁵

³ In 2002, CFDBS-reported landings in north Atlantic states were unusually high for vermilion snapper (approximately 83,000 pounds), “other snapper” (33,000 pounds), and blueline tilefish (204,000 pounds).

⁴ Figure 3-3 includes data for species listed in Table 1 (snowy, red, scamp and “other” grouper) along with data for yellowedge grouper, rock hind and red hind.

⁵ Figure 3-5 includes data for species listed in Table 1 (red and vermilion snapper) along with data for dog snapper and “other snapper.”

Figure 3-2.--Northeast Landings of Snapper grouper

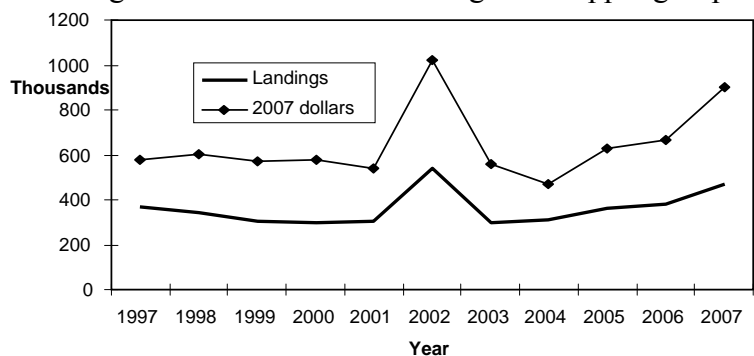


Figure 3-3.--Northeast Landings of Grouper

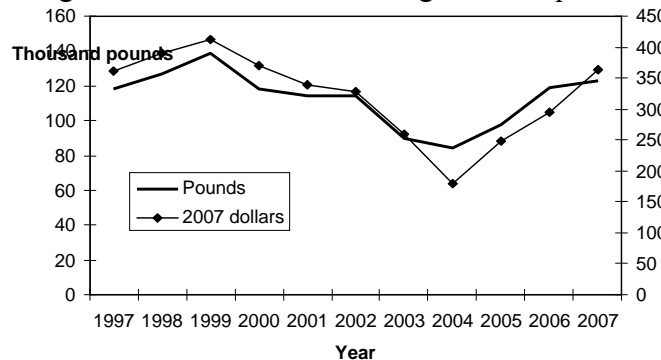


Figure 3-4.--Northeast Landings of Triggerfish

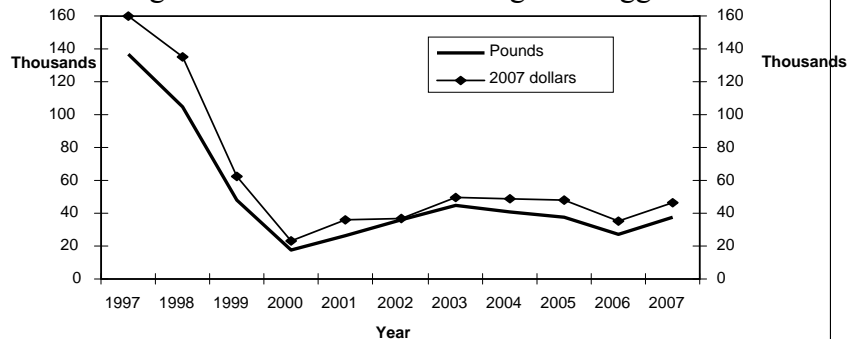
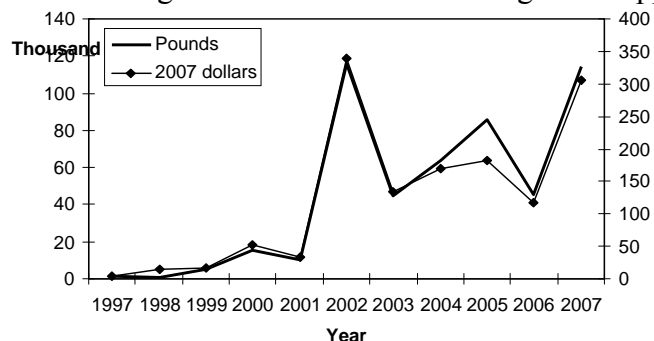


Figure 3-5.--Northeast Landings of Snapper



Landings of selected species of snapper grouper in northeast Atlantic states are summarized in Table 3-5. Among the three regions, more landings occur in North Carolina, 315,000 pounds per year on average in 2003-2007, than in the Middle Atlantic region (New York-Virginia, 50,000 pounds) and the New England region (6,000 pounds).

Table 3-5. Northeast average annual commercial landing of snapper grouper species (thousand pounds, round weight), by region and species, and by region and gear.

Species or Gear	New England			Middle Atlantic			North Carolina		
	1994-1997	1998-2002	2003-2007	1994-1997	1998-2002	2003-2007	1997 only	1998-2002	2003-2007
Crevalle, Jack	0	1	0	1	3	0	1	2	1
Grouper, Snowy			0		1	0		40	55
Grouper, Red									27
Scamp								11	8
Other Grouper	0	0	1	1	1	1	118	75	15
Grunts				0	0	1	5	10	8
Hogfish				0	1	0	24	6	0
Porgy, Red				1	7	0	2	15	5

Sheepshead, Atl		0	0	13	5	10	20	19	32
Snapper, Red	0	0	0	0	0	0	1	1	1
Snapper, Vermilion						0		21	63
Spadefish		0	0	16	35	16	29	9	10
Tilefish, Blueline			1		1	7		81	61
Triggerfish	3	2	4	14	7	4	122	38	30
Total	4	5	6	46	57	50	322	316	315
Seines And Weirs			0	0	0	0	25	5	0
Otter Trawl Bottom, Fish	1	1	2	8	9	14	1	4	14
Otter Trawls, Other				0	0	1	8	5	7
Pots & Traps, Fish	2	1	1	2	2	2	2	4	5
Pots & Traps, Other	0	1	1	16	33	17	27	8	7
Gill Nets	0	0	0	1	2	4	13	18	21
Troll & Hand Lines	1	1	1	8	3	5	241	245	229
Long Lines, Bottom	0	0	0	0	1	2		43	17
Total	4	5	6	46	57	50	322	316	315
NMFS, NEFSC Commercial Fisheries Database (CFDBS), Woods Hole, MA, as of 07Apr09. Totals were separately computed, and they are likely lower than the sum of averages over species. Excludes black sea bass, golden tilefish and scup. Includes data for trips with landings of at least one pound of snapper grouper. Landings for North Carolina were initially reported in 1997. Data are not shown separately for some species and gear, but included in the totals. New England: Maine-Connecticut. Middle Atlantic: New York-Virginia.									

Species: North Carolina accounted for all but a small fraction of the grouper landings in the North Atlantic states during 1997-2007, 1997 being the first year for CFDBS-reported landings of snapper grouper in North Carolina (Table 3-5). The same is true for snapper. Red porgy, sheepshead, blueline tilefish and triggerfish tended to have higher landings in North Carolina than in the Middle Atlantic region, but they account for more pounds landed than other snapper grouper species in the Middle Atlantic. Spadefish was the leading species in the Middle Atlantic region, judging by annual averages for 1998-2002 and 2003-2007. Among the snapper grouper species with CFDBS-reported landings, triggerfish accounted for a large proportion of what was landed in the New England region during 1994-2007.

Gear: Among the gear types listed in Table 3-5, hand lines accounted for the most landings in 2003-2007 in North Carolina (229,000 pounds out of 315,000 pounds), followed distantly by gillnets (21,000 pounds), bottom longlines (17,000 pounds), fish otter trawls (14,000 pounds), and pots and traps (13,000 pounds). In contrast with North Carolina, pots and traps remained as the leading gear in the Middle Atlantic region during 1994-2007, followed by fish otter trawls, and troll and hand lines. In New England, fish otter trawls, fish pots and traps, and troll and hand lines accounted for approximately similar proportions of the landings during 1994-2007.

Catch Areas: Several areas near North Carolina accounted for nearly three fourths of that state's landings (Table 3-5, 228,000 out of 315,000 pounds in 2003-2007). As indicated in Table 3-6 (map on the following page), these areas include the Cape Hatteras area (area 635), three areas north and east of Hatteras (areas 631 and 632 and Hatteras Canyon, area 636), and several ocean areas south of Hatteras or 35⁰ Latitude. Landings in the Middle Atlantic region

involve catch from several areas, from Long Island Sound (area 611) through Cape Hatteras (area 636).

Table 3-6. Northeast average annual commercial landing of snapper grouper species (thousand pounds, round weight), by region of landing and selected areas of capture.									
	New England			Middle Atlantic			North Carolina		
Area of capture	1994-1997	1998-2002	2003-2007	1994-1997	1998-2002	2003-2007	1997 only	1998-2002	2003-2007
Unknown	0	0	2	1	3	10	40	92	181
Long Island Sound-611	0	0	0	3	2	1			
S of Long Island-612				1	0	1			1
Off Long Island-613	0	0	0	7	3	1			0
New Jersey Shore-614				1	0	1		0	2
Barnegat Ridge-615	0	0	0	0	1	1		0	2
Hudson Canyon-616	0	0	0	1	0	1			4
Inland Waters-621				11	2	1			4
Wilmington Canyon-622			0	1	0	1			5
Off Chesapeake Bay-625		0		17	35	17			2
Washington Canyon-622			1	0	2	5			3
Off VA-NC-631		0		3	7	3		0	6
S of Norfolk Canyon-632		0	1	0	1	1			8
Cape Hatteras-635				0	1	5	230	25	60
Hatteras Canyon-636			0	0		0			17
S of Cape Hatteras, Atl Ocean			0	0	0			157	148
Unknown, South of 35 Lat							52	108	
Total	4	5	6	46	57	50	322	316	315
See footnote, Table 1.									

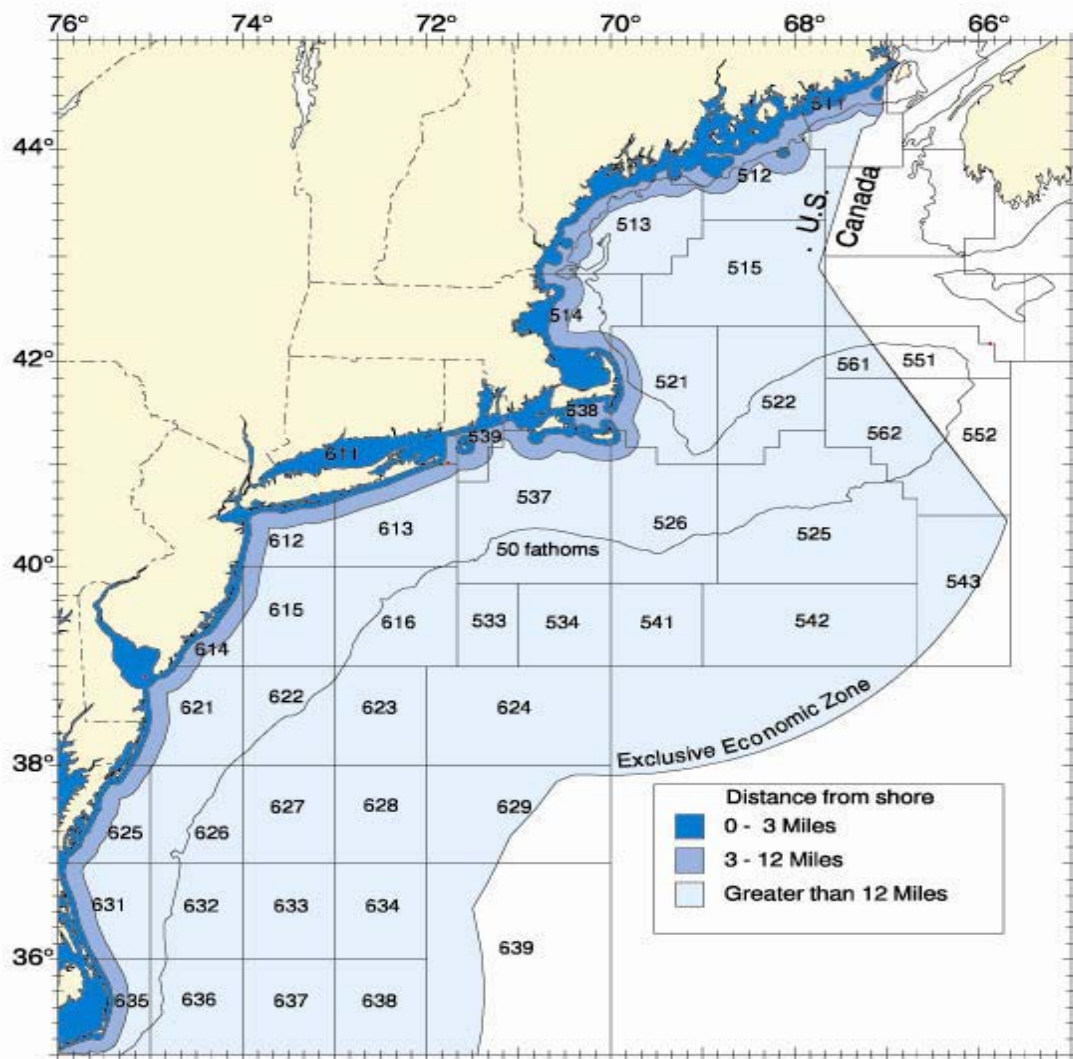


Figure 3-6. Northeast statistical areas.

Source: Map of statistical areas used for reporting commercial catch at page xii in Northeast Data Poor Stocks Working Group. 2009. The Northeast Data Poor Stocks Working Group Report, December 8-12, 2008 Meeting. Part A. Skate species complex, Deep sea red crab, Atlantic wolffish, Scup, and Black sea bass. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 09-02; 496 p.

Trips and Boats, Selected Species

Data for trips and vessels with landings of more than one pound of snapper grouper in northeast Atlantic states (excluding black sea bass, golden tilefish, scup, and porgies) are depicted in Figures 3-7. The data is for 1997-2007, 1997 being the first year with CFDBS-reported landings of snapper grouper for North Carolina.

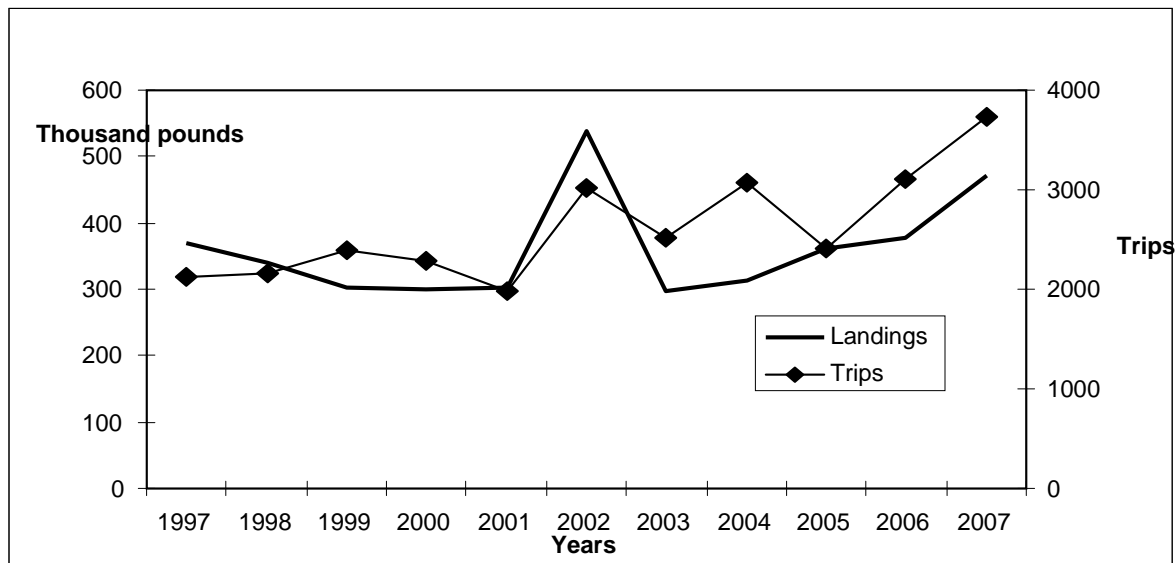


Figure 3-7. Northeast Snapper grouper Landings and Trips

The numbers of trips and pounds landed both increased during 1997-2007, but with somewhat different patterns (Figure 3-7). The trips rose from 2,129 in 1997 to 3,733 in 2007. Average landings per trip were in the range of 103-1808 pounds (\$155-\$315). The average trip revenue (average ex-vessel value of all fish landed per trip), appears to have been the range of \$1,189 to \$3,564 per trip in 1997-2007.⁶

There are fewer trips for which data on crew size, days at sea and other variables are available via the NEFSC's CFDBS than is true for data on pounds landed and dollar value.⁷ The average crew size per trip (including captain) was in the range of 1.98 to 2.62 persons per trip (in 2003 and 1999, respectively). The average crew size was 2.25 persons per trip in 2007.

The total number of days at sea per year rose from 436 days in 2000 (for 342 trips) to 1,676 days in 2007 (for 964 trips) (Figure 3-8). The average number of days at sea per trip was in

⁶High dollar amounts for per-trip maximums for some years suggest the need for further examination of the data and methods. As an interim approach, trips with an apparently missing or invalid "hullnum" (vesid), an end-of-month landing date and a value for all fish landed of more than \$100,000 were deleted.

⁷ During 1994-2007, the trips for which pounds landed and ex-vessel are reported totaled 31,535 compared with 4,037 trips for crew size, 7,890 trips for days at sea, 4,318 trips for average depth fished.

the range of 1.21 days (1997) to 1.88 days (in 2005 and 2006), with the average being 1.72 days per trip in 2007. The median remained at one day per trip in 1994-2007.

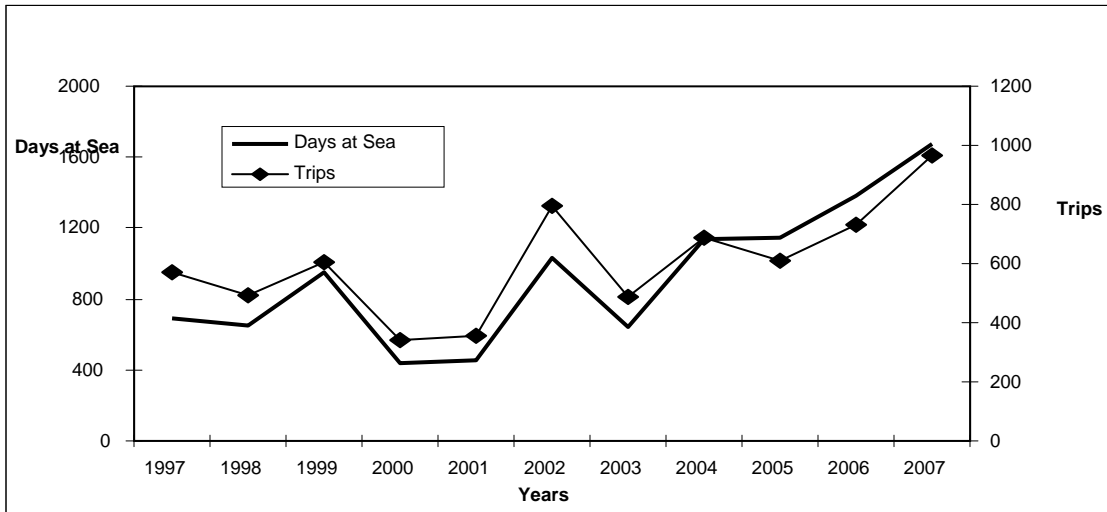


Figure 3-8. Northeast Snapper Grouper Days at Sea and Trips

If an increase in average trip length occurred for the fishery as a whole, it appears consistent with a change in areas fished. That is, Table 3-6 indicates that more of the pounds of fish landed in North Carolina in 2003-2007 than previously were being caught in waters farther from the state (from South of Long Island, area 612, through South of Norfolk Canyon, area 632). The average depth for gear being fished varied among years. During 1997-2007, the average depth fished per trip was in the range of 17.94 fathoms (2003) to 29.62 fathoms (2006), and 17.20 fathoms in 2007.

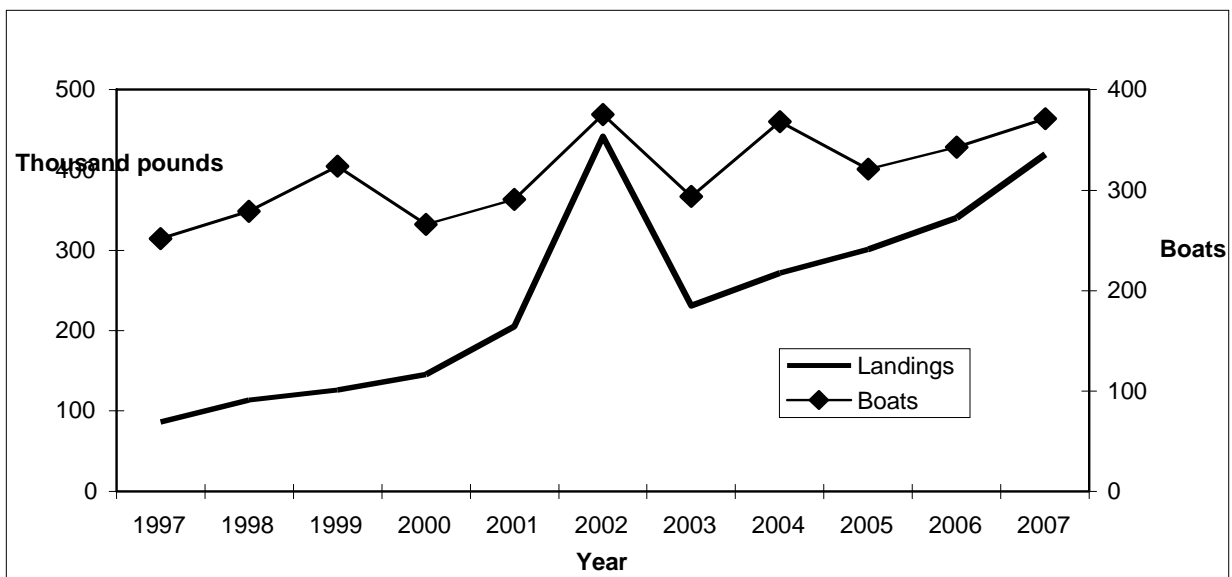


Figure 3-9. Northeast Snapper Grouper Landings and Boats

The total pounds landed that could be associated with specific vessels (Figure 3-9, 1994-2007 sum of 2.79 million pounds) are lower than total pounds landed for trips (Figures 3-7 and 3-8, 1994-2007 sum of 4.2 million pounds). The number of vessels that could be identified rose from 253 in 1997 to a high point of 375 in 2002 and then fluctuated (Figure 3-9). There were 369 vessels in 2007.

The average landings per vessel exhibited a mostly upward trend from 348 pounds and \$621 per vessel in 1997 (averages for 253 vessels) to 1,165 pounds and \$2,367 in 2007 (averages for 375 vessels). During 1997-2007, the ex-vessel value of landings of all CFDBS-reported fish per vessel was in the range of \$8,035 (2003) to \$17,241 (1999), and \$12,304 per vessel in 2007. The percentage of the total value of landings associated with the selected species was approximately 6 to 14 percent for vessels in 1997-2007, less than for trips (12 to 25 percent for trips, see caveats for trip percentages, footnote 5). The annual maximums for gross revenue per vessel were mostly in the range of approximately \$120,000 to \$200,000 for all fish landed during 1997-2007.

Among the vessels for which data is available in the CFDBS, averages for years were in the approximate ranges: 48-54 feet in length, 379-460 horsepower engines, and 3.97- 6.87 trips per year for the selected species.

3.6.1.4 Economic Impacts

Estimates of the economic impacts of the commercial snapper grouper fishery are derived using the model developed for and applied in NMFS (2009x). Based on the average annual ex-vessel revenues for all snapper grouper species in the South Atlantic over the period 2003-2007 of \$13.8 million (2007 dollars), the commercial snapper grouper fishery is estimated to support 2,679 full time equivalent (FTE) jobs and generate approximately \$182 million in output (sales) impacts and approximately \$77 million in income impacts per year to the U.S. economy. Among the jobs supported, 350 FTE jobs are estimated to be in the harvesting sector and 213 FTE jobs are in the dealer/processor sector. Approximately two-thirds of the jobs supported by the commercial snapper grouper fishery are estimated to accrue to the restaurant sector. 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).

In addition to these snapper grouper harvests, the vessels that harvested snapper grouper also harvested other species on the trips where snapper grouper were harvested, as well as on other trips on which no snapper grouper were harvested. All revenues from all species on all these trips contributed towards making these vessels economically viable and contributed to the economic activity associated with these vessels. The average annual total ex-vessel revenues from all species (including snapper grouper) harvested during this period (2003-2007) by vessels that harvested snapper grouper species was approximately \$22.8 million (2007 dollars). The economic activity associated with these revenues is estimated to support 4,426 FTE jobs (578 in the harvesting sector and 352 in the dealer/processor sector) and generate

approximately \$300 million in output (sales) impacts and approximately \$128 million in income impacts.

For the individual species addressed by this amendment, gag generated the largest average annual ex-vessel revenues, approximately \$1.8 million (2007 dollars) per year from 2003-2007, followed by black sea bass at approximately \$937,000 (2007 dollars). The economic activity associated with these two species is estimated to support 352 FTE jobs (46 in the harvest sector and 28 in the dealer/processor sector) and 182 FTE jobs (24 in the harvest sector and 14 in the dealer/processor sector), respectively. The gag revenues are estimated to generate approximately \$24 million in output (sales) impacts and \$10 million in income impacts, while the black sea bass revenues are estimated to generate approximately \$12 million and \$5 million in economic output (sales) and income impacts, respectively. All harvests by the vessels that harvest gag support approximately 2,000 FTE jobs (260 in the harvest sector and 158 in the dealer/processor sector) and approximately \$135 million in output (sales) impacts and approximately \$58 million in income impacts. For black sea bass, the respective totals are 1,860 jobs (243 in the harvest sector and 148 in the dealer/processor sector) and approximately \$126 million in output (sales) impacts and approximately \$54 million in income impacts. It should be noted that the totals for the individual species are not additive because some vessels may harvest both species.

For the Northeast (Mid-Atlantic and New England), excluding black sea bass, golden tilefish, and scup, the average annual ex-vessel revenues from snapper grouper species from 2003-2007 was approximately \$646,000 (2007 dollars), as recorded in the CFDBS (see Section 3.6.1.3). These revenues are estimated to support 125 FTE jobs and generate approximately \$8.5 million in output (sales) impacts and approximately \$3.6 million in income impacts per year. The average annual total ex-vessel revenues from all species (including snapper grouper) harvested during this period by vessels that harvested snapper grouper species in the Northeast was approximately \$3.6 million (2007 dollars). The economic activity associated with these revenues is estimated to support 694 FTE jobs (91 in the harvesting sector and 55 in the dealer/processor sector) and generate approximately \$47 million in output (sales) impacts and approximately \$20 million in income impacts. These values should be viewed with caution, however, and may overstate actual economic impacts. As discussed in Section 3.6.1.3 and reflected in Table 3-5, all but a small portion of snapper grouper harvests (approximately 15 percent of total pounds) recorded in the CFDBS database were recorded landed in North Carolina. It is unknown whether the North Carolina landings were also reported and included in the South Atlantic totals. If so, then including these landings in an assessment of the Northeast would constitute double counting. If all these landings are already accounted for in the South Atlantic totals, assuming the value of harvests is proportional to the distribution of pounds (meaning only 15 percent of the reported snapper grouper revenues accrued to the Northeast), then the average annual ex-vessel revenues from snapper grouper would be reduced to approximately \$97,000 and the respective measures of economic impacts assumed to be reduced accordingly.

One further caveat to these estimates should be noted. The species composition of other harvests by vessels that harvested snapper grouper has not been evaluated. For the assessment

above, all revenues, regardless of the species harvested, were treated the same from a impact modeling perspective. However, in reality, not all species, and associated revenues, flow through harvesters, dealers/processors, and the consuming public in the same way. As a result, the estimates of economic effects provided above for all revenues by vessels with recorded snapper grouper harvest may be greater than or less than actual effects.

3.6.1.5 South Atlantic Snapper grouper Fishery by State

The following discussion provides annual averages from 2003 to 2007. To maintain the confidentiality of individual reporting units, summaries are provided for regions defined as North Carolina, South Carolina, Georgia and northeast Florida combined, and central and south Florida combined. The northeast Florida region consists of trips landed in Nassau, Duval, and St. Johns Counties, and the central and south Florida region consists of trips landed from Flagler through Miami-Dade Counties and trips from Atlantic waters off the Florida Keys and landed in Monroe County.

The average annual quantities of snapper grouper species harvested from 2003-2007 included 1.82 million pounds worth \$3.74 million (in 2007 dollars) per year in North Carolina, 1.60 million pounds worth \$3.80 million in South Carolina, 0.73 million pounds worth \$1.65 million in Georgia and northeast Florida, and 0.79 million pounds worth \$1.61 million in central and south Florida, and 1.50 million pounds worth \$3.0 million in the Florida Keys (Table 3-7). Snapper grouper landings by state were not proportional to total days fished in each state. Boats in central and south Florida, and the Florida Keys made 73% of the trips that landed species in the snapper grouper management unit and accounted for 35% of the total snapper grouper harvest. Conversely, boats in other states accounted for relatively larger portions of the total snapper grouper harvest. Boats in North Carolina made 18% of the trips and landed 28% of the snapper grouper harvest. Boats in South Carolina made 6% of the trips and landed 25% of the harvest. In addition, boats in Georgia and northeast Florida made 3% of the trips and landed 12% of the snapper grouper harvest. Boats in South Carolina and Georgia and northeast Florida took fewer but longer trips than their counterparts in North Carolina or central and south Florida and the Florida Keys.

Table 3-7. Average annual landings and dockside revenues for trips with at least one pound of species in the snapper grouper fishery, averages for 2003-2007 by state.						
Item	North Carolina	South Carolina	Georgia and Northeast Florida	Central and South Florida	Florida Keys	South Atlantic
	Trips with at least one pound of snapper grouper					
Snapper grouper landings, thousand pounds, whole wt	1,816	1,591	734	790	1,504	6,434
Percentage of South Atlantic snapper grouper landings, by state	28%	25%	11%	12%	23%	100%

Dockside revenue, snapper grouper, thousand 2007 \$	\$3,738	\$3,795	\$1,651	\$1,615	\$3,008	\$13,807
Landings of other species, same trips, thousand lbs	286	125	54	1,293	188	1,946
Dockside revenue, other species, same trips, thousand 2007 \$	\$389	\$182	\$123	\$1,406	\$202	\$2,301
Number of boats*	175	64	46	342	294	921
Number of trips	2,607	916	486	4,691	5,964	14,665
Percent of trips	18%	6%	3%	32%	41%	100%
Number of days	4,727	4,702	1,946	5,473	7,661	24,509
Trips per boat	14.9	14.2	10.6	13.7	20.3	15.9
Days per trip	1.8	5.1	4.0	1.2	1.3	1.7
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation. *Some boats land in more than one area.						

Gag and other shallow water groupers and vermilion snapper and other mid-shelf snappers tend to be landed in North Carolina, South Carolina, and Georgia and northeast Florida, while jacks and shallow water snappers tend to be landed in central and south Florida (Tables 3-8 and 3-9). The species groups that accounted for more than 10% of total landings and revenues in North Carolina include shallow water groupers with nearly 24% of total pounds landed and nearly 34% of total revenues on trips with at least one pound of snapper grouper species; black sea bass with 17% of total landings and 19% of total revenues; and mid-shelf snappers with 18% of total landings and 23% of total revenues. In South Carolina, the shallow water groupers accounted for 32% of total pounds and 46% of total revenues, and the mid-shelf snappers accounted for 21% of total pounds and 23% of total revenues. In Georgia and northeast Florida, mid-shelf snappers accounted for 44% of total pounds and 51% of total revenues; shallow water groupers accounted for 19% of total pounds and 21% of total revenues; and jacks accounted for 17% of total pounds and 7% of total revenues. In central and south Florida, coastal pelagics accounted for 49% of total pounds and 38% of total revenues, and jacks accounted for 12% of total pounds and 7% of total revenues, while tilefish accounted for 11% of total pounds and 17% of total revenue on trips with at least one pound of snapper grouper species. Fishermen in central and south Florida, especially in the Keys, tend to catch larger quantities of non-snapper grouper species such as mackerels.

Table 3-8. Average annual landings (in thousands of pounds, whole weights) on trips that landed at least one pound of snapper grouper species: averages for 2003-2007, by state and species group.												
Item	North Carolina		South Carolina		Georgia and Northeast Florida		Central and South Florida		Florida Keys		South Atlantic	
	1000 lbs	col %	1000 lbs	col %	1000 lbs	col %	1000 lbs	col %	1000 lbs	col %	1000 lbs	col %
Shallow water groupers	504	24%	555	32%	152	19%	107	5%	100	6%	1,418	17%

Deep water groupers	84	4%	78	5%	5	1%	28	1%	59	3%	254	3%
Tilefish	78	4%	112	6%	1	0%	227	11%	12	1%	430	5%
Shallow water snappers	10	0%	20	1%	21	3%	128	6%	887	52%	1,065	13%
Mid-shelf snappers	375	18%	366	21%	347	44%	33	2%	15	1%	1,136	14%
Triggerfish / Spadefish	131	6%	77	4%	56	7%	5	0%	2	0%	271	3%
Jacks	111	5%	159	9%	132	17%	240	12%	406	24%	1,047	12%
Grunts / porgies	127	6%	92	5%	14	2%	16	1%	24	1%	274	3%
Sea basses	395	19%	133	8%	6	1%	6	0%	0	0%	540	6%
Snapper grouper	1,816	86%	1,591	93%	734	93%	790	38%	1,504	89%	6,434	77%
Coastal pelagics	216	10%	52	3%	34	4%	1,016.50	49%	81	5%	1,399	17%
Sharks	9	0%	19	1%	6	1%	195	9%	77	5%	306	4%
Tunas	22	1%	2	0%	1	0%	1	0%	0	0%	25	0%
Other	39	2%	54	3%	13	2%	81	4%	30	2%	217	3%
All species	2,102	100%	1,717	100%	787	100%	2,083	100%	1,692	100%	8,380	100%
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008.												

Table 3-9. Average annual dockside revenues (thousand 2007 dollars) for trips that landed at least one pound of snapper grouper species: averages for 2003-2007 by state and species group.

Item	North Carolina		South Carolina		Georgia and Northeast Florida		Central and Southeast Florida		Florida Keys		South Atlantic	
	\$1,000, 2007\$	col %	\$1,000, 2007\$	col %	\$1,000, 2007\$	col %	\$1,000, 2007\$	col %	\$1,000, 2007\$	col %	\$1,000, 2007\$	col %
Shallow water groupers	\$1,404	34%	\$1,847	46%	\$475	27%	\$338	11%	\$272	8%	\$4,336	27%
Deep water groupers	\$216	5%	\$219	5%	\$13	1%	\$77	3%	\$156	5%	\$680	4%
Tilefish	\$100	2%	\$203	5%	\$2	0%	\$518	17%	\$15	0%	\$838	5%
Shallow water snappers	\$23	1%	\$52	1%	\$51	3%	\$330	11%	\$2,112	66%	\$2,567	16%
Mid-shelf snappers	\$969	23%	\$933	23%	\$909	51%	\$100	3%	\$37	1%	\$2,947	18%
Triggerfish / Spadefish	\$109	3%	\$62	2%	\$48	3%	\$4	0%	\$2	0%	\$225	1%
Jacks	\$106	3%	\$161	4%	\$126	7%	\$223	7%	\$396	12%	\$1,011	6%
Grunts / porgies	\$122	3%	\$90	2%	\$18	1%	\$16	1%	\$20	1%	\$266	2%
Sea basses	\$689	17%	\$229	6%	\$10	1%	\$10	0%	\$0	0%	\$937	6%
Snapper grouper	\$3,738	91%	\$3,795	95%	\$1,651	93%	\$1,615	53%	\$3,008	94%	\$13,807	86%
Coastal pelagics	\$299	7%	\$100	3%	\$66	4%	\$1,139	38%	\$104	3%	\$1,708	11%
Sharks	\$4	0%	\$11	0%	\$2	0%	\$78	3%	\$23	1%	\$118	1%
Tunas	\$44	1%	\$4	0%	\$1	0%	\$2	0%	\$0	0%	\$50	0%
Other species	\$42	1%	\$67	2%	\$55	3%	\$187	6%	\$75	2%	\$425	3%
All species	\$4,127	100 %	\$3,977	100 %	\$1,775	100 %	\$3,020	100 %	\$3,210	100 %	\$16,108	100 %

Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.

3.6.1.6 South Atlantic Snapper grouper Fishery by Gear

The following discussion provides annual averages from 2003 to 2007. To maintain the confidentiality of individual reporting units, summaries are provided for vertical lines, longlines, black sea bass pots, and all other gears combined. The all-other-gear category includes trolling lines, diving gear, nets, and other gears.

Most of the snapper grouper harvest, including vermilion snapper and gag, is taken by some type of vertical hook-and-line gear. The exceptions include black sea bass, which is harvested primarily with black sea bass pots and golden tilefish and yellowedge grouper, which are harvested primarily with bottom longlines. Some species, such as snowy grouper, are harvested by both vertical lines and longlines. Longlines also are used in the shark fishery and may catch species in the snapper grouper management unit as secondary species.

The average quantities of snapper grouper species harvested from 2003-2007 included 5.18 million pounds worth \$11.31 million (in 2007 dollars) per year with vertical lines, 0.41 million pounds worth \$0.90 million with longlines, 0.53 million pounds worth \$0.83 million with black sea bass pots, and 0.12 million pounds worth \$0.17 million with other gears (Table 3-10). Trips with vertical lines accounted for 81% of all trips that landed species in the snapper grouper management unit and 82% of the total snapper grouper harvest. Trips with longlines tend to be longer than trips with other gears. Longline trips accounted for 2% of the trips and 6% of the snapper grouper harvest. Trips with black sea bass pots

Table 3-10. Annual landings and dockside revenues for trips with at least one pound of species in the snapper grouper fishery by primary gear, 2003-2007						
Item	Diving	Hook & Line	Longline	Traps	Other gear	Total
	Trips with at least one pound of snapper grouper					
Landings of snapper grouper, thousand pounds, whole weight	219	5,185	408	116	506	6,434
Percentage of landings	3%	81%	6%	2%	8%	100%
Revenue, snapper grouper, thousand 2007 \$	\$571	\$11,314	\$895	\$168	\$861	\$13,807
Percentage of 2007 \$	4%	82%	6%	1%	6%	100%
Landings of other species, same trips, thousand pounds	49	674	265	941	17	1,946
Percentage of landings, other	3%	35%	14%	48%	1%	100%
Revenue from other species, same trips, thousand 2007 \$	\$191	\$958	\$153	\$980	\$19	\$2,301
Percentage of total	8%	42%	7%	43%	1%	100%
Number of boats*	65	723	27	50	245	1,110
Number of trips	648	11,405	246	690	1,676	14,665
Percent of trips	4%	78%	2%	5%	11%	100%
Number of days	920	19,910	924	944	1,811	24,509
Trips per boat	10.0	15.8	9.0	13.8	6.8	13.2
Days per trip	1.4	1.7	3.8	1.4	1.1	1.7
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation. *Some boats employ more than one gear.						

represented 5% of the trips and accounted for 2% of the harvest, while trips with other gears represented 11% of the trips and 8% of the harvest.

3.6.1.7 The South Atlantic Commercial Fishery for Gag

Logbook data provide information about commercial landings for gag from 1993 through 2006. Between 1993 and 2006, commercial landings of gag ranged from a high of 0.85 million pounds (whole weight) worth approximately \$2.03 million in 1996 to a low of 0.50 million pounds worth \$1.32 million in 2000 (Figure 3-13). Data for 2006 indicate that landings of gag were approximately 0.50 million pounds worth \$1.46 million. Dockside revenues and pounds landed fluctuate in the same direction, which suggests that ex-vessel demand is price elastic. The policy implication is that regulations that reduce industry landings in the short-term are expected to reduce dockside revenues in the short-term. Conversely, dockside revenues are expected to increase over time if regulation successfully increases biomass and landings.

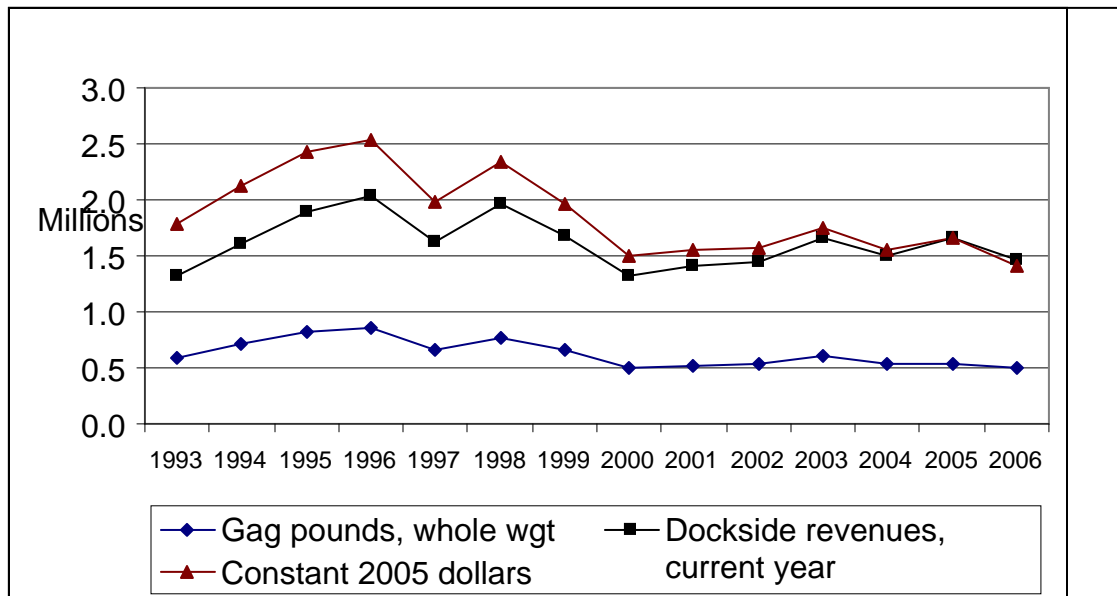


Figure 3-13. Annual landings and dockside revenues for gag, 1993-2006.

Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of October 10, 2007, and NOAA Fisheries Service, Southeast Fisheries Science Center Accumulated Landings System as of October 5, 2007.

The time series for gag is defined by regulatory periods, with landings between 1993 and 1999 usually exceeding landings between 2000 and 2006. Between 1992 and 1998, the fishery for gag was regulated with a 20-inch minimum size limit. Beginning in 1999, the size limit was increased to 24 inches and the fishery was closed in March and April to protect the spawning stock. Prior to 1998, average monthly landings were highest in May and lowest in August (Figure 3-14). After the closure and larger size limit were implemented, average

monthly landings increased in May, but otherwise declined in the remaining open months when compared to the 1993-1998 period, especially in September.

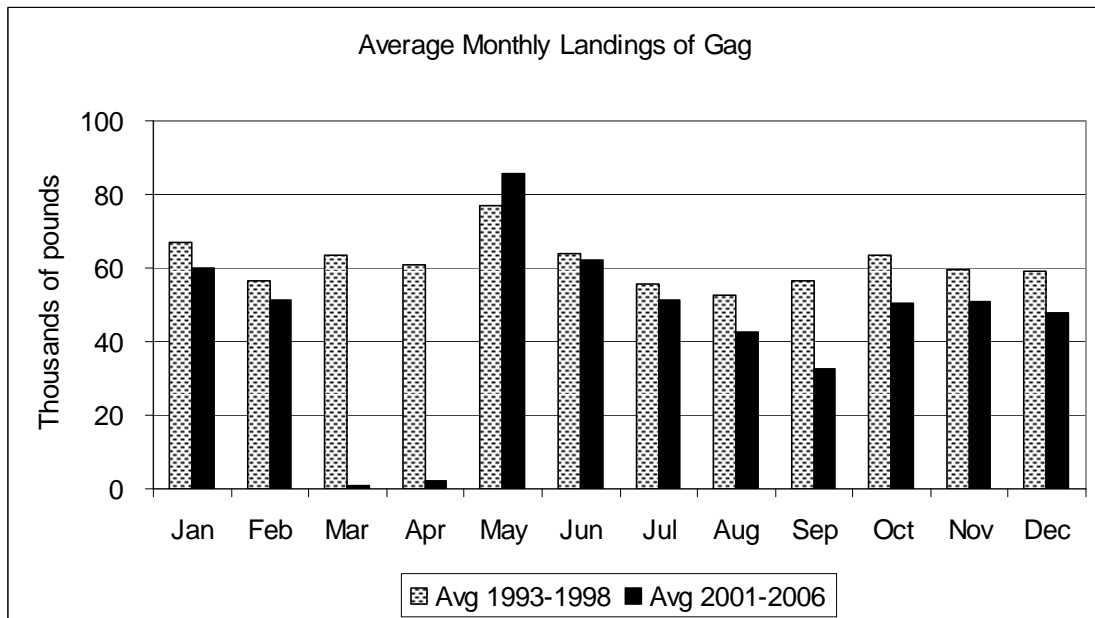


Figure 3-14. Average monthly landings of gag for the 1993-1998 and 2001-2006 periods.
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of October 10, 2007.

On average from 2001-2006, there were 2,417 trips that landed at least one pound of gag, and totaled an annual average of 0.54 million pounds of gag worth \$1.52 million in current year dollars and \$1.58 million in constant 2005 dollars (Table 3-11). In addition, these trips annually produced an average of 2.13 million pounds of other species worth \$3.98 million in current year dollars.

Table 3-11. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of gag, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
	Trips and boats with at least one pound of gag					
Number of trips with at least one pound of gag	2,481	2,182	2,200	2,082	2,487	2,286
Landings of gag, thousand pounds, whole weight	598	532	541	496	605	554
Dockside revenue from gag, thousand current \$	\$1,636	\$1,521	\$1,651	\$1,617	\$2,140	\$1,713
Dockside revenue from gag, thousand 2007 \$	\$1,844	\$1,668	\$1,751	\$1,661	\$2,136	\$1,812
Dockside price, current \$ / pound	\$2.73	\$2.86	\$3.05	\$3.26	\$3.53	\$3.09
Landings of all species, same trips, thousand pounds	2,576	2,509	2,584	2,363	2,819	2,570
Dockside revenue, all species, same trips, thousand 2007 \$	\$5,898	\$5,482	\$5,845	\$5,629	\$7,154	\$6,001
Dockside revenue, all species, all trips, same boats, thousand 2007 \$	\$9,923	\$9,538	\$10,357	\$9,238	\$12,137	\$10,239
Number of boats that landed gag	302	292	302	259	305	292
Number of boats landing 1-100 lbs per year of gag	99	100	100	90	92	96
Number of boats landing 101-1,000 lbs per year of gag	89	92	103	74	100	92
Number of boats landing 1,001-5,000 lbs per year of gag	76	68	64	61	72	68
Number of boats landing 5,001-10,000 lbs per year of gag	25	19	22	21	30	23
Number of boats landing 10,000-50,000 lbs per year of gag	13	13	13	13	11	13
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Gag was the primary source of trip revenue on an average of 1,062 trips per year and a lesser source of revenue on 1,355 trips per year (Table 3-12). Therefore, gag was the primary source of trip revenue on 44% of the total number of trips on which they were landed. However, these trips accounted for approximately 67% of the total commercial harvest of gag. Trips on which gag was the primary source of revenue accounted for an annual average of 0.36 million pounds of gag worth \$1.03 million in current dollars and 0.43 million pounds of other species, including other groupers, snappers, jacks, grunts, porgies and non-snapper grouper species, worth \$0.78 million. Trips on which gag was a lesser source of revenue accounted for an annual average of 0.17 million pounds of gag worth \$0.49 million in current dollars and 1.70 million pounds of other species worth \$3.20 million. Gags were caught as a lesser source of revenue on trips for vermilion snapper, scamp, red grouper, jacks, and other species.

Table 3-12. Annual landings and dockside revenues on trips with gag as the top source of trip revenue, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
	Trips with gag as the top source of trip revenue					
Trips	1,183	1,011	1,044	904	1,070	1,042
Boats	184	193	188	169	206	188
Landings of gag on trips with gag as the top source of revenue, thousand pounds	415	385	372	341	440	391
Dockside revenue for gag on trips with red as the top source of revenue, thousand 2007 \$	\$1,282	\$1,212	\$1,213	\$1,149	\$1,567	\$1,284
Landings of other species, same trips	505	482	432	418	512	470
Dockside revenue for other species, same trips, thousand 2007 \$	\$1,015	\$935	\$877	\$861	\$1,142	\$966
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

The number of boats that reported landing at least one pound of gag varied little from 302 in 2003 to 305 in 2007, and averaged 292 boats per year (Table 3-11). The fleet was not uniformly productive in the fishery for gag, which is consistent with the observation that gag was the primary source of trip revenue on some trips and a lesser source of revenues on other trips. On average for 2001-2006, the top 20 boats for gag production made 20% of the trips that landed gag and recorded 44% of the total commercial harvest of gag (Figure 3-15). The top 50 producing boats made 46% of the trips and recorded 72% of the total harvest, while the top 100 producing boats made 72% of the trips and landed 91% of the total harvest. On average, 92 boats landed 101 - 1,000 pounds of gag per year, 68 boats landed 1,001 - 5,000 pounds per year, 23 boats landed 5,001 – 10,000 pounds per year, and 13 boats landed 10,001 – 50,000 pounds of gag per year (Table 3-11). Approximately 82% of gag is landed with vertical lines, and most of the remainder is landed with dive gear (Table 3-14).

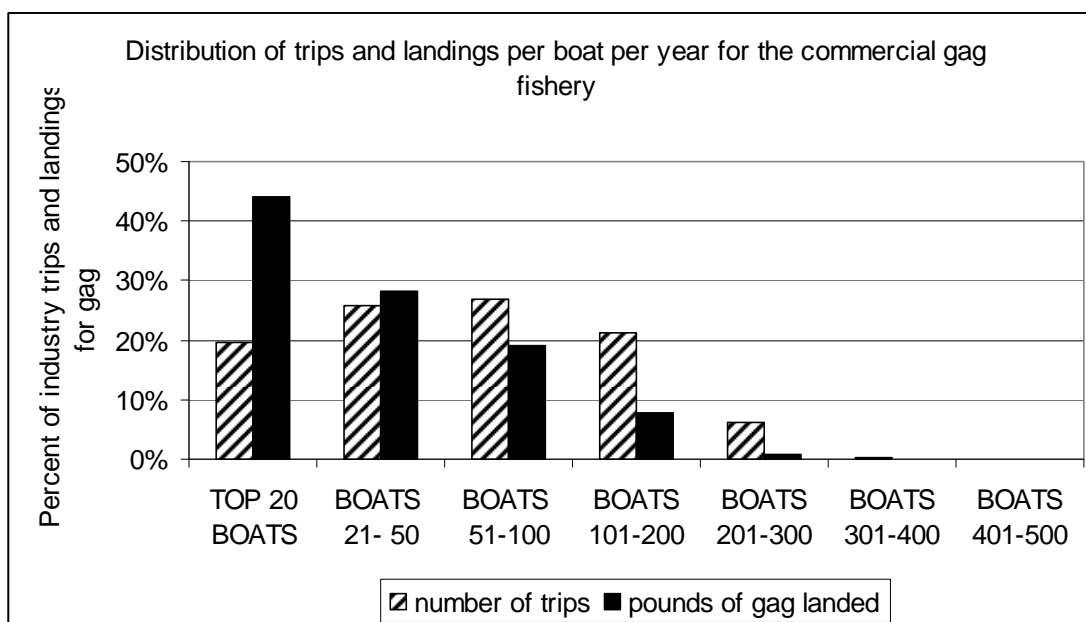


Figure 3-15. Distribution of trips and landings per boat per year, based on trips that reported at least one pound of gag (averages for 2001-2006).Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of October 10, 2007.

Table 3-13. Annual landings and dockside revenues on trips with gag as a lesser source of trip revenue, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
Trips with gag as a lesser source of trip revenue						
Trips	1,298	1,171	1,156	1,178	1,417	1,244
Boats	263	247	253	225	262	250
Landings of gag on trips with gag as a lesser source of revenue, thousand pounds	184	147	169	155	166	164
Dockside revenues for gag on trips with gag as a lesser source of revenue, thousand 2007 \$	\$562	\$456	\$538	\$512	\$569	\$527
Landings of other species, same trips	1,472	1,496	1,611	1,449	1,701	1,546
Dockside revenue for other species, same trips, thousand 2007 \$	\$3,039	\$2,878	\$3,217	\$3,107	\$3,876	\$3,224
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-14. Annual landings of gag for trips with at least one pound of gag, by region and primary gear, 2003-2007.						
	2003	2004	2005	2006	2007	Average
	Trips with at least one pound of gag					
Gag caught off North Carolina, thousand pounds	141	143	175	154	141	151
Gag caught off South Carolina, thousand pounds	234	233	216	204	241	226
Gag caught off Georgia and northeast Florida, thousand pounds	100	88	90	71	117	93
Gag caught off central and southeast Florida, thousand pounds	120	66	58	66	101	82
Gag caught off Florida Keys, thousand pounds	3	2	1	1	4	2
Gag caught with vertical lines, thousand pounds	455	450	467	410	462	447
Gag caught with dive gear, thousand pounds	131	76	67	81	133	98
Gag caught with other gear, thousand pounds	13	7	6	5	11	8
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008.						

3.6.1.8 The South Atlantic Commercial Fishery for Golden Tilefish

Table 3-15. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of golden tilefish, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
Trips or boats with at least one pound of golden tilefish						
Number of trips with at least one pound of golden tilefish	391	336	359	331	593	402
Landings of golden tilefish, thousand pounds, whole weight	344	272	307	410	320	330
Dockside revenue from golden tilefish, thousand current \$	\$658	\$511	\$664	\$827	\$748	\$682
Dockside revenue from golden tilefish, thousand 2007 \$	\$741	\$561	\$702	\$849	\$753	\$721
Dockside price, current \$ / pound	\$1.92	\$1.88	\$2.17	\$2.02	\$2.34	\$2.06
Landings of all species, same trips, thousand pounds	686	504	497	691	408	557
Dockside revenue, all species, same trips, thousand 2007 \$	\$1,287	\$930	\$1,068	\$1,336	\$905	\$1,105
Dockside revenue, all species, all trips, same boats, thousand 2007 \$	\$2,668	\$2,264	\$2,627	\$2,801	\$2,578	\$2,588
Number of boats that landed golden tilefish	63	65	65	60	65	64
Number of boats landing 1-100 lbs per year of golden tilefish	23	20	16	25	18	20
Number of boats landing 101-1000 lbs per year of golden tilefish	21	21	25	16	19	20
Number of boats landing 1,001-5,000 lbs per year of golden tilefish	3	13	16	9	18	12
Number of boats landing more than 5,000 lbs per year of golden tilefish	15	11	8	10	10	11
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-16. Annual landings and dockside revenues on trips with golden tilefish as the top source of trip revenue, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
	Trips with golden tilefish as the top source of trip revenue					
Trips	240	233	247	216	481	283
Boats	40	43	45	33	47	42
Landings of golden tilefish, thousand pounds	307	243	276	378	312	303
Dockside revenue for golden tilefish, thousand 2007 \$	\$671	\$505	\$639	\$786	\$735	\$667
Landings of other species on trips where golden tilefish is the top source of trip revenue, thousand pounds	140	81	40	78	27	73
Dockside revenue for other species on trips where golden tilefish is the top source of trip revenue, thousand 2007 \$	\$188	\$116	\$64	\$123	\$40	\$106
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-17. Annual landings and dockside revenues on trips with golden tilefish as a lesser source of trip revenue, 2003-2007.						
3	2003	2004	2005	2006	2007	Average
Trips with golden tilefish as a lesser source of trip revenue						
Trips	151	103	112	115	112	119
Boats	50	45	46	45	39	45
Landings of golden tilefish on trips with golden tilefish as a lesser source of revenue, thousand pounds	36	30	30	32	7	27
Dockside revenues for golden tilefish on trips with golden tilefish as a lesser source of revenue, thousand 2007 \$	\$70	\$56	\$63	\$63	\$18	\$54
Landings of other fish on trips with golden tilefish as a lesser source of revenue, thousand pounds	203	150	150	203	61	153
Dockside revenues for other fish on trips with golden tilefish as a lesser source of revenue, thousand 2007 \$	\$357	\$253	\$301	\$365	\$112	\$278
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-18. Annual landings of golden tilefish for trips with at least one pound of golden tilefish, by region and primary gear, 2003-2007.						
	2003	2004	2005	2006	2007	Average
	Trips with at least one pound of golden tilefish					
Golden tilefish caught off North Carolina, thousand pounds	17	40	1	2	2	12
Golden tilefish caught off South Carolina, thousand pounds	128	105	62	122	27	89
Golden tilefish caught off Georgia and northeast Florida, thousand pounds			0		0	0
Golden tilefish caught off central and southeast Florida, thousand pounds	191	126	240	283	289	226
Golden tilefish caught off Florida Keys, thousand pounds	8	1	4	2	1	3
Golden tilefish caught with vertical lines, thousand pounds	18	25	38	35	44	32
Golden tilefish caught with dive gear, thousand pounds		0	0		0	0
Golden tilefish caught with other gear, thousand pounds	325	248	269	374	296	302
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008.						

3.6.1.9 The South Atlantic Commercial Fishery for Snowy Grouper

Table 3-19. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of snowy grouper, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
Trips and boats with at least one pound of snowy grouper						
Number of trips with at least one pound of snowy grouper	1,342	1,060	979	820	1,084	1,057
Landings of snowy grouper, thousand pounds, whole weight	284	240	248	258	123	230
Dockside revenue from snowy grouper, thousand current \$	\$642	\$577	\$605	\$703	\$373	\$580
Dockside revenue from snowy grouper, thousand 2007 \$	\$723	\$634	\$643	\$721	\$373	\$619
Dockside price, current \$ / pound	\$2.26	\$2.41	\$2.44	\$2.73	\$3.03	\$2.52
Landings of all species, same trips, thousand pounds	1,683	1,398	1,348	1,324	1,216	1,394
Dockside revenue, all species, same trips, thousand 2007 \$	\$3,209	\$2,820	\$2,837	\$2,857	\$2,894	\$2,923
Dockside revenue, all species, all trips, same boats, thousand 2007 \$	\$8,399	\$8,359	\$8,575	7903	\$8,841	\$8,415
Number of boats that landed snowy grouper	189	167	163	132	147	160
Number of boats landing 1-100 lbs per year of snowy grouper	61	52	54	39	58	53
Number of boats landing 101-1,000 lbs per year of snowy grouper	70	67	70	50	62	64
Number of boats landing 1,001-5,000 lbs per year of snowy grouper	44	30	26	28	23	30
Number of boats landing 5,001-10,000 lbs per year of snowy grouper	7	13	8	5	2	7
Number of boats landing more than 10,000 lbs per year of snowy grouper	7	5	5	10	2	6
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-20. Annual landings and dockside revenues on trips with snowy grouper as the top source of trip revenue, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
	Trips with snowy grouper as the top source of trip revenue					
Trips	540	441	438	366	149	387
Boats	108	95	86	69	59	83
Landings of snowy grouper on trips with snowy grouper as the top source of revenue, thousand pounds	201	178	192	202	74	170
Dockside revenue for snowy grouper on trips with red as the top source of revenue, thousand 2007 \$	\$511	\$471	\$501	\$566	\$226	\$455
Landings of other species, same trips	190	150	164	182	57	149
Dockside revenue for other species, same trips, thousand 2007 \$	\$292	\$238	\$273	\$281	\$89	\$234
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-21. Annual landings and dockside revenues on trips with snowy grouper as a lesser source of trip revenue, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
Trips with snowy grouper as a lesser source of trip revenue						
Trips	802	619	541	454	621	607
Boats	168	141	137	112	135	139
Landings of snowy grouper on trips with snowy grouper as a lesser source of revenue, thousand pounds	83	62	55	56	49	61
Dockside revenues for snowy grouper on trips with snowy grouper as a lesser source of revenue, thousand 2007 \$	\$211	\$164	\$142	\$155	\$147	\$164
Landings of other species, same trips	1,210	1,008	936	885	1,036	1,015
Dockside revenue for other species, same trips, thousand 2007 \$	\$2,194	\$1,948	\$1,920	\$1,855	\$2,433	\$2,070
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-22. Annual landings of snowy grouper for trips with at least one pound of snowy grouper, by region and primary gear, 2003-2007.						
	2003	2004	2005	2006	2007	Average
	Trips with at least one pound of snowy grouper					
Snowy grouper caught off North Carolina, thousand pounds	95	90	81	91	47	81
Snowy grouper caught off South Carolina, thousand pounds	94	65	86	95	13	71
Snowy grouper caught off Georgia and northeast Florida, thousand pounds	9	6	4	3	3	5
Snowy grouper caught off central and southeast Florida, thousand pounds	36	28	25	15	15	24
Snowy grouper caught off Florida Keys, thousand pounds	50	51	52	54	46	51
Snowy grouper caught with vertical lines, thousand pounds	197	176	185	188	117	173
Snowy grouper caught with dive gear, thousand pounds		0	0			0
Snowy grouper caught with other gear, thousand pounds	87	64	62	69	6	58
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008.						

3.6.1.10 The South Atlantic Commercial Fishery for Black Sea Bass

Table 3-23. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of black sea bass, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
Trips and boats with at least one pound of black sea bass						
Number of trips with at least one pound of black sea bass	2,238	2,372	2,056	2,172	1,949	2,157
Landings of black sea bass, thousand pounds, whole weight	597	707	460	527	409	540
Dockside revenue from black sea bass, thousand current \$	\$916	\$842	\$571	\$988	\$1,089	\$881
Dockside revenue from black sea bass, thousand 2007 \$	\$1,033	\$927	\$611	\$1,020	\$1,097	\$937
Dockside price, current \$ / pound	\$1.53	\$1.19	\$1.24	\$1.87	\$2.66	\$1.63
Landings of all species, same trips, thousand pounds	4,189	4,616	4,441	4,508	4,805	4,512
Dockside revenue, all species, same trips, thousand 2007 \$	\$4,411	\$4,643	\$4,358	\$4,549	\$4,594	\$4,511
Dockside revenue, all species, all trips, same boats, thousand 2007 \$	\$8,835	\$8,961	\$9,116	\$9,569	\$11,441	\$9,584
Number of boats that landed black sea bass	225	243	240	220	256	237
Number of boats landing 1-100 lbs per year of black sea bass	84	86	104	87	134	99
Number of boats landing 101-1,000 lbs per year of black sea bass	85	93	81	81	72	82
Number of boats landing 1,001-5,000 lbs per year of black sea bass	35	34	36	31	27	33
Number of boats landing 5,001-10,000 lbs per year of black sea bass	7	12	7	6	11	9
Number of boats landing more than 10,000 lbs per year of black sea bass	14	18	12	15	12	14
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-24. Annual landings and dockside revenues on trips with black sea bass as the top source of trip revenue, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
	Trips with black sea bass as the top source of trip revenue					
Trips	858	889	620	811	649	765
Boats	86	94	83	85	88	87
Landings of black sea bass on trips with black sea bass as the top source of revenue, thousand pounds	546	637	403	482	378	489
Dockside revenue for black sea bass on trips with red as the top source of revenue, thousand 2007 \$	\$948	\$827	\$539	\$936	\$1,023	\$855
Landings of other species, same trips	51	57	38	69	57	54
Dockside revenue for other species, same trips, thousand 2007 \$	\$62	\$66	\$43	\$94	\$76	\$68
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-25. Annual landings and dockside revenues on trips with black sea bass as a lesser source of trip revenue, 2003-2007.						
Item	2003	2004	2005	2006	2007	Average
Trips with black sea bass as a lesser source of trip revenue						
Trips	1,380	1,483	1,436	1,361	1,300	1,392
Boats	195	217	216	194	233	211
Landings of black sea bass on trips with black sea bass as a lesser source of revenue, thousand pounds	51	70	57	45	31	51
Dockside revenues for black sea bass on trips with black sea bass as a lesser source of revenue, thousand 2007 \$	\$85	\$99	\$73	\$84	\$74	\$83
Landings of other species, same trips	1,446	1,721	1,674	1,498	1,408	1,549
Dockside revenue for other species, same trips, thousand 2007 \$	\$3,316	\$3,651	\$3,704	\$3,436	\$3,422	\$3,506
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System data base as of September 17, 2008. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation.						

Table 3-26. Annual landings of black sea bass for trips with at least one pound of black sea bass, by region and primary gear, 2003-2007.						
	2003	2004	2005	2006	2007	Average
	Trips with at least one pound of black sea bass					
Black sea bass caught off North Carolina, thousand pounds	476	485	324	421	271	395
Black sea bass caught off South Carolina, thousand pounds	112	210	120	94	128	133
Black sea bass caught off Georgia and northeast Florida, thousand pounds	4	7	8	6	5	6
Black sea bass caught off central and southeast Florida, thousand pounds	4	5	9	7	4	6
Black sea bass caught off Florida Keys, thousand pounds			0		0	0
Black sea bass caught with vertical lines, thousand pounds	70	85	63	58	44	64
Black sea bass caught with traps, thousand pounds	521	617	390	466	362	471
Black sea bass caught with dive gear, thousand pounds	0	1	0	0	0	0
Black sea bass caught with other gear, thousand pounds	6	5	6	3	2	4
Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008.						

3.6.1.1 Imports

Imports have been a major source of seafood supply in the U.S., and the domestic snapper grouper market is not an exception. For the period 2003-2006, imports of fresh and frozen snappers and groupers have stayed at relatively high levels, averaging 44.7 million pounds (Table 3-27). Compare this with the average overall landings of snapper grouper in the South Atlantic for the same period of 6.77 million pounds (Table 3-5), and one can immediately see the dominance of imports in the snapper grouper market. At an annual average of \$79.2 million for the years 2003-2006, imports clearly dwarf the \$12.99 million ex-vessel value of

South Atlantic snapper grouper landings. Dominance of imports in the snapper grouper market may be expected to exert limits on the movement of domestic ex-vessel prices resulting from changes in domestic landings of snappers and groupers.

Table 3-27. U.S. imports of snappers and groupers, 2003-2006.

YEAR	Pounds of imports by product form Millions of pounds*			Value of imports by product form Millions of dollars		
	FRESH	FROZEN	TOTAL	FRESH	FROZEN	TOTAL
2003	31.1	8.4	39.4	\$51.7	\$10.6	\$62.3
2002	33.4	9.2	42.6	\$57.1	\$12.3	\$69.5
2003	34.3	10.2	44.5	\$58.9	\$14.4	\$73.3
2004	33.3	9.8	43.1	\$61.7	\$13.9	\$75.6
2005	35.9	13.8	49.7	\$72.0	\$21.0	\$93.0
2006	35.2	13.4	48.6	\$78.8	\$22.9	\$101.7
Average	33.9	10.8	44.7	\$63.4	\$15.9	\$79.2

Source: NOAA Fisheries, Foreign Trade Database.

*Weights are not converted to equivalent whole weights.

3.6.2 Economic Description of the Recreational Fishery

Additional information on the recreational snapper grouper fishery is contained in previous amendments [Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2007), Amendment 15B (SAFMC 2008), and Amendment 16 (SAFMC 2008)] and is incorporated herein by reference.

The East Coast (South Atlantic, Mid-Atlantic, and New England) 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. The type of service, from a vessel- or passenger-size perspective, affects the flexibility to search different fishing locations during the course of a trip and target different species since larger concentrations of fish are required to satisfy larger groups of anglers.

3.6.2.1 Harvest

Recreational snapper grouper harvest in the South Atlantic has been variable during the period 2003-2007, averaging slightly below 11million pounds (MP) (Table 3-28). On average, the private/shore mode of fishing accounted for the largest harvests at around 7.23 MP. Well below this harvest level were those of the charter mode (1.97 MP) and headboats (1.69 MP). Harvests in each state also fluctuated during the same period (Table 3-29). On average, Florida accounted for the most snapper grouper harvest in the South Atlantic at approximately

6.83 MP, followed by North Carolina at 2.07 MP, South Carolina at 1.41 MP, and Georgia at 0.64 MP.

Table 3-28. Harvest of snapper grouper species by mode in the South Atlantic, 2003-2007.

Year	Charterboat ¹	Headboat ²	Shore and Private/Rental Boat ¹	Total
2003	2,301,303	1,375,688	7,265,886	10,942,877
2004	1,517,384	1,889,010	6,688,596	10,094,990
2005	2,313,468	1,649,210	6,123,049	10,085,727
2006	1,998,902	1,648,405	7,282,328	10,929,635
2007	1,697,350	1,893,031	8,777,570	12,367,950
Average	1,965,681	1,691,068	7,227,485	10,884,235

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

¹ Pounds of A and B1 fish estimated from the MRFSS Survey.

² The total annual estimate of headboat catch derived from data collected through the NMFS headboat survey.

Table 3-29. Harvest of snapper grouper species by state in the South Atlantic, 2003-2007.

Year	Florida	Georgia	South Carolina	North Carolina
2003	7,848,011	770,993	1,042,157	1,281,714
2004	5,970,816	763,609	1,625,212	1,735,353
2005	6,696,212	622,302	852,105	1,915,107
2006	6,474,221	746,982	1,466,944	2,241,489
2007	7,173,255	320,927	2,079,880	3,199,767
Average	6,832,503	644,962	1,413,259	2,074,686

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

In the Mid-Atlantic, harvests of snapper grouper (as defined by the South Atlantic FMP) fell from 2003 to 2005 but started to recover in 2006, although they remained at levels substantially lower than those in 2003 (Table 3-30). For 2003-2007, total harvests averaged slightly below 5 MP. The shore and private modes dominated the harvest, averaging 3.57 MP. Harvests by the other fishing modes averaged 0.84 MP for charterboats and 0.59 MP for headboats. New York dominated all other states in harvests, averaging 2.49 MP, followed by New Jersey at 1.28 MP, then by Virginia, Maryland, and Delaware in that order (Table 3-31).

Table 3-30. Harvest of snapper grouper species by mode in the Mid-Atlantic, 2003-2007.

Year	Charterboat	Headboat	Shore and Private/Rental Boat	Total
2003	2,040,303		6,784,987	8,825,290
2004	934,045		2,559,977	3,494,022
2005	328,682	481,845	2,127,007	2,937,534
2006	447,665	555,066	2,878,776	3,881,507
2007	457,149	735,310	3,511,240	4,703,699

Year	Charterboat	Headboat	Shore and Private/Rental Boat	Total
Average	841,569	590,740	3,572,397	4,768,410

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-31. Harvest of snapper grouper species by state in the Mid-Atlantic, 2003-2007.

Year	Virginia	Maryland	Delaware	New Jersey	New York
2003	817,271	279,585	301,871	1,753,908	5,672,655
2004	384,117	162,765	75,457	1,205,003	1,666,679
2005	654,918	111,184	75,925	980,967	1,114,538
2006	741,891	147,428	128,822	1,078,690	1,784,676
2007	914,527	73,329	148,412	1,375,916	2,191,513
Average	702,545	154,858	146,097	1,278,897	2,486,012

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

In New England, total harvests also fell from 2003 to 2005 and started to recover in 2006. The 2003-2007 average harvest was 2.41 MP (Table 3-32). As in the other sub-regions, the shore and private modes dominated harvests, averaging 2.15 MP. Harvests by other modes were substantially lower at 0.17 MP for headboats and 0.16 MP for charterboats. Of the five New England states, New Hampshire and Maine did not show any snapper grouper harvests for the 2003-2007 period (Table 3-33). Harvests were about evenly distributed among the other three states, with averages of 0.83 MP for Massachusetts, 0.78 MP for Connecticut, and 0.53 MP for Rhode Island.

Table 3-32. Harvest of snapper grouper species by mode in New England, 2003-2007.

Year	Charterboat	Headboat	Shore and Private/Rental Boat	Total
2003	472,072		2,927,480	3,399,552
2004	106,330		2,691,904	2,798,234
2005	37,037	52,336	1,995,970	2,085,343
2006	100,250	192,745	1,350,519	1,643,514
2007	59,669	272,002	1,773,658	2,105,329
Average	155,072	172,361	2,147,906	2,406,394

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-33. Harvest of snapper grouper species by state in New England, 2003-2007.

Year	Connecticut	Rhode Island	Massachusetts	New Hampshire	Maine
2003	1,536,353	828,253	1,034,947	0	0
2004	624,917	888,075	1,285,241	0	0
2005	837,567	513,755	734,022	0	0
2006	737,463	525,903	380,148	0	0
2007	780,896	498,795	825,637	0	0
Average	903,439	650,956	851,999	0	0

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

The distribution by mode in the South Atlantic of ten key snapper grouper species is presented in Table 3-34. Five species (black sea bass, gag, red grouper, vermilion snapper, red snapper) show relatively large harvests over the 2003-2007 period. Black sea bass accounted for the largest harvest at an average of 0.84 MP, followed somewhat closely by vermilion snapper at an average of 0.601 MP and gag at an average of 0.597 MP. Except for golden tilefish, snowy grouper, speckled hind, and vermilion snapper, the shore and private modes dominated the harvest of the ten species. Charterboats dominated in the harvest of golden tilefish and snowy grouper while headboats dominated in the harvest of speckled hind and vermilion snapper. Florida recorded harvests of all ten species, Georgia did not register harvests of golden tilefish and snowy grouper, South Carolina did not register harvests of golden tilefish and black grouper, and North Carolina did not register any harvest of black grouper (Table 3-35).

Table 3-34. South Atlantic average harvest (lbs) of 10 species in this amendment, by mode, 2003-2007.

Species	Charterboat	Headboat	Shore and Private/Rental Boat	Total
Golden Tilefish	69,303	0	16,228	68,425
Snowy Grouper	50,553	474	6,369	53,575
Speckled Hind	212	1,060		1,230
Warsaw Grouper	4,810	847	28,145	15,953
Black Grouper	3,129	1,689	32,761	36,953
Black Sea Bass	102,610	177,477	555,316	835,402
Gag	108,909	49,123	439,510	597,543
Red Grouper	48,215	23,166	280,044	351,424
Vermilion Snapper	118,490	386,936	96,071	601,497
Red Snapper	101,457	51,355	168,511	321,322

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

Table 3-35. South Atlantic average harvest (lbs) of 10 species in this amendment, by state, 2003-2007.

Species	Florida	Georgia	South Carolina	North Carolina
Golden Tilefish	5,282			80,249
Snowy Grouper	36,401		178	17,175
Speckled Hind	1,083	53	1,099	186
Warsaw Grouper	15,426	26	869	447
Black Grouper	36,842	19		
Black Sea Bass	268,816	79,753	75,722	244,377
Gag	345,322	12,332	45,582	204,332
Red Grouper	112,730	54	9,800	235,723
Vermilion Snapper	173,928	49,938	273,711	167,988
Red Snapper	263,256	25,923	23,050	10,716

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

In the Mid-Atlantic, only two of the ten species appear to be harvested. Only the charterboat mode registered harvest of golden tilefish, at an average of 6,740 pounds per year, but all fishing modes registered relatively large harvests of black seas bass (Table 3-36). Virginia and Delaware were the only two states that showed harvests of golden tilefish, but all five states showed harvest of black sea bass, with New Jersey being the leader by a significant margin (Table 3-37).

Table 3-36. Mid-Atlantic average harvest (lbs) of 10 species in this amendment, by mode, 2003-2007.

Species	Charterboat	Headboat	Shore and Private/Rental Boat	Total
Golden Tilefish	6,740			6,740
Snowy Grouper				
Speckled Hind				
Warsaw Grouper				
Black Grouper				
Black Sea Bass	655,438	445,048	1,012,521	2,113,007
Gag				
Red Grouper				
Vermilion Snapper				
Red Snapper				

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

Table 3-37. Mid-Atlantic average harvest (lbs) of 10 species in this amendment, by state, 2003-2007.

Species	Virginia	Maryland	Delaware	New Jersey	New York
Golden Tilefish	2,955		1,079		
Snowy Grouper					
Speckled Hind					
Warsaw Grouper					
Black Grouper					
Black Sea Bass	164,581	139,047	118,038	1,169,906	333,461
Gag					
Red Grouper					
Vermilion Snapper					
Red Snapper					

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

Only black sea bass appears to be harvested in the New England area, with all fishing modes showing some harvest of the species (Table 3-38). The shore and private modes were by far the dominant fishing mode in harvesting black sea bass. New Hampshire and Maine did not show any landings of any of the ten species under consideration. Of the remaining three states in the area, Massachusetts dominated Rhode Island and Connecticut in the harvest of black sea bass (Table 3-39).

Table 3-38. New England average harvest (lbs) of 10 species in this amendment, by mode, 2003-2007.

Species	Charterboat	Headboat	Shore and Private/Rental Boat	Total
Golden Tilefish				
Snowy Grouper				
Speckled Hind				
Warsaw Grouper				
Black Grouper				
Black Sea Bass	37,695	22,263	209,348	269,305
Gag				
Red Grouper				
Vermilion Snapper				
Red Snapper				

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

Table 3-39. New England average harvest (lbs) of 10 species in this amendment, by state, 2003-2007.

Species	Connecticut	Rhode Island	Massachusetts	New Hampshire	Maine
Golden Tilefish					
Snowy Grouper					
Speckled Hind					
Warsaw Grouper					
Black Grouper					
Black Sea Bass	8,201	68,723	183,477		
Gag					
Red Grouper					
Vermilion Snapper					
Red Snapper					

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

For the period 2003-2007, the ten species examined accounted for about 26 percent of all recreational harvests of snapper grouper in the South Atlantic. The corresponding figures for the other sub-regions are 44 percent for Mid-Atlantic and 11 percent for New England.

3.6.2.2 Effort

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

1. Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that the species or a species in the species group was targeted as either the first or 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 duration and target intent, where the individual species or a species in the species group was caught. The fish did not have to be kept.
3. Total recreational trips - The total estimated number of recreational trips in the South Atlantic, regardless of target intent or catch success.

Estimates of recreational effort for the entire snapper grouper fishery in the South Atlantic are provided in Table 3-40 for trips by mode and Table 3-41 for trips by state; those for the Mid-Atlantic are presented in Table 3-42 for trips by mode and Table 3-43 for trips by state; and, those for New England are presented in Table 3-45 for trips by mode and Table 3-45 for trips by state. The total column refers to the total number of trips taken by all anglers in the South Atlantic recreational fishery for that mode or state and not to the sum of catch and target trips.

In the South Atlantic, total angler trips were highest for the shore mode, followed by the private mode, and then by the charter mode (Table 3-40). However, average catch trips were highest on those taken through the private mode and lowest on those through the charter mode. The same is true with target trips: they were highest for private mode and lowest for charter mode. For the charter mode, both catch and target trips peaked in 2005 and decreased thereafter. Shore mode catch trips dropped from 2003 to 2004 but steadily increased thereafter; shore mode target trips fell from 2003 to 2005 and increased thereafter. Catch trips for the private mode fell in 2004 but increased thereafter, with relatively high levels in the last two years; target trips declined through 2005 and picked up in the last two years. Florida registered the highest total angler trips, followed in order by North Carolina, South Carolina, and Georgia (Table 3-41). The same pattern holds for catch trips but not for target trips. South Carolina registered slightly higher target trips than North Carolina.

Table 3-40. Recreational effort for the snapper grouper fishery in the South Atlantic, in thousand trips, by mode, 2003-2007.

	Charter Mode Trips			Shore Mode Trips			Private Mode Trips		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
2003	118	23	412	1,103	263	10,872	2,105	648	9,963
2004	129	28	418	987	209	11,186	1,985	477	9,488
2005	373	69	971	1,095	195	11,240	2,096	473	9,886
2006	285	68	834	1,276	272	12,511	2,603	530	10,749
2007	129	40	501	1,400	321	11,938	2,851	668	13,137
Avg.	207	45.6	627	1,172	252	11,549	2,328	559	10,644

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-41. Recreational effort for the snapper grouper fishery in the South Atlantic, in thousand trips, by state, 2003-2007.

	Florida			Georgia			South Carolina			North Carolina		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
2003	2,860	723	11,444	92	46	971	143	86	2,098	231	80	6,733
2004	2,530	532	10,800	90	26	960	191	84	2,224	289	71	7,107
2005	2,835	579	12,200	96	28	859	178	60	2,188	454	70	6,849
2006	3,325	633	13,349	71	28	799	248	133	2,670	520	76	7,276
2007	3,807	784	15,169	104	20	926	137	109	2,529	332	116	6,951
Avg.	3,071	650	12,592	90	29	903	179	94	2,341	365	82	6,983

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

In the Mid-Atlantic, the private mode trips were highest, at an average of 11.75 million angler trips (Table 3-42). Total charter mode trips were significantly lower than either shore mode or private mode angler trips. For the years 2003-2005, total private mode and shore mode angler trips fluctuated about their respective means, but charter mode trips were substantially lower in the last three years. In terms of catch trips, the private mode registered an average of 74.6 thousand trips, the shore mode 14.8 thousand trips, and the charter mode 0.28 thousand trips. Average target trips were about the same as average catch trips for the private mode but significantly lower for both the shore and charter modes. On a state-by-state basis, New Jersey registered the highest number of total angler trips, followed by New York, Virginia, Maryland, and Delaware (Table 3-43). Except for Virginia, with average catch trips of 68.4 thousand, catch trips were relatively low for the various states, with a range of 5 thousand trips in Maryland to 8.02 thousand trips in New Jersey. A similar pattern holds for target trips: Virginia registered an average of 69.2 thousand trips while the other states showed a range of 0.38 thousand trips in Delaware to 3.2 thousand trips in New York.

Table 3-42. Recreational effort for the snapper grouper fishery in the Mid-Atlantic, in thousand trips, by mode, 2003-2007.

	Charter Mode Trips			Shore Mode Trips			Private Mode Trips		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
2003	3	0	1,182	3	11	7,383	51	49	11,286
2004	9	1	1,323	13	2	6,327	52	58	11,084
2005	0.8	0	735	17	4	7,935	76	76	11,729
2006	0.2	0	749	29	0	7,895	79	83	12,123
2007	6	0.4	760	12	4	8,768	115	105	12,551
Avg.	3.8	0.28	949.8	14.8	4.2	7,661.6	74.6	74.2	11,754.6

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-43. Recreational effort for the snapper grouper fishery in the Mid-Atlantic, in thousand trips, by state, 2003-2007.

	Virginia			Maryland			Delaware			New Jersey			New York		
	Catch	Targ.	Total	Catch	Targ.	Total	Catch	Targ.	Total	Catch	Targ.	Total	Catch	Targ.	Total
2003	44	48	3,113	6	0	3,329	2	0	1,104	2	2	6,779	5	9	5,525

2004	39	49	3,594	5	2	2,644	8	1	1,177	13	4	6,544	8	4	4,773
2005	55	72	3,829	11	1	3,157	6	0	1,042	13	4	6,484	10	3	5,885
2006	101	83	3,883	3	0	3,534	3	0.3	1,154	0.1	0	6,954	1	0	5,240
2007	103	94	3,696	0	12	4,003	12	0.6	1,263	12	3	7,136	8	0	5,979
Avg.	68.4	69.2	3,623	5	3	3,333.4	6.2	0.38	1,148	8.02	2.6	6,779.4	6.4	3.2	5,480

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

In New England, snapper grouper recreational trips were substantially lower than those in other sub-regions (Table 3-44). Private mode trips were highest with an average of 4.69 million trips, followed by shore mode trips at 4.09 million trips and charter mode trips at 248 thousand trips. Both catch and target trips for snapper grouper were very low for all fishing modes. Among the five states in the sub-region, Massachusetts registered the highest number of total trips, followed in order by Rhode Island, Connecticut, Maine, and New Hampshire (Table 3-45). Both catch and target trips were very low in all states. In fact, Connecticut, New Hampshire, and Maine registered no catch or target trips for snapper grouper.

Table 3-44. Recreational effort for the snapper grouper fishery in New England, in thousand trips, by mode, 2003-2007.

	Charter Mode Trips			Shore Mode Trips			Private Mode Trips		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
2003	0.1	0	319	0.4	0	3,833	1	0	4,426
2004	0	0	301	0.6	2	3,909	3	0	4,450
2005	0.03	0	205	0.6	0	3,819	0	0	5,016
2006	0	0	189	0.6	0	4,510	0	2	4,681
2007	0	0	226	0	3	4,355	3	0	4,862
Avg.	0.03	0	248	0.44	1	4,085.2	1.4	0.4	4,687

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-45. Recreational effort for the snapper grouper fishery in New England, in thousand trips, by state, 2003-2007.

	Connecticut			Rhode Island			Massachusetts			New Hampshire			Maine		
	Catch	Targ.	Total	Catch	Targ.	Total	Catch	Targ.	Total	Catch	Targ.	Total	Catch	Targ.	Total
2003	0	0	1,563	2	0	1,594	0	0	4,085	0	0	415	0	0	919
2004	1	0	1,538	0.6	0.2	1,503	1	2	4,501	0	0	360	0	0	758
2005	0	0	1,573	0.6	0	1,590	0	0	4,318	0	0	481	0	0	1,076
2006	0	0	1,454	0.6	0	1,671	0	2	4,602	0	0	469	0	0	1,181
2007	0	0	1,658	0	0	1,509	3	3	4,610	0	0	456	0	0	1,209
Avg.	0.2	0	1,557.2	0.76	0.04	1,573.4	0.8	1.4	4,423.2	0	0	436.2	0	0	1,028.6

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Estimates of recreational effort for the ten species considered in this amendment are provided in Table 3-46 for trips by mode and Table 3-48 for trips by state. The total column refers to the total number of trips taken by anglers for all ten species and not to the sum of catch and target trips.

In terms of total angler trips, the shore mode dominated all other modes for trips catching and/or targeting any of the ten species in this amendment (Table 3-46). However, in terms of catch and target trips, the private mode dominated the other two fishing modes in most of the ten species. There are also observable regional variations in catch and target trips for the ten

species under consideration (Table 3-47). In both catch and target trips, Florida dominated all other states for most species. Notable exceptions are golden tilefish and black sea bass where North Carolina had a slight edge over Florida in catch but not in target trips. It is also worth noting that South Carolina showed higher target trips for black sea bass than either Florida or North Carolina.

Table 3-46. South Atlantic average recreational effort for 10 species in this amendment, in thousand trips, by mode, 2003-2007.

Species	Charter Mode Trips			Shore Mode Trips			Private Mode Trips		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
Golden Tilefish	3	0	463	0	0	11,514	2	1	10,658
Snowy Grouper	2	247	463	0	0	11,514	2,217	414	10,658
Speckled Hind	0.1	0.0	463	0.2	0.0	11,514	0.8	0.1	10,658
Warsaw Grouper	0.2	0.0	463	0.2	0.0	11,514	1.2	0.0	10,658
Black Grouper	0.8	0.0	463	0.7	0.2	11,514	12.7	3.7	10,658
Black Sea Bass	37.1	3.5	463	73.8	0.8	11,514	489.3	46.6	10,658
Gag Grouper	8.1	1.8	463	10.5	2.2	11,514	93.0	33.5	10,658
Red Grouper	9.6	0.0	463	1.8	0.5	11,514	59.9	3.1	10,658
Vermilion Snapper	25.6	0.6	463	1.0	0.0	11,514	53.5	2.4	10,658
Red Snapper	14.8	2.8	463	1.6	4.2	11,514	63.0	36.3	10,658

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-47. South Atlantic average recreational effort for 10 species in this amendment, in thousand trips, by state, 2003-2007.

Species	Florida			Georgia			South Carolina			North Carolina		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
Golden Tilefish	1.3	0.5	12,487.4	0.0	0.0	895.0	0.0	0.0	2,315.6	3.6	0.3	6,936.4
Snowy Grouper	3.0	0.7	12,487.4	0.0	0.0	895.0	0.0	0.0	2,315.6	1.4	0.0	6,936.4
Speckled Hind	1.1	0.0	12,487.4	0.0	0.0	895.0	0.0	0.0	2,315.6	0.0	0.1	6,936.4
Warsaw Grouper	1.4	0.0	12,487.4	0.0	0.0	895.0	0.0	0.0	2,315.6	0.0	0.0	6,936.4
Black Grouper	14.0	3.9	12,487.4	0.0	0.0	895.0	0.3	0.0	2,315.6	0.0	0.0	6,936.4
Black Sea Bass	200.3	12.0	12,487.4	30.7	4.7	895.0	140.0	23.2	2,315.6	229.2	11.0	6,936.4
Gag Grouper	88.5	35.5	12,487.4	2.0	0.0	895.0	5.0	0.9	2,315.6	16.1	1.0	6,936.4
Red Grouper	56.1	3.0	12,487.4	0.0	0.0	895.0	1.0	0.0	2,315.6	14.3	0.5	6,936.4
Vermilion	53.0	1.6	12,487.4	6.9	0.0	895.0	9.9	1.0	2,315.6	10.3	0.4	6,936.4

Snapper												
Red Snapper	71.6	39.1	12,487.4	5.0	1.4	895.0	2.0	2.8	2,315.6	0.9	0.0	6,936.4

Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Similar analysis of recreational effort is not possible for the headboat sector because 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. Despite the inability to associate headboat effort with specific species, the stationary bottom nature of headboat fishing, as opposed to trolling, suggests that all headboat trips and, hence, angler days, are snapper grouper trips by intent, though not necessarily success.

Estimates of the number of Headboat angler days are presented in Table 3-48. Due to confidentiality reasons, headboat angler days for Georgia were combined with those of Florida. For the period 2003-2007, total headboat angler days fluctuated around the mean of 240,980 days. On average, Florida accounted for the largest number of angler days (164,492), or about 68 percent of all headboat angler days. Nevertheless, the numbers for South Carolina (47,571 days) and North Carolina (27,312 days) are far from negligible.

Table 3-48. Estimate of headboat angler days for the U.S. South Atlantic.

	Florida	South Carolina	North Carolina	Total
2003	145,011	36,556	22,998	206,568
2004	173,701	50,461	27,255	253,421
2005	171,078	34,036	31,573	238,692
2006	175,522	56,074	25,736	259,338
2007	157,150	60,729	29,002	246,881
Average	164,492	47,571	27,312	240,980

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

3.6.2.3 Permits

For-hire vessels in the South Atlantic are required to have a snapper grouper for-hire permit to fish for or possess snapper grouper species in the EEZ. The number of permitted vessels for the period 2003-2007 is provided in Table 3-49. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners have been known to purchase open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire permits issued in the South Atlantic snapper grouper fishery increased over the period 2003-2007, from 1,477 permits in 2003 to 1,754 permits in 2007. Most of the increases would likely be for strictly for-hire business, since permits issued for vessels operating as for-hire and commercial entities remained about flat from 2005 to 2006 and fell in 2007. The majority of snapper grouper for-hire permitted vessels were home-ported in Florida; a good number of vessels were also home-ported in North Carolina and South Carolina. Interestingly, there were several vessels with homeports in states other than those

within the South Atlantic Council's area of jurisdiction. Most of the vessels with both for-hire and commercial permits were home-ported in the South Atlantic Council's area of jurisdiction.

The for-hire permit does not distinguish between whether the vessel operates as a charterboat or headboat. However, 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.

Table 3-49. South Atlantic snapper grouper for-hire permit holders by home port state, 2003-2007.

Home Port State	Number of vessels issued for-hire vessel permits						Number of vessels with both a for-hire permit and a commercial snapper grouper permit					
	2003	2004	2005	2006	2007	Avg.	2003	2004	2005	2006	2007	Avg.
Florida	957	1,084	1,119	1,108	1,140	1,082	148	151	148	151	122	144
North Carolina	206	232	254	284	315	258	45	42	43	46	40	43
South Carolina	122	108	121	119	129	120	34	33	33	34	24	32
Georgia	36	27	33	33	30	32	4	2	2	2	3	3
Virginia	5	13	10	10	8	9		4	3	2		3
Other States	69	48	51	62	69	60	8	3	5	3	2	4
Gulf States	82	82	79	65	63	74						
Total	1,477	1,594	1,667	1,681	1,754	1,635	239	235	234	238	191	227

Source: Southeast Permits Database, NOAA Fisheries, SERO.

3.6.2.4 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.

Estimates of the economic value of a day of saltwater recreational fishing in the South Atlantic indicate that the mean value of access per marine recreational fishing trip is \$109.31 for the South Atlantic (Haab *et al.* 2001). While this estimate is not specific to snapper

grouper fishing trips, it may shed light on the magnitude of an angler's willingness to pay for this type of recreational experience.

Willingness to pay for an incremental increase in catch and keep rates per trip was also estimated to be \$3.01 for bottom fish species by Haab *et al.* (2001). Whitehead *et al.* (2001) estimated the marginal willingness to pay to avoid a one fish red snapper bag limit decrease to be \$1.06 to \$2.20. Finally, Haab *et al.* (2001) provided a compensating variation (the amount of money a person would have to receive to be no worse off after a reduction of the bag limit) estimate of \$2.49 per fish when calculated across all private boat anglers that targeted snapper grouper species in the South Atlantic.

These valuation estimates should not be confused with angler expenditures or economic activity. 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. However, angler expenditures benefit a number of sectors that provide goods and services for salt-water sport fishing. Gentner *et al.* (2001) provides estimates of saltwater recreational fishing trip expenditures (Table 3-50). These estimates do not include expenditures in Monroe County, Florida, or expenditures in the headboat sector.

Table 3-50. Summary of expenditures on saltwater trips.

	North Carolina		South Carolina		Georgia		Florida	
Item	Resident	Non Resident	Resident	Non Resident	Resident	Non Resident	Resident	Non Resident
Shore mode trip expenses	\$63.61	\$75.53	\$54.12	\$104.27	\$31.78	\$115.13	\$36.90	\$141.30
Private/rental boat trip expenses	\$71.28	\$92.15	\$35.91	\$67.07	\$161.34	\$77.51	\$66.59	\$94.15
Charter mode trip expenses	\$201.66	\$110.71	\$139.72	\$220.97	\$152.45	\$155.90	\$96.11	\$196.16
Charter fee-average-per day	\$133.76	\$70.59	\$114.26	\$109.97	\$73.68	\$80.99	\$71.37	\$100.79

Source: 1999 MRFSS add-on survey (Gentner *et al.* 2001).

3.6.2.5 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.

3.6.3 Social and Cultural Environment

Additional information on the social and cultural environment of the snapper grouper fishery is contained in Amendment 13C (SAFMC 2006) and is incorporated herein by reference. The following sections summarize information relevant to this action. Key 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.

Permit trends are hard to determine, since several factors may affect how many vessels are homeported in certain communities, including vessel mobility, shifting stock locations, and resettlement of fishermen due to coastal development. Nevertheless, although vessel location shifts occur, static geographical representations help determine where impacts may be felt.

Census data must be used with caution. Census data is collected every ten years and may not reflect shifting community demographics. Businesses routinely start up and fail or move and the census data collection cycle may fail to capture key changes. Further, census estimates do not include seasonal visitors and tourists, or those that live less than half the year in a surveyed area. Many of the latter group may work as seasonal employees and not be counted. Census data also misses some types of labor, such as day laborers, undocumented crew members, or family members that help with bookkeeping responsibilities.

Permit requirements for the commercial snapper grouper fishery were established in 1998 by Amendment 8 (SAFMC 1997). Amendment 8 created a limited entry system for the fishery and established two types of permits based on the historic landings associated with a particular permit. Those who could demonstrate a certain amount of landings over a certain time period received permits that did not limit the number of pounds of snapper grouper that could be landed from federal waters (hereafter referred to as “unlimited commercial permits”). These permits were transferable. Vessels with verified landings, but did not meet the threshold were issued permits that allowed them to land 225 pounds of snapper grouper species from federal waters each trip (hereafter referred to as “limited commercial permits”). These permits were not transferable. New entry into the fishery required the purchase of two unlimited permits from existing permit holders for exchange for a new permit. This “two for one” system was intended to gradually decrease the number of permits in the fishery. These restrictions only applied to the commercial snapper grouper permit.

Impacts on fishing communities from coastal development, rising property taxes, decreasing access to waterfront due to increasing privatization of public resources, rising cost of dockage and fuel, lack of maintenance of waterways and ocean passages, competition with imported fish, and other less tangible (often political) factors have combined to put all these communities and their associated fishing sectors under great stress.

While studies on the general identification of fishing communities have been undertaken in the past, little social or cultural investigation into the nature of the snapper grouper fishery itself has occurred. A socioeconomic study by Waters *et al.* (1997) covered the general characteristics of the fishery in the South Atlantic, but those data are now almost 10 years old

and do not capture important changes in the fishery. Cheuvront and Neal (2004) conducted survey work of the North Carolina commercial snapper grouper fishery south of Cape Hatteras, but did not include ethnographic examination of communities dependent upon fishing.

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).

Because so many communities in the South Atlantic benefit from snapper grouper fishing, the following discussion focuses on "indicator communities," defined as communities thought to be most heavily impacted by snapper grouper regulations.

3.6.3.1 Communities in the Mid-Atlantic and New England

Landings data can suggest which communities would be most affected if the FMU is extended to the Mid-Atlantic and New England areas. The following sections contain community descriptions for Ocean City and West Ocean City, Maryland; Montauk, New York; and Point Judith, Rhode Island. These communities are amongst the top ports for commercial landings in the Mid-Atlantic and New England for species in the snapper grouper complex.

Ocean City and West Ocean City, Worcester County, Maryland

Ocean City, Maryland (38.33° N, 75.09° W) is located in Ocean Pines, an unincorporated area in Worcester County. It is bordered to the east by the Atlantic Ocean and to the west by the Assawoman and Isle of Wight Bays. The town has a total area of 36.4 mi², 4.6 mi² of which is land and 31.8 mi is water (USGS 2008). West Ocean City is located across the bay from the southern portion of Ocean City.

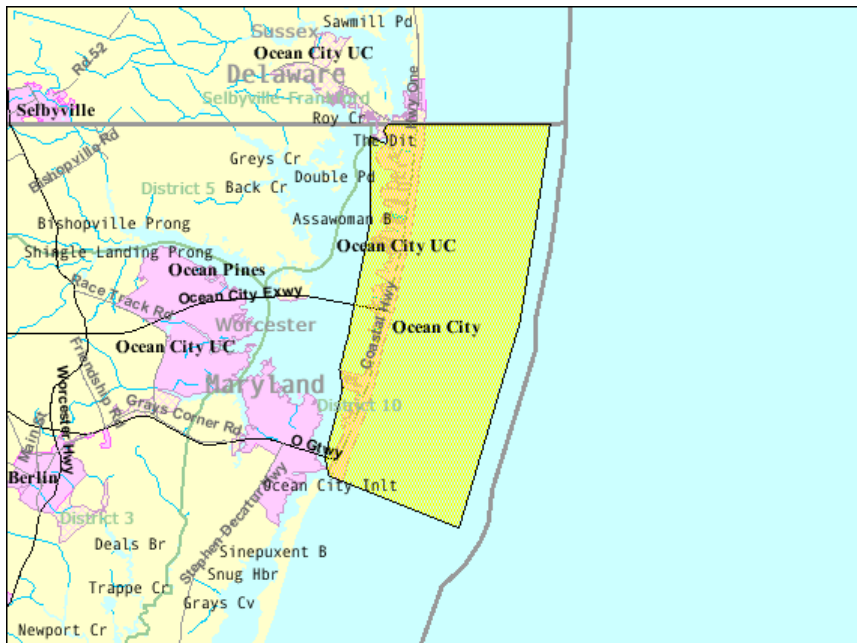


Figure 3-16. Location of Ocean City, Maryland (US Census Bureau 2000a).

Historical Background

Ocean City was primarily established as a town in the late 17th century by an influx of Virginians. The area of land belonging today to Worcester County, Maryland changed many times over the years, belonging at times to Delaware and Somerset County, Maryland. In 1933, a storm formed the Ocean City Inlet and engineers decided to make this act of nature permanent. This decision helped to establish Ocean City as an important fishing port, offering easy access to both the bay and the Atlantic Ocean (OCCVB n.d.). Most of the fishing today is offshore, however there are substantial inshore and coastal bay fisheries (blue crabs, hard clams, and gillnetting for spot, bunker, trout, and striped bass).

Ocean City

According to Census 2000 data, Ocean City had a population of 7,173, an increase of 41.4% from a reported population of 5,074 in 1990 (US Census Bureau 1990). Of this 2000 total, 51.3% were males and 48.7% were females. The 2000 median age was 47.2 years and 86.5% of the population was 21 years or older, while 30.0% of the population was 62 or older. The population structure for Ocean City showed an older population, with the largest percentage of residents between the ages 60-69, and significant numbers of residents in the 50-59 and 70-79 age categories. This indicates that many people may retire to Ocean City. There were also, however, a significant number of residents between the ages of 20-49 as well. Ocean City had surprisingly few children in the 0-9 and 10-19 age categories.

The majority of the population in Ocean City in 2000 was white (96.3%) with 2.5% black or African America, 0.7% Asian, 0.1% Native American, and 0.01% Native Hawaiian or Pacific Islander. Of the total population, 1.2% identified themselves as Hispanic/Latino. Residents linked their backgrounds to a number of different ancestries, including German (25.6%), Irish (21.0%), English (16.0%), and Italian (8.7%). With regard to region of birth, 51.5% were

born in Maryland, 43.7% were born in a different state and 4.5% were born outside of the U.S. (including 3.0% who were not U.S. citizens).

For 93.0% of the Ocean City population in 2000, only English was spoken in the home, leaving 7.0% in homes where a language other than English was spoken, including 2.9% of the population who spoke English less than “very well” according to the 2000 Census. Of the population 25 years and over, 87.1% were high school graduates or higher and 28.0% had a bachelor’s degree or higher. Of the population 25 years and over, 2.6% had not reached ninth grade, 10.3% attended some high school but did not graduate, 31.7% completed high school, 22.7% had some college with no degree, 4.8% had received an associate’s degree, 20.1% had earned a bachelor’s degree, and 7.9% had received either a graduate or professional degree.

West Ocean City

According to Census 2000 data, West Ocean City had a population of 3,311, an increase of 65.5% from a reported population of 2,000 in 1990 (US Census Bureau 1990). Of this total in 2000, 49.3% were males and 50.7% were females. The median age was 43.5 years and 77.9% of the population was 21 years or older, while 23.3% of the population was 62 or older.

The population structure for West Ocean City showed essentially two peaks, the first between ages 30-39, and the second between ages 60-69. Men between the ages of 30-39 outnumbered women of the same age, and conversely women aged 60-69 out-numbered their male counterparts. These patterns suggests two possible trends; one is that younger adults, and particularly males without children aged 20-39 are moving to West Ocean City, and the other is that many people are retiring here, judging by the large number of residents in the 60-69 and 70-79 age categories.

The majority of the population of West Ocean City in 2000 was white (95.9%) with 2.0% of residents black or African American, 0.8% Native American, 1.0% Asian, and 0.1% Pacific Islander or Hawaiian. Of the total population, only 1.4% identified themselves as Hispanic/Latino. Residents linked their backgrounds to a number of different ancestries, including German (22.1%), English (19.0%), and Irish (16.7%). With regard to region of birth, 57.2% were born in Maryland, 38.2% were born in a different state and 4.4% were born outside of the U.S. (including 2.2% who were not U.S. citizens).

For 93.2% of the West Ocean City population, only English was spoken in the home, leaving 6.8% in homes where a language other than English was spoken, including 2.8% of the population who spoke English less than “very well” according to 2000 Census. Of the population 25 years and over, 81.2% were high school graduates or higher and 20.7% had a bachelor’s degree or higher. For the population 25 years and over, 3.6% did not reach ninth grade, 15.2% attended some high school but did not graduate, 31.5% completed high school, 21.1% had some college with no degree, 7.9% had received an associate’s degree, 12.6% had earned a bachelor’s degree, and 8.1% had received either a graduate or professional degree.

Setting

Ocean City is primarily a resort town. The real estate market has long been a problem for those seeking to buy a first home, especially blue collar workers (Lerner 2002, Guy 2003,

Vandiver 2004). Fishing concerns identified in the area include the allocation of marine resources between the commercial and recreational sectors, and the potential of commercial fishing gear impacts on habitat in the area.

The commercial fishing industry in Ocean City is actually located in West Ocean City, an unincorporated segment of Worcester County just across the bay from Ocean City. The harbor here has a commercially-owned dock, a recreational fishing marina, and three commercial packing houses. Some private dock owners also lease space to the commercial vessels (Oles 2003). The [Sunset Marina](#) has a sheltered 18 acre deep water basin that can accommodate vessels up to 100 feet in length. There are 20 charter boats located here, as well as a bait and tackle shop and marine supplies shop. The [Ocean City Fishing Center](#), also located in West Ocean City, has 170 slips, free parking and security. It is home to the largest charter fleet in the town, comprising 30 boats. It also has a bait shop, restaurant, and repair service.

There are nine recreational marinas located in Ocean City and West Ocean City; 75% of the charter boats are found in three marinas, along with two of the largest ocean-going party boats. There are also a number of places along the shore frequented by anglers, including three pay piers (the Ocean Pier and the Oceanic Pier), the Route 50 Bridge, a number of public piers and bulkheads, and a public crabbing and fishing area on the Isle of Wight. There are four public boat launches found in West Ocean City harbor. The Ocean City area also has a number of fish cleaning businesses (Oles 2003). The government of Ocean City owns the Bayside Boardwalk/ 9th St Fishing Pier and the Bering Road Boat Ramp (WCPC 2006).

Dock space in West Ocean City, where the commercial fishing fleet is based, is limited; fortunately, protective zoning by Worcester County means the docks are not immediately threatened. Some processing plants and a clam dock in the area recently closed as a result of a consolidation of surf clam and ocean quahog boats, particularly a decline in owner-operated boats, after the implementation of ITQs in this fishery (Oles 2003).

Culture

Ocean City hosts many fishing tournaments each year. In 2006, the tournaments began in June with the Mako Mania Shark Tournament. In July, the Ocean City Tuna Tournament is held, which features nightly weigh-ins as well as food, entertainment, crafts, and fishing-related games for children. In August, the town hosts the world's largest billfish tournament, the White Marlin Open, which offers cash prizes for white marlin, blue marlin, tuna, wahoo, dolphin, and shark; nightly weigh-ins are a popular event. In 2006, \$2.3 million was given away in prizes. Ocean City also hosts a local ladies only fishing tournament in August, Captain Steve Harman Poor Girl's Open Fishing Tournament. In September, the Mid-Atlantic Bartenders Open Fishing Tournament is another popular event (Ocean City 2008). Other tournaments are held as well, many hosted by [The Ocean City Marlin Club](#).

Each year, the [Maryland Watermen's Association](#) sponsors the East Coast Commercial Fishermen's and Aquaculture Trade Exposition in Ocean City, which features aquaculture and commercial fishing seminars, gear, equipment, and boats. The Seaside Boat Show is held in February. During May, there is the Annual White Marlin Festival and Crab Soup Cookoff

(Town of Ocean City 2008). One of the fish docks in West Ocean City has sponsored a “Mid-Atlantic Commercial Fishing Skills Contest”, which included competitions in rope tying, net mending, rope splicing, survival suit-donning, and other fishing-related activities (Oles 2003). January brings the Nautical and Wildlife Art Festival and October brings Harbor Day at the Docks ~ a Waterfront Heritage Festival and Phillips Annual Seafood Dinner (OCCVB nd).

Current Economy

Many of the people in the Ocean City area work in restaurants and hotels that have made this area popular with tourists. There are three packing houses in West Ocean City, which combined employ about sixteen people. There are probably at least 230 people employed on the charter and party boats in Ocean City, not including additional support staff or those that work at related businesses like bait and tackle shops. Recreational fishing is one of the more important aspects of Ocean City’s tourist economy (Oles 2003). Worcester County’s 2,040 businesses employ 20,300 workers; an estimated 13 of these businesses have 100 or more workers. Chicken growing and processing is the major industry in Worcester County.

According to Census 2000 data, jobs in the census grouping which includes agriculture, forestry, fishing and hunting, and mining accounted for only 12 positions or 0.3% of all jobs in Ocean City. Self employed workers, a category where fishermen might be found, accounted for 392 positions or 11.1% of jobs. Arts, entertainment, recreation, accommodation and food services (29.5%), retail trade (12.9%), finance, insurance, real estate, and rental and leasing (12.0%), and educational, health, and social services (11.1%) were the primary industries.

For West Ocean City, according to Census 2000 data, jobs in the census grouping which includes agriculture, forestry, fishing and hunting, and mining accounted for 15 positions or 0.9% of all jobs. Self employed workers, a category where fishermen might be found, accounted for 145 positions or 9.0% of jobs. Arts, entertainment, recreation, accommodation and food services (24.1%), retail trade (15.8%), finance, insurance, real estate, and rental and leasing (11.6%), educational, health, and social services (10.7%), and construction (10.7%) were the primary industries.

Fishery Involvement in the Government

Worcester County manages a commercial dock in West Ocean City. The Worcester County Commission has zoned the harbor area here as a commercial marine district, to protect commercial fishing operations from being pushed out by condominiums and other private development. The Worcester County Comprehensive Development Plan (WCPC 2006) also recognizes commercial fishing as one of the County’s economic assets and has a goal of preserving fisheries and their nurseries and has 5 goals specifically aimed at retaining commercial fishing and seafood processing in the County. Ocean City’s comprehensive plan encourages water uses on the bay and marina construction (Oles 2003). It also recognizes the importance of water quality and commercial fishing to the town (OCPB 2007)

The Maryland Division of Natural Resources (DNR) manages fisheries in Ocean City and West Ocean City. The DNR has a Coastal Fisheries Advisory Committee which provides advice on fishery issues, preparing management plans, and works to develop objectives and

management options for specific fisheries. The Committee has representation from Ocean City, West Ocean City, and different fishing groups. Ocean City also has a harbor master.

Fishing Associations

There is a statewide fishermen's organization called the [Maryland Watermen's Association](#) (MWA) but few of the ocean fishermen belong to it because it emphasizes helping the Chesapeake Bay fishermen rather than the ocean fishermen. The organization focuses more on the Bay fishermen because there are more bay crabbers, clammers, and gill netters than there are ocean fishermen. However, the MWA still broadly represents all those who work on the waters in or of Maryland. The president of the MWA also serves on the Mid-Atlantic Fishery Management Council (MAFMC), which focuses on both bay and ocean fisheries issues. The ocean fishermen are concerned that they are not prepared for what may happen and they lack representation (McCay and Cieri 2000). The Maryland Saltwater Sport Fishermen's Association also has a Chapter in Ocean City.

There are some sportfishing groups in Ocean City that work to promote sportfishing in the area. One is the [Ocean City Marlin Club](#), which began in 1936. The club is primarily a social organization, although they are becoming increasingly political. They also host several tournaments. The OC Surf Anglers hosts surf fishing tournaments. The Ocean Pines Fishing Club is made up of members of Ocean Pines, a planned community in West Ocean City. The captains of the charter boats located at the Ocean City Fishing Center are all members of the Ocean City Charter Captain's Association (Oles 2003).

Montauk, Suffolk County, New York

Regional Orientation

Montauk (41.00°N, 71.57°W) is located in Suffolk County at the eastern tip of the South Fork of Long Island in New York. It is situated between the Atlantic Ocean to the south, and Block Island Sound to the north, about 20 miles off the Connecticut coast. The total area of Montauk is about 20mi², of which 2.3 mi² (11.5%) is water (USGS 2008).

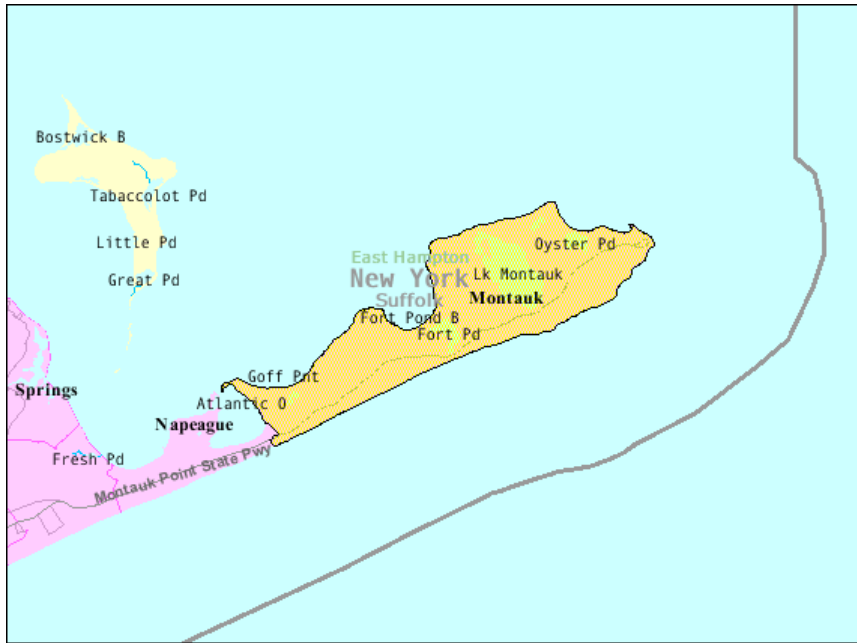


Figure 3-17. Location of Montauk, New York.

Historical Background

Montauk was originally inhabited by the Montauket tribe, who granted early settlers permission to pasture livestock, essentially the only function of this area until the late 1800s. The owner of the Long Island Railroad extended the rail line to Montauk in 1895, hoping to develop Montauk as “the first port of landing on the East Coast, from which goods and passengers would be transported to New York via the rail. While his grandiose vision was not fulfilled, the rail provided the necessary infrastructure for the transportation of seafood, and Montauk soon became the principal commercial fishing port on the East End. In the early 1900s, the railroad also brought recreational fishermen to the area from the city by the car-load aboard the ‘Fishermen’s Special’, depositing them right at the dock where they could board sportfishing charter and party boats” (Clay et al. 2008). Montauk developed into a tourist destination around that time, and much of the tourism has catered to the sportfishing industry since (Montauk Sportfishing 2005).

According to Census 2000 data, Montauk had a total population of 3,851, an increase of 28.3% from a reported population of 3,001 in 1990. Of this 2000 total, 51.3% were males and 48.7% were females. The median age was 39.3 years and 77.4% of the population was 21 years or older while 17.7% were 62 or older.

Montauk’s age structure showed large variation between sexes in different age groups. It is important to note that the differences appear dramatic because this population is small. In the age group including people from 20 to 29 years old, there were more than twice as many males as females in Montauk. A similar pattern exists in the 30 to 39 year age group. This is probably because males come to the area to work after high school for demanding labor jobs such as landscaping and construction. Females do not traditionally seek the types of jobs that are available in Montauk.

The majority of the population of Montauk was White (88.2%), with 0.9% of residents Black or African American, 0.1% Native American, 0.8% Asian, and none Pacific Islander or Hawaiian. A reported 23.9% of the population identified themselves as Hispanic/ Latino. Residents linked their backgrounds to a number of different ancestries, including Irish (26.5%), German (17.3%) and Italian (13.1%). With regard to region of birth, 61.1% were born in New York, 11.1% were born in a different state and 27.0% were born outside of the U.S. (including 21.2% who were not U.S. citizens).

For 69.7% of the Montauk population, only English was spoken in the home, leaving 30.3% in homes where a language other than English was spoken, including 15.6% of the population who spoke English less than “very well” according to the 2000 Census. Of the population 25 years and over, 84% were high school graduates or higher and 24.8% had a bachelor’s degree or higher. Again of the population 25 years and over, 7.6% did not reach ninth grade, 8.4% attended some high school but did not graduate, 31.9% completed high school, 19.6% had some college with no degree, 7.8% had received an associate’s degree, 17.0% had earned a bachelor’s degree, and 7.8% had received either a graduate or professional degree.

Fishing

Inlet Seafood, the largest seafood packing operation in the state, recently expanded their facility to include a restaurant and convenience store, which met with considerable opposition from those living in the surrounding neighborhood, as residents were concerned about a resulting increase in traffic (Packer and McCarthy 2005). There are very strict zoning regulations in the town, which make it very difficult for any industry located on the waterfront to expand (McCay and Cieri 2000). Legislation has been proposed to limit beach access by vehicles in areas where coastal erosion is a problem, which would restrict access to many of the spots favored by surf casters in Montauk (Anonymous 2005a). Regulations reducing allowable catches of certain species by recreational fishermen have also raised concerns over their negative impact on the party and charter fishing industry (Anonymous 2004).

The fishing fleet is located in Lake Montauk, which opens to the north onto Block Island Sound. Most fish landed in Montauk is sold at the Fulton Fish Market in New York City (McCay and Cieri 2000). The infrastructure needed for a commercial and sport fishing fleet is available in the village, including docks with off-loading facilities and other services that commercial fishermen need to land their catch (NYSC 2008). Montauk used to have five docks used by the commercial fishing industry for packing out fish, but they now only have two. Inlet Seafood Company, a corporation owned by six Montauk fishermen (NYSC 2008), includes a dock with unloading and other services, and is the largest fish packing facility in the state (Easthampton Star 2003). There is another dock servicing commercial fishermen, but this dock is barely surviving financially. There are also at least fourteen marinas used by the sportfishing industry (Oles 2005).

Culture

Montauk has several annual festivals that celebrate sport fishing and one that celebrates commercial fishing. The Blessing of the Montauk Fleet takes place in June. The Grand Slam Fishing Tournament has been in Montauk since 2002. The Harbor Festival at Sag Harbor, which is located next to Montauk, is celebrated in September. There is also a Redbone

Fishing Tournament, the Annual Striped Bass Derby (13th year in 2005), and the Annual Fall Festival (24th year in 2005), which includes shellfish related activities such as a clam chowder festival and clam shucking (Montauk Chamber of Commerce nd). There is also a monument in Montauk dedicated to over 100 commercial fishermen from the East End who have lost their lives at sea over the years (Oles 2005).

Economy

The majority of the employers in Montauk are seasonal and dependent on the tourist industry, including restaurants and hotels. With the exception of a few resorts and retail businesses, Inlet Seafood is one of the only full-time, year-round employers in Montauk, employing between four and six dock workers, a secretary, and a manager. All of the employees live in Montauk or East Hampton, but housing is a problem due to the high cost of living in the area. Labor turnover is low due to the ability of the dock to provide equitable wages and predictable pay throughout the year. The dock does compete with landscaping and construction companies for labor, especially from among immigrant populations. All of the dock workers are immigrants from Central and South America (Oles 2005). The marinas also employ a large number of people, and include Montauk Marine Basin, which employs 21 workers during the summer months.

According to Census 2000 data, 61.5% (1,944 individuals) of the total population 16 years of age and over were in the labor force, of which 7.7% were unemployed, none were in the Armed Forces, and 53.8% were employed.

Jobs in the census grouping which includes agriculture, forestry, fishing and hunting, and mining accounted for 103 positions or 6.1% of all jobs in 2000. Self employed workers, a category where fishermen might be found, accounted for 314 positions or 18.5% of jobs. Arts, entertainment, recreation, accommodation and food services (20.3%), construction (18.5%), and retail trade (10.1%) were the primary industries.

Median household income in Montauk in 2000 was \$42,329, an increase of 32.9% from \$23,875 in 1990. For full-time year-round workers, males made approximately 41.6% more per year than females. The average family in Montauk consisted of 2.90 persons. With respect to poverty, 8.3% of families (unchanged from 1990 [US Census Bureau 1990]) and 10.6% of individuals earned below the official Census poverty threshold. This threshold was \$8,794 for individuals and ranges from \$11,239-\$35,060 for families, depending on number of persons (2-9) (US Census Bureau 2000b). In 2000, 40.0% of all families (of any size) earned less than \$35,000 per year.

Fishing Associations

The Town Board of East Hampton organized a “Fishing Committee” to represent the fishing industry’s interests in the development of the town’s comprehensive plan (Oles 2005). The Long Island Commercial Fishing Association, located in Montauk, promotes commercial fishing throughout Long Island (Oles 2005). The Montauk Tilefish Association (MTA) “is a registered non-profit organization whose objective is to provide an organizational structure for making collective decisions for its members. The MTA also provides member protection under the Fishermen’s Collective Marketing Act” (Oles 2005). Further, it “has worked to

create and foster a fisheries management regime that is efficient and encourages resource stewardship at the local level. Other important outcomes from this collaboration include fresher fish for the market and a more stable operating environment” (Kitts et al. 2007).

The New York Seafood Council is the largest association representing fishing interests in the state. “The New York Seafood Council (NYSC) is an industry membership organization comprised of individuals, businesses, or organizations involved in the harvesting, processing, wholesale, distribution or sale of seafood products or services to the seafood industry in New York” (NYSC 2008).

The Montauk Boatmen’s and Captain’s Association has a membership of over 100 captains of charter and party boats, and is one of the only organized, politically active charter boat associations in New York (Oles 2005). The Montauk Surfcasters Association is an organization of surf fishermen with over 900 members who wish to preserve their access to surf casting on the East End beaches of Long Island. They hold beach clean-ups and educate the public about the proper use of the beach (Montauk Surfcasters Association nd).

Involvement in the Northeast Fisheries

Commercial

The village of Montauk is the largest fishing port in the state of New York. Montauk’s main industry has been fishing since colonial times, and it continues to be an important part of its economy and traditions (Oles 2005). Montauk is the only port in New York still holding on to a commercial fishing industry. Montauk’s location naturally provides a large protected harbor on Lake Montauk and is close to important fishing grounds for both commercial and recreational fishermen.

Montauk has a very diverse fishery, using a number of different gear types and catching a variety of species; in 1998, there were a total of 90 species landed in Montauk (McCay and Cieri 2000). There used to be a number of longline vessels that fished out of Montauk, including 4-5 vessels fishing for tilefish and up to 8 vessels fishing for tuna and swordfish. Additionally, a number of longline vessels from elsewhere in New York and New Jersey sometimes land their catch at Montauk (NYSC 2008). As of April 2007, there were 3 tilefish longliners in Montauk, one of which has bought out a fourth. There were also 35-40 trawlers based in Montauk, with a number of others that unload their catch here, and between 10-15 lobster vessels (NYSC 2008). The six owners of Inlet Seafood each own 1-2 trawlers. There are also a number of baymen working in the bays around Montauk catching clams, scallops, conch, eels, and crab as well as some that may fish for bluefish and striped bass. However, these baymen may move from one area to another depending on the season and fishery and, as a result, may not be a part of the permanent fleet (NYSC 2008).

The number of vessels home ported in Montauk showed a slightly decreasing trend between 1997 and 2006, while the number of vessels whose owner’s city was Montauk showed a slight increasing trend over the same time period. Both the level of fishing by vessel home port and landed port also stayed fairly consistent, with a jump in 2005, but generally ranging from over \$9 million to over \$16 million for the 1997-2006 year period.

Recreational

Montauk is the home port of a large charter and party boat fleet, and a major site of recreational fishing activity (Oles 2005). The facilities supporting the recreational fishing industry include six bait and tackle shops and 19 fishing guide and charter businesses.

According to one website, there are at least 27 fishing charter operations in Montauk. Montauk has been called the “sport fishing capital of the world”, and even has its own magazine dedicated to Montauk sportfishing (Montauk Sportfishing nd). Between 2001-2005, there were 122 charter and party vessels making 18,345 total trips registered in logbook data by charter and party vessels in Montauk carrying a total of 185,164 anglers.

Point Judith/Narragansett, Washington County, Rhode Island

Regional Orientation

Narragansett (41.45°N, 71.45°W) (USGS 2008) is located in Washington County, 30 miles south of Providence. Point Judith is located in the southern end of Narragansett along Highway 108 near Galilee State Beach, at the western side of the mouth of Rhode Island Sound. Point Judith itself is not a Census Data Place or incorporated town, and as such has no census data associated with it. Thus, this profile provides census data from Narragansett Town (town-wide) and other data from both Point Judith itself and Narragansett. According to the state of Rhode Island both Point Judith and Galilee are considered villages within the town of Narragansett (State of Rhode Island 2008).

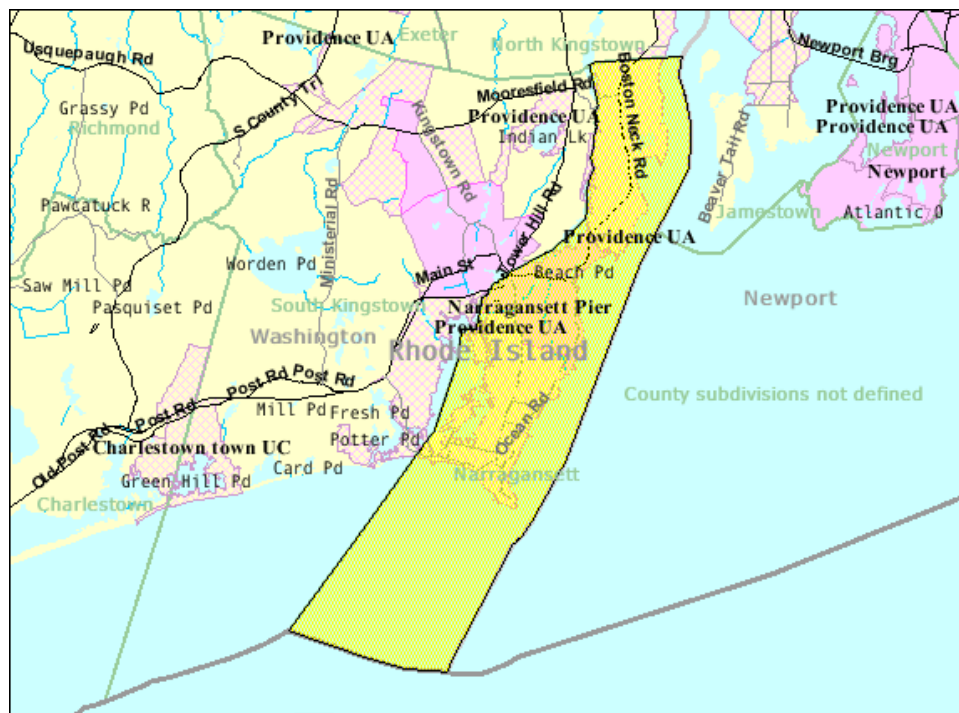


Figure 3-18. Location of Narragansett, Rhode Island (US Census Bureau 2000).

Historical Background

The area now called Narragansett was originally inhabited by the Narragansett Indians until Roland Robinson purchased it in 1675 (Town of Narragansett nd). Over the next half-century, the Rhode Island, Connecticut, and Massachusetts colonies all vied for control of Narragansett until the British crown placed the area under the control of Rhode Island (State of Rhode Island 2008). By the 1660s, settlers put the fertile soil to use by developing agriculture in the area. Soon the area's economy depended on the export of agricultural products to markets such as Boston, Providence, and Newport. At this time, Point Judith was connected to the sea by a deep, wide breachway, which was used to ship the agricultural goods to market. By the 1700s, there was a thriving ship building industry and a busy port. In the early 1800's, Narragansett, like the rest of the country, experienced rapid industrial growth, particularly in the textile industry. By the mid 1800's, the resort tourism industry had developed in Narragansett, including the once popular Narragansett Casino. Fishing did not come into prominence again until the 1930s (Griffith and Dyer 1996).

By the 1800s, many farmers began to supplement their income by fishing for bass and alewife, or harvesting oysters. Eventually, the Port of Galilee was established in the mid 1800's as a small fishing village. By the early 1900's, Point Judith's Port of Galilee became one of the largest fishing ports on the east coast. This was largely due to a series of construction projects that included dredging the present breachway and stabilizing it with stone jetties and the construction of three miles of breakwater that provided refuge from the full force of the ocean. By the 1930's, wharves were constructed to facilitate large ocean-going fishing vessels (Eckilson 2007). At this point, the port became important to the entire region's economy (Griffith and Dyer 1996). Today, Point Judith is not only an active commercial fishing port, but it supports a thriving tourism industry that includes restaurants, shops, whale watching, recreational fishing, and a ferry to Block Island. Point Judith sits on a knob of land that extends out into the open Atlantic Ocean, making it a popular spot for surfing if the ocean swell is angled properly to produce a breaking wave near the seawall.

Demographics

No Census data are available for Point Judith itself, but are available for the county subdivision Narragansett Town, which includes Point Judith. As Point Judith is not actually a residential area, and those who fish from Point Judith live in surrounding communities, this is more representative of the "fishing community" than would be any data on Point Judith alone. However, it should be noted that fishermen fishing out of Point Judith are likely to live all over Rhode Island.

According to Census 2000 data, Narragansett had a total population of 16,361, an increase of 9.2% from a reported population of 14,985 in 1990 (US Census Bureau 1990). Of this 2000 total, 48.6% were males and 51.4% were females. The median age was 36.4 years and 76.2% of the population was 21 years or older, while 16.1% were 62 or older.

The majority of the 2000 population was white (95.6%), with 1.3% black or African American, 1.0% Asian, 1.4% Native American, and 0.1% Pacific Islander or Hawaiian (see Figure 2). Only 1.2% of the population identified themselves as Hispanic/Latino (see Figure 3). Residents traced their backgrounds to a number of different ancestries, including Irish (31.8%), Italian (20.6%) and English (18.9%) (US Census Bureau 2000a). With regard to

region of birth, 62.5% were born in Rhode Island, 34.3% were born in a different state, and 2.5% were born outside of the U.S. (including 0.8% who were not U.S. citizens).

For 94.4% of the population, only English was spoken in the home, leaving 5.6% in homes where a language other than English was spoken, including 0.6% of the population who spoke English less than “very well” according to the 2000 Census. Of the population 25 years and over, 91.3% were high school graduates or higher and 41.8% had a bachelor’s degree or higher. Again of the population 25 years and over, 2.1% did not reach ninth grade, 6.6% attended some high school but did not graduate, 22.5% completed high school, 18.0% had some college with no degree, 9.0% had received an associate degree, 24.2% had earned a bachelor’s degree, and 17.6% had received either a graduate or professional degree.

Current Issues

Not unlike many fishing communities in the Northeast, increasingly stringent state and federal fishing regulations could jeopardize the viability of Point Judith as a fishing port, affecting both commercial and recreational fishermen. In addition to affecting the fishermen directly, Point Judith processing companies have difficulty handling drastic deviations in the amount of landings, commonly due to the reduction or expansion of quotas, as well as sudden changes in species composition. It is also important to note that Point Judith fishermen harvest species managed by both the New England Fishery Management Council and the Mid-Atlantic Fishery Management Council, which increases the level of management measures they must follow. Additionally, the boom in tourism at Point Judith has had an adverse effect on the commercial fishing industry. Not only do fishermen battle parking issues, shore-front rents for fish processing companies and the cost of dockage and wharf space for vessels have also increased (Griffith and Dyer 1996).

Culture

The Narragansett/ Point Judith community celebrates its maritime history with the annual Blessing of the Fleet (Griffith and Dyer 1996), an event that is sponsored by the [Narragansett Lions Club](#). The festival includes the Blessing of the Fleet Road Race of 10 miles of the surrounding area, a Seafood Festival, and rides at Veteran's Memorial Park that last throughout the last weekend of July. The 2004 Blessing of the Fleet included approximately 20 commercial and 70 recreational vessels and gathered an estimated crowd of 200 to 300 to view the passing. The Fishermen’s Memorial Park is located in Point Judith and features recreational activities and a playground. Each Saturday in the summer months, the park hosts a Farmer’s Market, featuring local produce and often lobsters caught on local vessels. There is a new fishermen’s memorial project underway, to be situated near the Coast Guard light.

Current Economy

Besides an active fishing port, Point Judith supports a thriving seasonal tourism industry that includes restaurants, shops, whale watching, recreational fishing, and a ferry to Block Island (Griffith and Dyer 1996). It also has a number of fish processing companies that do business locally, nationally, and internationally. Point Judith’s largest fish processors are the [Town Dock Company](#) and the Point [Judith Fishermen’s Company](#) – a subsidiary of M. Slavin & Sons based in NY.

Town Dock came to Point Judith in 1980 and is now one of the largest seafood processing companies in Rhode Island. Its facility supports unloading, processing, and freezing facilities under one roof and services “over half of the port's boats (approximately 30 full time deep sea fishing trawlers) as well as a large day-boat fleet . . . and handle[s] all the southern New England and Mid-Atlantic species of fish including Squid, Monkfish, Flounder, Whiting, Scup, Butterfish, and Fluke.”

According to Census 2000 data, of the total population 16 years of age and over, 67.0% were in the labor force, of which 2.2% were unemployed, 0.2% were in the Armed Forces, and 64.6% were employed. Jobs in the census grouping which includes agriculture, forestry, fishing and hunting, and mining accounted for 239 positions or 2.7% of all jobs (the majority of which is likely to be fishing based on limited activity in the other categories). Self employed workers, a category where fishermen might be found, accounted for 171 positions or 8.6% of jobs. Educational, health and social services (26.0%), arts, entertainment, recreation, accommodation and food services (11.8%), professional, scientific, management, administrative, and waste management services (10.8%), and retail trade (10.4%) were the primary industries.

Median household income in Narragansett in 2000 was \$50,363, an increase of 41.7% from \$35,545 in 1990 (US Census Bureau 1990) and median per capita income was \$28,194. For full-time year round workers, males made approximately 43.1% more per year than females. The average family in Narragansett in 2000 consisted of 2.86 persons. With respect to poverty, 4.9% of families, up from 2.9% in 1990 (US Census Bureau 1990) and 16.0% of individuals earned below the official Census poverty threshold. This threshold was \$8,794 for individuals and ranges from \$11,239 through \$35,060 for families, depending on number of persons (2-9) (US Census Bureau 2000b). In 2000, 21.8% of all families (of any size) earned less than \$35,000 per year.

In 2000, Narragansett had a total of 9,159 housing units, of which 74.7% were occupied and 79.4% were detached one unit homes. Less than one tenth (9.8%) of these homes were built before 1940. Mobile homes, boats, RVs, vans, etc. accounted for 0.9% of the housing units; 90.3% of detached units had between 2 and 9 rooms. In 2000, the median cost for a home in this area was \$163,500. Of vacant housing units, 88.0% were used for seasonal, recreational, or occasional use. Of occupied units, 38.1% were renter occupied.

Fishery Involvement in the Government

Narragansett has a town Harbor Management Commission and a designated Harbormaster. Galilee has special zoning which designates certain areas for fishing-related uses only. NOAA Fisheries Statistics Office also has a port agent based here. Port agents sample fish landings and provide a “finger-on-the-pulse” of their respective fishing communities (NERO FOS 2008). NOAA Northeast Fisheries Science Center’s Narragansett Laboratory is located on the Bay Campus of the University of Rhode Island (URI). It is adjacent to URI's Graduate School of Oceanography and the National Health and Environmental Effects Research Laboratory of the Environmental Protection Agency (EPA). Rhode Island Sea Grant is also located at URI’s Narragansett Bay Campus. The RI Department of Environmental Management Division of Enforcement has a small office in Point Judith.

Fishing Associations

The American Seafood Institute was established in 1982 in conjunction with the Rhode Island Seafood Council and provides assistance to the fishing industry in exporting product overseas (Hall-Arber et al. 2001). The Point Club is a self-insurance group for fishermen to protect against price gouging, etc. The Rhode Island Commercial Fishermen's Association has members throughout Point Judith and the state. The organization is based at the Commercial Fisheries Center at East Farm on the University of Rhode Island's main campus. The Rhode Island Lobstermen's Association and the Rhode Island Fishermen's Alliance are well represented in Point Judith, and the Rhode Island Shellfishermen's Association is likely to also have members fishing from here.

Involvement in the Northeast Fisheries

Commercial

According to the Rhode Island Department of Environmental Management (DEM), the number of commercial vessels in port in Galilee (Point Judith) in 2004 was 230 (RIDEM 2004). Vessels ranged from 45-99 feet, with most being groundfish trawlers. Of these, 55 were between 45 and 75 feet, and 17 over 75 feet (Hall-Arber et al. 2001). In 2004, Point Judith was ranked 24th in value of landings by port in the U.S. (sixth on the East Coast) (FUS 2007).

The state's marine fisheries are divided into three major sectors: shellfish, lobster, and finfish. The shellfish sector includes oysters, soft shell clams and, most importantly, quahogs. The lobster sector is primarily comprised of the highly valued American lobster with some crabs as well. The finfish sector targets a variety of species including winter, yellowtail and summer flounder, tautog, striped bass, black sea bass, scup, bluefish, butterfish, squid, whiting, skate, and dogfish. A wide range of gear including otter trawl nets, floating fish traps, lobster traps, gill nets, fish pots, rod and reel, and clam rakes are used to harvest these species.

Over the ten year period from 1997-2006, the value of landings in Point Judith varied but showed a declining trend, from a high of just over \$51 million to a low of \$31 million in 2002-2003. However, in 2004 the landings value began to increase again, back to just under \$47 million in 2006. Vessel data has been combined in this discussion for Point Judith and Narragansett because there are no vessel owners listed for Point Judith since the name refers only to the port, indicating that many fishermen live in the Narragansett area and fish out of Point Judith. In total, the number of vessels home-ported in either Point Judith or Narragansett reached a high of 186 in 2001, and a low of 168 in 2006. The number of vessels with owners living in Narragansett was much lower in all years than the number of vessels home ported here, indicating that many of the vessels in Point Judith have owners residing in other communities.

Recreational

Rhode Island marine waters also support a sizable recreational fishing sector. "In Rhode Island, nearly 362,000 recreational marine anglers - more than half from out-of-state - made

over 1.5 million trips, catching 4.3 million pounds of sport fish and releasing about 55 percent in 2004” (RIDEM 2004). This indicates that the recreational component is significant both in terms of the associated revenues generated (support industries) and harvesting capacity. Between 2001- 2005, there were 66 charter and party vessels making 7,709 total trips registered in logbook data by charter and party vessels in Point Judith carrying a total of 96,383 anglers (MRFSS data). A 2005 survey by the Rhode Island DEM showed Point Judith to be the most popular site in the state for shore-based recreational fishing (RIDEM 2005). Narragansett has two public saltwater boat ramps (RIDEM 2005a).

3.6.4 Communities in the South Atlantic

3.6.4.1 North Carolina



Figure 3-19. North Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.

Statewide

Overview

Of the four states in the South Atlantic region, North Carolina (Figure 3-19) 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 states. The state 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 weather regulations and coastal development pressures, adjusting their annual fishing patterns as times have changed.

Commercial Fishing

There has been a steady decline in the number of federal commercial snapper grouper permits North Carolina since 1999, with 194 unlimited commercial permits in 1999, but only 139 in 2004. Limited permits similarly declined from 36 to 16.

State license sale and use statistics for all types of licenses also indicate an overall decrease since 1994. While the overall number of state licenses to sell any species of fish or shellfish increased from 6,781 in 1994 to 9,712 in 2001/2002, the number of license holders actually reporting sales decreased from 6,710 in 1994/1995 to 5,509 in 2001/2002 (SAFMC 2006).

North Carolina fishermen demographics are detailed in Cheuvront and Neal (2004). Ninety eight percent of surveyed fishermen were white and 58 percent had completed some college or had graduated from college. Of those who chose to answer the question, 27 percent of respondents reported a household income of less than \$30,000 per year, and 21 percent 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 percent of surveyed fishermen indicated year-round fishing. Gag is the fish most frequently targeted by these fishermen, with 61 percent of fishermen targeting gag at some point in the year, despite the prohibition of commercial sales and limit to the recreational bag limit in March and April. Vermilion snapper (36.3 percent) and black sea bass (46 percent) are the next most frequently targeted species. A significant number of fishermen land king mackerel during each month, with over 20 percent of fishermen targeting king mackerel between October and May. During the gag closed season, king mackerel are targeted by about 35 percent of the fishermen. Other snapper/grouper complex species landed by at least 5 percent of the fishermen in any given month were red grouper (39.5 percent), scamp (27.4 percent), snowy grouper (9.7 percent), grunts (14.5 percent), triggerfish (13.7 percent), and golden tilefish (5.6 percent). Non-snapper/grouper complex species landed by at least 5 percent of the fishermen in any given month included Atlantic croaker, yellowfin tuna, bluefin tuna, dolphin, and shrimp.

By looking at the commercial landings data on the snapper grouper complex it is possible to see which communities are involved with the commercial fisheries for these species (Table 3-51). Although rankings can fluctuate from year to year, this can give us a starting point for understanding some of the communities that would be impacted by more restrictive regulations.

Table 3-51. Top three communities in North Carolina, listed by species, for commercial cumulative landings for 2005-2007.

	Location	Pounds	Location	Pounds	Location	Pounds
Gag	New Hanover County	675,714	Carteret County	640,750	Brunswick County	390,242
Vermillion Snapper	Brunswick County	2,317,534	Carteret County	1,483,802		
Black Sea Bass	Onslow County	2,100,034	Dare County	1,552,624	New Hanover County	1,165,877
Snowy Grouper	Dare County	439,301	Carteret County	387,333	New Hanover County	211,988
Golden tilefish	Brunswick County	117,658	Dare County	13,526		
Red snapper	Carteret County	60,491	Brunswick County	31,007		
Black grouper	Brunswick County	518	Hyde County	406		
Red grouper	Brunswick County	636,262	New Hanover County	602,521	Carteret County	589,856
Warsaw grouper	Onslow County	15				
Speckled hind	Dare County	428	Hyde County	174		

Source: Logbook data, SEFSC 2009.

Recreational Fishing

Recreational fishing is well developed in North Carolina and, due to natural geography, is not limited to areas along the coast. Data show that North Carolina is almost on par with east Florida for total recreational fishing participation effort (data not shown; see SAFMC (2006)). A brief discussion of public boat ramps and local recreational fishing clubs, as well as sources of information used by these anglers, can be found in SAFMC (2006).

The North Carolina state legislature approved the creation of a state recreational saltwater fishing license in 2004. The license created controversy for both the recreational and commercial sectors, each believing that it will hurt or help their access to marine resources. Possession of the license, subject to exemptions, has been required as of January 1, 2007 (<http://www.ncdmf.net/recreational/NCCRFLfaq.htm>).

Hatteras Village, Dare County

A detailed history of this community, from its discovery by Italian explorers in the 16th century to establishment of a National Seashore in 1953, can be found in SAFMC (2006).

Overview

Census data indicate there was not a significant increase in population size in Hatteras Village from 1990 to 2000 (SAFMC 2006). The demographics of the island have shifted, as is evidenced in the decreasing percentage of the population that is actively in the workforce, perhaps reflecting a larger number of retirees in the community, and the increasing proportion of residents with higher education, also reflecting a retired, professional segment of the population. Hatteras Village has also experienced a significant increase in the percent of the population in the farming, fishing, and forestry occupations, from 5.6 percent to 10.8 percent. This may be reflective of the increasing number of persons employed in businesses related to recreational fishing, such as charter boat captains and crew, boat repair and sales, marinas, etc. See SAFMC (2006) for the raw data describing community demographics. Figure 3-20 includes two maps detailing the area.

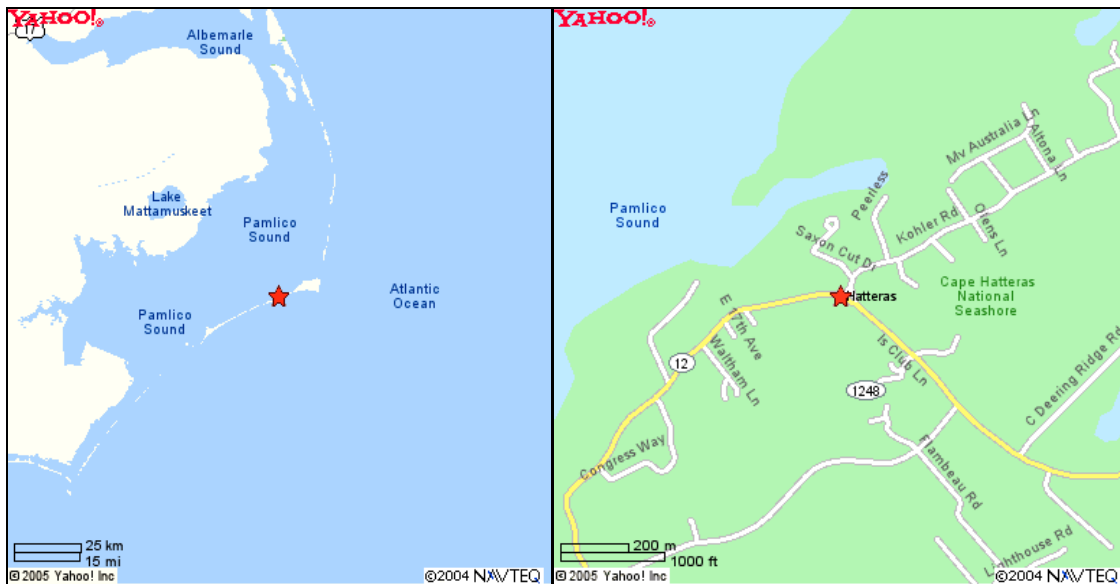


Figure 3-20. Hatteras Island and Village, Outer Banks, North Carolina.

Source: Yahoo Maps, <http://www.yahoo.com>.

Commercial Fishing

Anecdotal information from Hatteras residents indicates the number of fish houses has decreased as tourism has increased (SAFMC 2006). Residents, however, still promote the fisherman's way of life through festivals and special community designations (SAFMC 2006).

Mirroring the statewide trend, the number of unlimited commercial permits held by residents of Hatteras decreased from 1999 (9 permits) to 2004 (5 permits). The number of limited commercial permits has remained at 3 (SAFMC 2006). Twenty people stated they were employed in fishing related industry in the 1998 census, with 18 of these employed by

marinas. A listing of the six marinas and eight bait and tackle stores in Hatteras Village can be found in SAFMC (2006).

Recreational Fishing

Hatteras is host to several prestigious fishing tournaments and is homeport for the island's famous charter fishing fleet. The number of charter/headboat permits held by Hatteras residents has dramatically increased, from one permit in 1999 to 28 in 2004.

Wanchese, Dare County

A history of this community, and neighboring Manteo, describing its persistence as a small, close-knit community focused on making its living from the sea, can be found in SAFMC (2006).



Figure 3-21. Map of Roanoke Island, North Carolina, showing Wanchese and Manteo. Source: Kitner 2005.

Overview

Figure 3-21 provides a map of Roanoke Island, including Wanchese and Manteo. While Wanchese has maintained its identity as a commercial fishing community, it faces continuing pressure from developers in nearby Manteo and other Outer Banks communities. However, the town has recently approved a zoning document that would prevent unplanned growth and would help preserve working waterfronts and residential areas (Kozak 2005). A partial

community profile detailing local traffic patterns, businesses, and prominent families can be found in SAFMC (2006).

The largest industrial area in Wanchese is centered on the Wanchese Seafood Industrial Park, built to enhance business opportunities in the seafood and marine trades. Tenants of the park are able to ship products overnight to major domestic and international markets through the airport in Norfolk, Virginia. The park is utilized by fishermen and seafood dealers, as well as boatbuilding and boat maintenance businesses. The park is full of activity and it is common to find large numbers of people, especially Hispanics, working in the marine trade industries.

Census statistics from 2000 show the population of Wanchese is aging and very homogenous, with little ethnic diversity. There has been a slight increase in the Hispanic population since 1990, mirroring most other communities in North Carolina. Education levels have also increased, and the poverty rate has decreased. A higher percentage of people are employed in fishing-related professions in Wanchese than in almost any other community – 10 percent – although even that number has decreased nearly 50 percent since 1990.

Commercial Fishing

Commercial landings and value for Wanchese/Stumpy Point declined from 31.9 million pounds valued at \$26.1 million in 2001 to 28.7 million pounds valued at \$23.2 million in 2002. In 2001, Wanchese/Stumpy Point was listed as the 28th most prominent United States port based on the value of the product landed, declining to 30th in 2002. While landings increased in 2003, to 33 million pounds, value further declined to \$21 million (31st place), with further declines in both poundage (31 million pounds) and value (\$20.5 million) in 2004.

Amendment 8, which limited entry into the commercial snapper grouper fishery, does not appear to have caused a decrease in the number of commercial permits held by residents of Wanchese (SAFMC 2006). In 1999, seven unlimited commercial permits were held, with eight in 2004. Three limited commercial licenses were held in both 1999 and in 2004.

One hundred twenty residents of Wanchese stated they were employed in fishing related industries in the 1998 census (SAFMC 2006). Sixteen of these were listed as employed in fishing, 56 in fish and seafood, and 40 in boatbuilding.

There were 228 commercial vessels registered and 201 state standard commercial fishing licenses issued in the community in 2002 (SAFMC 2006). Wanchese residents also held 12 dealer licenses. The town is an important unloading port for many vessels transiting to and from the Mid-Atlantic and South Atlantic.

Recreational Fishing

As of 2005, nine boatbuilding businesses were located in Wanchese, building either pleasure yachts, recreational fishing vessels or, less often, commercial fishing vessels. There were two bait and tackle businesses and two marinas in town. All these businesses rely on the fishing industry. Manteo also maintains an active private and for-hire recreational fishing community. From 1999 to 2004, there was an increase in the number of charter/headboat

licenses held, from two permits to nine permits. As most of the recreational sector for the region operates out of Manteo and Nags Head, these communities would be more affected by recreational fishing restrictions than would Wanchese.



Figure 3-22. Area of Carteret County, North Carolina, showing Morehead City, Atlantic Beach (at the red star), and Beaufort.

Source: Yahoo Maps, <http://www.yahoo.com>.

Morehead City, Carteret County

In Carteret County, Morehead City, Beaufort, and Atlantic Beach form a triad of different but complementary communities in close geographic proximity (Figure 3-22). A detailed history of Morehead City, from its founding in the 1840s-1850s to its development as a center for sport and tournament fishing in recent years, can be found in SAFMC (2006).

Overview

Morehead City's economy is currently based on tourism, fishing (commercial and recreational), light industry, government, and other service and professional industries. The town has regained its commercial viability as a modern port terminal, and benefits from its location on the "sound-side" of the Atlantic Beach resort trade. Diving has become an important tourist activity; Rodale's Scuba Diving magazine recently named North Carolina as the best wreck diving destination in North America, and Morehead City as the best overall dive destination. Recreational fishing effort is growing quickly, as new marinas, boat storage areas, boat builders, and marine supply stores open in the city.

Detailed statistics detailing community demographics of Morehead City in 1990 and 2000 can be found in SAFMC (2006). The population of Morehead City increased from 1990 to 2000, with sizable increases in the number of people declaring non-white ethnicities. Median income increased from approximately \$20,000 to nearly \$29,000 from 1990 to 2000. Median home value nearly doubled, and median rent increased 35 percent. The percentage of those completing high school increased by 10 percent, and there was a seven percent increase in those receiving a bachelor's degree or higher. The poverty level decreased. However, the unemployment rate increased. The occupations of farming, fishing, and forestry employ more than one percent of the population of Morehead City.

Commercial Fishing

In 1998, 100 people were employed in fishing related businesses according to census figures, with 40 employed in marinas and 36 employed in fish and seafood businesses (SAFMC 2006). Over 200 state commercial vessel licenses, 150 state standard commercial fishing licenses, and 14 dealer licenses were issued by the state to residents of Morehead City in 2002. The number of unlimited commercial permits held by Morehead City residents was 15 in 1999 and 14 in 2004, while the three limited commercial permits held in 1999 were no longer held by 2004 (SAFMC 2006). As of 2002, the state had issued 211 commercial vessel registrations, 150 standard commercial licenses, and 14 dealer licenses to Morehead City residents. Residents of Morehead City were primarily employed by marinas (40 percent) and fish and seafood (36 percent), with 16 percent employed in boatbuilding businesses.

A narrative detailing the fishing methods, habits, and observations of a bandit-rig fisherman in Morehead City can be found in SAFMC (2006).

Recreational Fishing

The number of charter/headboat permits held by Morehead City residents nearly doubled, from seven in 1999 to 13 in 2004.

Beaufort, Carteret County

Beaufort is located on the coast near Cape Lookout, and borders the southern portion of the Outer Banks. Its deep harbor is home to vessels of all sizes, and its marinas are a favorite stop-over for transient boaters. A detailed history of Beaufort, from its establishment to its importance as a trade center during the 18th and 19th centuries, to its later involvement in the menhaden fishing industry, can be found in SAFMC (2006).

Overview

Tourism, service industries, retail businesses, and construction are important mainstays of the Beaufort area, with many shops and restaurants catering to people from outside the area. Census data show a slight decrease in population size from 1990 to 2000, from 3,808 inhabitants to 3,771, perhaps due to the aging population. Educational attainment rose over the last decade, and the percentage of individuals below the poverty line fell slightly. The percentage of those in the labor force decreased, another possible indication of an aging population. However, the percentage unemployed also decreased. The number of people working in farming, fishing, and forestry remained about the same from 1990 to 2000. According to census business pattern data from 1998, most of the fishing-related employment in Beaufort (total 300 persons) occurs in the boat building industry, which employs 184 residents (SAFMC 2006). Forty-eight people reported working in marinas, while others are employed in fish processing, fish harvesting, and seafood marketing.

Commercial Fishing

There has been a slight decrease in the number of unlimited commercial permits held by residents of Beaufort, from 5 permits in 1999 to 4 permits in 2004. In the last two years, the one limited commercial permit held by a Beaufort resident was no longer reported. As of 2002, the state had issued 430 commercial vessel registrations, 294 standard commercial licenses, and 32 dealer licenses to Beaufort residents.

Recreational Fishing

There has been virtually no change in the number of charter/headboat permits, 1 permit in 2003 and 2004, held by residents.

Atlantic Beach, Carteret County

Atlantic Beach has been a popular resort town since the 1870s. The first bathing pavilion was built on Bogue Banks in 1887. Tourists flocked to the resorts, and ferry service to Atlantic Beach increased. Other resorts and tourism related development occurred over the next century, and the area remains a popular vacation destination (www.atlanticbeach-nc.com/history_part-1.html).

Overview

Atlantic Beach demographic data from 1990 and 2000 show a slight population decline since 1990, as well as decreases in the percent of the population involved in farming, fishing, and forestry (SAFMC 2006). The median age of the population has increased, perhaps a reflection of the growing number of retirees moving to this area of the coast.

Commercial Fishing

As observed in other areas of North Carolina, since limited access was put into place, the number of commercial permits has decreased from eight unlimited commercial permits in 1999 to four in 2004, and four limited commercial permits to zero (SAFMC 2006). In 1998, 60 residents of Atlantic Beach were employed in fishing related industry, with 93 percent of those employed by the marine sector. In 2002, 56 vessels were registered with the state as commercial fishing vessels, 42 standard commercial fishing licenses were held by Atlantic Beach residents, and there were ten valid dealer licenses issued to community members (SAFMC 2006).

Recreational Fishery

Since 1999, the number of federal charter/headboat permits held by Atlantic City residents has increased from six to 19, though only one permit was recorded in 2002. Of the 60 individuals reporting working in a fishing related industry in 1998, 46 worked in marinas. Two state permits were issued to recreational fishing tournaments to sell licenses in 2002 (SAFMC 2006).



Figure 3-23. General area of Sneads Ferry, North Carolina.

Source: Yahoo Maps, <http://www.yahoo.com>.

Sneads Ferry, Onslow County

Sneads Ferry is a historical fishing village located on the New River near the northern tip of Topsail Island (Figure 3-23). The river joins the Intracoastal Waterway at Sneads Ferry, with easy access to the Atlantic Ocean. A very active commercial fishing community, Sneads

Ferry takes in more fish than any other Onslow County port (<http://www.cbcoastline.com/areainfo.htm>). It also includes Camp Lejeune, a U.S. Marine base. The Sneads Ferry Shrimp Festival has been held annually since 1971. Now grown to a two-day event, the annual shrimp festival is the town's major fund-raiser. From its proceeds, the town established a 14-acre community park and built a 7200-sq. ft. Shrimp Festival Community Building (www.sneadsferry.com/areahistory/his_sf.htm).

Overview

Census data indicate the population of Sneads Ferry increased by about 10 percent from 1990 to 2000, from 2,031 inhabitants to 2,248. Most new residents were white, and the number of black or African American residents decreased from 159 to 115. Median income increased from about \$20,000 to nearly \$35,000. Median home value increased from \$65,000 to \$110,000, but median rent remained about the same. The percentage of those completing high school increased by 10 percent and the percent of residents with at least a Bachelor's degree doubled, from six percent to 12.8 percent. The poverty level decreased from 20.9 percent to 13.5 percent, and the percentage of the population unemployed decreased from 8.3 percent to 2.2 percent. The percentage of residents employed in farming, fishing, and forestry decreased by half from 18.2 percent to 9 percent, while employment in sales and office occupations increased by over 17 percent. It is unclear who may be buying home sites on newly developed land in the town, but the town's current demographics may point to an increase in retirees in Sneads Ferry, as they are better educated, have higher incomes, and are older. The dramatic decline by approximately 50 percent of persons employed in extractive natural resource occupations may be due to increasing job opportunities outside of the community, the changing impacts of regulations, or status of the resources.

Commercial Fishing

Sneads Ferry is a small town with little of the large-scale development seen elsewhere on the North Carolina coast. Many houses in the community have fishing vessels docked in front of the house or on the lawn. The white rubber boots worn by commercial fishermen in this community and many other parts of North Carolina are commonly referred to as "Sneads Ferry Sneakers", suggesting the importance of commercial fishing to the area. Most of the fishermen in town are shrimpers and net fishermen who go out daily. There is also a strong contingent of black sea bass pot fishermen resident in the town. The species with the highest consistent landings in the town are black sea bass, button clams, blue crab, flounders, mullet, shrimp, spot, and whiting.

The number of federal charter/headboat permits held by residents increased from six in 1999 to 13 in 2004, while the number of unlimited commercial permits decreased from 22 to 17, and the number of limited commercial permits remained at one (SAFMC 2006). Over 347 commercial fishing vessels were registered with the state in 2002, and 228 residents held state-issued standard commercial fishing licenses. There were also 18 dealer licenses in the community and 169 shellfish licenses. In 1998, 16 persons were employed in fishing related industry, with 75 percent working in fish and seafood.

Recreational Fishing

Recreational fishing in Sneads Ferry is not as prominent an activity as in Morehead City. However, there are a large number of vessels with charter permits for snapper grouper homeported there. Little is currently known about recreational fishing out of Sneads Ferry, aside for its advertisement as an important tourist attraction in many websites that discuss the community. At least five marinas cater to recreational fishermen. There are two other marinas at Camp LeJeune Marine Base, just across the Neuse River. Some smaller river and sound fishing charters operating out of the area and one headboat runs from Sneads Ferry. Other than black sea bass, it does not appear that many snapper grouper species are frequently caught recreationally from Sneads Ferry.

3.6.4.2 South Carolina

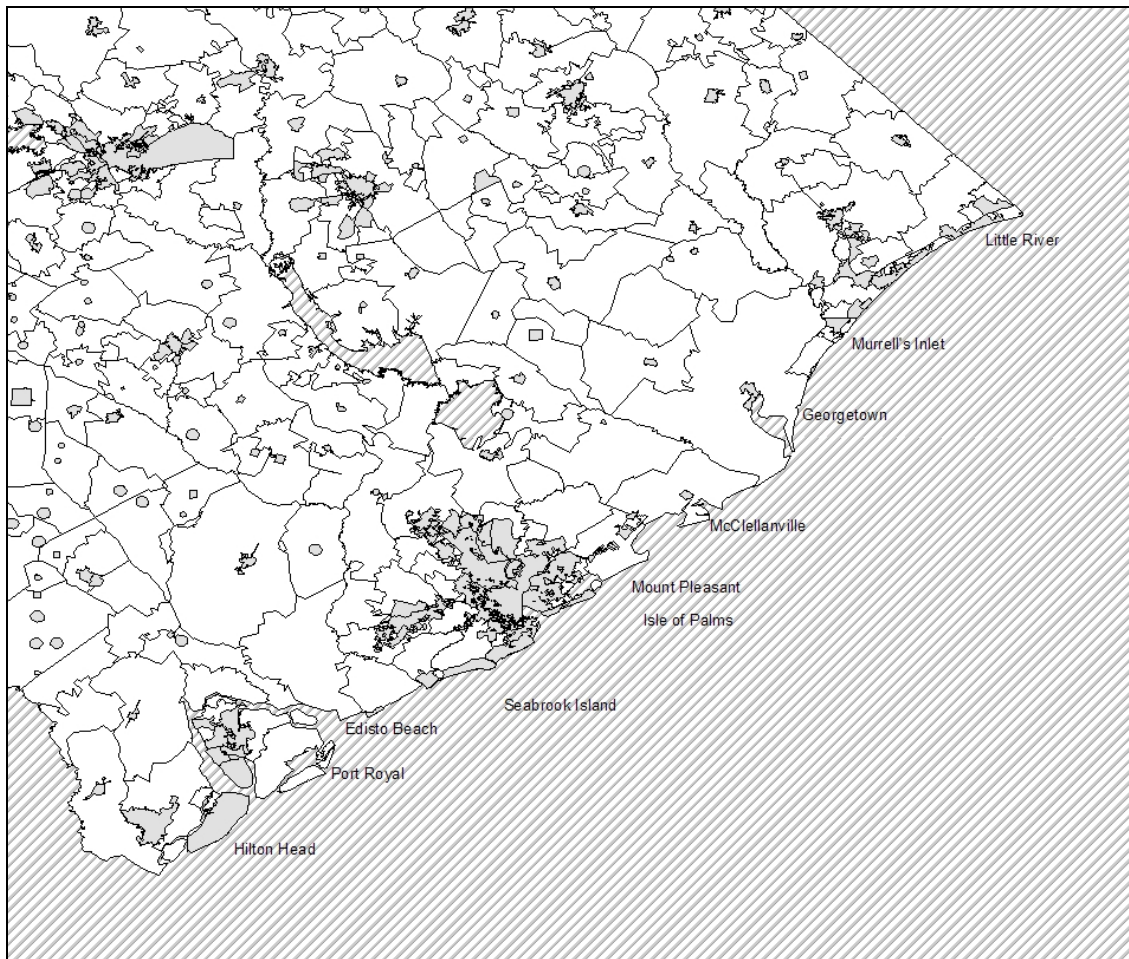


Figure 3-24. South Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.

Statewide

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 3-24). The same is true of rapidly developing Charleston County, and the cities and communities of McClellanville, Mt. Pleasant, Sullivan's 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.

For the purpose of this document, only Little River will be singled out as a community with a high concentration of both commercial and recreational fishing, along with other types of coastal oriented leisure pursuits. Other analyses will consider South Carolina as a whole.

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, while the number of limited commercial permits decreased by 75 percent from 12 to 4 (SAFMC 2006).

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. 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 (SAFMC 2006).

Little River, Georgetown County

A history of Little River detailing its settlement in the late 1600s, its popularity as a vacation destination in the 1920s, and the concurrent rise in charter fishing, can be found in SAFMC (2006).



Figure 3-25. Little River, South Carolina, and surrounding area.

Source: Yahoo Maps, <http://www.yahoo.com>.

Overview

Figure 3-25 shows Little River and the surrounding area. A detailed description of changes in land-use patterns in and near Little River can be found in SAFMC (2006). Nearby Murrells Inlet is gradually transforming into a residential community for Myrtle Beach, and SAFMC (2006) argues this is also true for Little River.

Census data indicate the Little River population more than doubled from 1990 (3,470 persons) to 2000 (7,027 persons) and became more ethnically diverse with more people of American Indian or Alaskan Native, and Hispanic or Latino ethnicities. Median income increased by over 40 percent, from nearly \$29,000 to over \$40,000. Median home value also increased by over 40 percent, and median rent increased by nearly 35 percent. The percentage of those completing high school and those with a Bachelor's degree remained about the same. The poverty level decreased by nearly two-thirds to 4.7 percent, and the percentage of the population unemployed decreased from 6.6 percent to 3.4 percent. The percentage of residents employed in farming, fishing, and forestry decreased from 3.6 percent to 0.9 percent.

Commercial Fishing

In 1998, 38 residents of Little River were employed in fishing related industry according to the U.S. Census, with 81 percent of those employed by the marina sector. The number of snapper grouper unlimited harvest commercial permits held by community residents remained about the same between 1999 and 2004, from 15 permits to 16 permits, and one resident still held a limited harvest commercial license. Twenty-four Little River residents held state permits, with the most being saltwater licenses (8 permits) or trawler licenses (5 permits) (SAFMC 2006).

Table 3-52 shows the commercial cumulative landings by pounds and ranking in the South Atlantic for Little River for the years 2003-2207 for major species in this amendment. Little River had little or no landings of black grouper, speckled hind, or warsaw grouper.

Table 3-52. Commercial cumulative landings by pounds and ranking in the South Atlantic for Little River for the years 2005-2007.

Species	Pounds	Ranking in South Atlantic
Gag	409,721	4th
Vermillion Snapper	1,035,287	5th
Black Sea Bass	549,944	6th
Snowy Grouper	289,128	3rd
Golden tilefish	615,373	4th
Red snapper	31,777	11th
Red grouper	21,535	20th

Source: Logbook Data, SEFSC 2009.

Recreational Fishing

As observed in other coastal communities described herein, the number of charter/headboat permits held by community residents increased from nine in 1999 to 16 in 2004. Three headboats operated out of Little River, and this part of the for-hire industry has a long and storied past in the community. Recreational fishing, primarily as headboat effort, came about as a way for commercial fishermen to continue fishing in the summer months. A detailed account of how recreational fishing developed in Little River can be found in Burrell (2000). Most of the private recreational fishing effort in this area occurs out of marinas in North Myrtle Beach, Myrtle Beach, and Murrells Inlet.

3.6.4.3 Georgia

Statewide

Overview

Only one community in Georgia (Townsend) lands a substantial amount of the snapper grouper species addressed in this amendment. 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.

Brunswick, the other community that has a commercial fishing presence, was once a more thriving commercial fishing community but now tourism and other related activities are competing for waterfront in the town. The most commonly harvested species in Brunswick are blue crab and different species of penaeid shrimp. According to the ACCSP website, there have been no snapper grouper species landed in Brunswick in since 2001. 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 some mullet.

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 2002, 947 vessels were registered with the state as commercial fishing vessels, 612 full-time state commercial fishing licenses were held by Georgia residents, and 147 residents held part-time state commercial fishing licenses. Within the commercial fishing fleet, 482 vessels had shrimp gear on board in that year (SAFMC 2006).

Table 3-53 shows the commercial cumulative landings by pounds and ranking in the South Atlantic for Townsend, Georgia for the years 2003-2207 for major species in this amendment. Townsend had little or no landings of black grouper, speckled hind, golden tilefish, or warsaw grouper.

Table 3-53. Commercial cumulative landings by pounds and ranking in the South Atlantic for Townsend, Georgia for the years 2005-2007.

Species	Pounds	Ranking in South Atlantic
Gag	397,284	5
Vermillion Snapper	1,428,918	4
Black Sea Bass	19,790	14
Snowy grouper	33,619	19
Red snapper	130,553	3
Red grouper	21,797	20

Source: Logbook Data, SEFSC 2009.

Recreational Fishing

As observed in other areas, the number of charter/headboat permits held by Georgia residents increased markedly from five permits in 1999 to 27 permits in 2004 (SAFMC 2006). Recreational vessels are located at Tybee Island close to Savannah, on the barrier islands off Brunswick, and between Savannah and Brunswick.

Townsend

A history of the area, describing its economy before the Civil War, the rise and fall of lumbering, and the building of the railroad, can be found in SAFMC (2006).

Townsend is a small, rural community. In 2005, the fish house in this community was relocating inland. It is not known if this relocation was successful and whether that fish house will be handling domestically harvested fish in the future.

Overview

The population of Townsend increased by over 1,000 residents from 2,413 in 1990 to 3,538 in 2000. Although there was a large relative increase in the number of Hispanic or Latino residents, from 2 to 27, most of the new inhabitants were white (1,465 in 1990 and 2,437 in 2000). Median income increased from approximately \$23,000 to \$35,000. Median home value nearly tripled, from \$33,000 in 1990 to \$98,100 in 2000, and monthly rent nearly doubled, from \$213 to \$431. In 1990, 26.9 percent of residents had less than a 9th grade education, but by 2000, that number declined to 11.0 percent. The percentage of those completing high school increased by nearly 15 percent, while the percent receiving a bachelor's degree or higher remained about the same (8.4 percent to 8.9 percent). The percent of the population with an income below the poverty line decreased by four percent, but remained high at 14.6 percent. The percentage of the population unemployed increased from 3.4 percent to 6.5 percent. There has been a sizeable decline in the percentage of the population employed in manufacturing, from 29.0 percent to 16.2 percent, and the proportion of the population employed in farming, fishing, and industry remained unchanged at approximately three percent.

Commercial Fishing

A comprehensive description of the historic and current fish houses of coastal Georgia and how they operate, focusing on Phillips Seafood of Townsend, can be found in SAFMC (2006). For nearly a decade, only one fish house has consistently handled snapper grouper species. A fish house in Brunswick may have landed these species in the past, but has not reported landings since 2001.

Recreational Fishing

Offshore recreational anglers do not often target or harvest snapper grouper species in Georgia (<http://www.st.nmfs.noaa.gov/st1/recreational/overview/overview.html>).

Of the snapper grouper species harvested, black sea bass, sheepshead, and vermilion snapper are the most commonly harvested fish at five, seven, and two percent, respectively. As of 2004, residents of the Savannah area held 11 charter/headboat permits for snapper grouper, and many of these vessels are docked on Tybee Island. Residents of the area around the city

of Brunswick, including Jekyll Island and Sea Island, held four snapper grouper charter/headboat permits. Interestingly, unlike the cities profiled in the Carolinas, the number of federally permitted for-hire vessels has declined dramatically. From 2003 to 2004, the number of snapper grouper permitted for hire vessels declined from 43 to 27 (NMFS 2004). The cause of this decline is unknown.

3.6.4.4 Florida

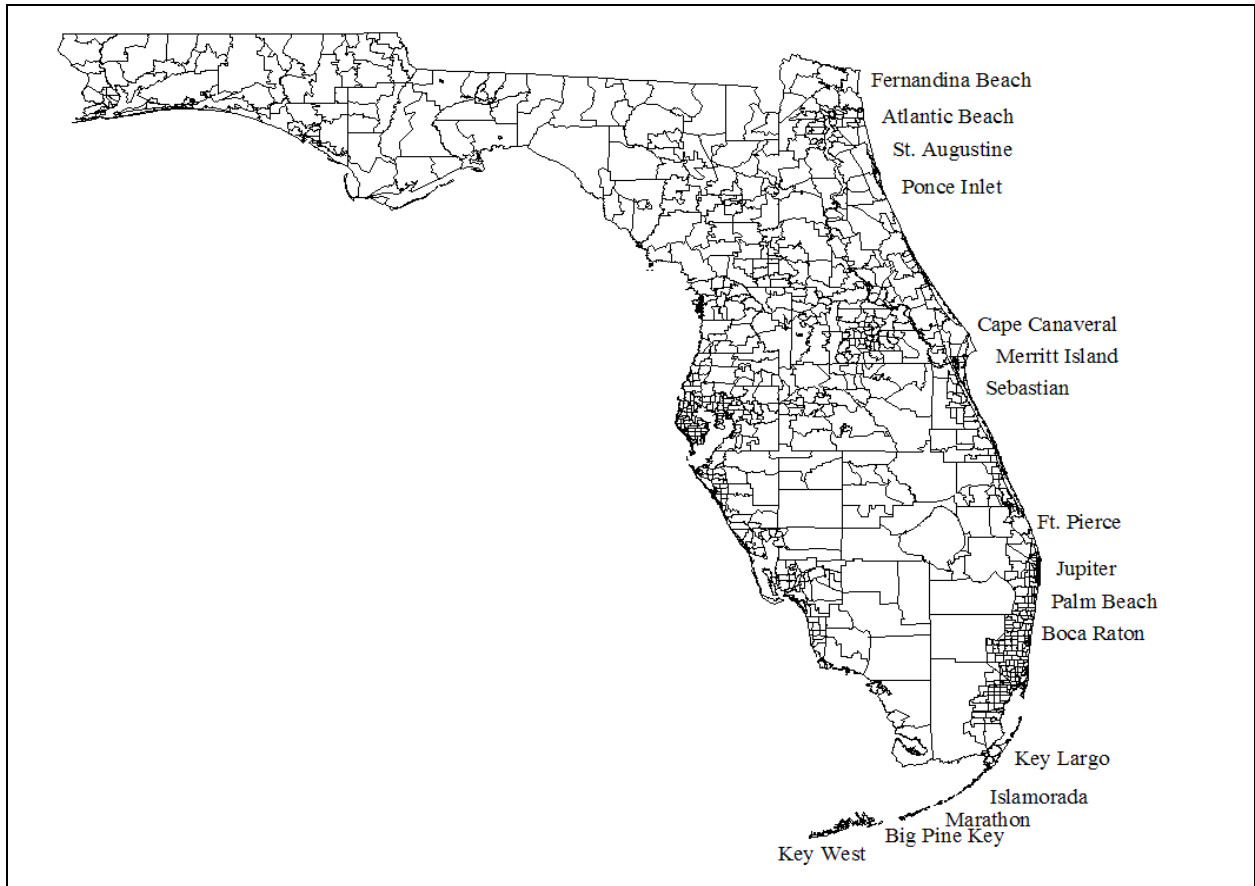


Figure 3-26. Florida communities with substantial fishing activity. Identified by South Atlantic Advisory Panels.

Source: Jepson et al. (2005).

Statewide

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 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 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 3-18.

Commercial Sector

Considering 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. Although total landings and dollar values of all species landed on the Florida East coast have decreased from 1998 to 2003 (from nearly 30 million pounds worth approximately \$44 million to approximately 23 million pounds worth \$33 million dollars; SAFMC 2006), there is still a considerable commercial fishing presence in east Florida.

Table 3-54 shows the cumulative landings for 2005, 2006, 2007 for the top three communities in Florida for each species in this amendment. Although, the rankings can change from year to year, but the cumulative landings over a three year range can suggest which communities are most involved with the commercial harvest of each species.

Table 3-54. Top three communities in Florida, listed by species, for commercial cumulative landings for 2005-2007.

	Location	Pounds	Location	Pounds	Location	Pounds
Gag	Mayport	319,605	Cocoa	265,628	Jacksonville Beach	220,562
Vermillion	Mayport	833,254	St.	294,860	Atlantic	124,688

Snapper			Augustine		Beach	
Black Sea Bass	Jacksonville	6,765	Fernandina Beach	6,541	Mayport	5,524
Snowy Grouper	Key West	269,315	Pt. Orange	195,872	Tavernier	114,877
Golden tilefish	Cocoa	1,109,657	Ft. Pierce	933,150	Pt. Orange	678,863
Red snapper	Mayport	173,390	St. Augustine	108,773	Jacksonville Beach	85,461
Black grouper	Key West	951,205	Key Largo	142,787	Summerland Key	142,634
Red grouper	Tavernier	86,261	Summerland Key	75,632	Miami	62,579
Warsaw grouper	Key West	22,781	Cocoa	3,525	Tavernier	2,110
Speckled hind	Key west	77,614	Cocoa	2,528	Tavernier	847

Source: Logbook data, SEFSC 2009.

Recreational Sector

While the commercial fishing industry, though still strong, may be in decline, the recreational sector appears to be stable. Excluding the headboat sector, although the number of participants declined in 2004 to approximately 1.9 million from 2.2 million in 2003 and from a high of 2.6 million in 2001, the number of trips taken in 2003 and 2004 remained at approximately 21 million. As shown in Table 3-49, the headboat sector has exhibited a steady decline. In 2004, many homeports hosted at least one vessel holding both federal charter/headboat permits and federal unlimited commercial permits. Key West and Miami stand out, with 35 and 15 such vessels, respectively.

Cape Canaveral, Brevard County

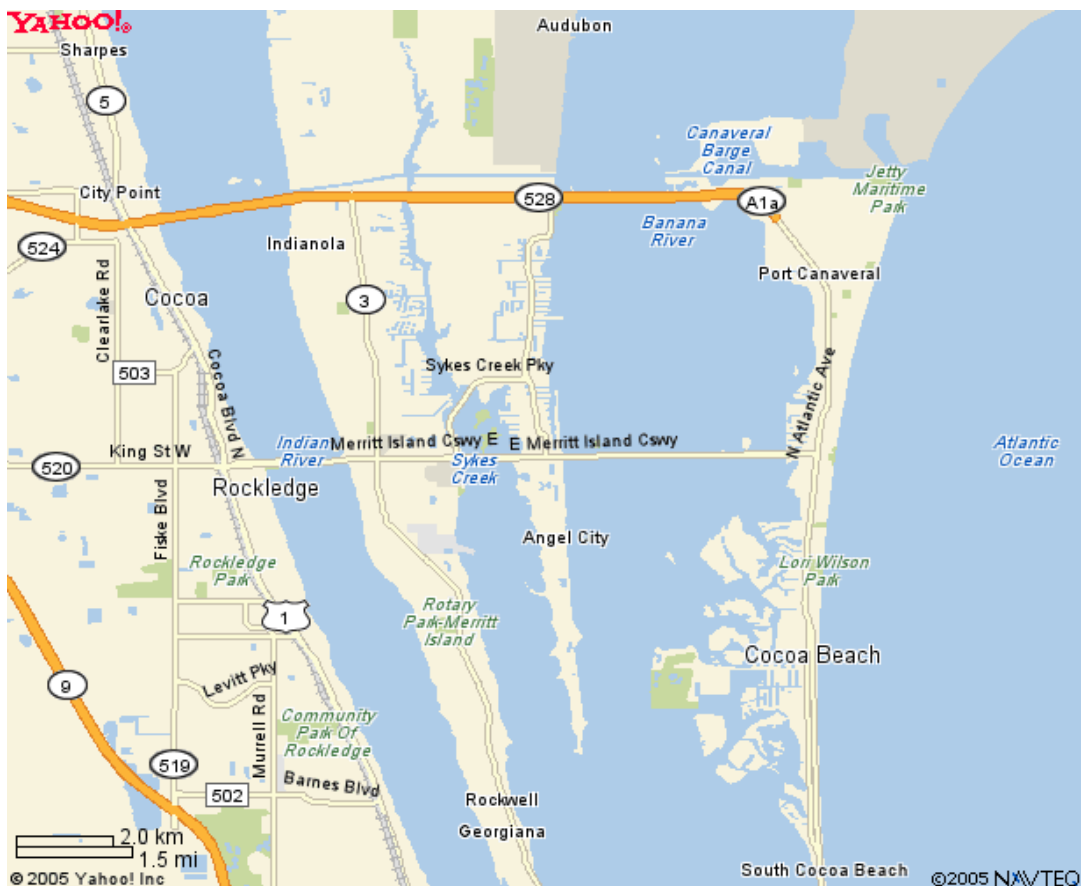


Figure 3-27. Area map of Cape Canaveral, Florida.

Source: Yahoo Maps, <http://www.yahoo.com>.

A detailed history of Cape Canaveral, Florida, from its first habitation 10,000 years ago, its settlement by the United States in the early 1800s, the establishment of the Banana River Naval Air Station in World War II, to NASA's arrival in 1952, can be found in SAFMC (2006). A map of the area is shown in Figure 3-27.

Overview

Cape Canaveral has a fairly homogenous, aging population, with those 65 years and older growing from 16.1 percent of the population to 23.1 percent since 1990. Overall, educational attainment has increased. The number of persons who speak a language other than English at home has increased 2.5 percent, and fewer people have incomes below the poverty line. Unemployment has decreased, but fewer people are in the labor force today than in 1990, perhaps due to an aging population. The percentage of persons in a service occupation has grown from 14.1 percent to 20.4 percent, while there has been a sizeable decline in the percent of residents employed in forestry, mining, and fishing, from 2.7 percent in 1990 to 0.4 percent in 2000.

Fisheries in central Florida generally operate in two different environments, inshore river or inlet fishing with associated lagoons, which primarily attracts recreational fishing, and

offshore areas, where commercial fishing primarily occurs. Popular inshore areas include the Indian, St. Johns, and Banana Rivers and associated lagoons. Commercial exploitation of the rivers and lagoons declined after implementation of the Florida Net Ban of 1994.

Many commercial fish houses have gone out of business or have shifted to selling imported products to supplement their local supplies. At the same time, the number of businesses possessing federal dealer permits has increased from about 180 in 1999 to a little over 200 in 2001. There is some industry speculation that the increasing number of dealer permits reflects increased decentralization in the domestic fishing markets and the need to increase profits by self-marketing.

Commercial Fishing

Cape Canaveral draws fishermen from Cocoa/Cocoa Beach, Merritt Island, Melbourne, and Titusville. These fishermen target many snapper grouper species, as well as coastal migratory pelagics such as mackerel, highly migratory species such as sharks and swordfish, and shellfish such as oysters, quahogs, and shrimp. Snowy grouper and tilefish (particularly golden or sand tilefish) landings exceed 10,000 pounds per year. Total commercial landings decreased, however, from 8.9 million pounds to 6.0 million pounds from 1998 to 2004 (SAFMC 2006).

The number of unlimited commercial permits in this area increased from nine in 1999 to 16 in 2004. The number of limited commercial permits fluctuated over this period, but ultimately declined from four permits in 1999 to one in 2004 (SAFMC 2006).

The number of Florida Saltwater Products Licenses issued to residents of Brevard County (where Cape Canaveral is located) decreased from 872 in 1998/99 to 492 in 2004/05 (SAFMC 2006). This license is needed to sell marine species in the state. There have also been declines in license sales for various crustacean fisheries.

Recreational Fishing

In 2004, Brevard county supported 36 bait and tackle stores, with five in Cape Canaveral, and 70 marinas with over 3,000 wet slips, indicating the importance of recreational fishing to the area. Fourteen fishing tournaments consistently occur in the area. Additional details about these businesses and tournaments can be found in SAFMC (2006).

As in other coastal areas of Florida, there is a fairly heavy presence in Brevard County of charter boat businesses, private marinas, and other associated businesses catering to the recreational fishing sector. The number of federally permitted charter/headboat vessels in Cape Canaveral increased from zero to seven from 1999 to 2004. According to Holland *et al.* (1999), there were approximately 32 charter boats and 2 headboats in the Canaveral/Melbourne area. Current estimates from permit files show at least 38 for-hire vessels with Snapper grouper permits homeported in Cape Canaveral or Port Canaveral, which includes approximate four headboats. That is likely a low estimate for total the total

number of for-hire vessels in the area since it does not include vessels in the nearby Merritt Island and in the Cocoa/Cocoa Beach areas.

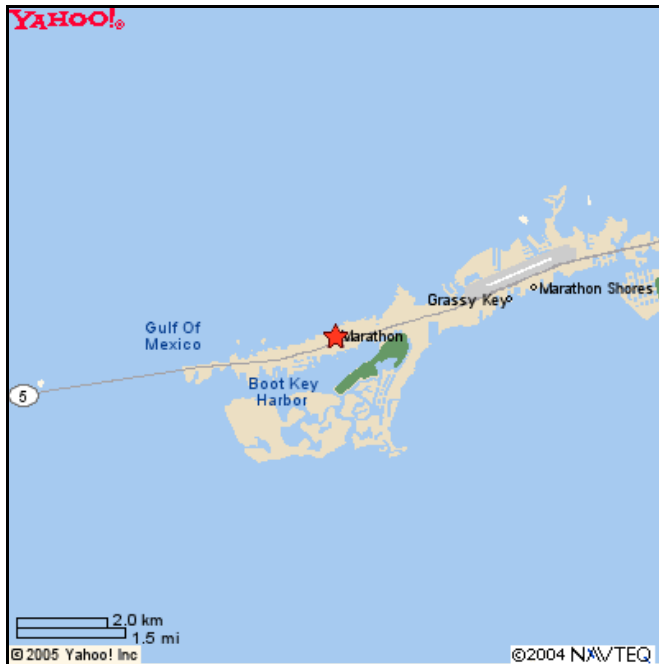


Figure 3-28. Marathon, Florida.

Source: Yahoo Maps, <http://www.yahoo.com>.

Marathon, Monroe County

A history of Marathon, detailing its settlement in the 1800s, the rise of industry, the effects of the Great Hurricane of 1935, the rise of tourism, and the importance of commercial fishing, can be found in SAFMC (2005). Figure 3-28 shows a map of Marathon, which lies in Monroe County.

Overview

Census data from 1990 and 2000 show there was an increase in overall population in Marathon from 8,857 in 1990 to 10,255 in 2000. During this period, the Hispanic population more than doubled, increasing from 1,040 to 2,095. This increase accounts for more than two thirds of the total population increase for the area. During this period of time, the median household income increased from approximately \$25,000 to over \$36,000.

Marathon has maintained a relatively high percentage of the total population, 4.1 percent in 2000, involved in farming, fishing, and forestry, though the percentage has declined from 8.7 percent in 1990. Since there is little commercial farming and forestry occurring in the area, the majority of percentage can be assumed to relate to fishing activities. The percentage of people that live below the poverty line decreased slightly from 15.1 percent in 1990 to 14.2 percent in 2000.

Commercial Fishing

In 1998, 184 Marathon residents were employed in fishing related industry according to the Census data, with 39 of those in the “fishing” category, 92 employed in “fish and seafood,” and 47 employed by marinas (SAFMC 2006). The number of unlimited commercial permits held by community residents decreased from 65 permits to 44 permits between 1999 and 2004. Similarly, the number of limited commercial permits decreased from 43 permits to 31 permits.

Recreational Fishing

While most of the waters around Marathon are open to fishing, some areas have been set aside for eco-tourism and fish-viewing by divers and snorkelers. Sombrero Reef, said to be one of the most beautiful sections of North America’s only living coral barrier reef, lies several miles offshore and is protected by the Florida Keys National Marine Sanctuary (<http://www.flakeys.com/marathon>).

The importance of recreational boating and fishing to the economy of Marathon is shown by the businesses reliant upon it. As of 2004, there were at least 25 charter boat businesses, two party boat businesses, eight bait and tackle shops, and 27 marinas in the area. The number of vessels holding the federal charter/headboat permit increased from 16 in 1999 to 30 in 2004. In addition, there were seven fishing tournaments in Marathon. Most tournaments are centered on tarpon fishing. However, there are inshore and offshore fishing tournaments as well. These tournaments begin in February and run through June. Hotels and restaurants fill with participants and charters, guides and bait shops reap the economic benefits of these people coming to the area. These tournaments are positive economic pulses in the local economy, one that thrives on the existence of tourism and recreational fishing.

4 Environmental Consequences

4.1 Extend FMU

Alternative 1 (no action). Do not change the current management boundaries of the snapper-grouper.

Alternative 2. Extend the management boundaries for all species in the snapper-grouper FMU northward to include the Mid-Atlantic Council's jurisdiction (except for black sea bass, golden tilefish, and scup). The South Atlantic Fishery Management Council will specify the MSY, ABC, MSST, OFL, ACL, and ACT for species in the fishery management unit. In addition, the South Atlantic Council will specify the allocation by sectors for each species and/or fishery and by Council area. A portion of the ACL/ACT for each species and/or fishery will be allocated to the northern zone with separate allocation for the Mid-Atlantic Council area. The Mid-Atlantic Council will specify management measures to limit total mortality to the ACL/ACT specified for their area. The actions specified by the Mid-Atlantic Council will not have to be reviewed and/or approved by the South Atlantic Council. However, NMFS (SERO and/or NERO) must ensure that the actions will keep total mortality at or below the ACL/ACT specified for each Council's area.

Alternative 3. Extend the management boundaries for all species in the snapper-grouper FMU northward to include the Mid-Atlantic and New England Council's jurisdiction (except for black sea bass, golden tilefish, and scup). The South Atlantic Fishery Management Council will specify the MSY, ABC, MSST, OFL, ACL, and ACT for species in the fishery management unit. In addition, the South Atlantic Council will specify the allocation by sectors for each species and/or fishery and by Council area. A portion of the ACL/ACT for each species and/or fishery will be allocated to the northern zone with separate allocations for the Mid-Atlantic and New England Council areas. The Mid-Atlantic Council will specify management measures to limit total mortality to the ACL/ACT specified for their area, and the New England Council will specify management measures to limit total mortality to the ACL/ACT specified for their area. The actions specified by the Mid-Atlantic and New England Councils will not have to be reviewed and/or approved by the South Atlantic Council. However, NMFS (SERO and/or NERO) must ensure that the actions will keep total mortality at or below the ACL/ACT specified for each Council's area.

4.1.1 Biological Effects

The reauthorized Magnuson-Stevens Act requires the Councils to set management measures to ensure total mortality (fish that are retained and mortality of fish that are discarded) is less than or equal to the Annual Catch Limit (ACL). Available data do not support separate stocks in the Mid-Atlantic and New England Council's jurisdiction

except for black sea bass, golden tilefish, and scup. Assessments conducted through the SEDAR process include data from the Mid-Atlantic and New England areas. Therefore, the South Atlantic Council must address harvest of these species north of North Carolina. Alternatives are shown in Figure 4-1.

Historically, catches of groupers and blueline tilefish have been restricted to areas off of North Carolina on south along the east coast of the United States. Anglers fishing in deeper waters off Virginia have recently encountered blueline tilefish and snowy grouper. Blueline tilefish were found in tremendous number off Virginia with an average size larger than those caught in more southern waters. In 2007, the Virginia Saltwater Fishing Tournament added blueline tilefish, golden tilefish and snowy grouper to its list of species eligible for state record recognition. In 2007, state records were set and broken for all three species (the blueline tilefish and snowy grouper also qualified as IGFA records), and anglers registered 164 blueline tilefish Citations. In 2008, blueline tilefish in excess of 18 pounds were landed. The current world record blueline tilefish stands at 19 pounds 14 ounces.

There are reports that wreckfish and blackbelly rosefish are being caught in large numbers. Furthermore, of particular interest, are reports of very large snowy grouper fishermen are bringing to the dock that are larger than the existing world record. There is some feeling that the fishery that has developed off of the Virginia coast is on previously unexploited stocks of blueline tilefish and snowy grouper.

The Virginia Marine Resource Commission (VMRC) was concerned about the ease in which these stocks can be overexploited in a short amount of time. Based on a combination of scientific, management and anecdotal information collected by VMRC staff on current catches of blueline tilefish and snowy grouper from the waters off of Virginia's coast, and conservation based recommendations made to staff by members of both the recreational and commercial fisheries, Virginia's Marine Resources Commission approved management measures that allowed the fishery to continue, while valuable and much needed information on life-history and stock structure of population off of the Virginia coast is collected (Table 4-1).

The Council is concerned about a northward expansion of a fishery for snapper and grouper species, resulting in large catches of tilefish and groupers. The Council's Snapper-Grouper Advisory Panel (AP) presented information documenting increasing catches of blueline tilefish and snowy grouper off the coast of Virginia. In addition, Virginia reported state records of recreationally-caught blueline tilefish and snowy grouper in recent years. In response, the VMRC has since established commercial and recreational limits on the harvest and landing of tilefish and grouper off the coast of Virginia (Table 4-1).

Table 4-1. Commercial and recreational limitations on the harvest and landings of tilefish and groupers in Virginia.

	Groupers	Tilefish
Commercial	175 pounds/vessel/day	300 pounds/vessel/day
Recreational	1 fish/person/day	7 fish/person/day

The following species are considered a grouper: black, goliath, misty, Nassau, red, snowy, tiger, warsaw, yellowedge, yellowfin, and yellowmouth grouper; and gag, coney, graysby, red hind, rock hind, scamp, speckled hind, wreckfish. The following species are considered a tilefish: blueline, golden, and sand tilefish.

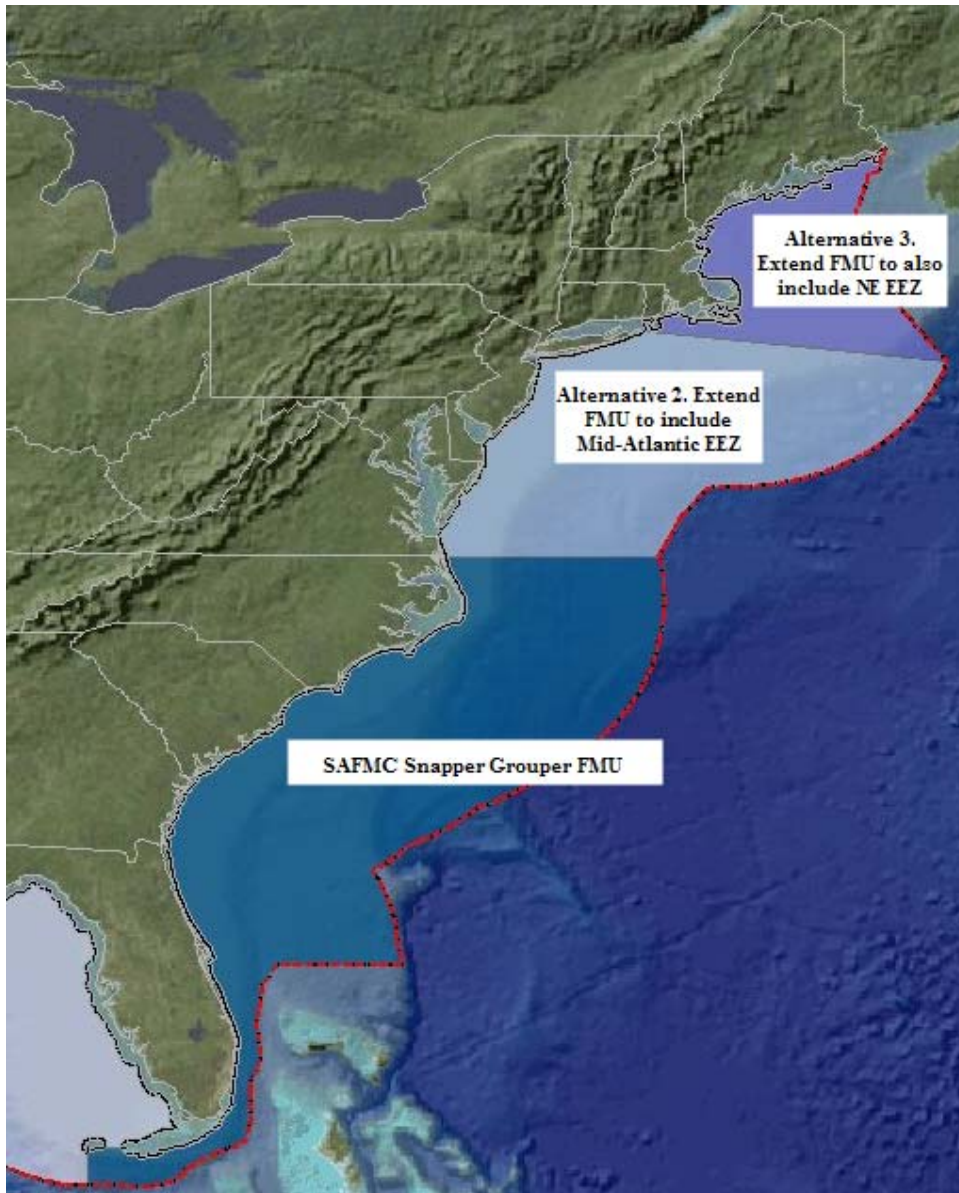


Figure 4-1. Fishery Management Unit (FMU) alternatives.

Source: Roger Pugliese.

The Council is considering extending the range of the snapper-grouper fishery management plan for some species northward in order to conserve and manage these species. The current boundaries would not be changed for black sea bass, golden tilefish, and scup since these species are considered separate stocks north of Cape Hatteras, North

Carolina and they are currently covered by fishery management plans north of Cape Hatteras.

Alternative 1 would maintain the current management boundaries for species in the snapper-grouper fishery management unit (FMU). Currently, a number of snapper-grouper species are landed in the Mid-Atlantic region by commercial and recreational fishermen (Tables 4-2 and 4-3). The low level of snapper-grouper landings in the Mid-Atlantic and New England regions and information from available sources (<http://search.msn.com/results.aspx?q=Fishbase&FORM=MSNH11&mkt=en-us>) suggests the Mid-Atlantic and New England represent the northern part of the ranges for some of the snapper-grouper species. It should be noted however that MRFSS uses dock side intercepts to estimate the catch rate of recreational fisheries. Recreational harvest is lower for certain species in the snapper-grouper FMU caught in deeper water (e.g., snowy grouper and golden tilefish) compared to other species. As a result, sampling error is high for these species and there may be an underestimation of the recreational harvest.

It has been suggested snapper-grouper species are becoming more common in the northern part of their range in response to increases in average water temperature due to global warming (Parker and Dixon 1998).

Two of the species (snowy grouper and red snapper) caught north of North Carolina are overfished and experiencing overfishing. As the number of fishermen increase and more regulations are imposed on species in the Mid-Atlantic region, it is possible snapper-grouper species could experience increased fishing pressure. Furthermore, increased fishing pressure could be placed on species in the Mid-Atlantic region, such as snowy grouper, which have strict regulations in the South Atlantic. Snowy grouper and red snapper are extremely vulnerable to overfishing because they are long-lived and achieve large sizes (SEDAR 4 2004, SEDAR 15 2008). In addition, snowy grouper change sex and are found in aggregations over structure easily recognized on a fathometer. Blueline tilefish is also a long-lived species but its overfishing and overfished status is unknown. Harris *et al.* (2004) indicate heavy fishing pressures was likely responsible for significant decreases in the mean age of males and females from 1982-87 to 1996-99 (15 to 8.6 yr for males; 17.7 to 11.2 yr for females).

Alternative 2 would extend the management boundaries for all species in the snapper-grouper FMU northward to include the Mid-Atlantic Council's jurisdiction (except for black sea bass, golden tilefish, and scup). Currently, recorded commercial and recreational landings of snapper-grouper are very small (Tables 4-2a and 4-2b). Despite the low recorded landings of these species, there is information suggesting landings of species such as blueline tilefish and snowy grouper are increasing off the Mid-Atlantic states.

The South Atlantic snapper-grouper fishery is a limited access fishery and vessel owners may only obtain a permit if they first purchase two snapper-grouper permits. Due to the cost of snapper-grouper federal permits and low occurrence of snapper-grouper species in the Mid-Atlantic region, the action to extend management boundaries to the north could

keep commercial and recreational landings at current levels. However, if instead, new permits are issued by SERO and/or NERO for the northern areas, commercial and recreational effort could continue to increase. Landings, however, would be capped and managed to those limits set out by the South Atlantic Council. Therefore, this action would have positive biological effects for snapper-grouper species in the mid-Atlantic region by restricting take of these species.

THE PUBLIC IS ENCOURAGED TO COMMENT ON WHETHER NEW PERMITS SHOULD BE ISSUED FOR THE NORTHERN ZONE OR SHOULD INDIVIDUALS HAVE TO PURCHASE EXISTING PERMITS. ALSO, IF NEW PERMITS ARE ISSUED, SHOULD THE NERO OR SERO ISSUE THE NEW PERMITS.

Table 4-2a. Recreational landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) from Mid-Atlantic.

Year	Species	Pounds	PSE
2004	Gray Triggerfish	66,978	25.5
2004	Sheepshead	8,448	0
2004	Atlantic Spadefish	298,128	36.1
2005	Gray Triggerfish	182,038	40.4
2005	Sheepshead	121,233	74.6
2005	Atlantic Spadefish	314,147	38.1
2006	Gray Triggerfish	15,247	52.5
2006	Sheepshead	101,689	58.7
2006	Atlantic Spadefish	505,720	38.3
2007	Gray Triggerfish	140,041	20.2
2007	Sheepshead	17,782	36.8
2007	Atlantic Spadefish	757,900	15.9
2007	Blueline tilefish	4,220	78.8

Source: <http://www.st.nmfs.noaa.gov/st1/recreational/queries/index.html>

Alternative 3 would extend the management boundaries for all species in the snapper-grouper FMU northward to include the Mid-Atlantic and New England Council's jurisdiction (except for black sea bass, golden tilefish, and scup). The beneficial biological effect of **Alternative 3** would be greater than **Alternative 2** since management measures for snapper-grouper species would be applied to a larger area. However, since the actual abundance of snapper-grouper species in New England is small (Table 4-3 and 4.4), the biological effect of **Alternative 2** would be similar to **Alternative 3**.

The recorded landings of snapper-grouper species in the Mid-Atlantic and New England are small. Therefore, while the biological effect of extending management to these areas in **Alternatives 2 and 3** would be positive, the overall reduction in harvest of these species achieved through this action would likely be minor. However, if landings are

actually larger than recorded for these species then the positive biological effects of this action would be more substantial.

THE PUBLIC IS ENCOURAGED TO COMMENT ON WHETHER NEW PERMITS SHOULD BE ISSUED FOR THE NORTHERN ZONE OR SHOULD INDIVIDUALS HAVE TO PURCHASE EXISTING PERMITS. ALSO, IF NEW PERMITS ARE ISSUED, SHOULD THE NERO OR SERO ISSUE THE NEW PERMITS.

Table 4-2b. Commercial landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) in Mid-Atlantic.

Year	Species	Metric Tons	Pounds
2004	AMBERJACK	0.3	679
2004	GROUPE, SNOWY	0	70
2004	JACK, CREVALLE	0	65
2004	RUNNER, BLUE	0	26
2004	SHEEPSHEAD	0	33
2004	SNAPPER, RED	0.1	164
2004	SNAPPERS	1.1	2,397
2004	TILEFISH, BLUELINE	1.3	2,961
2004	TILEFISH, SAND	0	22
2004	TILEFISHES	1.1	2,337
2004	WRECKFISH	0	25
2005	AMBERJACK	0.1	148
2005	SHEEPSHEAD	0.1	114
2005	SPADEFISHES	0.1	139
2005	TILEFISH, SAND	0.3	559
2005	TILEFISHES	0	2
2006	SHEEPSHEAD	0.3	601
2006	SPADEFISHES	0	34
2006	TILEFISH, SAND	0.7	1,500
2006	TILEFISHES	0	13
2007	AMBERJACK	0	3
	GROUPE, YELLOWEDGE	0.2	421
2007	JACK, CREVALLE	0	9
2007	RUNNER, BLUE	0	15
2007	SHEEPSHEAD	0.2	392
2007	SNAPPER, RED	0.1	235
2007	SNAPPERS	1.6	3,470
2007	TILEFISH, SAND	0.4	880
2007	WRECKFISH	0	29

Source http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html

Table 4-3. Recreational landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) from New England.

Year	Species	Pounds	PSE
2004	Gray Triggerfish	5,013	100
2007	Gray Triggerfish	5,939	99

Source: <http://www.st.nmfs.noaa.gov/st1/recreational/queries/index.html>

Table 4-4. Commercial landings (pounds whole weight) of snapper-grouper species (excluding black sea bass, golden tilefish, and scup) in New England.

Year	Species	Metric Tons	Pounds
2004	GROUPE, YELLOWEDGE	0	2
2004	GROUPERS	1.4	3,194
2004	SHEEPSHEAD	0	8
2004	SNAPPER, RED	0	4
2004	SNAPPERS	0	75
2004	TILEFISH, BLUELINE	1	2,190
2004	TILEFISH, SAND	0	15
2004	TILEFISHES	70.2	154,753
2005	GROUPERS	0	49
2005	RUNNER, BLUE	0.1	165
2007	SNAPPERS	0.8	1,851
2007	TILEFISH, BLUELINE	0.9	1,924

Source http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html

If the Council chooses **Alternative 2 or 3**, then Essential Fish Habitat (EFH) and EFH Habitat Areas of Particular Concern (EFH-HAPCs) would need to be specified for the areas north of North Carolina (see **Action 8**).

Alternative 1 (Status Quo) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. The specification of MSY, ABC, MSST, OFL, ACL, and ACT under **Alternatives 2 and 3** will not directly affect the protected species, because these parameters are not used in determining immediate harvest objectives. **Alternatives 2 and 3** will not affect *Acropora* species because they do not occur in the Mid-Atlantic or Northeast regions. The impacts from **Alternatives 2 and 3** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but cause effort redistribution, any effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives result in an overall reduction of fishing effort in the snapper grouper fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

4.1.2 Economic Effects

Alternative 1 maintains current management boundaries in the snapper-grouper FMU. As mentioned above, increased fishing pressure could occur on overfished species like snowy grouper and red snapper. This could have negative long-term economic impacts on commercial fishermen in the South Atlantic. With the possibility of the northern movement of species, increased fishing pressure in areas north of the South Atlantic Council's jurisdiction could prevent the timely adherence to rebuilding schedules for overfished species. This would result in longer rebuilding periods and put off landings that would otherwise be made by South Atlantic fishermen.

Alternative 2 would extend the management boundaries for all species in the snapper-grouper FMU northward to include the Mid-Atlantic Council's jurisdiction (except for black sea bass, golden tilefish, and scup). Such action would likely curb landings of snapper-grouper species off of Mid-Atlantic states (but not the New England states) and result in positive economic benefits to South Atlantic fishermen. **Alternative 2** would contribute to rebuilding schedules being met in a timely manner which would in turn lead to higher landings than those that would occur under **Alternative 1**.

Alternative 3 would extend the management boundaries for all species in the snapper-grouper FMU northward to include the Mid-Atlantic and New England Councils' jurisdiction (except for black sea bass, golden tilefish, and scup). This action would result in positive long-term economic benefits due to the larger management jurisdiction. **Alternative 3** would have greater long-term economic benefits compared to **Alternative 2**.

Under **Alternatives 2 and 3**, fishermen harvesting species in northern areas outside the South Atlantic Council's jurisdiction could be required to purchase two permits in order to continue fishing for species included in the snapper-grouper FMU. This will have negative short-term economic impacts on these fishermen. However, the Council may decide that new permits can be issued to those fishing for South Atlantic species in the northern areas. Under this scenario, the short-term negative economic impact to individual fishermen in the northern areas would be less than if they were required to buy a South Atlantic permit.

Non-use values, like value of biodiversity of species and existence value, associated with alternatives are highest under **Alternative 3** because this alternative offers the greatest level of protection. Non-use values are lowest under **Alternative 1** because it poses the greatest risk to rebuilding stock levels.

4.1.3 Social Effects

Alternative 1 (Status Quo) would allow the continuation of all current and customary fishing behavior and, as a result, would not be expected to result in any short-term change in social benefits to fishermen, associated business, and communities. However, because

stock assessments and resultant allowable harvest levels must incorporate consideration of harvest activity and biological condition throughout the range for the species, continued or increasing unregulated harvest by entities outside the South Atlantic's jurisdiction may result in greater harvest restrictions on South Atlantic entities than would be necessary if management were extended to all who harvest the resource, resulting in long-term reductions in social and economic benefits to entities in the South Atlantic States.

Currently, the expressed intent of the Council is that the management regime for snapper groupers in the states north of North Carolina (as appropriate, subject to the alternative geographic specifications of **Alternatives 2 and 3**) be similar to how the Gulf group king mackerel northern zone is managed. A description of the expected social effects of the implementation of such a management regime in the areas specified by **Alternatives 2 and 3** will be completed after details of the management regime are specified and the implications are determined. The following is a more general discussion of possible impacts that could be expected depending on the details.

Extension of management authority under **Alternatives 2 and 3** would result in each of the northern councils determining the management measures imposed to ensure landings do not exceed their portion of the ACL. The recreational fisheries for these species are minor in terms of both effort and harvest (see Section 3.6.2), so minimal to no adverse social effects on this sector would be expected; absent outright closure of northern waters to reserve resource benefits for fishermen and associated businesses in the South Atlantic, which would raise equity issues, general recreational fishing activity in the northern areas may be able to continue largely unaffected. Northern dealers who wish to continue purchasing snapper grouper species could be required to acquire a federal permit, but its cost, \$50 if it is the first federal permit acquired, or \$12.50 if purchased in conjunction with another federal permit, would be expected to be a minor additional business expense.

The more substantive potential effects would accrue to northern commercial fishermen who wished to continue harvesting snapper grouper species as they could be required to purchase two permits under the current limited access program for this fishery. On August 4, 2009, a single permit was advertised for sale on an internet billboard (<http://marinersguide.com/dockswap/southatlantic/messages/6287.html>) for \$13,000, while previous prices have been estimated to range from \$9,000-\$21,000 each (SAFMC 2008b). Given the minor amount of recorded landings of snapper grouper species in the northern areas (see Section 3.6.1), however, it is unlikely any commercial fisherman could justify acquiring the necessary permits. As a result, while few if any commercial operations would be expected to be burdened by the cost of these permits, all northern commercial fishermen who traditionally have harvested these species could experience declines in revenues as well as declines in associated social benefits. Associated businesses and communities would be expected to experience similar reductions in social and economic benefits. Alternatively, the reduction or elimination of harvests by these fishermen may result in increased harvests or less severe harvest measures for commercial fishermen in the South Atlantic, resulting in increased social benefits to these

entities and associated businesses and communities. It is unknown whether a net gain in benefits to the Nation would result from the decreased benefits to northern entities and increased benefits to southern entities. If, however, new permits are issued to fishermen fishing for South Atlantic species in northern waters, fishermen in those areas would not be as negatively impacted.

In general, the associated increase or decrease in benefits would be expected to vary with the magnitude of the extension of jurisdiction, with **Alternative 3** extending jurisdiction to a larger area than **Alternative 2**, and with the specific management restrictions that would be imposed. However, the vast majority of effort and harvests for the snapper grouper species included in this action occurs in Mid-Atlantic waters, so the majority of effects, either positive or negative, would be expected to accrue to extension of jurisdiction to the Mid-Atlantic (**Alternative 2**), with only marginal additional effects accruing to extension through New England (**Alternative 3**).

4.1.4 Administrative Effects

The **No Action Alternative** would not change the current FMU boundaries, and the expansion of a fishery for snapper-grouper northward would not be addressed. Under this alternative, concern about the potential of large catches of tilefish and groupers north of the current FMU area would persist, and catch limits imposed by the Virginia Marine Resources Commission would remain the only management strategies for tilefish and grouper off the coast of Virginia. **Alternative 2** would incur some administrative impacts in the form of a time burden on fishermen in the Northern area that wish to obtain a Federal snapper-grouper permit to legally catch and sell snapper-grouper species found in the northern areas. The South Atlantic snapper-grouper fishery is a limited access fishery and vessel owners may only obtain a permit if they first purchase two snapper-grouper permits.

Alternative 3 would incur the same administrative impacts as those described under **Alternative 2**; however, they would exist to a slightly higher degree since the area affected would be substantially larger. Impacts would only be marginally greater under **Alternative 3** than **Alternative 2** since the number of vessel owners seeking a South Atlantic snapper-grouper permit would likely not be significant in the northeast region due to climactic conditions, which make New England waters largely unsuitable for prolific snapper-grouper populations. Both **Alternative 2 and 3** would increase the administrative and enforcement burden on the agency associated with outreach and education to constituents, issuance of permits and monitoring and enforcement of the regulations in the northern areas.

4.1.5 Council's Conclusions

4.2 Limit Participation and Effort in the Golden Tilefish Fishery

Alternative 1. No-Action. Do not limit participation and effort in the golden tilefish fishery.

Alternative 2. Limit participation and effort in the golden tilefish fishery through the implementation of a LAP program.

Alternative 3. Distribute golden tilefish gear specific endorsements for snapper-grouper permit holders that qualify under the eligibility requirements stated below. Only snapper-grouper permit holders with a golden tilefish longline endorsement or a golden tilefish hook and line endorsement associated with their snapper-grouper permit will be allowed to target golden tilefish. The commercial quota would be allocated as 10% to those holding golden tilefish hook and line endorsements and 90% to those holding golden tilefish longline endorsements. Also, change the start date to August 1st. *Logbooks to check catch history and trip tickets to verify.*

Golden Tilefish Hook and Line Endorsement Eligibility Requirements

Sub-Alternative 3A. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1,000 pounds ww (with hook and line gear) when the individual's best three of five years from 2001-2005 are aggregated.

Sub-Alternative 3B. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds ww (with hook and line gear) when the individual's best three of five years from 2001-2005 are aggregated.

Sub-Alternative 3C. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds ww (with hook and line gear) when the individual's landings from 2001-2005 are averaged.

Sub-Alternative 3D. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds ww (with hook and line gear) when the individual's landings from 1999-2007 are averaged.

Sub-Alternative 3E. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1000 pounds ww (with hook and line gear) when the individual's landings from 1999-2007 are averaged.

Golden Tilefish Longline Endorsement Eligibility Requirements

Sub-Alternative 3F. To receive a golden tilefish longline endorsement, the individual must have a total of 2,000 pounds ww golden tilefish caught (with longline gear) between January 2005 and November 2007.

Sub-Alternative 3G. To receive a golden tilefish longline endorsement, the individual must have a total of 5,000 pounds ww golden tilefish caught (with longline gear) between 2005 and 2007.

Sub-Alternative 3H. To receive a golden tilefish longline endorsement, the individual must have an average of 5,000 pounds ww golden tilefish caught (with longline gear) between 2005 and 2007.

Sub-Alternative 3I. To receive a golden tilefish longline endorsement, the individual must have an average of 5,000 pounds ww using best 3 of 5 years golden tilefish caught (with longline gear) between 2003 and 2007.

Sub-Alternative 3J. To receive a golden tilefish longline endorsement, the individual must have an average of 10,000 pounds ww using best 3 of 5 years golden tilefish caught (with longline gear) between 2003 and 2007.

4.2.1 Biological Effects

Alternative 1 would not limit participation or effort in the golden tilefish fishery.

Alternative 2 would be expected to limit participation and effort in the golden tilefish fishery but it is difficult to determine what the reduction in effort would be without the specific designs of the LAP program.

All of the sub-alternatives under **Alternative 3** would result in a reduction of effort in the golden tilefish fishery. **Sub-alternatives 3A-3J** would reduce the effort in the golden tilefish fishery and thereby reduce any potential bycatch. A reduced number of vessels also increases the likelihood that observers could be placed on vessels to ensure there is no bycatch of speckled hind or warsaw grouper.

Alternative 1 (Status Quo) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2 and 3** and their associated sub-alternatives are unlikely to have adverse effects on 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* species. The impacts from **Alternatives 2 and 3** on sea turtles and smalltooth sawfish are unclear. If **Alternative 2** limits participation in the fishery, but the level of fishing effort remains the same, then the alternative will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. If limiting participation results in an overall reduction of fishing effort in the snapper grouper fishery, the risk of interaction between

sea turtles and smalltooth sawfish will likely decrease. If **Alternative 3** and the associated sub-alternatives reduce fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease. Ultimately, the degree of risk reduction to ESA-listed species is relative to overall effort reduction.

4.2.2 Economic Effects

Alternative 1 would not limit participation or effort in the golden tilefish fishery. (However, Amendment 17B could impact participation and effort through implementation of a ACL for golden tilefish.)

Alternative 2 would create a limited access privilege program. However, the characteristics of this program have not yet been described by the Council. Once these characteristics are specified, a full economic analysis of this program can occur. In general, implementation of a limited access privilege program typically includes eligibility requirements for receiving initial allocation of quota share and a methodology for determining how much initial allocation of quota share a person receives. Both of these design characteristics would impact participation and the level of effort applied to the golden tilefish fishery. If eligibility requirements are fairly low and/or the range of years used for initial allocation is relatively broad, participation would be higher than if eligibility requirements are high and/or the range of years used for initial allocation is narrow. If the Council decides that the LAPs are to be transferable, participation would likely decrease over time toward the level of participation implied by the Council specified ownership cap.

Regarding the proposed Golden Tilefish Hook and Line Endorsement, the sub-alternatives are not able to be fully analyzed until data through 2008 has been received. This data is currently being compiled. If the Council were to allocate 10% of the commercial allocation to the hook and line gear sector and 276,265 pounds of golden tilefish was chosen as the commercial ACT, this results in 27,700 pounds being allocated to Golden Tilefish Hook and Line Endorsement holders. This is similar to the total amount harvested by these individuals in each year 2001-05.

4.2.3 Social Effects

Alternative 1 (Status Quo) would not make any changes to the current management of golden tilefish. As a result, all current fishing practices would be allowed to continue and no changes in status quo social benefits would be expected. As discussed in Section 1.2, however, these status quo conditions are expected to continue a functional reallocation of the golden tilefish commercial quota to Florida fishermen at the expense of North Carolina and South Carolina fishermen due to recent management restrictions and the traditional fishing patterns where weather is a key determinant when fishermen from different states typically are able to participate in the fishery. While Florida has traditionally harvested the majority of golden tilefish (see Section 3.6.1), harvest these

harvest restrictions have resulted in shortened seasons and reduced harvests by North Carolina and South Carolina fishermen. Increased target effort by new fishermen in response to increased restrictions on other species could exacerbate this reallocation as well as displace fishermen that have not been adversely affected by the recent regulations. While ACLs and AMs should be effective in protecting the biological status of the resource, from the perspective that traditional fishing participation and patterns, as well as the businesses and communities they support, results in greater social benefits, functional reallocation of harvests 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.

Alternative 2 would attempt to return to and preserve the more traditional and historical participation and harvest patterns through the establishment of a LAP program. While the specifics of the LAP program for this fishery have not been defined, it is assumed that some improvement in social benefits relative to **Alternative 1 (Status Quo)** would result. It is noted, however, that LAP programs are not without their own problems and their success, in terms of either biological, economic, or social benefits, depends on their specific design, so it is possible that a particular LAP program for this fishery could result in decreased or unchanged social, or economic and biological, benefits relative to **Alternative 1 (Status Quo)**.

The following paragraph was developed prior to the addition of seven new sub-alternatives to the original three discussed below. These new sub-alternatives encompass additional harvest thresholds and periods of evaluation for endorsement eligibility. Because additional sub-alternatives for the hook and line endorsement were included in the new sub-alternatives, the original single longline sub-alternative has been renamed to be consistent with the new numbering and the discussion of the three sub-alternatives below are numbered **3A-3B-3J** rather than **3A-3B-3C**. Unlike the three sub-alternatives discussed below, estimates of the number of qualifying vessels under each of the new sub-alternatives are not available at this time. Discussion of the expected social effects of these new sub-alternatives will be developed when the estimates of the number of endorsements under each sub-alternative are available. In general, it is simply stated that the higher the number of endorsements, the less disruption of current harvest patterns, and associated social conditions, but the less likely historic participation and harvest patterns can be recovered, resulting in the continued loss of the social benefits the historic fishery is presumed to have provided.

Alternative 3 would attempt to return to and preserve the more traditional and historical participation and harvest patterns through the establishment of an endorsement program for the golden tilefish fishery, limiting participation, or preserving participation access rights, based on alternative minimum harvest performance histories. Although the alternative harvest qualification histories would attempt to allow historic participants to recover their historic roles though, absent a companion individual shares program, like a LAP, such endorsement programs may reduce, but would not eliminate the current problem of shifting the season away from when North Carolina and South Carolina fishermen can safely prosecute the fishery, as providing an endorsement would not

eliminate the weather related seasonal harvest access issues of the status quo. Nevertheless, **Alternative 3** would be expected to restore to some extent the presumed increased benefits of historical harvest participation and patterns. However, not all benefits would be expected to be restored. **Sub-Alternatives 3A** and **3B** would establish an endorsement for the hook and line sector, while **Sub-Alternative 3J** would establish an endorsement for the longline sector. **Sub-Alternatives 3A** and **3B** would result in 11 and 21 endorsements, respectively, while **Sub-Alternative 3J** would result in 10 endorsements. Thus, total participation could range from 21 to 31 vessels (assuming endorsements for each gear sector are selected). While the period of examination does not match the full 2001-2005 qualifying years for the endorsement, the average number of unique participants in the golden tilefish fishery from 2003-2005 landing at least 101 pounds per year was approximately 44 vessels (see Table 3.15; each landings category within the same year represents a unique set of vessels, so the vessel tallies within each column may be summed). Further, the average number of vessels landing more than 5,000 pounds per year over this period was 11 vessels. As a result, none of the endorsement alternatives would qualify all former participants and some social benefits may be forgone. Nevertheless, an endorsement program would be expected to help move the fishery back to historic participation patterns, resulting in greater social benefits than **Alternative 1 (Status Quo)**. Because **Sub-Alternative 3B** would result in the qualification of more historic participants, this alternative might be expected to result in more social benefits than **Sub-Alternative 3A**. However, an optimal number of participants has not been identified, so assumption of greater social, or economic, benefits associated with one of these sub-alternatives relative to the other would be speculative. Finally, absent definition of a specific LAP program under **Alternative 2**, a substantive evaluation of the expected effects of **Alternative 3** relative to **Alternative 2** is not possible.

4.2.4 Administrative Effects

Establishing a LAP program or a system of endorsement requirements would require moderate yet equal administrative support. In either case, the South Atlantic permit database would need to be altered in order to facilitate record keeping of a new effort reduction program. The least administratively burdensome alternative would be **Alternative 1 (no-action)**, followed by **Alternatives 2** and **3** equally. The administrative impacts can be more clearly described when the specifics of the LAP program and the endorsements are defined.

4.2.5 Council's Conclusions

4.3 Modifications to Management of the Black Sea Bass Pot Fishery

Alternative 1 (no action). Do not annually limit the number of black sea bass pots deployed or pot tags issued to holders of Federal snapper-grouper vessel 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 NMFS. Limit the black sea bass pot tags annually to 100 per vessel. NMFS will issue new identification tags each fishing year that will replace the tags from the previous fishing 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 NMFS. Limit the black sea bass pot tags annually to 50 per vessel. Require that new identification tags be issued each fishing 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 NMFS. Limit the black sea bass pot tags annually to 25 per vessel. Require that new identification tags be issued each fishing year.

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 NMFS. Limit the black sea bass pot tags annually to 100 per vessel in year 1, 50 in year 2, and 25 in year 3 and onwards until modified. Require that new identification tags be issued each fishing year.

Alternative 6. 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 NMFS. Limit the black sea bass pot tags annually to 100 per vessel in year 1 and 50 in year 2 and onwards until modified. NMFS will issue new identification tags each fishing year that will replace the tags from the previous fishing year.

Alternative 7. Black sea bass pots must be brought back to shore at the conclusion of each trip.

Alternative 8. Allow fishermen to leave pots in the water for no more than 72 hours.

4.3.1 Biological Effects

The Council is concerned there could be increased interest to fish more black sea bass pots per trip due to greater restrictions placed on commercial fisheries through Amendments 13C, 16, and 17. **Black Sea Bass Pots Alternative 1**, by not limiting the number of black sea bass pots deployed or pot tags issued to holders of Federal snapper-grouper vessel permits, could result in adverse impacts to the black sea bass stock. However, under all alternatives, including **Alternative 1**, 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 a program

to 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 groundlines, floatation and buoy lines with a weak link, etc. The black sea bass pot fishery already adheres to all regulations stipulated in the ALWTRP. For specifics of the ATWTRP regulations as they apply to the South Atlantic black sea bass fishery, see Appendix X or the whale take reduction website:

<http://www.nero.noaa.gov/whaletrp/plan/2008ALWTRPGuideVs32.pdf>

Without a limitation on the annual number of pot tags distributed to a fisherman, any number of pots could be deployed. During 2003 to 2008, the average number of vessels requesting tags for pots was 138 and the average number of tags requested per vessel per year was 39 (Table 4-5). The number of vessels requesting tags increased in 2008. 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 significantly less than the number of vessels requesting tags (Table 4-6).

Table 4-5. 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	165	47	4	1,000
Average	138	39	4	325

Source: NMFS permits office.

Table 4-6. 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 fishermen who fished with pots; and mean, minimum, maximum number of pots fished.

Year	# of Vessels that fished pots	# of Vessels that fished pots with tags	Mean # tags requested for vessels that fished pots	Min # tags requested	Max # tags requested	Median # of tags requested	Mean # pots fished	Min # pots fished	Max # Pots Fished
2003	52	49	56	6	200	50	45	1	200
2004	56	52	57	6	200	50	43	2	160
2005	53	47	54	6	160	50	47	1	120
2006	53	46	49	4	120	49	46	1	176
2007	54	51	53	10	200	50	48	1	144
2008	50	49	54	6	200	54	35	1	180

Source: NMFS permits office and NMFS logbook database 2/17/09.

The Council is concerned increased restrictions imposed through Snapper Grouper Amendments 13C, 16, and 17A and 17B including a commercial quota for black sea bass, could increase the incentive to fish more pots. 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. An increase in participation in the black sea bass fishery would also deteriorate profits for current participants in that fishery since limits have been placed on the amount of black sea bass that can be harvested through action implemented in Amendment 13C. In December 2008, the Council requested NOAA Fisheries Service issue a control date of December 4, 2008. The control date sets a date in time the Council could use to limit participation; anyone entering the black sea bass pot fishery after the specified date may not be guaranteed continued participation. The Council is further concerned about the possibility of fishermen leaving large numbers of traps fishing for multiple days due to vessel or weather problems, which could unnecessarily kill many black sea bass. Fishing large numbers of traps also increases the chance that traps could be lost and “ghost fishing” could occur. Furthermore, fishing large numbers of traps increases the chance of entanglement of pot lines with right whales and other protected species.

Alternatives 2-7 would all have beneficial impacts to the biological environment (particularly black sea bass stocks) by reducing fishing effort. The number of pots fished would be contained by limiting the number of tags distributed to fishermen and by requiring that pots have an attached identification tag. **Alternatives 2-7** would also decrease the adverse impact of fishing for multiple days if a fisherman was unable to retrieve large numbers of traps due to inclement weather or vessel difficulties, would reduce the number of lost traps and ghost fishing, and would reduce the potential for entanglement of trap lines with protected species.

The limitation on the number of pots deployed would reduce the adverse effects of continued fishing by lost gear, commonly called “ghost fishing”. Boat propellers and storms are common agents causing pots to be lost. The longer the pots are in the water

(commonly called “soak-time”), the greater the opportunity for lost pots. Fishermen may not be able to retrieve pots during periods of inclement weather or vessel repairs.

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 (65% of all trips) 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 multiple day (35%; Table 4-7). 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 2005-2008, only 14 fishermen deployed more than 55 pots for an average of 106 pots deployed per trip.

Table 4-7. Number of days away from port, number of trips, total lbs of black sea bass landed (whole weight) and number of pots fished during 2005-2008.

Away	Trip Freq	% Freq	Totlbs	% Tot lbs	# Traps	% Traps
1	1,632	65.28	788,503	49.85%	63,336	64.38%
2	634	25.36	573,180	36.24%	26,522	26.96%
3	194	7.76	193,076	12.21%	7,515	7.64%
4	25	1.00	16,291	1.03%	749	0.76%
5	7	0.28	4,896	0.31%	68	0.07%
6	5	0.20	2,893	0.18%	46	0.05%
7	2	0.08	1,806	0.11%	123	0.13%
8	1	0.04	1,146	0.07%	25	0.03%

Source: NMFS logbook database 4/6/09.

Table 4-8. Pots per trip fished (1/1/05-12/31/08).

	Average pots < 55	Average ≥ 55
No. of vessels	80	14
Average pots/trip	28	107

Source: NMFS logbook database 4/6/09.

Alternative 2 would have the least beneficial effects to the biological environment as it would allow fishermen to fish up to 100 traps each year. On average, **Alternative 2** would reduce the number of pots fished by trip by 8% (Table 4-9). **Alternative 4** would have the greatest biological effect since it would allow the fishermen to fish a maximum of 25 pots. Based on data from 2003-2008, **Alternative 4** would reduce the number of pots fished per trip by 62%. The biological effect of **Alternative 3** would be intermediate between **Alternatives 2 and 4** as it would allow fishermen to fish up to 50 pots. On average, **Alternative 3** would reduce the number of pots fished per trip by 17%. **Alternatives 5 and 6** would gradually reduce the maximum number of pots that could be fished each year from 100 to 25 (Alternative 5) and from 100 to 50 (**Alternative 4**). Thus, the biological effect of **Alternatives 5 and 6** would be similar to **Alternative 3 and 4** but greater than **Alternative 2**.

Alternative 7 would require that black sea bass pots be brought back to shore at the conclusion of a trip and **Alternative 8** would put a time limit of 72 hours for how long a

pot could remain in the water. 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 many 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.

Alternative 1 (Status Quo) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2-8** are unlikely to have adverse effects on listed *Acropora* species. Previous ESA consultations determined 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. **Alternatives 2-6** would likely reduce the risk of interactions between black sea bass pot gear and ESA-listed species by limiting the number of traps in use. **Alternatives 7 and 8** are also likely to reduce the risk of interactions between black sea bass pot gear and ESA-listed species.

Table 4-9. Number of pots fished per trip during 2005-2008.

Number of Pots	Number of Trips	Cumulative Freq	Percent Freq	Cumulative Percent
1-10	379	379	15%	15%
11-20	403	782	16%	31%
21-30	544	1,326	22%	53%
31-40	404	1,730	16%	69%
41-50	346	2,076	14%	83%
51-60	102	2,178	4%	87%
61-70	23	2,201	1%	88%
71-80	36	2,237	1%	89%
81-90	24	2,261	1%	90%
91-100	40	2,301	2%	92%
>100	199	2,500	8%	100%

Source: NMFS permits office and NMFS logbook database 4/6/09.

4.3.2 Economic Effects

In general, it is expected that the short-term economic benefits of **Alternatives 2-6** increase with the larger number of traps allowed per vessel. However, how the total number of traps in the fishery influence 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 traps 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 not capped. **Alternative 3** would have the next largest short-term economic impacts followed by **Alternatives 3, 4, 5, and 6**, 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 vessels will 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 will be negatively impacted since they will 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 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 impacts from alternatives with larger number of pots allowed per vessel are expected to be less than the impact of the alternatives with smaller numbers of pots allowed per vessel. Actual estimation of each vessels profitability requires vessel specific cost data, which is not available at this point in time.

Given that **Alternatives 7 and 8** protect the biological resource by helping to prevent overfishing, the fishery would experience long-term economic benefits from these alternatives.

4.3.3 Social Effects

Social effects would be expected to accrue to changes in the amount of allowable gear usage or the manner in which it is used if the changes affect normal fishing practices (behavior) and subsequent harvests. The intent of this action is to prevent an increase in the number of pots used by current black sea bass pot fishermen or by other snapper grouper fishermen that may enter the black sea bass fishery as a result of increased restrictions on other species, and reduce the potential adverse effects of lost pots and long soak times. As such, while the measures may indirectly result in the reduction in harvests for some vessels, as well as limit the potential for harvest increases by current and entering 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, and possible increased costs, among others. The latter two potential effects might accrue if the proposed limits induce alteration of the normal fishing patterns, such as frequency and duration of trips, as well as the time pattern of pot deployment, soak time, and retrieval.

Alternative 1 (Status Quo) 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. In the long term, however, increased restrictions in other fisheries may result in increased

effort shift into the black sea bass pot fishery, resulting in decreased economic viability of current pot fishermen, increased bycatch problems, and increased environmental damage from lost pots. While any increased black sea bass revenues for new entrants or existing participants would mitigate the losses in other fisheries that motivate the increased effort in the black sea bass pot fishery, such would not be expected to compensate for the adverse effects of increased effort.

Alternatives 2-6 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** would establish immediate tag limits (100, 50, or 25 tags), while **Alternatives 5** and **6** would establish an initial limit the first year (100 tags) with subsequent step-down limits in the following years to final limits of either 25 tags (**Alternative 5**) or 50 tags (**Alternative 6**).

Among **Alternatives 2-4**, the short-term adverse social effects would be expected to vary directly with the severity of the limit. As seen in Section 4.3.1, even the most liberal limit, 100 tags (**Alternative 2**), would restrict the fishing practices of some vessels as, although the mean number of tags requested and pots fished by vessels with recorded pot landings over the period 2003-2006 was only 51 tags and 45 pots fished, respectively, the average maximum number of tags requested and pots fished was 170 tags and 164 pots, respectively. Hence, some vessels would not be able to maintain current fishing practices and, as a result, some reduction of revenues, and associated social benefits may occur. These adverse effects would be expected to accrue to more entities and be more severe as the limit is reduced to 50 tags (**Alternative 3**) and 25 tags (**Alternative 4**). As seen in Section 3.6.1.9, the majority of black sea bass landings from 2003-2007 were made using pots (see Table 3-26) and an even greater proportion of landings were made on trips where black sea bass was the top source of trip revenue (see Table 3-24). While the information in Table 3-23 might suggest that black sea bass revenues are dominated by revenues for other species on the same trips (total average annual revenues from black sea bass were \$881,000 for 2003-2007 compared to total average annual revenues of \$4.5 million from all species on all trips that landed black sea bass), suggesting the potential effects of pot limitation could be relatively small, it appears that the higher revenues of other species primarily come from trips that incidentally harvest black sea bass, as revenues from other species were a minor component of total revenues on trips where black sea bass was the top revenue species (Table 3-24; total average annual black sea bass revenues of \$855,000 compared to \$68,000 for revenues from all other species on the same trip). As a result, depending upon the severity of the limit, some pot vessels could face substantial restrictions, with associated adverse social effects.

***PLACEHOLDER TEXT PENDING COUNCILS INDICATION OF INTENT. Under current practices, tags may be replaced, if appropriate fees are paid, when tags are lost. Non-replacement of tags in the current fishing year may be an additional tool to provide incentive for better pot management by the fishing entity and help reduce the overall pot effects on the environment. It is unclear at this time, however, whether replacement would or would not be allowed under the current alternatives. Tag replacement would allow fishermen to continue the use of their full allotment if pots (both the pot and tag is

lost) or tags (just the tag is lost) are lost, thereby maintaining their current fishing practices and associated benefits. However, tag replacement could be requested for tags that were never lost, presenting an opportunity for vessels to fish more than their allowable limit, particularly if daily return to shore or soak-time limits are not adopted. The incentive to attempt this behavior would increase with the severity of the limit. However, there is no reason to expect that such behavior would be common, nor could it be habitual as a systematic request for replacement tags would easily be documented.***

Alternative 5 and **Alternative 6** would reduce the severity of the short-term adverse effects of **Alternative 4** and **Alternative 3**, respectively, by allowing a two-year or one-year transition to the target tag limit. Allowing a phase-in would allow vessels to adjust their fishing practices to minimize any adverse effects and/or identify alternative opportunities to mitigate losses in the black sea bass fishery as a result of pot/tag limits.

Alternative 7 and **Alternative 8** would further restrict fishing flexibility by limiting pot soak time. **Alternative 7** would not explicitly limit soak time because the length of a fishing trip would not be limited. However, **Alternative 7** 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 **Alternative 7**, 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 8** would explicitly limit soak time. However, almost all black sea bass pot trips are less than three days, so **Alternative 8** would be expected to have little to no adverse social or economic effects. Unless suspension of the pot recovery requirement was possible, both alternatives could result in hardship or safety issues in the event of engine problems/failure or severe weather such that the vessel has 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 depression or hurricane, the absence of specific procedures in the event of engine problems may create additional problems for fishermen.

4.3.4 Administrative Effects

Alternative 1 requires no new administrative process and as such would be least burdensome of the alternatives. The administrative burden of **Alternatives 2-6** increases with the number of tags being issued or the complexity of the program. Alternative 2 (100 tags per vessel) would be more burdensome than Alternative 4—(25 tags per vessel) however the increased burden would be very small. Alternatives 5 and 6 would require slightly more of an administrative burden as the tag issuance would decrease each year until modified. **Alternatives 2-6** could constitute an increased burden to Law Enforcement since they would need to ensure that each pot was tagged and the number of traps deployed was within the legal limit. The burden to Law Enforcement would increase with the number of pots that could be fished. The use of Alternative 1-6, without the addition of Alternative 7 or Alternative 8, would be easier to enforce and monitor.

4.3.5 Council's Conclusions

4.4 Separate Snowy Grouper Quota into Regions/States

Alternative 1. (No-Action). Do not separate snowy grouper commercial quota into regions/states.

Alternative 2. Separate snowy grouper commercial quota into regions where Florida and Georgia encompass one region and South Carolina and North Carolina encompass another region.

Alternative 3. Separate snowy grouper commercial quota by state.

4.4.1 Biological Effects

The rationale for having regional quotas is that fishermen off Georgia and Florida could have an advantage and catch part of the quota early in the year when bad weather would prevent fishermen from catching snowy grouper off the Mid-Atlantic, North Carolina, and South Carolina. However, as the trip limit is only 100 pounds gutted weight and the quota is very small, early closure of the snowy grouper fishery might not occur. In 2006 and 2007, the magnitude of landed snowy grouper was much less than the quota. In 2008, only 59% of the 84,000 pound gutted weight quota had been met. The trip limit has probably reduced targeting to some degree where only snowy grouper taken as incidental catch are retained when fishermen seek co-occurring species.

The Council considered but rejected an alternative in Snapper Grouper Amendment 13C to divide snowy grouper quota among states because of concerns about accurately tracking the small snowy grouper quotas. The Council considered this alternative as unreasonable due to administrative and legal concerns. There are administrative concerns with the institution of a quota set at low landing levels (the approximate North Carolina allocation of a 84,000 gutted pound commercial quota would be 19,320 gutted pounds) as it takes at least two weeks to close a fishery. The Council was concerned this alternative would violate National Standard 4 of the Magnuson-Stevens Fishery Conservation and Management Act by allocating 23% of the snowy grouper catch to only a few fish houses. National Standard 4 dictates that management measures must not discriminate between residents of different states, allocation should be fair and equitable among fishermen, and no particular individual, corporation, or other entity may acquire an excessive share of such privileges.

Each region's directed quota would be tracked by dealer reporting. After the commercial quota is met in either region, all purchase and sale is would be prohibited in the region and harvest and/or possession would be limited to the bag limit. However, there is a chance that harvest could continue in a particular region and snowy grouper would be landed in the region where harvest is still allowed. This could result in some localized depletion but would not be expected to negatively affect the population.

Alternative 1 (Status Quo) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2 and 3** are unlikely to have adverse effects on listed *Acropora* species. Previous ESA consultations determined 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. The impacts of **Alternatives 2 and 3** on protected resources are uncertain. If fishermen continue to fish after the quota has been met, or if effort simply shifts from a closed region to an open region, then the alternative is unlikely to reduce the risk of adverse effects to protected species from interactions with the fishery. However, if regional quotas are effective in limiting the fishing effort after the quota is met, then the risk of interactions between protected resources and the fishery will likely be reduced for the closed region.

4.4.2 Economic Effects

Under **Alternatives 2 and 3**, the commercial quota for snowy grouper would be divided by region/state. Once the directed quota for each region is met, harvest or possession would be limited to the bag limit.

4.4.3 Social Effects

In general, the fishermen, associated business, and communities in any state or region that receives an increase in allowable harvest, or unchanged harvest levels, as a result of regional or state quotas would be expected to have their short-term social benefits remain the same or increase relative to **Alternative 1 (Status Quo)**. The opposite effect would accrue to those who experience decreases in allowable harvest. It is presumed that any state/regional allocations would adequately protect the resource and/or recovery goals. Identification of specific allocation formulas beyond simply defining the geographic groupings, however, are required for substantive identification or discussion of expected social or economic effects.

Alternatives 2 and 3 would divide the snowy grouper quota by region/state. These efforts at regional management will help some fishermen feel that there is an improvement in equity in distribution of quota.

4.4.4 Administrative Effects

Alternatives 2 and 3 would incur significant adverse effects on the administrative environment since dividing the commercial quota by region or state would require the creation of regional permits or endorsements, and thus change to the permit system in order enable enforcement of regional/state quotas. Without the requisite regional permits/endorsements enforcement of each regions quota would be difficult since many snapper grouper fishermen would likely travel to adjacent areas where the quota has not yet been reached. Alternative 1 would be the least burdensome from both an

administrative and enforcement perspective as it would require no new programs. The administrative and enforcement effects will be described once the specifics of the program is defined.

4.4.5 Council's Conclusions

4.5 Separate Gag Recreational Allocation into Regions/States

Alternative 1. No-Action. Do not separate gag recreational allocation into regions/states.

Alternative 2. Separate gag recreational allocation into regions where Florida and Georgia encompass one region and South Carolina and North Carolina encompass another region.

Alternative 3. Separate gag recreational allocation by state.

4.5.1 Biological Effects

North Carolina is the northern-most limit of the geographical distribution of adult gag along the Southeast coast of the United States, although juveniles are observed as far north as Massachusetts (Heemstra and Randall 1993). A tagging study conducted by McGovern *et al.* (2005) reported extensive movement of gag with 23% of the 435 recaptured individuals moving distances greater than 185 km (100 nautical miles). Most of these individuals were tagged off South Carolina and were recaptured off Georgia, Florida, and in the Gulf of Mexico.

Differences were present in the distribution of recreational landings when data were combined into two regions. During 2003-2007, average MRFSS (private and charter) landings for gag were higher for Georgia and Florida (59%), when compared with North Carolina and South Carolina (41%) (Table 4-17). Average headboat landings of gag showed a smaller difference between the two regions, with Georgia and Florida at 53%, versus North Carolina and South Carolina at 47% (Table 4-18). Regional differences were much more apparent in the number of gag discarded by private and charter boat fishermen. In the South Atlantic, MRFSS data indicated private and charter recreational fishermen in Georgia and Florida released an average of 88% of the gag caught, compared to 12% in North Carolina and South Carolina, during 2003-2007 (Table 4-19). SEDAR 10 (2006) estimated release mortality rates of 25% for gag taken by recreational fishermen. When data were examined by state, the total estimated harvest of gag in federal waters was highest in Florida (1,050,204), followed by North Carolina (898,787), South Carolina (159,973), and Georgia (55,796) (Table 4-20). There are no recorded recreational landings of gag from the Mid-Atlantic or New England.

Table 4-17. Estimated harvest (A+B1, pounds whole weight) and % gag by region, for the South Atlantic during 2003-2007.

Need to update through 2008.

Year	NC & SC Total (%)	GA & FL Total (%)
2003	138,068 (20)	565,612 (80)
2004	210,237 (39)	331,576 (61)
2005	220,178 (42)	298,456 (58)
2006	257,839 (51)	243,745 (49)
2007	267,896 (51)	258,532 (49)
Average	218,844 (41)	339,584 (59)

Source: MRFSS Web Site

Table 4-18. Headboat landings (pounds whole weight) and % of gag by region, for the South Atlantic during 2003-2007.

Need to update through 2008.

Year	NC & SC Total (%)	GA & FL Total (%)
2003	15,948 (49)	16,544 (51)
2004	30,895 (32)	66,424 (68)
2005	32,251 (38)	52,398 (62)
2006	31,882 (58)	23,033 (42)
2007	44,365 (56)	34,495 (44)
Average	31,068 (47)	38,579 (53)

Source: NMFS Headboat Survey

Table 4-19. Estimated discards (B2) and % of gag by region, for the South Atlantic during 2003-2007.

Need to update through 2008.

Year	NC & SC Total (%)	GA & FL Total (%)
2003	168,43 (11)	138,137 (89)
2004	9,461 (9)	90,627 (91)
2005	14,214 (13)	98,138 (87)
2006	8,659 (7)	109,093 (93)
2007	41,659 (19)	174,308 (81)
Average	18,167 (12)	122,061 (88)

Source: MRFSS Web Site

Gag aggregate to spawn (Collins *et al.* 1987; McGovern *et al.* 1998; Huntsman *et al.*, 1999) and Gilmore and Jones (1992) found large aggregations off Florida. McGovern *et al.* (2005) suggested that gag may move from areas off of North Carolina and South Carolina to spawn off Florida. Furthermore, gag may be subject to more fishing pressure by commercial and recreational fishermen, as well as sport divers off Florida due to the very narrow continental shelf. Analysis of sex ratios of gag in the South Atlantic Bight from 1976-1982 revealed that 84% of the population was female, 15% was male, and 1%

was transitional (Collins *et al.* 1987). However, McGovern *et al.* (1998) reported that the percentage of males from the South Atlantic region had decreased to approximately 5.5% by the mid 1990s.

Gag are protogynous, changing sex from female to male with increasing size and age. Gilmore and Jones (1992) indicated larger individuals in aggregations, which includes males, are the most aggressive and tend to take the hook first. Therefore, the decrease in the percentage of males reported by McGovern *et al.* (1998) was most likely due to fishing pressure, which preferentially removed large individuals from the population. McGovern *et al.* (1998) indicated the percentage of males off northern Florida was significantly greater than all other regions. However, the majority of males were taken by one fisherman who may have been targeting a relatively unfished spawning aggregation. Histological examination of 1,128 sexually mature gag collected during 2004-2005 revealed the percentage of males and transitionals increased from 5.5% (in 1994-1995) to 8.2% (SEDAR 10, 2006). This might reflect benefits from recent management measures such as area closures and size/bag limit restrictions.

Alternative 1 would maintain the status quo for the recreational fishery based on measures established in Amendment 16. There would be no separation by region or state, and hence no change in the biological effects would be expected. Amendment 16, which has been approved by the Secretary and was implemented July 29, 2009, takes action to end overfishing of gag. Amendment 16 reduced the recreational bag limit to 1 gag or black grouper (combined) per day within a grouper aggregate bag limit of 3 fish. In addition, a four month prohibition on the recreational and commercial harvest of shallow water grouper species (including gag) during the reproductive season will provide additional protection to the stock. Amendment 16 also established a commercial quota for gag. When the commercial quota is met, all fishing for, or possession of shallow water grouper species would be prohibited. Also, the requirement to use dehooking devices, as needed, is expected to reduce bycatch mortality.

Amendment 17B is being developed by the Council, which would establish annual catch limits (ACLs) for the recreational sector based on the allocations established in Amendment 16. Some Council members expressed concern that if Florida fails to comply with federal rules established through Amendment 17B, a portion of the recreational catch could occur in Florida's state waters even after an ACL had been met and the fishery was closed in the EEZ. As a result, these catches could be deducted from the ACL the following year resulting in earlier closures, which could deprive fishermen in the EEZ from equal access to the fishery.

Alternative 2 would divide the recreational allocation by two regions: Georgia and Florida, and North Carolina and South Carolina. The intent of **Alternative 2** is to allow equal access to the recreational fishery among the regions. **Alternative 3** would separate the recreational allocation by state. In June 2009, the Council questioned whether there is any advantage of one state or region over another given that Amendment 16 implemented regulations that would close the recreational fishery for gag during January through February. The rationale for implementing regional or state allocations is that

fishermen in more southerly areas might have better access to the resource early in the fishing year due to better weather and could capture a portion of the allocation more quickly than fishermen to the north. In contrast, fishermen to the north would potentially have less access to the fishery due poor weather in winter months that would prevent them from going offshore. However, with the January-April spawning closure for gag, fishing for gag would begin in May when weather would be favorable for offshore fishing throughout the South Atlantic. Therefore, the Council suggested that by May, fishermen from North Carolina to Florida would not be prevented from fishing for gag due to regional weather differences.

Florida is the only state that has measurable landings within state waters (Table 4-20). Due to the narrow continental shelf in the southern part of the state, deep water where legal size gag occur are relatively close to shore and in state waters (McGovern *et al.* 2005). Approximately 56% of the Florida MRFSS landings are estimated to occur in state waters. Other states report a much smaller percentage of gag being taken from state waters (Table 4-20). Tables 4-17 and 4-19 show that the estimated harvest of gag is slightly higher in Georgia and Florida, supported by 88% of estimated discards in this region (Table 4-18). While the recreational fishery for gag is prosecuted predominantly in federal waters for all states (Table 4-20), the region of Georgia and Florida harvested significantly more gag (591,922) than the region of North Carolina and South Carolina (31,068) in state waters (Table 4-21). However, the estimated harvest for gag is almost identical in the federal waters for both regions (Table 4-21), supporting the intent of **Alternative 2**.

Table 4-20. Estimated harvest (A+B1, pounds whole weight) and percent standard error (PSE) of gag in state vs. federal waters (EEZ) in the South Atlantic during 2003-2007.

Need to update through 2008.

	NC		SC		GA		FL	
Year	State	EEZ	State	EEZ	State	EEZ	State	EEZ
2003	311 (92)	83,669 (52)	0 (0)	54,088 (60)	0 (0)	364 (100)	176,236 (43)	389,013 (25)
2004	3,587 (100)	171,659 (43)	5,644 (88)	29,348 (42)	0 (0)	19,526 (45)	116,134 (30)	195,916 (24)
2005	0 (0)	201,379 (41)	0 (0)	18,799 (50)	0 (0)	19,184 (59)	124,145 (32)	155,127 (21)
2006	0 (0)	251,867 (33)	0 (0)	5,972 (65)	946 (91)	12,092 (57)	82,897 (32)	147,810 (23)
2007	25,917 (72)	190,213 (30)	0 (0)	51,766 (74)	0 (0)	4,630 (57)	91,564 (31)	162,338 (24)
Total	29,815	898,787	5,644	159,973	946	55,796	590,976	1,050,204

Source: MRFSS Web Site

Table 4-21. Estimated harvest (A+B1, pounds whole weight) of gag by region, in state vs. federal waters (EEZ), in the South Atlantic during 2003-2007.

Need to update through 2008.

	NC & SC		GA & FL	
Year	State	EEZ	State	EEZ
2003	311	137,757	176,236	389,377
2004	9,231	201,007	116,134	215,442
2005	0	220,17	124,145	174,311
2006	0	257,839	83,843	159,902
2007	25,917	241,979	91,564	166,968
Total	35,459	1,058,760	591,922	1,106,000

Source: MRFSS Web Site

While **Alternatives 2 and 3** could provide greater assurance to regions or states that they receive a fair allotment of the recreational allocation, there would be problems with tracking landings. Because MRFSS is a survey based estimate, dividing MRFSS data by region or state greatly increases the uncertainty associated with estimates (Table 4-20). The more finely divided the data, the greater the uncertainty (Table 4-20). This uncertainty would be particularly troublesome for Georgia and South Carolina where a small percentage of the overall recreational gag catch occurs. In-season monitoring of recreational allocations for regions or states where gag are infrequently encountered would be extremely difficult. Due to increased uncertainty with dividing the allocation by region or state, the biological benefits of **Alternatives 2 and 3** would be considered to be less than the status quo **Alternative 1**. Furthermore, the biological effect of **Alternative 2**, which would establish allocations by regions, would be considered to be greater than **Alternative 3**, which would allocate the catch by state. Increased uncertainty could result in allocations being exceeded and to overfishing of the fish stocks. In fact, the Council considered, but rejected an alternative in Snapper Grouper Amendment 13C to divide snowy grouper quota among states because of concerns about accurately tracking the small snowy grouper quotas.

Under **Alternatives 2 and 3**, after the regional allocation is met in any region or state, all fishing for or possession of gag would be prohibited in federal waters. However, there is a chance that harvest could continue in a particular region or state and gag would be landed in the region or state where harvest would still be allowed. This could result in some localized depletion, but would not be expected to negatively affect the population.

Alternative 1 (Status Quo) will perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2 and 3** are unlikely to have adverse effects on ESA-listed species, including recently listed *Acropora* species. Previous ESA consultations determined 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 *Acropora* species. The impacts from **Alternatives 2 and 3** on sea turtles and smalltooth sawfish are unclear. If they perpetuate the existing amount of fishing effort, but cause effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. 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.

4.5.2 Economic Effects

In principle, **Alternative 1** (status quo) would effect no changes on the economic performance of the recreational sector. Any changes would be the result of factors other than regulatory changes.

Alternative 2 would divide the recreational gag allocation into two regions, Florida/Georgia (FL/GA) and South Carolina/North Carolina (SC/NC). The eventual effects of this alternative would depend on the allocation ratio between the two regions. Even if the allocation ratio is solely based on historical landings, there are still many possible such ratios. For example, the ratio could be based on overall historical gag landings, but choice has to be made on the years to include. The ratio could also be based on historical landings by fishing mode. Given the relative difficulty of tracking recreational landings on a real time basis, a simpler allocation formula would be the more pragmatic choice. In this case, an allocation ratio based on overall landings is probably the best choice. Assuming this approach, the allocation ratio between the two regions, if based on 2003-2007 landings, would be 58.9 percent for FL/GA and 41.1 percent for SC/NC (see Table 3-54). This allocation ratio would tend to preserve the regional historical landings but potentially not the economic performance of various fishing participants in each region. This ratio could slightly favor the headboat segment of the FL/GA region at the expense of the region's charter and private mode segment (see Tables 4-17 and 4-18). A reverse condition would be the case for the headboat and charter/private segments in the NC/SC region. Since the headboat segment is a relatively small participant in the gag recreational sector, potential economic losses to the charter/private mode segment in the FL/GA region may not be fully recouped by gains in the headboat sector. In contrast, potential gains in the charter/private segment of the NC/SC region could more than offset losses in the region's headboat segment. One other potential effect of the regional allocation ratio is that landings increases in one region would be prevented while landings decreases in the other region would not necessarily be contained. A strong competition between the region's respective recreational sectors is needed before landings decreases in one region could possibly result in landings increases in the other region. If landings performance by a region is considered partly a function of the relative importance of the recreational fishery in that region, then preventing those landings from increasing could negatively affect the economic performance of the region's recreational sector. If the mentioned strong competition between the respective region's recreational sectors is absent, decreasing landings in other regions may ensue, further reducing the overall economic benefits from the recreational allocation.

Alternative 3 would divide the recreational gag allocation among the four South Atlantic states. As with **Alternative 2**, there arises the issue of what factors to consider in developing an allocation ratio. If we base the allocation ratio on the 2003-2007 overall recreational gag landings by state, the resulting allocation ratio would be 56.8 percent, 2.1 percent, 7.5 percent, and 33.6 percent, respectively, for Florida, Georgia, South Carolina, and North Carolina (see Table 3-54). An almost similar situation to that of **Alternative 2** would happen here. The state-by-state allocation ratio would place headboats in Florida at a slight advantage over charter and private modes, while the

reverse would occur for other states (see Tables 4-17 and 4-18). The economic implications of such a result would be almost similar to those described for **Alternative 2**. One potential difference could be the more likely occurrence of strong competition between neighboring states. Unlike the regional allocation in **Alternative 2** where the bulk of recreational fishing for gag occurs in Florida for the FL/GA region and North Carolina for the NC/SC region, a state-by-state allocation would pit the recreational sector of a state against that of the adjacent state. Preventing one state to increase its recreational landings could enable the adjacent state to increase its recreational landings. It is, however, uncertain whether economic gains in the state with increasing landings would more than offset the forgone economic benefits incurred by the other states.

There are several general issues needing consideration with respect to the regional apportionment of the gag recreational allocation, some of which were noted in the preceding discussion. First, an allocation ratio among regions/states needs to be explicitly established. Second, in establishing allocation ratios, one has to factor in the practicability of monitoring landings and enforcing the established allocation ratio. Along this line, the use of historical, aggregate landings of gag may be the more appropriate option. Third, providing for regional/state ACL and AM can greatly aid in effectively enforcing the allocation ratio. Amendment 17a, which proposes ACL and AM for several species including gag, does not currently provide for explicit regional ACL/AM. Fourth, gag are caught in both state and federal waters in all states, particularly in Florida where catches in state waters comprised about 36 percent of the state's total gag harvest. So as not to complicate the enforcement of the regional or state allocation ratios, regions/states have to adopt similar regulations. The states' cooperation would assume special importance in the presence of ACL/AM, particularly if the ACL/AM provision is specified for the recreational sector as a whole.

4.5.3 Social Effects

In general, the fishermen, associated business, and communities in any state or region that receives an increase in allowable harvest, or unchanged harvest levels, as a result of regional or state quotas would be expected to have their short-term social benefits remain the same or increase relative to **Alternative 1 (Status Quo)**. The opposite effect would accrue to those who experience decreases in allowable harvest. It is presumed that any state/regional allocations would adequately protect the resource and/or recovery goals. Identification of specific allocation formulas beyond simply defining the geographic groupings, however, is required for substantive identification or discussion of expected social or economic effects.

4.5.4 Administrative Effects

Alternatives 2 and 3 would result in significant effects on the administrative environment since dividing the recreational allocation by region or state would require an

improvement to the recreational reporting and allocation tracking system. Identification of specific allocations beyond simply defining the geographic groupings, however, is required for substantive identification or discussion of expected social or economic effects.

4.5.5 Council's Conclusions

4.6 Change Golden Tilefish Fishing Year

Note: The Council may choose more than one alternative as their preferred.

Alternative 1 (no action). Retain existing January 1st start date for the golden tilefish fishing year.

Alternative 2. Change the start of the golden tilefish fishing year from January 1st to September 1st.

Sub-alternative 2A. Remove the 300 lb. trip limit when 75% of the quota is taken.

Alternative 3. Change the start of the golden tilefish fishing year from January 1st to August 1st.

Sub-alternative 3A. Remove the 300 lb. trip limit when 75% of the quota is taken.

Alternative 4. Change the start of the golden tilefish fishing year from January 1st to May 1st.

Sub-alternative 4A. Remove the 300 lb. trip limit when 75% of the quota is taken.

Alternative 5. Close the longline fishery when the 300 pound trip limit for golden tilefish goes into effect.

4.6.1 Biological effects

Alternative 1 (no action) would retain regulations for golden tilefish through Snapper-Grouper Amendments 13C and 15A. Golden tilefish is experiencing overfishing but it is not overfished. Note: The Council has taken action to end overfishing but the determination about overfishing will not be changed until an assessment update is completed in 2010/2011. Regulations for golden tilefish established a commercial quota of 295,000 pounds gutted weight with a 4,000 lb trip limit that is reduced to 300 pounds gutted weight if 75% of the quota is met on or before September 1. In addition,

regulations limited recreational catch to 1 fish per person per day. The commercial catch was based on historic landings during 1999-2003, where 98% of the total catch was captured by commercial fishermen. The commercial portion (98%) was applied to the yield at F_{MSY} to determine the commercial quota.

Alternatives 2-4 would change the fishing year for golden tilefish. Public testimony on Snapper-Grouper Amendment 13C (SAFMC 2006) indicated some Florida based commercial hook-and-line fishermen are concerned an early closure could prevent them from harvesting golden tilefish from September through November, which is the time they have historically participated in the fishery. As the golden tilefish quota was met in summer of 2007 and 2008, this concern has been realized. Additionally, commercial longline fishermen are concerned a 300 pound gutted weight trip will not be profitable given the size of their operations. Consequently, the Council is considering in this amendment modifying the start date of the fishing year and the stepped trip limit strategy, as appropriate, to ensure the golden tilefish regulations imposed in October 2006 through Snapper-Grouper Amendment 13C (SAFMC 2006) do not unnecessarily disproportionately impact select fishermen.

Alternative 1 would retain the January 1 fishing year start date and allow the trip limit to be reduced from 4,000 lbs gutted weight to 300 lbs gutted weight if 75% of the quota was met on or before September 1. Although the commercial hook and line catch of golden tilefish is minor (~8% during 1999-2004), 35% of the catch occurred during September and October 1999-2004. During 2007 and 2008 the quota was met before September and the fishery closed before the period of time when the greatest commercial hook and line catches of golden tilefish have historically occurred. The expected biological effects of retaining or modifying the fishing year is expected to be minimal because hook and line landings are so small and total mortality is constrained by a commercial quota. A change in the fishing year would affect how and when fishing effort (longline versus hook and line) is applied to the stock throughout the year.

The Council's **Alternative 2** would begin the fishing year for golden tilefish in September, the period of time when the greatest commercial hook and line catches of golden tilefish have historically occurred. **Alternative 3** would begin the fishing year in August and also allow hook and line fishermen to fish during the period of time when their catches have been greatest. **Alternative 4** would start the fishing year in May but would still allow hook and line fishermen to fish for golden tilefish in the fall but there is a greater chance the quota would be met sometime during September through November.

Alternatives 2-4 would not reduce the trip limit from 4,000 lbs gutted weight to 300 lbs gutted weight when 75% of the quota was met. Based on data from 2006 and 2007, the fishery would not remain open all year even when the trip limit is reduced 300 lbs gutted weight. Reducing the 4,000 lbs gutted weight trip limit to 300 lbs gutted weight when 75% of the quota is met was originally intended to allow the fishery to remain open all year and allow for commercial hook and line fishermen to target golden tilefish in the fall.

In the commercial fishery, most golden tilefish (92%) are taken with longline gear deployed by large vessels that make long trips and depend on large catches (> 3,000 pounds) to make a trip economically feasible. Therefore, a 300 pound gutted weight trip limit when 75% of the quota is met would shut down commercial longline sector, and might reduce their potential annual catch. The commercial hook and line catch of golden tilefish is small (~8%). Therefore, changing the fishing year is not likely to substantially increase the commercial hook and line catch. Furthermore, a change in the fishing year probably will not alter the number of months the commercial longline fishery operate as the percentage of golden tilefish landed was evenly distributed among all months before more restrictive regulations were implemented.

The Council's **Alternative 5** could increase the chance that the quota would be exceeded because the harvest rate would not be slowed through a reduction in the trip limit to 300 pound gutted weight. However, if the quota monitoring system is operating properly, annual harvest in excess of the quota should be minor. In addition, the 300 pound gutted weight quota is not keeping the golden tilefish fishery open all year. Therefore, if the fishing year was changed and the quota monitoring system was operating properly, a 300 pound gutted weight trip limit would not be necessary. Even though the fishery has closed before the end of the year in 2007 and 2008, it is unlikely that golden tilefish would be taken incidentally as bycatch since the majority of the catch is with longline gear. Furthermore, golden tilefish do not occupy the same habitat of other deep water species (i.e., snowy grouper, blueline tilefish, blackbelly rosefish, etc.). Golden tilefish prefer a mud habitat; whereas the other deep water species occur in a rocky habitat.

The biological effects of **Alternatives 2-5** would be very similar. There would be little difference in the biological or ecological environment since the commercial longline catch has historically been evenly distributed through the year and the hook and line catch is minor.

Alternative 1 will 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 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** on sea turtles and smalltooth sawfish are unclear. Sea turtle abundance in the South Atlantic changes seasonally. Even if **Alternatives 2-5** perpetuate the existing amount of fishing effort, but causes a temporal or spatial effort redistribution,, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. 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.

4.6.2 Economic effects

Alternatives 2-4 deals with changing management measures in the golden tilefish fishery. Under current regulations, the golden tilefish fishing year begins on January 1st with a 4,000 pound trip limit. Once 75% of the quota is taken, a 300 pound trip limit goes in to place. The current golden tilefish fishery is characterized by a race to fish, a small number of longline participants taking the majority of the catch, and a larger number of hook and line participants. Longline participants begin fishing in January in Florida. By April or May when the weather improves, Carolina longliners begin fishing. In September and October, hook and line fishermen begin to fish for golden tilefish. This is the time of year when they are not participating in other fisheries.

With regards to **Alternatives 2-4** would all benefit hook and line golden tilefish fishermen in Florida allowing them to fish for golden tilefish in the fall months when they are not participating in other fisheries. In recent years, hook and line fishermen have not been able to fish for golden tilefish, as they have in the past, in the months of September and October due to earlier closures. Likewise, Carolina fishermen may be able to fish for more months of the year under these alternatives because they will be able to fish at the beginning of the season when weather is amenable to fishing. In past years when the season began in January, Carolina fishermen were not able to begin fishing until April or May. They could only fish for a couple of months sometimes before the 4,000 pound trip limit dropped. A May start date (**Alternative 4**) would benefit Carolina longline fishermen most compared to **Alternatives 2 and 4**. A September 1 start date (**Alternative 2**) would perhaps benefit them the least. Under current regulations, the fishery starts January 1st. Carolina fishermen may be able to start fishing May 1st and then fish for four months. A September 1st start date (**Alternative 2**) may not even provide four months of fishable weather (personal communication, Matt Ruby 2008).

Alternative 5 would eliminate the 300 pound trip limit that goes into place once 75% of the quota is met. This would allow longline fishermen, who may need the 4,000 pound trip limit to make a trip cost effective, to fish until the end of the season. It would also allow hook and line fishermen who are restricted to the 300 pound trip limit under Alternative 1 to fish for larger amounts.

Alternative 1 would maintain the short-term economic status of the recreational fishery, but the potential long-term effects would be negative. The impacts of **Alternatives 2-4** on the recreational sector would be distributive in nature, and likely would not alter the overall economic effects of other management measures on the entire recreational sector. Under this alternative, fishers from certain areas being granted first opportunity to harvest snowy grouper before the species ACT is reached.

Non-use values would not differ between the various alternatives since the alternatives do not differ in their biological impacts.

4.6.3 Social effects

This action attempts to respond, similar to the possible establishment of a LAP program or endorsements for participation in the golden tilefish fishery, to the disruption, and presumed adverse social and economic consequences, of historic participation and

harvest patterns as a result of recent management measures, specifically the 4,000-pound trip limit that is reduced to 300 pounds if 75% of the quota is taken on or before September 1. As discussed in the previous sections, the fishery has been reduced to less than a full-year fishery. Further, in recent years, these limits and subsequent early closure have resulted in North and South Carolina fishermen, who are not able to enter the fishery until spring due to weather issues, having access to a shorter season, and Florida hook and line fishermen not being able to fish for golden tilefish at all. As discussed in Section 4.2.3, deviation from these historic patterns is assumed to have resulted in declines in social and economic benefits to the fishery, associated businesses, and communities.

Because **Alternative 1 (Status Quo)** would not make any regulatory changes, no changes in the manner in which the fishery is prosecuted would be expected and, as a result, no changes in the social benefits of the fishery would be expected to occur. The loss in social benefits, as discussed in the previous paragraph, would be expected to continue. Even greater deviation from historic patterns, could occur if fishing patterns shift in response to increasingly restrictive management in other snapper grouper fisheries. While such shift may compensate for losses in these fisheries, they would increase the losses in social and economic benefits to historic participants, and associated businesses, and communities, in the golden tilefish fishery.

Alternatives 2-4, with sub-alternatives, attempt to recover these reduced benefits by adjustment of the start of the fishing year and possible removal of the 300-pound trip limit. While adjustment of the start of the fishing year, in conjunction with the ACL and AM, would not affect the total available quota, commencement of the fishing year in September (**Alternative 2**), August (**Alternative 3**), or May (**Alternative 4**) would allow increased participation and recovery of historic harvests. The earlier the start (May), the greater the opportunity for participation by North Carolina and South Carolina fishermen, with continuing potential jeopardy for Florida hook and line vessels (quota management could still close the fishery in the fall), while the later the start (September) the reverse would occur; Florida hook and line fishermen should be able to fish the entire fall, whereas North Carolina and South Carolina fishermen could face abbreviated fishing opportunities depending on fall and winter weather conditions. The step-down trip limit would still apply, and the earlier the season began, the greater the likelihood that longline vessels, particularly Florida vessels, may lose traditional winter fishing time as these vessels would not be expected to be able to profitably be able to fish under 300-pound trip limits. Each of the sub-alternatives would eliminate this problem by eliminating the step-down, but would accelerate complete closure of the fishery by not reducing the pace of harvest. Because each of these alternatives would help, though not completely, return harvest participation to historic patterns, each would be expected to result in increased social benefits relative to **Alternative 1 (Status Quo)**. However, because each alternative creates different opportunities, both positive and negative, for different segments of the fishery, it is not possible to rank the three.

Alternative 5 would attempt to recover the opportunity of participation in the fishery by the Florida hook and line vessels by closing the longline fishery if the 300 pound trip

limit is triggered. This may have zero effect on either the longline or hook and line sectors because it is generally assumed that longlining for golden tilefish is no longer profitable at the lower trip limit. Hence, the fishery may effectively self-close such that regulatory closure of the sector would neither accomplish any benefit for hook and line fishermen nor impose any adverse effects on longliners.

4.6.4 Administrative effects

Under the **No Action Alternative**, administrative impacts would likely be negative if the result of not implementing more restrictive measures now were to require additional and more drastic amendment actions in the future. **Alternatives 2-5** would adjust golden tilefish management measures to change the start date of the fishing year and/or remove the 300 lb trip limit when 75% of the quota is taken. Implementing either/or both of these measures would incur minor adverse administrative impacts in the form of developing outreach materials such as fishery bulletins, and monitoring the quota with a focus on the 75% quota mark. In summation **Alternatives 2-4** would likely result in the lowest level of adverse impacts on the administrative environment relative to possible administrative impacts of **Alternative 5**.

4.6.5 Council Conclusions

4.7 Improve Accuracy, Timing, and Quantity of Fisheries Statistics

4.7.1 Commercial

Note: The Council may choose more than one alternative as their preferred.

Alternative 1 (no action). Retain existing data reporting systems for the commercial sector. Refer to Table 1-3 for a list of current data reporting programs.

Alternative 2. Require federally permitted snapper-grouper dealers, *if selected*, to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 3. Require all permitted snapper-grouper dealers to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 4. Require all vessels with a Federal snapper-grouper Commercial Permit to have an electronic logbook tied to the vessel's GPS onboard the vessel.

Alternative 5. Require vessels with a Federal snapper-Grouper Commercial Permit, *if selected*, to have a NMFS-approved observer onboard while fishing for snapper-grouper in the South Atlantic EEZ.

Alternative 6. Provide the option for fishermen to submit their logbook entries electronically via an electronic version of the logbook made available online.

4.7.1.1 Biological Effects

Alternative 1 (no action) would retain existing data reporting systems for the commercial sector. 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 SEFSC initiated a logbook program for vessels with federal permits in the snapper-grouper fishery from the Gulf of Mexico and South Atlantic. In 2001, a separate bycatch reporting logbook was added to include numbers on the average size of discarded fish by species. The 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 each year and the selected fishermen/vessels are required to complete and submit the form for the trips they make during the following calendar 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 percent of snapper-grouper permit holders will have been required to report in one of the five years.

Alternative 1 would continue to obtain fishing effort information as well as protected species interactions via a logbook. 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 percent 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 NMFS Southeast Fisheries Science Center (SEFSC). Landings information 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 NMFS Southeast Regional Office (SERO) and the Council (at least prior to each Council meeting). In addition, timing of possible closures are 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 ID's 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 the no-action **Alternative 1** would be the measures proposed in Amendment 15B, which is under Secretarial review. The Council's preferred alternative would allow for the implementation of interim programs to monitor and assess bycatch in the South Atlantic snapper-grouper fishery until the 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 when this amendment is implemented as follows:

1. Require that selected vessels carry observers (It is the 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 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.

Alternative 1 would not require that commercial vessels with a snapper-grouper permit to use the SAFIS system or vessel monitoring systems (VMS).

Alternatives 2 through 5 identify options for monitoring catch and effort, which are more specific than what was specified in Amendment 15B. There are no direct biological impacts from establishing a standardized reporting methodology to estimate bycatch. However, indirect impacts resulting from **Alternatives 2 through 5** 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; 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 through 5 differ in type, amount, and quality of data they would provide. They also differ in feasibility. For example, it is not feasible to place observers (**Alternative 5**) on many commercial snapper-grouper vessel due to the small size of the boats and safety concerns. Therefore, the Council may elect to allow fishermen to choose which method they want to use to monitor catch or bycatch (**Alternatives 5, or 6**).

Alternatives 2 and 3 would require dealers to report electronically (computer or fax) through the Standard Atlantic Fisheries Information System (SAFIS) and require weekly or daily reporting when it is anticipated a quota was going to be met. The difference between **Alternatives 2 and 3** is **Alternative 2** would only require selected dealers to participate in the program; whereas, **Alternative 3** would require all dealers to participate. 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 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. Beneficial biological impacts would be provided by **Alternatives 2 and 3** if 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.

Alternative 4 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 **Alternative 1** in that a vessel would only be required to use electronic logbook if it were selected.

The 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 setup to record fish lengths. Electronic logbooks have the potential to automatically collect information on date, time, location, and fishing times. Information (species, length, 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 5 would require observers to be onboard vessels with a Federal Snapper-grouper commercial permit if selected. Amendment 15B, which is under review, would also require vessels to carry an observer if it was selected and therefore would be considered under no action **Alternative 1**. Data collected from at-sea observer programs are considered to be the most reliable method for estimating bycatch if coverage is adequate to avoid large sampling errors and there is little “observer effect” (where fishing operations are altered in the presence of an observer). Unfortunately, observer programs are expensive. However, when observer data are combined with reliable estimates of total fishing effort that can be inexpensively obtained from logbooks or electronic data collection devices, bycatch rates from observer data can be used to more reliably estimate total bycatch levels in a fishery.

Alternatives 1-6 are unlikely to have adverse effects on ESA-listed. 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 2-5** 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. Observer coverage (**Alternative 5**) may be especially useful if it can sample enough trips to estimate protected species interactions with an appropriate coefficient of variation.

4.7.1.2 Economic Effects

The economic cost associated with the burden placed on fishermen of entering additional data or allowing for an observer on their vessel has not been estimated. However, in general, an increase in the quantity and/or quality of data increases long-term economic benefits through improvements to management of the stocks.

Logbooks, in particular, are seen as a low cost alternative to video monitoring, electronic logbooks and other monitoring that requires specialized equipment able to withstand harsh ocean conditions. While **Alternatives 2 and 6** would likely be the least expensive alternatives, **Alternative 5** would be the most expensive with **Alternative 4** in between.

See **Section X** for information about various monitoring tools and their associated costs. .

4.7.1.3 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 imposition of restrictions 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 enough data is in fact enough 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 always be made with more data. All of alternative data requirements under consideration, other than under **Alternative 1 (Status Quo)**, are assumed to constitute improvements to current data collection requirements. Because each of these alternatives would improve data collection relative to **Alternative 1 (Status Quo)**, it is assumed that each would result in greater long-term social benefits than **Alternative 1 (Status Quo)**.

Alternatives 2 and 3 would impose new requirements on snapper grouper dealers, whereas **Alternatives 4 and 5** would impose new requirements on snapper grouper vessels, so effects comparison should be limited to the two sub-groups. **Alternatives 2 and 3** vary only in the potential scope of coverage, where dealers would only have to report if selected under **Alternative 2**, whereas all dealers would be required to report under **Alternative 3**. As a result, conceptually, **Alternative 3** would be expected to place an additional operational burden on more entities than **Alternative 2**, while resulting in better total data and management due to the more inclusive scope of data collection. Although **Alternative 3** would place an increased operational burden on more entities, it is assumed that the individual burden would be minimal. As computers have become more mainstream, 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. These tools have become rational normal business practices in today's business world. With the provision of the appropriate data templates and/or communication software, 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, under **Alternative 2**, all dealers could be selected for reporting, a decision that would be at the discretion of NMFS. Thus, the functional outcome of both **Alternative 2** and **Alternative 3** could be identical.

Unlike **Alternatives 2 and 3**, **Alternatives 4 and 5** have more distinct burden implications, as well as potentially more distinct differences in data improvements. With regards to vessel burden, **Alternative 4** may be less operationally intrusive than **Alternative 5**, as it would simply impose a new electronic interface, whereas **Alternative**

5 would require the vessel, if selected, to deal with the physical presence of an observer on board, but may impose a larger, more direct cost. At this time, while it is assumed or 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, its use and the submission of the required information may be less burdensome than the current paper logbooks. Electronic reporting may 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. Because of the cost, the requirement to carry observers under **Alternative 5** would be expected to encompass all vessels and all trips, though the possibility for such would be allowed under “if selected,” similar to the dealer requirement. On the presumption that observer coverage would not be universal (all vessels and all trips), overall data improvement may not be expected to be as great under **Alternative 5** relative to **Alternative 4**, though the potential for improved bycatch data may be greater under **Alternative 5**. Also, again on the presumption that observer coverage would not universal, mandatory paper logbooks would likely still be required though, conceivably, both electronic logbooks and observers could both be adopted, supporting better data through logbook verification. Placement of observers on board vessels, however, while expected to result in improved data, could adversely affect the social dynamics of the operation of the vessels. On-board crowding effects, gender related issues, as well as altered behaviors and/or behavioral interactions among vessel crew could occur. Some positive effects might also be possible, such as, enhanced opportunities interaction and communication between management and fishermen. However, both physically dealing with an extra person on board as well as knowing that person is looking over their shoulder could adversely affect the efficiency of the crew and operation of the vessel. It is presumed, however, that the vessel will largely fish in the same locations and same manner as it would without an observer on board.

Alternative 6 would ease the burden of logbook reporting for those fishermen have access to and the skills to complete electronic reporting. Although electronic logbook reporting would require a greater financial commitment (cost of a computer and internet fees) and skills (fisherman or appropriate representative would have to have basic computer literacy skills) than paper logbook reporting, such access and skills are becoming more the norm than the exception in today’s society, such that many if not most fishermen would not be expected to incur any new expenditures or training. Further, electronic reporting would be optional rather than mandatory and, as such, no fishermen would be expected to adopt electronic reporting unless they made the self-determination that doing so was less burdensome than their current reporting method.

4.7.1.4 Administrative Effects

Under the **No-Action Alternative** no administrative impacts would be incurred outside of the status-quo. **Alternatives 2-5** would each result in an increased administrative burden; however, that burden would not extend beyond the scope of data management and analysis. The resultant increased data management workload would be considered a minimal to moderate adverse administrative impact.

4.7.1.5 Council's Conclusions

4.7.2 For-Hire

Alternative 1 (no action). Retain existing data reporting systems for the for-hire sector. Refer to Table 1-3 for a complete list of current reporting requirements.

Alternative 2. Require *all* vessels with a Federal For-Hire Permit to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 3. Require *selected* vessels with a Federal For-Hire Permit to report electronically; NMFS is authorized to require weekly or daily reporting as required.

Alternative 4. 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*.

4.7.2.1 Biological Effects

Alternative 1 (No Action) would retain existing data reporting systems for the for-hire sector. Harvest and bycatch in the private and for-hire charter vessel sector has been consistently monitored by 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 subregion, 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 percent due to these changes (Van Voorhees *et al.* 2000). Additional improvements are scheduled for MRFSS in the next few years.

A recent National Science Foundation review of MRFSS data raised a number of issues. The South Atlantic Council is including a permit to fish for any species in their Fishery Ecosystem Plan Comprehensive Amendment; this known universe of recreational fishermen could be used to sample thereby improving the MRFSS estimates. The Council is also evaluating requiring all for-hire vessels to maintain a logbook. These actions will address a number of the NSF recommendations.

Harvest from headboats is monitored by NOAA Fisheries Service at SEFCs'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 subsampled 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 the no-action **Alternative 1 (No Action)** would be the measures proposed in Amendment 15B, which is under Secretarial review. The Council's preferred alternative would allow for the implementation of interim programs to monitor and assess bycatch in the South Atlantic snapper-grouper fishery until the 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 when this amendment is implemented as follows:

1. Require that selected vessels carry observers (It is the 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 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.

Alternative 1 (No Action) would not require that for-hire vessels to use the SAFIS system or vessel monitoring systems (VMS).

Alternatives 2 and 3 identify options for monitoring catch and effort, which are more specific than what was specified in Amendment 15B. There are no direct biological impacts from establishing a standardized reporting methodologies. However, indirect

impacts resulting from **Alternatives 2 and 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; 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 and 3 differ in type, amount, and quality of data they would provide. They also differ in feasibility. **Alternative 2** would require selected vessels to report electronically (computer or fax) through the Standard Atlantic Fisheries Information System (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 from the dealers (landings) including 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 2** if 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.

Alternative 3 would require all vessels with a Federal for-hire permits to have an electronic logbook tied to the vessel's GPS onboard the vessel. Amendment 15B also includes an alternative that would require to use electronic logbook if it were selected but it is not specific to for-hire vessels.

The 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 setup to record fish lengths. Electronic logbooks have the potential to automatically collect information on date, time, location, and fishing times. Information (species, length, 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 observers to be onboard for-hire vessels with a Federal Permits if selected. This alternative does not differ from the no-action **Alternative 1** in that Amendment 15B would only require to carry an observer if it was selected. Data collected from at-sea observer programs are considered to be the most reliable method for estimating bycatch if coverage is adequate to avoid large sampling errors and there is little “observer effect” (where fishing operations are altered in the presence of an observer). Unfortunately, observer programs are expensive. However, when observer data are combined with reliable estimates of total fishing effort that can be inexpensively obtained from logbooks or electronic data collection devices, bycatch rates from observer data can be used to more reliably estimate total bycatch levels in a fishery.

The impacts on ESA-listed species from **Alternatives 1-4** for the for-hire sector will be the same as those noted in section 4.7.1.1.

4.7.2.2 Economic Effects

The economic cost associated with the burden placed on fishermen of entering additional data or allowing for an observer on their vessel has not been estimated. However, in general, an increase in the quantity and/or quality of data increases short and long-term economic benefits through improvements to management of the stocks. Electronic reporting and paper logbooks, in particular, are seen as a low cost alternative to video monitoring, electronic logbooks and other monitoring that requires specialized equipment able to withstand harsh ocean conditions. Therefore, **Alternative 4** is perhaps the least costly alternative with **Alternative 3** being the next least costly and **Alternative 2** being the most costly in that it is mandatory.

See **Section X** for information about various monitoring tools and their associated costs.

4.7.2.3 Social Effects

The general effects of improved data reporting, as well as the expected effects of **Alternative 1 (Status Quo)**, are discussed in Section 4.7.1.3 and are incorporated herein by reference.

Alternatives 2 and 3 vary only in the potential scope of coverage, where for-hire operators would only have to report if selected under **Alternative 3**, whereas all dealers would be required to report under **Alternative 2**. As a result, conceptually, **Alternative 2** would be expected to place an additional 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. Although **Alternative 2** would place an increased operational burden on more entities, it is assumed that the individual burden would be minimal. As computers have become more mainstream, it is expected that virtually all operators currently have skills commensurate with the operation of the appropriate hardware and provision of the required information. With the provision of the appropriate data templates and/or communication software, 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. At this time, it is unknown 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 Council that the responsibility for the financial burden of the cost and installation of the electronic logbook lie with grant or government funds. Nevertheless, such is not certain and, regardless, long-term subscription or maintenance costs may still likely be the responsibility of the vessel. It should also be noted that, similar to the commercial sector alternatives, the difference between the two alternatives may be illusory as operationally, under **Alternative 3**, all vessels could be selected for reporting, a decision that would be at the discretion of NMFS. Thus, the functional outcome of both **Alternative 2** and **Alternative 3** could be identical. Finally, because the headboat sector currently has a mandatory paper logbook program, the incremental burden of an electronic logbook would not be as great for this sector compared to the charter sector, as much of the reporting obligation would replace existing requirements. The data collected via electronic logbook would still, however, be more comprehensive and received more quickly, resulting in greater management benefits, with associated social benefits, than the current system.

Alternative 4 would limit the new information collection to discard data. As a result, the burden associated with the documentation of this information would not be as great as under **Alternatives 2 and 3**, however, in general, the amount of information collected would be expected to be less than under these alternatives, even if all vessels are selected for reporting. Specifically, **Alternative 4** would not result in improvement of harvest information relative to either alternative. While **Alternative 4** might adequately complement the existing mandatory harvest data requirements (logbook reporting) of the headboat sector, it 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 4** relative to **Alternatives 2 and 3**.

4.7.2.4 Administrative Effects

Under the **No-Action Alternative** no administrative impacts would be incurred outside of the status-quo. **Alternatives 2 and 3** would each result in an increased administrative burden, however that burden would not extend beyond the scope of data management and analysis. The resultant increased data management workload would be considered a minimal to moderate adverse administrative impact.

4.7.2.5 Council's Conclusions

4.7.3 Private Recreational

Note: The Council may choose more than one alternative as their preferred.

Alternative 1 (no action). Retain existing data reporting systems for the private recreational sector. Refer to Table 1-3 for a complete list of current reporting requirements.

Alternative 2. Implement a voluntary logbook for discard characteristics (e.g., size and reason for discarding) for vessels with a state recreational fishing license.

4.7.3.1 Biological Effects

Alternatives 1 and 2 will perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. These alternatives are unlikely to change fishing behavior in a way that would ultimately reduce the risk of interactions between sea turtles and smalltooth sawfish, and the fishery. Data collected under **Alternative 2** may indirectly benefit ESA-listed species if protected species interactions will also be recorded. This information would improve the quality and quantity of data available for evaluating the impacts of the fishery on protected species.

4.7.3.2 Economic Effects

The economic cost associated with the burden placed on fishermen of entering additional data has not been estimated. However, in general, an increase in the quantity and/or quality of data increases short and long-term economic benefits through improvements to management of the stocks. Logbooks, in particular, are seen as a low cost alternative to video monitoring, electronic logbooks and other monitoring that requires specialized equipment able to withstand harsh ocean conditions.

See **Section X** for information about various monitoring tools and their associated costs.

4.7.3.3 Social Effects

The general effects of improved data reporting, as well as the expected effects of **Alternative 1 (Status Quo)**, are discussed in Section 4.7.1.3 and are incorporated herein by reference.

Alternative 2 would not impose any new requirements on fishery participants and, as a result would not be expected to result in any adverse social effects. Although the voluntary nature of the data collection program is consistent with other recreational data collection methods, such as MRFSS, which relies on voluntary reporting of effort and catch, it is unknown how any data collected under **Alternative 2** would be functionally utilized in the management process because, unlike the MRFSS, which has a clearly specified statistical design, no program design has been specified. Thus, while new data would be collected, its utility may be questionable. Nevertheless, some data and management improvement, with associated increased social benefits, is presumed. In addition to these benefits relative to the status quo, providing the public an enhanced opportunity to contribute to the management process could result in higher levels of cooperation and participation in the management process, with improved resource and management outcomes and associated social benefits.

4.7.3.4 Administrative Effects

Under the **No-Action Alternative** no administrative impacts would be incurred outside of the status-quo. **Alternative 2** would result in an increased administrative burden, however that burden would not extend beyond the scope of data management and analysis. The resultant increased data management workload would be considered a minimal adverse administrative impact.

4.7.3.5 Council's Conclusions

4.8 Designate Snapper-Grouper EFH In New Northern FMP Areas

Alternative 1. No-Action. Do not designate snapper-grouper EFH EFH-HAPCs in new jurisdictional areas encompassed in Action 1.

Alternative 2. Designate EFH and EFH-HAPCs for snapper-grouper in the northern areas encompassed in Action 1.

Alternative 3. Track the MAMFC's EFH and EFH-HAPC designations

4.8.1 Biological Effects

The biological effects of designating snapper grouper EFH and EFH-HAPC in new northern areas will follow similar guidelines and management strategies discussed in Action 1 (Section 4.1.1).

Alternative 1 would maintain the status-quo, with no change in designating EFH and EFH-HAPC areas north of Cape Hatteras, NC. The waters off North Carolina represent the northern range of fisheries for snapper grouper along the east coast of the United States (Chester et al. 1984). In the Mid-Atlantic and New England regions, the commercial and recreational harvest of snapper grouper species is relatively low (Tables 3-5, 3-6, 3-7, 3-49, 3-50, 3-51, and 3-52). However, data are scarce to non-existent in this regard, resulting in high sampling error.

Alternative 2 could have positive biological effects for the snapper grouper species in the Mid-Atlantic and New England regions simply by the fact that more habitat would be protected. The Council's designation of EFH and EFH-HAPC (Table 4-21) covers many habitat types found in the northern areas such as intertidal marshes, seagrass, oyster reefs, and unconsolidated bottom.

Table 4-21. List of habitat types covered by the South Atlantic Fishery Management Council's (SAFMC) as Essential Fish Habitat (EFH) and EFH Habitat Areas of Particular Concern (HAPC) for the Snapper-Grouper Fishery Management Plan (FMP).

EFH
1. Estuarine and marine emergent wetlands (e.g., intertidal marshes)
2. Estuarine scrub/shrub (mangroves and mangrove fringe)
3. Estuarine and marine submerged aquatic vegetation (e.g., seagrass)
4. Oyster reefs and shell banks
5. Unconsolidated bottom
6. Gulf Stream
7. Artificial reefs
8. Coral reefs
9. Live/hardbottom
10. Medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 feet (but to at least 2000 feet for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex.
11. Spawning area in the water column above the adult habitat and the additional pelagic environment, including <i>Sargassum</i>

EFH-HAPC

Medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore 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; 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 Council-designated Artificial Reef Special Management Zones (SMZs).

Alternative 3 could have a positive biological effect, especially if there is a joint management plan between the Council and MAFMC, and/or the northern regions' inclusion of the SAFMC's designation of EFH and EFH-HAPC habitat types.

4.8.2 Economic Effects

In general terms, designating EFH and EFH-HAPCs would be expected to generate long-term positive economic benefits as a result of enhanced resource protection and the support of sustained harvests and other ecosystem benefits. In the short-term, however, the designation of EFH may result in increased harvest restrictions in areas currently fished, with associated reductions in economic benefits to fishermen and dealers. Because each would designate EFH and EFH-HAPCs, both **Alternatives 2 and 3** would be expected to result in increased long-term economic benefits relative to **Alternative 1 (Status Quo)**, but also increased short-term reductions in economic benefits as a result of any necessary harvest restrictions. Absent specific details on what EFH and EFH-HAPCs would be designated, where each is located, and what harvest restrictions may be required to insure their protection, additional substantive discussion of the expected economic effects is not possible. The absence of these details also prevents the effective comparison of the expected effects of **Alternative 2** relative to **Alternative 3**.

4.8.3 Social Effects

In general terms, designating EFH and EFH-HAPCs would be expected to generate long-term positive social benefits as a result of enhanced resource protection and the support of sustained harvests and other ecosystem benefits. In the short-term, however, the designation of EFH may result in increased harvest restrictions in areas currently fished, with associated reductions in social and economic benefits to fishermen, associated industries, and communities. Because each would designate EFH and EFH-HAPCs, both **Alternatives 2 and 3** would be expected to result in increased long-term social benefits relative to **Alternative 1 (Status Quo)**, but also increased short-term reductions in social benefits as a result of any necessary harvest restrictions. Absent specific details on what EFH and EFH-HAPCs would be designated, where each is located, and what harvest restrictions may be required to insure their protection, additional substantive discussion of the expected social effects is not possible. The absence of these details also prevents

the effective comparison of the expected effects of **Alternative 2** relative to **Alternative 3**.

4.8.4 Administrative Effects

No additional administrative costs or effort would be required under **Alternative 1 (No Action)**. Designating EFH for snapper grouper species in proposed northern areas of FMU expansion would incur a relatively large administrative burden. Coordination between the Mid-Atlantic and Northeast Regional offices, Councils, and state agencies would require significant funding, and time. Absent specific details on what EFH and EFH-HAPCs would be designated or where each is located, additional substantive discussion of the expected administrative effects is not possible. The absence of these details also prevents the effective comparison of the expected effects of **Alternative 2** relative to **Alternative 3**.

4.8.5 Council Conclusions

4.9 Research Recommendations

4.9.1 Golden tilefish

- Develop standardized techniques for aging golden tilefish. Resolve discrepancies in aging from different institutions. Additional research is needed to verify and validate age determinations.
- Sampling programs are needed to quantify discard rates. Research is also needed to identify management measures that will reduce discard mortality.
- Expand fishery-independent sampling of tilefish.
- Representative age, length, and sex composition data are needed for all fisheries (commercial, MRFSS, headboat), gear, seasons, and areas.
- Additional life history and biological research is needed to cover the full geographic range of the species.
- Fecundity information by age and length.

4.9.2 Socio-cultural Research Needs

Socio-cultural research needs that have been identified by the 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 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.

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).

4.10 Cumulative Effects

Section needs to be re-done when preferred alternatives have been chosen. This is just a place holder from another amendment.

As directed by 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”. 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.

4.10.1 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 4.0**);
- II. Which resources, ecosystems, and human communities are affected (**Section 3.0**); and
- III. Which effects are important from a cumulative effects perspective (**information revealed in this CEA**)?

2. Establish the geographic scope of the analysis.

3. Establish the timeframe for the analysis.

Establishing a timeframe for the CEA is important when the past, present, and reasonably foreseeable future actions are discussed. It would be advantageous to go back to a time when there was a natural, or some modified (but ecologically sustainable) condition. However, data collection for many fisheries began when species were already fully exploited. Therefore, the timeframe for analyses should be initiated when data collection began for the various fisheries. In determining how far into the future to analyze cumulative effects, the length of the effects will depend on the species and the alternatives chosen. Long-term evaluation is needed to determine if management measures have the intended effect of improving stock status. Therefore, analyses of effects should extend beyond the time when these overfished stocks are rebuilt. Monitoring should continue indefinitely for all species to ensure that management measures are adequate for preventing overfishing 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 vermilion snapper, gag, and shallow water grouper.
 - A. Past
The reader is referred to **Section 1.3 History of Management** for past regulatory activity for the fish species. These include bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system.
 - B. Present

The proposed actions in Snapper-Grouper Amendment 18 would

C. Reasonably Foreseeable Future
Snapper-Grouper Amendment 17A would

Snapper Grouper Amendment 17B would

Comprehensive Annual Catch Limit (ACL) Amendment would establish Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs) for all other species. Other actions would include: (1) choosing ecosystem component species; (2) allocations; (3) management measures to limit recreational and commercial sectors to their ACTs; (4) accountability measures; and (5) any necessary modifications to the range of regulations.

- II. Non-Council and other non-fishery related actions, including natural events affecting gag and vermilion snapper.
 - 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 and 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 it may have on a stock. Gag occur in estuarine areas along the southeastern United States (Robins and Ray 1986; Heemstra and Randall 1993). Alteration of estuarine habitats could affect survival of juveniles. However, estimates of the abundance of fish, which utilize this habitat, as well as, determining the impact habitat alteration may have on juveniles, is problematic.

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.

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 snapper and 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

Definitions of overfishing and overfished for these species snapper are identified in Amendment 11 to the snapper-grouper FMP (SAFMC 1998d). Numeric values of overfishing and overfished thresholds are being updated in this amendment for some species. 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). Based on these definitions, gag is approaching an overfished condition (SEDAR 10 2006). The overfished condition of vermilion snapper is unknown due to uncertainties associated with biomass estimates; however, the stock is experiencing overfishing. A new benchmark assessment is being conducted for vermilion snapper, which could provide biomass estimates and update fishing mortality values in late 2008.

7. Define a baseline condition for the resources, ecosystems, and human communities.

The purpose of defining a baseline condition for the resource and ecosystems 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 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 gag and snowy grouper, assessments reflect initial periods when the stocks were above B_{MSY} and fishing mortality was fairly low. However, some species such as vermilion snapper and 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.

DETERMINING THE ENVIRONMENTAL CONSEQUENCES OF CUMULATIVE EFFECTS

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

The relationship between human activities and biophysical ecosystems within the context of this CEA is solely related to extractive activities and the installment of regulations as outlined in Table 4-85.

Table 4-22 The cause and effect relationship of fishing and regulatory actions within the time period of the Cumulative Effects Analysis (CEA).

Time period/dates (Table 4-85)	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 vermillion snapper minimum size limit (SAFMC 1983).	Protected youngest spawning age classes.
Pre-January 12, 1989	Habitat destruction, growth overfishing of vermillion snapper.	Damage to snapper-grouper habitat, decreased yield per recruit of vermillion snapper.
January 1989	Trawl prohibition to harvest fish (SAFMC 1988).	Increase yield per recruit of vermillion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many reef species including vermillion snapper, and gag.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	<u>Prohibited gear</u> : fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. <u>Size/Bag limits</u> : 10" TL vermillion snapper (recreational only); 12" TL vermillion snapper (commercial only); 10 vermillion 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 1991).	Protected smaller spawning age classes of vermillion snapper.
Pre-June 27, 1994	Damage to <i>Oculina</i> habitat.	Noticeable decrease in numbers and species diversity in areas of <i>Oculina</i> off FL
July 1994	Prohibition of fishing for and retention of snapper-grouper species (HAPC renamed OECA; SAFMC 1993)	Initiated the recovery of snapper-grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing	Spawning potential ratio for vermillion snapper and gag is less than 30% indicating

Time period/dates (Table 4-85)	Cause	Observed and/or Expected Effects
	continue for a number of snapper-grouper species including vermilion snapper and gag.	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 (1998c).	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
Regulations not yet effective	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). Gag and 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.
	Snapper-grouper FMP Amendment 15B (SAFMC 2008b)	
Target January 1, 2009	Snapper-Grouper FMP Amendment 16 (SAFMC 2008c)	
Target January 1, 2010	Snapper-Grouper FMP Amendment 18.	SFA parameters for red snapper; interim allocations; ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; accountability measures; and extend snapper-grouper

Time period/dates (Table 4-85)	Cause	Observed and/or Expected Effects
		management regulations into the Mid-Atlantic or New England Fishery Management Council's jurisdiction.
Regulations not yet effective	Snapper-Grouper FMP Amendment 16	The actions in Snapper-Grouper Amendment 16 would end overfishing of vermilion snapper and gag. Management measures for the commercial sector would include new or adjusted: sector specific allocations and catch quotas; size limits; trip limits; seasonal closures, including a closure for shallow water groupers during the gag spawning closure and after the gag directed commercial quota is met; fishing year start dates; and gear restrictions. Management measures for the recreational sector would include new or adjusted: catch allocations; bag limits; size limits; and seasonal closures.
Target January 1, 2011	Comprehensive ACL Amendment.	ACLs, ACTs, and accountability measures for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.

9. Determine the magnitude and significance of cumulative effects.

Current management actions, as summarized in Section 2, should reduce fishing mortality and end overfishing of gag and vermilion snapper and are expected to have a beneficial, cumulative effect on the biophysical environment. These management actions are expected to increase stock biomass, which may affect other stocks. The shallow water grouper closure during the gag spawning closure and after the directed gag commercial quota is met will help a number of species particularly red and black grouper that are listed as undergoing overfishing in the Stock Status Report to Congress.

Because gag, and to a certain extent, vermilion snapper are upper level predators preying primarily on fish, benthic invertebrates, and squid, the degree of competition for food resources between these species and other co-occurring species may increase as stock abundance increases. In addition, gag, red porgy, vermilion snapper, black sea bass, greater amberjack, red snapper, white grunt and other co-occurring species may begin to compete for habitat as they increase in abundance.

Restrictions in the catch of gag and vermilion snapper could result in fishermen shifting effort to other species. The snapper-grouper ecosystem includes many species that occupy the same habitat at the same time. For example, vermilion snapper and gag co-

occur with tomtate, scup, red porgy, white grunt, red grouper, scamp, and others. Therefore, restricted species are likely to still be caught since they will be incidentally caught when fishermen target other co-occurring species. Continued overexploitation of any snapper-grouper species could disrupt the natural community structure of the reef ecosystems that support these species. However, some fishermen may choose to use different gear types and target species in different fisheries such as mackerel and dolphin.

Complex models are needed to better understand competition between resources and the effect of effort shifting of fishermen to other species and fisheries. The Council is working with a number of partners to develop an Ecopath model for the South Atlantic ecosystem. Full development of this model will assist in better understanding these linkages. The Council is also developing an Ecosystem FMP that will address the cumulative effects of management regulations, fishing effort, and biomass of all species in the marine ecosystem. Delaying implementation of proposed actions until these tools are completed could adversely affect gag and vermilion snapper. However, although the cumulative effects of proposed actions cannot be quantified, it is expected that the effects will be positive and synergistic.

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 NMFS, States, stock assessments and stock assessment updates, life history studies, and other scientific observations.

4.10.2 Socioeconomic

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 3.0** and incorporated herein by reference. A description of the history of management of the snapper grouper fishery is contained in **Section 1.3** and is incorporated herein by reference. Participation in and the economic performance of the fishery have been effected 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. For each regulatory action, expected effects are projected. However, these projections typically only minimally, if at all, are capable of incorporating the variety of external factors, and evaluation in hindsight is similarly incapable of isolating regulatory effects from other factors, as in, what portion of a change was due to the regulation versus due to input cost changes, random variability of species availability, the sale of a fish house or docking space for condominium development, or even simply fishermen behavioral changes unrelated to the regulation.

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 ACLs and AMs for species undergoing overfishing is expected to help protect and sustain harvest at the OY level. However, certain pressures would remain, such as total effort and total harvest considerations, increasing input costs, import induced price pressure, and competition for coastal access.

A detailed description of the expected social and economic impacts of the actions in this amendment are contained elsewhere in **Section 4**, and in **Sections 5** and **6**, which are incorporated herein by reference. Current and future amendments are expected to add to this cumulative effect. Snapper Grouper Amendment 15B proposes to prohibit the sale of bag-limit caught snapper grouper species for those who do not hold a federal commercial permit for snapper grouper. This would eliminate the ability of the recreational angler to subsidize the cost of a fishing trip through the sales of snapper grouper, and may therefore, decrease recreational demand. This action would have more pronounced effects on the for-hire sector which often uses the sale of bag-limit caught fish to pay crew members. The cumulative impacts of eliminating the ability to sell bag limit caught snapper grouper and the restrictions on red snapper specifically in this amendment could be perceived as being significant to this sector.

Snapper Grouper Amendment 16 addressed overfishing in the gag and vermilion snapper fisheries. The corrective action in response to overfishing always requires harvest reductions and more restrictive regulation. Thus, additional short-term adverse social and economic effects would be expected. These restrictions will hopefully prevent; however, the stocks from becoming overfished, which would require recovery plans, further harvest restrictions, and additional social and economic losses.

Snapper Grouper Amendment 17A will address the overfished status of red snapper. Because of red snapper bycatch in other snapper grouper fisheries, red snapper rebuilding

is expected to require not only closure of the red snapper fishery for a protracted period of time, but also closure of other snapper grouper fisheries in certain areas. While red snapper is, in general and compared to other snapper grouper species, not a significant commercial species, it has greater importance as a target species to the recreational sector, especially the for-hire sector in certain areas of the South Atlantic. Thus, closure of the red snapper fishery alone may have substantive social and economic effects on some businesses and communities. Closure of additional snapper grouper fisheries to reduce red snapper bycatch in order to achieve red snapper rebuilding goals is expected to have additional and broader adverse short-term social and economic effects.

Snapper Grouper Amendment 17B will specify harvest controls (ACLs and/or ACTs) and accountability measures (AMs) for several snapper grouper species, as well as allocations for golden tilefish, and modify the framework to allow more efficient modification of these measures in the future, where necessary. While some final specifications of these measures may result in additional short-term reductions in social and economic benefits to participants in the fisheries, these measures would be expected to support more stable management and sustainable social and economic benefits from enhanced resource protection, larger and/or more consistent harvests, and long-term stable stocks.

4.11 *Bycatch Practicability Analysis*

4.11.1 Population Effects for the Bycatch Species

4.11.1.1 Background

The directed commercial fishery for golden tilefish is prosecuted primarily with longline gear, while black sea bass are predominantly taken with pots (Table 4-23). Most snowy grouper and gag are captured with hook and line gear (Table 4-23).

Table 4-23 Percentage of commercial catch by gear based on data from 2004-2007.

Species	H&L	Diving	LL	Pot	Other
Golden tilefish	10.98%	0.00%	88.70%	0.00%	0.33%
Black sea bass	11.31%	0.01%	0.00%	88.67%	0.00%
Snowy grouper	64.10%	0.00%	17.95%	0.00%	17.95%
Gag	82.33%	16.74%	0.23%	0.02%	0.67%

Source: NMFS SEFSC Logbook Program.

In 2007, landings of golden tilefish and snowy grouper were dominated by the commercial sector, black sea bass landings were most abundant in the recreational sector, and landings were split fairly evenly between the two sectors for gag (Table 4-24).

Table 4-24 Landings (lbs whole weight) during 2007 for commercial (ALS), headboat (HB), MRFSS, and HB MRFSS combined.

Species	commercial	HB	MRFSS	HB/MRFSS
Golden tilefish	332,473	0	4,782	4,782
Black sea bass	564,615	162,067	669,089	831,156
Snowy grouper	132,620	308	26,973	27,281
Gag	712,970	78,859	526,428	605,287

Regulations (see Section 1.3 for details), which are currently being used to manage the species included in Snapper Grouper Amendment 18 are: quotas (golden tilefish, black sea bass, and snowy grouper); size limits (black sea bass and gag); bag limits (golden tilefish, black sea bass, snowy grouper, and gag), and closed seasons (gag).

All four species addressed in Amendment 18 are currently listed as undergoing overfishing, with black sea bass and snowy grouper listed as overfished (see Sections 3.3.1 – 3.3.4 for stock assessment and status). Recent management measures addressing species in Amendment 18, such as Snapper Grouper Amendment 13C (SAFMC 2006), 15A (SAFMC 2008), and 15B (under review) could increase the incentive to fish for these species. Seasonal differences in weather between South Atlantic states have the potential to provide fishermen in southern states an advantage when fishing for snapper grouper species during winter months. As a result, there is concern by some members of the public that the bulk of commercial quotas and recreational allocations could be caught by fishermen in the south while those in the northern regions are unable to fish.

Management measures proposed in Amendment 18 could limit participation in the golden tilefish and black sea bass pot fisheries, separate the commercial snowy grouper quota among regions or states, and divide the gag recreational allocation into regions/states (see Section 1.2.1 for an expanded rationale). The alternatives are described in detail in Sections 2.0 and 4.0.

Management measures specified in Snapper Grouper Amendment 16, which has been approved, include actions that could complement protective measures for gag, including sector allocations, a commercial quota, spawning season closures for all sectors, and bag limit modifications.

4.11.1.2 Commercial Fishery

During 2004 to 2007, approximately 20% of snapper grouper permitted vessels from the Gulf of Mexico and South Atlantic were randomly selected to fill out supplementary logbooks. The average number of trips per year from the South Atlantic during 2003 to 2007 was 14,704 (Table 4-25). Fishermen spent an average of 1.68 days at sea per trip.

Table 4-25. Snapper grouper fishery effort for South Atlantic.

YEAR	Trips	Days	Days per Trip
2003	16,568	27,621	1.67
2004	15,062	24,896	1.65
2005	13,783	22,876	1.66
2006	13,273	23,335	1.76
2007	14,835	24,445	1.65
Mean	14,704	24,635	1.68

Source: NMFS SEFSC Logbook Program.

For species in Amendment 18, the number of trips that reported discards was greatest for gag and black sea bass (87 and 79, respectively), followed by snowy grouper (5) and golden tilefish (0) (Table 4-25). The average percentage of trips that reported discards was less than 3% each for gag and black sea bass, and 0% for golden tilefish and snowy grouper (Table 4-26). During 2003-2007, the average number of individuals discarded per trip was greatest for black sea bass (60), followed by gag (5), snowy grouper (2) and golden tilefish (0) (Table 4-28).

Since the discard logbook database represents a sample, data were expanded to estimate the number of discard fish in the whole fishery. The method for expansion was to: (1) estimate the probability of discarding a species; (2) estimate the number of fish discarded per trip; and (3) estimate the number discarded in the whole fishery (total discarded = total trips * % trips discarding * discard number). For example in 2007, the total discards of black sea bass $10,169 = 14,835$ total trips (Table 4-26) * 0.017 trips discarding (Table 4-27) * 40.9 discards/trip (Table 4-28). During 2003-2007, an average of 26,184

black sea bass, 2,476 gag, 55 snowy grouper, and 1 golden tilefish were discarded per year (Table 4-29).

Table 4-26 Annual number of trips reporting discard of Amendment 18 species.

YEAR	golden tilefish	black sea bass	snowy grouper	gag
2003	0	108	2	137
2004	0	65	0	111
2005	0	75	8	76
2006	0	78	1	25
2007	1	68	12	86
Mean	0.2	78.8	4.6	87.0

Source: NMFS SEFSC Logbook Program.

Table 4-27 Percentage of trips that discarded Amendment 18 species.

YEAR	golden tilefish	black sea bass	snowy grouper	gag
2003	0.00	3.00	0.06	3.80
2004	0.00	2.24	0.00	3.82
2005	0.00	2.95	0.31	2.99
2006	0.00	3.75	0.05	1.20
2007	0.02	1.67	0.30	2.12
Mean	0.00	2.72	0.14	2.79

Source: NMFS SEFSC Logbook Program.

Table 4-28 Average number (unexpanded) of Amendment 18 species.

YEAR	golden tilefish	black sea bass	snowy grouper	gag
2003	0.0	169.7	1.5	4.6
2004	0.0	30.1	0.0	8.4
2005	0.0	31.1	3.8	6.6
2006	0.0	27.6	1.0	3.0
2007	2.0	40.9	2.1	4.6
Mean	0.4	59.9	1.7	5.4

Source: NMFS SEFSC Logbook Program.

Table 4-29 Expanded number of discarded Amendment 18 species.

YEAR	golden tilefish	black sea bass	snowy grouper	gag
2003	0	84,233	14	2,887
2004	0	10,147	0	4,822
2005	0	12,671	163	2,740
2006	0	13,700	6	472

2007	7	10,169	91	1,458
Mean	1	26,184	55	2,476

The most commonly discarded species are shown in Table 4-30.

Table 4-30 The 50 most commonly discarded species during 2003-2007 for the South Atlantic.

Species	Number trips reported discarding the species	Number discarded
PORGY, RED, UNC	755	57,742
SNAPPER, VERMILION	575	39,285
SEA BASS, ATLANTIC, BLACK, UNC	405	30,876
SHARK, DOGFISH, SPINY	112	19,072
SNAPPER, YELLOWTAIL	1646	14,937
SNAPPER, RED	284	8,818
MENHADEN	89	6,699
SCAMP	574	6,594
SNAPPER, MANGROVE	221	4,112
SHARK, ATLANTIC, SHARPNOSE	145	3,445
SEA BASS, ROCK	72	3,259
GROUPE, RED	599	3,179
MACKEREL, KING and CERO	324	3,103
SHARK, UNC	392	3,069
GRUNTS	160	2,991
GROUPE, GAG	446	2,630
SHARK, DOGFISH, UNC	30	2,600
FINFISHES, UNC, BAIT, ANIMAL FOOD	25	2,490
GRUNT, TOMTATE	18	2,477
MACKEREL, KING	416	2,393
BLUEFISH	51	2,276
SHARK, BLACKTIP	134	2,068
BLUE RUNNER	248	1,991
GROUPE, BLACK	413	1,628
AMBERJACK, GREATER	228	1,584
SHARK, DOGFISH, SMOOTH	16	1,499
SHARK, SANDBAR	77	1,357
BONITO, ATLANTIC	291	1,321
HIND, SPECKLED	132	1,248
TRIGGERFISHES	126	1,158
SKATES	40	1,014
TUNA, LITTLE (TUNNY)	189	968
SHARK, TIGER	66	929
FINFISHES, UNC FOR FOOD	114	927

Species	Number trips reported discarding the species	Number discarded
DOLPHINFISH	180	917
TRIGGERFISH, GRAY	90	851
AMBERJACK	180	836
BALLYHOO	26	794
BARRACUDA	133	747
SNAPPER, MANGROVE (Duplicate of 3760)	113	669
SNAPPER, MUTTON	174	662
GRUNT, WHITE	47	642
MACKEREL, SPANISH	62	593
REMORA	218	555
SCUPS OR PORGIES, UNC	77	509
SNAPPERS, UNC	16	487
PINFISH, SPOTTAIL	30	483
CHUBS	8	393
SHARK, CARIBBEAN, SHARPNOSE	11	361
STINGRAYS	30	336

4.11.1.3 Recreational Fishery

For the recreational fishery, estimates of the number of recreational discards are available from MRFSS and the NMFS headboat survey. The MRFSS system classifies recreational catch into three categories:

- Type A - Fishes that were caught, landed whole, and available for identification and enumeration by the interviewers.
- Type B - Fishes that were caught but were either not kept or not available for identification:
 - Type B1 - Fishes that were caught and filleted, released dead, given away, or disposed of in some way other than Types A or B2.
 - Type B2 - Fishes that were caught and released alive.

For species in Amendment 18, the number of released fish during 2003-2007 was greatest for black sea bass (13,298,399), followed by gag (701,139), snowy grouper (5,614) and golden tilefish (3,124) (Table 4-31). During 2003-2007, 79% black sea bass, 77% gag, 11% snowy grouper, and 3% golden tilefish were released by recreational fishermen (Table 4-31).

Table 4-31. Estimated number total catch (A+B1+B2), harvests (A+B1), and released (B2) fish in numbers for the South Atlantic during 2003-2007.

Species	Total	A+B1	B2	% B2
Golden Tilefish	107,391	104,267	3,124	3%
Black Sea Bass	16,820,380	3,521,981	13,298,399	79%
Snowy Grouper	49,976	44,362	5,614	11%
Gag	909,616	208,477	701,139	77%

Source: MRFSS Web Site.

For species in Amendment 18, black sea bass (360,937), followed by gag (12,363), and snowy grouper (99) were most often discarded by headboat fishermen during 2004-2007 (Table 4-32). To estimate the number of dead discards, it was assumed the release mortality rates were 15% black sea bass; 25% gag; and 100% golden tilefish and snowy grouper. Golden tilefish were not harvested or discarded by headboat fishermen during 2004-2007.

Table 4-32. Total fish released alive or dead on sampled headboat trips during 2004-2007.

Release mortality rates used to estimate dead discards are: 15% black sea bass; 25% gag; and 100% snowy grouper and golden tilefish. Dead discards = (no. released alive * % release mortality rate) + no. released dead.

Species	released alive	mean#/trip	released dead	mean#/trip	#trips alive	# trips dead	dead discards
Golden tilefish	0	0	0	0	0	0	0
Black sea bass	360,937	28.02	10,328	0.80	12,881	12,881	64,469
Snowy grouper	99	0.61	6	0.04	161	161	105
Gag	12,363	1.81	199	0.03	6,838	6,833	3,290

Source: NMFS Headboat survey.

4.11.1.4 Finfish Bycatch Mortality

Release mortality of black sea bass is considered to be low (15%) (SEDAR 2-SAR 3 2005) indicating minimum size limits are probably an effective management tool for black sea bass. McGovern and Meister (1999) reported a recapture rate of 10.2% for 10,462 that were tagged during 1993-1998 suggesting survival of released black sea bass is high. Rudershausen *et al.* (2007) indicated a sub-legal discard rate of 12% for black sea bass. Collins *et al.* (1999) found venting of the swim bladder yielded reductions in release mortality of black sea bass, and the benefits of venting increased with capture depth. The same study was analyzed by Wilde (2009) to suggest that venting increased the survival of black sea bass, although this was an exception to the general findings of Wilde's (2009) study.

SEDAR 10 (2006) estimated release mortality rates of 40% and 25% for gag taken by commercial and recreational fishermen, respectively. A tagging study conducted by McGovern *et al.* (2005) indicated recapture rates of gag decreased with increasing depth. The decline in recapture rate was attributed to depth related mortality. Assuming there

was no depth related mortality at 0 m, McGovern *et al.* (2005) estimated depth related mortality ranged from 14% at 11 – 20 m (36 – 65 feet) to 85% at 71 – 80 m (233 – 262 feet). Similar trends in depth related mortality were provided by a gag tagging study conducted by Burns *et al.* (2002). Overton *et al.* (2008) reported a post-release mortality for gag as 13.3%. A recent study conducted by Rudershausen *et al.* (2007) estimated a release mortality rate of 33% for undersized gag taken with J- hooks in depths of 25 – 50 m off North Carolina. For gag caught at similar depths, no immediate mortality was observed but delayed mortality was estimated to be 49%. McGovern *et al.* (2005) estimated a release mortality rate of 50% at 50 m, which is similar to the findings of Rudershausen *et al.* (2007). Rudershausen *et al.* (2007) also concluded minimum size limits were moderately effective for gag over the shallower portions of their depth range.

Snowy grouper are primarily caught in water deeper than 300 feet and golden tilefish are taken at depths greater than 540 feet; therefore, release mortality of the species are probably near 100% (SEDAR 4 2004). Several recent studies point to the prevalence and severity of deleterious effects of barotrauma encountered by fishes removed from deepwater (Rummer and Bennett 2005; St. John and Syers 2005; Parker *et al.* 2006; Hannah *et al.* 2008). Tables 4-30 and 31 indicate there were fewer golden tilefish and snowy grouper discarded by commercial and recreational fishermen during 2003-2007, when compared with black sea bass and gag.

4.11.1.5 Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality

Extend the FMU

The Council is considering extending the range of the snapper grouper fishery management plan for some species northward to conserve and manage these species. The current boundaries would not be changed for black sea bass, golden tilefish, and scup since they are currently considered separate stocks north and south of Cape Hatteras, North Carolina and are covered by Mid-Atlantic Council fishery management plans. It has been suggested snapper grouper species are becoming more common in the northern part of their range in response to increases in average water temperature due to global warming (Parker and Dixon, 1998). The South Atlantic snapper grouper fishery is a limited access fishery and vessel owners may only obtain a permit if they first purchase two snapper grouper permits. Due to the cost of snapper grouper federal permits and low occurrence of snapper grouper species in the Mid-Atlantic region, the action to extend management boundaries to the north is likely to keep commercial landings at current levels. Furthermore, recreational fishermen would have to adhere to bag and size limits for snapper grouper species. Therefore, while this action could have positive biological effects for snapper grouper species in the mid-Atlantic region by restricting take of these species, it could also increase the magnitude of regulatory discards in the region. However, since magnitude of snapper grouper landings is so small in the Mid-Atlantic and New England, any bycatch mortality of snapper grouper species in the region would also be minimal and would not likely have a significant impact on stock status.

Improvements to Data Collection

Amendment 18 includes an action to improve the accuracy, timing, and quantity of fisheries statistics collected by the current data collection programs for fisheries managed by the Council. To accomplish this goal, the Council believes modifications could be made to the current data collection programs. Data elements improved by the action may include, but are not limited to: landings; discards; effort; biological sampling of landings and discards; fishery independent information; and economic and social characterization of the fisheries. Electronic logbooks and reporting, a Web-based management system, and placing observers on board vessels (in all sectors) would be useful, if not necessary, aids in monitoring bycatch and bycatch mortality in the snapper grouper fishery of the South Atlantic more effectively.

Black sea bass and gag

Current commercial and recreational regulations for black sea bass and gag are listed in Section 1.3. Black sea bass and gag were among the most commonly discarded species in the commercial fishery in recent years (2003-2007, Tables 4-28 and 4-29). In the recreational fishery, 79% black sea bass and 77% gag were discarded by private and charter boats (Table 4-31). Discard rate was highest in black sea bass (64,469), followed by gag (3,290) in the headboat fishery during 2004-2007 for species addressed by Amendment 18 (Table 4-32).

Section 2.1.3 in Amendment 18 includes alternatives that could limit the number of pots in the commercial black sea bass pot fishery and require fishermen to bring back pots to shore at the end of a fishing trip. 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 many 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. Reducing the number of pot tags issued per year (100, 50, or 25 pots per vessel/permit), and/or requiring fishermen to bring pots back to shore at the conclusion of a trip could reduce bycatch mortality of black sea bass and interaction with protected species.

Also, requiring valid identification tags (vessel and pot) and/or requiring that pots be brought back to shore at the conclusion of each fishing trip will help with enforcement issues and account for the fishing effort more efficiently, in addition to reducing bycatch. The above management measures complement measures in place through Amendment 13C (SAFMC 2006), which along with other measures, required the use of at least 2-inch mesh for the entire back panel of pots, reducing bycatch of under-sized fish.

Section 2.1.5 in Amendment 18 considers management alternatives to separate the gag recreational allocation into regions/states. Section 4.5.1 investigates differences in this fishery by regions and state. Two regions were identified: Georgia and Florida, and North Carolina and South Carolina. The region encompassing Georgia and Florida accounted for 88% of discards of gag during 2003-2007 (Table 4-19). Gag aggregate to spawn (Collins *et al.* 1987; McGovern *et al.* 1998; Huntsman *et al.*, 1999) and Gilmore

and Jones (1992) found large aggregations off Florida. McGovern *et al.* (2005) suggested that gag may move from areas off of North Carolina and South Carolina to spawn off Florida. Furthermore, gag may be subject to more fishing pressure by commercial and recreational fishermen, as well as sport divers off Florida due to the very narrow continental shelf. The Council's decision in separating gag allocations among regions could affect bycatch mortality. For example, after an allocation was met in a region it could still be caught when fishermen target co-occurring species. However, dividing the recreational allocation by region increases uncertainty in accurately monitoring recreational landings and could contribute to overfishing of the fish stocks.

Seasonal and/or longer closures of both commercial and recreational fisheries specified in Amendment 16, which has been approved, could also reduce bycatch mortality of species included in Amendment 18. For example, Amendment 16 will establish a January – April spawning season closure for gag, red grouper, black grouper, and shallow water grouper species. Gag are in spawning condition from December through April each year. There is some evidence spawning aggregations may be in place before and after a spawning season (Gilmore and Jones 1992). When aggregated, gag are extremely susceptible to fishing pressure since the locations are often well known by fishermen. Gilmore and Jones (1992) showed that the largest and oldest gag in aggregations are the most aggressive and first to be removed by fishing gear. Since gag change sex, larger and older males can be selectively removed. As a result, a situation could occur where there are not enough males in an aggregation to spawn with the remaining females. Furthermore, the largest most fecund females could also be selectively removed by fishing gear. Therefore, a spawning season closure for all shallow water grouper species would be expected to protect grouper species when they are most vulnerable to capture, reduce bycatch of co-occurring grouper species, increase the percentage of males in grouper populations, enhance reproductive success, and increase the magnitude of recruitment.

Other actions in Amendment 16, which could reduce bycatch of snapper grouper species, include a reduction in the recreational bag limit to 1 gag or black grouper (combined) per day within a grouper aggregate bag limit of 3 fish and the establishment of a commercial quota for gag. When the commercial quota is met, all fishing for or possession of shallow water grouper species will be prohibited. Unobserved mortality due to predation or trauma associated with capture could be substantial (Burns *et al.* 1992; Rummer and Bennett 2005; St. John and Syers 2005; Parker *et al.* 2006; Rudershausen *et al.* 2007; Hannah *et al.* 2008). Amendment 16 includes an action that requires the use of dehooking devices, which could help reduce bycatch of black sea bass and gag. Dehooking devices can allow fishermen to remove hooks with greater ease and more quickly from snapper grouper species without removing the fish from the water. If a fish does need to be removed from the water, dehookers could still reduce handling time in removing hooks, thus increasing survival (Cooke *et al.* 2001).

Golden tilefish and snowy grouper

Sections 2.1.2 and 2.1.6 in Amendment 18 include alternatives addressing the golden tilefish commercial fishery that would implement a limited access program (LAP),

distribute gear specific endorsements, and/or change the fishing year. These actions could reduce the number of vessels targeting golden tilefish and thereby reduce any potential bycatch. Currently, there is very little bycatch of golden tilefish. The commercial fishery for golden tilefish is very selective and the trip limit is large enough to prevent many discards. Furthermore, there is not a great deal of recreational effort since the species is found in deep water and far offshore.

Section 2.1.4 includes alternatives that would separate snowy grouper commercial quota into regions/states. The Council considered but rejected an alternative in Amendment 13C to divide snowy grouper quota among states because of concerns about accurately tracking the small snowy grouper quotas. As discussed above, regarding gag, uncertainty in monitoring catch increases as the allocation is divided into smaller portions, and this may result in bycatch mortality being under-represented.

Tables 4-28, 4-29 and 4-30 in Amendment 18 reveal that the discard issue was minimal to none for golden tilefish and snowy grouper among the commercial and recreational sectors during 2003-2007.

4.11.1.6 Ecological Effects Due to Changes in the Bycatch

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing efforts. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level.

Management alternatives proposed in Amendment 18 for golden tilefish, black sea bass, snowy grouper, and gag could increase the number of regulatory discards, if fishermen continue to fish after a quota has been met, or due to effort shifts. However, alternatives are being considered in Amendment 18 (Section 2) that could decrease bycatch. A limited access privilege (LAP) program for golden tilefish is one of the alternatives considered, that could substantially reduce bycatch by providing fishery participants an incentive to fish efficiently and to better handle their catch to maximize profits. An IFQ program could stabilize markets and prices by allowing catches to be delivered on demand. This would help fishermen target when they wanted to fish, where they wanted to fish, and which species they wanted to catch thereby reducing bycatch.

Reduced fishing pressure would be expected to result in an increase in the mean size/age as well as overall biomass of the species listed in Amendment 18. Thus ecological changes could occur in the community structure of reef ecosystems through actions that would end overfishing. These ecological changes could affect the nature and magnitude of bycatch of species in Amendment 18 as well as other species. However, many of the species listed in this amendment have spatial and temporal coincidence and the benefits could be shared among them.

Data from North Carolina presented to the Council indicated fishermen with snapper grouper permits also fish in the nearshore gillnet fisheries. Fishermen with snapper grouper permits in other areas also participate in various state fisheries. It is expected

that if efforts shift to these fisheries, there could be impacts to protected species. Current monitoring programs will allow NOAA Fisheries Service to track and evaluate any increased risk to protected species. If necessary, an ESA consultation can be re-initiated to address any increased levels of risk to ESA-listed species.

Overall fishing effort could decrease in the commercial and recreational sectors in response to more restrictive management measures; thereby, reducing the potential for bycatch. Amendments 13C (2006), 15A (2008), 15B (under review), and 16 (approved by the Secretary) have measures to conserve some (or all) species covered in Amendment 18. Some alternatives in Amendment 17B (under development) could prohibit fishing for and retention of speckled hind, warsaw grouper, deepwater grouper species, and snowy grouper within specific depth zones, which could decrease discards for target species as well as co-occurring species. Furthermore, Amendment 17A (under development) includes alternatives which could include area closures for all snapper grouper species, thereby providing a substantial reduction in bycatch mortality of many snapper grouper species including those addressed in Amendment 18.

The Comprehensive ACL Amendment for species in FMPs not experiencing overfishing could propose additional measures to reduce bycatch in the snapper grouper fishery with the possible establishment of species units. Species grouping would be based on biological, geographic, economic, taxonomic, technical, social, and ecological factors. Each group would be represented by an indicator species that has been recently assessed or is scheduled for a SEDAR assessment in the future. Amendment 14 is currently in place, which establishes Marine Protected Areas (MPAs), and could also reduce bycatch of species in Amendment 18. The primary purpose of the MPAs is to protect a portion of the population and habitat of long-lived, deepwater snapper grouper species including golden tilefish and snowy grouper, from directed fishing pressure to achieve a more natural sex ratio, age, and size structure.

4.11.1.7 Changes in the Bycatch of Other Fish Species and Resulting Population and Ecosystem Effects

Management measures proposed in Amendment 18 are intended to provide protective mechanisms to species that could get more attention due to measures enacted by recent amendments, provide fair distribution of fishery resources between northern and southern areas, and improve the accuracy, timing, and quantity of fisheries statistics. Actions proposed in Amendment 18 such as those that would extend the range of the snapper grouper FMP north, and designate EFH in new northern areas would extend protective measures for the fish stocks as well as their habitat.

More restrictive management measures proposed in Amendment 18 could result in an effort shift to other species and fisheries causing a change in the magnitude of harvest and number of discards in those fisheries. Reduced fishing pressure on species in this amendment would be expected to result in an increase in the mean size and age. In addition, biomass and the percentage of males for grouper species would be expected to

increase. The relative abundance, size structure, and age structure of other species in reef communities could be expected to change in response to reduced fishing pressure on species in Amendment 18 as well as potential shifts in effort. Thus, ecological changes could occur in the community structure of reef ecosystems through the proposed actions. These ecological changes could affect the nature and magnitude of bycatch over time.

4.11.1.8 Effects on Marine Mammals and Birds

Under Section 118 of the Marine Mammal Protection Act (MMPA), NMFS must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishery. Of the gear utilized within the snapper grouper fishery, only the black sea bass pot is considered to pose an entanglement risk to large whales. The southeast U.S. Atlantic black sea bass pot fishery is included in the grouping of the Atlantic mixed species trap/pot fisheries, which the 2010 List of Fisheries classifies as a Category II (74 FR 27739; June 11, 2009). Gear types used in these fisheries are determined to have occasional incidental mortality and serious injury of marine mammals. For the snapper grouper fishery, the best available data on protected species interactions are from the Southeast Fisheries Science Center (SEFSC) Supplementary Discard Data Program (SDDP) initiated in July of 2001 and sub-samples 20% of the vessels with an active permit. Since August 2001, only three interactions with marine mammals have been documented; each was taken by handline gear and each released alive (McCarthy SEFSC database). The bottom longline/hook-and-line component of the South Atlantic snapper grouper fishery remains a Category III under the LOF.

Although the black sea bass pot fishery can pose an entanglement risk to large whales due to their distribution and occurrence, sperm, fin, sei, and blue whales are unlikely to overlap with the black sea bass pot fishery operated within the snapper grouper fishery since it is executed primarily off North Carolina and South Carolina in waters ranging from 70-120 feet deep (21.3-36.6 meters). There are no known interactions between the black sea bass pot fishery and large whales. NOAA Fisheries Service's biological opinion on the continued operation of the South Atlantic snapper grouper fishery determined the possible adverse effects resulting from the fishery are extremely unlikely. Thus, the continued operation of the snapper grouper fishery in the southeast U.S. Atlantic EEZ is not likely to adversely affect sperm, fin, sei, and blue whales (NMFS 2006).

North Atlantic right and humpback whales may overlap both spatially and temporally with the black sea bass pot fishery. Recent revisions to the Atlantic Large Whale Take Reduction Plan have folded the Atlantic mixed species trap/pot fisheries into the plan (72 FR 193; October 5, 2007). The new requirements will help further reduce the likelihood of North Atlantic right and humpback whale entanglement in black sea bass pot gear. Furthermore, the proposed action in Amendment 18 that could reduce the number of pots

and/or require fishermen to return pots to port at the end of a fishing trip would further reduce the likelihood of interaction with protected species.

The Bermuda petrel and roseate tern occur within the action area. Bermuda petrels are occasionally seen in the waters of the Gulf Stream off the coasts of North and South Carolina during the summer. Sightings are considered rare and only occurring in low numbers (Alsop 2001). Roseate terns occur widely along the Atlantic coast during the summer but in the southeast region, they are found mainly off the Florida Keys (unpublished USFWS data). Interaction with fisheries has not been reported as a concern for either of these species.

Fishing effort reductions such as those regarding black sea bass pots in Amendment 18 (see Section 2.1.3), have the potential to reduce the amount of interactions between this fishery and marine mammals and birds. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the snapper grouper fishery. Thus, it is believed that the snapper grouper fishery is not likely to negatively affect the Bermuda petrel and the roseate tern.

4.11.1.9 Changes in Fishing, Processing, Disposal, and Marketing Costs

Management alternatives in Snapper Grouper Amendment 18 would be expected to affect the cost of fishing operations. It is likely that all four states (NC, SC, GA & FL) would be affected by the regulations (reduction of quotas, allocation separation, LAP/ITQ programs) and the variety of species included in this Amendment. The Carolinas would likely be most affected by the management measures for the black sea bass pot commercial fisheries.

Additionally, factors such as waterfront property values, availability of less expensive imports, etc. may affect economic decisions made by recreational and commercial fishermen.

Amendment 18 proposes to enhance current data collection programs. This could provide more insight in calculating the changes in fishing, processing, disposal and marketing costs.

4.11.1.10 Changes in Fishing Practices and Behavior of Fishermen

Management regulations proposed in Amendment 18 could result in a modification of fishing practices by commercial and recreational fishermen, thereby possibly lowering the magnitude of discards. A limited access privilege (LAP) program for golden tilefish is one of the alternatives considered, that could substantially reduce bycatch by providing fishery participants an incentive to fish efficiently and to better handle their catch to maximize profits. IFQ/ITQ programs normally stabilize markets and prices by allowing

catches to be delivered on demand. This would help fishermen target when they wanted to fish, where they wanted to fish, and which species they wanted to catch thereby reducing bycatch. The separation of commercial quotas and recreational allocations by regions/state might help some fishermen feel that there is an improvement in equity in fisheries management, and could lead to better compliance with regulations. However, it is difficult to quantify any of the measures in terms of reducing discards until the magnitude of bycatch has been monitored over several years.

4.11.1.11 Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

One of the actions in Amendment 18 is to improve accuracy, timing, and quantity of fisheries statistics (see Section 4.7 for details). Electronic logbooks and reporting (for example, using the Thistle Marine HMS-110 unit, O'Malley 2003), a Web-based management system (SMS), and placing observers on vessels could manage bycatch issues more effectively. 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. 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. In 2007, the Gulf and South Atlantic Fisheries Foundation, Inc. (Foundation) conducted a pilot study for a fishery observer program within the snapper grouper vertical hook-and-line (bandit rig) fishery of the South Atlantic United States. Through contractors the Foundation 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.

Additional administrative and enforcement efforts will be needed to implement and enforce these measures.

4.11.1.12 Changes in the Economic, Social, or Cultural Value of Fishing Activities and Non-Consumptive Uses of Fishery Resources

Preferred management measures, including those that are likely to increase or decrease discards could result in social and/or economic impacts as discussed in Sections 4, 5, 6, and 7.

4.11.1.13 Changes in the Distribution of Benefits and Costs

Attempts were made to ensure reductions provided by preferred management measures in Amendment 18 are equal in the commercial and recreational sectors. Actions such as those separating commercial quotas of snowy grouper and recreational allocations of gag into regions/states are intended to distribute fishery resources fairly to both northern and southern areas. The extent to which these management measures will increase or decrease the magnitudes of discards is unknown, especially since there is high uncertainty involved in the collection of data from smaller divisions. Extending the management boundaries for all species in the snapper grouper FMU northward would put additional financial pressure (permit requirements, etc.) in northern areas, but the long-term economic benefits due to the larger management jurisdiction may be higher. The number of discards could increase if fishermen shift effort to other species, seasons, or fisheries and if effort decreases in response to more restrictive management measures, as well as changes in community structure and age/size structures that could result from ending overfishing. A LAP program for golden tilefish is one of the alternatives considered, that could substantially reduce bycatch by providing fishery participants an incentive to fish efficiently and to better handle their catch to maximize profits. An IFQ program could stabilize markets and prices by allowing catches to be delivered on demand.

4.11.1.14 Social Effects

The social effects of all the management measure, including those most likely to reduce bycatch, are described in **Section 4**.

4.11.1.15 Conclusion

This section evaluates the practicability of taking additional action to minimize bycatch and bycatch mortality in the South Atlantic snapper grouper fishery using the ten factors provided at 50 CFR 600.350(d)(3)(i). In summary, limiting participation and effort could provide substantial decreases in bycatch of Amendment 18 species and also co-occurring species. It is likely that some management measures such as extending the snapper grouper FMU northward could increase the number of discards. However, this depends on if fishermen shift effort to other species, seasons, or fisheries and if effort decreases in response to more restrictive management measures, as well as changes in community structure and age/size structures that could result from ending overfishing. Overall fishing effort could decrease in the commercial and recreational sectors in response to more restrictive management measures, thereby reducing the potential for bycatch. Electronic logbooks and reporting, a Web-based management system, and placing observers on board vessels (in all sectors) would be useful, if not necessary, aids in monitoring bycatch and bycatch mortality in the snapper grouper fishery of the South Atlantic more effectively.

The requirement of dehooking devices, a recreational/commercial seasonal closure for gag, reduction of recreational bag limits, and closing all shallow water groupers when a

gag quota is met or during a gag seasonal closure specified in Amendment 16 (approved by the Secretary) could also help to reduce bycatch.

There is likely to be an interactive effect of the preferred management measures in Amendment 18 on bycatch of species addressed in the amendment with associated species in reef ecosystems. Closures (part of measures in Amendment 17A, under development) and prohibitions (Amendment 17B, under development) for multiple deep water species such as snowy grouper and blueline tilefish are likely to decrease the incentive to target any deepwater species and reduce bycatch. Furthermore, area closures for all snapper grouper species proposed in Amendment 17A would likely provide substantial reductions in bycatch mortality of black sea bass and gag. Reduced fishing pressure on species in Amendment 18 would be expected to result in an increase in the mean size/age of affected species. The relative abundance, size structure, and age structure of other species in reef communities could be expected to change in response to reduced fishing pressure on species in Amendment 18 as well as potential shifts in effort. Thus, ecological changes could occur in the community structure of reef ecosystems through actions that would end overfishing. These ecological changes could affect the nature and magnitude of bycatch over time.

Additional measures to reduce bycatch in the snapper grouper fishery are being developed. The Comprehensive ACL Amendment could propose measures to reduce bycatch in the snapper grouper fishery including species grouping based on biological, geographic, economic, taxonomic, technical, social, and ecological factors. Each group could be represented by an indicator species, which has been recently assessed or is scheduled for a SEDAR assessment in the future.

4.12 Unavoidable Adverse Effects

4.13 Effects of the Fishery on the Environment

The biological impacts of the proposed actions are described in Section 4.0, including impacts on habitat. No actions proposed in this amendment are anticipated to have any adverse impact on EFH or EFH-HAPCs for managed species including species in the snapper-grouper complex. This amendment does contain an action (Action 8) that could result in new EFH and EFH-HAPC designations depending on whether or not the Council chooses to extend the FMU northward (Action 1). Any additional impacts of fishing on EFH identified during the public hearing process will be considered, therefore the Council has determined no new measures to address impacts on EFH are necessary at this time. The Council's adopted habitat policies, which may directly affect the area of concern, are available for download through the Habitat/Ecosystem section of the Council's website: <http://map.mapwise.com/safmc/Default.aspx?tabid=56>.

4.14 Damage to Ocean and Coastal Habitats

The alternatives and proposed actions are not expected to have any adverse effect on the ocean and coastal habitat.

Management measures implemented in the original Snapper-Grouper Fishery Management Plan through Amendment 7 combined have significantly reduced the impact of the snapper-grouper fishery on EFH. The Council has reduced the impact of the fishery and protected EFH by prohibiting the use of poisons and explosives; prohibiting use of fish traps and entanglement nets in the EEZ; banning use of bottom trawls on live/hard bottom habitat north of Cape Canaveral, Florida; restricting use of bottom longline to depths greater than 50 fathoms north of St. Lucie Inlet; and prohibiting use of black sea bass pots south of Cape Canaveral, Florida. These gear restrictions have significantly reduced the impact of the fishery on coral and live/hard bottom habitat in the South Atlantic Region.

Additional management measures in Amendment 8, including specifying allowable bait nets and capping effort, have protected habitat by making existing regulations more enforceable. Establishing a controlled effort program limited overall fishing effort and to the extent there is damage to the habitat from the fishery (e.g. black sea bass pots, anchors from fishing vessels, impacts of weights used on fishing lines and bottom longlines), limited such impacts.

In addition, measures in Amendment 9, that include further restricting longlines to retention of only deepwater species and requiring that black sea bass pot have escape panels with degradable fasteners, reduce the catch of undersized fish and bycatch and ensure that the pot, if lost, will not continue to “ghost” fish. Amendment 13C increased mesh size in the back panel of pots, which has reduced bycatch and retention of undersized fish. Amendment 15B, which has been submitted for review by the Secretary of Commerce includes an action that would implement sea turtle bycatch release equipment requirements, and sea turtle and smalltooth sawfish handling protocols and/or guidelines in the permitted commercial and for-hire snapper-grouper fishery. Amendment 16, which is being developed, includes an action, which is intended to reduce bycatch by requiring fishermen use venting tools and dehooking devices. Limiting the overall fishing mortality reduces the likelihood of over-harvesting of species with the resulting loss in genetic diversity, ecosystem diversity, and sustainability.

Measures adopted in the Coral and Shrimp FMPs have further restricted access by fishermen that had potential adverse impacts on essential snapper-grouper habitat. These measures include the designation of the *Oculina* Bank HAPC and the Rock Shrimp closed area (see the Shrimp and Coral FMP/Amendment documents for additional information).

The Council’s Comprehensive Habitat Amendment (SAFMC 1998b) contains measures that expanded the *Oculina* Bank HAPC and added two additional satellite HAPCs. Amendment 14, which has been approved by the Council, established marine protected areas where fishing for or retention of deepwater snapper-grouper species is prohibited.

4.15 Relationship of Short-Term Uses and Long-Term Productivity

Needs to be completed

The relationship between short-term uses and long-term productivity will be affected by this amendment and will be discussed in before the document goes to public hearing.

4.16 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are defined as commitments that cannot be reversed, except perhaps in the extreme long-term, whereas irretrievable commitments are lost for a period of time. There are no irreversible commitments for this amendment. While the proposed actions would result in irretrievable losses in consumer surplus and angler expenditures, failing to take action would compromise the long-term sustainability of the stocks.

Since the Snapper-Grouper FMP and its implementing regulations are always subject to future changes, proceeding with the development of Amendment 18 does not represent an irreversible or irretrievable commitment of resources. NOAA Fisheries Service has discretion to amend its regulations and may do so at any time, subject to the Administrative Procedures Act.

4.17 Monitoring and Mitigation Measures

The proposed actions would adversely affect immediate, short-term net revenues of some commercial and for-hire fishermen in the South Atlantic. The proposed actions would also adversely affect short-term consumer surplus of some recreational anglers in the South Atlantic and may result in cancelled trips and reduced expenditures to the fishery and associated industries. However, it is anticipated reductions in fishing pressure, which will reduce the likelihood that these stocks will be declared overfished, will assist in restoring the size and age structure to more natural conditions and allow stock biomass to increase to more sustainable and productive levels. As a result, the amount of fish that can be harvested should increase as the stocks rebuild. The short-term, adverse effects of ending overfishing can be mitigated to some degree by the type of regulations the Council selects to manage reduced catch levels. The Council's preferred alternatives contain those measures that are believed to best mitigate the unavoidable, short-term, adverse effects of ending overfishing.

4.18 Unavailable or Incomplete Information

The Council on Environmental Quality, in its implementing regulations for the National Environmental Policy Act, addressed incomplete or unavailable information at 40 CFR 1502.22 (a) and (b). That direction has been considered. There are two tests to be applied: (1) does the incomplete or unavailable information involve "reasonable

foreseeable adverse effects...” and (2) is the information about these effects “essential to a reasoned choice among alternatives...”.

Stock assessments have been conducted on vermilion snapper, gag, black sea bass, snowy grouper, golden tilefish, and red snapper using the best available data available. Status determinations for these species were derived from the SEDAR process, which involves a series of three workshops designed to ensure each stock assessment reflects the best available scientific information. The findings and conclusions of each SEDAR workshop are documented in a series of reports, which are ultimately reviewed and discussed by the Council and their Scientific and Statistical Committee (SSC). SEDAR participants, the Council advisory committees, the Council, and NMFS staff reviewed and considered any concerns about the adequacy of the data. Section 4.4 lists data needs that resulted from these assessments. The Council’s SSC determined that the assessments were based on the best available data.

The Council’s Snapper-Grouper Committee acknowledged, while stock assessment findings are uncertain, there is no reason to assume such uncertainty leads to unrealistically optimistic conclusions about stock status. Rather, the stocks could be in worse shape than indicated by the stock assessment. Uncertainty due to unavailable or incomplete information should not be used as a reason to avoid taking action. Therefore, there are reasonable foreseeable significant adverse effects of not taking action to end overfishing. Failure to take action could result in a worsening of stock status, persistent foregone economic benefits, and more severe corrective actions to end overfishing in the future.

Where information is unavailable or incomplete, such as is the case with estimates of dead discards that could occur when a species is incidentally caught during a seasonal closures or after a quota is met, management measures have been designed to adopt a conservative approach to increase the probability overfishing does not occur.

5 Regulatory Impact Review

This section will be added after the Council picks preferred alternatives.

6 Initial Regulatory Flexibility Analysis

This section will be added after the Council picks preferred alternatives.

7 Fishery Impact Statement and Social Impact Assessment

7.1 Fishery Impact Statement

The Fishery Impact Statement will be completed once the Council selects preferred alternatives.

7.2 Social Impact Assessment

7.2.1 Introduction

Mandates to conduct Social Impact Assessments (SIA) come from both the National Environmental Policy Act (NEPA) and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). NEPA requires Federal agencies to consider the interactions of natural and human environments by using a “...systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making@ [NEPA section 102 (2) (a)]. Under the Council on Environmental Quality=s (CEQ, 1986) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, a clarification of the terms Ahuman environment@ expanded the interpretation to include the relationship of people with their natural and physical environment (40 CFR 1508.14). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect or cumulative (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994).

Under the Magnuson-Stevens Act, fishery management plans (FMPs) must A...achieve and maintain, on a continuing basis, the optimum yield from each fishery@ [Magnuson-Stevens Act section 2 (b) (4)]. When considering “...a system for limiting access to the fishery in order to achieve optimum yield...@ the Secretary of Commerce and Regional Fishery Management Councils are to consider both the social and economic impacts of the system [Magnuson-Stevens Act section 303 (b) (6)]. Recent amendments to the Magnuson-Stevens Act require that FMPs address the impacts of any management measures on the participants in the affected fishery and those participants in other fisheries that may be affected directly or indirectly through the inclusion of a fishery impact statement [Magnuson-Stevens Act section 303 (a) (9)]. National Standard 8, requires that FMPs must consider the impacts upon fishing communities to assure their sustained participation and minimize adverse economic impacts upon those communities [Magnuson-Stevens Act section 301 (a) (8)].

7.2.2 Problems and Methods

Social impacts are generally the consequences to human populations that follow from some type of public or private action. Those consequences may include alterations to A...the ways in which people live, work or play, relate to one another, organize to meet their needs and generally cope as members of a society...@ (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994:1). Social impact analyses can be used to determine possible consequences management actions may have on fishing dependent communities. In order to do a full social impact analysis it is necessary to identify community participants who depend upon the fisheries in that area and to identify the amount of dependency they have upon a given fishery. Further it is necessary to understand the other opportunities for employment that exist within the community should fishery management measures become so restrictive that participants must switch their focus to other fisheries or other jobs outside of the fishing industry. Public hearings and scoping meetings may provide input from those concerned with a particular action, but they do not constitute a full overview of those that depend on the fishing industry.

In attempting to assess the social impacts of the proposed amendment it must be noted that there is not enough data on all participants who are involved with the snapper grouper fishery at the community level to do a complete overview of the fishery; therefore, analyses cannot predict all social impacts. However, secondary data such as landings data, license data, permits data, and information on communities such as Census data, can help to describe the communities involved in the snapper grouper fishery in the South Atlantic.

Today, more fisheries are managed by quotas and/or have restrictions on the number of participants. This limits the other opportunities fishermen who fish for species in the snapper grouper complex to target other species to make up for reduced harvests of the snapper grouper species.

Based on an analysis of secondary data, there are not any communities in the South Atlantic region that are completely dependent on the snapper grouper fisheries, although several are heavily involved with the commercial or recreational snapper grouper fishery. The snapper grouper fishery is even less important to Mid-Atlantic and New England communities. Any reduction in harvest has the potential to put fishermen and fishing dependent businesses out of business. Some recreational and commercial fishermen may decide it is not worth fishing for very limited bag limits, reduced TACs or for only a few species. Decisions on whether to stay in the fishery or to leave for another type of employment often depends on the circumstances of the individual such as whether or not they own their fishing boat, how much longer they intended to fish before retirement, if there is other family income, etc. At this time, there is insufficient information on fishermen to be able to fully describe what they may do with reduced catches, shorter fishing seasons, and/or closed areas.

In the future, fishermen, fishing dependent businesses, and communities involved in the snapper grouper fisheries will benefit when overfishing is stopped and the fishery is rebuilt. However, for the short-term, the closing of specified areas, seasonal closures, reduced catch limits, and other measures that are necessary to stop overfishing and rebuild stocks, will all have negative impacts on those involved in the fishery. The average age of commercial fishermen is increasing, and fewer young people are becoming commercial fishermen. A fishery that is rebuilt in 15, 20, or even 25 years may be of no help to fishermen who will be impacted now by new regulations because they may be too old to fish when the fishery is rebuilt. Because fewer young people are choosing to fish, there may be the possibility that there may not be many commercial fishermen to harvest quotas once the fishery is rebuilt.

Communities that depend on the fishing industry throughout the South Atlantic are facing increasing challenges due to increased regulations that reduce catch for both the recreational and commercial fishing sector. If commercial catches are reduced, there can be a reduction in fish houses and processors, or a loss of jobs in the processing sector. Some fishermen may decide they can no longer make a living in the fishing industry and leave the industry for other jobs. Overall, fewer young people are becoming fishermen due to the difficulty of making a living fishing. If the harvest levels are reduced for recreational sector, this will have a negative impact on charter and party boat operators, private boat owners, and businesses such as bait shops, marinas, hotels, and restaurants that cater to recreational fishermen.

Communities are also facing increasing challenges due to development and gentrification. As more water front property is developed for non-fishing uses such as locations for condominiums, hotels, restaurants, etc., fishing related businesses are in competition over land. Development often increases taxes which make it difficult for fishing docks, processors, and other businesses to stay near the water. In the last few decades more fishermen have had to move inland due to the rising cost of housing and taxes for water front property. This has changed the dynamics of some areas that were once built around the fishing industry.

Profiles of the communities expected to be affected by the actions in this proposed amendment are provided in Section 3.8.3, while a discussion of the expected social effects of each alternative considered is provided in Section 4.

7.2.3 Environmental Justice Considerations

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

Persons employed in the snapper grouper fishery and associated businesses and communities along the South Atlantic coast would be expected to be affected by this proposed action. 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. County level data, however, for the communities profiled in Section 3.8.3 have been assessed to examine potential EJ concerns. Because this proposed action would be expected to affect fishermen and associated industries in numerous 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 such that, 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 was used. Estimates of the state minority and poverty rates, associated thresholds, and community rates are provided in Table 7-1. Because of the absence of substantive involvement of fishermen in the Mid-Atlantic or New England (see Section 3.6), no communities in these areas have been examined for potential EJ concern.

Based on available demographic information, only the poverty rate for Beaufort, North Carolina suggests potential EJ concern, with a poverty rate of 16.6 percent, which exceeds the state threshold of 14.76 percent. This single instance might suggest potential EJ concerns are minimal. As noted above, however, additional communities beyond those profiled would be expected to 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, no EJ issues have been identified or are expected to arise as a result of this proposed amendment. No negative environmental consequences are expected to accrue to this proposed amendment. Although some short term adverse social and economic consequences may accrue to fishermen in the snapper grouper fishery and associated industries and communities due to possible reduction of expenditures and revenues associated with changes in fishing behavior and harvest levels, the environmental consequences of this proposed amendment are expected to be positive. The actions in this proposed amendment are expected to protect and ensure the sustainability and health of the respective species. Protection of these species would be expected to preserve the environmental benefits these species contribute to the marine environment and the general health and condition of this environment. These measures

are also not expected to result in increased risk or exposure of affected individuals to adverse health hazards.

Table 7-1. Environmental Justice Thresholds (2000 U.S. Census data).

State	Community	Minority Rate	Minority Threshold*	Poverty Rate	Poverty Threshold*
Florida		34.60	41.52	12.50	15.00
	Cape Canaveral	8.10		11.60	
	Marathon	26.70		14.20	
Georgia		37.40	44.88	13.00	15.60
	Townsend**	39.10		14.60	
South Carolina		33.90	40.68	14.10	16.92
	Little River	9.10		7.50	
North Carolina		29.80	35.76	12.30	14.76
	Atlantic City	2.60		7.30	
	Beaufort	25.40		16.60	
	Hatteras Village	6.60		10.00	
	Morehead City	19.20		14.60	
	Sneads Ferry	9.70		13.50	
	Wanchese	3.30		8.10	

*Calculated as 1.2 times the state rate.

**Values are for the entire McIntosh County.

8 Other Applicable Law

8.1 Administrative Procedure Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (APA) (5 U.S.C. Subchapter II), which establishes a “notice and comment” procedure to enable public participation in the rulemaking process. Under the APA, NMFS is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider, and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day waiting period from the time a final rule is published until it takes effect.

8.2 Coastal Zone Management Act

Section 307(c)(1) of the federal Coastal Zone Management Act (CZMA) of 1972 requires that all federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. While it is the goal of the South Atlantic Council to have management measures that complement those of the states, Federal and State administrative procedures vary and regulatory changes are unlikely to be fully instituted at the same time. Based on the analysis of the environmental consequences of the proposed action in Section 4.0, the Council has concluded this amendment would improve Federal management of snapper-grouper species.

8.3 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NOAA Fisheries Service to consult with the appropriate administrative agency (itself for most marine species and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They are concluded informally when proposed actions may affect but are “not likely to adversely affect” threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are “likely to adversely affect” threatened or endangered species or adversely modify designated critical habitat.

NOAA Fisheries Service completed a biological opinion in 2006 evaluating the impacts of the continued authorization of the South Atlantic snapper-grouper fishery under the Snapper-Grouper Fishery Management Plan and Amendment 13C on ESA-listed species (see Section 3.3.4) (NMFS 2006). The opinion stated the fishery was not likely to adversely affect northern right whale critical habitat, seabirds, or marine mammals (see

NMFS 2006 for discussion on these species). However, the opinion did state that the snapper-grouper fishery would adversely affect sea turtles and smalltooth sawfish, but would not jeopardize their continued existence. An incidental take statement was issued for green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles, as well as smalltooth sawfish. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them.

NOAA Fisheries Service conducted an informal section 7 consultation on July 9, 2007, evaluating the impacts of the South Atlantic snapper-grouper fishery on ESA-listed *Acropora* species. The consultation concluded that the continued operation of the snapper-grouper fishery was not likely to adversely affect newly listed *Acropora* species. On November 26, 2008, a final rule designating *Acropora* critical habitat was published in the *Federal Register*. A memo dated December 2, 2008, evaluated the effects of the continued authorization of the South Atlantic snapper-grouper fishery on *Acropora* critical habitat pursuant to section 7. The evaluation concluded the proposed actions are not likely to adversely affect *Acropora* critical habitat.

8.4 Executive Order 12612: Federalism

E.O. 12612 requires agencies to be guided by the fundamental federalism principles when formulating and implementing policies that have federalism implications. The purpose of the Order is to guarantee the division of governmental responsibilities between the Federal government and the States, as intended by the framers of the Constitution. No federalism issues have been identified relative to the actions proposed in this amendment and associated regulations. The affected states have been closely involved in developing the proposed management measures and the principal state officials responsible for fisheries management in their respective states have not expressed federalism related opposition to the proposed action.

8.5 Executive Order 12866: Regulatory Planning and Review

E.O. 12866, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that implement a new FMP or that significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the RFA. A regulation is significant if it is likely to result in

an annual effect on the economy of at least \$100,000,000 or if it has other major economic effects.

8.6 Executive Order 12898: Environmental Justice

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

8.7 Executive Order 12962: Recreational Fisheries

E.O. 12962 requires Federal agencies, in cooperation with States and Tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of Federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. Additionally, the order establishes a seven member National Recreational Fisheries Coordination Council responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by Federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among Federal agencies involved in conserving or managing recreational fisheries. The Council also is responsible for developing, in cooperation with Federal agencies, States and Tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda.

8.8 Executive Order 13089: Coral Reef Protection

E.O. 13089, signed by President William Clinton on June 11, 1998, recognizes the ecological, social, and economic values provided by the Nation's coral reefs and ensures that Federal agencies are protecting these ecosystems. More specifically, the Order requires Federal agencies to identify actions that may harm U.S. coral reef ecosystems, to utilize their program and authorities to protect and enhance the conditions of such ecosystems, and to ensure that their actions do not degrade the condition of the coral reef ecosystem.

Previous snapper-grouper amendments, including Amendment 13A (SAFMC 2003), eliminated all potential adverse impacts to *Oculina* coral in the *Oculina* Banks HAPC and Experimental Closed Area that are associated with bottom fishing gear and fulfills the intentions of E.O. 13089. The use of bottom trawls, bottom longlines, dredges, fish traps, and fish pots is currently prohibited within the *Oculina* Banks HAPC and Experimental Closed Area and that prohibition would not be affected by the proposed actions.

8.9 Executive Order 13158: Marine Protected Areas

E.O. 13158 was signed on May 26, 2000 to strengthen protection of U.S. ocean and coastal resources through the use of Marine Protected Areas (MPAs). The E.O. defined MPAs as “any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.” It directs federal agencies to work closely with state, local, and non-governmental partners to create a comprehensive network of MPAs “representing diverse U.S. marine ecosystems, and the Nation’s natural and cultural resources”. The South Atlantic Council developed Amendment 14 to the Snapper-Grouper Fishery Management Plan to establish a [series of deepwater marine protected areas](#) in the South Atlantic EEZ. The amendment was approved by the Council during its June 2007 meeting and the final rule became effective February 12, 2009.

8.10 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NOAA Fisheries) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. This amendment required the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; development and implementation of take-reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fisheries; and studies of pinniped-fishery interactions. The MMPA requires a commercial fishery to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; and Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities. To legally fish in a Category I and/or II fishery, a

fisherman must obtain a marine mammal authorization certificate by registering with the Marine Mammal Authorization Program (50 CFR 229.4), the must accommodate an observer if requested (50 CFR 229.7(c)) and comply with any applicable take reduction plans.

The commercial hook-and-line components of the South Atlantic snapper-grouper fishery (i.e., bottom longline, bandit gear, and handline) are listed as part of a Category III fishery (74 FR 27739; June 11, 2009) because there have been no documented interactions between these gears and marine mammals. The black sea bass pot component of the South Atlantic snapper-grouper fishery is part of the Atlantic mixed species trap/pot fishery, a Category II fishery, in 2010 proposed LOF (74 FR 27739; June 11, 2009). The Atlantic mixed species trap/pot fishery designation was created in 2003 (68 FR 41725, July 15, 2003), by combining several separately listed trap/pot fisheries into a single group. This group was designated Category II as a precaution because of known interactions between marine mammals and gears similar to those included in this group. Prior to this consolidation, the black sea bass pot fishery in the South Atlantic was a part of the “U.S. Mid-Atlantic and Southeast U.S. Atlantic Black Sea Bass Trap/Pot” fishery (Category III). There has never been a documented interaction between marine mammals and black sea bass trap/pot gear in the South Atlantic.

8.11 Migratory Bird Treaty Act and Executive Order 13186

The Migratory Bird Treaty Act (MBTA) implemented several bilateral treaties for bird conservation between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and the former Union of Soviet Socialist Republics. Under the MBTA, it is unlawful to pursue, hunt, take, capture, kill, possess, trade, or transport any migratory bird, or any part, nest, or egg of a migratory bird, included in treaties between the signatures, except as permitted by regulations issued by the Department of the Interior (16 U.S.C. 703-712). Violations of the MBTA carry criminal penalties. Any equipment and means of transportation used in activities in violation of the MBTA may be seized by the United States government and, upon conviction, must be forfeited to the U.S. government.

Executive Order 13186 directs each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement a memorandum of understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) to conserve those bird populations. In the instance of unintentional take of migratory birds, NOAA Fisheries Service would develop and use principles, standards, and practices that will lessen the amount of unintentional take in cooperation with the USFWS. Additionally, the MOU would ensure that National Environmental Policy Act (NEPA) analyses evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

An MOU is currently being developed, which will address the incidental take of migratory birds in commercial fisheries under the jurisdiction of NOAA Fisheries. NOAA Fisheries Service must monitor, report, and take steps to reduce the incidental take of seabirds that occurs in fishing operations. The United States has already developed the U.S. National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. Under that plan many potential MOU components are already being implemented.

8.12 National Environmental Policy Act

Concerned with the degree of damages incurred by human activity on the sensitive ecological environment in the United States, Congress passed, and Richard Nixon signed into law, the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. §§ 4321 *et seq.* NEPA sets the national environmental policy by providing a mandate and framework for federal agencies to consider all reasonably foreseeable environmental effects of their actions. In addition, it requires disclosure of information regarding the environmental impacts of any federal or federally funded action to public officials and citizens before decisions are made and actions taken. The analyses and results are presented to the public and other agencies through the development of NEPA documentation. The Final Environmental Impact Statement (FEIS) integrated into Amendment 16 to the FMP serves as the documentation to satisfy the requirements of NEPA.

8.13 National Marine Sanctuaries Act

Under the National Marine Sanctuaries Act (NMSA) (also known as Title III of the Marine Protection, Research, and Sanctuaries Act of 1972), as amended, the U.S. Secretary of Commerce is authorized to designate National Marine Sanctuaries to protect distinctive natural and cultural resources whose protection and beneficial use requires comprehensive planning and management. The National Marine Sanctuary Program is administered by the Sanctuaries and Reserves Division of the NOAA. The Act provides authority for comprehensive and coordinated conservation and management of these marine areas. The National Marine Sanctuary Program currently comprises 13 sanctuaries around the country, including sites in American Samoa and Hawaii. These sites include significant coral reef and kelp forest habitats, and breeding and feeding grounds of whales, sea lions, sharks, and sea turtles. The two main sanctuaries in the South Atlantic EEZ are Gray's Reef and Florida Keys National Marine Sanctuaries. The Florida Keys National Marine Sanctuary represents the bulk of the ESA-listed *Acropora* species' range in the South Atlantic region.

8.14 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to control paperwork requirements imposed on the public by the federal government. The authority to manage information collection and record keeping requirements is vested with the Director of the Office of Management and Budget. This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications.

The Council is not proposing, in this amendment, measures that would involve increased paperwork and consideration under this Act.

8.15 Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) of 1980 (5 U.S.C. 601 et seq.) requires Federal agencies to assess the impacts of regulatory actions implemented through notice and comment rulemaking procedures on small businesses, small organizations, and small governmental entities, with the goal of minimizing adverse impacts of burdensome regulations and record-keeping requirements on those entities. Under the RFA, NMFS must determine whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities. If not, a certification to this effect must be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration. Alternatively, if a regulation is determined to significantly impact a substantial number of small entities, the Act requires the agency to prepare an initial and final Regulatory Flexibility Analysis to accompany the proposed and final rule, respectively. These analyses, which describe the type and number of small businesses affected, the nature and size of the impacts, and alternatives that minimize these impacts while accomplishing stated objectives, must be published in the *Federal Register* in full or in summary for public comment and submitted to the chief counsel for advocacy of the Small Business Administration. Changes to the RFA in June 1996 enable small entities to seek court review of an agency's compliance with the Act's provisions.

8.16 Small Business Act

Update with significance determination

Enacted in 1953, the Small Business Act requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise.

8.17 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Act to require that a FMP or FMP amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to a fishery for vessels that would be otherwise prevented from participating in the fishery because of safety concerns related to weather or to other ocean conditions.

No vessel would be forced to participate in the snapper-grouper fishery under adverse weather or ocean conditions as a result of the imposition of management regulations proposed in this amendment.

The fact that low quotas are being implemented with a January 1st start date may force fishermen to fish in the winter.

No concerns have been raised by people participating in the fishery nor by the U.S. Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions. Therefore, this amendment proposes neither procedures for making management adjustments due to vessel safety problems nor procedures to monitor, evaluate, or report on the effects of management measures on vessel or crew safety under adverse weather or ocean conditions.

9 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
Tracy Dunn	Enforcement Specialist	NMFS	LE	SERO
Karla Gore	Natural Resource Management Specialist	NMFS	SF	SERO
Andy Herndon	Biologist	NMFS	PR	SERO
Tony Lamberte	Economist	NMFS	SF	SERO
Palma Ingles	Anthropologist	NMFS	SF	SERO
Jennifer Lee	Council Liaison	NMFS	PR	SERO
Jack McGovern	Fishery Biologist	NMFS	SF	SERO
Janet Miller	Permits	NMFS	SF	SERO
Roger Pugliese	Senior Fishery Biologist	SAFMC	N/A	SAFMC
Kate Quigley	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

10 List of Agencies, Organizations, and Persons To Whom Copies of the Statement Are Sent

Responsible Agency

Amendment 18:

South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
Charleston, South Carolina 29405
(843) 571-4366 (TEL)
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Environmental Impact Statement:

NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 (TEL)
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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

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Needs to be edited once document is completed.

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12 Index

13 Appendix A. Alternatives Considered but Rejected

Black Seabass Alternatives

Alternative 7. 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 NMFS. Limit the number of black sea bass pots fished annually to 50 per holder of Federal snapper grouper vessel permits for (a) any fishermen that is currently using an average of less than 55 pots (based on average number of pots fished on trips between 1/1/05 and 12/31/06) and (b) and fishermen entering the fishery after 1/1/07. For any fishermen currently using an average of 55 or more pots (based on average number of pots fished on trips between 1/1/05 and 12/31/06), limit the number of black sea bass pots annually to their average less as reduced by 10%. Limit the maximum number of pots allowed per holder of Federal snapper-grouper vessel permits to 125. Limit the number of black sea bass pot tags issued annually each holder of Federal snapper-grouper vessel permits to the number of pots allowed plus 10% for damage and loss; however, each permit holder may only fish the number of pots allowed. The number of pots fished will be determined from snapper-grouper logbooks that have been submitted to NMFS on or before 3/8/07.

This alternative was rejected in March 2009 because it was considered too complex and because the other alternatives describe most of this alternative's characteristics.

Data Reporting Action Alternatives:

Commercial:

Alternative 5. Require all vessels with a Federal Snapper-Grouper commercial permit to have an electronic camera monitoring system on board the vessel.

Alternative 6. Require all vessels with a Federal snapper-grouper permit to have an electronic camera monitoring system on board the vessel at a level that represents 10% of all trips by vessels with the permit.

Alternative 8. Require observers on 20-100% of all trips by vessels with golden tilefish endorsements.

For-Hire:

Alternative 4. Require all vessels with a Federal For-Hire permit to have an electronic logbook tied to the vessel's GPS onboard the vessel.

Alternative 5. Require all vessels with Federal For-Hire permits not have an electronic camera monitoring system onboard the vessel.

Alternative 6. Require vessels with a Federal For-Hire permit to have an electronic camera monitoring system onboard the vessel.

Alternative 7. Require observers to be onboard vessels with a Federal For-Hire permit at a level that represents 5% of all trips by vessels with the permit.

Private Recreational:

Alternative 3. Require all vessels with a state recreational fishing license to have an electronic camera monitoring system onboard the vessel.

Alternative 4. Require all vessels with a state recreational fishing license to have an electronic camera monitoring system on board the vessel at a level that represents 5% of all trips by vessels with the license.

Alternative 2. Require vessels with a state recreational fishing license to have an electronic logbook tied to the vessel's GPS onboard the vessel, if selected.

Alternative 3. Require vessels with a state recreational fishing license to carry a NMFS-approved observer when on a trip in the South Atlantic.

These alternatives were rejected in March 2009 because they were not considered practical or financially feasible.