Amendment 34 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region, Amendment 9 to the Fishery Management Plan for the Golden Crab of the South Atlantic Region, and Amendment 8 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic

Public Hearing Draft - July 2014

Environmental Assessment Regulatory Impact Review Regulatory Flexibility Analysis Fishery Impact Statement

A publication of the South Atlantic Fishery Management Council pursuant to National Oceanic and Atmospheric Administration Award Number FNA10NMF4410012

Abbreviations and Acronyms Used in the FMP

ABC	acceptable biological catch
ACL	annual catch limits
AM	accountability measures
ACT	annual catch target
B	a measure of stock biomass in either weight or other appropriate unit
$\mathbf{B_{MSY}}$	the stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}
$\mathbf{B_{OY}}$	the stock biomass expected to exist under equilibrium conditions when fishing at F_{OY}
$\mathbf{B_{CURR}}$	The current stock biomass
CPUE	catch per unit effort
DEIS	draft environmental impact statement
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
F	a measure of the instantaneous rate of fishing mortality
$\mathbf{F_{30\%SPR}}$	fishing mortality that will produce a static SPR = 30%
$\mathbf{F_{CURR}}$	the current instantaneous rate of fishing mortality
$\mathbf{F_{MSY}}$	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}
$\mathbf{F_{OY}}$	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
M	natural mortality rate
MARMAP	Marine Resources Monitoring Assessment and Prediction Program
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum stock size threshold
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	overfishing limit
OY	optimum yield
RIR	regulatory impact review
SAFMC	South Atlantic Fishery Management Council
SEDAR	Southeast Data Assessment and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SIA	social impact assessment
SPR	spawning potential ratio
SSC	Scientific and Statistical Committee

Amendment 34 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region, Amendment 9 to the Fishery Management Plan for the Golden Crab of the South Atlantic Region, and Amendment 8 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic with Environmental Assessment and Regulatory Impact Review

Proposed action:	The purpose for the actions is to: modify the accountability measures for snapper grouper species and golden crab, and adjust sector allocations for dolphin.
Lead agency:	FMP Actions – South Atlantic Fishery Management Council Environmental Assessment – National Marine Fisheries Service (NMFS) Southeast Regional Office
For Further Information Contact:	South Atlantic Fishery Management Council 4055 Faber Place, Suite 201 North Charleston, SC 29405 843-571-4366 866-SAFMC-10 Brian Cheuvront brian.cheuvront@safmc.net NMFS, Southeast Region 263 13th Avenue South St. Petersburg, FL 33701 727-824-5305 Kate Michie Kate.Michie@noaa.gov

Summary

Amendment 34 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP), Amendment 9 to the Fishery Management Plan for the Golden Crab of the South Atlantic Region (Golden Crab FMP), and Amendment 8 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic (Dolphin Wahoo FMP) would modify the accountability measures for snapper grouper species and golden crab, and adjust sector allocations for dolphin.

.

Table of Contents

Summary III
Table of Contents IV
List of Appendices VI
List of Tables VII
List of Figures X
Chapter 1. Introduction 1
1.1 What Actions Are Being Proposed? 1
1.2 Who is Proposing the Actions? 1
1.3 Why is the South Atlantic Council Considering Action? 2
Chapter 2. Proposed Actions and Alternatives 3
Chapter 3. Affected Environment 15
3.1 Habitat Environment 15
3.1.1 Inshore/Estuarine Habitat 15
3.1.2 Offshore Habitat 15
3.1.3 Essential Fish Habitat 17
3.1.4 Habitat Areas of Particular Concern 18
3.2 Biological and Ecological Environment 19
3.2.1 Fish Populations Affected by this Amendment 19
3.2.2 Other Species Affected 21
3.2.3 The Stock Assessment Process 21
3.2.4 Protected Species 21
3.2.4.1 ESA-Listed Sea Turtles 22
3.2.4.2 ESA-Listed Marine Fish 23
3.3 Economic and Social Environment 24
3.3.1 Economic Environment 24
3.3.1.1 Economic Description of the Commercial Sector 24
3.3.1.1.1 Black Grouper 28
3.3.1.2 Economic Description of the Recreational Sector 64
3.3.2 Social Environment 89
3.3.3 Environmental Justice Considerations 110
3.4 Administrative Environment 113
3.4.1 The Fishery Management Process and Applicable Laws 113
Chapter 4. Environmental Effects and Comparison of Alternatives 116
4.1 Action 1. Revise accountability measures (AMs) 116
4.1.1 Biological Effects 116
4.1.2 Economic Effects 123
4.1.3 Social Effects 127
4.1.4 Administrative Effects 128
4.2 Action 2. Revise the sector allocations for dolphin. 130
4.2.1 Biological Effects 130
4.2.2 Economic Effects 134
4.2.3 Social Effects 135
4.2.4 Administrative Effects 136
Chapter 5. Council's Choice for the Preferred Alternatives 137
5.1 Action 1. 137
5.1.1 Advisory Panel (AP) Comments and Recommendation 137
5.1.2 Public Comments and Recommendations 137
5.1.3 South Atlantic Council Choice for Preferred Alternative 137

5.2 Action 2. 138
5.2.1 AP Comments and Recommendations 138
5.2.2 Public Comments and Recommendations 138
5.2.3 South Atlantic Council Choice for Preferred Alternative 138
Chapter 6. Cumulative Effects 139
6.1 Biological 139
6.2 Social and Economic 145
Chapter 7. List of Interdisciplinary Plan Team (IPT) Members 147
Chapter 8. Agencies and Persons Consulted 148
Chapter 9. References 149
Appendix A. Glossary A-1
Appendix B. Actions and Alternatives Considered but Rejected B-1
Appendix C. History of Management C-1
Appendix D. Bycatch Practicability Analysis D-1
Appendix E. Regulatory Impact Review E-1
Appendix F. Regulatory Flexibility Analysis F-1
Appendix G. Other Applicable Law G-1

List of Appendices

Appendix A. Glossary

Appendix B. Alternatives Considered but Rejected

Appendix C. History of Management

Appendix D. Bycatch Practicability Analysis

Appendix E. Fishery Impact Statement

Appendix F. Regulatory Impact Review

Appendix G. Regulatory Flexibility Analysis

Appendix H. Other Applicable Law

Appendix I. Fishery Ecosystem Plan

List of Tables

Table 2.1 Species not included under Action 1 and reason they are not included in the action. 8
Table 2.2. Total landings (lbs, ww) of dolphin and percent of average, by sector, 1986-2013. Note that South Atlantic Council jurisdiction for this stock includes entire US East Coast. 11
Table 2.3 sector ACLs that would result under each of the alternatives considered. 13
Table 3.3.1.1. Valid and transferrable/renewable South Atlantic commercial snapper grouper permits as of January 30, 2014. 27
Table 3.3.1.2. Number of South Atlantic commercial snapper grouper permits. 27
Table 3.3.1.3. Number of South Atlantic commercial dolphin/wahoo permits. 27
Table 3.3.1.4. Vessels and trips with black grouper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 30
Table 3.3.1.5. Dockside revenues (2013 $) from all sources for vessels that landed black grouper, 2009–2013. 31
Table 3.3.1.6. Vessels and trips with mutton snapper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 34
Table 3.3.1.7. Dockside revenues (2013 $) from all sources for vessels that landed mutton snapper, 2009–2013. 34
Table 3.3.1.8. Vessels and trips with yellowtail snapper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 36
Table 3.3.1.9. Dockside revenues (2013 $) from all sources for vessels that landed yellowtail snapper, 2009–2013. 37
Table 3.3.1.10. Vessels and trips with greater amberjack landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 40
Table 3.3.1.11. Dockside revenues (2013 $) from all sources for vessels that landed greater amberjack, 2009–2013. 40
Table 3.3.1.12. Vessels and trips with red porgy landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 43
Table 3.3.1.13. Dockside revenues (2013 $) from all sources for vessels that landed red porgy, 2009–2013. 43
Table 3.3.1.14. Vessels and trips with gag landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 46
Table 3.3.1.15. Dockside revenues (2013 $) from all sources for vessels that landed gag, 2009–2013. 46
Table 3.3.1.16. Vessels and trips with golden tilefish landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 49
Table 3.3.1.17. Dockside revenues (2013 $) from all sources for vessels that landed golden tilefish, 2009–2013. 49
Table 3.3.1.18. Vessels and trips with red grouper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2012. 52
Table 3.3.1.19. Dockside revenues (2013 $) from all sources for vessels that landed red grouper, 2009–2012. 52

Table 3.3.1.20. Vessels and trips with red snapper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2012. 53
Table 3.3.1.21. Dockside revenues (2013 $) from all sources for vessels that landed red snapper, 2009–2012. 54
Table 3.3.1.22. Vessels and trips with snowy grouper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 56
Table 3.3.1.23. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper, 2009–2013. 57
Table 3.3.1.24. Vessels and trips with dolphin landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013. 60
Table 3.3.1.25. Dockside revenues (2013 $) from all sources for vessels that landed dolphin, 2009–2013. 61
Table 3.3.1.26. Wreckfish landings (lb ww) and dockside revenues (2013 $), 2009-2013. 61
Table 3.3.1.27. Average landings (lb ww) of selected species by gear type, 2009–2013. 62
Table 3.3.1.28. Dockside revenues from selected species by gear type, 2009–2013. 63
Table 3.3.1.29. Number of South Atlantic for-hire snapper grouper permits, by homeport state, 2008-2012. 64
Table 3.3.1.30. Number of South Atlantic for-hire dolphin-wahoo vessel permits, 2008-2012. 65
Table 3.3.1.31. Black grouper recreational landings by mode, 2009-2013. 66
Table 3.3.1.32. Mutton snapper recreational landings by mode, 2009-2013. 67
Table 3.3.1.33. Yellowtail snapper recreational landings by mode, 2009-2013. 68
Table 3.3.1.34. Greater amberjack recreational landings by mode, 2009-2013. 69
Table 3.3.1.35. Red porgy recreational landings by mode, 2009-2013. 70
Table 3.3.1.36. Gag recreational landings by mode, 2009-2013. 72
Table 3.3.1.37. Golden tilefish recreational landings by mode, 2009-2013. 73
Table 3.3.1.38. Red grouper recreational landings by mode, 2009-2013. 74
Table 3.3.1.39. Snowy grouper recreational landings by mode, 2009-2013. 76
Table 3.3.1.40. Dolphin recreational landings by mode, 2009-2013. 77
Table 3.3.1.41. Unassessed species recreational landings by mode, 2009-2013. 79
Table 3.3.1.42. Unassessed species recreational landings by state, 2009-2013. 80
Table 3.3.1.43. Target and catch trips by mode, 2009-2013. 82
Table 3.3.1.44. Target and catch trips by mode, 2009-2013. 82
Table 3.3.1.45. Target and catch trips by mode, 2009-2013. 83
Table 3.3.1.46. Target and catch trips by mode, 2009-2013. 83
Table 3.3.1.47. Target and catch trips by mode, 2009-2013. 84
Table 3.3.1.48. Target and catch trips by mode, 2009-2013. 84
Table 3.3.1.49. Target and catch trips by mode, 2009-2013. 85
Table 3.3.1.50. Target and catch trips by mode, 2009-2013. 85
Table 3.3.1.51. Target and catch trips by mode, 2009-2013. 86
Table 3.3.1.52. Target and catch trips by mode, 2009-2013. 86
Table 3.3.1.53. Target and catch trips by mode, 2009-2013. 87
Table 3.3.1.54. South Atlantic headboat angler days, by state, 2009-2013. 87

Table 3.3.1.55. Average monthly distribution of headboat angler days in the South Atlantic, by state, 2009-2013. 88
Table 3.3.2.16. Communities with commercial bar jack landings in descending order based on pounds landed. 98
Table 3.3.2.17. Snowy grouper recreational landings in lbs gutted weight, by state.... 107
Table 4.1.1.1 Unassessed snapper grouper species addressed in this action excluding species in the deepwater snapper-grouper complex, which are being addressed in a differentt amendment. 117
Table 4.1.1.2 Summary table of current AMs for species addressed in this amendment. 119
Table 4.1.1.3. 2013 preliminary total landings (lb ww) by species (or species groupings), whether or not the total ACL was exceeded, overfished status, and which sub-alternatives of Alternatives 2 and 3 of Action 1 would be met to implement AMs. Table will be updated when 2013 landings are final. 126
Table 4.1.2.1. Dolphin landings by sector 2008-2012 and percentage of sector ACL harvested each year. 131
Table 4.2.1.2 sector ACLs that would result under each of the alternatives considered. 132
Table 4.2.1.3 number of South Atlantic Dolphin Wahoo Permits. 133
Table 4.2.1.4. Selected average characteristics for trips landing at least one lb (ww) of dolphin and wahoo by gear type in the South Atlantic, 2007-2011..... 133
Table 4.2.1.5 Commercial and recreational sector landings of dolphin for 2008 through 2013..... 134
Appendix D. Table 1. Mean headboat, MRIP charter, MRIP private, and commercial landings and estimates of discards in the U.S. Atlantic Ocean (2008-2012)..... 2

List of Figures

Figure 2.1. Total landings (pounds, whole weight) of dolphinfish, by sector, 1986-2013. Note that SAFMC jurisdiction for this stock includes entire US East Coast. 12
Figure 3.3.1.1. Share of commercial landings (lb gw) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009 – 2013. 25
Figure 3.3.1.2. Share of dockside revenues ($) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013. 25
Figure 3.3.1.3. Share of commercial landings (lb gw) by group of snapper grouper species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013. 26
Figure 3.3.1.4. Share of dockside revenues ($) by group of snapper grouper species managed by the South Atlantic Council, 5-year period from 2009–2013. 26
Figure 3.3.1.5. Annual commercial landings of black grouper by weight (lb ww) and dockside revenue (2013 $). 28
Figure 3.3.1.6. Percent of black grouper landings (lb ww) by state, 2009–2012. 29
Figure 3.3.1.7. Percent of black grouper dockside revenues (2013 $) by state, 2009–2012. 29
Figure 3.3.1.8. Average monthly black grouper landings (lb ww) and revenues (2013 $), 2009–2013. 30
Figure 3.3.1.9. Annual commercial landings of mutton snapper by weight (lb ww) and dockside revenue (2013 $). 32
Figure 3.3.1.10. Percent of mutton snapper landings (lb ww) by state, 2009–2012. 32
Figure 3.3.1.11. Percent of mutton snapper dockside revenues (2013 $) by state, 2009–2012. 33
Figure 3.3.1.12. Average monthly mutton snapper landings (lb ww) and revenues (2013 $), 2009–2013. 33
Figure 3.3.1.13. Annual commercial landings of yellowtail snapper by weight (lb ww) and dockside revenue (2013 $). 35
Figure 3.3.1.14. Average monthly yellowtail snapper landings (lb ww) and revenues (2013 $), 2009–2013. 36
Figure 3.3.1.15. Annual commercial landings of greater amberjack by weight (lb ww) and dockside revenue (2013 $). 38
Figure 3.3.1.16. Percent of greater amberjack landings (lb ww) by state, 2009–2012. 38
Figure 3.3.1.17. Percent of greater amberjack dockside revenues (2013 $) by state, 2009–2012. 39
Figure 3.3.1.18. Average monthly greater amberjack landings (lb ww) and revenues (2013 $), 2009–2013. 39

Figure 3.3.1.19. Annual commercial landings of red porgy by weight (lb ww) and dockside revenue (2013 $). 41
Figure 3.3.1.20. Percent of red porgy landings (lb ww) by state, 2009–2012. 41
Figure 3.3.1.21. Percent of red porgy dockside revenues (2013 $) by state, 2009–2012. 42
Figure 3.3.1.22. Average monthly red porgy landings (lb ww) and revenues (2013 $), 2009–2013. 42
Figure 3.3.1.23. Annual commercial landings of gag by weight (lb ww) and dockside revenue (2013 $). 44
Figure 3.3.1.24. Percent of gag landings (lb ww) by state, 2009–2012. 44
Figure 3.3.1.25. Percent of gag dockside revenues (2013 $) by state, 2009–2012. 45
Figure 3.3.1.26. Average monthly gag landings (lb ww) and revenues (2013 $), 2009–2013. 45
Figure 3.3.1.26. Annual commercial landings of golden tilefish by weight (lb ww) and dockside revenue (2013 $). 47
Figure 3.3.1.27. Percent of golden tilefish landings (lb ww) by state, 2009–2012. 47
Figure 3.3.1.28. Percent of golden tilefish dockside revenues (2013 $) by state, 2009–2012. 48
Figure 3.3.1.29. Average monthly golden tilefish landings (lb ww) and revenues (2013 $), 2009–2013. 48
Figure 3.3.1.30. Annual commercial landings of red grouper by weight (lb ww) and dockside revenue (2013 $). 50
Figure 3.3.1.31. Percent of red grouper landings (lb ww) by state, 2009–2012. 50
Figure 3.3.1.32. Percent of red grouper dockside revenues (2013 $) by state, 2009–2012. 51
Figure 3.3.1.33. Average monthly red grouper landings (lb ww) and revenues (2013 $), 2009–2013. 51
Figure 3.3.1.34. Annual commercial landings of snowy grouper by weight (lb ww) and dockside revenue (2013 $). 54
Figure 3.3.1.35. Percent of snowy grouper landings (lb ww) by state, 2009–2012. 55
Figure 3.3.1.36. Percent of snowy grouper dockside revenues (2013 $) by state, 2009–2012. 55
Figure 3.3.1.37. Average monthly snowy grouper landings (lb ww) and revenues (2013 $), 2009–2013. 56
Figure 3.3.1.38. Annual commercial landings of golden crab by weight (lb ww) and dockside revenue (2013 $). 57
Figure 3.3.1.39. Average monthly golden crab landings (lb ww) and revenues (2013 $), 2009–2013. 58
Figure 3.3.1.40. Annual commercial landings of dolphin by weight (lb ww) and dockside revenue (2013 $). 58
Figure 3.3.1.41. Percent of dolphin landings (lb ww) by state, 2009–2012. 59
Figure 3.3.1.42. Percent of dolphin dockside revenues (2013 $) by state, 2009–2012. 59

Figure 3.3.1.43. Average monthly dolphin landings (lb ww) and revenues (2013 $), 2009–2013. 60
Figure 3.3.1.44. Average black grouper landings (lb ww) by wave, 2009–2013. 66
Figure 3.3.1.45. Average mutton snapper landings (lb ww) by wave, 2009–2013. 67
Figure 3.3.1.46. Average yellowtail snapper landings (lb ww) by wave, 2009–2013. 68
Figure 3.3.1.47. Greater amberjack landings (lb ww) by state, 2009–2013. 69
Figure 3.3.1.48. Average greater amberjack landings (lb ww) by wave, 2009–2013. 70
Figure 3.3.1.49. Red porgy landings (lb ww) by state, 2009–2013. 71
Figure 3.3.1.50. Average red porgy landings (lb ww) by wave, 2009–2013. 71
Figure 3.3.1.51. Gag landings (lb ww) by state, 2009–2013. 72
Figure 3.3.1.52. Average gag landings (lb ww) by wave, 2009–2013. 73
Figure 3.3.1.53. Average golden tilefish landings (lb ww) by wave, 2009–2013. 74
Figure 3.3.1.54. Red grouper landings (lb ww) by state, 2009–2013. 75
Figure 3.3.1.55. Average red grouper landings (lb ww) by wave, 2009–2013. 75
Figure 3.3.1.56. Snowy grouper landings (lb ww) by state, 2009–2013. 76
Figure 3.3.1.57. Average snowy grouper landings (lb ww) by wave, 2009–2013. 77
Figure 3.3.1.58. Dolphin landings (lb ww) by state, 2009–2013. 78
Figure 3.3.1.59. Average dolphin landings (lb ww) by wave, 2009–2013. 78
Figure 3.3.2.1. Snapper grouper Unlimited and 225-pound trip limit permits 2003-2012. 90
Figure 3.3.2.2. Snapper grouper unlimited 2012 permit frequency by homeport. 90
Figure 3.3.2.3. Snapper grouper 225-pound trip limit 2012 permits frequency by homeport. 91
Figure 3.3.2.4. South Atlantic fishing communities ranked by total 2011 snapper grouper value RQ. Source: SERO Community ALS 2011 93
Figure 3.3.2.5. Commercial and recreational fishing engagement and reliance indices for top Florida snapper grouper communities in the South Atlantic region. 94
Figure 3.3.2.6. Commercial and recreational fishing engagement and reliance indices for top South and North Carolina snapper grouper communities in the South Atlantic region. 94
Figure 3.3.2.6. Top communities ranked by pounds of regional quotient of black grouper. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality. 95
Figure 3.3.2.7. Top communities ranked by pounds and value of regional quotient of mutton snapper. 96
Figure 3.3.2.8. Proportion (RQ) of atlantic spadefish commercial landings (pounds and value) for South Atlantic communities out of total landings and value of atlantic spadefish. 97

Figure 3.3.2.10. Proportion (RQ) of cubera snapper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of cubera snapper. 98
Figure 3.3.2.11 Proportion (RQ) of gray snapper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of gray snapper. 99
Figure 3.3.2.12 Proportion (RQ) of grunts complex commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of grunts complex. 100
Figure 3.3.2.13 Proportion (RQ) of hogfish commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of hogfish. 100
Figure 3.3.2.14 Proportion (RQ) of lane snapper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of hogfish. 101
Figure 3.3.2.15 Proportion (RQ) of red hind commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of red hind. 102
Figure 3.3.2.16 Proportion (RQ) of rock hind commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of rock hind. 102
Figure 3.3.2.17 Proportion (RQ) of scamp commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of scamp. 103
Figure 3.3.2.20. Proportion (RQ) of golden tilefish commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of golden tilefish. 105
Figure 3.3.2.21. Proportion (RQ) of red grouper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of red grouper. 106
Figure 3.3.2.22. Proportion (RQ) of snowy grouper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of snowy grouper. 108
Figure 3.3.3.1. Social Vulnerability indices for top Florida communities in terms of pounds and value regional quotient for snapper grouper in the South Atlantic. 111
Figure 3.3.3.2. Social Vulnerability indices for top communities in in North and South Carolina in terms of pounds and value regional quotient for snapper grouper in the South Atlantic. 112

Chapter 1. Introduction

1.1 What Actions Are Being Proposed?

Amendment 34 to the Snapper Grouper FMP, Amendment 9 to the Golden Crab FMP, and Amendment 8 to the Dolphin Wahoo FMP would revise the accountability measures (AMs) for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab. These amendments also propose new commercial and recreational sector allocation for dolphin in the South Atlantic.

1.2 Who is Proposing the Actions?

The South Atlantic Fishery Management Council (South Atlantic Council). The South Atlantic Council develops the amendment and submits it, to the National Marine Fisheries Service (NMFS) who, on behalf of the Secretary of Commerce, who ultimately approves, disapproves, or partially approves, and implements the actions in the amendment through the development of regulations. NMFS is an agency in the National Oceanic and Atmospheric Administration.

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks in the South Atlantic Region
- Consists of 13 voting members who are appointed by the Secretary of Commerce, 1 representative from each of the 4 South Atlantic states, the Southeast Regional Director of NMFS, and 4 non-voting members
- Responsible for developing fishery management plans and amendments under the Magnuson-Stevens Act; recommends actions to NMFS for implementation
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West. For CMP species, the South Atlantic Council manages through the Mid-Atlantic Region

1.3 Why is the South Atlantic Council Considering Action?

Purpose for Actions

The purpose for these three amendments is to modify the accountability measures for snapper grouper species (black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species not in the deepwater complex, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, and wreckfish), and golden crab, and adjust sector allocations for dolphin.

Need for Actions

The need for Amendment 34 to the Snapper Grouper FMP and Amendment 9 to the Snapper Grouper FMP is to create a consistent regulatory environment while preventing unnecessary negative socio-economic impacts, and ensure overfishing does not occur in accordance with the provisions set forth in the Magnuson-Stevens Fishery Conservation and Management Act. The need for Amendment 8 to the Dolphin Wahoo FMP is to base sector allocations on the best scientific information available, and use the most appropriate allocation method to determine sector allocations.

Chapter 2. Proposed Actions and Alternatives

Action 1. Revise accountability measures (AMs) for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species not in the deepwater complex, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab.

Alternative 1 (No Action). Retain the current commercial and recreational AMs, if applicable, for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species not in the deepwater complex, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab. The current AMs for each of those species/species groups are listed below. A list of the current AMs in place for all species affected by this action is included under the "Discussion" heading under Action 1 in this chapter.

Alternative 2. If commercial landings as estimated by the Science and Research Director reach or are projected to reach the commercial ACL, the Regional Administrator shall publish a notice to close the commercial sector for the remainder of the fishing year. On and after the effective date of such a notification, all sale or purchase is prohibited and harvest or possession of this species in or from the South Atlantic EEZ is limited to the bag and possession limit. This bag and possession limit applies in the South Atlantic on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper grouper, dolphin wahoo, or golden crab has been issued as appropriate, without regard to where such species were harvested, i.e., in state or Federal waters. Additionally,

> **Sub-alternative 2a.** If the commercial ACL is exceeded, the Regional Administrator shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the species is overfished.
>
> **Sub-alternative 2b.** If the commercial ACL is exceeded, the Regional Administrator shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the total ACL (commercial ACL and recreational ACL) is exceeded.
>
> **Preferred Sub-alternative 2c.** If the commercial ACL is exceeded, the Regional Administrator shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the species is overfished **and** the total ACL (commercial ACL and recreational ACL) is exceeded.

Alternative 3. If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings.

Sub-alternative 3a. If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the species is overfished. The length of the recreational season and recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 3b. If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the total ACL (commercial ACL and recreational ACL) is exceeded. The length of the recreational season and recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Preferred Sub-alternative 3c. If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the species is overfished **and** the total ACL (commercial ACL and recreational ACL) is exceeded. The length of the recreational season and recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Alternative 4. If recreational landings reach or are projected to reach the recreational annual catch limit, National Marine Fisheries Service will file a notification with the Office of the Federal Register to close the recreational sector for the remainder of the fishing year, unless, using the best scientific information available, the Regional Administrator determines that a closure is unnecessary.

Sub-alternative 4a. If the species is overfished.

Preferred Sub-alternative 4b. Regardless of stock status.

Discussion

The current AMs for the species addressed in this amendment appear below:

Black grouper, mutton snapper, yellowtail snapper, greater amberjack, red porgy, unassessed snapper grouper species not in the deepwater complex

Commercial: If commercial landings, as estimated by the Science and Research Director, reach or are projected to reach the commercial ACL, the Assistant Administrator will file a notification with the Office of the Federal Register to close the commercial sector for the remainder of the fishing year. On and after the effective date of such a notification, all sale or purchase is prohibited and harvest or possession of this species in or from the South Atlantic exclusive economic zone (EEZ) is limited to the bag and possession limit. This bag and possession limit applies in the South Atlantic on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper grouper has been issued, without regard to where such species were harvested, i.e., in state or Federal waters. If commercial landings exceed the ACL, and the species is overfished, based on the most recent Status of U.S. Fisheries Report to Congress, the Assistant Administrator will file a notification

with the Office of the Federal Register, at or near the beginning of the following fishing year to reduce the ACL for that following year by the amount of the overage in the prior fishing year.

Recreational: If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings and, if necessary, the Assistant Administrator will file a notification with the Office of the Federal Register, to reduce the length of the following recreational fishing season by the amount necessary to ensure recreational landings do not exceed the recreational ACL in the following fishing year. However, the length of the recreational season will also not be reduced during the following fishing year if the Regional Administrator determines, using the best scientific information available, that a reduction in the length of the following fishing season is unnecessary.

Gag

Commercial: If commercial landings, as estimated by the Science and Research Director, reach or are projected to reach the quota specified in § 622.190(a)(7), the Assistant Administrator will file a notification with the Office of the Federal Register to close the commercial sector for gag for the remainder of the fishing year.

Recreational: If recreational landings, as estimated by the Science and Research Director, reach or are projected to reach the recreational ACL, and gag are overfished, the Assistant Administrator will file a notification with the Office of the Federal Register to close the recreational sector for the remainder of the fishing year. On and after the effective date of such notification, the bag and possession limit in or from the South Atlantic EEZ is zero. This bag and possession limit also applies in the South Atlantic on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper grouper has been issued, without regard to where such species were harvested, i.e., in state or Federal waters. Without regard to overfished status, if recreational landings exceed the ACL, the Assistant Administrator will file a notification with the Office of the Federal Register, at or near the beginning of the following fishing year, to reduce the ACL for that fishing year by the amount of the overage. Recreational landings will be evaluated relative to the ACL based on a moving multi-year average of three most recent years of landings.

Golden tilefish

Commercial: (i) Hook-and-line component. If commercial landings, as estimated by the Science and Research Director, reach or are projected to reach the commercial ACL (commercial quota) specified in § 622.190(a)(2)(ii), the Assistant Administrator will file a notification with the Office of the Federal Register to close the hook-and-line component of the commercial sector for the remainder of the fishing year. (ii) Longline component. If commercial landings, as estimated by the Science and Research Director, reach or are projected to reach the commercial ACL (commercial quota) specified in § 622.190(a)(2)(iii), the Assistant Administrator will file a notification with the Office of the Federal Register to close the longline component of the commercial sector for the remainder of the fishing year. After the commercial ACL for the longline component is reached or projected to be reached, golden tilefish may not be fished for or possessed by a vessel with a golden tilefish longline endorsement.

Recreational: If recreational landings for golden tilefish, as estimated by the Science and Research Director, reach or are projected to reach the recreational ACL of 3,019 fish, the Assistant Administrator will file a notification with the Office of the Federal Register to close the recreational sector for the remainder of the fishing year. If recreational landings for golden tilefish, as estimated by the Science and Research Director, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings and, if necessary, the Assistant Administrator will file a notification with the Office of the Federal Register, to reduce the length of the following recreational fishing season by the amount necessary to ensure recreational landings do not exceed the recreational ACL in the following fishing year.

Red grouper

Commercial: If commercial landings for red grouper, as estimated by the Science and Research Director, reach or are projected to reach the applicable ACL in paragraph (d)(1)(iii) of this section, the Assistant Administrator will file a notification with the Office of the Federal Register to close the commercial sector for the remainder of the fishing year. On and after the effective date of such a notification, all sale or purchase of red grouper is prohibited and harvest or possession of this species in or from the South Atlantic EEZ is limited to the bag and possession limit. This bag and possession limit applies in the South Atlantic on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper-grouper has been issued, without regard to where such species were harvested, i.e., in state or Federal waters. If commercial landings exceed the ACL, the Assistant Administrator will file a notification with the Office of the Federal Register, at or near the beginning of the following fishing year to reduce the ACL for that following year by the amount of the overage in the prior fishing year.

Recreational: If recreational landings for red grouper, as estimated by the Science and Research Director, are projected to reach the applicable ACL in paragraph (d)(2)(iii) of this section, the Assistant Administrator will file a notification with the Office of the Federal Register to close the recreational sector for the remainder of the fishing year. On and after the effective date of such a notification, the bag and possession limit is zero. This bag and possession limit applies in the South Atlantic on board a vessel for which a valid Federal charter vessel/headboat permit for South Atlantic snapper grouper has been issued, without regard to where such species were harvested, i.e. in state or Federal waters. If recreational landings for red grouper, as estimated by the Science and Research Director, exceed the applicable ACL, the Assistant Administrator will file a notification with the Office of the Federal Register, to reduce the recreational ACL the following fishing year by the amount of the overage in the prior fishing.

Red snapper

Commercial: In-season closure.

Recreational: In-season closure.

Snowy grouper

Commercial: If commercial landings, as estimated by the Science and Research Director, reach or are projected to reach the quota specified in § 622.190(a)(1), the Assistant Administrator will file a notification with the Office of the Federal Register to close the commercial sector for snowy grouper for the remainder of the fishing year.

Recreational: If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL of 523 fish, the Assistant Administrator will file a notification with the Office of the Federal Register, at or near the beginning of the following fishing year, to reduce the length of the following recreational fishing season by the amount necessary to ensure recreational landings do not exceed the recreational ACL in the following fishing year. When NMFS reduces the length of the following recreational fishing season, the following closure provisions apply: the bag and possession limit for snowy grouper in or from the South Atlantic EEZ is zero. This bag and possession limit also applies in the South Atlantic on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper grouper has been issued, without regard to where such species were harvested, i.e., in state or Federal waters. Recreational landings will be evaluated relative to the ACL based on a moving multi-year average of landings, as described in the FMP.

Wreckfish

Commercial: The individual transferable quota program for wreckfish in the South Atlantic serves as the accountability measures for commercial wreckfish. The commercial ACL for wreckfish is equal to the commercial quota specified in § 622.190(b).

Recreational: If recreational landings for wreckfish, as estimated by the Science and Research Director, exceed the recreational ACL of 11,750 lb (5,330 kg), round weight, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings and, if necessary, the Assistant Administrator will file a notification with the Office of the Federal Register, to reduce the length of the following recreational fishing season by the amount necessary to ensure recreational landings do not exceed the recreational ACL in the following fishing year. However, the length of the recreational season will also not be reduced during the following fishing year if the Regional Administrator determines, using the best scientific information available, that a reduction in the length of the following fishing season is unnecessary.

Golden crab

Commercial: If commercial landings for golden crab, as estimated by the Science and Research Director, reach or are projected to reach the ACL of 2 million lb (907,185 kg), round weight, the Assistant Administrator will file a notification with the Office of the Federal Register to close the golden crab fishery for the remainder of the fishing year. On and after the effective date of such a notification, all harvest, possession, sale or purchase of golden crab in or from the South Atlantic EEZ is prohibited. If commercial landings exceed the ACL, and golden crab are overfished, based on the most recent Status of U.S. Fisheries Report to Congress, the Assistant Administrator will file a notification with the Office of the Federal Register, at or near the

beginning of the following fishing year to reduce the ACL for that following year by the amount of the overage in the prior fishing year.

Recreational: There is no recreational component to the golden crab fishery.

This action would update AMs for most snapper grouper species in the fishery management unit including black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab. **Table 4.1.1.1** lists the unassessed species affected by this action. However, vermilion snapper, gray triggerfish, black sea bass, and blueline tilefish are not addressed under this action because AMs for those species are being modified in other amendments. In addition, ecosystem component species are not included in the action because AMs and ACLs are not required. **Table 2.1** lists the species not affected by this action, and the Snapper Grouper FMP or regulatory amendments that would modify their AMs.

Table 2.1 Species not included under Action 1 and reason they are not included in the action.

Species	Amendment
Vermilion snapper	Regulatory Amendment 14 to the Snapper Grouper FMP
Gray triggerfish	Amendment 29 to the Snapper Grouper FMP
Black sea bass	Regulatory Amendment 14 to the Snapper Grouper FMP
Blueline tilefish	Amendment 32 to the Snapper Grouper FMP
Deepwater complex species	Amendment 32 to the Snapper Grouper FMP
Cottonwick	Ecosystem component species
Longspine porgy	Ecosystem component species
Bank sea bass	Ecosystem component species
Rock sea bass	Ecosystem component species
Ocean triggerfish	Ecosystem component species
Schoolmaster	Ecosystem component species

Summary Comparison of Alternatives

Compared to **Alternative 1 (No Action)**, **Alternatives 2**, **3**, and **4** would benefit the biological environment to varying degrees based on the sub-alternatives chosen under each alternative. For the recreational sector, the most biologically beneficial option is likely a combination of **Alternatives 3** and **4**. For the commercial sector, the most biologically beneficial option compared to **Alternative 1 (No Action)** is likely to be **Sub-alternative 2b**. None of the alternatives being considered under this action would significantly alter the way in which the snapper grouper or golden crab fisheries are prosecuted in the South Atlantic exclusive economic zone. No adverse impacts on endangered or threatened species are anticipated because of this action; nor are any adverse impacts on essential fish habitats or habitat areas of particular concern including corals, sea grasses, or other habitat types expected because of this action.

For the commercial sector, the alternatives may be ranked from lowest to highest probability of paybacks and associated short-term adverse economic effects as follows: **Alternative 1 (No**

Action), **Preferred Sub-alternatives 2c** and **3c**, **Sub-alternatives 2b** and **3b**, followed by **Sub-alternatives 2a** and **3a**. More specifically, the likelihood a species would be affected by this action is based primarily on whether or not there is a probability that its total ACL would be reached, and whether or not the species is overfished. For the recreational sector, **Sub-alternative 4a** would be less likely to cause short term direct economic effects compared to **Preferred Sub-alternative 4b** because fewer species potentially would be affected. However, **Preferred Sub-alternative 4b** would be more likely to prevent long term, direct economic effects compared to **Sub-alternative 4a.**

For the commercial sector of the snapper grouper fishery and golden crab fishery, maintaining the current AMs under **Alternative 1 (No Action)** would not be expected to result in additional negative effects on the commercial fleets of these fisheries, but could also negate benefits to the commercial sectors by not allowing flexibility in the payback provisions, such as those in **Sub-alternatives a-c** under **Alternative 2. Preferred Sub-alternative 2c** would provide the most flexibility for triggering the payback AM, in that the most critical conditions must be met before the payback is triggered, and would be expected to be most beneficial to commercial snapper grouper and golden crab fishermen in that it would be less likely that a payback is required for an overage. Additionally, **Preferred Sub-alternative 2c** would be more consistent with AMs for other species such as king mackerel and Spanish mackerel.

For the recreational sector of the snapper grouper fishery, maintaining the current AMs under **Alternative 1 (No Action)** would not be expected to result in additional negative effects on recreational fishermen and for-hire businesses, other than inconsistency in AMs among all the species. For many of these species, establishment of a payback provision without a post-season AM under **Alternative 3** would create an increased likelihood that an overage of the recreational ACL could reduce fishing opportunities in the following year. However, **Sub-alternatives 3a-3c** (**Preferred**) provide some flexibility in how a post-season payback would be triggered, with **Preferred Sub-alternative 3c** being the least likely to trigger a payback and affecting recreational fishing opportunities in the subsequent year. The in-season closure AM for the recreational sector in **Alternative 4** could have negative effects on recreational fishing opportunities and for-hire businesses for the stocks that do not have a recreational in-season AM in place. However, **Sub-alternative 4a** would reduce the likelihood of a recreational in-season closure.

Action 2. Revise the sector allocations for dolphin.

Alternative 1 (**No Action):** The recreational sector allocation for dolphin is 92.46%. The commercial sector allocation for dolphin is 7.54%. The sector allocations for dolphin were set in the Comprehensive ACL Amendment (SAFMC 2011) using the sector allocation rule where 50% of sector allocations are based on a longer term landings series (1999-2008) and 50% of the sector allocations are based on a shorter time series (2006-2008). The sector ACLs were updated through Amendment 5 to the Dolphin Wahoo FMP (Dolphin Wahoo Amendment 5; SAFMC 2013) in response to the availability of improved data.

Alternative 2: Establish sector allocations based on soft cap allocations in place before the Comprehensive ACL Amendment. The recreational sector allocation for dolphin is 87%, and commercial sector allocation is 13%.

Alternative 3: Set the commercial allocation at its highest percentage of the total catch over the past 5 years (2008-2012). The recreational sector allocation for dolphin is 86%, and commercial sector allocation is 14%.

Preferred Alternative 4: Set the commercial allocation at the average of the percentages of the total catch over the past 5 years (2008-2012). The recreational sector allocation for dolphin is 90%, and commercial sector allocation is 10%.

Alternative 5: Modify the time series by which allocations were specified for the two sectors. Allocation by sector = (0.5 * catch history) + (0.5 * current trend)

> **Sub-alternative 5a:** Catch history = average landings 1986-2011, current trend = average landings 2009-2011). 2011 is the last year before ACLs went into place. The recreational sector allocation for dolphin is 90%, and commercial sector allocation is 10%.
>
> **Sub-alternative 5b:** Catch history = average landings 1986-2012, current trend = average landings 2010-2012). 2012 is the most recent year of complete landings availability. The recreational sector allocation for dolphin is 90%, and commercial sector allocation is 10%.
>
> **Sub-alternative 5c:** Catch history = average landings 1986-2012, current trend = average landings 2006-2012). 2012 is the most recent year of complete landings availability. The recreational sector allocation for dolphin is 91%, and commercial sector allocation is 9%.

Discussion

The Council has expressed concerned that because of variability in commercial annual landings in the commercial sector that the commercial ACL could be exceeded in the future. From 1986-2013, the variability in commercial landings exceeded those from the recreational sector; however, since 2009, commercial landings have been more variable than the recreational sector (**Table 2.2; Figure 1**). Furthermore, the recreational sector has not come close to meeting its ACL in recent years; whereas, the 1,157,001 lbs ww commercial ACL would have been met in 2009 (**Table 2.2**).

The Council's **Preferred Alternative 4** would establishes a 10% commercial allocation, which is similar to the soft cap commercial allocation of 13% that was in place prior to the Comp ACL Amendment. Under **Preferred Alternative 4**, landings by both the commercial and recreational sector from 2008 through 2013 would have not exceeded their proposed sector ACL of 1,534,485 lbs ww for the commercial sector, and 13,810,361 lbs ww for the recreational sector. In the same time period, the recreational sector landed approximately 50% of their ACL each year, showing a much smaller percent change in landings from year to year.

Increasing the commercial allocation for dolphin from 7.54% to 10% (**Preferred Action 4**) could help minimize the effects of the landings volatility and the potential for exceeding the commercial ACL. Had ACLs been in place in 2009, it is likely the commercial sector would have exceeded their ACL that season. The recreational sector does have some volatility, as well, but has not come close to exceeding its ACL.

Table 2.2. Total landings (lbs, ww) of dolphin and percent of average, by sector, 1986-2013. Note that South Atlantic Council jurisdiction for this stock includes entire US East Coast.

Year	Commercial	% of comm avg	Recreational	% of rec avg
1986	509,343	55%	5,519,865	58%
1987	468,464	51%	4,557,988	48%
1988	495,139	54%	5,499,471	58%
1989	1,063,399	115%	10,906,691	115%
1990	1,016,215	110%	8,719,212	92%
1991	1,602,698	174%	12,207,491	129%
1992	667,183	72%	6,150,769	65%
1993	934,393	101%	9,126,773	96%
1994	1,200,065	130%	12,009,553	127%
1995	2,136,534	232%	14,548,450	153%
1996	1,220,767	132%	9,186,371	97%
1997	1,602,227	174%	14,999,859	158%
1998	822,439	89%	10,403,732	110%
1999	1,046,583	114%	12,452,179	131%
2000	987,623	107%	15,981,436	168%
2001	764,821	83%	14,580,182	154%
2002	670,415	73%	15,894,165	168%
2003	722,921	78%	9,911,033	104%
2004	856,517	93%	7,235,087	76%
2005	576,671	63%	8,629,312	91%
2006	650,004	71%	8,898,207	94%
2007	967,151	105%	9,598,786	101%
2008	780,818	85%	7,833,547	83%
2009	1,222,944	133%	7,570,195	80%
2010	706,281	77%	6,243,399	66%
2011	792,209	86%	6,518,302	69%
2012	708,852	77%	6,097,291	64%
2013	614,349	67%	4,320,889	46%
	Std error 1986-2013	78%	Std error 1986-2013	70%
	Std error 2009-2013	12%	Std error 2009-2013	3%

Sources: SEFSC ACL Data (Commercial: 07102014; Recreational MRIP-based: 06042014)

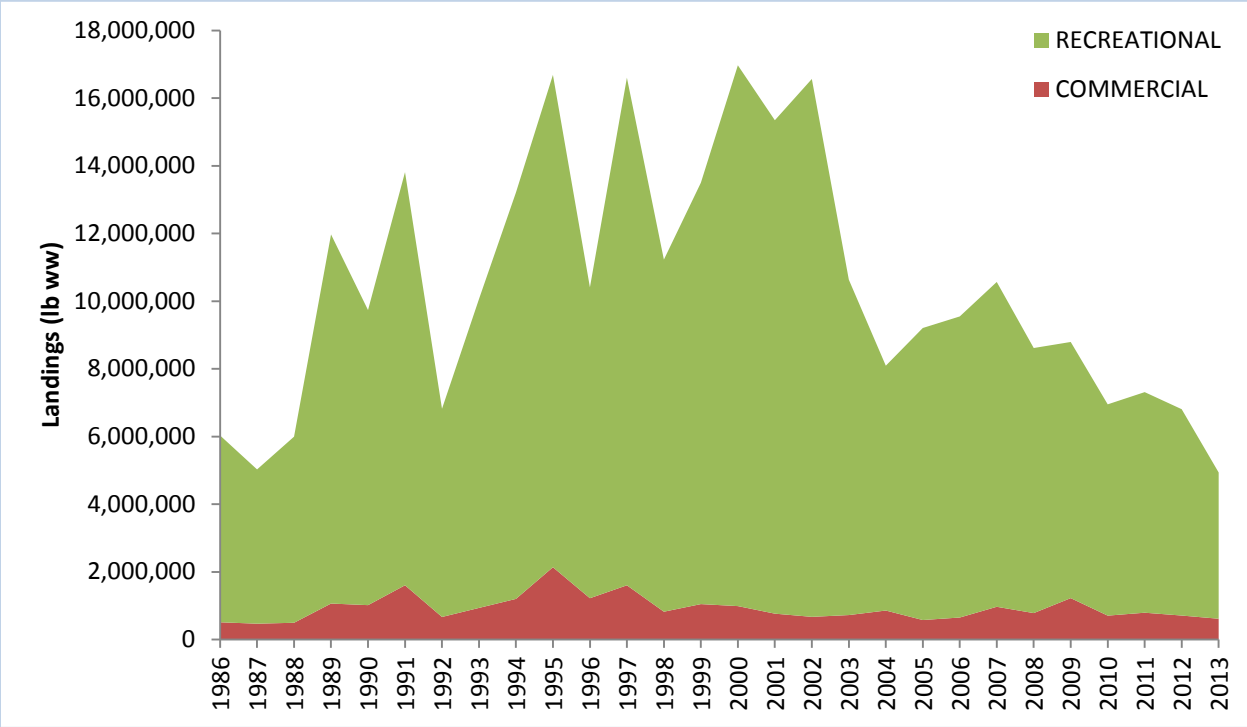

Figure 2.1. Total landings (pounds, whole weight) of dolphinfish, by sector, 1986-2013. Note that SAFMC jurisdiction for this stock includes entire US East Coast.
Sources: SEFSC ACL Data (Commercial: 07102014; Recreational MRIP-based: 06042014)

Summary Comparison of Alternatives

Neither sector of the dolphin segment of the dolphin wahoo fishery has met or exceeded their catch limits since the dolphin wahoo fishery came under federal management; therefore, **Alternative 1 (No Action)** is not expected to result in any direct or indirect biological impacts. **Alternative 2** would reinstate the allocation methodology used prior to implementation of the Comprehensive ACL Amendment. At that time, the 13% allocation to the commercial sector was treated as a "soft cap" harvest limit. **Alternative 2** would use the same allocation percentages; however, the soft cap for the commercial sector has been replaced with a commercial ACL, which would remain in place as required by Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) National Standard 1. Although the alternative references "soft cap allocations", the current Magnuson-Stevens Act requirements to establish ACLs and AMs for each federally managed fishery prevents the allocation method in **Alternative 2** from incorporating the amount of flexibility the term "soft cap" implies. Once the commercial ACL is met or projected to be met, the sector is closed to harvest to prevent the ACL from being exceeded. Despite the appearance of the term, "soft cap" in the alternative, current use of the commercial ACL to control harvest and trigger an AM when needed would not be altered. The biological impacts of **Alternative 2** compared to **Alternative 1 (No Action),** and the other alternatives under consideration, are expected to be neutral; both the commercial and recreational sectors would be limited to their respective ACLs and the AMs in place for dolphin.

Table 2.3 sector ACLs that would result under each of the alternatives considered.

Alternative	Commercial Sector ACL (lbw w)	Recreational Sector ACL (lbw w)
Alternative 1 (No Action)	1,157,001	14,187,845
Alternative 2	1,994,830	13,344,846
Alternative 3	2,148,278	13,196,567
Preferred Alternative 4	1,534,485	13,810,361
Sub-Alternative 5a	1,534,485	13,810,361
Sub-Alternative 5b	1,534,485	13,810,361
Sub-Alternative 5c.	1,381,036	13,963,809

Alternative 3, like **Alternatives 1 (No Action)** and **2**, is not expected to result in adverse or biological impacts since it would not alter the overall cap on harvest established by the total ACL of 15,344,846 lb ww. The commercial sector allocation would almost double under **Alternative 3** and the recreational allocation would be reduced by 6.46%; however, the impacts of this alternative compared to the no-action alternative would be negligible because harvest in both sectors is controlled by the ACL. Like **Alternatives 2** and **3**, **Preferred Alternative 4** would result in a slightly reduced recreational allocation and an increased commercial allocation compared to **Alternative 1 (No Action)**. Again, the biological impacts of this alternative are expected to be neutral due to the presence of a harvest control mechanism that was created to prevent the sector ACLs from being exceeded.

Alternative 5 and its sub-alternatives would use a combination of historical landings data and current landings data to determine commercial and recreational sector allocations. All sub-alternatives under **Alternative 5** would use catch history data starting in 1986; however, the end date for the catch history time series is different for each sub-alternative. The biological effects of **Sub-alternative 5a** are expected to be identical to **Preferred Alternative 4**, which also results in a 90%-10% allocation for the recreational and commercial sectors, respectively. **Sub-alternative 5b** would use the average landings from 1986-2012*50% plus average landings from 2010-2012*50% to determine the sector allocations. **Sub-alternative 5b**, would also result in a 90% allocation for the recreational sector, and 10% allocation for the commercial sector. Therefore, the biological impacts are anticipated to be neutral as described under **Preferred Alternative 4** and **Sub-alternative 5a**. For **sub-alternative 5c,** some fishery participants may favor this method of allocation over others considered, because it may be perceived as the most equitable option. However, in terms of biological impacts all sub-alternatives under **Alternative 5** would be expected to result in no greater adverse or positive impacts on the biological environment compared to the status-quo, or any of the other alternatives under consideration.

The lower the ACL for the commercial sector, the sooner there would be a potential in-season closure, creating a potential for a larger direct negative economic effect do to lost opportunity. The order of greatest direct negative economic effects to the least potential for direct negative economic effects for the commercial sector is **Alternative 1 (No Action)**, **Sub-alternative 5c**, **Preferred Alternative 4**, **Sub-alternative 5a**, **Sub-alternative 5b**, **Alternative 2** and **Alternative 3**. However, reducing potential direct negative economic effects for the

commercial sector comes at the expense of increasing the potential direct negative economic effects for the recreational sector. The order of greatest potential direct negative economic effects to the least for the recreational sector is **Alternative 3**, **Alternative 2**, **Preferred Alternative 4**, **Sub-alternative 5a**, **Sub-alternative 5b**, **Sub-alternative 5c**, and **Alternative 1 (No Action)**.

In general, the higher the allocation, the more short-term and long-term benefits to the sector by allowing continued level of harvest and possibly room for growth in the future. For the recreational sector, **Alternative 1 (No Action)** (92.46%) would be the most beneficial, followed by **Sub-alternative 5c** (91%); **Preferred Alternative 4** and **Sub-alternatives 5a-5b** (90%); **Alternative 2** (87%); and then **Alternative 3** (86%). The reverse is true for benefits to the commercial sector, in that **Alternative 3** (14%) would be the most beneficial , followed by **Alternative 2** (13%); **Preferred Alternative 4** and **Sub-alternatives 5a-5b** (10%); **Sub-alternative 5c** (9%); and then **Alternative 1 (No Action)** (7.54%). The method of calculating the proportion to each sector under **Alternatives 2-5** could result in some concerns of fairness from each sector, but in general the outcome percentages would be more significant on the resulting effects of any changes to allocations for dolphin.

Chapter 3. Affected Environment

This section describes the affected environment in the proposed project area. The affected environment is divided into four major components:

- **Habitat environment** (Section 3.1)
- **Biological and Ecological environment** (Section 3.2)
- **Economic and Social environment** (Sections 3.3)
- **Administrative environment** (Section 3.4)

3.1 Habitat Environment

3.1.1 Inshore/Estuarine Habitat

Many 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 (bottom dwellers) 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 daytime feeding migrations or seasonal shifts in cross-shelf distributions. Additional information on the habitat utilized by species in the Snapper Grouper Complex is included in Volume II of the Fishery Ecosystem Plan (FEP; SAFMC 2009b) and incorporated here by reference. The FEP can be found at: http://www.safmc.net/ecosystem-management/fishery-ecosystem-plan-1.

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 11º to 27º C (52º to 81º F) due to the proximity of the Gulf Stream, with lower shelf habitat temperatures varying from 11º to 14º C (52º to 57º F). Water depths range from 16 to 27 meters (54 to 90 ft) or greater for live-bottom habitats, 55 to 110 meters (180 to 360 ft) for the shelf-edge habitat, and from 110 to 183 meters (360 to 600 ft) for lower-shelf habitat areas.

The exact extent and distribution of productive snapper grouper habitat on the continental shelf north of Cape Canaveral, Florida is unknown. Current data suggest from 3 to 30% 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 (permanently attached) invertebrates, moderate relief reefs from 0.5 to 2 meters (1.6 to 6.6 ft), 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, Florida the continental shelf narrows from 56 to 16 kilometers (35 to 10 mi) wide 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 ft). Ledge systems formed by rock outcrops and piles of irregularly sized boulders are also common. Parker et al. (1983) estimated that 24% (9,443 km^2) of the area between the 27 and 101 meter (89 and 331 ft) depth contours from Cape Hatteras, North Carolina to Cape Canaveral, Florida is reef habitat. Although the bottom communities found in water depths between 100 and 300 meters (328 and 984 ft) from Cape Hatteras, North Carolina to Key West, Florida 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.

Artificial reef structures are also utilized to attract fish and increase fish harvests; however, research on artificial 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. There are several notable shipwrecks along the southeast coast in state and federal waters including Lofthus (eastern Florida), SS Copenhagen (southeast Florida), Half Moon (southeast Florida), Hebe (Myrtle Beach, South Carolina), Georgiana (Charleston, South Carolina), U.S.S. Monitor (Cape Hatteras, North Carolina), Huron (Nags Head, North Carolina), and Metropolis (Corolla, North Carolina).

The distribution of coral and live hard bottom habitat as presented in the Southeast Marine Assessment and Prediction Program (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 available on the South Atlantic Fishery Management Council's (South Atlantic Council) online map services provided by the newly developed SAFMC Habitat and Ecosystem Atlas: http://ocean.floridamarine.org/safmc_atlas/. An introduction to the system is found at: http://www.safmc.net/ecosystem-management/mapping-and-gis-data.

Plots of the spatial distribution of offshore species were generated from the Marine Resources Monitoring, Assessment, and Prediction Program (MARMAP) data. The plots serve 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 previously mentioned, 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 also be generated through the South Atlantic Council's Internet Mapping System at the above address.

Additional information on the habitat utilized by snapper grouper, dolphin, and golden crab is included in Volume II of the Fishery Ecosystem Plan (SAFMC 2009b). The FEP can be found at: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx.

3.1.3 Essential Fish Habitat

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

EFH utilized by snapper grouper species in this region includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs, and medium to high profile outcroppings on and around the shelf break zone from shore to at least 183 meters [600 ft (but to at least 2,000 ft 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 meter (100-ft) 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.

EFH for dolphin is the Gulf Stream, Charleston Gyre, Florida Current, and pelagic *Sargassum.* EFH for golden crab includes the U.S. Continental Shelf from Chesapeake Bay south through the Florida Straits (and into the Gulf of Mexico). In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse golden crab larvae. The detailed description of seven

essential fish habitat types (a flat foraminferan ooze habitat; distinct mounds, primarily of dead coral; ripple habitat; dunes; black pebble habitat; low outcrop; and soft-bioturbated habitat) for golden crab is provided above and in Wenner et al. (1987).

3.1.4 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; South Atlantic Council-designated Artificial Reef Special Management Zones (SMZs); and deep-water MPAs. Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

In addition to protecting habitat from fishing related degradation though fishery management plan regulations, the South Atlantic Council, in cooperation with National Marine Fisheries Service (NMFS), actively comments on non-fishing projects or policies that may impact essential fish habitat. With guidance from the Habitat Advisory Panel, the South Atlantic Council has developed and approved 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; alterations to riverine, estuarine and near shore flows; offshore aquaculture; and marine invasive species and estuarine invasive species.

EFH-HAPCs for dolphin in the Atlantic include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet (Florida); The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The ―Wall‖ off of the Florida Keys; and Pelagic Sargassum. There is insufficient knowledge of the biology of golden crabs to identify spawning and nursery areas and to identify HAPCs at this time. As information becomes available, the Council will evaluate such data and identify HAPCs as appropriate.

Refer to **Appendix I** for detailed information on EFH and EFH-HAPCs for all Council managed species.

3.2 Biological and Ecological Environment

3.2.1 Fish Populations Affected by this Amendment

Snapper Grouper Species

The waters off the South Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 59 species of fish, many of them neither "snappers" nor "groupers". These species live in depths from a few feet (typically as juveniles) to hundreds of feet. As far as north/south distribution, the more temperate species tend to live in the upper reaches of the South Atlantic management area (e.g., black sea bass, red porgy) while the tropical variety's core residence is in the waters off south Florida, Caribbean Islands, and northern South America (e.g., black grouper, mutton snapper). These are reef-dwelling species that live amongst each other. These species rely on the reef environment for protection and food. There are several reef tracts that follow the southeastern coast. The fact that these fish populations congregate dictates the nature of the fishery (multi-species) and further forms the type of management regulations proposed in this document.

Almost all snapper grouper species would be affected by the proposed action. For assessed snapper-grouper species, the life history, biological characteristics, and stock status may be found in their respective Southeast Data, Assessment, and Review (SEDAR) reports listed below, which are available on the SEDAR web site http://www.sefsc.noaa.gov/sedar/ (see **Section 3.2.3** of this document for more information on the SEDAR process). Yellowtail snapper was assessed by the state of Florida in 2012 (FWRI 2012).

- Vermilion Snapper – SEDAR 17 Update Assessment (2012)
- Yellowtail Snapper – FWRI (2012)
- Gag – SEDAR 10 (2006)
- Red Snapper – SEDAR 24 (2010)
- Black Grouper – SEDAR 19 (2010)
- Red Grouper – SEDAR 19 (2010)
- Greater Amberjack – SEDAR 15 (2008)
- Red Porgy –SEDAR Assessment Update (2012)
- Blueline Tilefish – SEDAR 32 (2013)
- Snowy Grouper – SEDAR 36 (2013)
- Golden Tilefish – SEDAR 25 (2011)
- Goliath Grouper – SEDAR 23 (2011)
- Black Sea Bass – SEDAR 25 (2011)

An expanded discussion of life history traits, population characteristics, and stock status of snapper grouper species affected by this amendment can be found in **Sections 3.2.1** and **3.3** of the Comprehensive Annual Catch Limit Amendment (SAFMC 2011), which are hereby incorporated by reference and may be found at https://www.dropbox.com/s/mp3xwedsrarfpjn/Comp%20ACL%20Am%20101411%20FINAL.pdf.

Golden Crab

The golden crab, *Chaceon fenneri* is a large gold or buff colored species whose diagnostic characters include a hexagonal carapace; five anterolateral teeth on each side of carapace; well-developed, large frontal teeth; shallow, rounded orbits; chelipeds unequal; and the dactyli of the walking legs laterally compressed (Manning and Holthuis 1984, 1986). Golden crabs inhabit the continental slope of Bermuda (Luckhurst 1986, Manning and Holthuis 1986) and the southeastern U.S. from off Chesapeake Bay (Schroeder 1959), south through the Straits of Florida and into the eastern Gulf of Mexico (Manning and Holthuis 1984, 1986; Otwell *et al.* 1984; Wenner *et al.* 1987; Erdman 1990).

Reported depth distributions of *C. fenneri* range from 205 meters (672 feet) off the Dry Tortugas (Manning and Holthuis 1984) to 1,007 meters (3,304 feet) (off Bermuda (Manning and Holthuis 1986). Size of males examined range from 34 to 139 millimeters (1.3-5.5 inches) carapace length (CL) and females range from 39 to 118 millimeters (1.5-4.6 inches) CL. Ovigerous females have been reported during September, October, and November, and range in size from 91 to 118 millimeters (3.6-4.6 inches) CL (Manning and Holthuis 1984, 1986).

Golden crab abundance studies are limited. Data from the South Atlantic Bight (Wenner *et al.* 1987) estimated abundance from visual assessment was 1.9 crabs per hectare while traps caught between 2 and 10 kilograms (4-22 pounds) per trap. Wenner and Barans (1990) estimated the golden crab population in small areas of 26-29 square kilometers (10-11 square miles) between 300-500 meters (984-1,640 feet) off Charleston to be 5,000-6,000 adult crabs. In the eastern Gulf of Mexico adult standing stock was estimated to be 7.8 million golden crabs and the biomass was estimated to be 6.16 million kilograms (13.6 million pounds) (Lindberg *et al.* 1989). Experimental trapping off Georgia yielded an average catch of 7 kilograms (15 pounds) per trap (Kendall 1990). According to the fourth quarter update of the Status of U.S. Fisheries 2013, the overfished and overfishing status of golden crab are unknown.

Dolphin

Dolphin and wahoo are highly migratory pelagic species occurring in tropical and subtropical waters worldwide. In the western Atlantic, dolphin and wahoo are distributed from Nova Scotia to Brazil, including Bermuda and the greater Caribbean region, and the Gulf of Mexico. They are found near the surface around natural and artificial floating objects, including *Sargassum* (in the Atlantic).

Dolphin eat a wide variety of species, including small pelagic fish, juvenile tuna, billfish, jacks, and pompano, and pelagic larvae of near shore, bottom-living species. They also eat invertebrates such as cephalopods, mysids, and jellyfish. Large tuna, rough-toothed dolphin, marlin, sailfish, swordfish, and sharks feed on dolphin, particularly juveniles. Dolphin are likely to be caught when longline fishermen target other species such as billfish and tuna. According to the fourth quarter update of the Status of U.S. Fisheries 2013, the overfished and overfishing status of dolphin are unknown. Additional background information regarding the fish populations for dolphin and wahoo can be found in the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic (Dolphin Wahoo FMP; SAFMC 2003) at: http://www.safmc.net/Library/Dolphin/Wahoo/tabid/410/Default.aspx.

3.2.2 Other Species Affected

For details on the life histories and ecology of co-occurring species, the reader is referred to Volume II of the Fishery Ecosystem Plan (SAFMC 2009b) available at: http://www.safmc.net/ecosystem-management/fishery-ecosystem-plan-1.

3.2.3 The Stock Assessment Process

SEDAR is a cooperative Fishery Management Council process initiated to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean. The Caribbean, Gulf of Mexico, and South Atlantic Fishery Management Councils manage SEDAR in coordination with the National Marine Fisheries Service (NMFS) and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR seeks improvements in the scientific quality of stock assessments, constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.

SEDAR is organized around three workshops. First is the Data Workshop, during which fisheries monitoring and life history data are reviewed and compiled. Second is the Assessment Workshop, which may be conducted via a workshop and several webinars, during which assessment models are developed and population parameters are estimated using the information provided from the Data Workshop. Third and final is the Review Workshop, during which independent experts review the input data, assessment methods, and assessment products. The completed assessment, including the reports of all three workshops and all supporting documentation, are then forwarded to the South Atlantic Council's Scientific and Statistical Committee (SSC). The SSC considers whether the assessment represents the best available science and develops fishing level recommendations for South Atlantic Council consideration.

SEDAR workshops are public meetings organized by SEDAR. Workshop participants appointed by the lead Council are drawn from state and federal agencies, non-government organizations, Council members, Council advisors, and the fishing industry with a goal of including a broad range of disciplines and perspectives. All participants are expected to contribute to this scientific process by preparing working papers, contributing data, providing assessment analyses, evaluating and discussing information presented, and completing the workshop report.

3.2.4 Protected Species

There are 44 species protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region and are under the purview of NMFS. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act (MMPA). Six of these marine mammal species are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). In addition to those six marine mammals, five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; five distinct population segments of

Atlantic sturgeon; and elkhorn coral (*Acropora palmata*) and staghorn coral (*A. cervicornis*) ("*Acropora*" collectively) are also protected under the ESA. Portions of designated critical habitat for North Atlantic right whales and *Acropora* also occur within the South Atlantic Council's jurisdiction. The species potentially affected by the hook-and-line portion of the fishery are discussed below.

3.2.4.1 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 know to consume jellyfish, salps, and sponges (Bjorndal 1980, 1997; Paredes 1969; Mortimer 1981, 1982). The diving abilities of all sea turtles species vary by their life stages. The maximum diving range of green sea turtles is estimated at 110 m (360 ft) (Frick 1976), but they are most frequently making dives of less than 20 m (65 ft.) (Walker 1994). The time of these dives also varies by life stage. The maximum dive length is estimated at 66 minutes with most dives lasting from 9 to 23 minutes (Walker 1994).

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

Kemp's ridley hatchlings are also pelagic during the early stages of life and feed in surface waters (Carr 1987, Ogren 1989). Once the juveniles reach approximately 20 cm carapace length they move to relatively shallow (less than 50 m) 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, 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 1,000 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 eat a wide range of organisms including salps, jellyfish, amphipods, crabs, syngnathid fish, squid, and pelagic snails (Brongersma 1972). Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length they begin to live in coastal inshore and nearshore waters of the continental shelf throughout the U.S. Atlantic (Witzell 2002). Here they forage over hard- and soft-bottom habitats (Carr 1986). Benthic foraging loggerheads eat a variety of invertebrates with crabs and mollusks being an important prey source (Burke et al. 1993). Estimates of the maximum diving depths of loggerheads range from 211 m to 233 m (692-764ft.) (Thayer et al. 1984, Limpus and Nichols 1988). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Thayer et al. 1984, Limpus and Nichols 1988, Limpus and Nichols 1994, Lanyan et al. 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994, Lanyan et al. 1989).

3.2.4.2 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 sources (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 Economic and Social Environment

3.3.1 Economic Environment

3.3.1.1 Economic Description of the Commercial Sector

The South Atlantic Fishery Management Council manages 6 key species groups, in addition to sargassum and coral/coral reefs. The distributions of commercial landings and dockside revenues for these 6 species groups over a 5-year period from 2009 through 2013 are presented in **Figure 3.3.1.1** and **Figure 3.3.1.2**. The 2013 landings for most species groups are preliminary. The snapper grouper complex accounted for the highest percentage of commercial landings (gw) at 39% followed by coastal migratory pelagics at 37% and spiny lobster at 14%. The rest of the species groups represented 10% of commercial landings, with golden crap accounting for 4% of total landings. In terms of dockside revenues (2013 $), the snapper grouper complex represented the highest share at 38%, followed by spiny lobster at 33%, with coastal migratory pelagics ranking third at 19%. Golden crab accounted for 3% of total dockside revenues.

Within the snapper grouper fishery, snappers ranks first by both weight and revenue (**Figure 3.3.1.3** and **Figure 3.3.1.4)**. Sea basses and groupers ranks second by both weight and revenue. Jacks ranks third by weight but falls to fourth place behind tilefishes in terms of revenues. Tilefishes ranks fourth by weight and third by revenues.

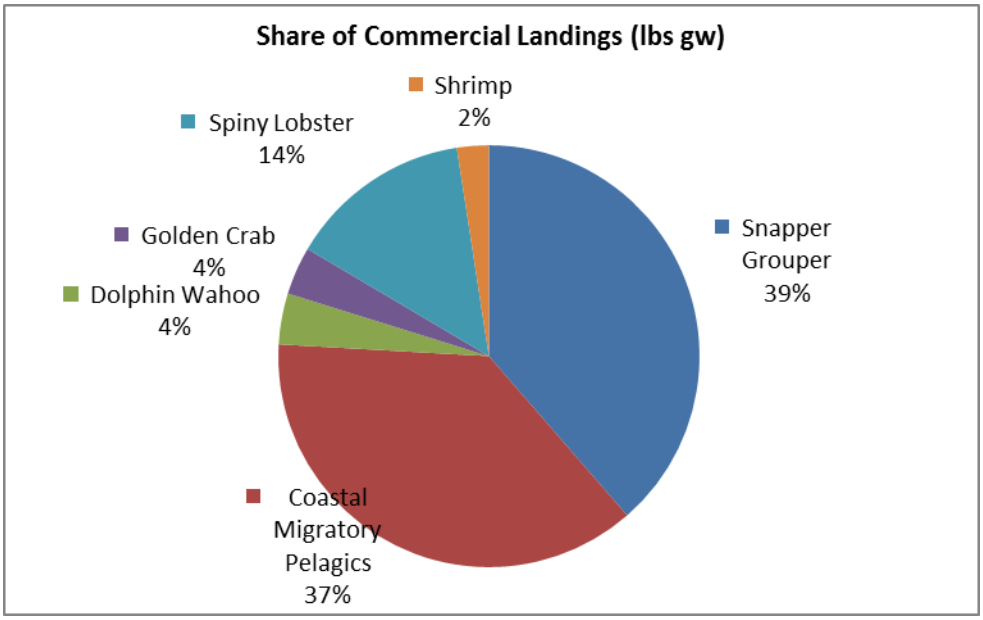

Figure 3.3.1.1. Share of commercial landings (lb gw) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009 – 2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

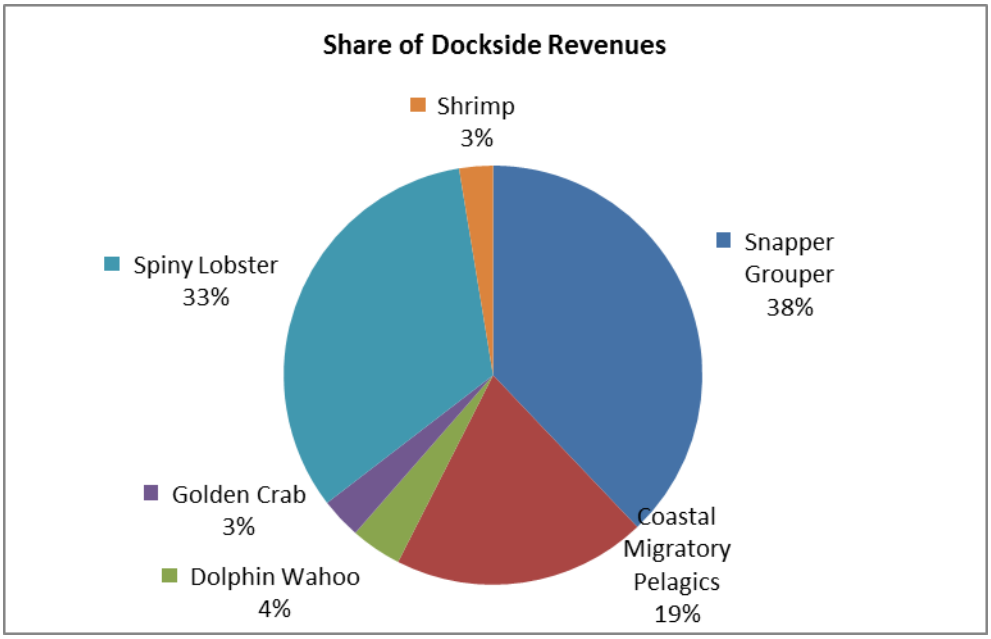

Figure 3.3.1.2. Share of dockside revenues ($) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

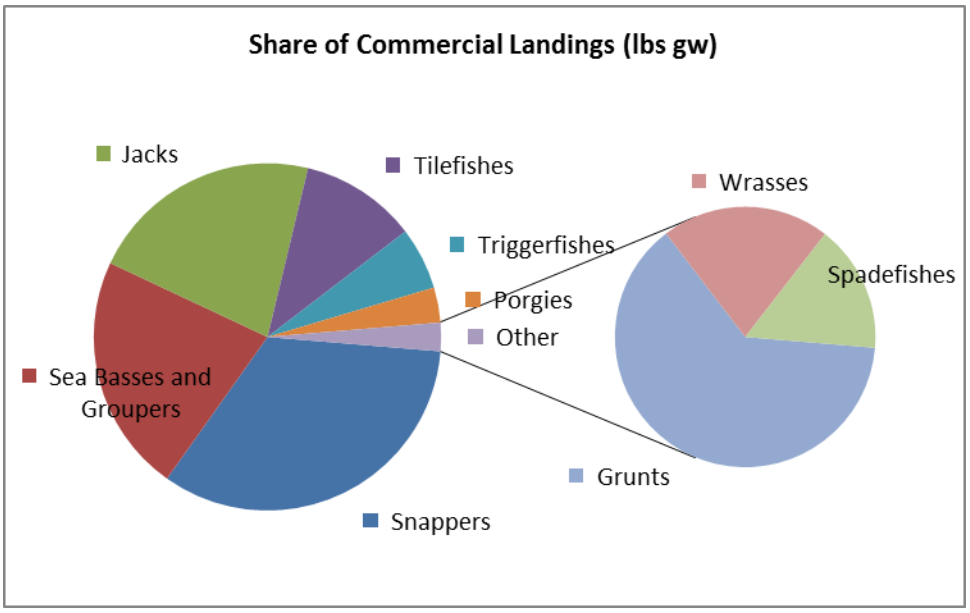

Figure 3.3.1.3. Share of commercial landings (lb gw) by group of snapper grouper species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

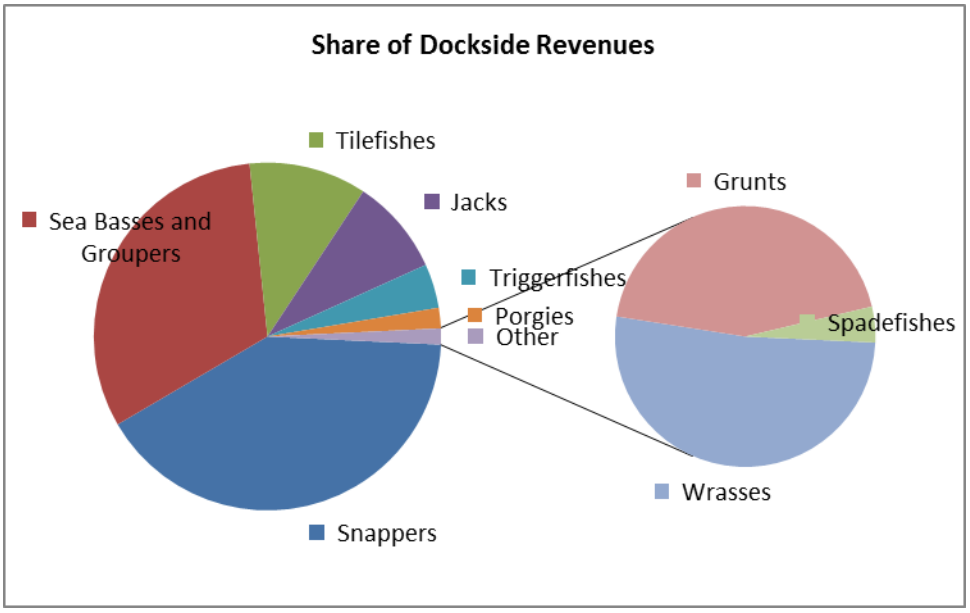

Figure 3.3.1.4. Share of dockside revenues ($) by group of snapper grouper species managed by the South Atlantic Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Any fishing vessel that harvests and sells any of the snapper grouper species from the South Atlantic EEZ must have a valid South Atlantic commercial snapper grouper permit, which is a limited access permit. There are currently 547 valid South Atlantic Snapper Grouper Unlimited Permits and 117 valid 225 lb Trip Limited Permits (**Table 3.3.1.1**). After a permit expires, it can be renewed and transferred up to one year after it expires. The numbers of valid and transferrable/renewable permits have declined since 2008 (**Table 3.3.1.2**). Wreckfish is currently managed under an IFQ program. A limited access permit is required to harvest golden

crab in the South Atlantic. Since 2008 (even earlier), the number of commercial golden crab permits has consistently remained at 11. Commercial permits are also required for commercial harvest of dolphin/wahoo. A commercial dolphin/wahoo permit is an open access permit. **Table 3.3.1.3** shows the number of commercial dolphin/wahoo permits.

Table 3.3.1.1. Valid and transferrable/renewable South Atlantic commercial snapper grouper permits as of January 30, 2014.

South Atlantic S-G Permits	Unlimited lb	225 lb
Valid	547	117
Transferrable/Renewable	22	8
Total	569	125

Source: NMFS SERO PIMS, 2014.

Table 3.3.1.2. Number of South Atlantic commercial snapper grouper permits.

	Unlimited	Limited 225 lb
2009	640	144
2010	624	139
2011	569	126
2012	558	123
2013	593	130
Average	597	132

Source: NMFS SERO PIMS, 2014.

Table 3.3.1.3. Number of South Atlantic commercial dolphin/wahoo permits.

	Number of Permits
2009	2,507
2010	2,563
2011	2,614
2012	2,685
2013	2,684
Average	2,611

Source: NMFS SERO PIMS, 2014.

The following focuses on commercial landings and revenues for the following key species in this amendment: black grouper, mutton snapper, yellowtail snapper, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, certain unassessed snapper grouper species, dolphin, and golden crab. The major sources of data summarized in this description are the SEFSC Commercial ACL Dataset, as summarized by SERO-LAPP, and Federal Logbook System (FLS), supplemented by average prices calculated from the Accumulated Landings System (ALS) and price indices taken from the Bureau of Labor Statistics. Landings from the FLS do not include all landings shown from the ACL dataset due to landings by fishermen who do not have the federal snapper grouper permit and are not required to complete the logbook; non-reporting in the logbook program is also an issue. The 2013 data are incomplete, including the unavailability of the South Carolina landings and revenues. Additional information on commercial landings and fishing for the snapper grouper fishery, dolphin/wahoo, and golden crab can be found in previous amendments [SG Amendment 13C (SAFMC 2006), SG Amendment 15A (SAFMC 2008a), SG Amendment 15B (SAFMC

2008b), SG Amendment 16 (SAFMC 2009a), SG Regulatory Amendment 9 (SAFMC 2011a), Dolphin/Wahoo Amendment 5 (SAFMC 2013), and Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c)] and is incorporated herein by reference.

3.3.1.1.1 Black Grouper

Black grouper is within the sea basses and groupers group of the snapper grouper fishery. From 2009 through 2013, black grouper's 5-year commercial landings ranked 22nd by weight and 18th by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of black grouper in the South Atlantic ranged from about 44,000 lb ww to 57,000 lb ww from 2009 through 2013 (**Figure 3.3.1.5**). Dockside revenues from those landings ranged from about $165,000 to $221,000 (2013 $) (**Figure 3.3.1.5**). The average dockside price during those five years was $3.79 per pound ww (2013$). Commercial landings of black grouper peaked in 2011 and troughed in 2010 by both weight and revenue.

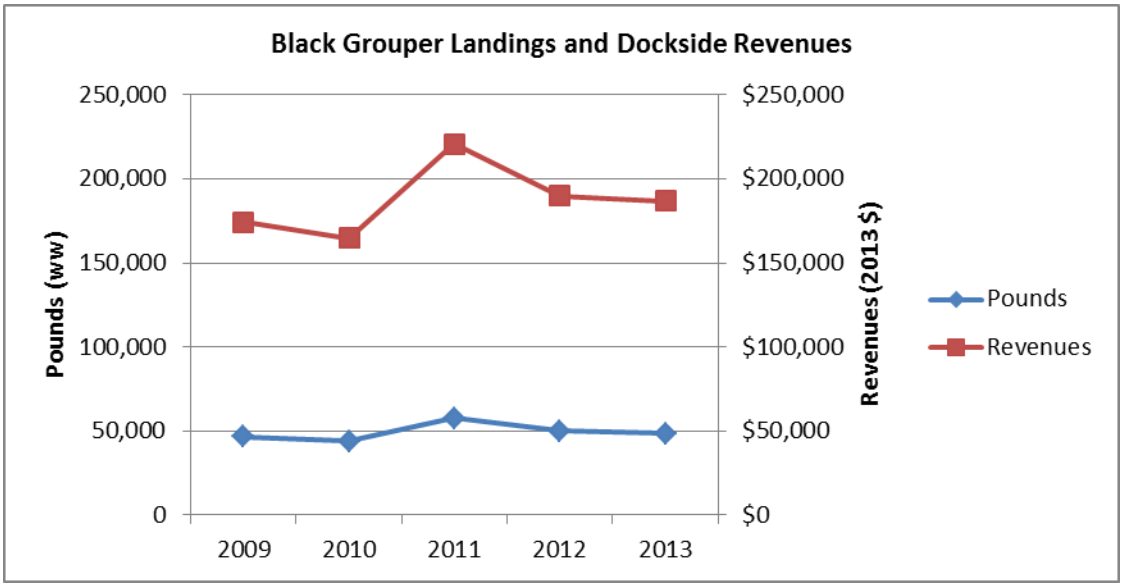

Figure 3.3.1.5. Annual commercial landings of black grouper by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, Florida/Georgia accounted for most of the black grouper landings both in weight (**Figure 3.3.1.6**) and dockside revenue (**Figure 3.3.1.7**). This area accounted for over 90% of black grouper landings and dockside revenues. Black grouper landings for South Carolina are not yet available for 2013.

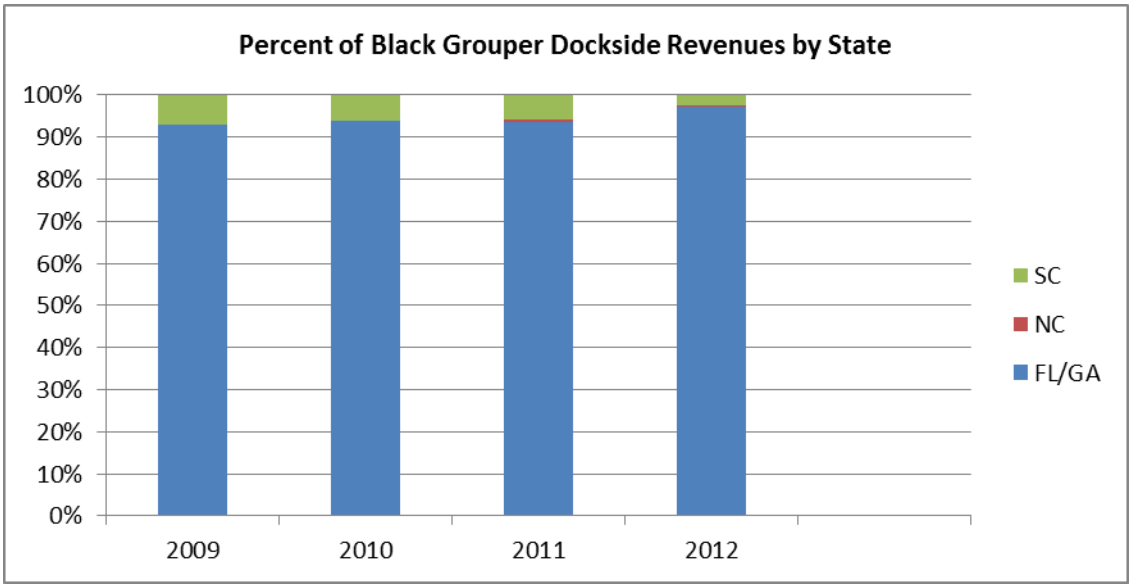

Figure 3.3.1.6. Percent of black grouper landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

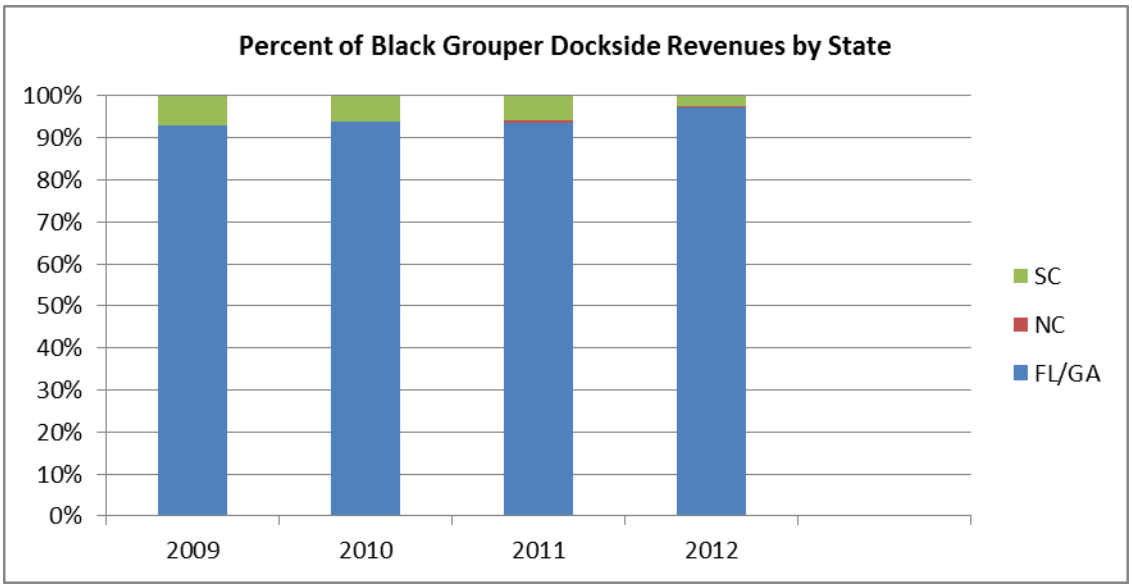

Figure 3.3.1.7. Percent of black grouper dockside revenues (2013 $) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.8**. Average landings and revenues peaked in May, with March and April recording the lowest average landings by both weight and revenues.

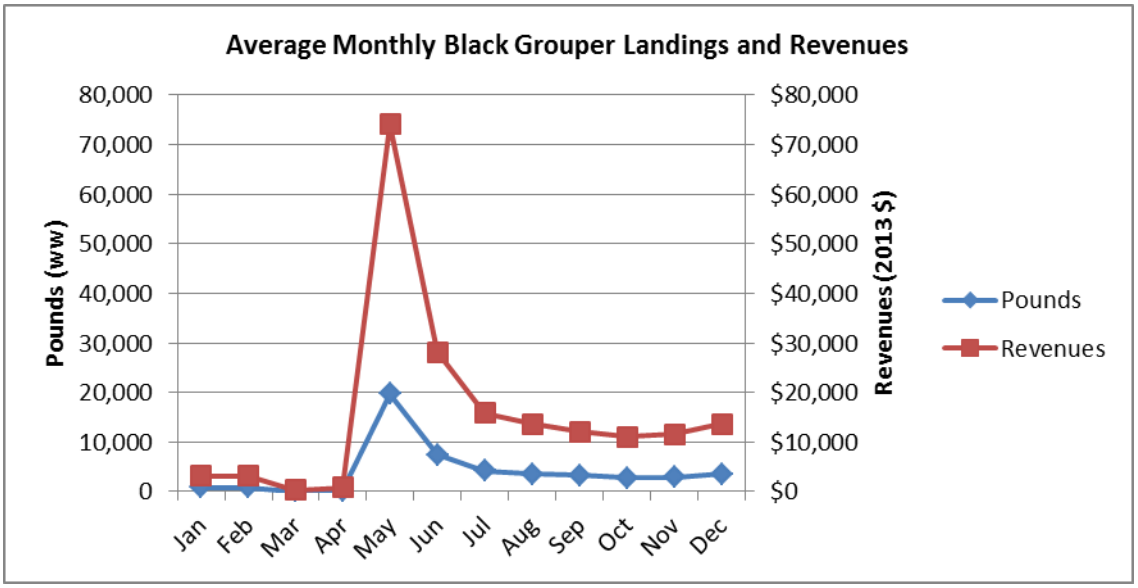

Figure 3.3.1.8. Average monthly black grouper landings (lb ww) and revenues (2013 $), 2009–2013. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 188 vessels took 677 commercial trips that combined landed an average of 55,830 lb gw of black grouper annually with a dockside value (2013 dollars) of $259,320 (**Table 3.3.1.4**). Average annual dockside revenue from black grouper landings represented approximately 14% of total dockside revenue from trips that landed black grouper from 2009 through 2013.

Table 3.3.1.4. Vessels and trips with black grouper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed black grouper	Number trips that landed black grouper	Black grouper landings (lb gw)	Dockside revenue from black grouper (2013 $)	'Other species' landed with black grouper (lb gw)	Dockside revenue from 'other species' (2013 $)	Total dockside revenue (2013 $) from trips with black grouper landings
2009	238	908	70,818	$324,291	590,901	$1,520,346	$1,844,637
2010	193	693	63,334	$303,067	480,534	$1,314,232	$1,617,299
2011	202	774	66,427	$316,766	496,027	$1,482,941	$1,799,707
2012	175	625	44,717	$201,637	323,400	$969,952	$1,171,589
2013	132	384	33,856	$150,840	730,643	$2,528,174	$2,679,014
Average	188	677	55,830	$259,320	524,301	$1,563,129	$1,822,449

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested black grouper also took 5,470 trips per year without black grouper landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed black grouper was about $54,292 (2013 $) (**Table 3.3.1.5**). Annual dockside revenue from black grouper landings represented, on average, approximately 2.7% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $54,292 as compared to $1,379 per vessel from black grouper only.

Table 3.3.1.5. Dockside revenues (2013 $) from all sources for vessels that landed black grouper, 2009–2013.

Year	Number vessels that landed black grouper	Dockside revenue from black grouper (2013 $)	Dockside revenue from 'other species' jointly landed with black grouper (2013 $)	Dockside revenue from 'other species' landed on trips without black grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	238	$324,291	$1,520,346	$8,434,135	$10,278,772	$43,188
2010	193	$303,067	$1,314,232	$6,810,591	$8,427,890	$43,668
2011	202	$316,766	$1,482,941	$8,423,092	$10,222,799	$50,608
2012	175	$201,637	$969,952	$7,887,996	$9,059,585	$51,769
2013	132	$150,840	$2,528,174	$8,174,804	$10,853,818	$82,226
Average	188	$259,320	$1,563,129	$7,946,123	$9,768,573	$54,292

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.2 Mutton Snapper

Mutton snapper is within the snapper group of the snapper grouper fishery. From 2009 through 2013, mutton snapper's 5-year commercial landings ranked 20th by weight and 17th by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of mutton snapper in the South Atlantic ranged from about 64,000 lb ww to 78,000 lb ww from 2009 through 2013 (**Figure 3.3.1.9**). Dockside revenues from those landings ranged from about $180,000 to $213,000 (2013 $) (**Figure 3.3.1.9**). The average dockside price during those five years was $2.77 per pound ww (2013$). Commercial landings of mutton snapper peaked in 2012 and troughed in 2011 by both weight and revenue.

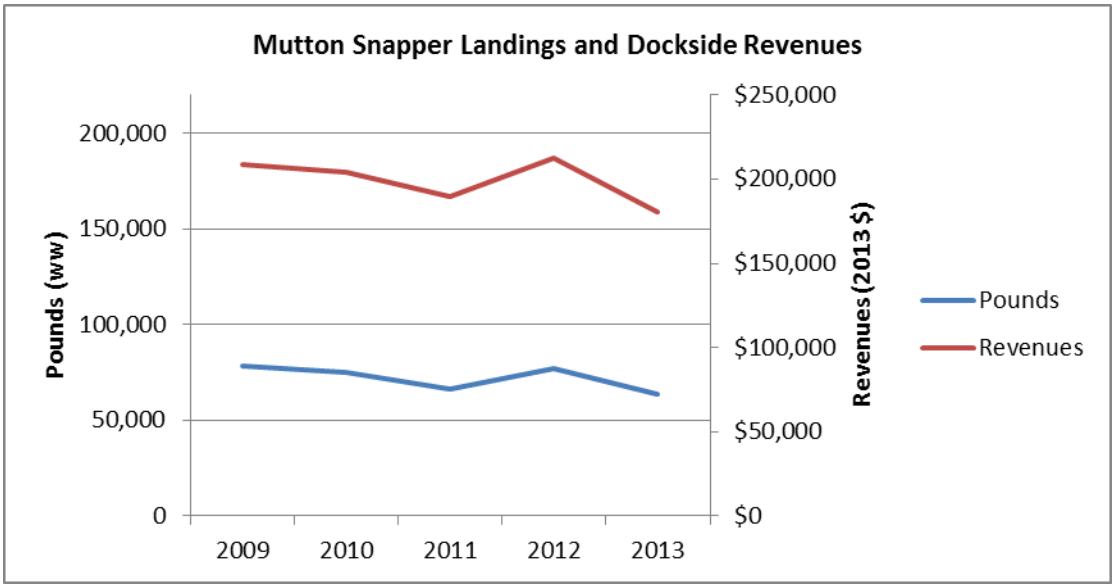

Figure 3.3.1.9. Annual commercial landings of mutton snapper by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, Florida/Georgia accounted for most of the mutton snapper landings both in weight (Figure 3.3.1.10) and dockside revenue (Figure 3.3.1.11). This area accounted for over 90% of mutton snapper landings and dockside revenues. Mutton snapper landings for South Carolina are not yet available for 2013.

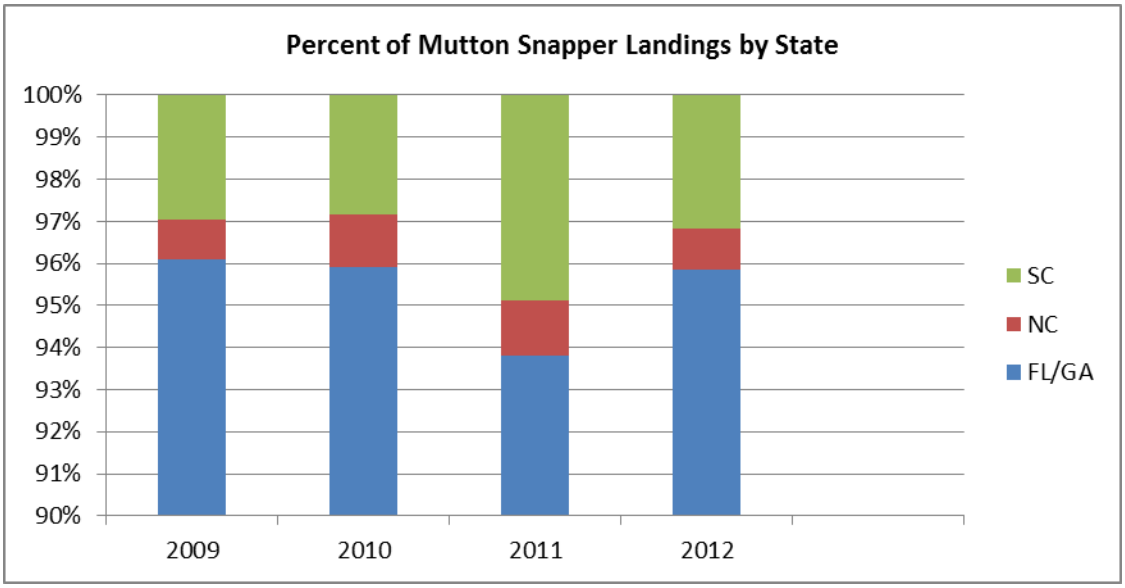

Figure 3.3.1.10. Percent of mutton snapper landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

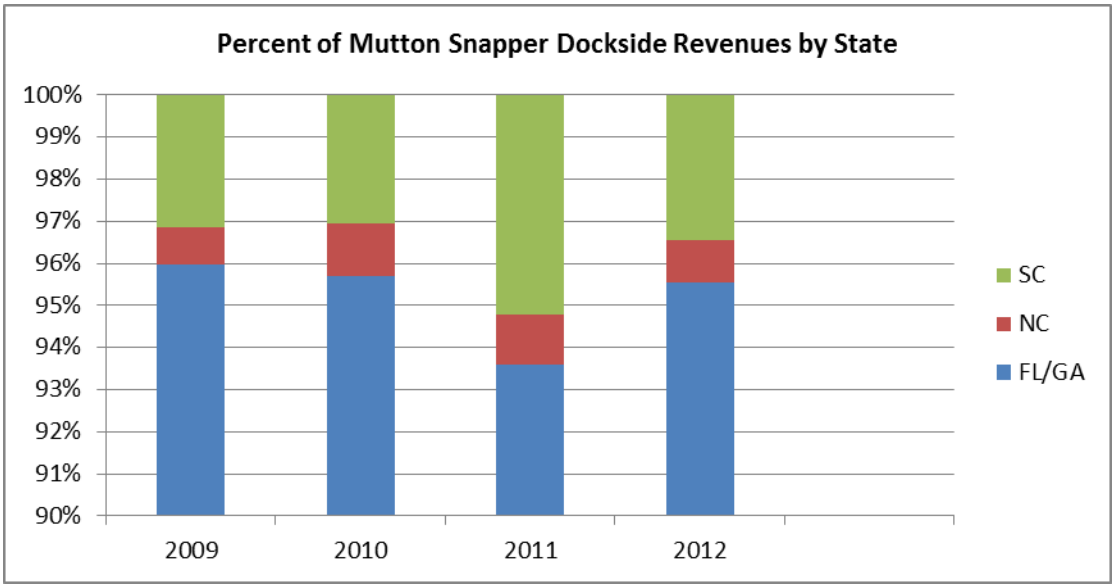

Figure 3.3.1.11. Percent of mutton snapper dockside revenues (2013 $) by state, 2009–2012. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.12**. Average landings and revenues peaked in May, with December recording the lowest average landings by both weight and revenues.

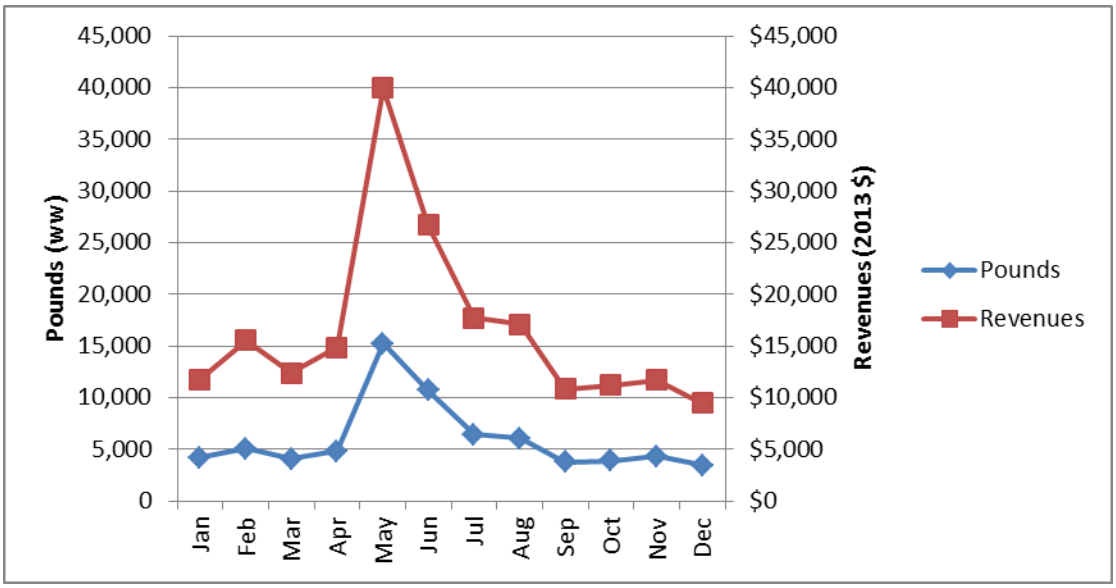

Figure 3.3.1.12. Average monthly mutton snapper landings (lb ww) and revenues (2013 $), 2009–2013. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 266 vessels took 1,349 commercial trips that combined landed an average of 52,300 lb gw of mutton snapper annually with a dockside value (2013 dollars) of $152,895 (**Table 3.3.1.6**). Average annual dockside revenue from mutton snapper landings represented approximately 6% of total dockside revenue from trips that landed mutton snapper from 2009 through 2013.

Table 3.3.1.6. Vessels and trips with mutton snapper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed mutton snapper	Number trips that landed mutton snapper	Mutton Snapper grouper landings (lb gw)	Dockside revenue from mutton snapper (2013 $)	'Other species' landed with mutton snapper (lb gw)	Dockside revenue from 'other species' (2013 $)	Total dockside revenue (2013 $) from trips with mutton snapper landings
2009	321	1,625	48,749	$139,334	858,578	$2,200,365	$2,339,700
2010	315	1,497	51,965	$146,730	770,757	$2,216,385	$2,363,115
2011	278	1,470	52,740	$160,148	752,221	$2,454,384	$2,614,532
2012	258	1,410	61,889	$178,994	728,820	$2,437,961	$2,616,956
2013	160	744	46,158	$139,269	904,009	$3,159,733	$3,299,002
Average	266	1,349	52,300	$152,895	802,877	$2,493,766	$2,646,661

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested mutton snapper also took 7,606 trips per year without mutton snapper landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed mutton snapper was about $51,405 (2013 $) (**Table 3.3.1.7**). Annual dockside revenue from mutton snapper landings represented, on average, approximately 12% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $51,405 as compared to $575 per vessel from mutton snapper only.

Table 3.3.1.7. Dockside revenues (2013 $) from all sources for vessels that landed mutton snapper, 2009–2013.

Year	Number vessels that landed mutton snapper	Dockside revenue from mutton snapper (2013 $)	Dockside revenue from 'other species' jointly landed with mutton snapper (2013 $)	Dockside revenue from 'other species' landed on trips without mutton snapper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	321	$139,334	$2,200,365	$11,437,563	$13,777,262	$42,920
2010	315	$146,730	$2,216,385	$10,894,911	$13,258,026	$42,089
2011	278	$160,148	$2,454,384	$10,523,840	$13,138,372	$47,260
2012	258	$178,994	$2,437,961	$9,728,587	$12,345,542	$47,851
2013	160	$139,269	$3,159,733	$9,005,745	$12,304,747	$76,905
Average	266	$152,895	$2,493,766	$10,318,129	$12,964,790	$51,405

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.3 Yellowtail Snapper

Yellowtail snapper is within the snapper group of the snapper grouper fishery. From 2009 through 2013, yellowtail snapper's 5-year commercial landings ranked 1st by both weight and revenue among the 70 species within the snapper grouper complex. Annual commercial landings of yellowtail snapper in the South Atlantic ranged from about 1.1 million lb ww to 1.4 million lb ww from 2009 through 2013 (**Figure 3.3.1.5**). Dockside revenues from those landings ranged from about $3 million to $4.2 million (2013 $) (**Figure 3.3.1.5**). The average dockside price

during those five years was $2.82 per pound ww (2013$). Commercial landings of yellowtail snapper peaked in 2012 and troughed in 2009 by both weight and revenue.

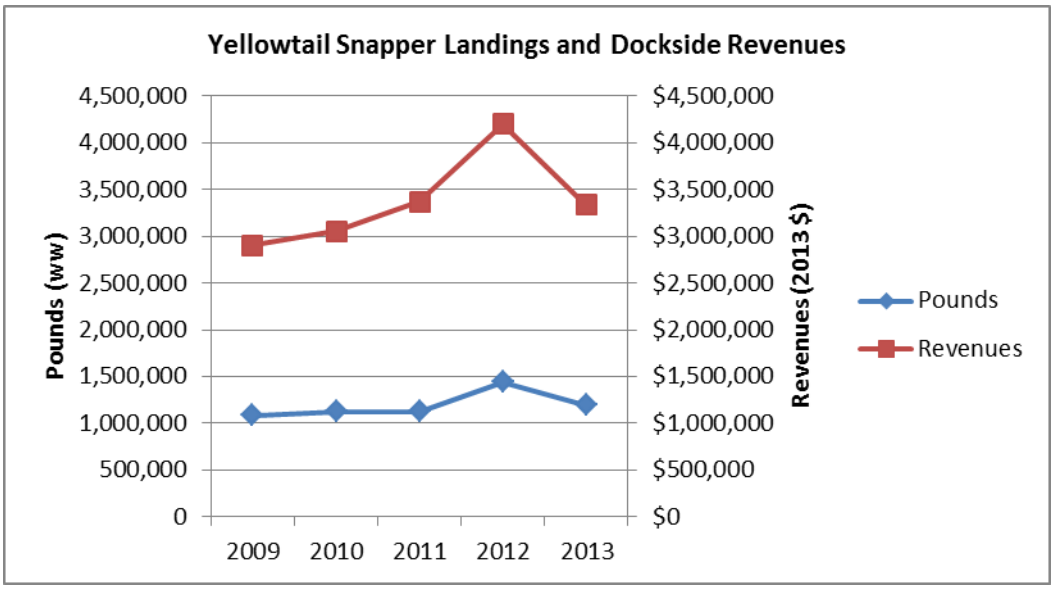

Figure 3.3.1.13. Annual commercial landings of yellowtail snapper by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, Florida/Georgia accounted for most of the yellowtail snapper landings both in weight and revenue. The other states accounted for less than 1% of total landings by weight and revenues.

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.14**. Average landings and revenues peaked in May, with December recording the lowest average landings by both weight and revenues.

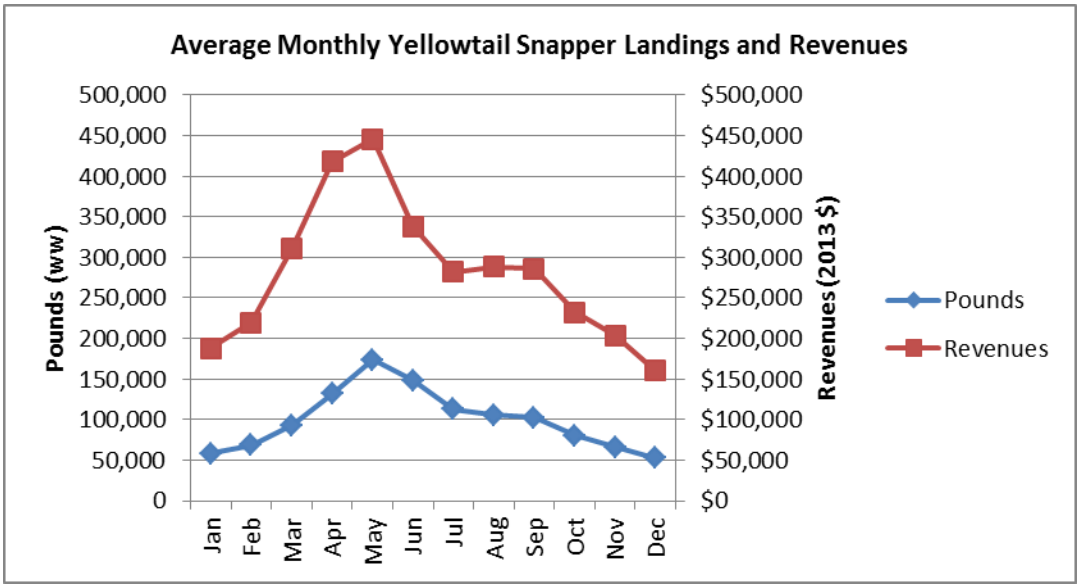

Figure 3.3.1.14. Average monthly yellowtail snapper landings (lb ww) and revenues (2013 $), 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 252 vessels took 3,364 commercial trips that combined landed an average of 837,578 lb gw of yellowtail snapper annually with a dockside value (2013 dollars) of $2,579,783 (**Table 3.3.1.8**). Average annual dockside revenue from yellowtail snapper landings represented approximately 75% of total dockside revenue from trips that landed yellowtail snapper from 2009 through 2013.

Table 3.3.1.8. Vessels and trips with yellowtail snapper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed yellowtail snapper	Number trips that landed yellowtail snapper	Yellowtail Snapper grouper landings (lb gw)	Dockside revenue from yellowtail snapper (2013 $)	'Other species' landed with yellowtail snapper (lb gw)	Dockside revenue from 'other species' (2013 $)	Total dockside revenue (2013 $) from trips with yellowtail snapper
2009	334	4,659	1,116,593	$3,116,233	423,651	$1,000,318	$4,116,550
2010	293	3,727	919,540	$2,761,739	437,446	$989,607	$3,751,345
2011	267	3,917	1,033,376	$3,365,040	366,465	$823,109	$4,188,149
2012	255	3,878	1,053,864	$3,437,633	388,850	$800,535	$4,238,168
2013	109	639	64,516	$218,273	204,230	$623,211	$841,484
Average	252	3,364	837,578	$2,579,783	364,128	$847,356	$3,427,139

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested yellowtail snapper also took 3,952 trips per year without yellowtail snapper landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed yellowtail snapper was about $38,355 (2013 $) (**Table 3.3.1.9**). Annual dockside revenue from yellowtail snapper landings represented, on average, approximately 28% of the total dockside revenue from all commercial landings from 2009

through 2013. Average annual dockside revenue per vessel from all landings was $38,355 as compared to $10,237 per vessel from yellowtail snapper only.

Table 3.3.1.9. Dockside revenues (2013 $) from all sources for vessels that landed yellowtail snapper, 2009–2013.

Year	Number vessels that landed yellowtail snapper	Dockside revenue from yellowtail snapper (2013 $)	Dockside revenue from 'other species' jointly landed with yellowtail snapper (2013 $)	Dockside revenue from 'other species' landed on trips without yellowtail snapper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	334	$3,116,233	$1,000,318	$6,536,432	$10,652,982	$31,895
2010	293	$2,761,739	$989,607	$6,391,028	$10,142,373	$34,616
2011	267	$3,365,040	$823,109	$5,738,761	$9,926,909	$37,179
2012	255	$3,437,633	$800,535	$5,590,152	$9,828,321	$38,542
2013	109	$218,273	$623,211	$4,558,643	$5,400,127	$49,542
Average	252	$2,579,783	$847,356	$5,763,003	$9,190,142	$38,355

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.4 Greater Amberjack

Greater amberjack is within the jacks group of the snapper grouper fishery. From 2009 through 2013, greater amberjack's 5-year commercial landings ranked 3rd by weight and 6th by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of greater amberjack in the South Atlantic ranged from about 658,000 lb ww to 981,000 lb ww from 2009 through 2013 (**Figure 3.3.1.15**). Dockside revenues from those landings ranged from about $826,000 million to $1.1 million (2013 $) (**Figure 3.3.1.15**). The average dockside price during those five years was $1.15 per pound ww (2013 $). Commercial landings of greater amberjack peaked in 2010 and troughed in 2012 whereas dockside revenues peaked in 2012 and troughed in 2009.

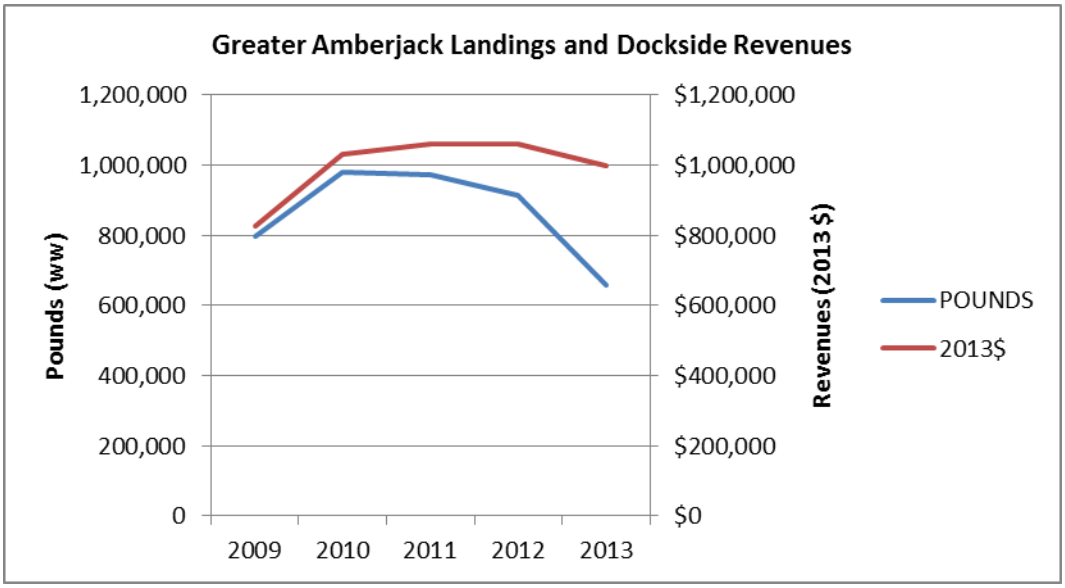

Figure 3.3.1.15. Annual commercial landings of greater amberjack by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, Florida/Georgia accounted for most of the greater amberjack landings both in weight and revenue (Figure 3.3.1.16 and Figure 3.3.1.17). This area's share fell in 2010 and 2011 in both weight and revenues, with South Carolina increasing its shares in those two years. Greater amberjack landings for South Carolina are not yet available for 2013.

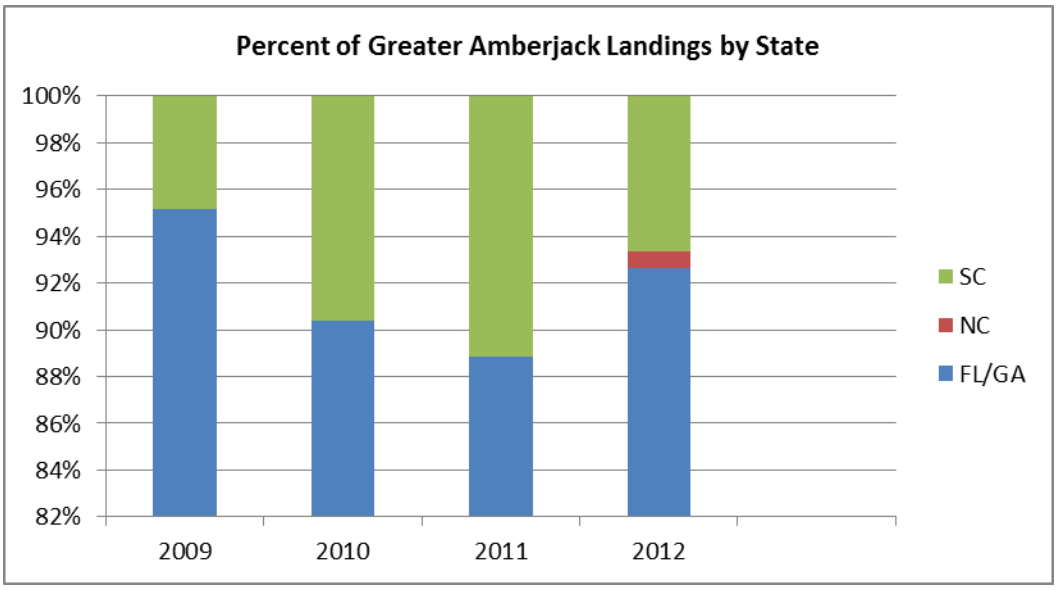

Figure 3.3.1.16. Percent of greater amberjack landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

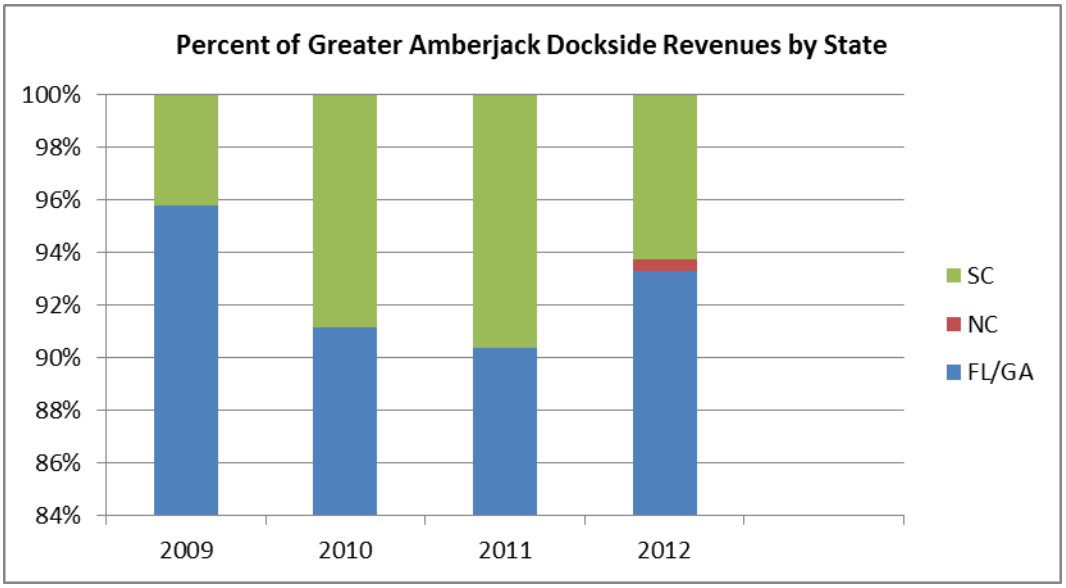

Figure 3.3.1.17. Percent of greater amberjack dockside revenues (2013 $) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.18**. Average landings and revenues peaked in May, with April recording the lowest average landings by both weight and revenues.

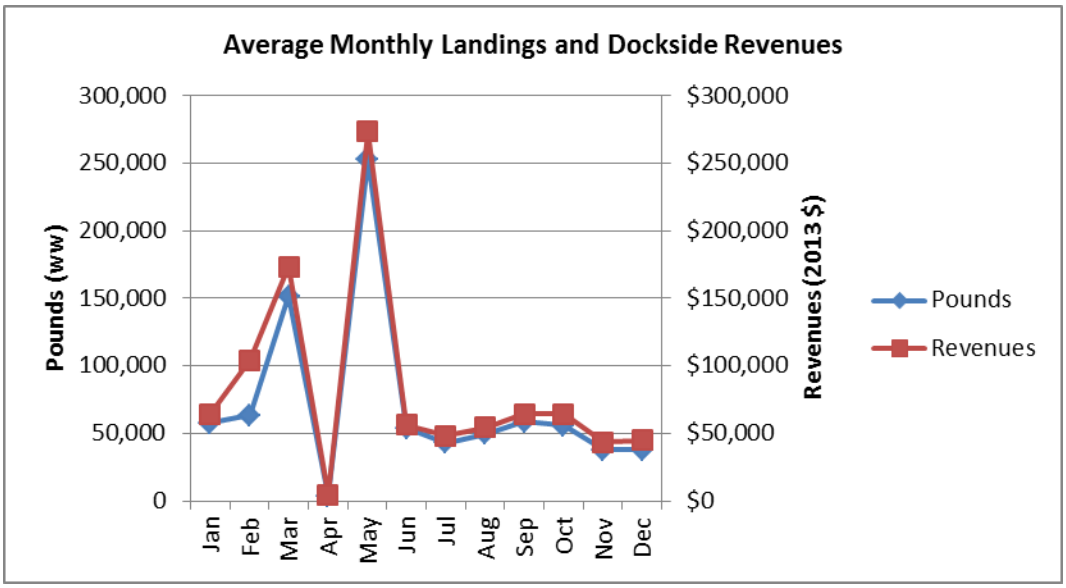

Figure 3.3.1.18. Average monthly greater amberjack landings (lb ww) and revenues (2013 $), 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 295 vessels took 2,187 commercial trips that combined landed an average of 856,598 lb gw of greater amberjack annually with a dockside value (2013 dollars) of $972,561 (**Table 3.3.1.10**). Average annual dockside revenue from greater amberjack landings represented approximately 12% of total dockside revenue from trips that landed greater amberjack from 2009 through 2013.

Table 3.3.1.10. Vessels and trips with greater amberjack landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed greater amberjack	Number trips that landed greater amberjack	Greater amberjack landings (lb gw)	Dockside revenue from greater amberjack (2013 $)	'Other species' landed with greater amberjack (lb gw)	Dockside revenue from 'other species' (2013 $)	Total dockside revenue (2013 $) from trips with greater amberjack
2009	385	2,516	821,106	$878,753	1,819,262	$5,510,310	$6,389,063
2010	300	2,370	944,966	$1,036,147	1,731,548	$5,094,230	$6,130,377
2011	269	2,345	918,627	$1,040,258	1,606,927	$4,902,085	$5,942,344
2012	248	2,054	923,966	$1,053,575	1,216,230	$3,757,611	$4,811,186
2013	271	1,650	674,322	$854,071	1,429,813	$4,451,688	$5,305,759
Average	295	2,187	856,598	$972,561	1,560,756	$4,743,185	$5,715,746

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested greater amberjack also took 6,196 trips per year without greater amberjack landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed greater amberjack was about $52,782 (2013 $) (**Table 3.3.1.11**). Annual dockside revenue from greater amberjack landings represented, on average, approximately 6.3% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $52,782 as compared to $3,297 per vessel from greater amberjack only.

Table 3.3.1.11. Dockside revenues (2013 $) from all sources for vessels that landed greater amberjack, 2009–2013.

Year	Number vessels that landed greater amberjack	Dockside revenue from greater amberjack (2013 $)	Dockside revenue from 'other species' jointly landed with greater amberjack (2013 $)	Dockside revenue from 'other species' landed on trips without greater amberjack (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	385	$878,753	$5,510,310	$11,144,295	$17,533,358	$45,541
2010	300	$1,036,147	$5,094,230	$8,961,204	$15,091,581	$50,305
2011	269	$1,040,258	$4,902,085	$8,922,242	$14,864,586	$55,259
2012	248	$1,053,575	$3,757,611	$9,179,785	$13,990,971	$56,415
2013	271	$854,071	$4,451,688	$9,975,645	$15,281,404	$56,389
Average	295	$972,561	$4,743,185	$9,636,634	$15,352,380	$52,782

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.5 Red Porgy

Red porgy is within the porgies group of the snapper grouper fishery. From 2009 through 2013, red porgy's 5-year commercial landings ranked 14th by both weight and revenue among the 70 species within the snapper grouper complex. Annual commercial landings of red porgy in the South Atlantic ranged from about 111,000 lb ww to 198,000 lb ww from 2009 through 2013

(**Figure 3.3.1.19**). Dockside revenues from those landings ranged from about $197,000 to $365,000 (2013 $) (**Figure 3.3.1.19**). The average dockside price during those five years was $1.77 per pound ww (2013$). Commercial landings and dockside revenues for red porgy peaked in 2011 and declined thereafter.

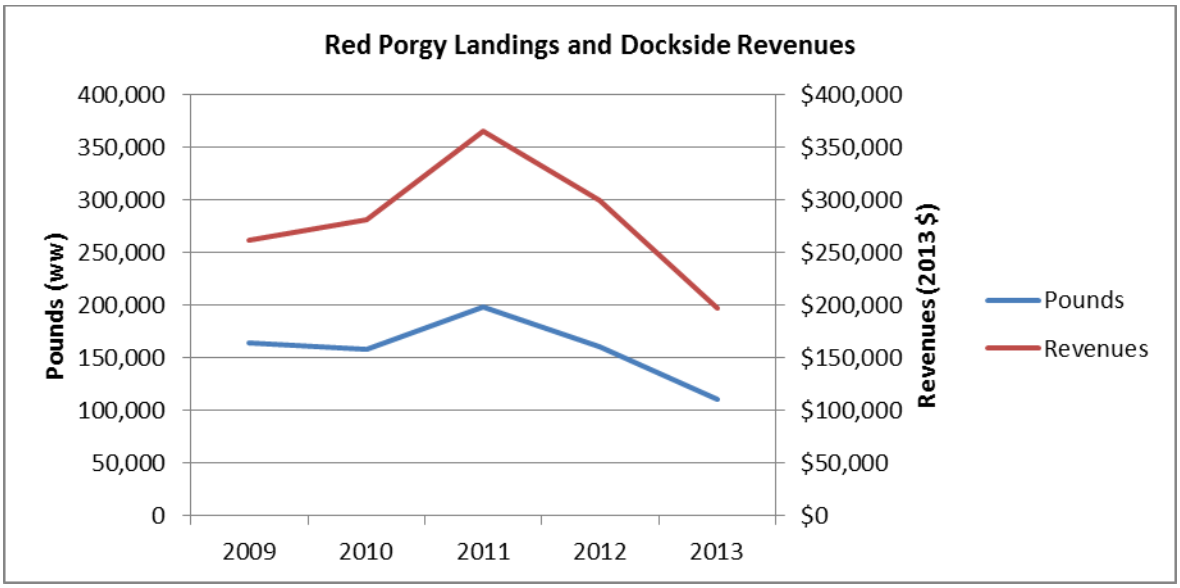

Figure 3.3.1.19. Annual commercial landings of red porgy by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, North Carolina accounted for most of the red porgy landings both in weight and revenue (**Figure 3.3.1.20** and **Figure 3.3.1.21**). This area's share fell in 2010 and 2011 in both weight and revenues, with South Carolina increasing its shares in those two years. Red porgy landings for South Carolina are not yet available for 2013.

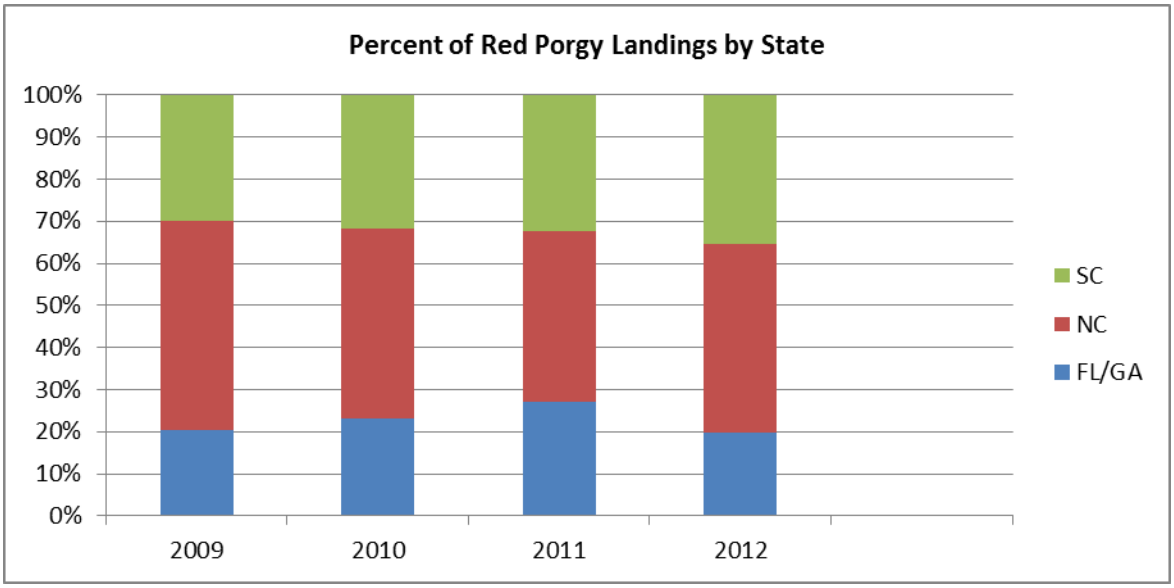

Figure 3.3.1.20. Percent of red porgy landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

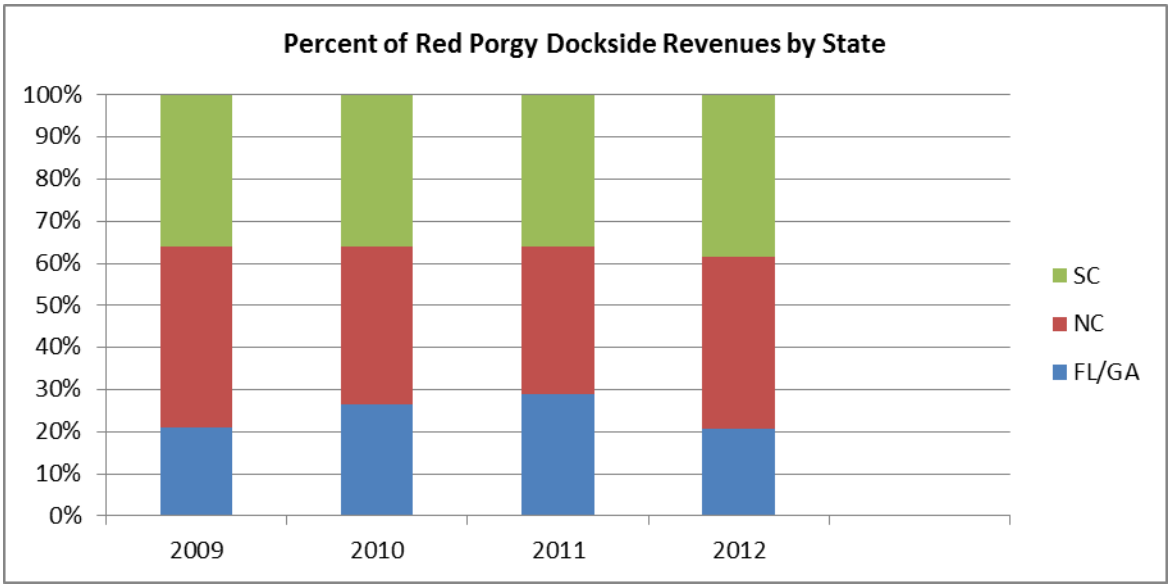

Figure 3.3.1.21. Percent of red porgy dockside revenues (2013 $) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.22**. Average landings and revenues peaked in July, with January through April recording the lowest average landings by both weight and revenues.

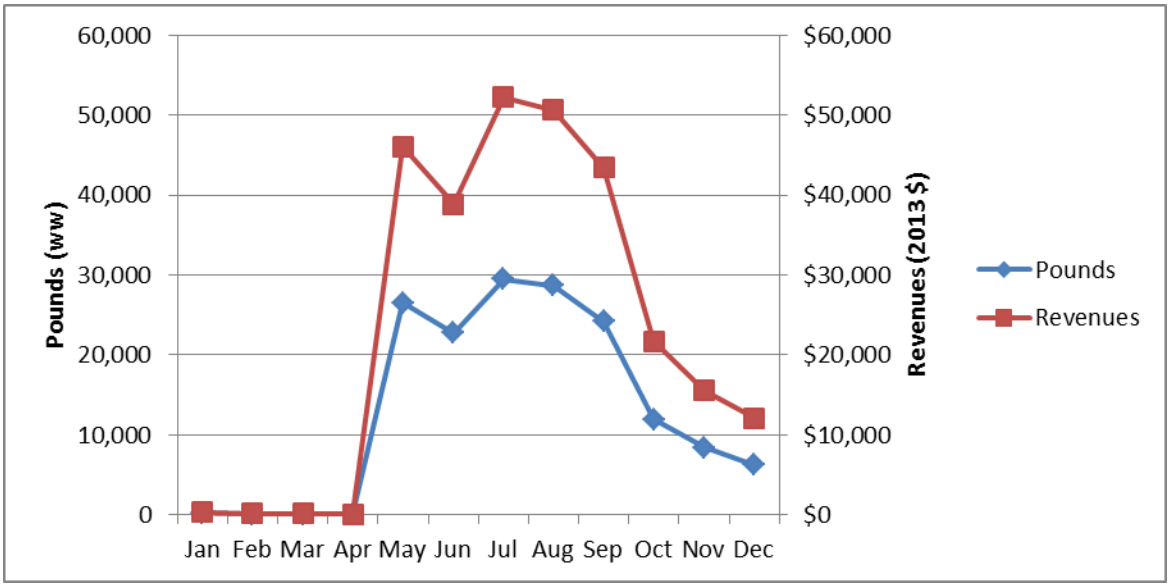

Figure 3.3.1.22. Average monthly red porgy landings (lb ww) and revenues (2013 $), 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 191 vessels took 1,502 commercial trips that combined landed an average of 140,172 lb gw of red porgy annually with a dockside value (2013 dollars) of $251,483 (**Table 3.3.1.12**). Average annual dockside revenue from red porgy landings represented approximately 4.2% of total dockside revenue from trips that landed red porgy from 2009 through 2013.

Table 3.3.1.12. Vessels and trips with red porgy landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed red porgy	Number trips that landed red porgy	Red Porgy landings (lb gw)	Dockside revenue from red porgy (2013 $)	'Other species' landed with red porgy (lb gw)	Dockside revenue from 'other species' landings (2013 $)	Total dockside revenue (2013 $) from trips with red porgy landings
2009	197	1,535	130,048	$213,134	1,862,196	$5,428,887	$5,642,021
2010	170	1,424	126,620	$235,362	1,770,625	$5,241,352	$5,476,714
2011	174	1,588	160,186	$304,707	1,866,052	$5,742,156	$6,046,863
2012	158	1,378	132,062	$254,491	1,487,385	$4,692,673	$4,947,164
2013	254	1,586	151,946	$249,722	2,235,601	$7,257,718	$7,507,440
Average	191	1,502	140,172	$251,483	1,844,372	$5,672,557	$5,924,041

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested red porgy also took 2,939 trips per year without red porgy landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed red porgy was about $59,836 (2013 $) (**Table 3.3.1.13**). Annual dockside revenue from red porgy landings represented, on average, approximately 2.2% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $59,836 as compared to $1,316 per vessel from red porgy only.

Table 3.3.1.13. Dockside revenues (2013 $) from all sources for vessels that landed red porgy, 2009–2013.

Year	Number vessels that landed red porgy	Dockside revenue from red porgy (2013 $)	Dockside revenue from 'other species' jointly landed with red porgy (2013 $)	Dockside revenue from 'other species' landed on trips without red porgy (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	197	$213,134	$5,428,887	$6,403,243	$12,045,264	$61,143
2010	170	$235,362	$5,241,352	$4,908,026	$10,384,740	$61,087
2011	174	$304,707	$5,742,156	$4,216,692	$10,263,555	$58,986
2012	158	$254,491	$4,692,673	$4,229,177	$9,176,341	$58,078
2013	254	$249,722	$7,257,718	$7,703,406	$15,210,846	$59,885
Average	191	$251,483	$5,672,557	$5,492,109	$11,416,149	$59,836

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.6 Gag

Gag is within the porgies group of the sea basses and grouper group of the snapper grouper fishery. From 2009 through 2013, gag's 5-year commercial landings ranked 6th by weight and 3rd by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of gag in the South Atlantic ranged from about 268,000 lb ww to 522,000 lb ww from 2009 through 2013 (**Figure 3.3.1.19**). Dockside revenues from those landings ranged from about $1.1 million to $2.2 million (2013 $) (**Figure 3.3.1.19**). The average dockside price

during those five years was $4.14 per pound ww (2013$). Commercial landings for gag peaked in 2011 and declined thereafter while dockside revenues peaked in 2009 and declined thereafter.

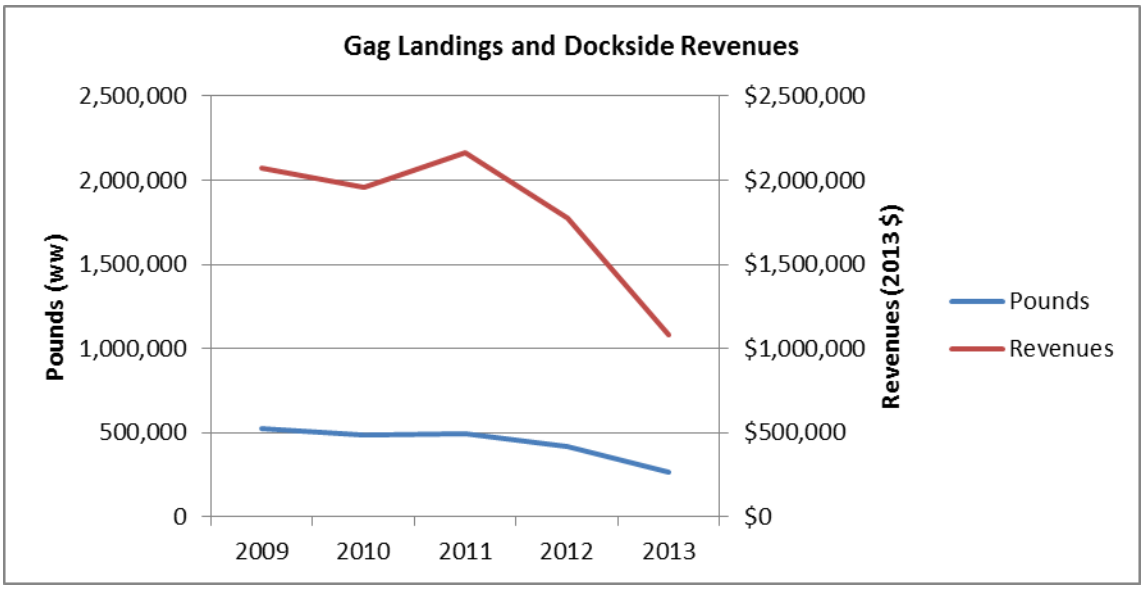

Figure 3.3.1.23. Annual commercial landings of gag by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, North Carolina accounted for most of the gag landings both in weight and revenue (Figure 3.3.1.24 and Figure 3.3.1.25). This area's share fell in 2010 and 2011 in both weight and revenues, with South Carolina increasing its shares in those two years. Gag landings for South Carolina are not yet available for 2013.

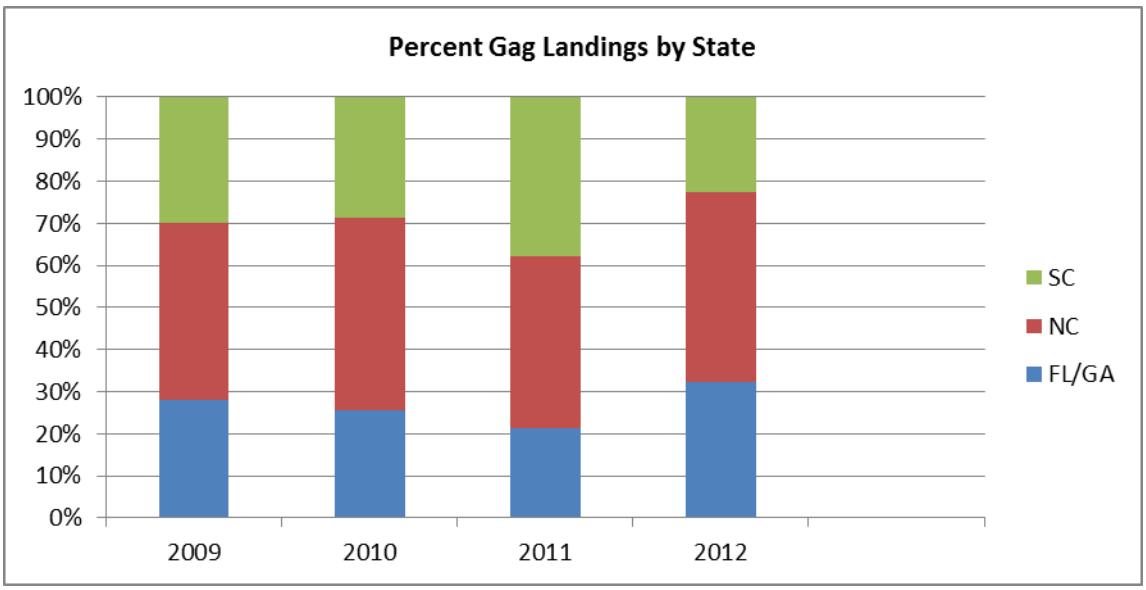

Figure 3.3.1.24. Percent of gag landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

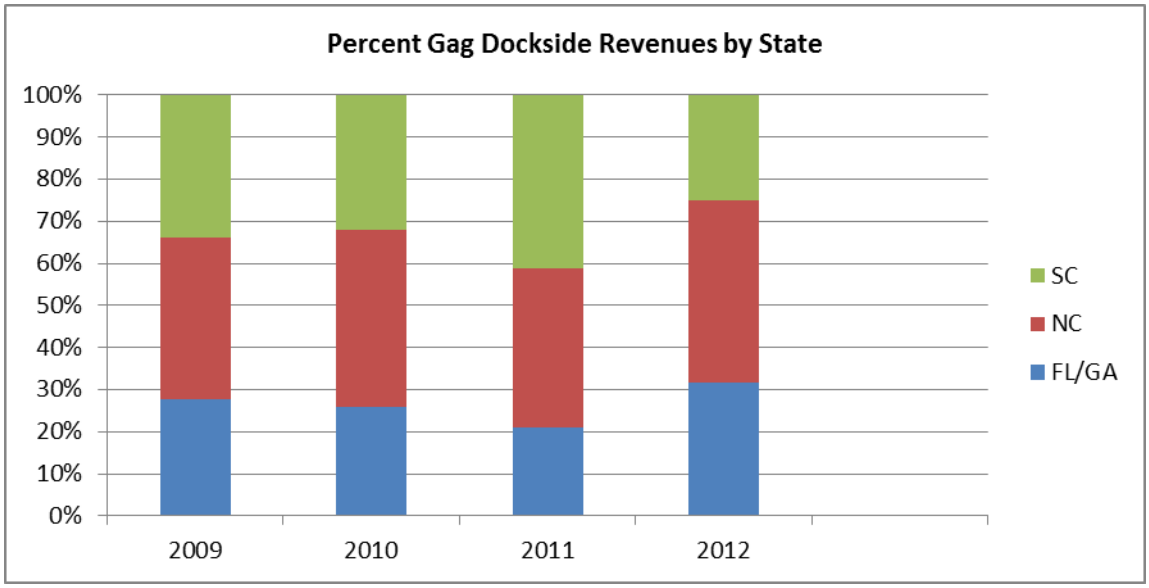

Figure 3.3.1.25. Percent of gag dockside revenues (2013 $) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.26**. Average landings and revenues peaked in May, with March and April recording the lowest average landings by both weight and revenues.

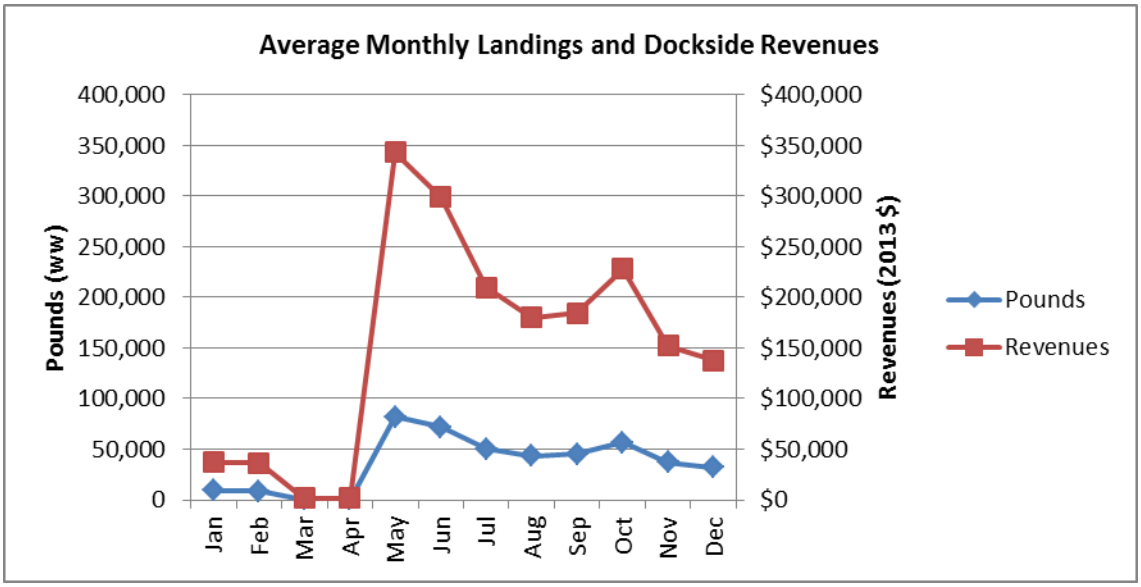

Figure 3.3.1.26. Average monthly gag landings (lb ww) and revenues (2013 $), 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 273 vessels took 2,167 commercial trips that combined landed an average of 379,734 lb gw of gag annually with a dockside value (2013 dollars) of $1,860,674 (**Table 3.3.1.14**). Average annual dockside revenue from gag landings represented approximately 3% of total dockside revenue from trips that landed gag from 2009 through 2013.

Table 3.3.1.14. Vessels and trips with gag landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed gag	Number trips that landed gag	Gag landings (lb gw)	Dockside revenue from gag (2013 $)	'Other species' landed with gag (lb gw)	Dockside revenue from 'other species' landings (2013 $)	Total dockside revenue (2013 $) from trips with gag landings
2009	292	2,370	383,161	$1,801,490	1,772,776	$4,842,459	$6,643,949
2010	243	2,126	375,504	$1,793,483	1,457,171	$3,804,952	$5,598,436
2011	233	2,155	378,770	$1,942,380	1,503,104	$3,929,209	$5,871,589
2012	224	1,847	327,133	$1,658,904	1,187,337	$3,208,821	$4,867,725
2013	371	2,336	434,100	$2,107,112	2,758,240	$8,661,933	$10,769,045
Average	273	2,167	379,734	$1,860,674	1,735,725	$4,889,475	$6,750,149

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested gag also took 4,530 trips per year without gag landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed gag was about $49,097 (2013 $) (**Table 3.3.1.15**). Annual dockside revenue from gag landings represented, on average, approximately 1.4% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $49,097 as compared to $6,816 per vessel from gag only.

Table 3.3.1.15. Dockside revenues (2013 $) from all sources for vessels that landed gag, 2009–2013.

Year	Number vessels that landed gag	Dockside revenue from gag (2013 $)	Dockside revenue from 'other species' jointly landed with gag (2013 $)	Dockside revenue from 'other species' landed (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	292	$1,801,490	$4,842,459	$6,823,681	$13,467,630	$46,122
2010	243	$1,793,483	$3,804,952	$6,219,445	$11,817,880	$48,633
2011	233	$1,942,380	$3,929,209	$5,794,883	$11,666,472	$50,071
2012	224	$1,658,904	$3,208,821	$6,017,366	$10,885,091	$48,594
2013	371	$2,107,112	$8,661,933	$8,546,630	$19,315,675	$52,064
Average	273	$1,860,674	$4,889,475	$6,680,401	$13,430,550	$49,097

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.7 Golden Tilefish

Golden tilefish is within the porgies group of the tilefishes group of the snapper grouper fishery. From 2009 through 2013, golden tilefish's 5-year commercial landings ranked 5th by weight and 4th by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of golden tilefish in the South Atlantic ranged from about 366,000 lb ww to 579,000 lb ww from 2009 through 2013 (**Figure 3.3.1.19**). Dockside revenues from those landings ranged from about $1.1 million to $1.6 million (2013 $) (**Figure 3.3.1.19**). The average dockside price during those five years was $4.14 per pound ww (2013$). Commercial landings and revenues for golden tilefish peaked in 2012, 2009 recording the lowest landings and revenues.

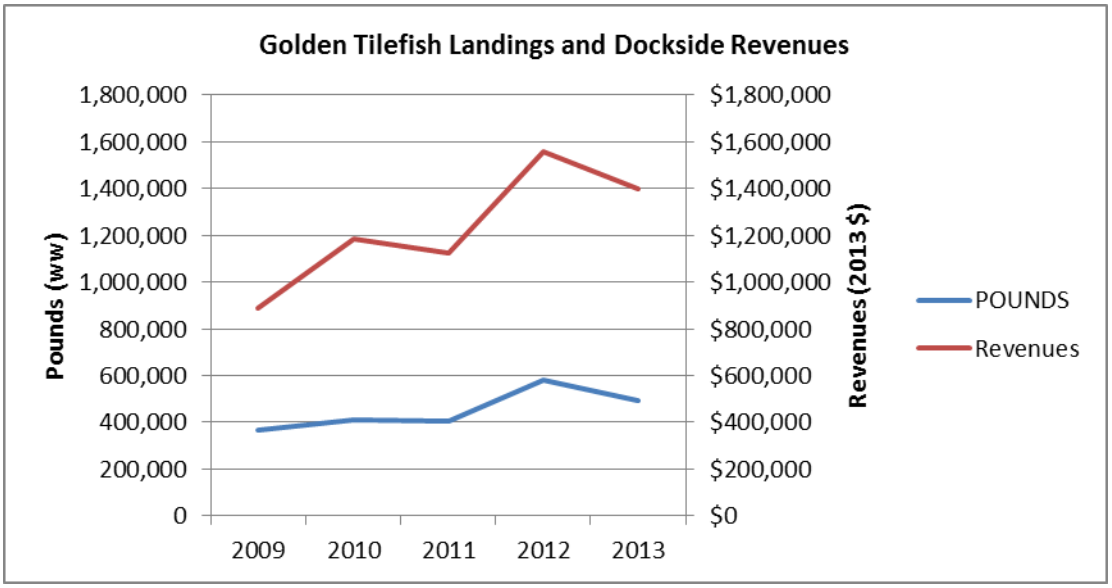

Figure 3.3.1.26. Annual commercial landings of golden tilefish by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, Florida/Georgia accounted for most of the golden tilefish landings both in weight and revenue (Figure 3.3.1.27 and Figure 3.3.1.28). South Carolina accounted for most of other landings and dockside revenues. Golden tilefish landings for South Carolina are not yet available for 2013.

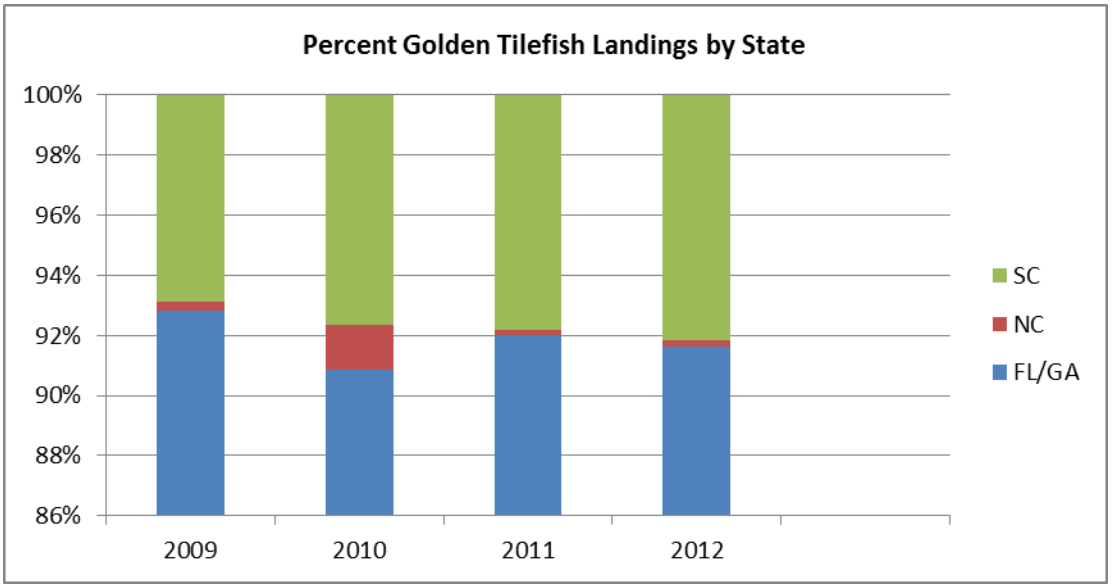

Figure 3.3.1.27. Percent of golden tilefish landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

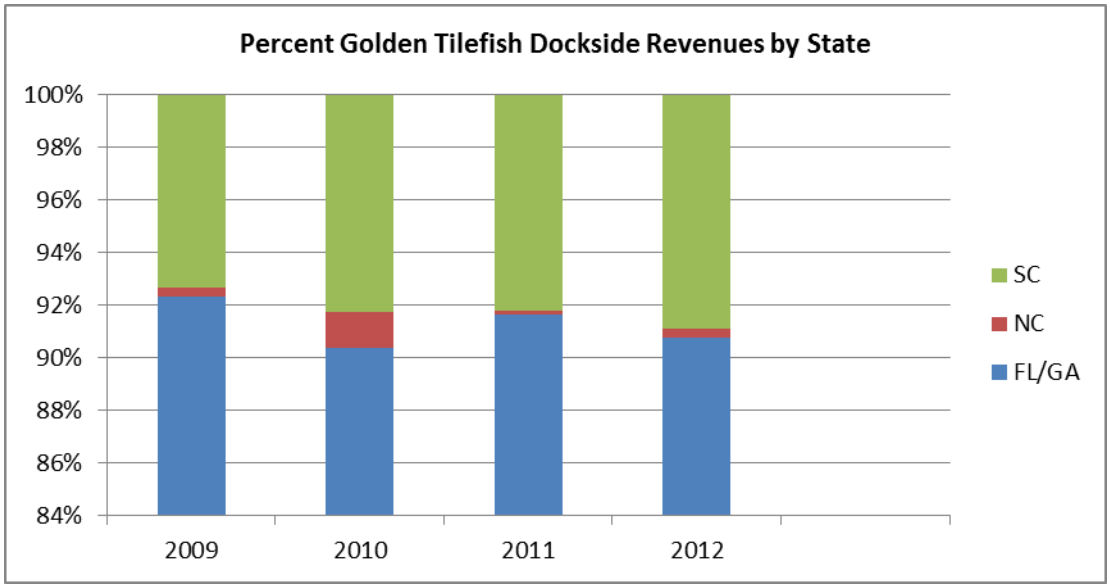

Figure 3.3.1.28. Percent of golden tilefish dockside revenues (2013 $) by state, 2009–2012. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.29**. Average landings and revenues peaked in January and declined thereafter, with slight uptick in October through December.

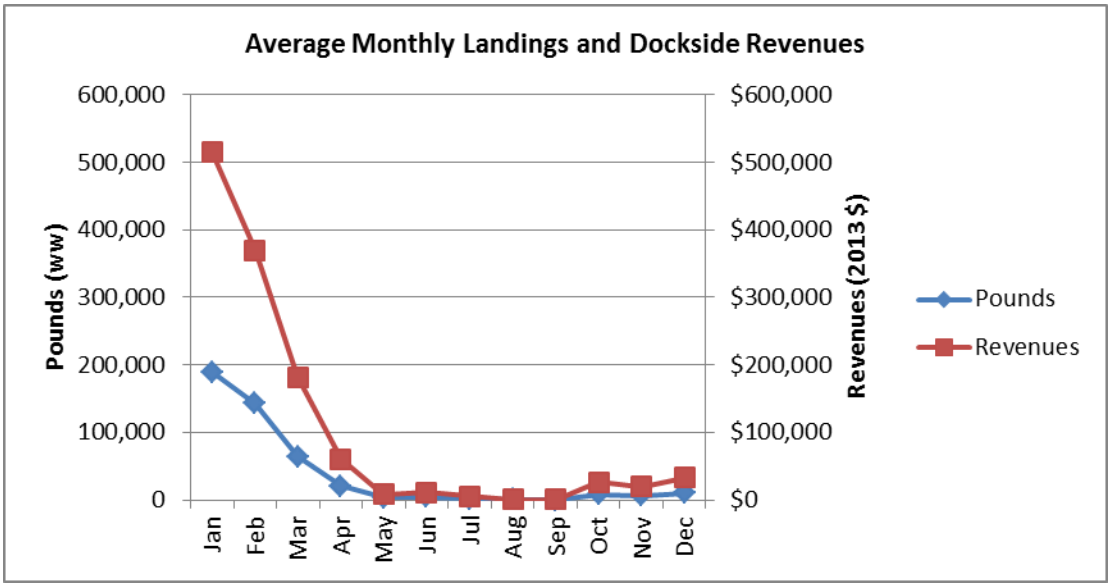

Figure 3.3.1.29. Average monthly golden tilefish landings (lb ww) and revenues (2013 $), 2009–2013. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 63 vessels took 453 commercial trips that combined landed an average of 435,973 lb gw of golden tilefish annually with a dockside value (2013 dollars) of $1,319,731 (**Table 3.3.1.16**). Average annual dockside revenue from golden tilefish landings represented approximately 75% of total dockside revenue from trips that landed golden tilefish from 2009 through 2013.

Table 3.3.1.16. Vessels and trips with golden tilefish landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed golden tilefish	Number trips that landed golden tilefish	Golden tilefish landings (lb gw)	Dockside revenue from golden tilefish (2013 $)	'Other species' landed golden tilefish (lb gw)	Dockside revenue from 'other species' landings (2013 $)	Total dockside revenue (2013 $) from trips with golden tilefish landings
2009	49	384	313,311	$834,187	67,671	$148,511	$982,698
2010	51	352	369,556	$1,158,913	52,665	$114,105	$1,273,018
2011	40	265	365,716	$1,139,580	21,840	$45,565	$1,185,144
2012	74	687	491,268	$1,515,017	50,215	$111,595	$1,626,612
2013	99	576	640,012	$1,950,960	502,918	$1,826,544	$3,777,504
Average	63	453	435,973	$1,319,731	139,062	$449,264	$1,768,995

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested golden tilefish also took 2,211 trips per year without golden tilefish landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed golden tilefish was about $67,936 (2013 $) (**Table 3.3.1.17**). Annual dockside revenue from golden tilefish landings represented, on average, approximately 1.4% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $67,936 as compared to $20,948 per vessel from golden tilefish only.

Table 3.3.1.17. Dockside revenues (2013 $) from all sources for vessels that landed golden tilefish, 2009–2013.

Year	Number vessels that landed golden tilefish	Dockside revenue from golden tilefish (2013 $)	Dockside revenue from 'other species' jointly landed with golden tilefish (2013 $)	Dockside revenue from 'other species' landed on trips without golden tilefish (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	49	$834,187	$148,511	$1,785,766	$2,768,464	$56,499
2010	51	$1,158,913	$114,105	$2,241,415	$3,514,433	$68,910
2011	40	$1,139,580	$45,565	$1,233,162	$2,418,306	$60,458
2012	74	$1,515,017	$111,595	$3,251,127	$4,877,739	$65,915
2013	99	$1,950,960	$1,826,544	$4,924,098	$8,701,602	$87,895
Average	63	$1,319,731	$449,264	$2,687,114	$4,456,109	$67,936

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.8 Red Grouper

Red grouper is within the sea basses and grouper group of the snapper grouper fishery. From 2009 through 2013, red grouper's 5-year commercial landings ranked 9th by weight and 7th by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of red grouper in the South Atlantic ranged from about 97,000 lb ww to 431,000 lb ww from 2009 through 2013 (**Figure 3.3.1.30**). Dockside revenues from those landings ranged from

about $318,000 to $1.3 million (2013 $) (**Figure 3.3.1.31**). The average dockside price during those five years was $3.14 per pound ww (2013$). Commercial landings and revenues for red grouper peaked in 2009 and declined thereafter.

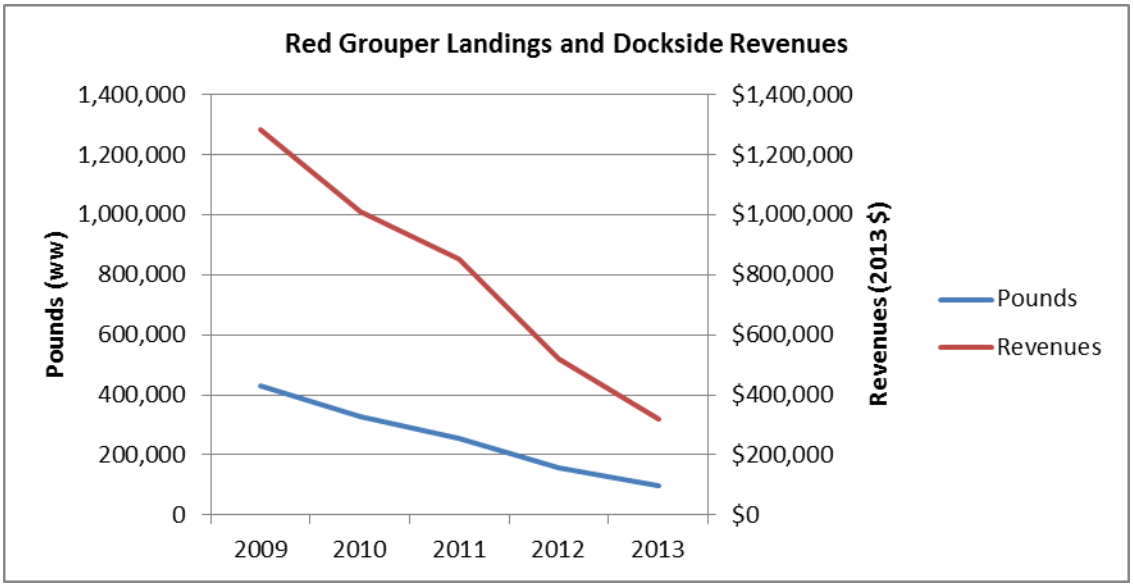

Figure 3.3.1.30. Annual commercial landings of red grouper by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, North Carolina accounted for most of the red grouper landings both in weight and revenue (**Figure 3.3.1.31** and **Figure 3.3.1.32**). South Carolina accounted for most of other landings and dockside revenues. Red grouper landings for South Carolina are not yet available for 2013.

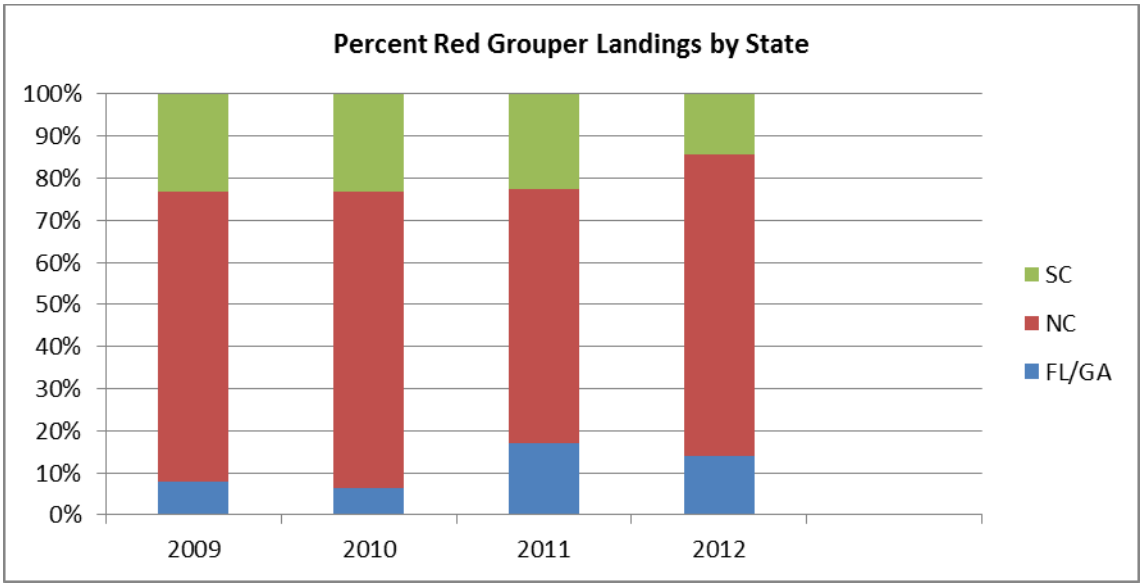

Figure 3.3.1.31. Percent of red grouper landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

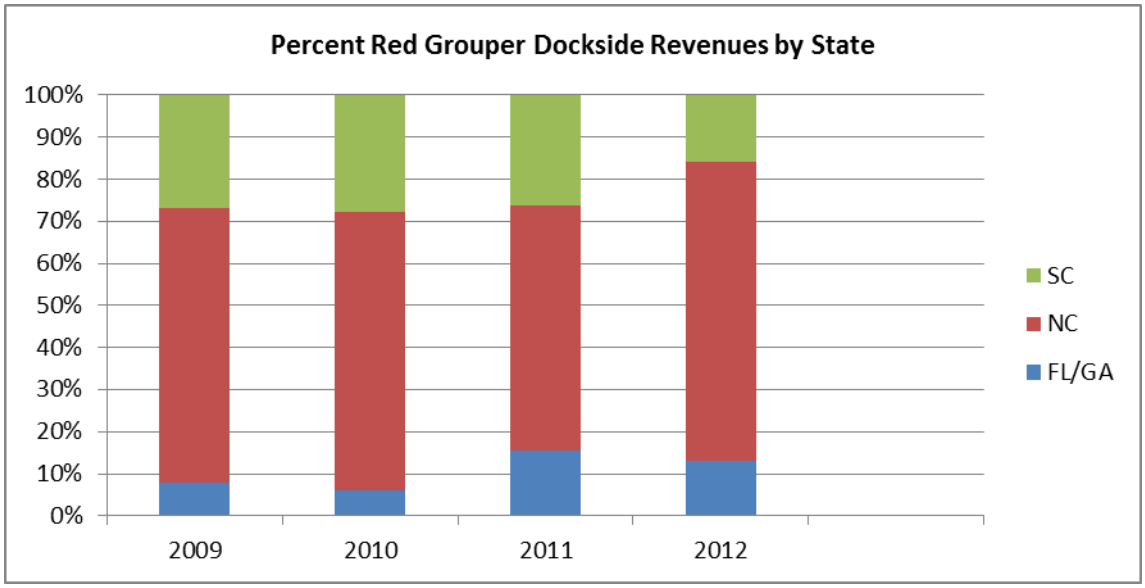

Figure 3.3.1.32. Percent of red grouper dockside revenues (2013 $) by state, 2009–2012. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.33**. Average landings and revenues peaked in May and were lowest in January through March.

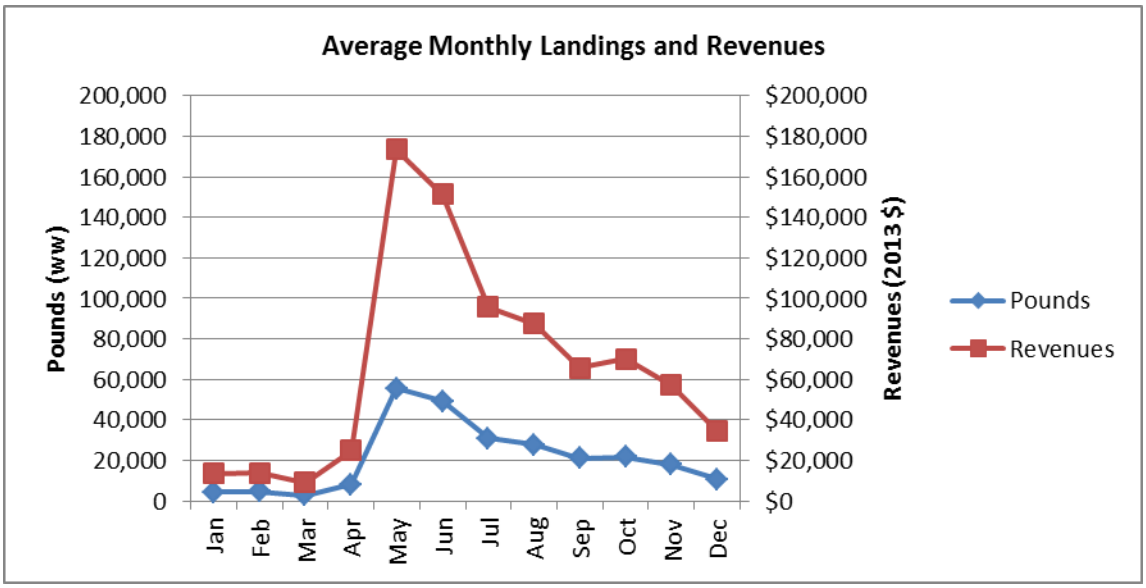

Figure 3.3.1.33. Average monthly red grouper landings (lb ww) and revenues (2013 $), 2009–2013. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

There remain some data issues to be resolved regarding the 2013 vessel level landings and revenues, so data for this year is not included in this part of the discussions. From 2009 through 2012, an annual average of 278 vessels took 1,652 commercial trips that combined landed an average of 225,947 lb gw of red grouper annually with a dockside value (2013 dollars) of $842,558 (**Table 3.3.1.18**). Average annual dockside revenue from red grouper landings

represented approximately 16% of total dockside revenue from trips that landed red grouper from 2009 through 2012.

Table 3.3.1.18. Vessels and trips with red grouper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2012.

Year	Number vessels that landed red grouper	Number trips that landed red grouper	Red grouper landings (lb gw)	Dockside revenue from red grouper (2013 $)	'Other species' landed with red grouper (lb gw)	Dockside revenue from 'other species' from trips with red grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with red grouper landings
2009	319	2,326	326,053	$1,157,513	2,220,794	$6,205,354	$7,362,867
2010	252	1,467	262,377	$962,645	1,385,408	$3,988,509	$4,951,154
2011	278	1,566	184,432	$738,266	1,426,383	$4,300,088	$5,038,354
2012	261	1,250	130,924	$511,806	1,024,511	$3,217,815	$3,729,621
Average	278	1,652	225,947	$842,558	1,514,274	$4,427,941	$5,270,499

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested red grouper also took 6,210 trips per year without red grouper landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed red grouper was about $49,691 (2013 $) (**Table 3.3.1.19**). Annual dockside revenue from red grouper landings represented, on average, approximately 6% of the total dockside revenue from all commercial landings from 2009 through 2012. Average annual dockside revenue per vessel from all landings was $49,691 as compared to $3,030 per vessel from red grouper only.

Table 3.3.1.19. Dockside revenues (2013 $) from all sources for vessels that landed red grouper, 2009–2012.

Year	Number vessels that landed red grouper	Dockside revenue from red grouper (2013 $)	Dockside revenue from 'other species' jointly landed with red grouper (2013 $)	Dockside revenue from 'other species' landed on trips without red grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	319	$1,157,513	$6,205,354	$7,544,107	$14,906,973	$46,730
2010	252	$962,645	$3,988,509	$7,823,365	$12,774,519	$50,693
2011	278	$738,266	$4,300,088	$8,700,820	$13,739,174	$49,421
2012	261	$511,806	$3,217,815	$9,821,696	$13,551,317	$51,921
Average	278	$842,558	$4,427,941	$8,472,497	$13,742,996	$49,691

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.9 Red Snapper

Red snapper is within the snapper group of the snapper grouper fishery. Commercial and recreational harvest of red snapper in the South Atlantic was closed on January 4, 2010 through interim measures and extended on January 3, 2011 through Amendment 17A. In 2012 and 2013, commercial fishing for red snapper was re-opened under a very limited ACL. The ACL was

20,818 lb ww for 2012 and 21,447 lb ww for 2013. A specialized survey was conducted in both years to monitor commercial red snapper landings. Details of this survey, resulting estimates, and season projections may be found in several documents (see http://safmc.net/images/pdf/Attach8d_RSMortalities_2010-2011.pdf; http://sero.nmfs.noaa.gov/sustainable_fisheries/s_atl/sg/2013/red_snapper/documents/pdfs/sa_rs_sefsc_report.pdf; http://sero.nmfs.noaa.gov/sustainable_fisheries/s_atl/sg/2013/red_snapper/documents/pdfs/sa_rs_acl_season_length_projections.pdf) These documents are incorporated herein by reference.

The SEFSC Coastal Fisheries Logbook continued to report commercial landings of red snapper. The following vessel-level information is mainly based on this logbook program. From 2009 through 2012, an annual average of 95 vessels took 557 commercial trips that combined landed an average of 82,702 lb gw of red snapper annually with a dockside value (2013 dollars) of $359,021 (**Table 3.3.1.20**). Average annual dockside revenue from red snapper landings represented approximately 2% of total dockside revenue from trips that landed red snapper from 2009 through 2012.

Table 3.3.1.20. Vessels and trips with red snapper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2012.

Year	Number vessels that landed red snapper	Number trips that landed red snapper	Red snapper landings (lb gw)	Dockside revenue from red snapper (2013 $)	'Other species' landed with red snapper (lb gw)	Dockside revenue from 'other species' landings (2013 $)	Total dockside revenue (2013 $) from trips with red snapper landings
2009	270	1,998	313,051	$1,359,029	1,866,757	$5,071,191	$6,430,219
2010	28	44	2,802	$11,617	25,474	$71,437	$83,054
2011	12	20	1,207	$4,286	13,019	$40,914	$45,200
2012	71	166	13,747	$61,153	108,647	$305,163	$366,316
Average	95	557	82,702	$359,021	503,474	$1,372,176	$1,731,197

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested red snapper also took 2,303 trips per year without red snapper landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed red snapper was about $56,883 (2013 $) (**Table 3.3.1.21**). Annual dockside revenue from red snapper landings represented, on average, approximately 7% of the total dockside revenue from all commercial landings from 2009 through 2012. Average annual dockside revenue per vessel from all landings was $56,883 as compared to $3,779 per vessel from red snapper only.

Table 3.3.1.21. Dockside revenues (2013 $) from all sources for vessels that landed red snapper, 2009–2012.

Year	Number vessels that landed red snapper	Dockside revenue from red snapper (2013 $)	Dockside revenue from 'other species' jointly landed with red snapper (2013 $)	Dockside revenue from 'other species' landed on trips without red snapper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	270	$1,359,029	$5,071,191	$7,800,231	$14,230,450	$52,705
2010	28	$11,617	$71,437	$1,708,860	$1,791,914	$63,997
2011	12	$4,286	$40,914	$564,920	$610,120	$50,843
2012	71	$61,153	$305,163	$3,892,798	$4,259,114	$59,988
Average	95	$359,021	$1,372,176	$3,491,702	$5,222,899	$56,883

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.10 Snowy Grouper

Snowy grouper is within the sea basses and grouper group of the snapper grouper fishery. From 2009 through 2013, snowy grouper's 5-year commercial landings ranked 18th by weight and 13th by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of snowy grouper in the South Atlantic ranged from about 43,000 lb ww to 105,000 lb ww from 2009 through 2013 (**Figure 3.3.1.38**). Dockside revenues from those landings ranged from about $152,000 to $373,000 (2013 $) (**Figure 3.3.1.38**). The average dockside price during those five years was $3.48 per pound ww (2013$). Commercial landings and revenues for snowy grouper peaked in 2012 and were lowest in 2011.

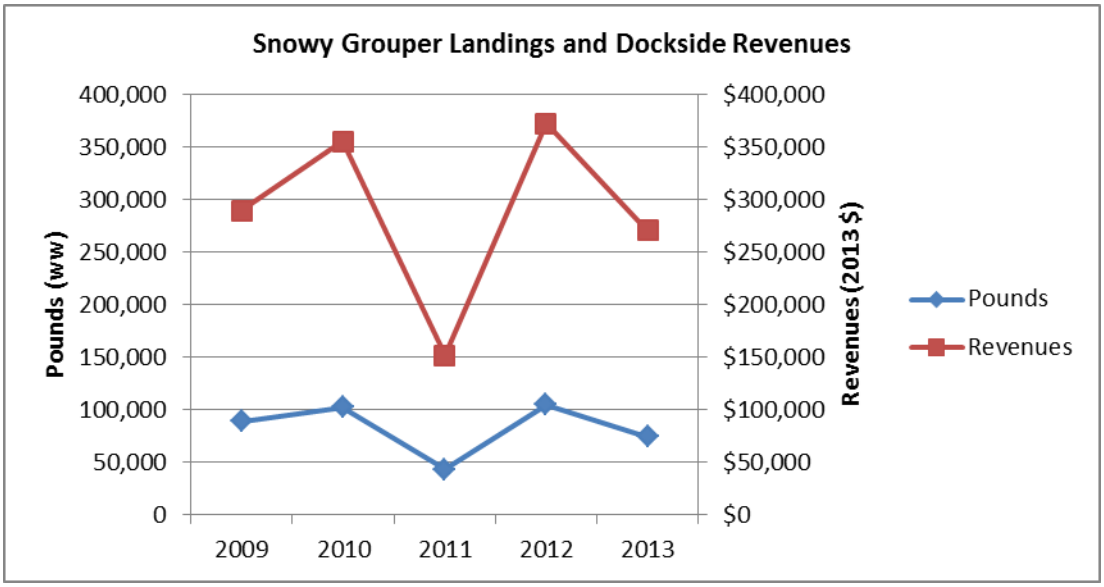

Figure 3.3.1.34. Annual commercial landings of snowy grouper by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Among the South Atlantic states, Florida/Georgia accounted for most of the snowy grouper landings both in weight and revenue for most years (**Figure 3.3.1.39** and **Figure 3.3.1.40**).

South Carolina had about the same share as Florida/Georgia in 2011. Snowy grouper landings for South Carolina are not yet available for 2013.

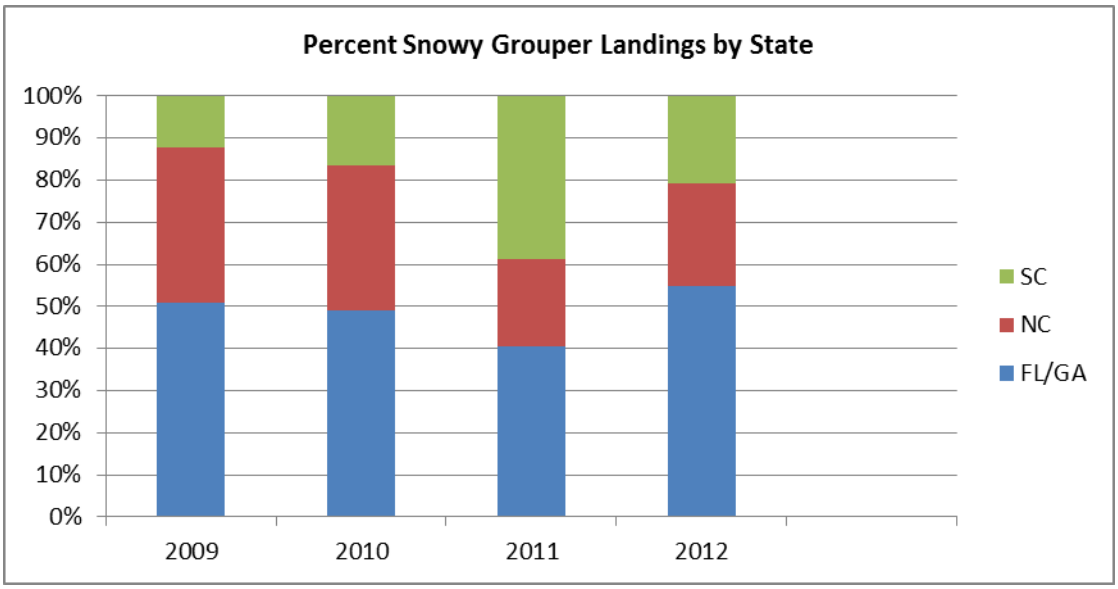

Figure 3.3.1.35. Percent of snowy grouper landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

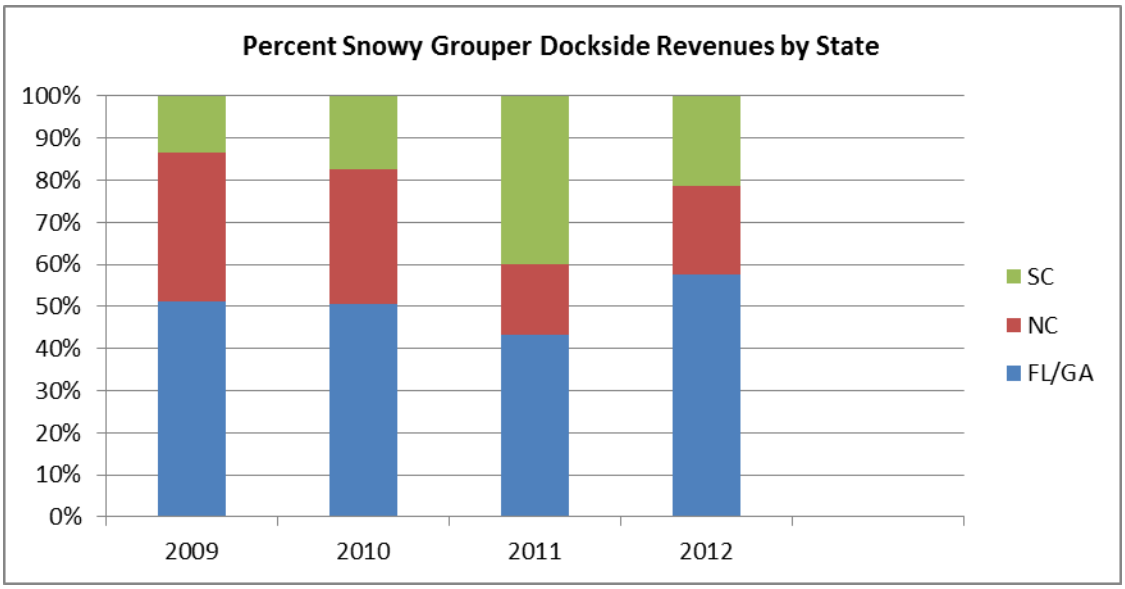

Figure 3.3.1.36. Percent of snowy grouper dockside revenues (2013 $) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.41**. Average landings and revenues peaked in June and were lowest in December.

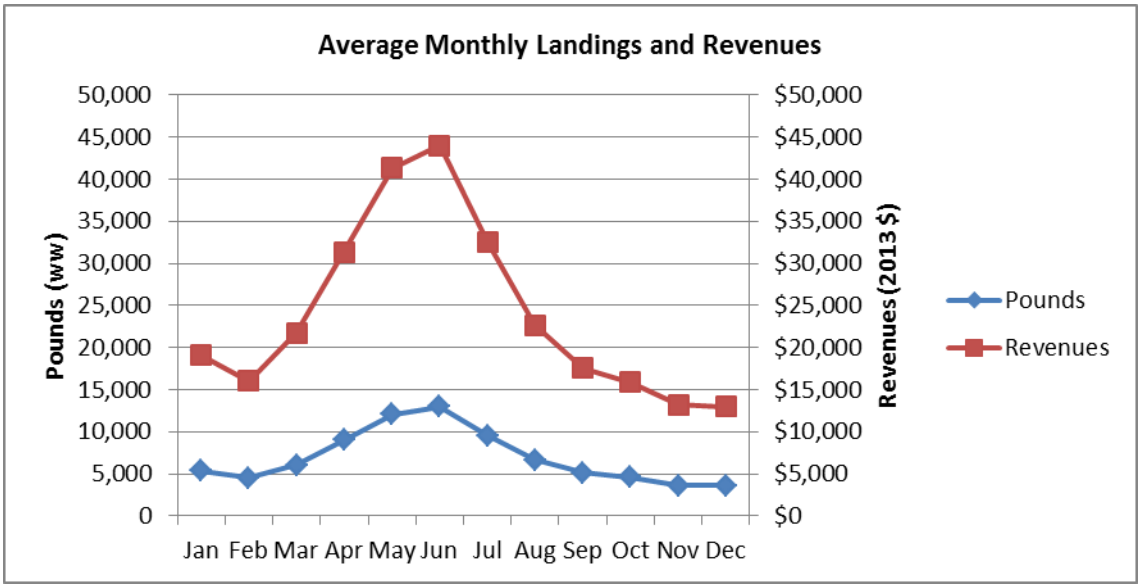

Figure 3.3.1.37. Average monthly snowy grouper landings (lb ww) and revenues (2013 $), 2009–2013. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, an annual average of 138 vessels took 935 commercial trips that combined landed an average of 70,218 lb gw of snowy grouper annually with a dockside value (2013 dollars) of $284,024 (**Table 3.3.1.22**). Average annual dockside revenue from snowy grouper landings represented approximately 9% of total dockside revenue from trips that landed snowy grouper from 2009 through 2012.

Table 3.3.1.22. Vessels and trips with snowy grouper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lb gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed with snowy grouper (lb gw)	Dockside revenue from 'other species' landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	151	1,057	66,013	$254,473	1,091,322	$2,742,902	$2,997,376
2010	134	1,088	74,693	$298,355	969,160	$2,467,975	$2,766,330
2011	112	592	35,472	$148,354	781,586	$2,174,886	$2,323,240
2012	128	1,080	80,490	$338,892	829,793	$2,283,829	$2,622,721
2013	166	856	94,425	$380,047	1,486,015	$4,730,487	$5,110,534
Average	138	935	70,218	$284,024	1,031,575	$2,880,016	$3,164,040

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested snowy grouper also took 3,412 trips per year without snowy grouper landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper was about $77,860 (2013 $) (**Table 3.3.1.23**). Annual dockside revenue from snowy grouper landings represented, on average, approximately 3% of the total dockside revenue from all commercial landings from 2009 through 2012. Average annual dockside revenue per vessel from all landings was $77,860 as compared to $2,058 per vessel from snowy grouper only.

Table 3.3.1.23. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	151	$254,473	$2,742,902	$7,291,820	$10,289,196	$68,140
2010	134	$298,355	$2,467,975	$7,260,791	$10,027,121	$74,829
2011	112	$148,354	$2,174,886	$7,055,797	$9,379,037	$83,741
2012	128	$338,892	$2,283,829	$6,819,137	$9,441,858	$73,765
2013	166	$380,047	$4,730,487	$9,634,449	$14,744,983	$88,825
Average	138	$284,024	$2,880,016	$7,612,399	$10,776,439	$77,860

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.11 Golden Crab

Annual commercial landings of golden crab in the South Atlantic ranged from about 545,000 lb ww to 792,000 lb ww from 2009 through 2013 (**Figure 3.3.1.42**). Dockside revenues from those landings ranged from about $1.0 million to $2.1 million (2013 $) (**Figure 3.3.1.42**). The average dockside price during those five years was $2.32 per pound ww (2013$). Commercial landings and revenues for golden crab peaked in 2012 and were lowest in 2013 by weight and 2009 by revenue.

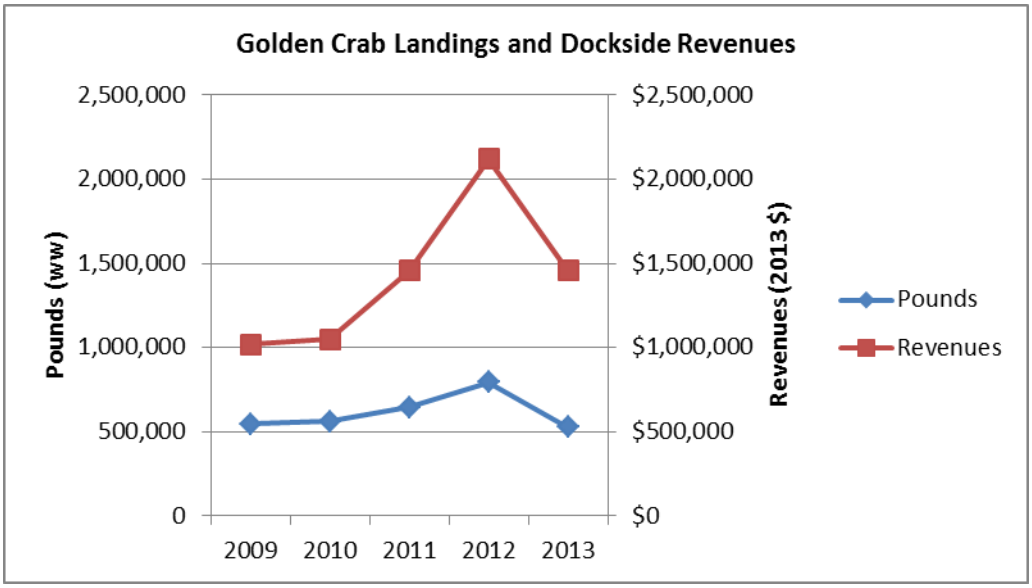

Figure 3.3.1.38. Annual commercial landings of golden crab by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Florida is the only state reporting landings of golden crab. Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.43**. Average landings and revenues peaked in May-June and were lowest in November.

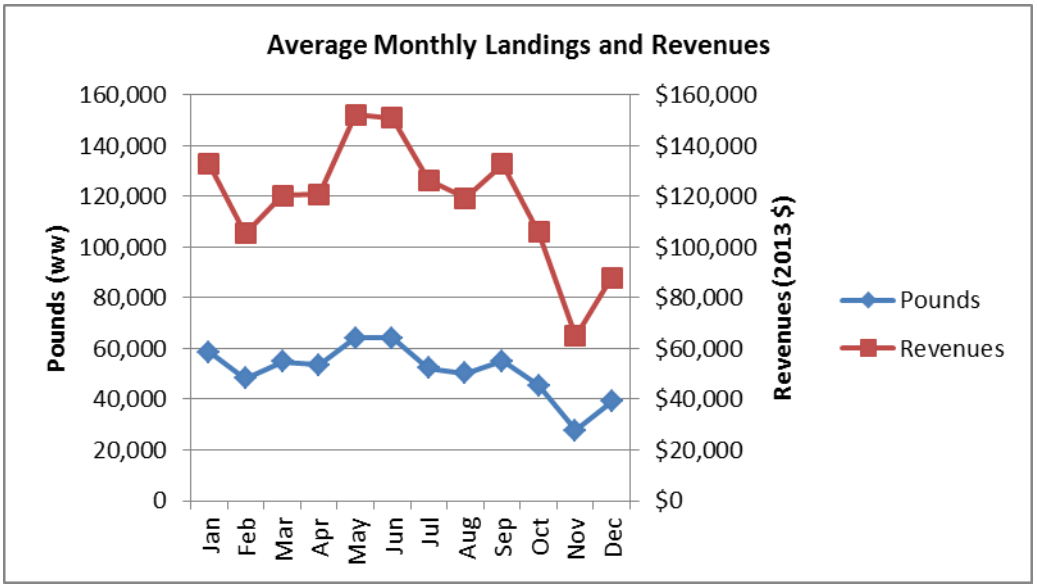

Figure 3.3.1.39. Average monthly golden crab landings (lb ww) and revenues (2013 $), 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

3.3.1.1.12 Dolphin

Annual commercial landings of dolphin in the South Atlantic ranged from about 497,000 lb ww to 1.2 million lb ww from 2009 through 2013 (**Figure 3.3.1.44**). Dockside revenues from those landings ranged from about $1.3 million to $2.3 million (2013 $) (**Figure 3.3.1.44**). The average dockside price during those five years was $2.28 per pound ww (2013$). Commercial landings and revenues for dolphin peaked in 2009 and declined thereafter.

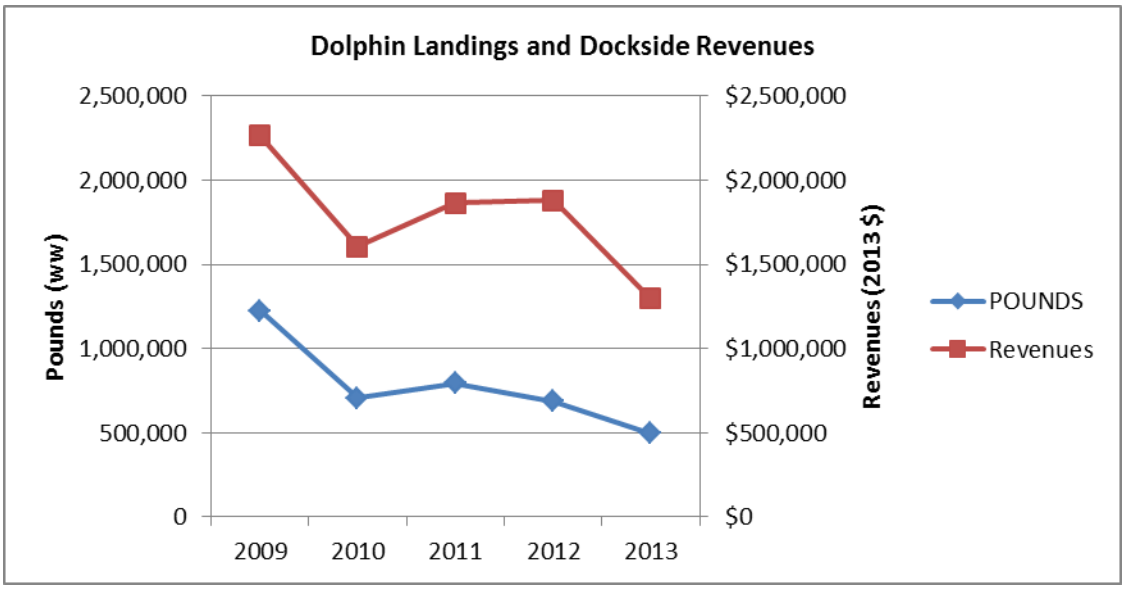

Figure 3.3.1.40. Annual commercial landings of dolphin by weight (lb ww) and dockside revenue (2013 $).
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

The management area for dolphin extends from Florida up to the Northeast (NE). Among the Atlantic states, Florida/Georgia accounted for most of the dolphin landings both in weight and revenue for most years (**Figure 3.3.1.45** and **Figure 3.3.1.46**). North Carolina followed next, except in 2011 when South Carolina had a larger share than North Carolina. The Northeast region has accounted for much less than 10 % of landings by both weight and dockside revenues. Dolphin landings for South Carolina are not yet available for 2013.

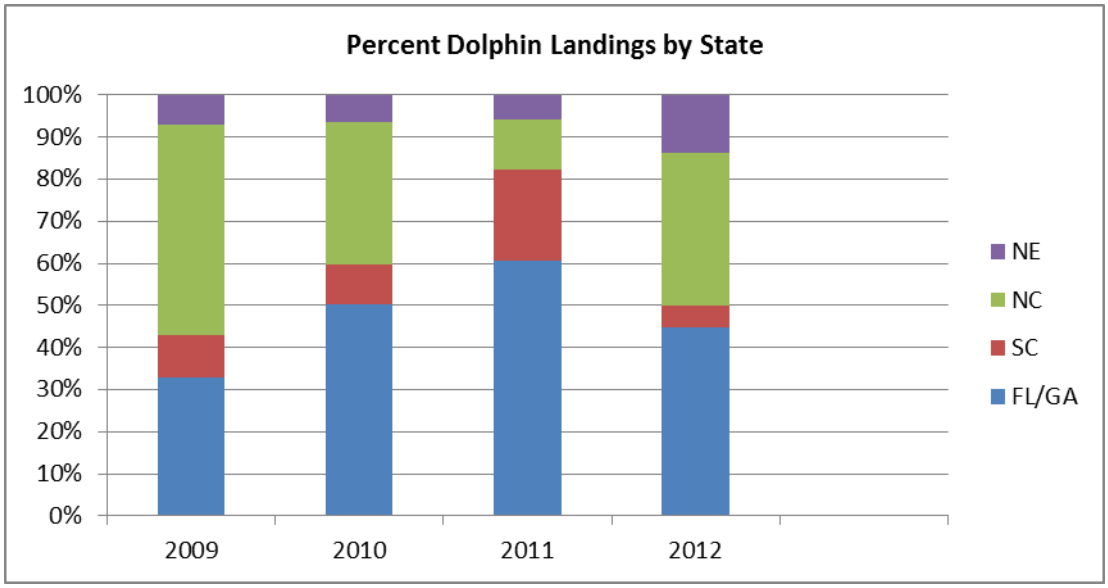

Figure 3.3.1.41. Percent of dolphin landings (lb ww) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

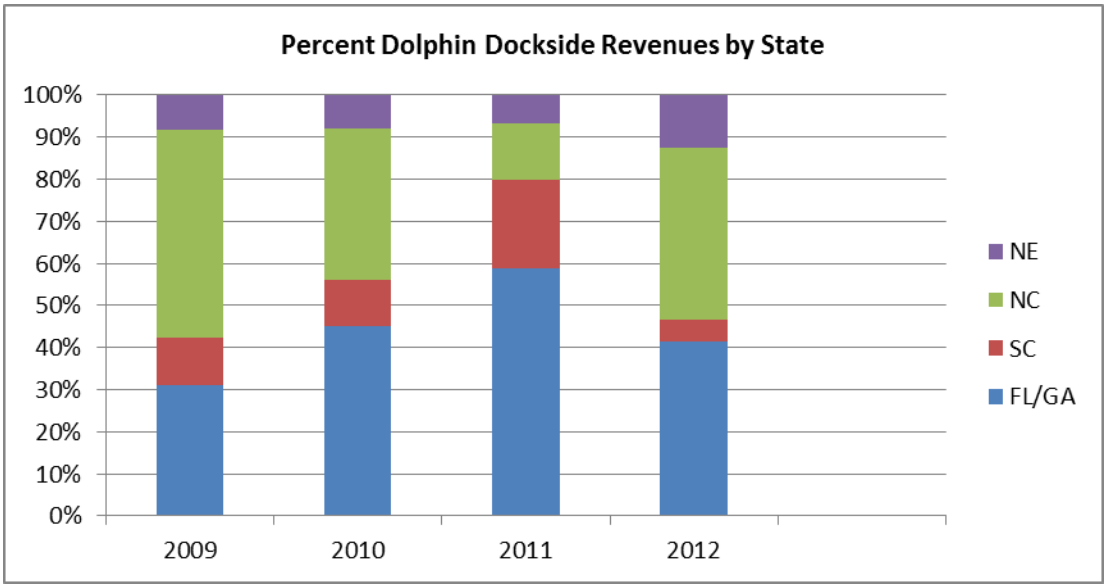

Figure 3.3.1.42. Percent of dolphin dockside revenues (2013 $) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.47**. Average landings and revenues peaked in May and were relatively in the colder months.

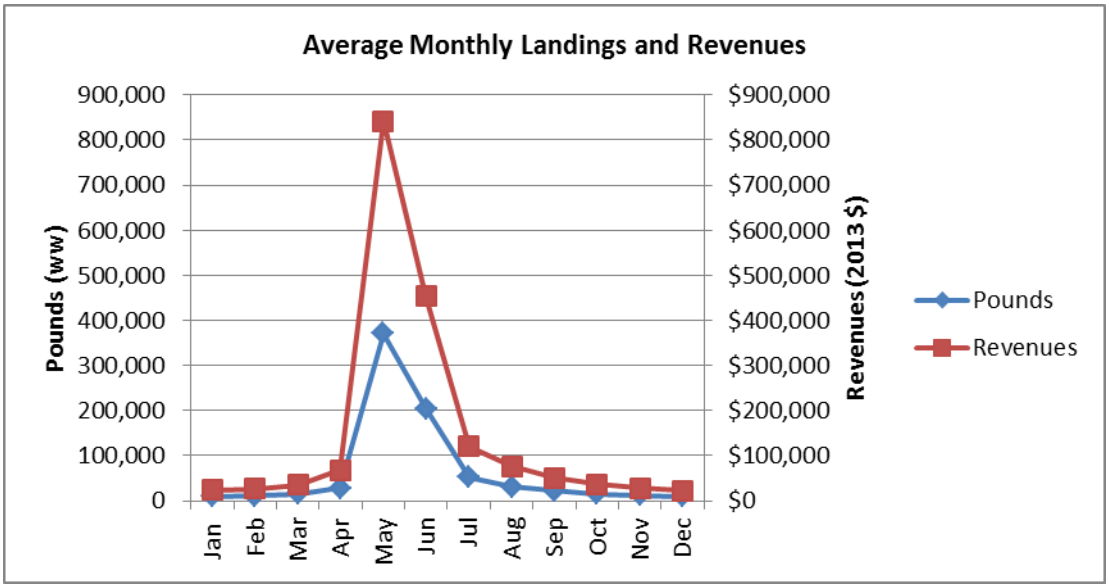

Figure 3.3.1.43. Average monthly dolphin landings (lb ww) and revenues (2013 $), 2009–2013. Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

From 2009 through 2013, excluding the Northeast, an annual average of 489 vessels took 1,935 commercial trips that combined landed an average of 200,871 lb gw of dolphin annually with a dockside value (2013 dollars) of $541,196 (**Table 3.3.1.24**). Average annual dockside revenue from dolphin landings represented approximately 11% of total dockside revenue from trips that landed dolphin from 2009 through 2012.

Table 3.3.1.24. Vessels and trips with dolphin landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed dolphin	Number trips that landed dolphin	Dolphin landings (lb gw)	Dockside revenue from dolphin (2013 $)	'Other species' landed with dolphin (lb gw)	Dockside revenue from 'other species' landings (2013 $)	Total dockside revenue (2013 $) from trips with dolphin landings
2009	556	2,500	398,291	$878,752	1,791,695	$4,755,827	$5,634,579
2010	480	1,713	187,476	$511,249	1,336,836	$3,576,033	$4,087,282
2011	450	1,785	127,401	$376,242	1,229,178	$3,408,562	$3,784,804
2012	467	1,886	142,330	$478,291	1,309,880	$3,676,323	$4,154,615
2013	490	1,792	148,858	$461,443	1,869,484	$5,815,286	$6,276,730
Average	489	1,935	200,871	$541,196	1,507,414	$4,246,406	$4,787,602

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested dolphin also took 12,285 trips per year without dolphin landings. Combining all sources of revenues, the average annual dockside revenues of vessels that landed dolphin was about $41,030 (2013 $) (**Table 3.3.1.25**). Annual dockside revenue from dolphin landings represented, on average, approximately 3% of the total dockside revenue from all commercial landings from 2009 through 2012. Average annual dockside revenue per vessel from all landings was $41,030 as compared to $1,109 per vessel from dolphin only.

Table 3.3.1.25. Dockside revenues (2013 $) from all sources for vessels that landed dolphin, 2009–2013.

Year	Number vessels that landed dolphin	Dockside revenue from dolphin (2013 $)	Dockside revenue from 'other species' jointly landed with dolphin (2013 $)	Dockside revenue from 'other species' landed on trips without dolphin (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	556	$878,752	$4,755,827	$14,904,214	$20,538,793	$36,940
2010	480	$511,249	$3,576,033	$12,552,180	$16,639,462	$34,666
2011	450	$376,242	$3,408,562	$12,036,809	$15,821,613	$35,159
2012	467	$478,291	$3,676,323	$11,710,722	$15,865,337	$33,973
2013	490	$461,443	$5,815,286	$25,286,211	$31,562,941	$64,414
Average	488	$541,196	$4,246,406	$15,298,027	$20,085,629	$41,030

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.1.1.13 Wreckfish

Wreckfish is currently managed as an ITQ program, which was established in 1992 through Amendment 5. The ITQ program was modified particularly relating to redistribution of unused shares through Amendment 20A (see Amendment 5 and Amendment 20A for more details on the ITQ program for wreckfish). The current commercial ACL is 223,250 lb ww.

Wreckfish landings by weight and revenue are shown in **Table 3.3.1.26**. For the the period 2009-2010 through 2013-2014, wreckfish landings averaged 244,527 lb ww valued at $719,564 (2013 $). Revenue numbers were generated using average price information from the SEFSC ACL Dataset, and are considered here preliminary until more accurate revenue figures become available.

Table 3.3.1.26. Wreckfish landings (lb ww) and dockside revenues (2013 $), 2009-2013.

Fishing Year	Pounds (ww)	Revenues (2013 $)*
2009-2010	216,449	$619,748
2010-2011	257,320	$745,390
2011-2012	318,673	$977,331
2012-2013	213,701	$712,115
2013-2014	216,543	$709,820
Average	244,537	$752,881

Source: David Gloeckner, pers. comm., 2014

3.3.1.1.14 Unassessed Species

Several unassessed species are also subject to the provisions in this amendment. These species may be grouped into 6 categories: jacks (3 species); snappers (5 species); grunts (4 species); shallow-water groupers (6 species); porgies (5 species); and, individual stocks (4 species). Average landings for these species for the period 2009-2013 are presented in **Table 3.3.1.27**, and their respective average dockside revenues are presented in **Table 3.3.1.28**.

Table 3.3.1.27. Average landings (lb ww) of selected species by gear type, 2009–2013.

Stock	Landings (lbs ww)		
Jacks	**Hook & Line**	**Longline**	**Other**
Almaco jack	174,130	281	12,417
Banded rudderfish	63,552	4	510
Lesser amberjack	16,292	697	359
Snappers			
Gray snapper	106,624	77	12,867
Lane snapper	2,849	0	158
Cubera snapper	2,852	23	1,233
Dog snapper	282	0	17
Mahogany snapper	36	0	9
Grunts			
White grunt	84,481	5	19,331
Sailors choice	2	0	0
Tomtate	169	0	1
Margate	2,738	97	969
Shallow Water Groupers			
Red hind	7,698	0	80
Rock hind	11,156	0	419
Yellowmouth grouper	208	0	242
Yellowfin grouper	2,745	3	295
Coney	33	0	17
Graysby	109	0	509
Porgies			
Jolthead porgy	1,774	0	3,189
Knobbed porgy	19,665	7	3,144
Saucereye porgy	0	0	0
Scup	0	0	0
Whitebone porgy	10	0	0
Individual Stocks			
Atlantic spadefish	963	0	25,976
Bar jack	3,627	0	597
Black grouper	29,933	398	19,045
Scamp	156,673	899	20,223
Hogfish	13,118	12	26,351

Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

Table 3.3.1.28. Dockside revenues from selected species by gear type, 2009–2013.

Stock	Landings (lbs ww)		
Jacks	**Hook & Line**	**Longline**	**Other**
Almaco jack	$159,598	$261	$11,544
Banded rudderfish	$45,322	$3	$447
Lesser amberjack	$12,843	$512	$449
Snappers			
Gray snapper	$225,350	$154	$37,984
Lane snapper	$6,757	$1	$429
Cubera snapper	$5,467	$28	$1,911
Dog snapper	$263	$0	$54
Mahogany snapper	$75	$0	$21
Grunts			
White grunt	$86,441	$6	$17,495
Sailors choice	$2	$0	$0
Tomtate	$82	$0	$1
Margate	$2,879	$71	$1,025
Shallow Water Groupers			
Red hind	$23,300	$1	$195
Rock hind	$44,740	$0	$1,609
Yellowmouth grouper	$866	$0	$774
Yellowfin grouper	$11,219	$9	$1,204
Coney	$73	$0	$53
Graysby	$349	$0	$1,447
Porgies			
Jolthead porgy	$2,375	$0	$3,033
Knobbed porgy	$18,964	$8	$1,524
Saucereye porgy	$0	$0	$0
Scup	$0	$0	$0
Whitebone porgy	$6	$0	$0
Individual Stocks			
Atlantic spadefish	$713	$0	$10,184
Bar jack	$4,012	$0	$1,027
Black grouper	$107,776	$1,428	$71,163
Scamp	$632,226	$3,107	$83,064
Hogfish	$41,476	$31	$85,806

Source: SEFSC Commercial ACL Dataset, excluding confidential data (April 2014).

3.3.1.2 Economic Description of the Recreational Sector

The recreational sector of the snapper grouper fishery is comprised of the private sector and the 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 charter boat and headboat (also called partyboat) sectors. Charter boats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person.

For-hire vessels are required to have a for-hire snapper grouper permit to fish for or possess snapper grouper species in the South Atlantic EEZ. The number of vessels with for-hire snapper grouper permits for the period 2009-2013 is provided in **Table 3.3.1.29**. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire vessel permits issued for the South Atlantic snapper grouper fishery decreased from 1,852 permits in 2009 to 1,799 permits in 2013. It may be noted, though, that for-hire vessel permits increased slightly in the last two years from their lowest in 2011. The majority of snapper grouper for-hire permitted vessels were home-ported in Florida; a relatively high proportion of these permitted vessels were also home-ported in North Carolina and South Carolina. Many vessels with South Atlantic for-hire snapper grouper permits were home-ported in states outside of the SAFMC's area of jurisdiction, particularly in the Gulf states of Alabama through Texas. The number of vessels with South Atlantic for-hire snapper grouper permits home-ported in states outside of South Atlantic Council's area of jurisdiction has accounted for about the same proportion (10-11%) of the total number of permits.

Table 3.3.1.29. Number of South Atlantic for-hire snapper grouper permits, by homeport state, 2008-2012.

Home Port	2009	2010	2011	2012	2013	Average
North Carolina	349	331	330	312	307	326
South Carolina	146	145	132	138	150	142
Georgia	30	27	26	26	30	28
Florida	1,131	1,109	1,099	1,122	1,121	1,116
Gulf (AL-TX)	83	86	91	93	91	89
Others	113	114	103	106	100	107
TOTAL	1,852	1,812	1,781	1,797	1,799	1,808

Source: NMFS SERO Permits Dataset, 2014.

For-hire vessels are also required to have a for-hire snapper dolphin/wahoo permit to fish for or possess dolphin or wahoo in the Atlantic EEZ. The number of vessels with for-hire dolphin/wahoo permits for the period 2009-2013 is provided in **Table 3.3.1.30**. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate. The number of permits fluctuated from year to year, with the highest in 2010 and lowest in 2009.

Table 3.3.1.30. Number of South Atlantic for-hire dolphin-wahoo vessel permits, 2008-2012.

Home Port State	2009	2010	2011	2012	2013	Average
Florida	1,011	1,021	1,015	1,031	1,063	1,028
Georgia	24	28	24	23	27	25
North Carolina	401	412	394	393	354	391
South Carolina	137	148	147	140	143	143
Mid-Atlantic	291	299	313	303	282	298
North Atlantic	14	19	21	21	22	19
Gulf States (AL-TX)	66	73	78	86	88	78
Other States	21	21	14	17	6	16
Total	1,965	2,021	2,006	2,014	1,985	1,998

Source: NMFS, SERO Permits Dataset, 2014.

For-hire permits do not distinguish charter boats from headboats. Based on a 1997 survey, Holland et al. (1999) estimated that a total of 1,080 charter vessels and 96 headboats supplied for-hire services in all South Atlantic fisheries during 1997. By 2014, the estimated number of headboats supplying for-hire services in all South Atlantic fisheries had fallen to 77, indicating a decrease in fleet size of approximately 20% between 1997 and 2014 (K. Brennan, Beaufort Laboratory, SEFSC, personal communication, 2014).

According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 1,416 current holders of South Atlantic for-hire snapper grouper permits and 1,544 current holders of South Atlantic for-hire dolphin/wahoo permits as of April 21, 2014. There are no specific permitting requirements for recreational anglers to harvest snapper grouper. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions

The following description focuses on the recreational landings and effort (angler trips) for the key species in this amendment. The major sources of data summarized in this description are the Recreational ACL Dataset (mrfssassess_rec81_13wv6_24feb14), as summarized by SERO-LAPP, for landings and the NOAA fisheries website for accessing recreational data (**http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/index)** for effort. The 2013 data are preliminary or incomplete, including the unavailability of the 2013 headboat landings. Additional information on the recreational sector of the snapper grouper fishery and dolphin/wahoo fishery as a whole is contained in previous or concurrent amendments and is incorporated herein by reference [see Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Amendment 17A (SAFMC 2010a), Amendment 17B (SAFMC 2010b), Regulatory Amendment 9 (SAFMC 2011a), Regulatory Amendment 11 (SAFMC 2011b), Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c), and Amendment 24 (SAFMC 2011d), Dolphin/Wahoo Amendment 5 (SAMFC 2013)].

Landings

3.3.1.2.1 Black Grouper

For the period 2009-2013, the private mode was been the dominant fishing mode for harvesting black grouper (**Table 3.3.1.31**). The for-hire mode, particularly headboats, lagged far behind the private mode.

Table 3.3.1.31. Black grouper recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	14,498	2,478	120,796	0	137,772
2010	13,008	2,904	20,273	0	36,185
2011	10,188	3,730	37,980	0	51,898
2012	26,072	4,940	118,342	0	149,354
2013	7,800	u/a	90,425	0	98,225
Average	14,313	2,810	77,563	0	94,687

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).
u/a – unavailable.

Black grouper are landed in Florida, with the other states recording no landings of the species. A strong seasonality characterized the recreational landings for black grouper (**Figure 3.3.1.44**). Landings were highest in May/June and lowest in March/April.

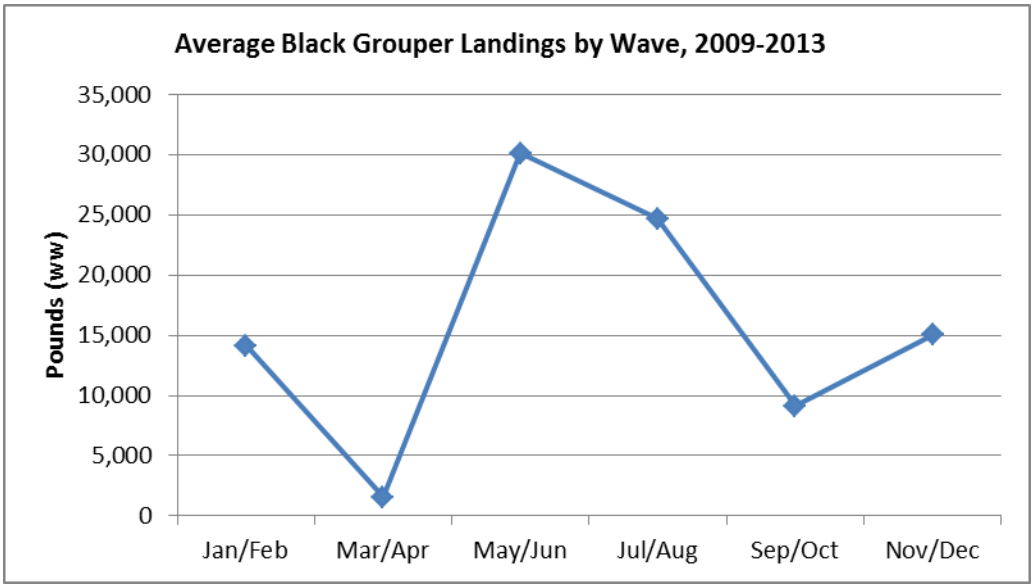

Figure 3.3.1.44. Average black grouper landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.2 Mutton Snapper

Although the private mode dominated in the landings of mutton snapper throughout the period 2009-2013, landings by the charter mode were relatively large in 2012 and 2013 (**Table 3.3.1.32**). A fair amount of landings is reported for the shore mode.

Table 3.3.1.32. Mutton snapper recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	70,384	72,386	277,861	15,490	436,121
2010	60,230	49,645	420,655	38,942	569,472
2011	79,066	53,171	129,696	19,313	281,246
2012	184,174	74,640	212,602	5,606	477,022
2013	106,377	u/a	307,627	37,434	451,438
Average	100,046	49,968	269,688	23,357	443,060

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14)
u/a – unavailable.

Mutton snapper are mostly landed in Florida, with minimal landings in other states. Peak landings for mutton snapper occurred in May/June while the lowest landings occurred in September/October and November/December (**Figure 3.3.1.45**).

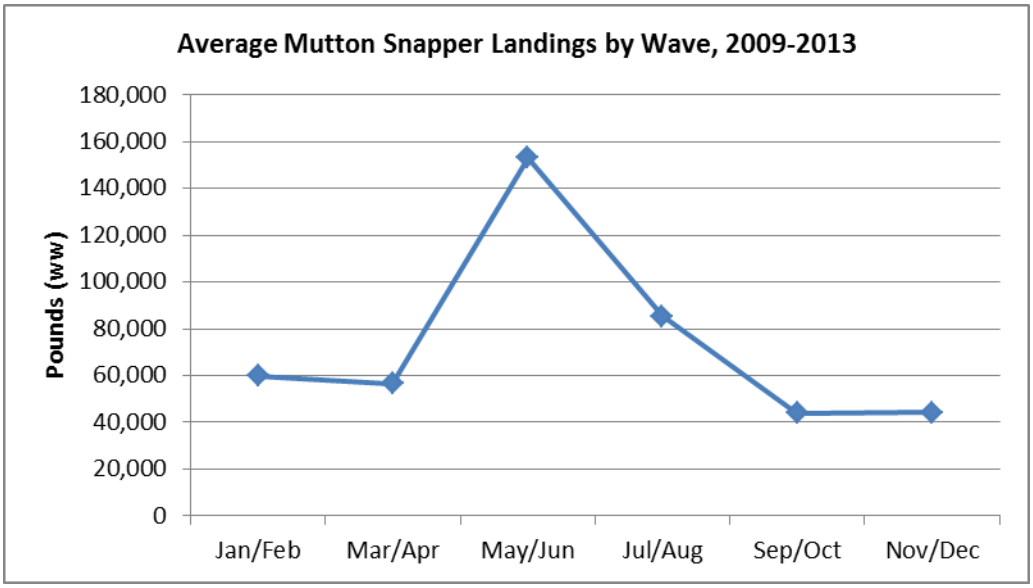

Figure 3.3.1.45. Average mutton snapper landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.3 Yellowtail Snapper

The private mode was, on average, the dominant harvesting sector for yellowtail snapper, but in 2012 and 2013 chaterboats landed more yellowtail snapper than the private mode (**Table 3.3.1.33**). A relatively large increase in headboat landings occurred in 2012.

Table 3.3.1.33. Yellowtail snapper recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	97,299	75,073	174,821	1,343	348,536
2010	138,801	85,552	208,675	1,231	434,259
2011	115,057	85,024	190,916	0	390,997
2012	214,566	116,524	158,711	3,609	493,410
2013	329,348	u/a	246,711	9,371	585,430
Average	179,014	72,435	195,967	3,111	450,526

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14)
u/a – unavailable.

Yellowtail snapper are mostly landed in Florida, with minimal landings in other states. On average, peak landings for yellowtail snapper occurred in May/June (**Figure 3.3.1.46**). The lowest landings occurred in the last four months of the year.

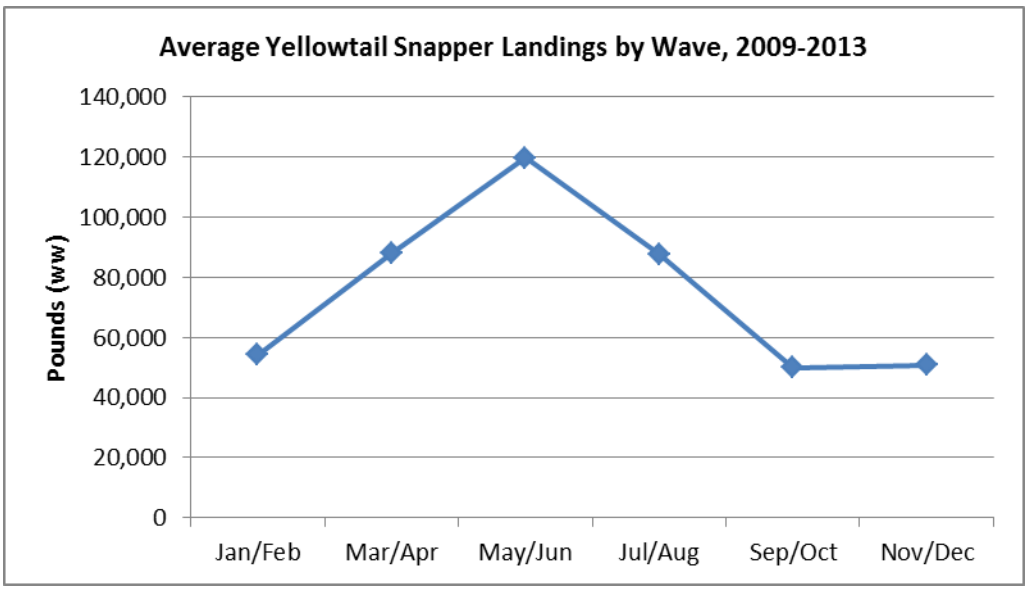

Figure 3.3.1.46. Average yellowtail snapper landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.4 Greater Amberjack

Except for 2012, the private mode was the dominant sector in harvesting greater amberjack (**Table 3.3.1.34**). In 2012, the charter mode landed more greater amberjack than the private mode.

Table 3.3.1.34. Greater amberjack recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	622,464	89,215	737,034	0	1,448,713
2010	493,418	74,697	506,804	0	1,074,919
2011	203,069	36,161	223,744	28,891	491,865
2012	399,688	44,931	300,385	0	745,004
2013	373,677	u/a	442,328	0	816,005
Average	418,463	49,001	442,059	5,778	915,301

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14)
u/a – unavailable.

Among the South Atlantic states, Florida and South Carolina accounted for most of the greater amberjack landings (**Figure 3.3.1.47**). Landings in Florida, however, were substantially more than those in South Carolina.

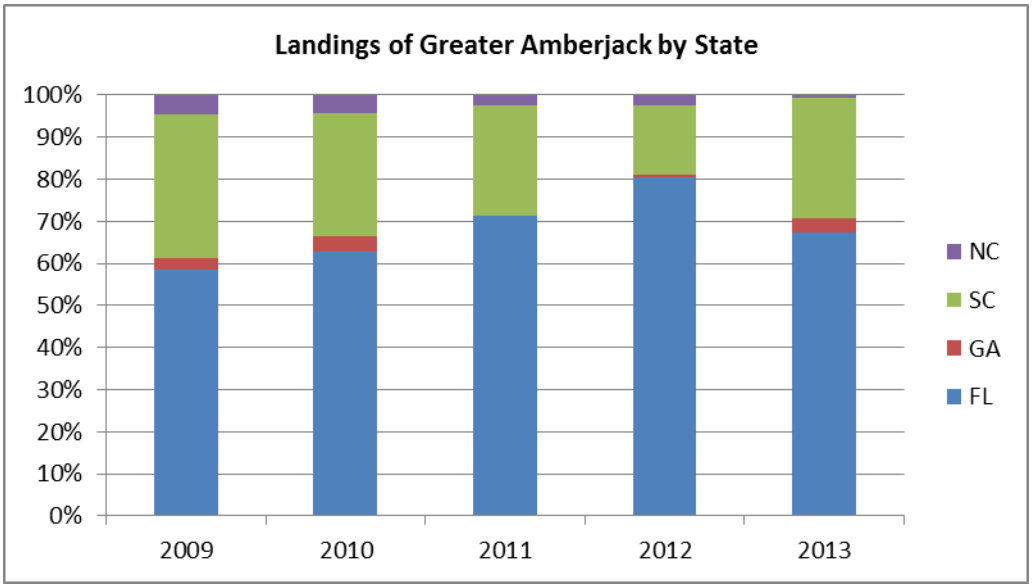

Figure 3.3.1.47. Greater amberjack landings (lb ww) by state, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Like many of the previous species, greater amberjack landings peaked in May/June (**Figure 3.3.1.48**). The lowest landings occurred in January/February.

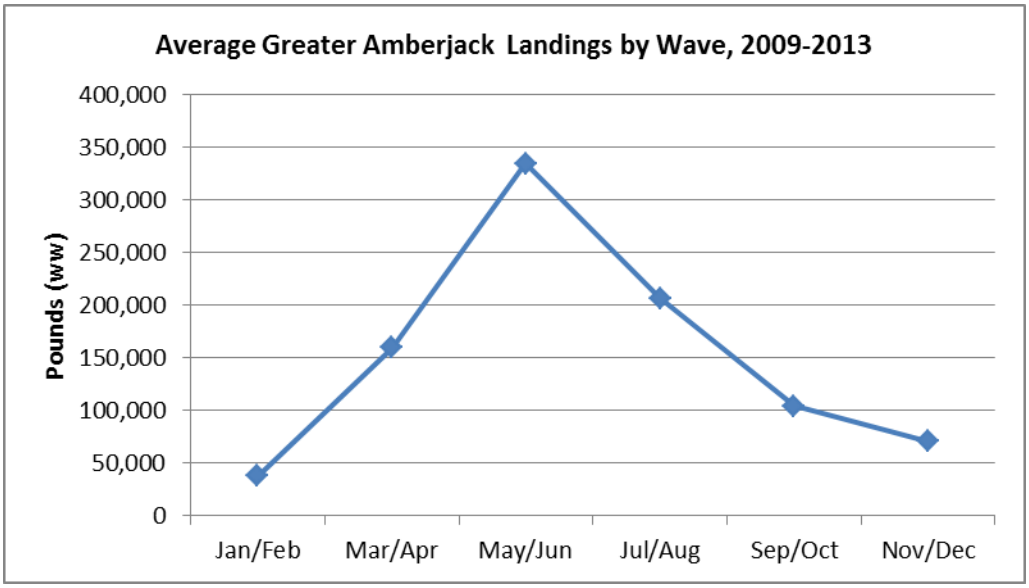

Figure 3.3.1.48. Average greater amberjack landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.5 Red Porgy

Unlike the case with the previous species, headboats landed more red porgy than the other fishing modes (**Table 3.3.1.35**). Not counting 2013 for which headboat landings are not yet available, it was only in 2009 that headboat landings lagged behind those by the private mode.

Table 3.3.1.35. Red porgy recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	12,244	33,752	52,596	0	98,592
2010	17,270	37,413	27,810	0	82,493
2011	9,598	39,191	18,687	0	67,476
2012	28,566	41,086	31,048	0	100,700
2013	19,875	u/a	20,137	1,956	41,968
Average	17,511	30,288	30,056	391	78,246

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).
u/a – unavailable.

Among the South Atlantic states, North Carolina accounted for most of red porgy landings each year from 2009 through 2013 (**Figure 3.3.1.49**). South Carolina ranked second, although in the last two years (2012 and 2013), Florida/Georgia recorded higher landings than South Carolina.

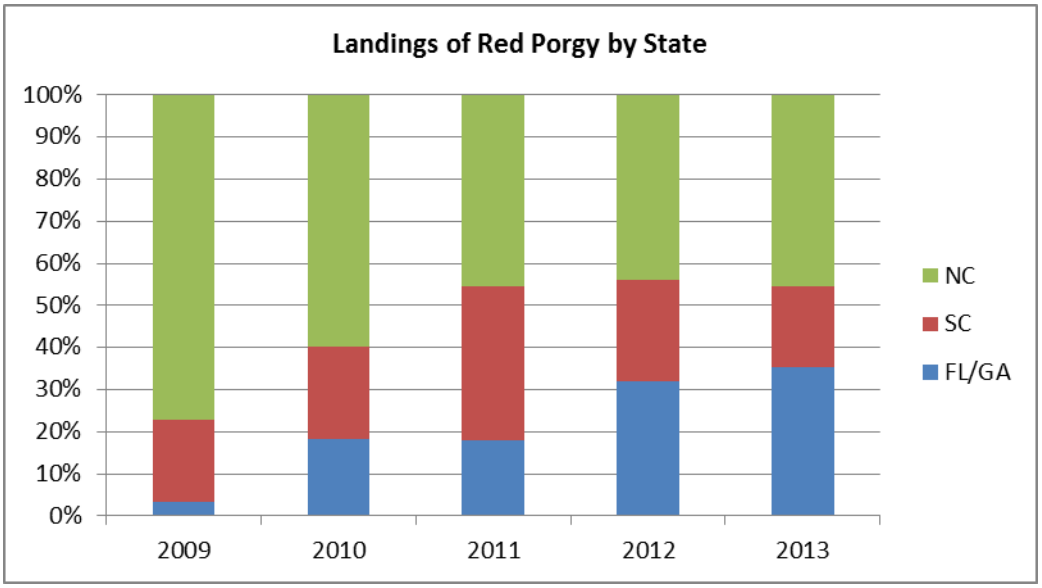

Figure 3.3.1.49. Red porgy landings (lb ww) by state, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Like the case with the previous species, red porgy landings peaked in May/June (**Figure 3.3.1.50**). The lowest landings occurred in November/December.

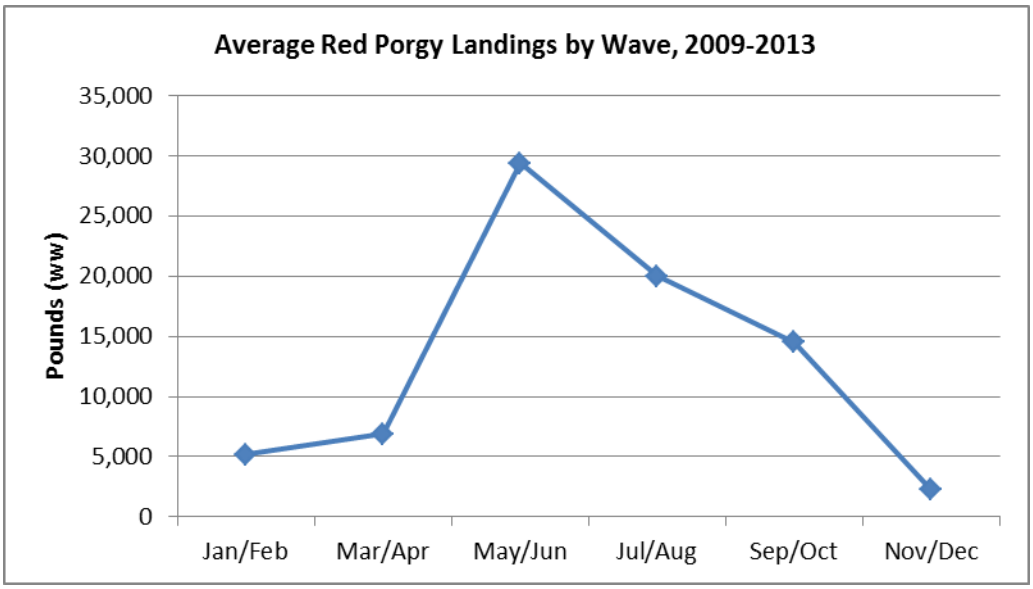

Figure 3.3.1.50. Average red porgy landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.6 Gag

The private mode dominated by far all other modes in the harvest for gag (**Table 3.3.1.36**). The charter mode came in second, followed by headboats. There were some landings reported for the shore in 2009, but none thereafter.

Table 3.3.1.36. Gag recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	57,053	31,556	222,882	7,019	318,510
2010	31,690	32,366	142,999	0	207,055
2011	13,209	30,116	160,618	0	203,943
2012	21,083	19,904	169,131	0	210,118
2013	3,064	u/a	71,979	0	75,043
Average	25,220	22,788	153,522	1,404	202,934

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).
u/a – unavailable.

Florida/Georgia accounted for most of the gag landings, followed by South Carolina and North Carolina (**Figure 3.3.1.51**). South Carolina had its highest landings in 2012.

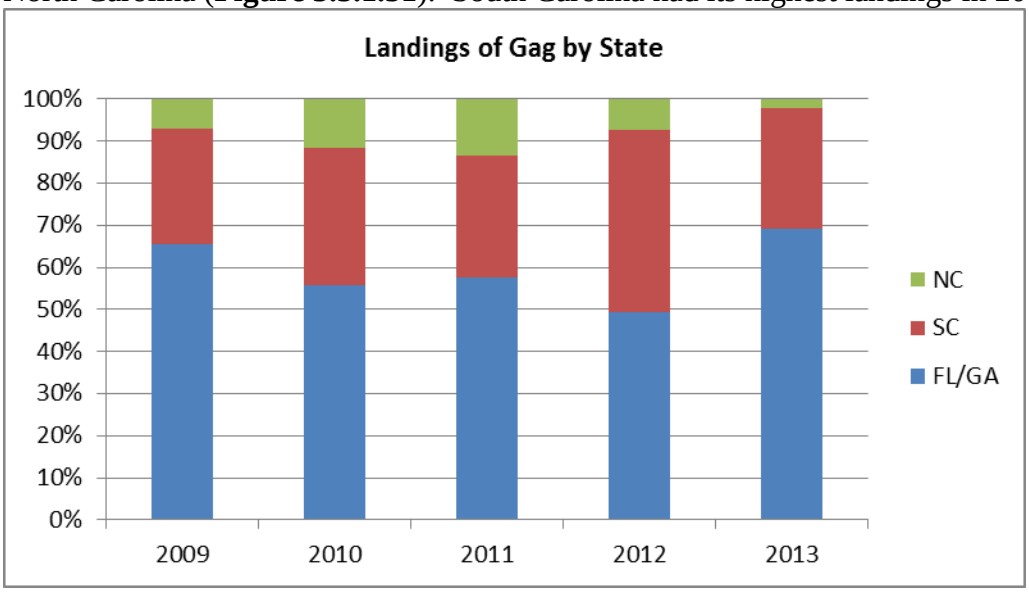

Figure 3.3.1.51. Gag landings (lb ww) by state, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Very similar to the previous species, gag landings peaked in May/June (**Figure 3.3.1.52**). March/April recorded the lowest landings for gag.

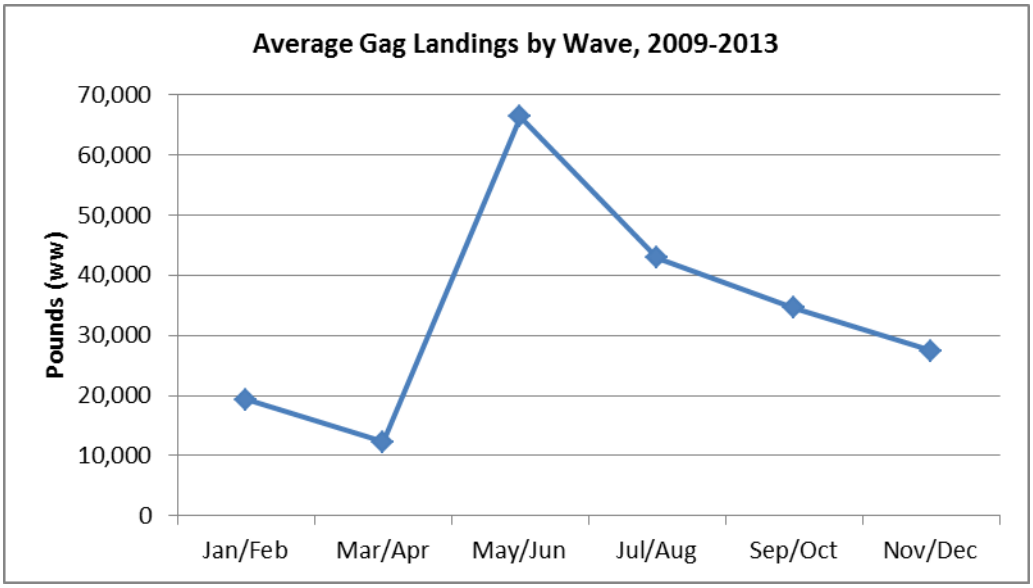

Figure 3.3.1.52. Average gag landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.7 Golden Tilefish

Golden tilefish are mostly harvested by the private and charter modes, with the other modes reporting no landings of the species (**Table 3.3.1.37**). The private mode was the dominant mode in each year from 2009 through 2013.

Table 3.3.1.37. Golden tilefish recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	12,300	0	42,213	0	54,513
2010	3,064	0	25,147	0	28,211
2011	874	0	87,300	0	88,174
2012	4,646	0	13,822	0	18,468
2013	9,880	0	6,315	0	16,195
Average	6,153	0	34,959	0	41,112

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).
u/a – unavailable.

Golden tilefish are mainly landed in Florida, with relatively low landings in other states. As the case with the previous species, golden tilefish landings peaked in May/June (**Figure 3.3.1.53**). The lowest landings occurred in January/February.

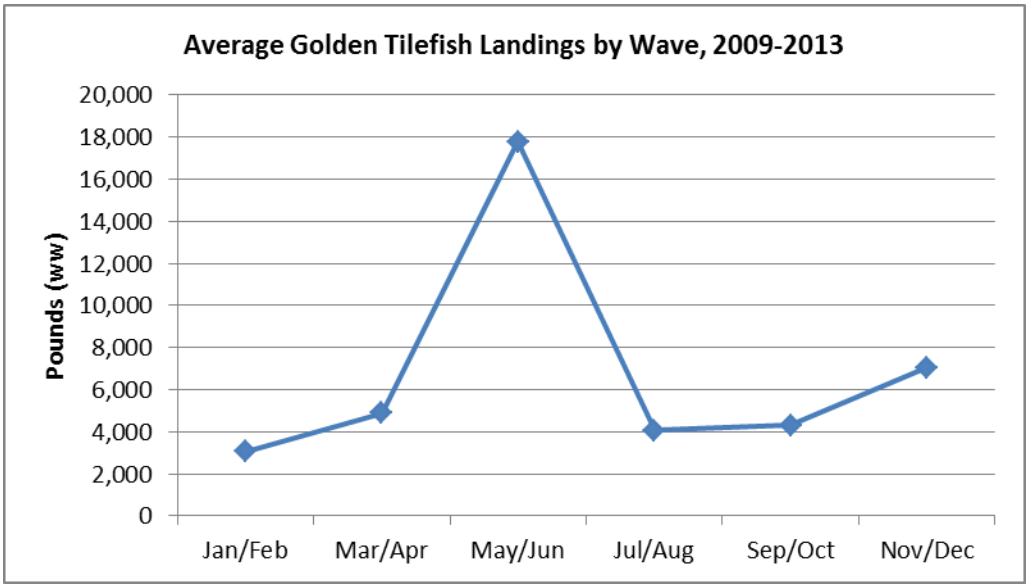

Figure 3.3.1.53. Average golden tilefish landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.8 Red Grouper

The private mode, by far, dominated all other modes in the harvest for red grouper (**Table 3.3.1.38**). While on average, headboat landings were higher than those of charterboats, the landings for these two modes did not differ by much, except for 2012.

Table 3.3.1.38. Red grouper recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	12,037	15,693	255,836	0	283,566
2010	8,533	9,509	85,154	0	103,196
2011	9,791	10,163	91,362	0	111,316
2012	4,617	11,515	85,458	0	101,590
2013	471	u/a	75,210	0	75,681
Average	7,090	9,376	118,604	0	135,070

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).
u/a – unavailable.

North and South Carolina reported most landings of red grouper in the early years, but in the last three years (2011-2013), most landings were accounted for by Florida/Georgia (**Figure 3.3.1.54**).

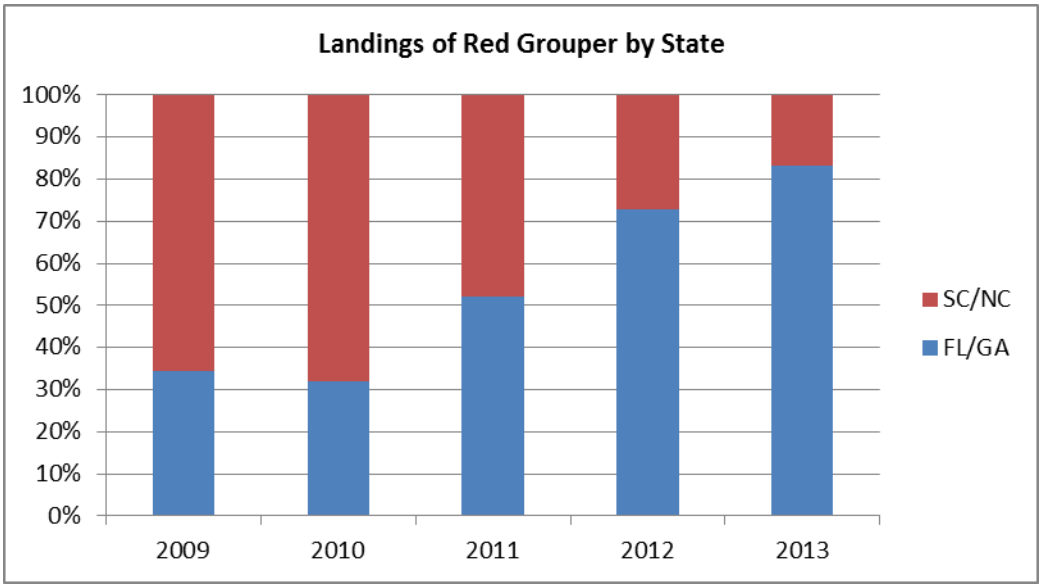

Figure 3.3.1.54. Red grouper landings (lb ww) by state, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Like the previous species, red grouper had its peak landings in May/June (**Figure 3.3.1.55**). The lowest landings occurred in September/October.

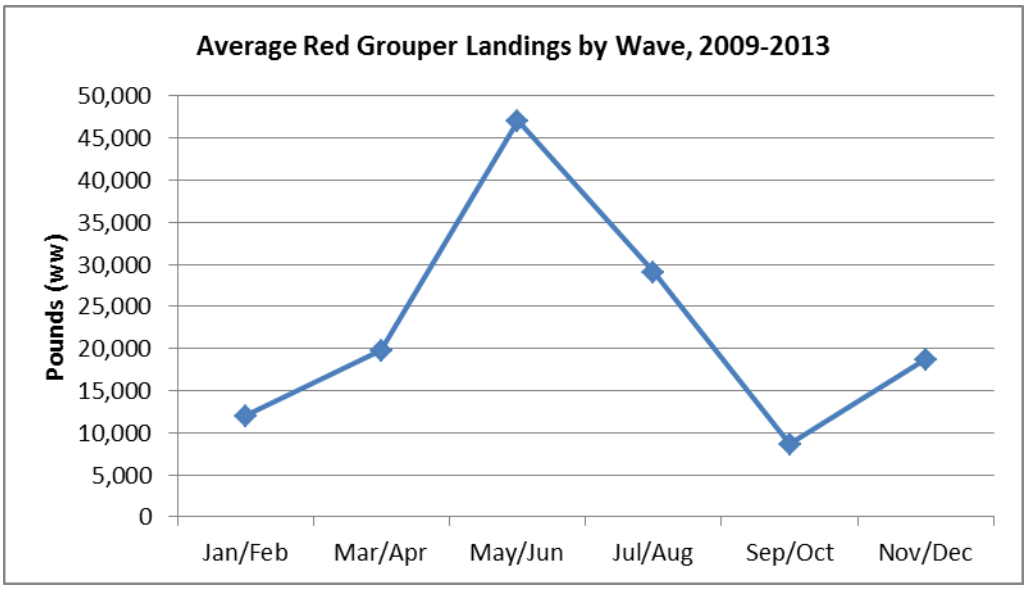

Figure 3.3.1.55. Average red grouper landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.9 Red Snapper

Red snapper is within the snapper group of the snapper grouper fishery. Commercial and recreational harvest of red snapper in the South Atlantic was closed on January 4, 2010 through interim measures and extended on January 3, 2011 through Amendment 17A. In 2012 and 2013, recreational harvest for red snapper was re-opened under a very limited ACL. The ACL was 9,399 fish for 2012 and 9,585 fish for 2013. A specialized survey was conducted in both years to

monitor recreational red snapper landings. Details of this survey, resulting estimates, and season projections may be found in several documents (see http://safmc.net/images/pdf/Attach8d_RSMortalities_2010-2011.pdf; http://sero.nmfs.noaa.gov/sustainable_fisheries/s_atl/sg/2013/red_snapper/documents/pdfs/sa_rs_sefsc_report.pdf; http://sero.nmfs.noaa.gov/sustainable_fisheries/s_atl/sg/2013/red_snapper/documents/pdfs/sa_rs_acl_season_length_projections.pdf) These documents are incorporated herein by reference.

3.3.1.2.10 Snowy Grouper

Most landings of snowy grouper were accounted for by the private mode, followed by charter mode and headboats (**Table 3.3.1.39**). Relatively low landings were reported for headboats.

Table 3.3.1.39. Snowy grouper recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	25,968	204	51,001	0	77,173
2010	38,561	139	9,423	0	48,123
2011	1,429	67	0	0	1,496
2012	12,274	85	33,817	0	46,176
2013	10,674	u/a	36,012	0	46,686
Average	17,781	99	26,051	0	43,931

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).
u/a – unavailable.

Florida/Georgia accounted for most of snowy grouper landings in 2009 and in 2012-2013 (**Figure 3.3.1.56**). In the intervening years, North/South Carolina accounted for almost all landings of snowy grouper.

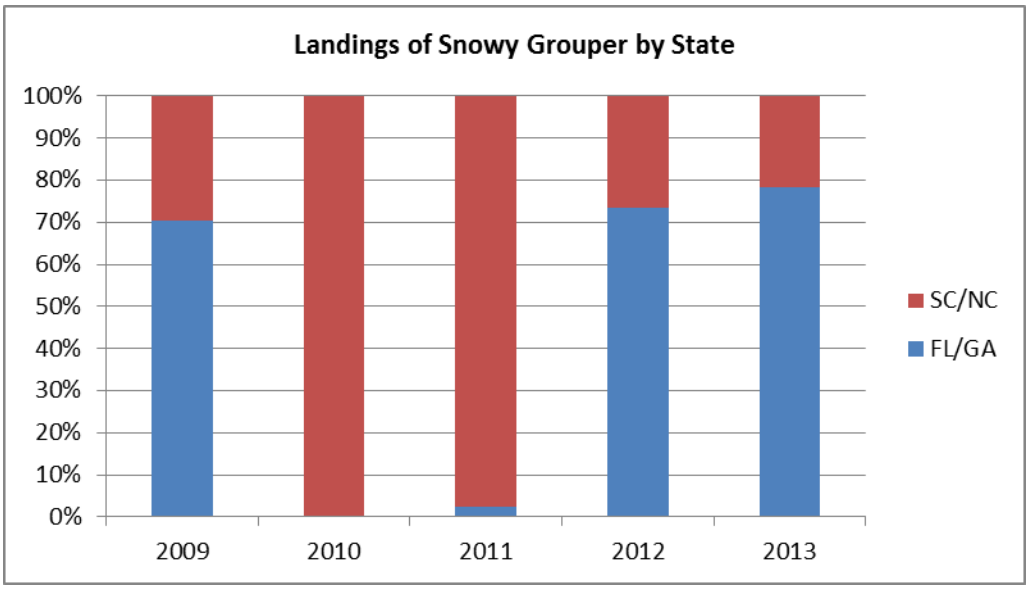

Figure 3.3.1.56. Snowy grouper landings (lb ww) by state, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Unlike the previous species, snowy grouper had its peak landings in September/October (**Figure 3.3.1.57**). January/February recorded the lowest landings for snowy grouper.

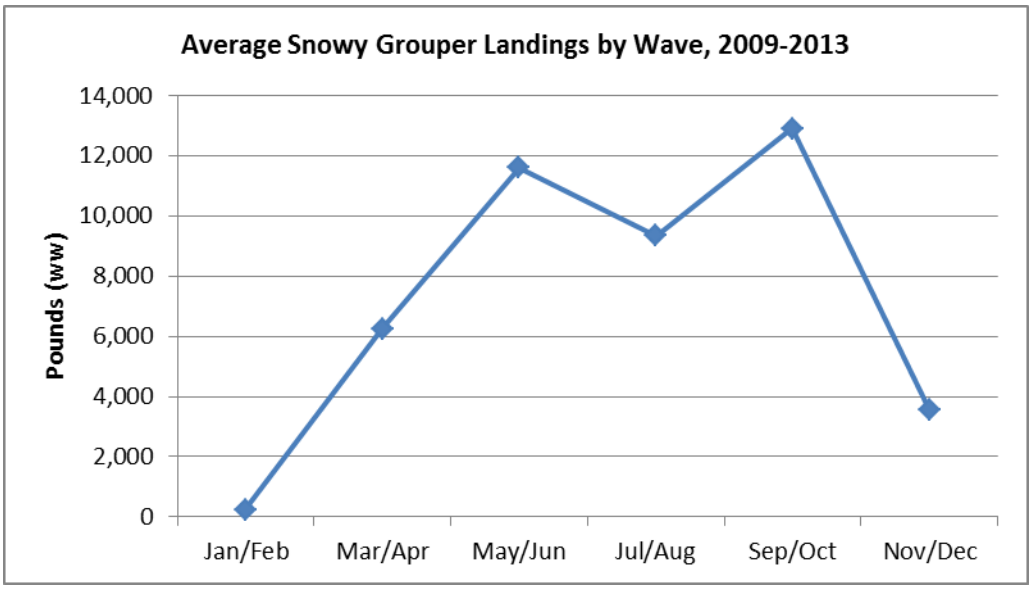

Figure 3.3.1.57. Average snowy grouper landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.11 Dolphin

Unlike all the other species discussed above, the shore mode recorded the highest landings for dolphin, followed by the private mode, charter mode, and headboats (**Table 3.3.1.40**). Private mode and charterboat landings were relatively high, whereas those for headboats were relatively low.

Table 3.3.1.40. Dolphin recreational landings by mode, 2009-2013.

	Charter	Headboat	Private	Shore	Total
2009	1,710,180	24,138	5,835,877	7,570,195	1,710,180
2010	2,489,546	19,535	3,734,319	6,243,399	2,489,546
2011	2,263,865	20,128	4,234,313	6,518,306	2,263,865
2012	2,095,035	20,437	3,981,821	6,097,292	2,095,035
2013	1,673,899	u/a	2,852,666	4,526,565	1,673,899
Average	2,046,505	21,059	4,127,799	6,195,363	2,046,505

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).
u/a – unavailable.

Among the states in the Atlantic, including the Mid-Atlantic and North Atlantic states, North Carolina accounted for highest dolphin landings, on average (**Figure 3.3.1.58**). However, Florida/Georgia surpassed North Carolina in 2012 and 2013, although the 2013 landings are still preliminary. The Northeast (Mid-Atlantic and North Atlantic) states accounted for about 6 percent of total dolphin landings.

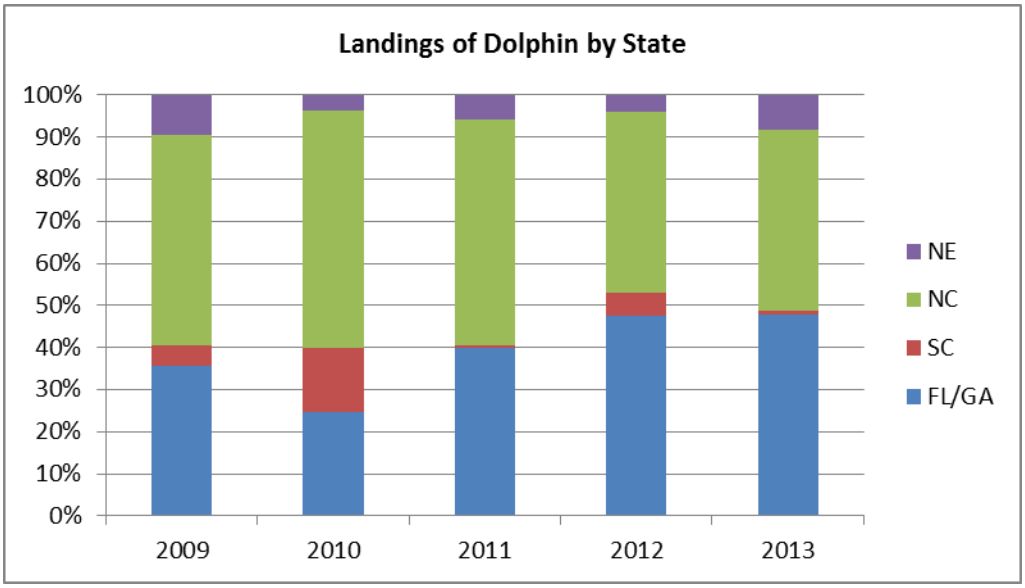

Figure 3.3.1.58. Dolphin landings (lb ww) by state, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Like the case for most of the previous species, dolphin landings peaked in May/June (**Figure 3.3.1.59**). The colder months of January/February and November/December recorded the lowest landings.

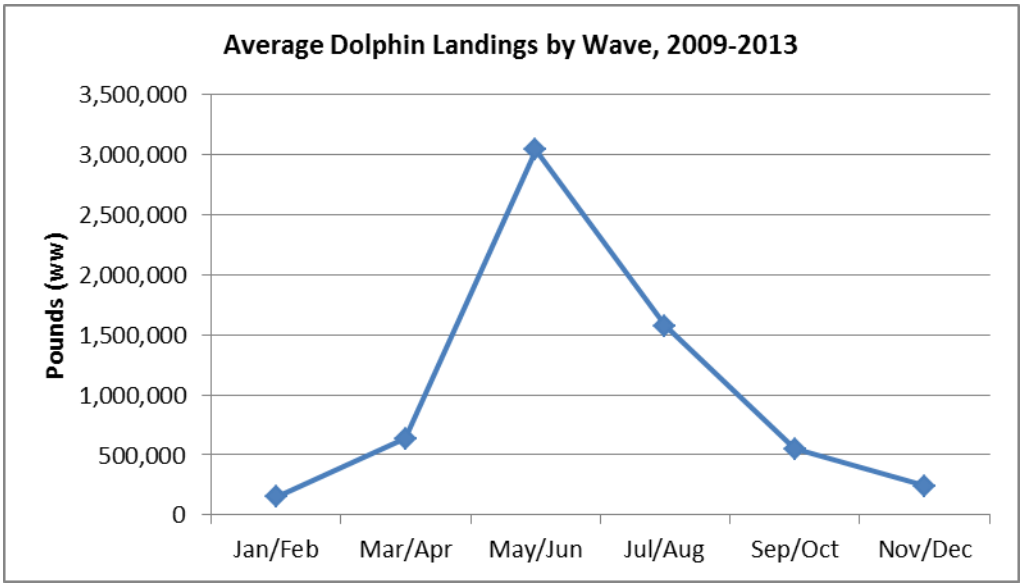

Figure 3.3.1.59. Average dolphin landings (lb ww) by wave, 2009–2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

3.3.1.2.12 Wreckfish

A wreckfish recreational ACL of 11,750 lb ww was established in 2012. There is no record of target or catch trips for wreckfish, but about 964 lb ww was caught in 2012 and none was reported for 2013.

3.3.1.2.13 Unassessed Species

Recreational landings for the 6 groups of unassessed species, including individual species within each group, are presented in **Table 3.3.1.41**, by fishing mode, and **Table 3.3.1.42**, by state.

Table 3.3.1.41. Unassessed species recreational landings by mode, 2009-2013.

Stock	Landings (lb ww)				
Jacks	**Charter**	**Headboat**	**Private**	**Shore**	**Mean Total**
Almaco jack	20,420	12,544	29,215	0	62,179
Banded rudderfish	11,578	36,784	31,260	89	79,711
Lesser amberjack	36	84	148	0	268
Snappers					
Gray snapper	21,723	49,258	215,793	59,788	346,561
Lane snapper	9,512	11,358	29,103	1,104	51,078
Cubera snapper	36	5,026	15,427	1,541	22,030
Dog snapper	87	175	1,270	0	1,533
Mahogany snapper	0	22	0	27	49
Grunts					
White grunt	29,570	100,186	148,019	5,560	283,335
Sailors choice	17	74	4,741	2,685	7,517
Tomtate	401	15,332	13,797	7,182	36,712
Margate	174	1,453	3,108	68	4,802
Shallow Water Groupers					
Red hind	138	316	742	0	1,196
Rock hind	163	2,730	1,012	0	3,905
Yellowmouth grouper	91	59	0	0	150
Yellowfin grouper	0	99	651	0	750
Coney	11	29	729	0	769
Graysby	1,137	1,352	5,259	0	7,749
Porgies					
Jolthead porgy	6,263	10,211	21,923	638	39,035
Knobbed porgy	1,225	4,838	12,894	0	18,956
Saucereye porgy	0	200	1,480	0	1,680
Scup	180	6,858	319	18	7,375
Whitebone porgy	4,200	5,295	12,464	139	22,098

Stock	Landings (lb ww)				
Individual Stocks	**Charter**	**Headboat**	**Private**	**Shore**	**Mean Total**
Atlantic spadefish	516	444	68,139	105,114	174,213
Bar jack	0	456	3,426	2,058	5,940
Scamp	14,307	16,081	28,098	0	58,486
Hogfish	142	322	69,953	470	70,887

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Table 3.3.1.42. Unassessed species recreational landings by state, 2009-2013.

Stock	Landings (lb ww)			
Jacks	**FL**	**GA**	**SC**	**NC**
Almaco jack	46,074	812	3,833	11,461
Banded rudderfish	56,695	735	16,723	5,558
Lesser amberjack	59	27	25	158
Snappers				
Gray snapper	334,191	11,486	619	265
Lane snapper	51,077	0	0	0
Cubera snapper	21,962	50	4	13
Dog snapper	1,460	72	0	0
Mahogany snapper	49	0	0	0
Grunts				
White grunt	227,918	686	33,622	97,385
Sailors choice	7,514	3	0	0
Tomtate	28,921	57	3,052	4,682
Margate	4,545	6	250	0
Shallow Water Groupers				
Red hind	714	3	308	171
Rock hind	847	0	1,903	1,154
Yellowmouth grouper	51	0	6	92
Yellowfin grouper	738	0	5	7
Coney	670	0	0	99
Graysby	6,054	1	899	795
Porgies				
Jolthead porgy	33,592	3	4,873	567
Knobbed porgy	14,394	0	604	3,958
Saucereye porgy	1,680	0	0	0
Scup	18	2	1,842	5,513
Whitebone porgy	19,723	127	1,140	1,109

Stock	Landings (lb ww)			
Individual Stocks	**FL**	**GA**	**SC**	**NC**
Atlantic spadefish	89,672	2,800	35,694	46,047
Bar jack	4,654	0	0	1,285
Scamp	6,140	2,468	16,859	33,019
Hogfish	68,870	0	448	1,569

Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Effort

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

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

The source of the following target and catch trips is NOAA fisheries website for accessing recreational data: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/index

3.3.1.2.14 Black Grouper

Targeting for black grouper has been relatively absent in all modes, although there are occasions when targeting of the species were reported (**Table 3.3.1.43**). Most catch trips were made through the private mode.

Table 3.3.1.43. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009		673	
2010	1,163	593	
2011		995	
2012			
2013			
Average	233	452	
Catch Trips			
2009	525	11,638	
2010	1,314	5,124	
2011	145	2,839	
2012	445	8,699	434
2013	141	7,084	1,073
Average	525	11,638	301

3.3.1.2.15 Mutton Snapper

There appears to be relatively heavy targeting for mutton snapper, particularly by private mode anglers (**Table 3.3.1.44**). Catch trips are dominated by private mode anglers although the shore mode also recorded relatively good amount of catch trips.

Table 3.3.1.44. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	919	15,001	10,458
2010	786	18,984	1,552
2011		26,075	
2012	513	13,542	1,993
2013	39	21,848	5,996
Average	564	19,090	5,000
Catch Trips			
2009	13,113	100,036	24,063
2010	8,490	72,968	13,589
2011	2,671	28,625	4,502
2012	4,601	45,795	30,394
2013	8,977	83,378	8,291
Average	7,570	66,160	16,168

3.3.1.2.16 Yellowtail Snapper

While targeting for yellowtail snapper has been strong with private mode anglers, the other fishing modes show a fair amount of catch trips (**Table 3.3.1.45**).

Table 3.3.1.45. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	1,641	25,013	239
2010	693	33,140	
2011		13,522	
2012		28,032	2,380
2013	245	41,748	
Average	860	28,291	1,310
Catch Trips			
2009	8,535	106,349	77,777
2010	10,183	114,593	7,526
2011	2,332	52,069	6,298
2012	8,468	83,225	21,572
2013	22,000	103,195	14,448
Average	10,304	91,886	25,524

3.3.1.2.17 Greater Amberjack

Greater amberjack received some fairly good amount of targeting effort from the charter and private mode anglers (**Table 3.3.1.46**). The private mode, however, dominates in terms of target and catch trips.

Table 3.3.1.46. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	1,671	494	
2010	3,753	4,578	
2011	338	1,128	
2012	1,739	6,655	
2013	4,208	9,793	
Average	2,342	4,530	
Catch Trips			
2009	13,292	41,057	660
2010	12,003	19,146	
2011	3,260	11,549	2,379
2012	6,286	18,792	2,383
2013	7,709	18,577	
Average	8,510	21,824	1,807

3.3.1.2.18 Red Porgy

There has been practically no reported of target trips for red porgy (**Table 3.3.1.47**). Catch trips nevertheless have been reported for both the charter and private modes.

Table 3.3.1.47. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009			
2010			
2011			
2012			
2013			
Average			
Catch Trips			
2009	1,858	10,525	
2010	2,923	12,509	
2011	1,843	7,519	
2012	3,406	7,016	
2013	2,732	4,753	449
Average	2,552	8,464	90

3.3.1.2.19 Gag

A relatively heavy targeting for gag came from private mode anglers (**Table 3.3.1.48**). The private mode also reported the most catch trips, with some catch trips recorded for the other modes.

Table 3.3.1.48. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	0	31,590	1,542
2010	0	26,380	0
2011	0	24,000	0
2012	0	12,862	779
2013	559	22,031	0
Average	112	23,373	464
Catch Trips			
2009	9,197	77,118	6,577
2010	2,527	60,305	2,241
2011	1,448	34,271	8,277
2012	2,590	44,791	6,869
2013	1,130	36,422	1,604
Average	3,378	50,581	5,114

3.3.1.2.20 Golden Tilefish

Both target and catch trips for golden tilefish have been relatively low (**Table 3.3.1.49**). Private mode anglers recorded some good amount of target trips but mainly in the earlier years.

Table 3.3.1.49. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	0	5,622	
2010	104	3,291	
2011	0	0	
2012	0	939	
2013	0	0	
Average	21	1,970	
Catch Trips			
2009	276	3,633	
2010	0	0	
2011	79	982	
2012	473	1,864	
2013	2,088	1,611	
Average	583	1,618	

3.3.1.2.21 Red Grouper

Most target and catch trips for red grouper were reported for the private mode anglers (**Table 3.3.1.50**). In terms of catch trips, the charter mode also reported relative good amount of trips.

Table 3.3.1.50. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	0	4,268	
2010	0	1,129	
2011	0	1,959	
2012	39	243	
2013	10	1,900	
Average	0	4,268	
Catch Trips			
2009	8,739	59,267	0
2010	7,601	46,121	1,998
2011	4,792	18,800	0
2012	2,093	27,487	0
2013	2,952	53,148	0
Average	5,235	40,965	400

3.3.1.2.22 Red Snapper

Targeting for red snapper mostly came from private mode anglers (**Table 3.3.1.51**). The charter mode, however, did report some catch trips that were much higher than target trips.

Table 3.3.1.51. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	0	70,534	0
2010	0	1,673	555
2011	50	0	0
2012	792	18,016	0
2013	729	32,266	0
Average	314	24,498	111
Catch Trips			
2009	8,828	81,294	762
2010	5,854	29,484	0
2011	5,921	13,605	1,047
2012	10,581	24,492	362
2013	3,768	36,519	0
Average	6,990	37,079	434

3.3.1.2.23 Snowy Grouper

There has been no reported target trips for snowy grouper by any of the fishing modes (**Table 3.3.1.52**). In addition, relatively low catch trips were reported for the charter and private modes.

Table 3.3.1.52. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009			
2010			
2011			
2012			
2013			
Average			
Catch Trips			
2009	568	1,899	
2010	1,053	175	
2011	70		
2012	911	1,588	
2013	691	1,270	
Average	659	1,233	

3.3.1.2.24 Dolphin

Unlike the previous species, targeting for dolphin has been very high, especially by the private mode anglers (**Table 3.3.1.53**). The same high level can also be said of catch trips. Dolphin is probably one of the few exceptions with respect to the relationship between target and catch trips in the sense that unlike most other species target trips for the species have been much higher than catch trips.

Table 3.3.1.53. Target and catch trips by mode, 2009-2013.

	Charter	Private	Shore
Target Trips			
2009	25,985	859,162	0
2010	38,174	596,645	10,535
2011	37,815	654,861	0
2012	25,013	646,047	0
2013	39,891	541,580	0
Average	33,376	659,659	2,107
Catch Trips			
2009	28,026	294,113	0
2010	37,511	258,817	642
2011	27,515	251,689	0
2012	28,888	256,758	1,582
2013	54,863	185,058	0
Average	35,361	249,287	445

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. **Table 3.3.1.54** displays the annual angler days by state for 2009-2013 and **Table 3.3.1.55** displays their average (2009-2013) monthly distribution. Confidentiality issues required combining Georgia estimates with those of Northeast Florida.

Headboat angler days (trips) varied from year to year across various states. Total headboat angler trips fell in 2010 and 2011 but increased in the succeeding years (**Table 3.3.1.53**). Southeast Florida registered the highest number of angler trips, followed by Georgia/Northeast Florida, South Carolina, and North Carolina. Clearly Florida dominated all other states in terms of headboat angler days.

On average (2009-2013), overall angler days peaked in July and troughed in November (**Table 3.3.1.54**). All states recorded peak angler trips in July, similar to the overall peak month. None of the states, however, had the same trough month as the overall angler trips. North Carolina had a trough in December, South Carolina in January, Georgia/Northeast Florida in November, and Southeast Florida in October.

Table 3.3.1.54. South Atlantic headboat angler days, by state, 2009-2013.

	2009	2010	2011	2012	2013	AVERAGE
NC	19,468	21,071	18,457	20,766	20,547	20,062
SC	40,919	44,951	44,645	41,003	40,963	42,496
GA/NEFL	66,447	53,676	46,256	8,800	66,587	48,353
SEFL	69,973	69,986	77,785	130,823	99,092	89,532
TOTAL	196,807	189,684	187,143	201,392	227,189	200,443

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

Table 3.3.1.55. Average monthly distribution of headboat angler days in the South Atlantic, by state, 2009-2013.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NC	26	12	198	1,020	2,227	3,959	4,631	3,791	2,114	1,758	316	7
SC	59	114	1,077	2,793	3,496	8,822	11,350	8,337	3,439	2,316	567	125
GA/NEFL	443	299	478	1,080	1,622	2,735	3,490	2,612	1,400	1,152	147	176
SEFL	8,047	9,377	12,784	13,104	11,617	14,270	15,345	11,156	6,326	5,836	5,898	8,488
TOTAL	8,574	9,801	14,536	17,997	18,962	29,787	34,816	25,896	13,279	11,062	6,929	8,797

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

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 (CS). 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.

The NMFS Southeast Science Center (Carter and Liese 2012) developed estimates of consumer surplus per fish, per angler trip. These estimates were culled from various studies – Haab et al. (2009), Dumas et al. (2009), and NOAA SEFSC SSRG (2009). The values/ranges of consumer surplus estimates are (in 2013 dollars) $121 to $139 for red snapper, $134 to $ for grouper, $11.9 for other snappers, and $87 for snapper grouper. Haab et al. (2009) also estimated consumer surplus for snapper in general to range from $12 to $34 (2013 dollars) for one additional fish caught and kept. Haab et al. (2009) also estimated consumer surplus for dolphin of two general sizes. They estimated that for one additional fish caught and kept this consumer surplus would range from $50 to $5557 (2013 dollars) for dolphin greater than 20 inches and from $5.18 to $31.07 (2011 dollars) for smaller dolphin. Carter and Liese (2012) also estimated the mean willingness to pay per fish, per trip for dolphin (in 2013 dollars) of $14.91, $9.94, $7.35, $5.80, and $4.76, respectively for the second, third, fourth, fifth, and sixth fish caught and kept. They also estimated declining mean willingness to pay for additional fish caught and released due to the size or bag limit.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus (PS) is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (C. Liese, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese et al. (2009), Dumas et al. (2009), Holland et al. (1999), and Sutton et al. (1999). Estimates of net operating revenue per angler trip (2013 dollars) on representative charter trips (average charter trip regardless of area fished) are $158 for Louisiana through east Florida, $147 for east Florida, $170 for northeast Florida, and $139 for North Carolina. For charter trips into the EEZ only, net operating revenues are $153 in east Florida and $161 in northeast Florida. For full-day and overnight trips only, net

operating revenues are estimated to be $169-$174 in North Carolina. Comparable estimates are not available for Georgia or South Carolina.

Net operating revenues per angler trip are lower for headboats than for charter boats. Net operating revenue estimates (2013 dollars) for a representative headboat trip are $52 in the Gulf of Mexico (all states and all of Florida), and $68-$74 in North Carolina. For full-day and overnight headboat trips, net operating revenues are estimated to be $81-$84 in North Carolina. Comparable estimates are not available for Georgia or South Carolina.

A study of the North Carolina for-hire fishery provides some information on the financial status of the for-hire fishery in the state (Dumas et al. 2009). Depending on vessel length, regional location, and season, charter fees per passenger per trip ranged from $182.58 to $273.20 for a full-day trip and from $101.70 to $134.63 for a half-day trip; headboat fees ranged from $78.71 to $88.75 for a full-day trip and from $41.32 to $43.70 for a half-day trip. Charter boats generated a total of $60.48 million in passenger fees, $3.5 million in other vessel income (e.g., food and beverages), and $5.2 million in tips. The corresponding figures for headboats were $10.67 million in passenger fees, $0.22 million in other vessel income, and $0.97 million in tips. Non-labor expenditures (e.g., boat insurance, dockage fees, bait, ice, fuel) amounted to $46.6 million for charter boats and $5.8 million for headboats. Summing across vessel lengths and regions, charter vessels had an aggregate value (depreciated) of $130.70 million and headboats had an aggregate value (depreciated) of $11.08 million. All these values are in 2013 dollars.

A more recent study of the for-hire sector provides estimates on gross revenues generated by the charter boats and headboats in the South Atlantic (Holland et al. 2012). Average annual revenues (2013 dollars) for charter boats are estimated to be $130,524 for Florida vessels, $55,348 for Georgia vessels, $104,417 for South Carolina vessels, and $105,593 for North Carolina vessels. For headboats, the corresponding estimates are $216,975 for Florida vessels and $159,332 for vessels in the other states. Due to limited sample size, revenue information for headboats in state other than Florida is aggregated to avoid disclosure of sensitive information.

3.3.2 Social Environment

The social environment includes a description of the commercial and recreational components of the snapper grouper fishery; the commercial component of the golden crab fishery; and the recreational and commercial components of the dolphin wahoo fishery. The description is based on the geographical distribution of landings and the relative importance of the species for commercial and recreational fishing communities. A spatial approach enables the consideration of the importance of fishery resources to those communities, as required by National Standard 8.

3.3.2.1 Snapper Grouper

The snapper grouper fishery is considered to be of substantial social and cultural importance in the South Atlantic region. The description of the snapper grouper fishery focuses on available

geographic and demographic data to identify communities with strong relationships with snapper grouper harvest (i.e., significant landings and revenue), because positive or negative impacts from regulatory change may occur in places with greater landings of snapper grouper species.

Descriptions of the social and cultural environment of the snapper grouper fishery are contained in Jepson et al. (2005), Amendment 17A (SAFMC 2010a), and the Comprehensive Annual Catch Limit Amendment (SAFMC 2011a) and are incorporated herein by reference.

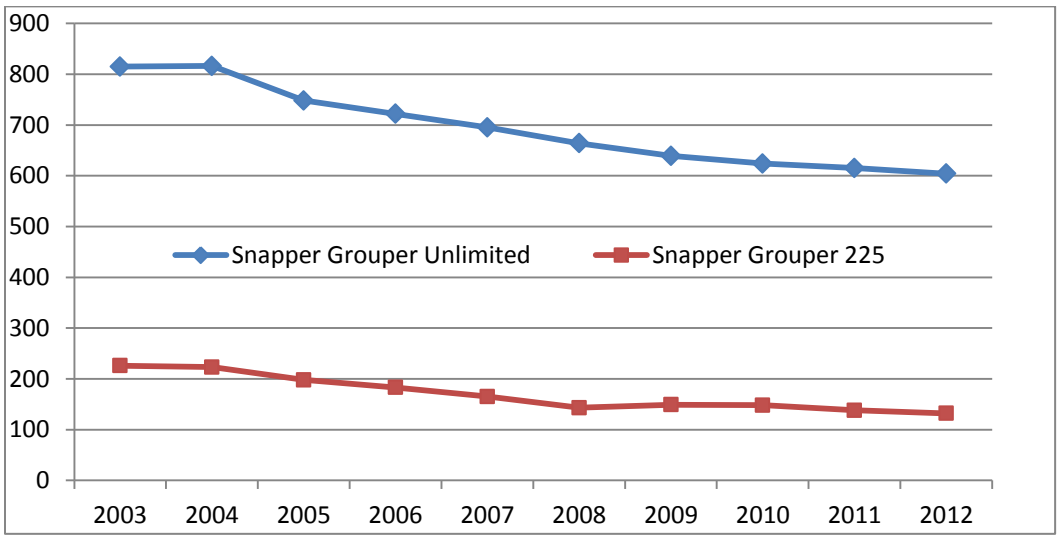

Figure 3.3.2.1. Snapper grouper Unlimited and 225-pound trip limit permits 2003-2012. Source: NMFS SERO (2013).

Since 2003, South Atlantic Snapper Grouper Unlimited Permits and Snapper Grouper 225-pound Trip Limit Permits have shown a downward trend (**Figure 3.3.2.1**). With a limited entry program in place since 1998 and a "2 for 1" requirement, a reduction in permits would be expected over time and will likely continue as long as the criteria are a continued part of management.

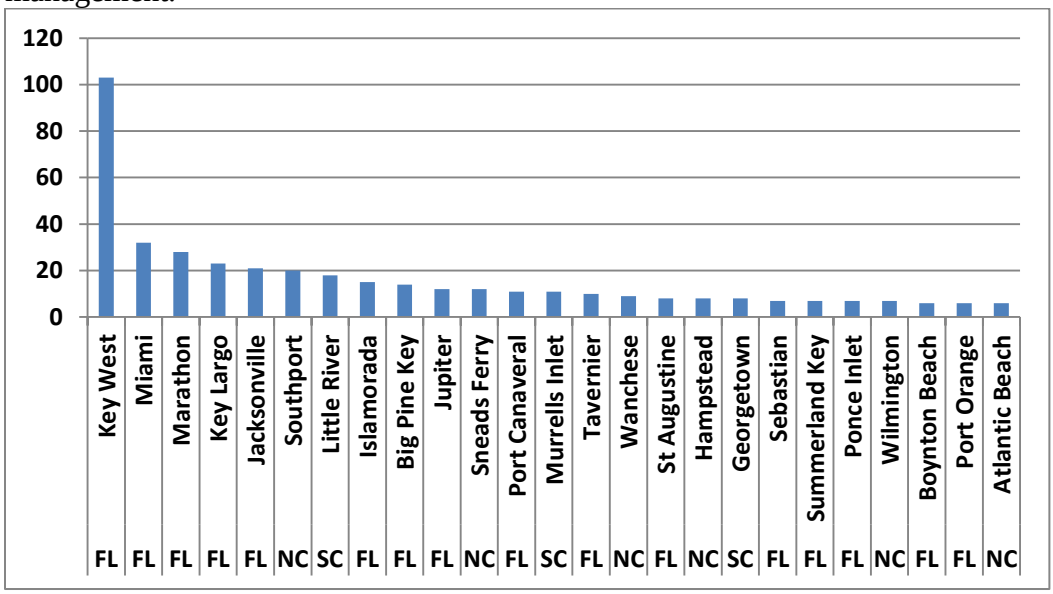

Figure 3.3.2.2. Snapper grouper unlimited 2012 permit frequency by homeport.

Source: NMFS SERO Permits 2014.

Florida communities have the majority of snapper grouper unlimited permits. Communities in North Carolina within the top 25 are Southport, Sneads Ferry, Hampstead, Wilmington, Atlantic Beach and Wanchese; and in South Carolina Little River, Murrell's Inlet and Georgetown (**Figure 3.3.2.2**). Florida also dominates class 2 permits with Hatteras, NC the only community outside of the Florida listed in the top twenty communities with class 2 permits (**Figure 3.3.2.3**).

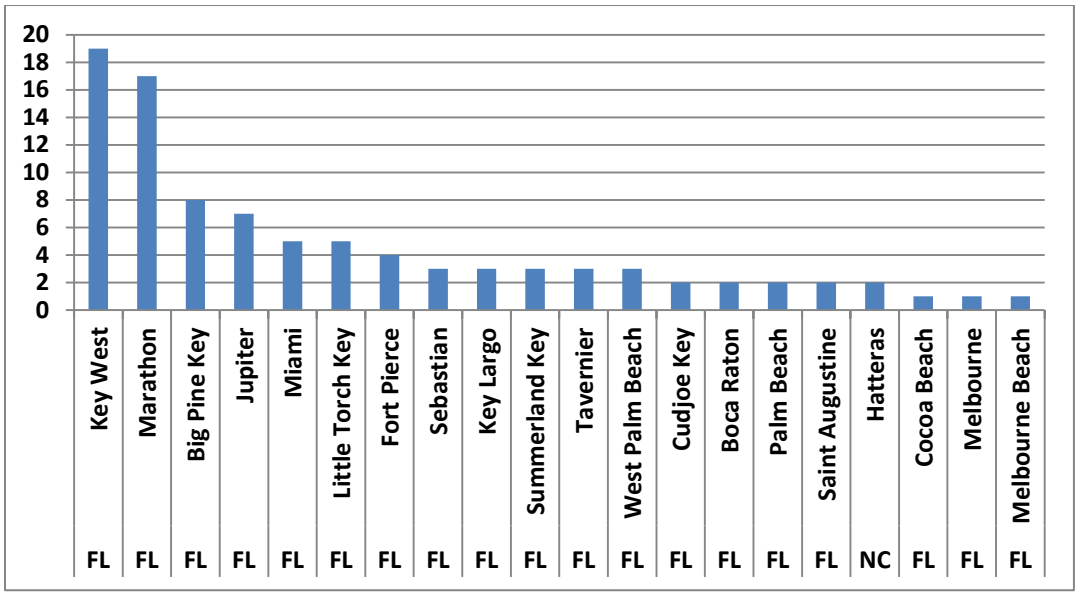

Figure 3.3.2.3. Snapper grouper 225-pound trip limit 2012 permits frequency by homeport
Source: NMFS SERO Permits 2014.

While the limited entry program has contributed to the reduced capacity, other factors have also contributed to this downward trend. Economic factors like increased imports, decreasing prices for domestic product and rising prices for diesel fuel and the recent recession have had a widespread effect on commercial fishing throughout many regions of the U.S. In addition, the loss of working waterfronts has contributed to a growing loss of fishing infrastructure that may play a role in the decline in many fishing communities (Garrity-Blake, 2012; Griffith, 2011). For North Carolina, the losses have been substantial as over a decade there has been a 36 percent decline in the number of fish houses (Garrity-Blake 2012).

The factors that affect the loss of working waterfronts in fishing communities are 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. These along with increasingly strict regulations have combined to place a great deal of stress on many communities and their associated fishing sectors including commercial, charter/headboat and private recreational.

While some of the same social factors above have affected the for-hire fishery in terms of loss of working waterfronts, other issues such as a downturn in the economy and competition

have affected the growth of that sector. The recreational fishery is also subjected to permit requirements as vessels in the South Atlantic for-hire snapper grouper fishery are required to have a permit to fish for or possess species in the EEZ.

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. Increases occurred for those vessels that were strictly for-hire businesses, since permits issued for vessels operating as for-hire and commercial entities were flat from 2005 to 2006 and fell in 2007. Today there are approximately 1390 snapper grouper charter permits in effect (SERO Permits 2014). Most of these for-hire permitted vessels were home-ported in Florida; with vessels also home-ported in North Carolina and South Carolina; some in the Gulf , Mid-Atlantic and Northeast.

While studies on the general identification of fishing communities have been undertaken in the past few years, 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 over 10 years old and do not capture more recent important changes in the fishery. Cheuvront and Neal (2004) conducted survey work with the North Carolina commercial snapper grouper fishery south of Cape Hatteras, but did not include ethnographic research on communities dependent upon fishing.

Commercial Snapper Grouper Communities in the South Atlantic

To identify commercial fishing communities where fishing has importance to the local economy, a measure called the regional quotient (RQ) is used to identify those communities which land a substantial amount of a particular species. The RQ measures the proportional distribution of commercial landings and value of a particular species. The RQ is calculated by dividing the total pounds (or value) of a species landed in a given community, by the total pounds (or value) for that species for all communities in the region. The actual percentage of RQ is not provided in the following tables to prevent any disclosure of confidential information.

Communities where snapper grouper are an important target species are depicted in **Figure 3.3.2.4** which uses a regional quotient of all snapper grouper species and includes the top 25 communities ranked by their regional quotient value of snapper grouper. Communities in North Carolina where snapper grouper make up a substantial portion of their regional quotient include Winnabow, Wanchese, Morehead City, Beaufort, Sneads Ferry, Shallotte, Wilmington, and Hampstead. The South Carolina communities of Murrells Inlet, Little River, Wadmalaw Island, and McClellanville also contribute substantially to the regional quotient of snapper grouper overall. In Florida, the communities include Key West, Miami, Mayport, Marathon, Cocoa, Port Orange, Key Largo, Hialeah, Fort Lauderdale, St Augustine, Fort Pierce, Palm Beach Gardens, and Islamorada are all included in the top twenty-five communities. No Georgia communities are included in the top 25, but communities such as Savannah and Townsend have vessels that depend on snapper grouper species.

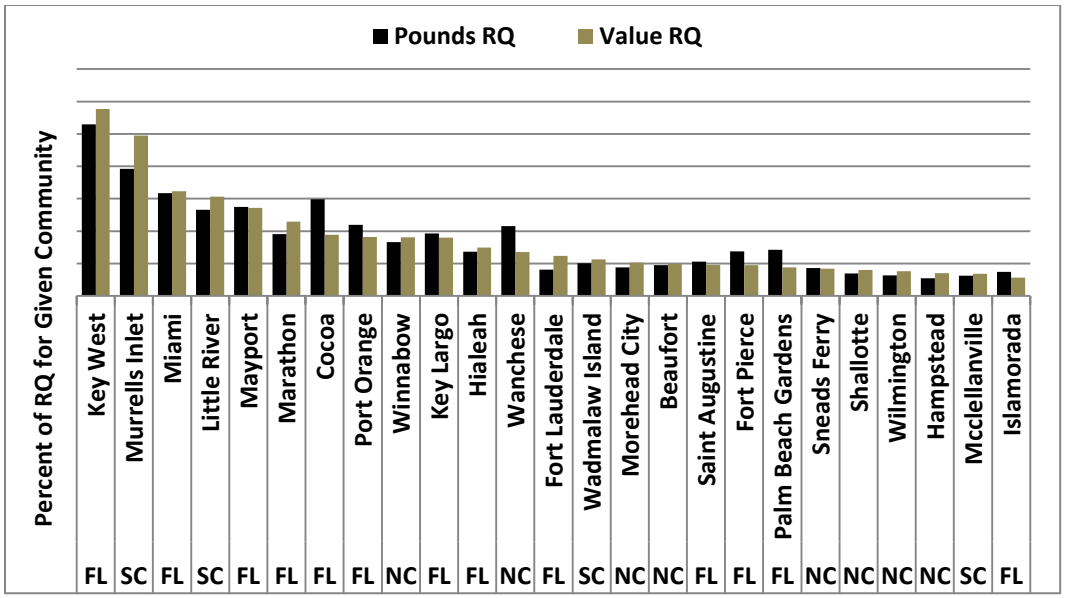

Figure 3.3.2.4. South Atlantic fishing communities ranked by total 2011 snapper grouper value RQ. Source: SERO Community ALS 2011

Commercial and Recreational Engagement and Reliance

While we can characterize the fleet landings with regard to those communities that have high regional quotients for landings and value, it is more difficult to characterize the fleet and its labor force regarding demographics and places of residence for captains and crew of vessels. There is little to no information on captains and crew, including demographic makeup of crew, so we are left with descriptions regarding the engagement and reliance of fishing communities and their social vulnerability. To further delineate which communities are more dependent upon fishing, another measure has been developed which uses the top communities identified in the RQ graphics, and applies indices of fishing engagement and reliance.

To better understand how South Atlantic fishing communities are engaged and reliant on fishing overall, several indices composed of existing permit and landings data were created to provide a more empirical measure of fishing dependence (Jacob et al. 2012; Colburn and Jepson 2013; Jepson and Colburn 2013). Fishing engagement uses the absolute numbers of permits, landings and value, while fishing reliance includes many of the same variables as engagement, but divides by population to give an indication of the per capita impact of this activity.

Using a principal component and single solution factor analysis each community receives a factor score for each index to compare to other communities. Factor scores are represented by colored bars and are standardized, therefore the mean is zero. Two thresholds of 1 and ½ standard deviation above the mean are plotted onto the graphs to help determine thresholds for significance. Because the factor scores are standardized, a score above 1 is also above one standard deviation.

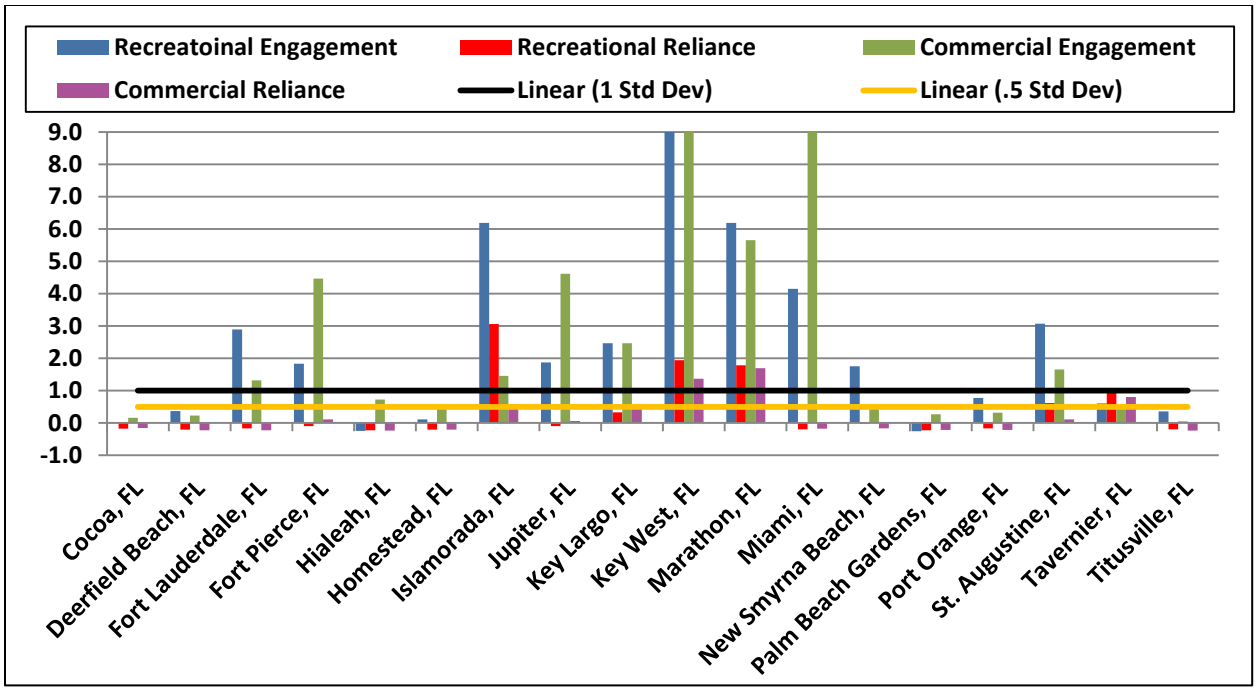

Figure 3.3.2.5. Commercial and recreational fishing engagement and reliance indices for top Florida snapper grouper communities in the South Atlantic region.
Source: SERO Social Indicator Database

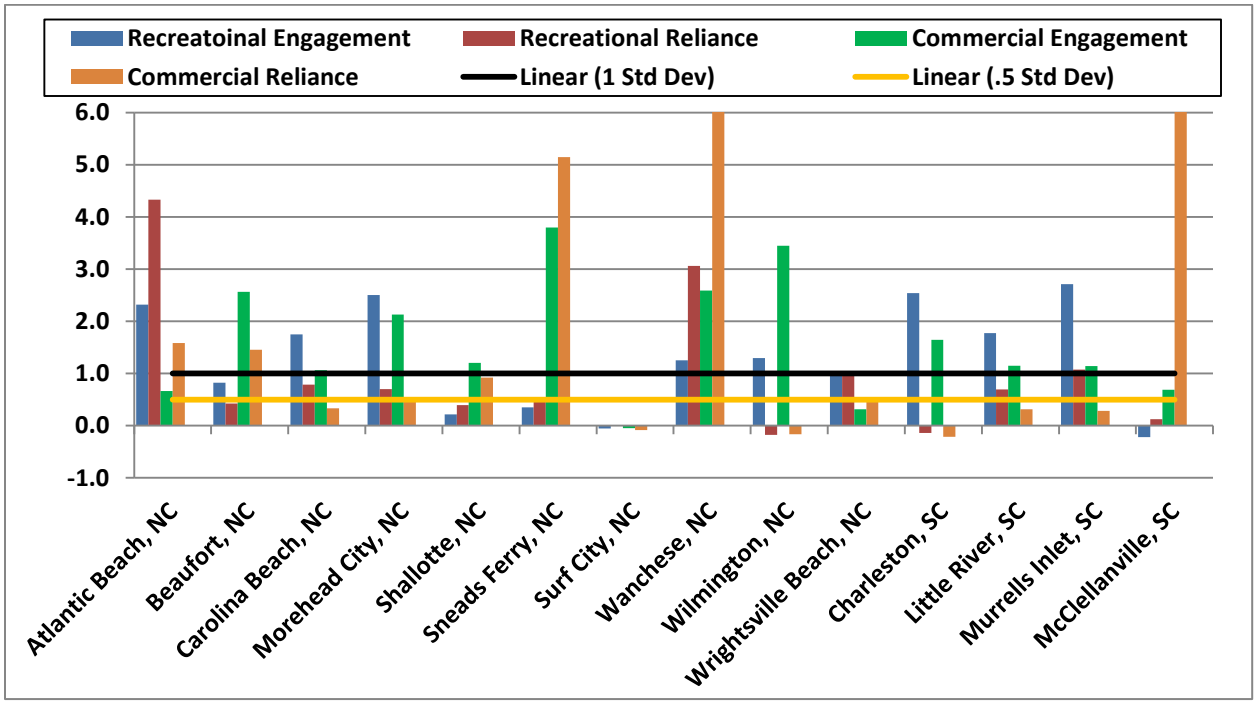

Figure 3.3.2.6. Commercial and recreational fishing engagement and reliance indices for top South and North Carolina snapper grouper communities in the South Atlantic region.
Source: SERO Social Indicator Database

The communities included in **Figures 3.3.2.5** and **3.3.2.6** have varying combinations of reliance and engagement. The communities of Key West, Islamorada, Marathon, Florida;

Atlantic Beach and Wanchese, NC are considered likely dependent upon fishing overall as they exceed both thresholds for the four fishing reliance and engagement measures. Other communities might be considered recreationally and commercially engaged as they exceed the highest threshold for both recreational and commercial engagement. Those communities are: Fort Lauderdale, Fort Pierce, Jupiter, Key Largo, Miami, and St. Augustine, FL; Carolina Beach, Morehead City, and Wilmington, NC; Charleston, Little River and Murrell's Inlet, SC. Finally, communities like Beaufort, Shallote, Sneads Ferry, NC and McClellanville, SC are commercially dependent. The community of Wrightsville Beach, NC was the only community that was recreationally dependent alone.

Snapper Grouper Species in this Amendment

The proposed actions in this amendment could affect fishermen, businesses, and communities with relatively higher association with the specific species in the amendment. Following are detailed descriptions of areas with higher levels of landings, engagement, and reliance on the individual species. Expected effects at the community level of the proposed actions in this amendment will be discussed in Section 4.

Black Grouper

Black grouper is primarily harvested in Florida, particularly in south Florida and the Florida Keys, as part of a catch combination for both recreational and commercial fishing trips. There are minimal landings in South Carolina. Figure 3.3.2.6 shows the top communities for commercial landings of black grouper in the region. Almost all commercial landings occur in Miami-Dade County and Monroe County (Florida Keys), with some landings in Murrells Inlet, South Carolina.

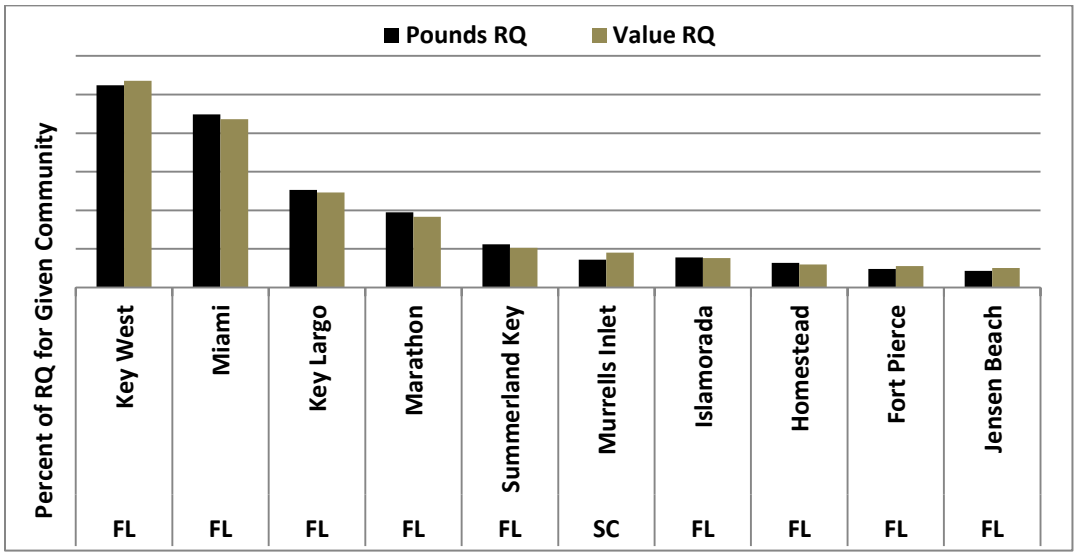

Figure 3.3.2.6. Top communities ranked by pounds of regional quotient of black grouper. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO Community ALS 2011.

Overall, recreational landings of black grouper are concentrated in Florida with some landings in South Carolina in recent years.

Mutton Snapper

Mutton snapper is also primarily harvested in Florida, particularly in south Florida and the Florida Keys, as part of a catch combination for both recreational and commercial fishing trips. **Figure 3.3.2.7** shows the top communities for commercial regional quotient of mutton snapper in the region. Almost all commercial landings occur in Key West, Miami and Key Largo.

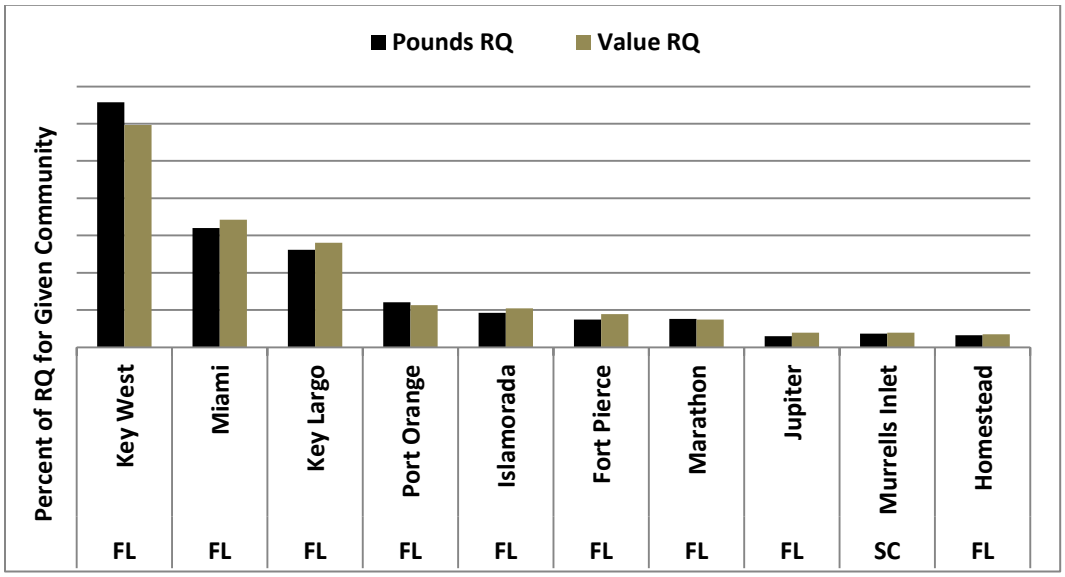

Figure 3.3.2.7. Top communities ranked by pounds and value of regional quotient of mutton snapper. Source: SERO, Community ALS 2011.

The recreational allocation of the mutton snapper ACL is 87%, although the recreational effort has not reached the recreational ACL in the past. Overall, recreational landings of mutton snapper are concentrated in south Florida and the Florida Keys.

Yellowtail Snapper

Yellowtail snapper is an important recreational and commercial species in the snapper grouper fishery, primarily in south Florida and the Florida Keys. Regulatory Amendment 15 (SAFMC 2013b) contains a detailed description of communities associated with yellowtail snapper, and is incorporated herein by reference.

The primary communities that would be most likely to be affected by changes to yellowtail snapper management for the commercial sector include Key West, Miami, Marathon, Hialeah, Fort Lauderdale, Key Largo, Islamorada, Summerland Key, Tavernier and Opa Locka. The communities that would most likely be affected by changes to management for the recreational sector include Key West, Marathon, Islamorada, Miami and Fort Lauderdale (SAFMC 2013b).

Unassessed Species

This section includes a description of the commercial and recreational components of select unassessed snapper grouper species including Atlantic spadefish, bar jack, cubera snapper, gray snapper, gray triggerfish, hogfish, lane snapper, margate, red hind, rock hind, scamp, tomtate, and white grunt. Currently, revisions to the ABCs and ACLs for the unassessed snapper grouper

species is under consideration in Amendment 29, which will revise ABCs and ACLs based on the ORCS (Only Reliable Catch Stocks) method.

Atlantic Spadefish

Commercial Communities

Commercial landings are greatest for Atlantic spadefish in Florida, although this species is also landed commercially in South Carolina. **Figure 3.3.2.8** identifies the top communities with regional quotient of atlantic spadefish. The majority of dealer reported landings are located along the mid Florida coast, through Florida's lower east coast, and in South Carolina (McClellanville).

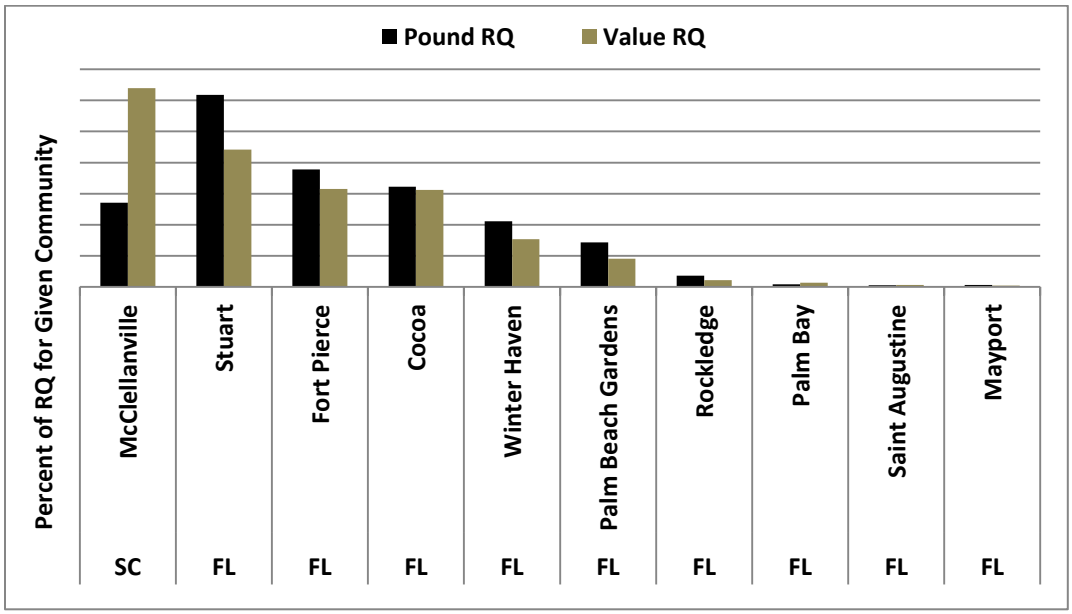

Figure 3.3.2.8. Proportion (RQ) of atlantic spadefish commercial landings (pounds and value) for South Atlantic communities out of total landings and value of atlantic spadefish.
Source: SERO Community ALS 2011.

Bar Jack

Commercial Communities

Bar jack is landed commercially in Florida. **Table 3.3.2.16** identifies the top communities with commercial landings of bar jack (the regional quotient is not displayed for bar jack for confidentiality reasons). Dealer reported landings are located in the Florida Keys, Miami, and in a few communities located on the mid Florida coast.

Table 3.3.2.16. Communities with commercial bar jack landings in descending order based on pounds landed.

STATE	CITY
FL	Key West
FL	Key Largo
FL	Cocoa
FL	Miami
FL	Mayport
FL	Islamorada
FL	Sebastian

Source: SERO Community ALS 2011.

Cubera Snapper

Commercial Communities

Commercial landings are greatest for cubera snapper in Florida, although this species is also landed in North Carolina and South Carolina. **Figure 3.3.2.10** identifies the communities with the most commercial landings of cubera snapper. The majority of dealer reported landings are located in northern South Carolina, along the Florida coast, in North Carolina (Shallotte), and in the Florida Keys.

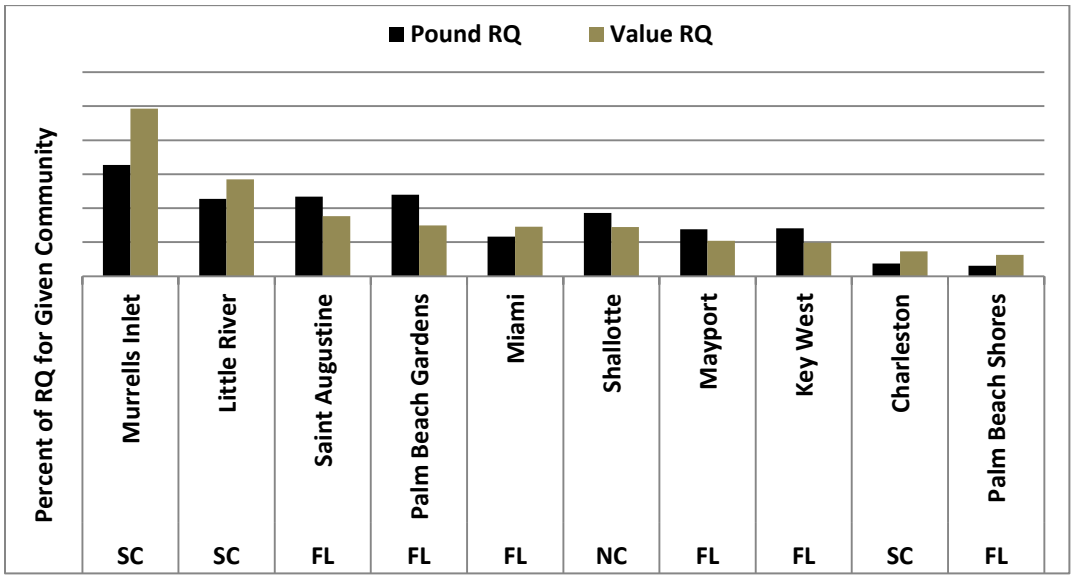

Figure 3.3.2.10. Proportion (RQ) of cubera snapper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of cubera snapper.
Source: SERO Community ALS 2011

Gray Snapper

Commercial Communities

Commercial landings are greatest for gray snapper in Florida, although this species is also landed in North Carolina and South Carolina. **Figure 3.3.2.11**identifies the communities with the highest commercial landings of gray snapper. The majority of dealer reported landings are

located in the Florida Keys and along the lower east coast of Florida (Miami, Hialeah, Fort Lauderdale, and North Palm Beach).

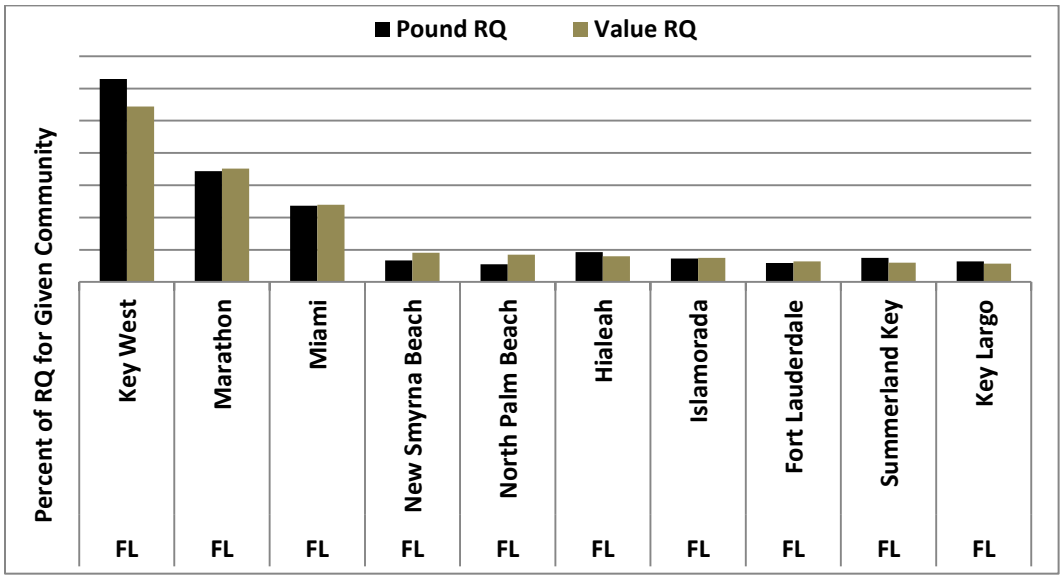

Figure 3.3.2.11 Proportion (RQ) of gray snapper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of gray snapper.
Source: SERO Community ALS 2011

Grunts

The grunts species complex includes white grunt, margate, sailor's choice, and tomtate. All species in this complex except for sailor's choice are unassessed and are thus included in this amendment; however all grunts complex species are included in the below community level analysis because a large portion of the landings are reported as unclassified grunts.

Commercial Communities

Commercial landings are highest for grunts in Florida (52.4%), although grunts complex species are also landed in North Carolina (33.6%) and South Carolina (14%, ALS 2011). **Figure 3.3.2.12** identifies the communities with the most commercial landings of grunts complex species. The majority of dealer reported landings are located in the Florida Keys (Key West and Key Largo make up 22.4% of landings in the year 2011), the southern coast of North Carolina, and the northern coast of South Carolina.

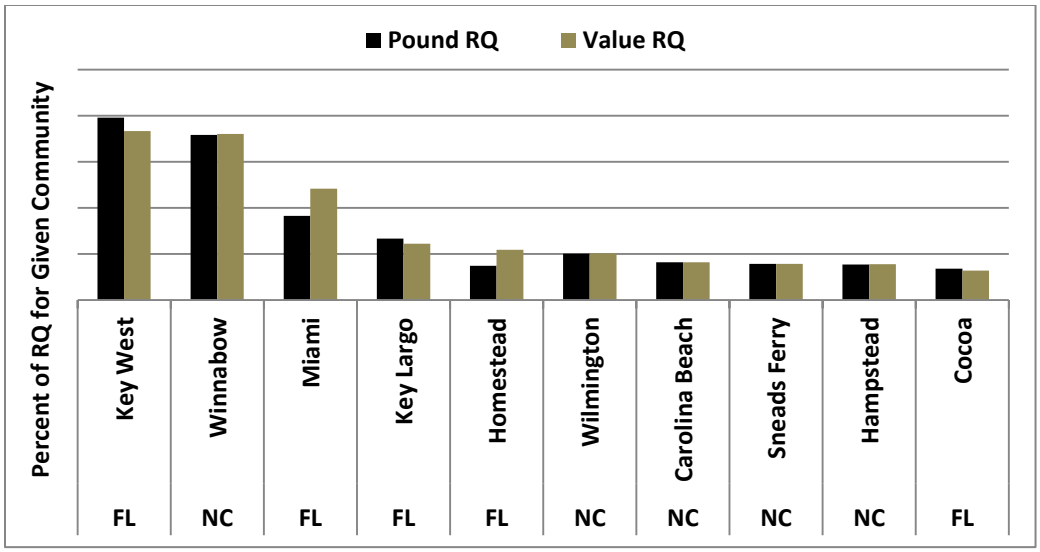

Figure 3.3.2.12 Proportion (RQ) of grunts complex commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of grunts complex.
Source: SERO Community ALS 2011.

Hogfish

Commercial Communities

Commercial landings for hogfish are highest in South Carolina, although this species is also landed in North Carolina and Florida. **Figure 3.3.2.13** identifies the communities with the most commercial landings of hogfish. The majority of dealer reported landings are located in South Carolina (Murrells Inlet), North Carolina, and the Florida Keys (Key West, Key Largo, Islamorada, and Summerland Key make up about 17.8% of landings in 2011).

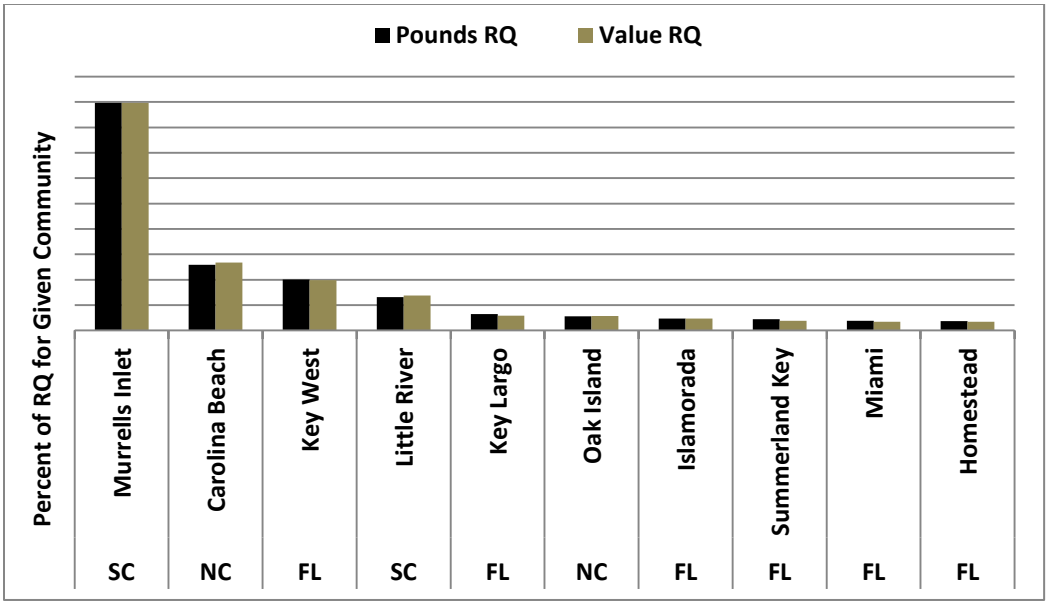

Figure 3.3.2.13 Proportion (RQ) of hogfish commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of hogfish.
Source: SERO Community ALS 2011.

Lane Snapper

Commercial Communities

Lane snapper is landed commercially in Florida. **Figure 3.3.2.14** identifies the communities with the most commercial landings of lane snapper. The majority of dealer reported landings are located in the Florida Keys, along the central coast of Florida (Cocoa), and along the lower east coast of Florida (Miami and Jupiter).

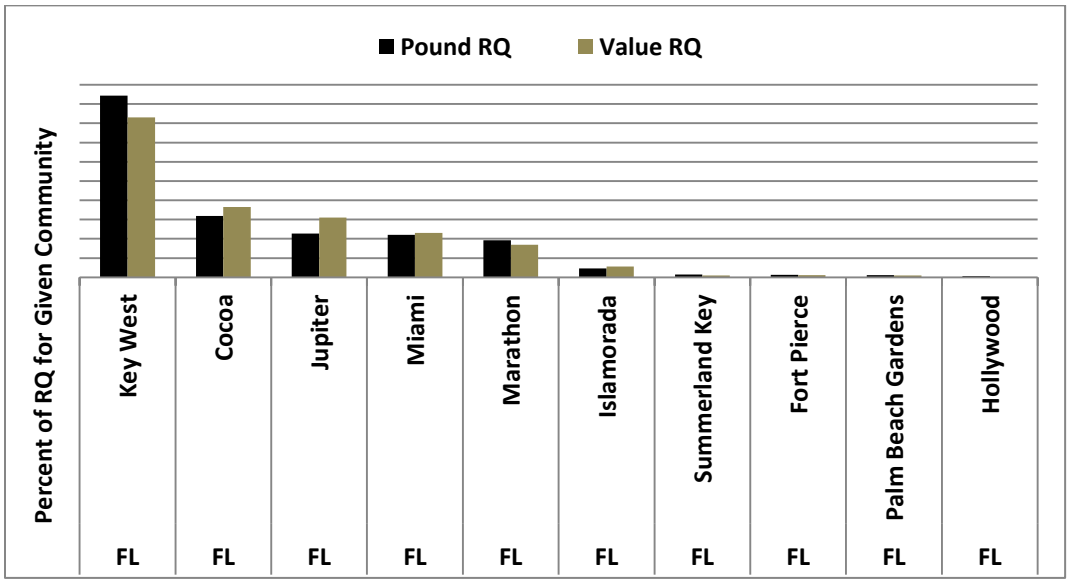

Figure 3.3.2.14 Proportion (RQ) of lane snapper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of hogfish.
Source: SERO Community ALS 2011.

Red Hind

Commercial Communities

Commercial landings for red hind are highest in North Carolina, although this species is also landed in Florida. **Figure 3.3.2.15** identifies the communities with the most commercial landings of red hind with the majority located in North Carolina (ALS 2011).

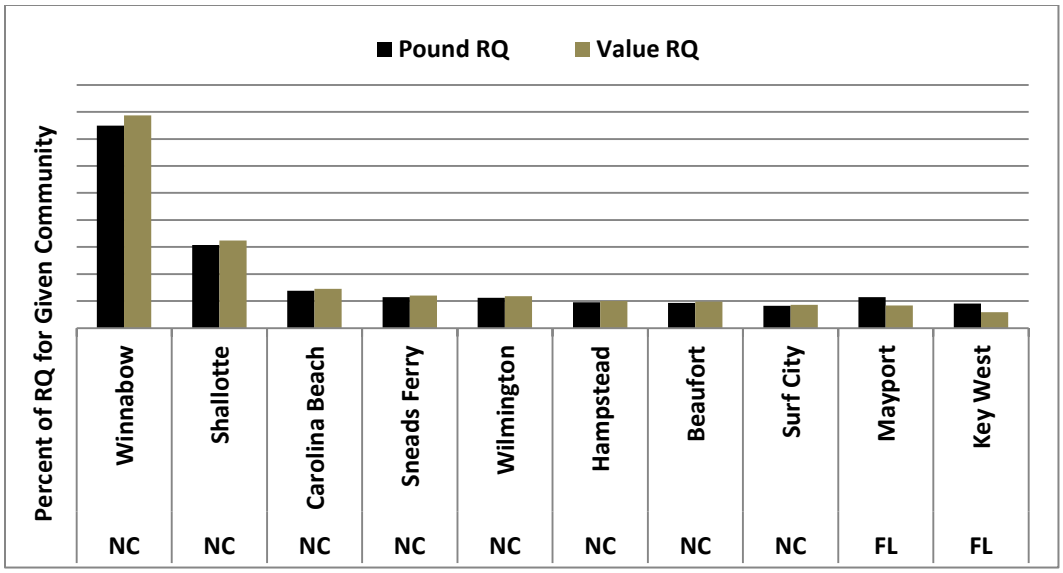

Figure 3.3.2.15 Proportion (RQ) of red hind commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of red hind.
Source: SERO Community ALS 2011.

Rock Hind

Commercial Communities

Commercial landings for rock hind are highest in South Carolina, although this species is also landed in Florida and North Carolina. **Figure 3.3.2.16** identifies the communities with the most commercial landings of rock hind. The majority of dealer reported landings are located in South Carolina in Horry and Georgetown Counties.

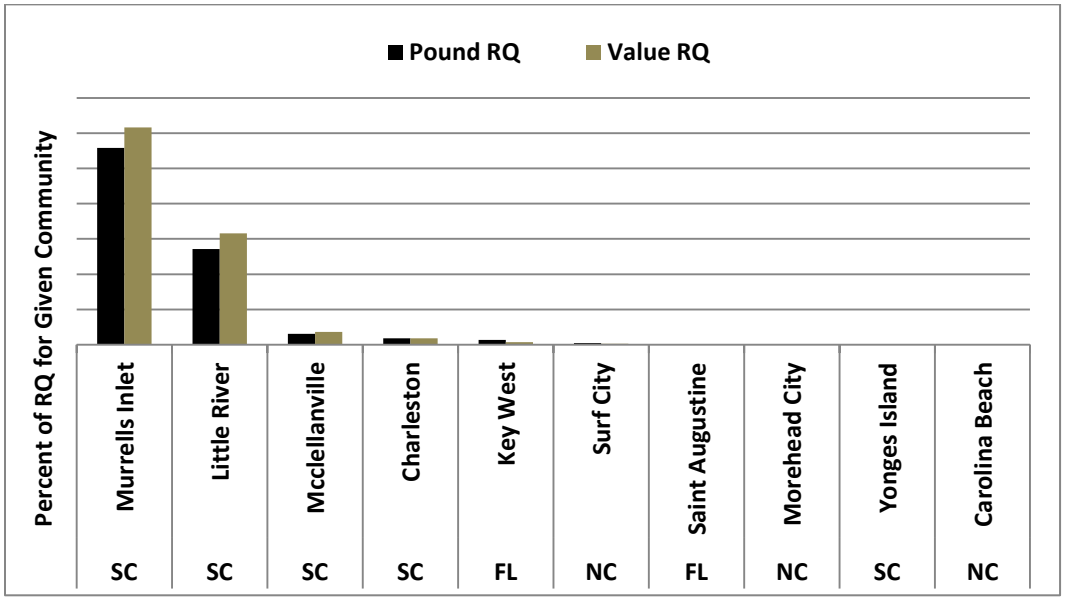

Figure 3.3.2.16 Proportion (RQ) of rock hind commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of rock hind.
Source: SERO Community ALS 2011.

Scamp

Commercial Communities

Commercial landings of scamp are highest in South Carolina, although smaller quantities of this species are also landed in North Carolina and Florida. **Figure 3.3.2.17** identifies the communities with the most commercial landings of scamp. The majority of dealer reported landings are located in South Carolina (Murrells Inlet, Little River, Charelston, and McClellanville make up over 65% of landings in 2011) and North Carolina.

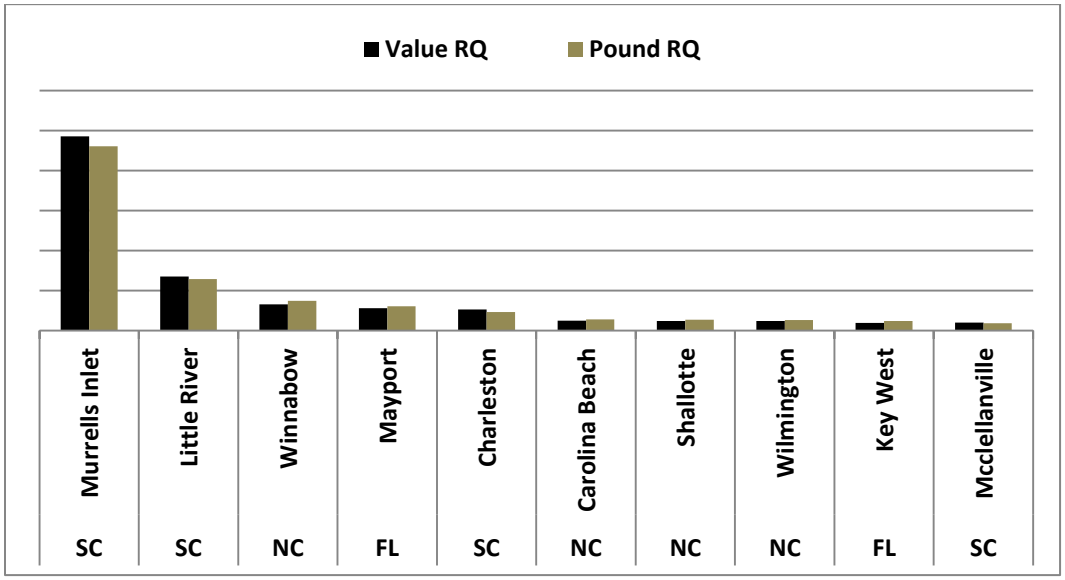

Figure 3.3.2.17 Proportion (RQ) of scamp commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of scamp.
Source: SERO Community ALS 2011.

Greater Amberjack

Greater amberjack is primarily a Florida fishery. Regulatory Amendment 14 (SAFMC 2014) contains a detailed description of communities associated with greater amberjack, and is incorporated herein by reference. The one community outside of Florida in the top ten for regional quotient for commercial harvest of greater amberjack is Murrells Inlet, South Carolina. Cocoa, Key Largo, and Miami are the top three Florida communities, with a large proportion of commercial landings of greater amberjack occurring in these areas (SAFMC 2014).

In general, areas with a higher level of recreational fishing engagement and reliance that could be affected by changes to management for greater amberjack include the Florida communities of Key West, Key Largo, Islamorada, Miami, Fort Pierce, and New Smyrna Beach, in addition to the community of Murrells Inlet, South Carolina (SAFMC 2014).

Red Porgy

Red porgy has been an important species for both commercial and recreational fishermen in several communities in the South Atlantic region for some time. However, because of the rebuilding plan in Amendment 12 red porgy access has been access (SAFMC 2000). As a result many commercial and recreational harvesters have shifted effort to other species. Although red

porgy is not as socially and economically important as prior to the rebuilding plan, it remains an important part of catch composition during multi-species trips. Regulatory Amendment 18 (SAFMC 2013c) contains a detailed description of communities associated with red porgy, and is incorporated herein by reference.

In the commercial component of the red porgy fishery, North Carolina communities outnumber all other states in terms of commercial landings and value. These include the communities of Winnabow, Morehead City, Sneads Ferry, Hampstead, Beaufort, Carolina Beach, Shallotte, Wilmington, Surf City, Wrightsville Beach, New Bern, Atlantic Beach, and Wanchese. However, the top five red porgy communities in terms of regional quotient are Murrells Inlet, South Carolina and Mayport, Florida outpacing all other communities in terms of value and pounds. Most of the communities with high regional quotients for red porgy are also identified as communities with high level of reliance and engagement with commercial fishing (SAFMC 2013c). Relative to the rest of the region, Georgia communities have low levels of commercial landings of red porgy. However, some commercial vessels in the community of Townsend may target some red porgy.

In the recreational component of the red porgy fishery, information was combined with vermilion snapper because these species are commonly caught together. Areas with high levels of recreational fishing engagement and reliance that could be affected by management changes to red porgy include the Florida communities of St. Augustine and Port Orange; the North Carolina communities of Atlantic Beach, Beaufort, Carolina Beach, Morehead City, Wrightsville Beach, Sneads Ferry and Wanchese; and the South Carolina communities of Little River and Murrells Inlet (SAFMC 2013c). Relative to the rest of the region, Georgia communities have low levels of recreational landings of red porgy. However, for-hire businesses and private anglers in communities such as Savannah, Darien, Brunswick, and St Simons Island likely target some red porgy.

Gag Grouper

Gag grouper is a socially and economically important species for both the commercial and recreational sectors, and is growing in popularity. Regulatory Amendment 14 (SAFMC 2014) contains a detailed description of communities associated with gag grouper, and is incorporated herein by reference. Most commercial landings of gag grouper occur in South Carolina and North Carolina, with Murrells Inlet, SC, having the highest regional quotient (relative commercial landings and value). Other important commercial communities for gag grouper include the South Carolina communities of Little River, Charleston, and McClellanville; the North Carolina communities of Wilmington, Hampstead, Morehead City, Surf City, Wrightsville Beach, Winnabow, Shallotte, Emerald Isle, Sneads Ferry, Beaufort, Carolina Beach and Atlantic Beach; and the Florida communities of Mayport, Cocoa, St Augustine, and Fort Pierce. Most of these communities have high levels of engagement and reliance on commercial fishing also (SAFMC 2013a). Relative to the rest of the region, Georgia communities have low levels of commercial landings of gag grouper, although some commercial vessels in the community of Townsend may target some gag grouper.

In the recreational component of the gag grouper fishery, areas with high levels of recreational fishing engagement and reliance that could be affected by management changes to

gag grouper include the North Carolina communities of Atlantic Beach, Carolina Beach, Morehead City, and Wanchese; and the South Carolina community of Murrells Inlet (SAFMC 2014). Relative to the rest of the region, Georgia communities have low levels of recreational landings of red porgy. However, for-hire businesses and private anglers in communities such as Savannah, Darien, Brunswick, and St Simons Island may target some gag grouper.

Golden Tilefish

Golden tilefish is an increasingly important commercial species in the snapper grouper fishery, primarily in south Florida and the Florida Keys. Amendment 18B (SAFMC 2012) established an endorsement system for the longline portion of the commercial sector in addition to separate quotas for longline (75%) and hook-and-line (25%) harvest (effective May 2013). The purpose of the endorsement system for longline harvest was to cap participation in the longline component, which had grown substantially and created derby conditions, with commercial harvest being closed in only three to four months. However, the endorsement program has not slowed the rate of harvest. In 2014 (the first year of the endorsements), 75% of the longline quota was met by February 18, and longline harvest was closed on March 5.

As of April 23, 2014, there are 21 active longline endorsements (source: SERO vessel permits webpage). Almost all endorsements are registered to Florida vessels, primarily located around commutes in Brevard County, St Lucie County, Martin County, and Palm Beach County. Amendment 18B (SAFMC 2012) contains a detailed description of communities associated with golden tilefish, and is incorporated herein by reference. The primary communities that would be most likely to be affected by changes to golden tilefish management for the commercial sector are shown in **Figure 3.3.2.20**.

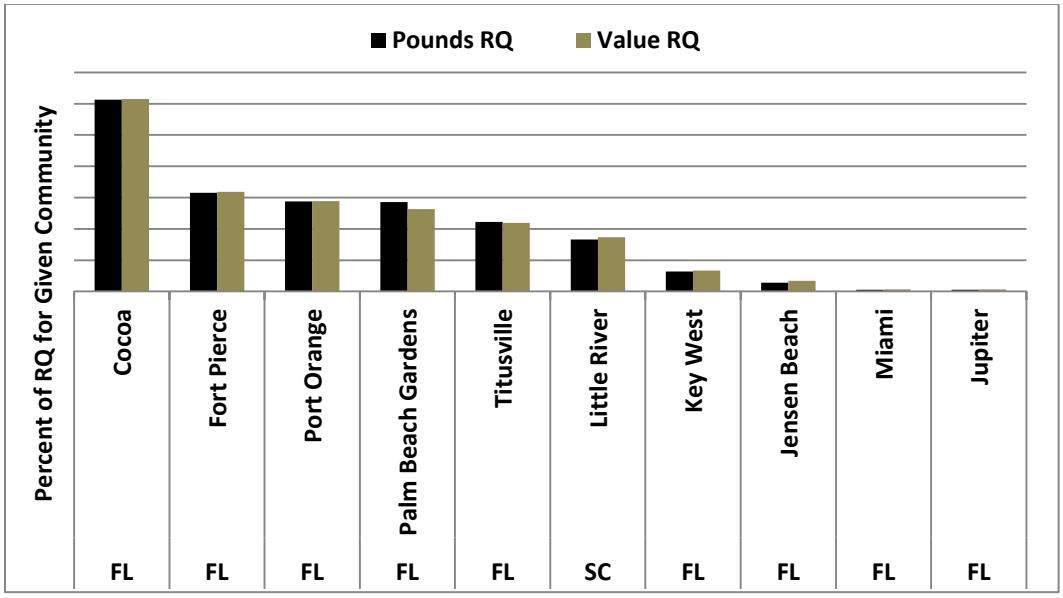

Figure 3.3.2.20. Proportion (RQ) of golden tilefish commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of golden tilefish.
Source: SERO Community ALS 2011.

The recreational component of the golden tilefish fishery is described in detail in Amendment 18B (SAFMC 2012) and incorporated herein as a reference. Recreational fishing for golden tilefish is growing in popularity as the special type of fishing known as deep-dropping, which targets deepwater fish such as tilefish and snowy grouper, increases. Golden tilefish are not often caught by private anglers and recreational fishermen on charter trips due to the specific gear and knowledge required to deep-drop. Most recreational landings of golden tilefish are in Florida, with some landings in North Carolina.

Red Grouper

Red grouper is an important recreational and commercial species in the snapper grouper fishery, and is currently under a rebuilding plan. Amendment 24 (SAFMC 2011b) contains a detailed description of communities associated with red grouper, and is incorporated herein by reference. A majority of commercial landings of red grouper occur in North Carolina, with some in South Carolina for the top commercial communities (**Figure 3.3.2.21**).

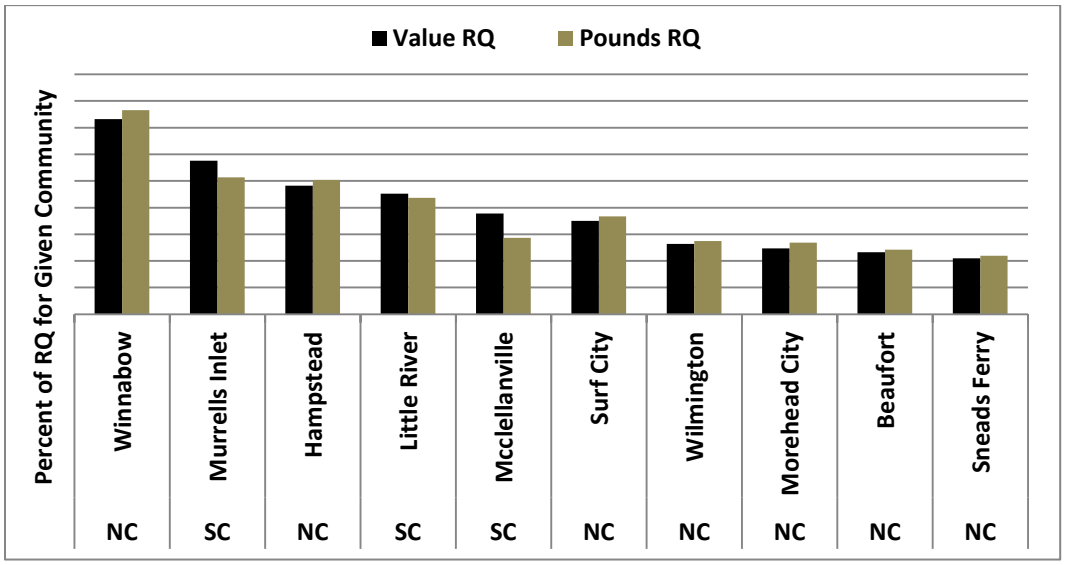

Figure 3.3.2.21. Proportion (RQ) of red grouper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of red grouper.
Source: SERO Community ALS 2011.

Several of the communities identified as general South Atlantic recreational fishing communities are also the most involved in commercial fishing for red grouper, specifically the North Carolina communities of Carolina Beach and Morehead City, and the South Carolina communities of Murrells Inlet and Little River (SAFMC 2011b).

Red Snapper

Red snapper is an important species in the snapper grouper fishery for the commercial sector, and substantially one of the most popular and important species for recreational sector. Harvest was closed in 2009 due to overfishing, but in recent years red snapper harvest has been opened for very limited periods. Management of red snapper continues to be one of the most important issues for the South Atlantic region. Amendment 28 (SAFMC 2013d) contains a detailed description of communities associated with red snapper, and is incorporated herein by reference.

Before 2009, which was the last year prior to the prohibition on landings, red snapper regional quotient landings for South Atlantic communities were highest in the Florida communities of Mayport, Port Orange, Saint Augustine, New Smyrna, Cocoa, Ormond Beach, Cape Canaveral, Grant, and Jacksonville. Also included were the North Carolina communities of Morehead City and Shallotte; the South Carolina communities of Murrells Inlet and Little River; and the community of Townsend in Georgia (SAFMC 2013d).

Several communities were identified as having relatively high levels of recreational landings of red snapper, in addition to high measures of recreational enagagement and reliance, which suggests that these communities could be affected by changes to red snapper management. Eight communities show tendancies toward being engaged in recreational fisheries with three being reliant. The communities of Cape Canaveral, FL; Jacksonville, FL; Port Orange, FL; Morehead City, NC; Charleston, SC; Little River, SC; Murrells Inlet, SC; and St. Augustine, FL are all engaged in recreational fishing. The communities of Morehead City, NC; Murrells Inlet, SC; and St. Augustine, FL are also reliant.The communities of Townsend, GA; Morehead City, NC; Murrells Inlet, SC; and Mayport and St. Augustine, FL are all reliant and engaged in either commercial or recreational fishing and therefore would be communities that might be affected by significant changes in regulatory policy, whether positive or negative (SAFMC 2013d).

Snowy Grouper

Snowy grouper is landed recreationally in Florida, North Carolina, and South Carolina (**Table 3.3.2.17**). In 2012, recreational landings for snowy grouper are greatest in Florida (92.7%) and a small amount of snowy grouper are landed recreationally in North Carolina (7.3%). Of the recreational landings in 2012, over 81% occurred in Monroe County, Florida (SEDAR 36). A very small amount of snowy grouper has been landed recreationally in South Carolina within the last five years.

Table 3.3.2.17. Snowy grouper recreational landings in lbs gutted weight, by state.

Year	FL	GA	NC	SC	Total
2008	3017	0	23359	21	26397
2009	38909	0	19293	19	58221
2010	11063	0	69204	0	80267
2011	197	0	532	0	729
2012	74836	0	5935	0	80770

Commercial landings for snowy grouper are greatest in Florida (54.4% in 2012), followed by North Carolina (23.4%) and South Carolina (22.2%, SEDAR 36). There were no commercial landings of snowy grouper in Georgia in 2012 (SEDAR 36).

Figure 3.3.2.22 identifies the communities with the most commercial landings of snowy grouper. The top two communities of Murrells Inlet and Little River, South Carolina land about 31% of snowy grouper, and those landings represent over 31% of total value (**Figure 3.3.2.21**). One other South Carolina community makes up the top fifteen, seven Florida communities (including about 38% of landings in pounds and 41% in value), and five North Carolina

communities (including about 19% of landings in pounds and 15% in value). No Georgia communities were included.

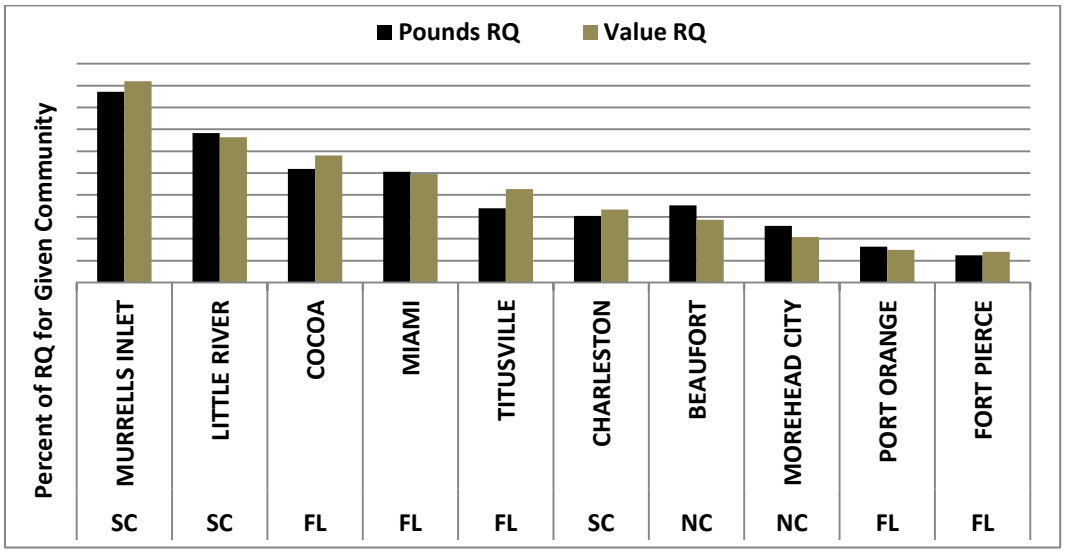

Figure 3.3.2.22. Proportion (RQ) of snowy grouper commercial landings (pounds and value) for top 10 South Atlantic communities out of total landings and value of snowy grouper.
Source: SERO Community ALS 2011.

Wreckfish

In the 1990s, wreckfish was one of the most important commercial species in the snapper grouper fishery. Participation in the wreckfish fishery led to derby conditions and subsequently, an individual transferable quota system (ITQ) through Amendment 5 (SAFMC 1992). Over the next 10-20 years, participation in the wreckfish fishery declined with only a handful of active fishermen. Amendment 20A (SAFMC 2011b) transferred wreckfish shares from inactive permit holders to active permit holders, and currently there are five shareholders in Florida and South Carolina (source: SERO vessel permits webpage). Landings are overall split between the harvesters in Florida and South Carolina (personal comm., SERO). Data are not shown to maintain confidentiality.

Amendment 20A (SAFMC 2011d) contains a detailed description of the social environment and the history of the wreckfish fishery, and is incorporated herein by reference. In general, the areas most associated with the commercial component of the wreckfish fishery are Charleston, South Carolina; Port Orange, Florida; and Key Largo, Florida (SAFMC 2011d).

The Comprehensive ACL Amendment (SAFMC 2011c) allocated a portion (5%) of the total ACL for wreckfish to the recreational sector for the first time. Wreckfish requires specialized gear and knowledge, and it is likely that only a small group of recreational fishermen and for-hire businesses target wreckfish, although some incidental catch could occur.

3.3.2.2. Golden Crab

The golden crab fishery has only a commercial component and is a small, specialized fishery off the southeast coast of Florida. The eleven existing permits are under a limited access program and each permit includes a designated fishing area. The Comprehensive ACL Amendment

(SAFMC 2011c) contains a detailed description of the social environment and the history of the golden crab fishery, and is incorporated herein by reference. In general, the areas most associated with the golden crab fishery are the Florida communities of Fort Lauderdale, Marathon, Hollywood, and Miami (SAFMC 2011c).

3.3.2.3 Dolphin

A description of the social environment of the dolphin wahoo fishery is contained in Dolphin Wahoo Amendment 5 (SAFMC 2013) and is incorporated herein by reference where appropriate. The South Atlantic, Mid-Atlantic, and New England regions are included in the description of the social environment. The referenced description focuses on available geographic and demographic data to identify communities with strong relationships with dolphin or wahoo fishing (i.e., significant landings and revenue), and positive or negative impacts from regulatory change are expected to occur in places with greater landings of wahoo or dolphin.

The descriptions of South Atlantic communities in Amendment 5 (SAFMC 2013) include information about the top communities based upon regional quotients of commercial landings and value for dolphin and wahoo. These top communities are referred to in this document as "dolphin communities" and "wahoo communities" because these are the areas that would be most likely to experience the effects of proposed actions that could change the dolphin or wahoo fisheries and impact the participants and associated businesses and communities within the region. Additionally, the descriptions in Amendment 5 (SAFMC 2013) for all Atlantic regions also include reliance and engagement indices to identify other areas in which dolphin and wahoo fishing is important, and provide information of how a community overall is involved with commercial and recreational fishing and could experience effects from regulatory actions for any species (see Amendment 5 for more details about the reliance and engagement indices). The identified communities in this section are referenced in the social effects analyses in Section 4 in order to provide information on how the alternatives could affect specific areas. Overall, the dolphin and wahoo fisheries are primarily recreational, and effort and landings predominantly occur in south Florida and the Florida Keys.

Commercial Dolphin and Wahoo Communities in the South Atlantic

Using the regional quotient to identify dolphin communities, Wadmalaw Island, South Carolina and Palm Beach Gardens, Florida make up about 1/3 of the total commercial dolphin landings and value. Most commercial dolphin communities are in Florida and include Mayport, St. Augustine, Cocoa, and Margate in addition to a few communities in the Florida Keys (Key West, Key Largo, Marathon, and Islamorada). North Carolina communities with higher regional quotients include Wanchese, Wrightsville Beach, Hatteras, and Beaufort. In addition to Wadmalaw Island, the community of McClellanville, South Carolina also has a high regional quotient for dolphin. No Georgia communities are identified as dolphin communities.

Communities with high regional quotients for wahoo are similar to those for dolphin. Wadmalaw Island, South Carolina and Palm Beach Gardens, Florida make up the highest levels of commercial dolphin landings and value. Wahoo communities in Florida include Key West, Margate, St. Augustine, Ft. Lauderdale, Miami, Jupiter, New Smyrna Beach, and Hialeah. North Carolina communities with higher regional quotients include Wanchese, Wrightsville Beach, and

Morehead City. In addition to Wadmalaw Island, the community of Yonges Island, South Carolina also has a high regional quotient for wahoo. No areas in Georgia are identified as wahoo communities.

Mid-Atlantic and New England Regions

The South Atlantic Council manages dolphin and wahoo through the Mid-Atlantic and New England regions. Overall, landings of these species in the Mid-Atlantic and New England regions are very low compared to landings in the South Atlantic, and management actions by the South Atlantic Council likely have minimal impacts on Mid-Atlantic and New England communities. More detailed information about these communities and how they were identified is described in Amendment 5 (SAFMC 2013).

Commercial Dolphin and Wahoo Communities in the Mid-Atlantic and New England Regions

Using the regional quotient to identify dolphin communities (SAFMC 2013), New Bedford, Massachusetts is the leading port in terms of dolphin landings with Ocean City, Maryland a distant second. Several other communities follow with near comparable amounts of dolphin landed but far less than the leading community. Wahoo landings for 2011were far less than dolphin with only three communities reporting landings: New Bedford, Massachusetts; Hatteras, North Carolina; and Cape May, New Jersey.

Reliance on and Engagement with Commercial and Recreational Fishing in the Mid-Atlantic and New England Regions

Ocean City, Maryland; Belmar, Barnegat Light, Cape May, and Point Pleasant, New Jersey; Montauk, New York; Virginia Beach, and Watchapreague, Virginia; Boston, and New Bedford, Massachusetts; and Point Lookout, New York are all over either the engaged or reliant threshold for commercial fishing or both. In terms of recreational fishing engagement and reliance for Northeast communities with dolphin and wahoo landings, almost every community is over the threshold for either engagement or reliance for recreational fishing (SAFMC 2013).

3.3.3 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. The main focus of Executive Order 12898 is to consider "the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…" This executive order is generally referred to as environmental justice (EJ).

Commercial fishermen, recreational fishermen, and coastal communities could be impacted by the proposed actions in the South Atlantic. However, information on the race and income status for these individuals is not available. Because the proposed action could be expected to

impact fishermen and community members in numerous communities in the South Atlantic, census data have been assessed to examine whether any coastal counties have poverty or minority rates that exceed thresholds for raising EJ concerns.

In order to assess whether a community may be experiencing EJ issues, a suite of indices created to examine the social vulnerability of coastal communities (Colburn and Jepson 2012; Jacob et al. 2012) is presented in **Figure 4.2.1**. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and children under the age of 5, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of vulnerable populations. These indicators are closely aligned to previously used measures of EJ which used thresholds for the number of minorities and those in poverty, but are more comprehensive in their assessment. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

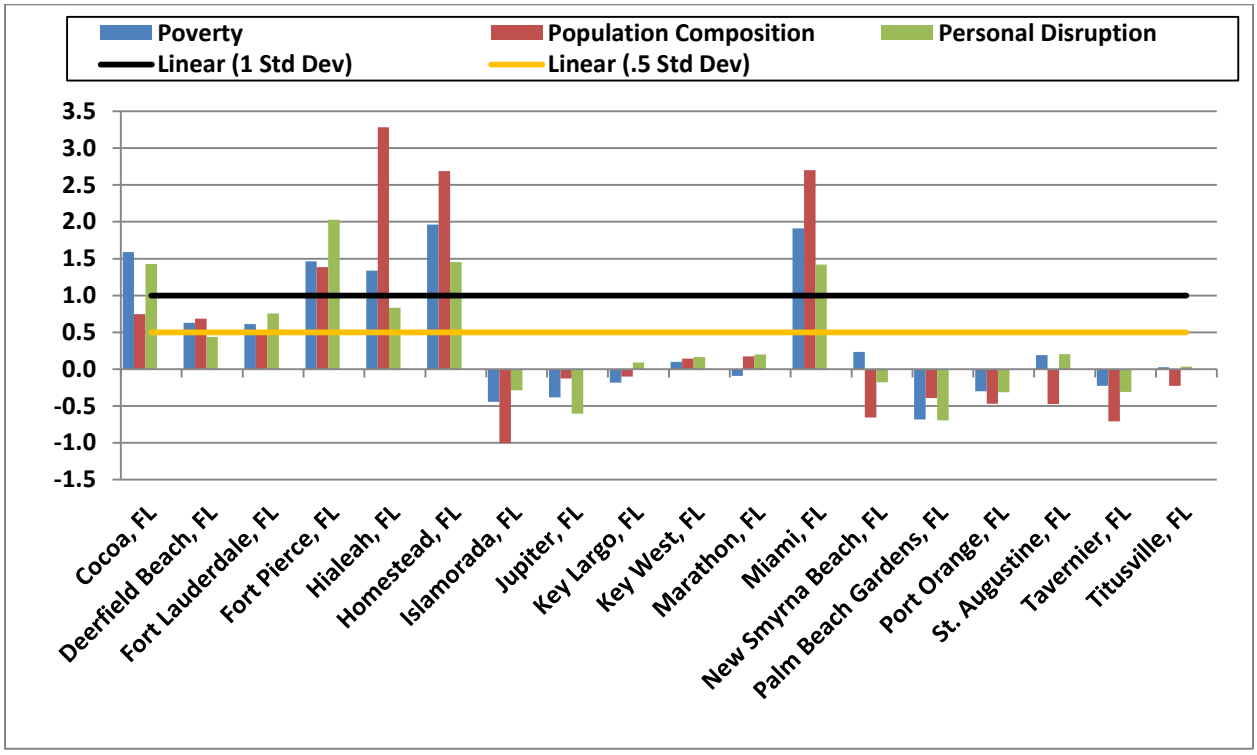

Figure 3.3.3.1. Social Vulnerability indices for top Florida communities in terms of pounds and value regional quotient for snapper grouper in the South Atlantic.
Source: SERO Social Indicator Database 2014.

Of the Florida communities depicted in **Figure 3.3.3.1**, five exceed the thresholds for at least three of the indicators, including: Cocoa, Fort Pierce, Hialeah, Homestead and Miami. Of those communities Fort Pierce and Miami are both commercially and recreationally engaged, while the others do not exhibit either engagement or reliance on fishing.

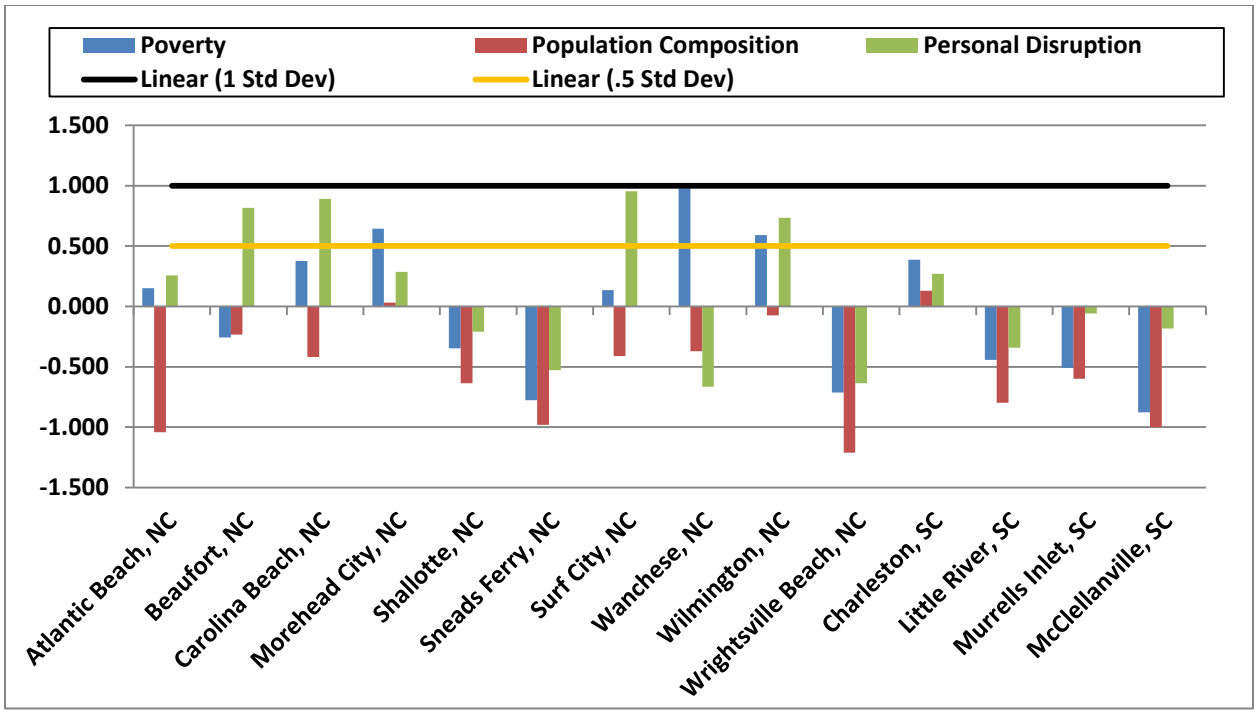

Figure 3.3.3.2. Social Vulnerability indices for top communities in in North and South Carolina in terms of pounds and value regional quotient for snapper grouper in the South Atlantic.
Source: SERO Social Indicator Database 2014

While several Florida communities exceed the thresholds for several social vulnerability indices, there are no communities in **Figure 3.3.3.2** that exceed both thresholds for any index. Wilmington, NC exceeds the lower threshold for poverty and personal disruption, with a few other communities exceeding the lower threshold for one or the other. While the communities in **Figure 3.3.3.2** are not experiencing much social vulnerability, there could still be some negative social effects that are exacerbated by other vulnerabilities that occur but are not represented by these indicators. However, these measures of social vulnerability are representative of many common social vulnerability factors.

While some communities affected by this proposed amendment may have minority or economic profiles that exceed the EJ thresholds and, therefore, may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. It is anticipated that the impacts from the proposed regulations may impact minorities or the poor, but not through discriminatory application of these regulations.

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

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

3.4.1.1 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 EEZ, an area extending 200 nm 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 (Secretary) 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 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. In most cases, the Secretary has delegated this authority to NMFS.

The South Atlantic Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 mi offshore from the seaward boundary of North Carolina, South Carolina, Georgia, and east Florida to Key West. The South Atlantic Council has thirteen voting members: one from NMFS; 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 South Atlantic Council Committees have full voting rights at the Committee level but not at the full South Atlantic Council level. The South Atlantic Council also established two voting seats for the Mid-Atlantic Council on the South Atlantic Mackerel Committee. South Atlantic Council members serve three-year terms and are recommended by state governors and appointed by the Secretary 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 and legal matters, are open to the public. The South Atlantic Council uses its Scientific and Statistical Committee (SSC) 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 Procedure Act, in the form of "notice and comment" rulemaking.

3.4.1.2 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 South Atlantic Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters.

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

NMFS's 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.

3.4.1.3 Enforcement

Both the NMFS Office for Law 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.

The NOAA Office of General Counsel Penalty Policy and Penalty Schedule is available online at http://www.gc.noaa.gov/enforce-office3.html.

Chapter 4. Environmental Effects and Comparison of Alternatives

4.1 Action 1. Revise accountability measures (AMs) for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species not in the deepwater complex, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab.

4.1.1 Biological Effects

Species addressed by this action include black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species not in the deepwater complex, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab. **Table 4.1.1.1** lists the unassessed species affected by this action. AMs for vermilion snapper, gray triggerfish, black sea bass, deepwater complex species, and blueline tilefish are being addressed in other amendments, which would incorporate these elements.

Under **Alternative 1 (No Action)**, the current AMs in place for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species not in the deepwater complex, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab would not be modified. **Table 4.1.1.2** provides a summary of the current commercial and recreational AMs for species in the snapper grouper complex, and golden crab. There is little consistency

***Alternatives*[1]**
*(preferred alternatives in **bold**)*

Alternative 1 (No Action). Do not revise AMs for snapper grouper species and golden crab.

Alternative 2 affects only the commercial sector. In-season closure would take place if the commercial ACL is met or projected to be met. The commercial ACL in the following fishing year will be reduced by the amount of a commercial overage only if:
Sub-alt 2a. The species is overfished.
Sub-alt 2b. The total ACL is exceeded.
Sub-alt 2c. The species is overfished AND the total ACL is exceeded.

Alternative 3 affects only the recreational sector. The recreational ACL in the following fishing year will be reduced by the amount of a recreational overage only if:
Sub-alt 3a. The species is overfished.
Sub-alt 3b. The total ACL is exceeded.
Sub-alt 3c. The species is overfished AND the total ACL is exceeded.

Alternative 4. If recreational landings reach or are projected to reach the recreational ACL, NMFS will close the recreational sector for the remainder of the fishing year, unless, the RA determines that a closure is unnecessary.
Sub-alt 4a. If the species is overfished.
Sub-alt 4b. Regardless of stock status.

[1]See Chapter 2 for a more detailed description of the alternatives.

of AMs among species, except for the in-season closure of commercial sector when a commercial annual catch limit (ACL) is met or projected to be met. Some current AMs either do not allow the Regional Administrator to take action to close a recreational sector when information becomes available indicating a recreational ACL has been or is going to be reached (as is the case for black grouper, mutton snapper, yellowtail snapper, greater amberjack, red porgy, and unassessed snapper grouper species); or they may not require an ACL payback in the year following an overage of a commercial ACL (as is the case for gag, golden tilefish, red snapper, snowy grouper, and golden crab) (See **Table 4.1.1.2**).

The variability in AMs has created a complex regulatory environment, and could result in negative biological impacts if fishermen are unaware or do not understand the AMs. Confusion regarding AMs could result in fishing activity for species that have been closed to harvest. Additionally, some current AMs may not yield the highest level of biological benefit for some species when compared to the other alternatives considered under this action. Changes in AMs may be needed because of the amount of fishing effort on a single species or species group, the ability to monitor landings of a species or species group in season, and magnitude of a sector ACL. Issues such as these have led the South Atlantic Council to reexamine the system of AMs currently in place for the subject species under **Alternatives 2-4**.

Table 4.1.1.1 Unassessed snapper grouper species addressed in this action excluding species in the deepwater snapper-grouper complex, which are being addressed in a differentt amendment.

Unassessed Snapper Grouper Species	Commercial ACL (lb ww)	Recreational ACL (lb ww)
Jacks	**189,422**	**267,799**
Almaco jack	147,322	155,195
Banded rudderfish	37,829	107,605
Lesser amberjack	4,270	5,000
Snappers	**215,662**	**728,577**
Gray snapper	192,830	602,213
Lane snapper	17,695	102,289
Cubera snapper	4,829	19,851
Dog snapper	273	3,012
Mahogany snapper	36	512
Grunts	**218,539**	**588,113**
White grunt	212,896	461,136
Sailors choice	0	22,674
Tomtate	0	80,056
Margate	5,643	24,246
Shallow Water Groupers	**49,776**	**46,656**
Red hind	18,303	6,564
Rock hind	23,115	14,838
Shallow Water Groupers		
Yellowmouth grouper	44	3,995
Yellowfin grouper	4,879	4,379
Coney	665	2,053
Graysby	2,771	14,827

Unassessed Snapper Grouper Species	**Commercial ACL (lb ww)**	**Recreational ACL (lb ww)**
Porgies	**36,348**	**106,914**
Jolthead porgy	1,571	36,315
Knobbed porgy	34,515	32,926
Saucereye porgy	0	3,606
Scup	0	9,306
Whitebone porgy	262	24,762
Individual Stocks		
Atlantic spadefish	35,108	154,352
Bar jack	5,265	19,515
Scamp	333,100	176,688
Hogfish	49,569	85,355
Gray triggerfish*	272,880	353,638
Species with total ACLs of Zero		
Nassau grouper	0	0
Warsaw grouper	0	0
Speckled hind	0	0
Goliath grouper	0	0

* Gray triggerfish is scheduled to for a SEDAR stock assessment beginning August 2014.

Table 4.1.1.2 Summary table of current AMs for species addressed in this amendment.

	Black Grouper, Mutton Snapper, Yellowtail Snapper, Greater Amberjack, Red Porgy, Unassessed Snapper Grouper Species	**Gag**	**Golden Tilefish**	**Red Grouper**	**Red Snapper**	**Snowy Grouper**	**Wreckfish**	**Golden Crab**
Commercial Sector AMs								
In-season closure	X	X	X	X	X	X	ITQ***	X
Payback in following year if overfished	X*			X				
Recreational AMs								
In-season closure		X**	X	X	X			N/A
Payback following year		X		X		X		N/A
Monitor landings and reduce following fishing season length if necessary	X		X				X	N/A

* This pay back occurs only if the species is overfished.
** For gag, a recreational in-season closure is triggered only if the species is overfished.
*** Individual transferable quota.

Alternative 2 would allow the Regional Administrator to close the commercial sector in-season if the ACL is met or projected to be met. For the species addressed in this amendment, this provision already exists; therefore, this aspect of the current system of commercial AMs would not change from the status quo. **Alternative 2** would change the commercial payback provisions for the subject species or species group as proposed under **Sub-alternatives 2a-2c** (**Preferred**). Currently, gag, golden tilefish, snowy grouper, red snapper, and golden crab have no built in mechanism to correct an ACL overage if were one to occur. Therefore, these species would likely realize biological benefits under any of the three sub-alternatives being considered. **Sub-alternative 2a** would trigger a reduction of the ACL in the fishing year following a commercial ACL overage but only if the species is overfished or one of the species in a species group is overfished. **Sub-alternative 2b** would trigger a reduction of the commercial ACL for

the fishing year following a total ACL overage, meaning the commercial ACL *and* the recreational ACL combined is exceeded. **Preferred Sub-alternative 2c** would trigger a reduction of the commercial ACL in the fishing year following an overage of the total ACL *and* only if the species is overfished or one of the species in a species group is overfished. In all cases, the amount of the commercial ACL payback would be equal to the amount of the commercial ACL overage during the prior year.

Sub-alternative 2a is associated with only one criterion for triggering implementation of a payback of the ACL, and it would ensure that paybacks are triggered when they are most needed, i.e., when a species is overfished. This provision is currently in place for black grouper, mutton snapper, yellowtail snapper, greater amberjack, red porgy, and unassessed snapper grouper species. However, if a species is not overfished and the commercial ACL is exceeded, no payback would be required. Thus, **Sub-alternative 2a** would only result in biological benefits if the species is overfished. **Sub-alternative 2b**, is likely to have similar or greater beneficial biological impacts than **Sub-alternative 2a**, as the AM would be triggered when both the recreational and commercial ACLs have been exceeded regardless of overfished status. It is difficult to predict how often this AM would be triggered compared to **Sub-Alternative 2a**; however, it is likely that overages of the total ACL may happen more frequently than exceeding the commercial ACL when a species is overfished. Regulatory Amendment 21 to the Snapper Grouper FMP (Regulatory Amendment 21) modifies the current overfished definition (minimum stock size threshold (MSST)) for four species addressed in this amendment including gag, red porgy, yellowtail snapper, and greater amberjack, to prevent species with low natural mortality rates from frequently fluctuating between an overfished and rebuilt condition due to natural environmental conditions rather than fishing pressure. Therefore, for those species, the risk of exceeding the commercial ACL while the species are overfished would be minimized, and the **Sub-Alternative 2a** AM could be triggered less often than the **Sub-Alternative 2b** AM.

Preferred Sub-Alternative 2c would be triggered the least frequently of all the sub-alternative payback AMs under consideration, because the payback would only be required if two criteria are met, the species (or a species in species group) is overfished *and* the total ACL has been exceeded. The likelihood of both of these scenarios taking place at the same time is small. **Preferred Sub-alternative 2c** may implement a commercial payback under such infrequently encountered simultaneous events that it may lead to a payback provision not being triggered when it is actually biologically necessary. Therefore, **Preferred Sub-alternative 2c**, may be associated with the lowest level of biological benefits compared to **Sub-alternatives 2a** and **2b**.

Alternative 3 would apply to the recreational sector for the species and species groups addressed in this amendment. Under this alternative, if the recreational ACL is exceeded, recreational landings during the following year would be monitored for persistence in increased landings. If increased landings persist through the following fishing year, one of the AMs provided in the sub-alternatives for **Alternative 3** would be triggered for the applicable recreational sector. The **Alternative 3** sub-alternatives are almost identical to those found for the commercial sector under **Alternative 2**; however, the Regional Administrator would

determine, based upon the best scientific information available, whether a payback is actually needed.

Currently, black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species, greater amberjack, red porgy, golden tilefish, and wreckfish have an AM that monitors recreational landings following a recreational ACL overage to determine if there is a persistence in landings before an AM is triggered. This provision is not in place for gag, red grouper, red snapper, and snowy grouper. For species with very low recreational ACLs, it may be difficult to monitor landings in-season and prevent the ACL from being exceeded. Therefore, for species with very small recreational ACLs such as golden tilefish and snowy grouper, using an AM that would allow landings to be monitored closely for persistence of increased harvest rates over time would be a useful tool for fishery managers, and would help ensure the most appropriate corrective/preventive action is taken according to the needs of the species. Golden crab does not have a recreational component, and would not be affected by **Alternative 3**.

Sub-Alternatives 3a, **3b**, and **3c** (**Preferred**), would maintain the ability of the Regional Administrator to interpret landings data to determine whether a payback is needed. However, these sub-alternatives would all allow the payback to take the form of a recreational ACL reduction *and* a season length reduction, compared to **Alternative 1 (No Action)** for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper, greater amberjack, red porgy, golden tilefish, and wreckfish, which only allows for a season length reduction as a form of payback.

Gag, red grouper, and snowy grouper, already have payback provisions in place under their current AMs, which are triggered by very specific circumstances (see **Table 4.1.1.2**). However, the triggers for implementing a recreational payback for these species may be changed under any of the **Alternative 3** sub-alternatives. Currently, a payback is not triggered automatically for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species, greater amberjack, red porgy, golden tilefish, and wreckfish. Instead, the season length reduction is implemented at the discretion of the Regional Administrator based on the best available scientific information.

Sub-alternative 3a would allow the Regional Administrator to correct for a recreational ACL overage for the species addressed in this amendment, except golden crab, by reducing the length of the fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, but only if the species is overfished. Therefore, if the recreational ACL is exceeded and increased landings through the next fishing year are detected, but the species is not overfished, no corrective action to pay back the ACL overage would be required. This scenario could lead to negative biological impacts, especially if the recreational ACL is exceeded repeatedly without an overfished determination of a stock.

Sub-alternative 3b would allow the Regional Administrator to reduce the length of the fishing season and the recreational ACL following persistently high landings if the total ACL (commercial and recreational ACL combined) is exceeded. It is likely that overages of the total ACL would happen more frequently than exceeding the commercial ACL when a species is

overfished. Furthermore, the definition of MSST for four species in this amendment could be changed through Regulatory Amendment 21 making them less likely to be determined to be overfished. Thus, it is expected that the AM under **Sub-alternative 3b** would be triggered more frequently and have a greater biological benefit than **Sub-alternative 3a**.

Preferred Sub-alternative 3c would only trigger a recreational ACL payback (in the form of a reduced recreational ACL and season length following an ACL overage) if a species is overfished *and* the total ACL is exceeded. This AM is the least likely to be implemented considering the infrequently encountered scenario of a total ACL being exceeded and a species being overfished in the same fishing year. Under **Preferred Sub-alternative 3c**, no action would be taken to correct for a recreational ACL overage unless both of those criteria are met. Therefore, **Preferred Sub-alternative 3c** may be the least biologically beneficial compared to the other **Alternative 3** sub-alternatives considered.

Alternative 4 would also affect the recreational sector. For black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species, greater amberjack, red porgy, and snowy grouper, current regulations (**Alternative 1 No Action**) specify that if recreational landings data indicate a recreational ACL is going to be met or exceeded while the fishing season is still open there is no provision for an in-season closure. The Regional Administrator must wait until the next fishing season to take corrective action to address recreational ACL overages. Therefore, **Alternative 4** would allow a more timely response to recreational landings data that may indicate a species' recreational ACL is going to be met or exceeded while the fishing season is still open. Requiring an in-season closure when recreational landings information indicate an ACL is going to be met may prevent the need for implementation of a post season AM such as reducing the length of the next fishing season or reducing the ACL in the next fishing season. Biologically, it is preferable to prevent overexploitation of a resource rather than correcting for it after overharvest has occurred. **Alternative 4** may not be practicable; however, for species with extremely small recreational ACLs, such as snowy grouper and golden tilefish. For this reason, the most biologically beneficial option would be to implement a system of recreational AMs that combines **Alternatives 3** and **4**.

Under **Alternative 4**, an in-season action to close a recreational sector could be triggered under one of two circumstances specified in **Sub-alternative 4a** or **Preferred Sub-alternative 4b**. If the recreational ACL is met or projected to be met, **Sub-alternative 4a** would *only* close the recreational sector in-season if the species is overfished. Therefore, if the landings information indicates the ACL will be met or exceeded within the fishing year, and the species is not overfished, no action would be taken to prevent the ACL overage from occurring. Alternatively, **Preferred Sub-alternative 4b** would allow an in-season recreational closure to take place regardless of overfished status, possibly preventing a potential ACL overage for any species addressed under this action. **Preferred Sub-alternative 4b** is the biologically preferable sub-alternative under **Alternative 4**, since a recreational closure could be implemented regardless of overfished status. However, under **Alternative 4**, the Regional Administrator would still have the option to not implement an in-season closure for a species that is not overfished, if the best scientific information indicates a closure is not necessary. In that scenario,

the biological benefits of **Preferred Sub-alternative 4b** may be equal to those under **Sub-alternative 4a**.

Compared to **Alternative 1 (No Action)**, **Alternatives 2**, **3**, and **4** would all benefit the biological environment to varying degrees based on the sub-alternatives chosen under each alternative. For the recreational sector, the most biologically beneficial option is likely a combination of **Alternatives 3** and **4**. For the commercial sector, the most biologically beneficial option compared to **Alternative 1 (No Action)** is likely to be **Sub-alternative 2b**. None of the alternatives being considered under this action would significantly alter the way in which the snapper grouper or golden crab fisheries are prosecuted in the South Atlantic exclusive economic zone. No adverse impacts on endangered or threatened species are anticipated because of this action; nor are any adverse impacts on essential fish habitats or habitat areas of particular concern including corals, sea grasses, or other habitat types expected because of this action.

4.1.2 Economic Effects

Action 1 considers alternatives that would modify AMs for black grouper, mutton snapper, yellowtail snapper, unassessed snapper grouper species, greater amberjack, red porgy, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, and golden crab. Under **Alternative 1 (No Action)**, the current AMs in place for these species would not be modified. **Alternatives 2** and **3** specify conditions that would require paybacks of overages in the commercial sector and recreational sector, respectively. **Alternative 4** considers an in-season closure for the recreational sector.

Sub-alternatives 2a and **3a** would reduce the ACL the following season by the amount of the overage only if a species is overfished. **Sub-alternatives 2b** and **3b** would reduce the ACL the following season by the amount of the overage only if the combined landings of the commercial and recreational sectors for that species or species group exceeds the overall ACL. **Preferred Sub-alternatives 2c** and **3c** would reduce the ACL the following season by the amount of the overage only if the species or one of the species in a species group is overfished <u>and</u> the combined landings of the commercial and recreational sectors for that species exceeded the overall ACL.

The selection of any of the sub-alternatives of **Alternatives 2** or **3** does not change the basic premise of **Alternative 1 (No Action)** that commercial fishing would be stopped when the commercial ACL has been met or projected to be met or the following recreational fishing shortened when recreational ACL is exceeded. Thus, only when overages occur would the various alternatives have possibly differing economic effects. The relative magnitude of short-term economic effects of the various alternatives would depend on the likelihood of triggering AMs, particularly those that have a payback proviso. The alternatives' long-term economic effects would depend on their effects on the sustainability of the stock to support continued fishing opportunities for the commercial and recreational fishing participants.

Currently, there are payback provisions in place for unassessed snapper grouper species (commercial), red grouper (commercial and recreational), snowy grouper (recreational), and gag (recreational) (**Table 4.1.1.2**). Because **Alternative 1** (**No Action**) does not contain payback

provisions for some species considered in this amendment, it may be considered to result in the least adverse economic effects in the short term. In fact, **Alternative 1 (No Action)** has the highest probability of providing positive short-term economic benefits when overages occur. The nature of the other alternatives/sub-alternatives is that should overages occur, economic benefits would tend to be higher in the year overages occur; however, the following year's ACL would be reduced and likely reduce economic benefits as well. While it cannot be readily determined whether an increase in economic benefits in the year overages occur would more than compensate for the reduction in economic benefits the following year when ACLs are reduced, it would appear that the expected long-term net economic effects would be positive or least negative with the lowest payback probability.

Of the remaining of alternatives/sub-alternative combinations, **Sub-alternatives 2b** and **3b** have the greatest probability of triggering paybacks in the short term. **Sub-alternative 2a, Preferred Sub-alternative 2c, Sub-alternative 3a,** and **Preferred Sub-alternative 3c** all require that to trigger paybacks, the stock must be overfished.

In general, AMs help ensure that ACLs are not exceeded, particularly on a consistent basis. Exceeding an ACL on a consistent basis presents a high likelihood of overfishing which could possibly derail a rebuilding strategy adopted for an overfished stock or even drive an otherwise healthy stock to being overfished. Once overfishing occurs, or a stock become overfished, and more restrictive regulations are adopted, affected fishers could redirect their effort to other species that could also experience overfishing or be overfished over time. This could eventually trigger untoward repercussions on the ecological environment for a stock and other associated species. Incorporating paybacks in AMs may not eliminate the occurrence of overages but it does decrease the likelihood that overages (and overfishing) would occur over time.

Among the alternatives, **Alternative 1** (**No Action**) has the highest likelihood of allowing overages to consistently occur over time. In a sense, this alternative has the highest likelihood that economic benefits would erode over time, first due to the adoption of more restrictive management measures as overfishing occurs and later as fishing opportunities severely diminish with an overfished stock. In a similar manner, alternatives, such as **Preferred Sub-alternatives 2c** and **3c**, which have a lower probability of adopting paybacks would be associated with higher probability of allowing overfishing to occur over time that could possibly lead to an overfished condition for the stock. A similar statement may be made for the remaining sub-alternatives. In summary, the lower the probability of arresting overfishing due to consistent ACL overages, the higher the likelihood that long-term economic benefits would be eroded.

One key issue brought about by the scenario just described is the appropriate balancing of higher economic benefits in the short term but lower benefits in the long term, by retaining AM **Alternative 1** (**No Action**) or adopting AM alternatives **Preferred Sub-alternatives 2c** and **3c**; or of possibly lower economic benefits in the short term but a more sustainable fishery in the long term, by adopting any of the other sub-alternatives, particularly **Sub-alternatives 2b** and **3b**. Currently available economic information is not sufficient to estimate the net economic effects of the various alternatives. However, there appears to be a better chance of higher net

economic benefits with AMs that have a higher likelihood of limiting consistent ACL overages over time.

Generally speaking, the probability of a species being both overfished and the total ACL being exceeded (**Preferred Sub-alternatives 2c** and **3c**), is lower than just one of the conditions occurring. Therefore, **Preferred Sub-alternatives 2c** and **3c** have the lowest probability of triggering paybacks in response to ACL overages. Thus, the alternatives may be ranked from lowest to highest probability of paybacks and associated short-term adverse economic effects as follows: **Alternative 1 (No Action)**, **Preferred Sub-alternatives 2c** and **3c**, **Sub-alternatives 2b** and **3b**, followed by **Sub-alternatives 2a** and **3a**.

More specifically, the likelihood a species would be affected by this action is based primarily on whether or not there is a probability that its total ACL would be reached, and whether or not the species is overfished. **Table 4.1.1.3** shows the species groupings that have an overall ACL or individual species with their 2013 total landings (commercial and recreational sectors combined). It also shows whether it exceeded its total ACL and whether or not the species is overfished. There overfished designation is unknown for species that have not been formally assessed. The table shows which sub-alternatives under **Alternatives 2** and **3** would have the criteria met to trigger the AMs for the species or species grouping.

Wreckfish are not included in **Table 4.1.1.3.** The commercial sector is managed by a catch share and the ITQ acts as the AM for that sector. Therefore, the sub-alternatives of **Alternative 2** would not apply to wreckfish. In most years, there are no recorded recreational landings for wreckfish. A total of 964 pounds whole weight were reported in 2012, but no recreational landings were noted by the Marine Recreational Information Program (MRIP) in 2013.

Table 4.1.1.3. 2013 preliminary total landings (lb ww) by species (or species groupings), whether or not the total ACL was exceeded, overfished status, and which sub-alternatives of Alternatives 2 and 3 of Action 1 would be met to implement AMs. Table will be updated when 2013 landings are final.

Species or Groupings	2013 Landings (lbw w)			ACL	ACL Exceeded in 2013?	Overfished?	Sub-alts
	Total	Comm	Rec				
Jacks	397,697	314,793	82,904	457,221	No	Unassessed	None
Snappers	852,908	133,666	719,242	944,239	No	Unassessed	None
Grunts	321,923	95,194	226,729	806,652	No	Unassessed	None
Shallow Water Groupers	43,339	19,417	23,922	96,432	No	Unassessed	None
Porgies	122,702	34,608	88,094	143,262	No	Unassessed	None
Atlantic spadefish	56,360	3,152	53,208	189,460	No	Unassessed	None
Bar jack	7,524	6,250	1,274	24,780	No	Unassessed	None
Scamp	154,063	130,942	23,121	509,788	No	Unassessed	None
Hogfish	88,943	24,554	64,389	134,824	No	Unassessed	None
Black grouper	112,864	48,475	64,389	256,430	No	No	None
Mutton snapper	523,115	71,677	451,438	926,600	No	No	None
Yellowtail snapper	2,027,293	1,441,863	585,430	3,037,500	No	No	None
Greater amberjack*	Unk	Unk	Unk	1,968,000	Unk	No	None
Red porgy	179,997	138,030	41,967	189,348	No	Yes	N
Gag	390,901	327,306	63,595	666,782	No	No	None
Golden tilefish	551,508	538,785	12,823	558,036**	No	No	None
Red grouper	181,818	106,137	75,681	718,000	No	No	None
Red snapper	Unk	Unk	Unk	13,325 fish	Unk	Yes	A, B, C
Snowy grouper	98,554	81,188	17,366	87,254***	Yes	Yes	A, B, C
Golden Crab	1,777,378	1,777,378	N/A	2,000,000	No	Unassessed	None

*Fishing year from May 2013-April 2014.
**ACL Value from Regulatory Amendment 12. Conversion from fish to pounds is 6.21.
***ACL value from Amendment 17B. Conversion from fish to pounds is 8.41.
Source: SERO quota monitoring landings Web site.

The economic effects to the fishing sectors in the future would be determined by the size of the overage. According to **Table 4.1.1.3**, fishing participation for snowy grouper would likely be affected by this action based on 2013 landings. Snowy grouper had their recreational ACL exceeded by 325%. However, when snowy grouper recreational sector was closed on May 31, 2013, only 76% of the 523 fish recreational ACL had been caught. The remaining recreational landings for snowy grouper occurred after the recreational sector had already been closed. Significant overages are less likely for the commercial sector because of the closer monitoring of the commercial snapper grouper fishery through the use of logbooks and trip tickets.

Constraining landings to the ACLs could result in short term, direct, negative economic effects, the severity of which would be determined by the size of the payback in terms of shortened seasons, or a reduced ACL in the next fishing year. However, in the long term, constraining fishery participation to the ACL is good for fish stocks and long term economic outcomes.

Alternative 4 is designed to help prevent recreational fishing for a species or species complex from continuing when it is known through MRIP landings that the recreational ACL has been or will soon be exceeded. Allowing fishing to continue under these conditions would only exacerbate the magnitude of ACL paybacks, shorten future seasons even more, or depending on the size of the overage, eliminate a recreational fishing season altogether for one or more years. Of the species in **Table 4.1.1.3**, the recreational portion of the snapper grouper fisheries for snowy grouper is the species most vulnerable to such a scenario. While it is not possible to determine the specific economic effects without knowing the potential extent of the impact of the AMs, minimizing recreational overages would reduce the longer term direct negative economic impacts. **Sub-alternative 4a** would allow the Regional Administrator to close a recreational sector during a season only if the stock is overfished. **Preferred Sub-alternative 4b** would give the Regional Administrator more flexibility to close a recreational sector during a season regardless of the status of the stock. **Sub-alternative 4a** would be less likely to cause short term direct economic effects compared to **Preferred Sub-alternative 4b** because fewer species potentially would be affected. However, **Preferred Sub-alternative 4b** would be more likely to prevent long term, direct economic effects compared to **Sub-alternative 4a.**

4.1.3 Social Effects

Accountability measures can have significant direct and indirect social effects because, when triggered, can restrict harvest in the current season or subsequent seasons. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long-term social effects. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Those restrictions usually translate into reduced opportunity for harvest, which in turn can change fishing behaviors through species switching if the opportunity exists. That behavior can increase pressure on other stocks or amplify conflict. If there are no opportunities to switch species then losses of income or fishing opportunities may occur, which can act like any downturn in an economy for fishing communities affected. If there is a substantial downturn in the economy then increased unemployment and other disruptions to the social fabric may occur. While these negative effects are usually short term, they may at times induce other indirect effects through the loss of fishing infrastructure that can have a lasting effect on a community.

In general, the most beneficial alternatives in the long term for the stock and for sustainable fishing opportunities is a combination of an in-season closure and a payback provision. However, some flexibility in how these AMs are triggered, such as conditions of the stock being

overfished or the total ACL being exceeded, can help to mitigate the negative short-term impacts on fishermen and associated businesses and communities.

For the commercial sector of the snapper grouper and golden crab fisheries, maintaining the current AMs under **Alternative 1 (No Action)** would not be expected to result in additional negative effects on the commercial fleets, but could negate benefits by not allowing flexibility in the payback provisions, such as those in **Sub-alternatives a-c** under **Alternative 2. Preferred Sub-alternative 2c** would provide the most flexibility for triggering the payback AM and would be expected to be most beneficial to commercial snapper grouper and golden crab fishermen because it will be less likely that a payback would be triggered. Additionally, **Preferred Sub-alternative 2c** would be more consistent with AMs for other species such as king mackerel and Spanish mackerel.

For the recreational sector of the snapper grouper fishery, maintaining the current AMs under **Alternative 1 (No Action)** would not be expected to result in additional negative effects on recreational fishermen and for-hire businesses, other than inconsistency in AMs. For stocks without a recreational post-season AM under **Alternative 3,** establishment of a payback provision would create an increased likelihood that an overage by the recreational could reduce fishing opportunities in the following year. However, **Sub-alternatives 3a-3c** provide some flexibility in how a post-season payback would be triggered, with **Preferred Sub-alternative 3c** being the least likely alternative to trigger a payback and affect recreational fishing opportunities in the subsequent year.

The in-season closure AM for the recreational sector in **Alternative 4** could have negative effects on recreational fishing opportunities and for-hire businesses for the stocks that do not have an in-season AM in place for the recreational catch. However, **Sub-alternative 4a** would reduce the likelihood of an in-season closure of the species in this action for the recreational sector.

4.1.4 Administrative Effects

Under **Alternative 1 (No Action)**, all the species addressed in this amendment have AMs in place. Therefore, any increase or decrease in administrative burden associated with **Alternatives 2-4** would be caused by more or less frequently implemented AMs. **Alternative 2** would continue the in-season commercial sector closure AM already included under **Alternative 1 (No Action)**, and would not modify the administrative environment for implementing commercial AMs. The **Alternative 2** sub-alternatives may be associated with slight changes to the administrative environment based on the frequency with which each of the AM options would be triggered. **Sub-alternative 2b** is likely to be triggered the most often; and therefore, would be associated with the highest level of administrative impacts in the form of document preparation and notifications sent to the commercial sector participants informing them that the ACL the following year would be reduced. **Sub-alternative 2a** is likely to follow **Sub-alternative 2b** in frequency of implementation, and **Preferred Sub-alternative 2c** would be triggered least frequently, resulting in the lowest direct effects on the administrative environment. However, if AMs are not implemented when they are biologically necessary, the risk of overfishing increases

and the administrative burden associated with having to curtail overfishing are much greater than those associated with implementing an effective AM.

The administrative impacts associated with **Alternative 3** are largely the same as those under **Alternative 2**, with the addition of continued monitoring for persistence of increased landings when a species' recreational ACL has been exceeded. Because landings are already closely monitored, regardless of whether or not they are perceived to be increasing, the addition of the monitoring portion of the recreational AM would not constitute an additional administrative burden for those species that do not already have that AM (gag, red grouper, red snapper, and snowy grouper). Therefore, compared to **Alternative 1 (No action)**, **Alternative 3** would not constitute a significant increase in the need for increased staff time or agency funds. As with **Alternative 2**, the sub-alternatives under **Alternative 3** would be associated with different administrative burdens based on the frequency with which they are triggered. **Sub-alternative 3b** is the most likely to be triggered, and **Preferred Sub-alternative 3c** is the least likely to be triggered. **Sub-alternative 3a** represents a mid-point of potential administrative impacts that may result from any of the three sub-alternatives considered.

Alternative 4 is the most simplistic recreational AM considered under this action, but may result in the implementation of an AM more frequently than **Alternative 1 (No Action)** and **Alternative 3**. For species where recreational landings data are able to be tracked on an in-season basis, in-season closures under **Alternative 4** could be triggered every year. **Sub-Alternative 4a** would be triggered less frequently than **Preferred Sub-Alternative 4b** and would; therefore, result in a lower administrative impact in the form of public notification of an in-season closure, compared to **Preferred Sub-Alternative 4b**. Overall, the administrative impacts of all the alternatives considered under this action, compared to **Alternative 1 (No Action)**, are expected to be minimal.

4.2 Action 2. Revise the sector allocations for dolphin.

4.2.1 Biological Effects

The South Atlantic Council is addressing sector allocations for South Atlantic dolphin because the current method for determining allocations, established in the Comprehensive ACL Amendment (SAFMC 2011) was based on the time series of data from 1999-2008, and 2006-2008. Dolphin landings data starting from 1986 are available and the South Atlantic Council would like to reexamine the sector allocations based on this expanded times series of data (**Alternative 5**). Additionally, the South Atlantic Council is considering other options for modifying the method for determining sector allocations for dolphin in this amendment (**Alternatives 2-4**).

Alternative 1 (No Action) would maintain the current sector allocations, 92.46% for the recreational sector and 7.54% for the commercial sector. Dolphin Wahoo Amendment 5 (2013), which is under review by the Secretary of Commerce, would update the sector allocation values, along with ABCs and ACLs based on improved data that were made available through the MRIP. The current allocation amounts are 1,157,001 pounds whole weight (lb ww) for the commercial sector and 14,187,845 lb ww for the recreational sector (recently updated through Amendment 5 to the FMP, effective July 9, 2014). **Alternative 1 (No Action)** would not modify the current method for establishing sector allocations, nor would it result in any change to the current allocation amounts for each sector. Neither sector of the dolphin segment of the dolphin wahoo fishery has met or exceeded their catch limits since the dolphin wahoo fishery came under federal management (**Table 4.1.2.1**). Therefore, **Alternative 1 (No Action)** is not expected to result in any direct or indirect biological impacts.

***Alternatives*[1]**

*(preferred alternatives in **bold**)*

Alternative 1 - No Action. The recreational sector allocation for dolphin is 92.46%. The commercial sector allocation for dolphin is 7.54%.

Alternative 2 allocates the recreational sector 87%, and commercial sector 13%.

Alternative 3 allocates the recreational sector 86%, and commercial sector 14%.

Alternative 4 allocates the recreational sector 90%, and commercial sector 10%.

Alternative 5 modifies the time series by which allocations were specified for the two sectors.
Sub-alt. 5a. Catch history = average landings 1986-2011, current trend = average landings 2009-2011). The recreational sector allocation for dolphin is 90%, and commercial sector allocation is 10%.
Sub-alt. 5b. Catch history = average landings 1986-2012, current trend = average landings 2010-2012). The recreational sector allocation for dolphin is 90%, and commercial sector allocation is 10%.
Sub-alt. 5c. Catch history = average landings 1986-2012, current trend = average landings 2006-2012). 2012 is the most recent year of complete landings availability. The recreational sector allocation for dolphin is 91%, and commercial sector allocation is 9%.

[1]See Chapter 2 for a more detailed description of the alternatives.

Table 4.1.2.1. Dolphin landings by sector 2008-2012 and percentage of sector ACL harvested each year.

Year	Commercial Landings lb ww	Commercial ACL/soft cap	% of Commercial ACL Harvested	Recreational Landings** lb ww	Recreational ACL*	% of Recreational ACL Harvested
2008	780,818	1,500,000	52%	7,833,547		
2009	1,222,944	1,500,000	82%	7,570,195		
2010	706,281	1,500,000	47%	6,243,399		
2011	791,457	1,500,000	53%	6,518,306		
2012	687,140	1,065,524	64%	6,097,292	13,530,692	45%

*Prior to 2011 there was a soft cap in place for the commercial sector rather than a hard quota (13% for the commercial sector and 87% of the TAC for the recreational sector). Percentage of ACLs harvested prior to 2011 are based on the commercial soft cap and the previously used TAC.
**Recreational landings are in MRFSS-based units.
SOURCES: SEFSC Commercial and Recreational ACL Datasets (2014)

Alternative 2 would reinstate the allocation methodology used prior to implementation of the Comprehensive ACL Amendment. This allocation formula was based on a non-binding allocation of 13% for the commercial sector and 87% for the recreational sector. At that time, the 13% allocation to the commercial sector was treated as a "soft cap" harvest limit. **Alternative 2** would use the same allocation percentages; however, the soft cap for the commercial sector would be replaced with a commercial ACL, which would remain in place as required by Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) National Standard 1. Although the alternative references "soft cap allocations", the current Magnuson-Stevens Act requirements to establish ACLs and AMs for each federally managed fishery prevents the allocation method in **Alternative 2** from incorporating the amount of flexibility the term "soft cap" implies. Once the commercial ACL is met or projected to be met, the sector is closed to harvest to prevent the ACL from being exceeded. Despite the appearance of the term, "soft cap" in the alternative, current use of the commercial ACL to control harvest and trigger an AM when needed would not be altered.

Eighty-seven percent of the total ACL would result in a recreational sector ACL of 13,344,846 lb ww, and 13% of the total ACL would result in a commercial sector allocation of 1,994,830 lb ww. The biological impacts of **Alternative 2** compared to **Alternative 1 (No Action),** and the other alternatives under consideration, are expected to be neutral; both the commercial and recreational sectors would be limited to their respective ACLs and the AMs in place for dolphin. The current system of ACLs and AMs are designed to prevent the ACLs from being exceeded, and to correct for any ACLs overages if they occur.

Table 4.2.1.2 sector ACLs that would result under each of the alternatives considered.

Alternative	Commercial Sector ACL (lbw w)	Recreational Sector ACL (lbw w)
Alternative 1 (No Action)	1,157,001	14,187,845
Alternative 2	1,994,830	13,344,846
Alternative 3	2,148,278	13,196,567
Preferred Alternative 4	1,534,485	13,810,361
Sub-Alternative 5a	1,534,485	13,810,361
Sub-Alternative 5b	1,534,485	13,810,361
Sub-Alternative 5c.	1,381,036	13,963,809

Alternative 3, like **Alternatives 1 (No Action)** and **2**, is not expected to result in adverse biological impacts since it would not alter the overall cap on harvest established by the total ACL of 15,344,846 lb ww. **Alternative 3** would use commercial landings estimates as an anchor from which the sector allocations would be derived. Based on the highest percentage of the commercial catch history during 2008 and 2012, 86% of the total ACL would be allocated to the recreational sector and the remainder (14%) would be allocated to the commercial sector. This method would allocate the largest amount of the total ACL to the commercial sector of the alternatives considered and help ensure the commercial sector's allocation is large enough to allow continuation of the most recent year's harvest levels. However, it might not allow the commercial sector to expand in the future without exceeding the commercial ACL. The commercial sector allocation would almost double under **Alternative 3** and the recreational allocation would be reduced by 6.46%; however, the impacts of this alternative compared to the no-action alternative would be negligible because harvest in both sectors is controlled by the ACL. Regardless of how much the commercial or recreational sector is allowed to catch individually, the AMs currently in place would prevent unsustainable levels of harvest from occurring.

Like **Alternatives 2** and **3**, **Preferred Alternative 4** would result in a slightly reduced recreational allocation and an increased commercial allocation compared to **Alternative 1 (No Action)**. The method of establishing allocations for the dolphin segment of the dolphin wahoo fishery under **Preferred Alternative 4** would use total catch over between 2008 and 2012 to determine sector allocations. The commercial sector would receive 10% of the total ACL (1,534,485 lb ww), and the recreational sector would receive 90% of the total ACL (13,810,361 lb ww). Again, the biological impacts of this alternative are expected to be neutral due to the presence of a harvest control mechanism that was created to prevent the sector ACLs from being exceeded.

Alternative 5 and its sub-alternatives would use a combination of historical landings data and current landings data to determine commercial and recreational sector allocations. This alternative would utilize the same methodology for establishing allocations as **Alternative 1 (No Action)**, but the time series of landings data used would be different. All sub-alternatives under **Alternative 5** would use catch history data starting in 1986; however, the end date for the catch

history time series is different for each sub-alternative. **Sub-alternative 5a** would use 50% * the average landings from 1986-2011 plus 50% * average current landings from 2009-2011. Using this formula, the commercial sector would receive 10% of the total ACL (1,534,485 lb ww) and the recreational sector would receive 90% of the ACL (13,810,361 lb ww). The biological effects of **Sub-alternative 5a** are expected to be identical to **Preferred Alternative 4**, which also results in a 90%-10% allocation for the recreational and commercial sectors, respectively. **Sub-alternative 5b** would use the average landings from 1986-2012*50% plus average landings from 2010-2012*50% to determine the sector allocations. **Sub-alternative 5b**, would also result in a 90% allocation for the recreational sector, and 10% allocation for the commercial sector. Therefore, the biological impacts are anticipated to be neutral as described under **Preferred Alternative 4** and **Sub-alternative 5a**.

Sub-alternative 5c would allocate the total ACL between the commercial and recreational sectors using the following formula: average landings from 1986-2012*50% plus average landings from 2006-2012*50%. This arrangement of the average landings time series results in the recreational sector receiving 91% of the total ACL and the commercial sector receiving 9% of the ACL. These percentages translate to 1,381,036 lb ww for the commercial sector and 13,963,809 lb ww for the recreational sector. In general, because a longer time series of historical landings information is used to determine the allocations under **Alternative 5**, some fishery participants may favor this method of allocation over others considered, because it may be perceived as the most equitable option. However, in terms of biological impacts, **Alternative 5** would be expected to result in no greater adverse or positive impacts on the biological environment compared to the status-quo, or any of the other alternatives under consideration.

Table 4.2.1.3 number of South Atlantic Dolphin Wahoo Permits.

	Number of Permits
2008	2,526
2009	2,526
2010	2,563
2011	2,614
2012	2,685
Average	2,583

Source: NMFS SERO Permits Data Base

Table 4.2.1.3 shows the number of dolphin wahoo permits for each year from 2008-2012. Commercial permit holders predominantly use hook and line gear, and trolling gear to harvest dolphin. However, a small subset of South Atlantic Dolphin Wahoo Permit holders use pelagic longlines to harvest dolphin (see **Table 4.2.1.4**).

Table 4.2.1.4. Selected average characteristics for trips landing at least one lb (ww) of dolphin and wahoo by gear type in the South Atlantic, 2007-2011.

Dolphin	Hook & Line	Longline	Trolling	Other
Trips	1,591	91	673	24
Vessels	177	11	112	11

Days Away	2.74	2.79	1.13	2.03
lb (ww) Dolphin	99,810	16,870	39,855	901

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, (2013).

The use of longlines for fishing for pelagic species is associated with incidental capture of protected species such as sea turtles. Under all of the alternatives being considered, the commercial sector ACL would increase. If the commercial ACL is increased, there is a chance the small portion of the fishery that uses longlines may grow or those that already use that gear type may increase their fishing effort. Increasing the amount of longline gear in the water is likely to increase the risk of protected resources interactions. However, considering the very low proportion of the fishery that utilizes longline gear (11 vessels) and the small increase in the commercial allocation being considered, it is unlikely longlining effort for dolphin would substantially increase. Longlines are not a readily used gear type for harvesting dolphin, and unless fishermen's behavior changes significantly in the near future, no increased risks to species listed under the Endangered Species Act beyond the status quo are anticipated as a result of this action.

None of the alternatives considered under this action would significantly alter the way in which the dolphin wahoo fishery is prosecuted in the Atlantic exclusive economic zone. No significant adverse impacts on endangered or threatened species are anticipated because of this action; nor are any adverse impacts on essential fish habitats or habitat areas of particular concern including corals, sea grasses, or other habitat types expected because of this action.

4.2.2 Economic Effects

In Dolphin Wahoo Amendment 5 (SAFMC 2013), which under review by the Secretary of Commerce, the the ACL for dolphin would be set to 15,344,846 lb ww. **Table 4.2.1.2** indicates what the sector ACLs would be for dolphin given the alternatives/sub-alternatives of **Action 2**, while **Table 4.2.1.5** shows the dolphin landings for 2008 through 2012.

Table 4.2.1.5 Commercial and recreational sector landings of dolphin for 2008 through 2013.

Year	Commercial Landings lb ww	Recreational Landings lb ww
2008	780,818	7,833,547
2009	1,222,944	7,570,195
2010	706,281	6,243,399
2011	791,457	6,518,306
2012	687,140	6,097,292
2013	496,981	4,526,565

Note: Data from 2013 are preliminary.
Source: SEFSC Commercial and Recreational ACL Datasets (2014)

A comparison of the proposed sector ACLs from **Table 4.2.1.2** to the landings of dolphin from 2008 through 2012 as shown in **Table 4.2.1.5**, shows the recreational ACL would not have been exceeded in any of the years in the time series. The commercial ACL would have been exceeded in 2009 only under **Alternative 1 (No Action)**.

To understand the potential economic effects of the alternatives of this action, it must be understood that there would only be negative economic effects if one or both sectors would be required to stop fishing or have its ACL reduced in a future season, and that to reduce the potential for direct negative economic effects in one sector would be at the expense of potentially increasing the direct negative economic effects for the other sector.

The lower the ACL for the commercial sector, the sooner there would be a potential in-season closure, creating a potential for a larger direct negative economic effect do to lost opportunity. The order of greatest direct negative economic effects to the least potential for direct negative economic effects for the commercial sector is **Alternative 1 (No Action)**, **Sub-alternative 5c**, **Preferred Alternative 4**, **Sub-alternative 5a**, **Sub-alternative 5b**, **Alternative 2** and **Alternative 3**. However, reducing potential direct negative economic effects for the commercial sector comes at the expense of increasing the potential direct negative economic effects for the recreational sector. The order of greatest potential direct negative economic effects to the least for the recreational sector is **Alternative 3**, **Alternative 2**, **Preferred Alternative 4**, **Sub-alternative 5a**, **Sub-alternative 5b**, **Sub-alternative 5c**, and **Alternative 1 (No Action)**.

Considering that, based on historical landings, neither the commercial sector nor the recreational sector would likely reach their respective ACLs under any of the alternatives, it may be concluded that none of the alternatives would result in short-term negative economic effects on either sector.

4.2.3 Social Effects

Changes to sector allocations for dolphin could have negative and positive effects on both the recreational and commercial sectors, if one sector's allocation is decreased. As a fishery changes over time, the catch ratio between commercial and recreational may also change. Adaptive allocations are useful in helping to meet the overall ACL by providing each sector with the opportunity to contribute to the overall ACL. Overall, the effects of allocation changes to each sector would depend on the catch patterns of the sector over the past few years, and if the sector is growing. Maintaining the current allocations under **Alternative 1 (No Action)** may not result in any negative effects in the short term, but could limit one sector if the allocation is not enough to provide opportunity for the sector to grow.

In general, the higher the allocation, the more short-term and long-term benefits to the sector by allowing continued level of harvest and possibly room for growth in the future. For the recreational sector, **Alternative 1 (No Action)** (92.46%) would be the most beneficial, followed by **Sub-alternative 5c** (91%); **Preferred Alternative 4** and **Sub-alternatives 5a-5b** (90%); **Alternative 2** (87%); and then **Alternative 3** (86%). The reverse is true for benefits to the commercial sector, in that **Alternative 3** (14%) would be the most beneficial , followed by **Alternative 2** (13%); **Preferred Alternative 4** and **Sub-alternatives 5a-5b** (10%); **Sub-alternative 5c** (9%); and then **Alternative 1 (No Action)** (7.54%). The method of calculating the proportion to each sector under **Alternatives 2-5** could result in some concerns of fairness

from each sector, but in general the outcome percentages would be more significant on the resulting effects of any changes to allocations for dolphin.

4.2.4 Administrative Effects

Compared to the no-action alternative, none of the action alternatives under consideration for dolphin allocations would result in significant impacts on the administrative environment. **Alternative 5** would use the same formula that was used in 2011 when the first sector ACLs were established for dolphin, but would apply different time series of landings data to the formula. Therefore, no change in methodology would be required to update the current dolphin allocations and no increase in staff time, agency resources, or law enforcement effort would result from **Alternative 5**. **Alternatives 2-4** utilize similar methods of establishing sector allocations for dolphin, the outcomes of which are largely dependent on the time series of data used to determine the allocations. In the case of **Alternative 2**, the allocations would simply revert back to what they were prior to implementation of the Comprehensive ACL Amendment (SAFMC 2011). Similar to **Alternative 5**, **Alternative 2-4** are not likely to result in increased staff time, require increased agency funding, or alter the manner in which law enforcement efforts are presently carried out. Overall, because sector allocations are currently in place for dolphin, the impacts of the proposed action to modify those allocations on the administrative environment are expected to be neutral.

Chapter 5. Council's Choice for the Preferred Alternatives

5.1 Action 1.

5.1.1 Advisory Panel (AP) Comments and Recommendation

5.1.2 Public Comments and Recommendations

5.1.3 South Atlantic Council Choice for Preferred Alternative

5.2 Action 2.

5.2.1 AP Comments and Recommendations

5.2.2 Public Comments and Recommendations

5.2.3 South Atlantic Council Choice for Preferred Alternative

Chapter 6. Cumulative Effects

This Cumulative Effects Analysis (CEA) for the biophysical environment will follow a modified version of the 11 steps. Cumulative effects for the social and economic environment are analyzed separately.

6.1 Biological

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.

CEQ cumulative effects guidance (CEQ 1997) 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 **(Chapter 4.0)**;
II. Which resources, ecosystems, and human communities are affected **(Chapter 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.

The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West, which is also the South Atlantic Fishery Management Council's (South Atlantic Council) area of jurisdiction. In light of the available information, the extent of the boundaries would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. The ranges of affected species are described in **Section 3.2**. The most measurable and substantial effects would be limited to the South Atlantic region.

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. The biological, economic, and social impacts analyses for the actions in this amendment use data from 1986 through 2012, the latest year for which complete landings data is available for all species addressed in this amendment. Currently, there are several amendments in various phases of development, which may ultimately have additive effects on top of the actions in this amendment. Those amendments, addressed later in this CEA, are likely to be implemented, if approved, within the next two to three years. Therefore, the reasonably foreseeable future for this CEA is defined as the upcoming two to three years.

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 the CMP species addressed in this amendment

A. Past

The reader is referred to **Appendix C** for past regulatory activity for all species in the snapper grouper, golden crab, and dolphin and wahoo fisheries.

B. Present

Actions Affecting the Snapper Grouper Fishery

Currently, there are several actions under development affecting the snapper grouper fishery. Regulatory Amendment 21 to the Snapper Grouper FMP would modify the current overfished definition (minimum stock size threshold) for red snapper, blueline tilefish, gag, black grouper, yellowtail snapper, vermilion snapper, red porgy, and greater amberjack. These species have low natural mortality rates, and the current minimum stock size threshold definition may cause them to fluctuate between an overfished and rebuild condition frequently due to natural fluctuations in biomass not caused by fishing pressure. Regulatory Amendment 21 would help prevent these stocks from fluctuating between and overfished and rebuilt conditions due to natural variations in biomass.

Amendment 29 to the Snapper Grouper FMP would update the South Atlantic Council's acceptable biological catch (ABC) control rule to incorporate methodology for determining the ABC of "Only Reliable Catch Species"; (2) adjust ABCs for the affected unassessed species; and (3) establish management measures for gray triggerfish in federal waters of the South Atlantic region.

Regulatory Amendment 14 would (1) modify the commercial and recreational fishing years for greater amberjack; (2) modify the recreational fishing year for black sea bass; (3) modify the recreational accountability measure (AM) for black sea bass; (4) modify the commercial fishing year for black sea bass; (5) change the commercial fishing seasons for vermilion snapper; (6) modify the trip limit for gag; and (7) modify the recreational AM for vermilion snapper.

Actions Affecting the Dolphin Wahoo Fishery

Amendment 5 to the Dolphin Wahoo FMP, would revise the ABCs, annual catch limits (ACLs), recreational annual catch targets (ACTs), and AMs implemented through the Comprehensive ACL Amendment (SAFMC 2011a). The amendment would also establish a

payback provisions for sector ACL overages, revise the framework procedure in the Dolphin Wahoo FMP, and establish a commercial trip limit for dolphin.

Actions Affecting the Golden Crab Fishery

There are currently no actions affecting the golden crab fishery under development.

Generic Dealer Reporting Amendment

The Generic Dealer Reporting Amendment, which will be effective on August 7, 2014, will establish one dealer permit for the Gulf and South Atlantic Regions and increase the reporting frequency requirements for species managed by the Gulf of Mexico and South Atlantic Councils. This amendment is expected to improve fisheries data collection through more timely and accurate dealer reporting and streamlines the dealer permit system.

C. Reasonably Foreseeable Future

Future Actions Affecting Snapper Grouper

Regulatory Amendment 17 would modify and/or establish current and new marine protected areas (MPAs) to protect deep-water species including speckled hind and warsaw grouper.

Regulatory Amendment 20 would update the current ABC and sector ACLs for snowy grouper based on the outcome of a recent stock assessment.

Regulatory Amendment 22 to the Snapper Grouper FMP would update harvest limits for gag and wreckfish based on the outcome a recent Southeast Data, Assessment, and Review (SEDAR) stock assessment.

The proposed System Management Plan (SMP) would establish a management regime for the eight Snapper Grouper FMP Amendment 14 MPAs and would provide a foundation for potential future South Atlantic MPA management plans in the southeast U.S. The final SMP would contain proposed management action items and background details for the eight MPAs established by Amendment 14 in January of 2009.

Comprehensive Ecosystem-Based Amendment 3 contains an action to improve bycatch reporting for the snapper grouper fishery.

Future Actions Affecting Dolphin Wahoo

Amendment 7 to the Dolphin Wahoo FMP and Amendment 33 to the Snapper Grouper FMP addresses the issue of recreational anglers not being allowed to bring dolphin fillets into the U.S. through the U.S. exclusive economic zone (EEZ) after catching them in Bahamian waters. The amendment addresses modification to the existing regulations concerning snapper grouper fillets.

The objective of Amendment7/Snapper Grouper 33 is to create consistent regulations for transiting through the EEZ with Bahamian caught fish.

Future Actions Affecting Golden Crab

There are no upcoming actions affecting the Golden Crab FMP.

Future Data Collection Actions Affecting Numerous FMPs

The Joint Commercial Logbook Reporting Amendment would require electronic reporting of landings information by federally-permitted vessels, which would increase the timeliness and accuracy of landings data.

The Joint Charter Boat Reporting Amendment would require charter vessels to regularly report their landings information electronically. Including charter boats in the recreational harvest reporting system would further improve the agency's ability to monitor recreational catch rates in-season.

The above listed past, present, and future actions are expected to result in cumulative impacts on the human environment. However, those impacts, in combination with the intended effects of the actions in this amendment are not expected to result in significant adverse biological, social, or economic impacts on the human environment.

II. Non-Council and other non-fishery related actions, including natural events affecting species in this amendment.

A. Past
B. Present
C. Reasonably Foreseeable Future

BP Oil Spill

The BP/Deepwater Horizon oil spill event, which occurred in the Gulf of Mexico on April 20, 2010, did not impact fisheries operating the South Atlantic. Oil from the spill site was not been detected in the South Atlantic region, and did not likely pose a threat to the South Atlantic dolphin, wahoo, golden crab or, snapper grouper species addressed in this amendment.

Climate change

Global climate changes may or may not have significant effects on South Atlantic fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (IPCC 2007; Kennedy et al. 2002).

It is unclear how climate change would affect snapper grouper, dolphin wahoo, and golden crab species in the South Atlantic. Climate change can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly affect snapper grouper and dolphin and wahoo species in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts will occur. In the near term, it is unlikely that the management measures contained in this amendment, combined with those of the other previously mentioned past, present and future actions, would compound or exacerbate the ongoing effects of climate change on snapper grouper, dolphin and wahoo, and golden crab species.

5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.

The species most likely to be impacted by alternatives considered in this amendment are black grouper, mutton snapper, yellowtail snapper, greater amberjack, gag, golden tilefish, red grouper, red snapper, snowy grouper, wreckfish, numerous unassessed snapper grouper species, and golden crab. Trends in the condition of these species are determined through the Southeast Data, Assessment and Review (SEDAR) process, and for some species, stock assessments completed by the state of Florida. Stock status information for the assessed species affected by this amendment is found in **Section 3.2** of this document. **Section 3.3** of the document characterizes the human communities affected by this action. Additionally, the data used to perform the social impacts assessments in **Sections 4.1.3** and **4.2.3** utilize a vulnerability indicator tool that establishes the vulnerability of each affected community to resist/absorb potential effects of the actions contained in this amendment. The vulnerability indicator tool is used in the cumulative socioeconomic impacts analysis found in **Section 6.2** of this CIA.

6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.

A complete discussion of fish populations including stock status, for the assessed species, may be found in **Section 3.2** of this document. Definitions of overfishing and overfished for assessed species affected by this amendment can be found in the most recent stock assessment sources, which may be found at http://www.sefsc.noaa.gov/sedar/.

Stock assessments take into account the past and current regulatory environment and establish sustainability thresholds based on how stocks respond to those management measures as well as biological and environmental factors affecting each species. Stock assessments and stock assessment updates are completed periodically dependent upon the amount and type of information available for the species and their commercial importance. Detailed discussions of the science and processes used to determine the stock status of assessed species addressed by this

amendment can be found at http://www.sefsc.noaa.gov/sedar/ and is hereby incorporated by reference.

Stresses affecting the species impacted by this amendment include but are not limited to climatological variations, ecological imbalances, commercial and recreational fishing pressure, habitat degradation, and water quality/chemistry issues. Stresses affecting the human communities, which rely on the snapper grouper, dolphin wahoo, and golden crab fisheries for survival, include market fluctuations, resource availability, fuel prices, and an ever-changing regulatory environment. Regulatory thresholds for overfishing and overfished species directly affect fish stocks and the fishing industry. The Magnuson-Stevens Fishery Conservation and Management (Magnuson-Stevens) Act requires management measures and fishing limits be implemented to prevent overfishing, and rebuilding plans must be implemented for species determined to be overfished. The Magnuson-Stevens Act requires that fishery management plans (FMPs) prevent overfishing while minimizing, to the maximum extent practicable, negative socioeconomic impacts. In some cases, negative socioeconomic impacts cannot be avoided, but may be limited to the short term, and often result in long-term economic benefits to the fishery.

7. Define a baseline condition for the resources, ecosystems, and human communities.

For a detailed discussion of the baseline conditions of the snapper grouper species affected by this amendment, as well as dolphin and golden crab, the reader is referred to **Section 3.2** of the document. The reader is also referred to the information on ecosystems (**Section 3.1**) and human communities (**Section 3.3**).

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

The snapper grouper, dolphin wahoo, and golden crab fisheries are managed through their respective FMPs and subsequent amendments. The South Atlantic Council has developed numerous amendments intended to improve management of these resources and/or address scientific and management issues as they present themselves. Each of these amendments may be found on the South Atlantic Council's web sites at www.safmc.net. Each amendment to the FMPs explains the cause-and-effect relationship between the actions undertaken therein, as well as how those actions impacted or were expected to impact the resources, ecosystems, and human communities. Additionally, a list of Snapper Grouper, Dolphin Wahoo, and Golden Crab FMP amendments and a summary of each of their actions may be found in **Appendix C** of this document.

9. Determine the magnitude and significance of cumulative effects.

The proposed management actions are summarized in **Section 2** of this document. Detailed discussions of the magnitude and significance of the impacts of the preferred alternatives on the human environment appear in **Section 4** of this document. None of the impacts of the actions in this amendment, in combination with past, present, and future actions have been determined to

be significant. Though snapper grouper, dolphin wahoo, and golden crab amendments listed under **Sections 4(I)(A)**, **4(I)(B)**, and **4(I)(C)** of this CIA contain actions that directly or indirectly affects the species addressed in this amendment, the additive effects on the natural environment are not expected to result in a significant level of cumulative impacts.

The proposed actions would not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places as these are not in the South Atlantic EEZ. This amendment is not likely to result in direct, indirect, or cumulative effects to unique areas, such as significant scientific cultural, or historical resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas as the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the South Atlantic region. The U.S. Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries are within the boundaries of the South Atlantic EEZ. The proposed actions are not likely to cause loss or destruction of these national marine sanctuaries because the actions are not expected to result in appreciable changes to current fishing practices.

10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.

The cumulative effects of past, present, and future actions, combined with potential impacts of the actions in this amendment, on the biophysical environment are expected to be negligible. Thus, avoidance, minimization, and mitigation are not necessary.

11. Monitor the cumulative effects of the selected alternatives and adopt management.

The effects of the proposed actions are, and will continue to be, monitored through collection of data by the National Marine Fisheries Service, states, stock assessments and stock assessment updates, life history studies, and other scientific observations**.**

6.2 Social and Economic

Participation in and the economic performance of the dolphin wahoo, snapper grouper, and golden crab fisheries has been affected by a combination of regulatory, biological, social, and external economic factors. For snapper grouper and dolphin wahoo, regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Commercial snapper grouper and dolphin wahoo fishermen, for-hire vessel owners and crew, and private recreational anglers commonly participate in multiple fisheries throughout the year. Even within the snapper grouper fishery, effort can shift from one species to another due to environmental, economic, or regulatory changes. Overall, changes in management of one species can impact effort and harvest of another species (in the snapper grouper fishery, dolphin wahoo fishery, or in another fishery) because of multi-fishery participation that is characteristic in the South Atlantic region. For the golden crab fishery, participation has been restricted through establishment of limited access permits with designated fishing zones, in addition to specified fishing areas to protect corals.

Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have likely played a role in determining the changing composition of the fisheries addressed by this document. Additional factors, such as changing career or lifestyle preferences, stagnant to declining prices due to imports, increased operating costs (gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for other than fishery uses have impacted both the commercial and recreational fishing sectors. In general, the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing the pressure on economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and businesses. Some reverse of this trend is possible and expected through management. 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.

The proposed action in this amendment is part of the larger management program for all stocks with primary management working through ACLs and accountability measures (AMs). The actions contained in this document are expected to prevent overfishing from occurring and to support the achievement of optimum yield (OY) in the respective fisheries over time, resulting in social and economic gains. In addition to the species included in the Comprehensive ACL Amendment, the ACLs, AMs and management measures have been developed and revised in multiple amendments in recent years (see **Appendix C**). A description of the human environment, including a description of the snapper grouper fishery, as well as associated key fishing communities is contained in **Section 3.3**. A detailed description of the expected social and economic impacts of the action in this document is contained elsewhere in **Section 4**.

The cumulative social and economic effects of past, present, and future amendments may be described as limiting fishing opportunities in the short-term, with some exceptions of actions that alleviate some negative social and economic impacts, such as the proposed actions in this amendment. The intent of these amendments is to improve prospects for sustained participation in the respective fisheries over time and the proposed actions in this amendment are expected to result in some important long-term benefits to the commercial and for-hire fishing fleets, fishing communities and associated businesses, and private recreational anglers. The proposed changes in this amendment could affect access to some species if AMs are triggered or sector allocations are revised. However, long-term benefits are expected due to reducing likelihood of overfishing through AMs, and achieving OY in part through adaptive sector allocations.

Chapter 7. List of Interdisciplinary Plan Team (IPT) Members

Name	Agency/Division	Title
Brian Cheuvront	SAFMC	Interdisciplinary plan team (IPT) Lead/Fishery Economist
Kate Michie	SERO/SF	IPT Lead/Fishery Biologist
Jennifer Lee	SERO/PR	Fishery Biologist
Erik Williams	SEFSC	Research Fish Biologist
David Dale	SERO/HC	EFH Specialist
Anne Marie Eich	SERO	Technical Writer and Editor
Nick Farmer	SERO	Biologist
Tony Lamberte	SERO/SF	Economist
Mike Jepson	SERO/SF	Social Scientist
David Keys	NMFS/SER	Regional NEPA Coordinator
Monica Smit-Brunello	NOAA GC	General Counsel
Scott Crosson	SEFSC	Economist
Jack McGovern	SERO/SF	Fishery Scientist
Kari McLaughlin	SAFMC	Social Scientist
Gregg Waugh	SAFMC	Deputy Director

NMFS = National Marine Fisheries Service, SAFMC = South Atlantic Fishery Management Council, SF = Sustainable Fisheries Division, PR = Protected Resources Division, SERO = Southeast Regional Office, HC = Habitat Conservation Division, GC = General Counsel

Chapter 8. Agencies and Persons Consulted

Responsible Agency

South Atlantic
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
Charleston, South Carolina 29405
(843) 571-4366 (TEL)
Toll Free: 866-SAFMC-10
(843) 769-4520 (FAX)
safmc@safmc.net

NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 (TEL)
(727) 824-5320 (FAX)

Environmental Assessment:

List of Agencies, Organizations, and Persons Consulted

SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Dolphin Wahoo 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

Chapter 9. References

Adams, W.F., and C. Wilson. 1995. The status of the smalltooth sawfish, *Pristis pectinata* Latham 1794 (Pristiformes: Pristidae) in the United States. Chondros 6(4):1-5.

Anderes Alvarez, B.A., and I. Uchida. 1994. Study of the Hawksbill turtle (*Eretmochelys imbricata)* stomach content in Cuban waters. *In*: Study of the Hawksbill turtle in Cuba (I), Ministry of Fishing Industry, Cuba.

Bak, R.P.M., J.J.W.M. Brouns, and F.M.L. Hayes. 1977. Regeneration and aspects of spatial competition in the scleractinian corals *Agaricia agaricites* and *Monastrea annularis*. Proceedings of the 3rd International Coral Reef Symposium, Miami, pp 143-148.

Bigelow, H.B., and W.C. Schroeder. 1953. Sawfishes, guitarfishes, skates and rays, pp. 1-514. *In:* Tee-Van, J., C.M Breder, A.E. Parr, W.C. Schroeder and L.P. Schultz (eds). Fishes of the Western North Atlantic, Part Two. Mem. Sears Found. Mar. Res. I.

Bird, C.E., Holland, B.S., Bowen, B.W., and R.J. Toonen. 2007. Contrasting population structure in three endemic Hawaiian limpets (*Cellana* spp.) with similar life histories. Molecular Ecology. 16: 3173-3187

Bjorndal, K.A. 1980. Nutrition and grazing behavior of the green sea turtle, *Chelonia mydas*. Marine Biology 56:147.

Bjorndal, K.A. 1997. Foraging ecology and nutrition of sea turtles. *In*: Lutz, P.L. and J.A. Musick (eds.), The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Bolten, A.B., and G.H., Balazs. 1995. Biology of the early pelagic stage – the "lost year." *In*: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles, Revised edition. Smithsonian Institute Press, Washington, D.C., 579.

Brongersma, L.D. 1972. European Atlantic Turtles. Zool. Verhand. Leiden, 121:318

Burke, V.J., E.A. Standora, and S.J. Morreale. 1993. Diet of juvenile Kemp's ridley and loggerhead sea turtles from Long Island, New York. Copeia, 1993, 1176.

Byles, R.A. 1988. Behavior and Ecology of Sea Turtles from Chesapeake Bay, Virginia. Ph.D. dissertation, College of William and Mary, Williamsburg, VA.

Carpenter, K. E. 2002. The living marine resources of the Western Central Atlantic. Volume 2: Bony fishes part 1 (Acipenseridae to Grammatidae). FAO Species Identification Guide for Fishery Purposes and American Society of Ichthyologists and herpetologists Special publication No. 5. FAO**:** 1297-1298. Rome Italy.

Carr, A. 1986. Rips, FADS, and little loggerheads. BioScience 36:92.

Carr, A. 1987. New perspectives of the pelagic stage of sea turtle development. Conservation Biology 1(2):103.

Carter, D.W. and C. Liese. 2011. The Economic Value of Catching and Keeping or Releasing Saltwater Sportfish in the Southeast United States. In Review.

CeTAP (Cetacean and Turtle Assessment Program). 1982. A characterization of marine mammals and turtles in the mid- and north Atlantic areas of the U.S. outer continental shelf. Final Report. U.S. Dept. of Interior, Bureau of Land Management, Contract No. AA551- CT8-48, Washington, D.C. 538 pp.

CEQ (Council on Environmental Quality). 1997. Considering Cumulative Effects Under the National Environmental Policy Act. U.S. Council on Environmental Quality, Washington, DC. 64 pp.

Cheuvront, B., and M. Neal. 2004. A Social and Economic Analysis of Snapper Grouper Complex Fisheries in North Carolina South of Cape Hatteras. A report for the NC Technical Assistance to the SAFMC, Task 5: NEPA Related Activities, Contract No. SA-03-03-NC. Morehead City, NC. 50 pages.

Colburn, L.L. and M. Jepson. 2012 Social Indicators of Gentrification Pressure in Fishing Communities: A Context for Social Impact Assessment. Coastal Management 40(3): 289-300.

Crosson, Scott B. 2010. Trends in the South Atlantic Golden Crab Fishery. NOAA Technical Memorandum NOAA Fisheries Service-SEFSC-608.

Cutter, S. L. Byron J. B., and W. L. Shirley. 2003. Social Vulnerability to Environmental Hazards. Social Science Quarterly 84(2):242-261.

Dumas, C.F., J.C. Whitehead, C.E. Landry, and J.H. Herstine. 2009. Economic Impacts and Recreation Value of the North Carolina For-Hire Fishing Fleet. North Carolina Sea Grant FRG Grant Report 07-FEG-05.

Eckert, S.A., D.W. Nellis, K.L. Eckert, and G.L. Kooyman. 1986. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*) during interesting intervals at Sandy Point, St. Croix, U.S. Virgin Islands. Herpetologica 42:381.

Eckert, S.A., K.L. Eckert, P. Ponganis, and G.L. Kooyman. 1989. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*). Canadian Journal of Zoology 67:2834.

Florida Marine Species Rule. FWCC Rule No. 68-42.001, accessed at: https://www.flrules.org/gateway/chapterhome.asp?chapter=68B-42

Frick, J. 1976. Orientation and behavior of hatchling green turtles (*Chelonia mydas*) in the sea. Animal Behavior 24:849.

Garrity-Blake, B. & B. Nash. 2012. An Inventory of North Carolina Fish Houses: Five-Year Update. A North Carolina Sea Grant Report. UNC-SG-12-06. 42 pp.

GMFMC (Gulf of Mexico Fishery Management Council). 1989. Amendment 1 to the Reef Fish Fishery Management Plan. Gulf of Mexico Fishery Management Council, 2203 N Lois Avenue Suite 1100, Tampa, FL 33607. 356 p.

Ghiold, J. and S. H. Smith. 1990. Bleaching and recovery of deep-water, reef-dwelling invertebrates in the Cayman Islands, BWI. Caribbean Journal of Science 26:52-61.

Goreau, T. F. and J. W. Wells. 1967. The shallow-water Scleractinia of Jamaica: revised list of species and their vertical range. Bulletin of Marine Science 17:442-453.

Goreau, T. F. and N. I. Goreau. 1973. Coral Reef Project-Papers in Memory of Dr. Thomas F. Goreau. Bulletin of Marine Science 23:399-464.

Griffith, D. 2011. Lowcountry Livelihoods: An Ethnographic Analysis of Fishing in Mt. Pleasant and Little River, South Carolina. Final Report for the project: Comparative Ethnography in the Development of Impact Assessment Methodologies: Profiling Two South Carolina Fishing Communities. Funded by the Gulf and South Atlantic Fisheries Foundation, Tampa FL. 98 pp.

Haab, T. C., J. C. Whitehead, and T. McConnell. 2001. The Economic Value of Marine Recreational Fishing in the Southeast United States. NOAA Technical Memorandum NMFS-SEFSC-466.

Haab, T.C., R. Hicks, K. Schnier, and J.C. Whitehead. 2009. Angler Heterogeneity and the Species-Specific Demand for Recreational Fishing in the Southeastern United States. Draft Final Report Submitted for MARFIN Grant #NA06NMF4330055.

Harper, D.E., Eyo, P.B., and G.P. Scott. 2000. Updated Golden crab fishery trends and production model analysis based on trip report logbook and trip interview data collection programs. Report to the South Atlantic Fishery Management Council Golden Crab Advisory Committee. NOAA Fisheries Southeast Fisheries Science Center, Miami, Florida. 15p.

Holland, S. M., A. J. Fedler, and J. W. Milon. 1999. The Operation and Economics of the Charter and Headboat Fleets of the Eastern Gulf of Mexico and South Atlantic Coasts. University of Florida Office of research, Technology, and Graduate Education. Report prepared for the National Marine Fisheries Service. Grant Number NA77FF0553.

Hughes, G.R. 1974. The sea turtles of southeast Africa. II. The biology of the Tongaland loggerhead turtle *Caretta caretta* L. with comments on the leatherback turtle *Dermochelys*

coriacea L. and green turtle *Chelonia mydas* L. in the study region. Oceanographic Research Institute (Durban) Investigative Report. No. 36.

IPCC, 2007: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.

Jaap, W.C., W.G. Lyons, P. Dustan, and J.C. Halas. 1989. Stony coral (Scleractinia and Milleporina) community structure at Bird Key Reef, Ft. Jefferson National Monument, Dry Tortugas, Florida. Fla. Mar. Res. Publ. 46.

Jacob, S., P. Weeks, B. Blount, and M. Jepson. 2012 Development and Evaluation of Social Indicators of Vulnerability and Resiliency for Fishing Communities in the Gulf of Mexico. Marine Policy 26(10): 16-22.

Jepson, M. and L.L. Colburn. 2013. Development of Social Indicators of Fishing Community Vulnerability and Resilience in the U.S. Southeast and Northeast Regions. U.S. Dept. of Commerce., NOAA Technical Memorandum NMFS-F/SPO-129, 64 p.

Jepson, M., K. Kitner, A. Pitchon, W.W. Perry, and B. Stoffle. 2005. Potential fishing communities in the Carolinas, Georgia, and Florida: An effort in baseline profiling and mapping. NOAA Technical Report No. (TBD).

Keinath, J.A., and J.A., Musick. 1993. Movements and diving behavior of a leatherback sea turtle, *Dermochelys coriacea*. Copeia 1993:1010.

Kennedy, V. S., R. R. Twilley, J. A. Kleypas, J. H. Cowan, Jr., S. R. Hare. 2002. Coastal and Marine Ecosystems & Global Climate Change: Potential Effects on U.S. Resources. Pew Center on Global Climate Change. 52 p.

Knowlton, A.R., S.D. Kraus, and R.D. Denney. 1994. Reproduction in North Atlantic right whales, Eubalaena glacialis. Canadian Journal of Zoology. 72: 1297-1305.

Kraus, S.D., P.K. Hamilton, R.D. Kenney, A. Knowlton, and C.K. Slay. 2001. Reproductive parameters of the North Atlantic right whale. Journal of Cetacean Research and Management. (Special Issue) 2: 231-236.

Landres, P. B., J. Verner, and J. W. Thomas. 1988. Ecological uses of vertebrate indicator species: A critique. Conservation Biology 2: 316–328.

Lanyon, J.M., C.J. Limpus, and H., Marsh. 1989. Dugongs and turtles: grazers in the seagrass system. *In:* Larkum, A.W.D, A.J., McComb and S.A., Shepard (eds.) Biology of Seagrasses. Elsevier, Amsterdam, 610.

Lewis, J.B. 1977. Suspension feeding in Atlantic reef corals and the importance of suspended particulate matter as a food source. Proceedings of the 3rd International Coral Reef Symposium. pp. 405-408.

Liese, C., D.W. Carter, and R. Curtis. 2009. Surveying the For-Hire Sector: Economic Heterogeneity in the Southeast Charter Boat Industry. Submitted to the Proceedings of the 5th World Recreational Fishing Conference.

Limpus, C.J., and N., Nichols. 1988. The southern oscillation regulates the annual numbers of green turtles (*Chelonia mydas*) breeding around northern Australia. Australian Journal of Wildlife Research 15:157.

Limpus, C.J., and N., Nichols. 1994. Progress report on the study of the interaction of El Niño Southern Oscillation on annual *Chelonia mydas* numbers at the southern Great Barrier Reef rookeries. *In:* Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.

Lutz, P.L., and J.A., Musick (eds.). 1997. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Lutz, P.L., J.A., Musick, and J. Wyneken. 2002. The Biology of Sea Turtles, Volume II. CRC Press, Boca Raton, Florida.
MRAG Americas. 2009. South Atlantic Regional PSA Results. A report from MRAG Americas, Inc. 16 p. http://www.mragamericas.com/wp-content/uploads/2010/04/PSA_SA-Results_MRAG.pdf

MacDonald, L.H. 2000. Evaluating and managing cumulative effects: process and constraints. Environmental Management 26(3): 299-315.
Márquez -M, R. 1994. Synopsis of biological data on the Kemp's ridley turtles, *Lepidochelys kempii* (Garman, 1880). NOAA Technical Memo, NMFS-SEFSC-343. Miami, FL.

Mendonca, M.T., and P.C.H., Pritchard. 1986. Offshore movements of post-nesting Kemp's ridley sea turtles (*Lepidochelys kempi*). Herpetologica 42:373.

Meylan, A. 1984. Feeding Ecology of the Hawksbill turtle (*Eretmochelys imbricata)*: Spongivory as a Feeding Niche in the Coral Reef Community. Dissertation, University of Florida, Gainesville, FL.

Meylan, A. 1988. Spongivory in hawksbill turtles: a diet of glass. *Science* 239:393-395.

Meylan, A.B., and M. Donnelly. 1999. Status justification for listing the hawksbill turtle (*Eretmochelys imbricata)* as critically endangered on the 1996 IUCN Red List of Threatened Animals. Chelonian Conservation and Biology 3(2): 200-204.

Mortimer, J.A. 1981. The feeding ecology of the West Caribbean green turtle (*Chelonia mydas*) in Nicaragua. Biotropica 13:49.

Mortimer, J.A. 1982. Feeding ecology of sea turtles. *In*: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles. Smithsonian Institute Press, Washington, D.C.

Niemi, J. G., J. M. Hanowski, A. R. Lima, T. Nicholls, and N. Weiland. 1997. A critical analysis on the use of indicator species in management. Journal of Wildlife Management 61:1240–1252.

NMFS (National Marine Fisheries Service). 1998. Draft recovery plan for the fin whale, *Balaenoptera physalus* and sei whale, *Balaenoptera borealis*. Prepared by Reeves, R.R., G.K. Silber and P.M. Payne for the National Marine Fisheries Service, Silver Springs, MD. 60p.

NMFS (National Marine Fisheries Service). 1998a. Recovery plan for the blue whale, *Balaenoptera musculus*. Prepared by Reeves, R.R., P.J. Clapham, R.L. Brownell, Jr. and G.K. Silber for the National Marine Fisheries Service, Silver Spring, MD. 42p.

NMFS (National Marine Fisheries Service). 2003a. Endangered Species Act – Section 7 Consultation on the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic Ocean. Biological Opinion, August 27.

NMFS (National Marine Fisheries Service). 2003b. Endangered Species Act – Section 7 Consultation on the Section Revised Fishery Management Plan for Pelagic Sargassum Habitat of the South Atlantic Region. Biological Opinion, March 21.

NMFS (National Marine Fisheries Service). 2006. Endangered Species Act section 7 consultation on the Continued Authorization of Snapper-Grouper Fishing under the South Atlantic Snapper-Grouper Fishery Management Plan (RFFMP) and Proposed Amendment 13C. Biological Opinion. June 7.

NMFS (National Marine Fisheries Service). 2008a. Analysis of the Expected Economic Effects of the August 5 Closure of the 2008 Red Snapper Recreational Fishery in the Federal Waters of the Gulf of Mexico. NOAA SEFSC SSRG.

NMFS (National Marine Fisheries Service). 2009a. Fisheries Economics of the United States 2006. U.S. Depart. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-97. 158 p. Available at: http://www.st.nmfs.gov/st5/publications/index.html.

NMFS (National Marine Fisheries Service). 2009b. "Response to the 7/10/09 Data Request for Amendment 17A to the Snapper Grouper Fishery Management Plan of the South Atlantic." 4 p.

NMFS (National Marine Fisheries Service). 2009c. "Economic Value of Angler Catch and Keep in the Southeast United States: Evidence from a Choice Experiment." NOAA SEFSC SSRG.

NMFS (National Marine Fisheries Service). 2010. Interim Rule for Red Snapper. Federal Register, September 24, 2010 (Volume 75, Number 185).

NMFS (National Marine Fisheries Service). 2011. Annual report to Congress on the Status of U.S. Fisheries – 2010, U.S. Dept. of Commerce, NOAA, Natl. Mar. Fish. Serv., Silver Spring, MD, 21pp.

Norman, J. R., and F. C.. Fraser. 1938. Giant Fishes, Whales and Dolphins. W. W. Norton and Company, Inc, New York, NY. 361 pp.

Ogren, L.H. 1989. Distribution of juvenile and subadult Kemp's ridley turtles: Preliminary results from the 1984-1987 surveys. *In*: C.W. Caillouet Jr. and A.M. Landry Jr. (eds.) Proceedings from the 1st Symposium on Kemp's ridley Sea Turtle Biology, Conservation, and Management. Sea Grant College Program, Galveston, TX. 116.

Paredes, R.P. 1969. Introduccion al Estudio Biologico de *Chelonia mydas agassizi* en el Perfil de Pisco, Master's thesis, Universidad Nacional Federico Villareal, Lima, Peru.

Porter, J.W. 1976. Autotrophy, heterotrophy, and resource partitioning in Caribbean reef-building corals. American Naturalist 110: 731-742.

Powers, J.E. 2001. Letter to Fulton Love, Chairman, South Atlantic Fishery Management Council regarding MSY for Golden Crab. 2p.

Prager, M.H. 2000. Exploratory Assessment of Dolphinfish, *Coryphaena hippurus*, based on U.S. landings from the Atlantic Ocean and Gulf of Mexico. NMFS, SEFSC 18pp.

Rothschild, B.J. 1986. Dynamics of Marine Fish Populations. Harvard University Press. Cambridge, Massachusetts. 277pp.

Rylaarsdam, K.W. 1983. Life histories and abundance patterns of colonial corals on Jamaican reefs. Marine Ecology Progress Series 13:249-260.

SAFMC (South Atlantic Fishery Management Council). 1983. Fishery Management Plan, Regulatory Impact Review and Final Environmental Impact Statement for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1987. Regulatory Amendment 1 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1988a. Amendment Number 1 and Environmental Assessment and Regulatory Impact Review to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 63 pp.

SAFMC (South Atlantic Fishery Management Council). 1988b. Regulatory Amendment 2 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1989. Regulatory Amendment 3 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1990a. Amendment Number 2, to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1990b. Amendment Number 3, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1991. Amendment Number 4, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 200 pp.

SAFMC (South Atlantic Fishery Management Council). 1992a. Regulatory Amendment 5 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1992b. Regulatory Amendment 4 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1992c. Regulatory Amendment 5 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1993. Amendment Number 6, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South

Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 155 pp.

SAFMC (South Atlantic Fishery Management Council). 1994a. Amendment Number 7, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 110 pp.

SAFMC (South Atlantic Fishery Management Council). 1994b. Regulatory Amendment 6 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1995. Fishery Management Plan for the Golden Crab Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407. 239 pp.

SAFMC (South Atlantic Fishery Management Council). 1997a. Amendment Number 8, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 124 pp.

SAFMC (South Atlantic Fishery Management Council). 1997b. Framework Seasonal Adjustment #1. Fishery Management Plan for the Golden Crab Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998a. Regulatory Amendment 7 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998b. Amendment 9, Final Supplemental Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 246 pp.

SAFMC (South Atlantic Fishery Management Council). 1998c. Habitat Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998d. Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (Amendment 10 to the Snapper Grouper Fishery Management Plan). South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998e. Comprehensive Amendment Addressing Sustainable Fishery Act Definitions and Other Required Provisions in Fishery Management Plans of the South Atlantic Region (Amendment 11 to the Snapper Grouper Fishery Management Plan). South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 151 pp.

SAFMC (South Atlantic Fishery Management Council). 2000a. Regulatory Amendment 8 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2000b. Amendment 3 to the Fishery Management Plan for the Golden Crab Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407.

SAFMC (South Atlantic Fishery Management Council). 2000c. Amendment Number 12, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2002. Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for Pelagic Sargassum Habitat of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 228 pp.

SAFMC (South Atlantic Fishery Management Council). 2003a. Final Environmental Assessment, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Dolphin and Wahoo Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 386 pp.

SAFMC (South Atlantic Fishery Management Council). 2003b. Amendment Number 13A, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2006. Amendment 13C, Final Environmental Assessment, Initial Regulatory Flexibility Analysis/Regulatory Impact Review,

and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 631 pp.

SAFMC (South Atlantic Fishery Management Council). 2007. Amendment 14, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2008a. Amendment 15A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2008b. Amendment 15B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009a. Amendment 16, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009b. Fishery Ecosystem Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010a. Amendment 17A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010b. Amendment 17B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010c. Comprehensive Ecosystem Based Amendment 1, Final Environmental Impact Statement, Initial Regulatory Flexibility

Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for South Atlantic Region (Amendment 19 to the Snapper Grouper FMP). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. 286 pp.

SAFMC (South Atlantic Fishery Management Council). 2011a. Regulatory Amendment 10, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011b. Regulatory Amendment 9, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011b. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011c. Comprehensive Annual Catch Limit Amendment for the South Atlantic Region with Final Environmental Impact Statement, Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012. Amendment 18B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013. Amendment 5 to the Fishery Management Plan for the Dolphin and Wahoo Fishery for the Atlantic. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013a. Regulatory Amendment 14 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013b. Regulatory Amendment 15 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with

Final Environmental Assessment, Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013c. Regulatory Amendment 18 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013d. Amendment 28 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

Sammarco, P.W. 1980. Diadema and its relationship to coral spat mortality: grazing, competition, and biological disturbance. Journal of Experimental Marine Biology and Ecology, 45:245-272.

Scott, T.M. and S. S. Sadove. 1997. Sperm whale, *Physeter macrocephalus*, sightings in the shallow shelf waters off Long Island, New York. Marine Mammal Science. 13:317-321.

SEDAR 3. 2003. Stock assessment of southeastern U.S. yellowtail snapper. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 4. 2004. Stock Assessment Report 1. Stock assessment of the deep-water snapper-grouper complex in the South Atlantic. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 15A. 2008. Stock Assessment Report 1 (revised March, 2009). South Atlantic Mutton Snapper. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 19. 2010. Complete Stock Assessment Report 1. South Atlantic and Gulf of Mexico Black Grouper. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

Sedberry, G.R., G.F. Ulrich, and A.J. Applegate. 1994. Development and status of the fishery for wreckfish (*Polyprion americanus*) in the southeastern United States. Proc. Gulf of Mexico Carib. Fish. Inst. 43:168-192.

Sedberry, G.R., J.L. Carlin, R.W. Chapman, and B. Eleby. 1996. Population structure in the pan-oceanic wreckfish, *Polyprion americanus* (Teleostei: Polyprionidae), as indicated by mtDNA variation. J. Fish Biol. 49 (Supplement A): 318-329.

Sedberry, G., C. A. P. Andrade, J. L. Carlin, R. W. Chapman, B. E. Luckhurst, C. S. I. Manooch, G. Menezes, B. Thomsen, and G. F. Ulrich. 1999. Wreckfish *Polyprion americanus* in the North

Atlantic: Fisheries, Biology, and Management of a widely distributed and long-lived fish. *In*: J.A. Musick. Life in the Slow Lane: Ecology and Conservation of Long-Lived Marine Animals. Am. Fish. Soc. Symp. 23:27-50.

Sedberry, G., J. C. McGovern, and O. Pashuk. 2001. The Charleston Bump: An Island of Essential Fish Habitat in the Gulf of Mexico Stream. *In*: Island in the Stream: Oceanography and Fisheries of the Charleston Bump. G. Sedberry, American Fisheries Society Symposium, Bethesda MD. 25: 3-24.

Sedberry, G. 2003. Fishery Biology, Life History and Genetic Population Structure of Globally-distributed Wreckfish, *Polyprion americanus*. South Carolina Department of Natural Resources. http://www.dnr.state.sc.us/marine/mrri/wreckfish/wreckfish.html.

Shaver. D.J. 1991. Feeding ecology of wild and head-started Kemp's ridley sea turtles in south Texas waters. Journal of Herpetology 25:327.

Shinn, E.A. 1963. Spur and groove formation on the Florida Reef Tract. Journal of Sediment Petrology 33: 291-303.

Shivlani, M. 2009. Examination of Non-Fishery Factors on the Welfare of Fishing Communities in the Florida Keys: A focus on the cumulative effects of trade, economic, energy, and aid policies, macroeconomic (county and regional) conditions, and coastal development on the Monroe County commercial fishing industry. MARFIN Grant NA05NMF4331079.

Simpfendorfer, CA. 2001. Essential habitat of the smalltooth sawfish, *Pristis pectinata*. Report to the National Fisheries Service's Protected Resources Division. Mote Marine Laboratory, Technical Report (786) 21pp.

Simpfendorfer, C.A., and T.R., Wiley. 2004. Determination of the distribution of Florida's remnant sawfish population, and identification of areas critical to their conservation. Mote Marine Laboratory, Technical Report July 2, 2004, 37 pp.

Social Vulnerability Index for the United States. http://webra.cas.sc.edu/hvri/products/sovi.aspx# Accessed July 8, 2010.

Soma, M. 1985. Radio biotelemetry system applied to migratory study of turtle. Journal of the Faculty of Marine Science and Technology, Tokai University, Japan, 21:47.

Soong, K. and J. C. Lang. 1992. Reproductive integration in coral reefs. Biological Bulletin 183:418-431.

Standora, E.A., J.R., Spotila, J.A., Keinath, and C.R. Shoop. 1984. Body temperatures, diving cycles, and movements of a subadult leatherback turtle, *Dermochelys coriacea*. Herpetologica 40:169.

Sutton, S. G., R. B. Ditton, J. R. Stoll, and J. W. Milon. 1999. A cross-sectional study and longitudinal perspective on the social and economic characteristics of the charter and party boat fishing industry of Alabama, Mississippi, Louisiana, and Texas. Report by the Human Dimensions of Recreational Fisheries Research Laboratory, Texas A&M University, MARFIN program grant number NA77FF0551.

Szmant, A. M. and M. W. Miller. 2006. Settlement preferences and post-settlement mortality of laboratory cultured and settled larvae of the Caribbean hermatypic corals *Montastraea faveolata* and *Acropora palmata* in the Florida Keys, USA. Proceedings of the 10th International Coral Reef Symposium.

Thayer, G.W., K.A., Bjorndal, J.C., Ogden, S.L., Williams, and J.C., Zieman. 1984. Role of large herbivores in seagrass communities. Estuaries 7:351.

Van Dam, R., and C. Diéz. 1998. Home range of immature hawksbill turtles (*Eretmochelys imbricata*) at two Caribbean islands. Journal of Experimental Marine Biology and Ecology 220(1):15-24.

Vaughan, D.S., Manooch III, C.S., and Potts, J.C. 2001. Assessment of the wreckfish fishery on the Blake Plateau. American Fisheries Society Symposium. 25:105-120.

Walker, T.A. 1994. Post-hatchling dispersal of sea turtles. p. 79. *In*: Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.

Waring, G. T., R. M. Pace, J. M. Quintal, C. P. Fairfield, and K. Maze-Foley (Eds.). 2004. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2003. NOAA Technical Memorandum NMFS-NE-182. U. S., Department of Commerce, National Oceanic and Atmospheric Administration National Marine Fisheries Service Northeast Region Northeast Fisheries Science Center Woods Hole, Massachusetts.

Waters, J.R., R.J. Rhodes, W. Waltz, and R. Wiggers. 1997. Executive Summary: An economic survey of commercial reef-fish boats along the U.S. South Atlantic Coast. USDC/NOAA/NMFS and SCDNR. November 1997. Unpublished.

Wenner, E. L., G. F. Ulrich, and J. B. Wise. 1987. Exploration for the golden crab, *Geryon fenneri*, in the south Atlantic Bight: distribution, population structure, and gear assessment. Fishery Bulletin 85: 547-560.

Wenzel, F.W., D.K. Mattila, and P.J. Clapham. 1988. *Balaenoptera musculus* in the Gulf of Maine. Marine Mammal Science. 4:172-175.

Whitehead, J.C. and T. C. Haab. 2001. Analysis of Contingent Valuation data from the 1997-98 Southeast Economic Add-on Survey Data. NOAA Technical Memorandum NMFS SEFSC-465.

Whitehead, J.C. 2006. A comparison of contingent valuation method and random utility model estimates of the value of avoiding reductions in king mackerel bag limits. Applied Economics vol. 38(15): 1725-1735.

Williams, E. H. and L. Bunkley-Williams. 1990. The worldwide coral reef bleaching cycle and related sources of coral mortality. Atoll Research Bulletin 335:1-71.

Witzell, W.N. 2002. Immature Atlantic loggerhead turtles (*Caretta caretta*): suggested changes to the life history model. Herpetological Review 33(4):266-269.

Wyanski, D.M., and H.S. Meister. 2002. Analytical report on the sex ratio, maturity, reproductive seasonality, and annual fecundity of wreckfish, *Polyprion americanus*, off the Southeastern United States. South Carolina Department of Natural Resources, Charleston.

Appendix A. Glossary

Allowable Biological Catch (ABC): Maximum amount of fish stock than can be harvested without adversely affecting recruitment of other components of the stock. The ABC level is typically higher than the total allowable catch, leaving a buffer between the two.

ALS: Accumulative Landings System. NMFS database which contains commercial landings reported by dealers.

Biomass: Amount or mass of some organism, such as fish.

B_{MSY}: Biomass of population achieved in long-term by fishing at F_{MSY}.

Bycatch: Fish harvested in a fishery, but not sold or kept for personal use. Bycatch includes economic discards and regulatory discards, but not fish released alive under a recreational catch and release fishery management program.

Caribbean Fishery Management Council (CFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The CFMC develops fishery management plans for fisheries off the coast of the U.S. Virgin Islands and the Commonwealth of Puerto Rico.

Catch Per Unit Effort (CPUE): The amount of fish captured with an amount of effort. CPUE can be expressed as weight of fish captured per fishing trip, per hour spent at sea, or through other standardized measures.

Charter Boat: A fishing boat available for hire by recreational anglers, normally by a group of anglers for a short time period.

Cohort: Fish born in a given year. (See year class.)

Control Date: Date established for defining the pool of potential participants in a given management program. Control dates can establish a range of years during which a potential participant must have been active in a fishery to qualify for a quota share.

Constant Catch Rebuilding Strategy: A rebuilding strategy where the allowable biological catch of an overfished species is held constant until stock biomass reaches B_{MSY} at the end of the rebuilding period.

Constant F Rebuilding Strategy: A rebuilding strategy where the fishing mortality of an overfished species is held constant until stock biomass reached BMSY at the end of the rebuilding period.

Directed Fishery: Fishing directed at a certain species or species group.

Discards: Fish captured, but released at sea.

Discard Mortality Rate: The % of total fish discarded that do not survive being captured and released at sea.

Derby: Fishery in which the TAC is fixed and participants in the fishery do not have individual quotas. The fishery is closed once the TAC is reached, and participants attempt to maximize their harvests as quickly as possible. Derby fisheries can result in capital stuffing and a race for fish.

Effort: The amount of time and fishing power (i.e., gear size, boat size, horsepower) used to harvest fish.

Exclusive Economic Zone (EEZ): Zone extending from the shoreline out to 200 nautical miles in which the country owning the shoreline has the exclusive right to conduct certain activities such as fishing. In the United States, the EEZ is split into state waters (typically from the shoreline out to 3 nautical miles) and federal waters (typically from 3 to 200 nautical miles).

Exploitation Rate: Amount of fish harvested from a stock relative to the size of the stock, often expressed as a percentage.

F: Fishing mortality.

Fecundity: A measurement of the egg-producing ability of fish at certain sizes and ages.

Fishery Dependent Data: Fishery data collected and reported by fishermen and dealers.

Fishery Independent Data: Fishery data collected and reported by scientists who catch the fish themselves.

Fishery Management Plan: Management plan for fisheries operating in the federal produced by regional fishery management councils and submitted to the Secretary of Commerce for approval.

Fishing Effort: Usually refers to the amount of fishing. May refer to the number of fishing vessels, amount of fishing gear (nets, traps, hooks), or total amount of time vessels and gear are actively engaged in fishing.

Fishing Mortality: A measurement of the rate at which fish are removed from a population by fishing. Fishing mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Fishing Power: Measure of the relative ability of a fishing vessel, its gear, and its crew to catch fishes, in reference to some standard vessel, given both vessels are under identical conditions.

$F_{30\%SPR}$: Fishing mortality that will produce a static SPR = 30%.

$F_{45\%SPR}$: Fishing mortality that will produce a static SPR = 45%.

F_{OY}: Fishing mortality that will produce OY under equilibrium conditions and a corresponding biomass of B_{OY}. Usually expressed as the yield at 85% of F_{MSY}, yield at 75% of F_{MSY}, or yield at 65% of F_{MSY}.

F_{MSY}: Fishing mortality that if applied constantly, would achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}.

Fork Length (FL): The length of a fish as measured from the tip of its snout to the fork in its tail.

Framework: An established procedure within a fishery management plan that has been approved and implemented by NMFS, which allows specific management measures to be modified via regulatory amendment.

Gear restrictions: Limits placed on the type, amount, number, or techniques allowed for a given type of fishing gear.

Growth Overfishing: When fishing pressure on small fish prevents the fishery from producing the maximum poundage. Condition in which the total weight of the harvest from a fishery is improved when fishing effort is reduced, due to an increase in the average weight of fishes.

Gulf of Mexico Fishery Management Council (GFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The GFMC develops fishery management plans for fisheries off the coast of Texas, Louisiana, Mississippi, Alabama, and the west coast of Florida.

Head Boat: A fishing boat that charges individual fees per recreational angler onboard.

Highgrading: Form of selective sorting of fishes in which higher value, more marketable fishes are retained, and less marketable fishes, which could legally be retained are discarded.

Individual Fishing Quota (IFQ): Fishery management tool that allocates a certain portion of the TAC to individual vessels, fishermen, or other eligible recipients.

Longline: Fishing method using a horizontal mainline to which weights and baited hooks are attached at regular intervals. Gear is either fished on the bottom or in the water column.

Magnuson-Stevens Fishery Conservation and Management Act: Federal legislation responsible for establishing the fishery management councils and the mandatory and discretionary guidelines for federal fishery management plans.

Marine Recreational Fisheries Statistics Survey (MRFSS): Survey operated by NMFS in cooperation with states that collects marine recreational data.

Maximum Fishing Mortality Threshold (MFMT): The rate of fishing mortality above which a stock's capacity to produce MSY would be jeopardized.

Maximum Sustainable Yield (MSY): The largest long-term average catch that can be taken continuously (sustained) from a stock or stock complex under average environmental conditions.

Minimum Stock Size Threshold (MSST): The biomass level below which a stock would be considered overfished.

Modified F Rebuilding Strategy: A rebuilding strategy where fishing mortality is changed as stock biomass increases during the rebuilding period.

Multispecies fishery: Fishery in which more than one species is caught at the same time and location with a particular gear type.

National Marine Fisheries Service (NMFS): Federal agency within NOAA responsible for overseeing fisheries science and regulation.

National Oceanic and Atmospheric Administration: Agency within the Department of Commerce responsible for ocean and coastal management.

Natural Mortality (M): A measurement of the rate at which fish are removed from a population by natural causes. Natural mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Optimum Yield (OY): The amount of catch that will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems.

Overfished: A stock or stock complex is considered overfished when stock biomass falls below the minimum stock size threshold (MSST) (e.g., current biomass < MSST = overfished).

Overfishing: Overfishing occurs when a stock or stock complex is subjected to a rate of fishing mortality that exceeds the maximum fishing mortality threshold (e.g., current fishing mortality rate > MFMT = overfishing).

Quota: % or annual amount of fish that can be harvested.

Recruitment (R): Number or percentage of fish that survives from hatching to a specific size or age.

Recruitment Overfishing: The rate of fishing above which the recruitment to the exploitable stock becomes significantly reduced. This is characterized by a greatly reduced spawning stock, a decreasing proportion of older fish in the catch, and generally very low recruitment year after year.

Scientific and Statistical Committee (SSC): Fishery management advisory body composed of federal, state, and academic scientists, which provides scientific advice to a fishery management council.

Selectivity: The ability of a type of gear to catch a certain size or species of fish.

South Atlantic Fisheries Management Council (SAFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The SAFMC develops fishery management plans for fisheries off North Carolina, South Carolina, Georgia, and the east coast of Florida.

Spawning Potential Ratio (Transitional SPR): Formerly used in overfished definition. The number of eggs that could be produced by an average recruit in a fished stock divided by the number of eggs that could be produced by an average recruit in an unfished stock. SPR can also be expressed as the spawning stock biomass per recruit (SSBR) of a fished stock divided by the SSBR of the stock before it was fished.

% Spawning Per Recruit (Static SPR): Formerly used in overfishing determination. The maximum spawning per recruit produced in a fished stock divided by the maximum spawning per recruit, which occurs under the conditions of no fishing. Commonly abbreviated as %SPR.

Spawning Stock Biomass (SSB): The total weight of those fish in a stock which are old enough to spawn.

Spawning Stock Biomass Per Recruit (SSBR): The spawning stock biomass divided by the number of recruits to the stock or how much spawning biomass an average recruit would be expected to produce.

Total Allowable Catch (TAC): The total amount of fish to be taken annually from a stock or stock complex. This may be a portion of the Allowable Biological Catch (ABC) that takes into consideration factors such as bycatch.

Total Length (TL): The length of a fish as measured from the tip of the snout to the tip of the tail.

Appendix B. Actions and Alternatives Considered but Rejected

Appendix C. History of Management

Table C.1 Snapper Grouper 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" total length (TL) 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 (1987)	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 (1988a)	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 lb s-g on board. -Established rebuttable assumption that vessel with s-g on board had harvested such fish in the exclusive economic zone (EEZ).
Regulatory Amendment #2 (1988b)	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 (1990a)	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
Emergency Rule	8/3/90	55 FR 32257	-Added wreckfish to the fishery management unit (FMU) -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	- Fishery 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 (1990b)	01/31/91	PR: 55 FR 39023 FR: 56 FR 2443	-Added 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 vessel; -Established control date of 03/28/90 -Established a fishing year for wreckfish starting April 16

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.
			-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 -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	-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" TL limit – lane snapper -10" TL limit – vermilion snapper (recreational only) -12" TL limit – red porgy, vermilion snapper (commercial only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany, and silk snappers -20" TL limit – red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers. -28" fork length (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 (1992a)	04/06/92	PR: 56 FR 57302 FR: 57 FR 7886	-Wreckfish: established limited entry system with individual transferable quotas (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 total allowable catch (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 (1992b)	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 (1992c)	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	-Set up separate commercial TAC levels for golden tilefish and snowy grouper -Established commercial trip limits for snowy grouper, golden tilefish, speckled hind, and warsaw grouper -Included 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 *Oculina* Experimental Closed Area -Data collection needs specified for evaluation of possible future individual fishing quota system
Amendment #7 (1994a)	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 NC -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 (1994b)	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	-Established program to limit initial eligibility for snapper grouper fishery: Must demonstrate landings of any species in the snapper grouper (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 ≥ 1,000 pounds (lb) of snapper grouper species in any of the years -Granted non-transferable permit with 225 lb trip limit to all other vessels -Modified problems, objectives, optimum yield (OY), and overfishing definitions -Expanded Council's habitat responsibility -Allowed retention of snapper grouper species 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 (1998a)	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 the Magnuson-Stevens Act
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 (1998b)	2/24/99	PR: 63 FR 63276 FR: 64 FR 3624	-Red porgy: 14" TL (recreational and commercial); 5 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, in March and April -Black sea bass: 10" TL (recreational and commercial); 20 fish rec. bag limit; required escape vents and escape panels with degradable fasteners in bsb pots -Greater amberjack: 1 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, during April; quota = 1,169,931 lb; began fishing year May 1; prohibited coring -Specified size limits for several snapper grouper species (indicated in parentheses in inches TL): including yellowtail snapper (12), mutton snapper (16), red snapper (20); red grouper, yellowfin grouper, yellowmouth grouper, and scamp (20) -Vermilion snapper: 11" TL (recreational), 12" TL commercial -Gag: 24" TL (recreational); no commercial harvest or possession > bag limit, and no purchase or sale, during March and April -Black grouper: 24" TL (recreational and commercial); no harvest or possession > bag limit, and no purchase or sale, during March and April -Gag and Black grouper: within 5 fish aggregate grouper bag limit, no more than 2 fish may be gag or black grouper (individually or in combination) -All snapper grouper without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runner -Vessels with longline gear aboard may only possess snowy, warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish
Amendment #9 (1998b) resubmitted	10/13/00	PR: 63 FR 63276 FR: 65 FR 55203	-Commercial trip limit for greater amberjack
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 Amendment 8 permit application process
Amendment #10 (1998c)	07/14/00	PR: 64 FR 37082 and 64 FR 59152 FR: 65 FR 37292	-Identified essential fish habitat (EFH) and established habitat areas of particular concern (HAPC) for species in the snapper grouper FMU

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 #11 (1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	-Maximum sustainable yield (MSY) proxy: goliath and Nassau grouper = 40% static spawning potential ratio (SPR); all other species = 30% static SPR -OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR -Overfished/overfishing evaluations: BSB: overfished (minimum stock size threshold (MSST)=3.72 mp, 1995 biomass=1.33 mp); undergoing overfishing (maximum fishing mortality threshold (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) -overfishing level: goliath and Nassau grouper = F>F40% static SPR; all other species: = F>F30% static SPR Approved definitions for overfished and overfishing. MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. MFMT = F_{MSY}
Regulatory Amendment #8 (2000a)	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
Amendment #12 (2000b)	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 of red porgy 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 *Oculina* 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)
Amendment #13C (2006)	10/23/06	PR: 71 FR 28841 FR: 71 FR 55096	- End overfishing of snowy grouper, vermilion snapper, black sea bass, and golden tilefish. Increase allowable catch of red porgy. Year 1 = 2006. 1. Snowy Grouper Commercial: Quota = 151,000 lb gutted

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.
			weight (gw) in year 1, 118,000 lb gw in year 2, and 84,000 lb gw in year 3 onwards. Trip limit = 275 lb gw in year 1, 175 lb gw in year 2, and 100 lb gw in year 3 onwards Recreational: Limit possession to one snowy grouper in 5 grouper per person/day aggregate bag limit. 2. Golden Tilefish Commercial: Quota of 295,000 lb gw, 4,000 lb gw trip limit until 75% of the quota is taken when the trip limit is reduced to 300 lb gw. Do not adjust the trip limit downwards unless 75% is captured on or before September 1. Recreational: Limit possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit. 3. Vermilion Snapper Commercial: Quota of 1,100,000 lb gw. Recreational: 12" TL size limit. 4. Black Sea Bass Commercial: Commercial quota of 477,000 lb gw in year 1, 423,000 lb gw in year 2, and 309,000 lb 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. Recreational: Recreational allocation of 633,000 lb gw in year 1, 560,000 lb gw in year 2, and 409,000 lb 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. 5. Red Porgy Commercial and recreational: 1. Retain 14" TL size limit and seasonal closure (retention limited to the bag limit); 2. Specify a commercial quota of 127,000 lb 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 lb ww to 120 red porgy (210 lb 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 sector
Amendment #14 (2007)	2/12/09	PR: 73 FR 32281 FR: 74 FR 1621	-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 (2008a)	3/14/08	73 FR 14942	- Establish rebuilding plans and status determination criteria for snowy grouper, black sea bass, and red porgy
Amendment #15B (2008b)	2/15/10	PR: 74 FR 30569 FR: 74 FR 58902	-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

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.
			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 2009a)	7/29/09	PR: 74 FR 6297 FR: 74 FR 30964	-Specify status determination criteria for gag and vermilion snapper -For gag: Specify interim allocations 51% com & 49% rec; rec & com shallow water grouper spawning closure January through April; directed com quota= 352,940 lb gw; -reduce 5-fish aggregate grouper bag limit, including tilefish species, to a 3-fish aggregate -Captain and crew on for-hire trips cannot retain the bag limit of vermilion snapper and species within the 3-fish grouper aggregate -For vermilion snapper: Specify interim allocations 68% com & 32% rec; directed com quota split Jan-June=315,523 lb gw and 302,523 lb gw July-Dec; reduce bag limit from 10 to 5 and a rec closed season November through March -Require dehooking tools
Amendment #19 (Comprehensive Ecosystem-Based Amendment 1; SAFMC 2009b)	7/22/10	PR: 75 FR 14548 FR: 75 FR 35330	-Provide presentation of spatial information for EFH and EFH-HAPC designations under the Snapper Grouper FMP - Designation of deepwater coral HAPCs
Amendment #17A (SAFMC 2010a)	12/3/10 red snapper closure; circle hooks March 3, 2011	PR: 75 FR 49447 FR: 75 FR 76874	-Required use of non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear north of 28 deg. N latitude in the South Atlantic EEZ -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
Emergency Rule	12/3/10	75 FR 76890	- Delay the effective date of the area closure for snapper grouper species implemented through Amendment 17A
Amendment #17B (SAFMC 2010b)	January 31, 2011	PR: 75 FR 62488 FR: 75 FR 82280	-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 -Prohibited harvest of 6 deepwater species seaward of 240 feet to curb bycatch of speckled hind and warsaw grouper
Notice of Control Date	12/4/08	74 FR 7849	-Establishes a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic

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.
Notice of Control Date	12/4/08	74 FR 7849	-Establishes control date for black sea bass pot sector in the South Atlantic
Regulatory Amendment #10 (SAFMC 2010c)	5/31/11	PR: 76 FR 9530 FR: 76 FR 23728	-Eliminate closed area for snapper grouper species approved in Amendment 17A
Regulatory Amendment #9 (SAFMC 2011a)	Bag limit: 6/22/11 Trip limits: 7/15/11	PR: 76 FR 23930 FR: 76 FR 34892	- Establish trip limits for vermilion snapper and gag, increase trip limit for greater amberjack, and reduce bag limit for black sea bass
Regulatory Amendment #11 (2011b)	5/10/12	PR: 76 FR 78879 FR: 77 FR 27374	- Eliminate 240 ft harvest prohibition for six deepwater species
Amendment # 25 (Comprehensive ACL Amendment) (SAFMC 2011c)	4/16/12	PR: 76 FR 74757 Amended PR: 76 FR 82264 FR: 77 FR 15916	-Establish acceptable biological catch (ABC) control rules, establish ABCs, annual catch limits (ACLs), and accountability measures (AMs) for species not undergoing overfishing -Remove some species from South Atlantic FMU and designate others as ecosystem component species -Specify allocations between the commercial and, recreational sectors for species not undergoing overfishing -Limit the total mortality for federally managed species in the South Atlantic to the ACLs
Amendment #24 (SAFMC 2011d)	7/11/12	PR: 77 FR 19169 FR: 77 FR 34254	-Specify MSY, rebuilding plan (including ACLs, AMs, and OY), and allocations for red grouper
Amendment #23 (Comprehensive Ecosystem-based Amendment 2; SAFMC 2011e)	1/30/12	PR: 76 FR 69230 FR: 76 FR 82183	- Designate the Deepwater MPAs as EFH-HAPCs - Limit harvest of snapper grouper species in SC SMZs to the bag limit - Modify sea turtle release gear
Amendment #20B	TBD	TBD	-Update wreckfish ITQ according to reauthorized Magnuson-Stevens Act
Amendment #18A (SAFMC 2012a)	7/1/12	PR: 77 FR 16991 FR: 77FR3 2408	- Limit participation and effort in the black sea bass sector - Modifications to management of the black sea bass pot sector - Improve the accuracy, timing, and quantity of fisheries statistics
Amendment #20A (SAFMC 2012b)	10/26/12	PR: 77 FR 19165 FR: 77 FR 59129	-Redistribute latent shares for the wreckfish ITQ program.

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.
Regulatory Amendment #12 (SAFMC 2012c)	10/9/12	FR: 77 FR 61295	-Adjust the ACL and OY for golden tilefish -Consider specifying a commercial Annual Catch Target (ACT) -Revise recreational AMs for golden tilefish
Amendment #18B (SAFMC 2013a)	5/23/13	PR: 77 FR 75093 FR: 77 FR 23858	-Limit participation and effort in the golden tilefish commercial sector through establishment of a longline endorsement -Modify trip limits -Specify allocations for gear groups (longline and hook and line)
Amendment # 26 (Comprehensive Ecosystem-Based Amendment 3)	TBD	TBD	-Modify bycatch and discard reporting for commercial and for-hire vessels
Regulatory Amendment #13 (SAFMC 2013b)	7/17/13	PR: 78 FR 17336 FR: 78 FR 36113	-Revise the ABCs, ACLs (including sector ACLs), and ACTs implemented by the Comprehensive ACL Amendment (SAFMC 2011c). The revisions may prevent a disjunction between the established ACLs and the landings used to determine if AMs are triggered.
Regulatory Amendment #14	TBD	TBD	-Modify the fishing year for greater amberjack -Modify the fishing year for black sea bass -Revise the AMs for vermilion snapper and black sea bass -Modify the trip limit for gag
Regulatory Amendment #15 (SAFMC 2013c)	9/12/13	PR: 78 FR 31511 FR: 78 FR 49183	-Modify the existing specification of OY and ACL for yellowtail snapper in the South Atlantic -Modify the existing gag commercial ACL and AM for gag that requires a closure of all other shallow water groupers (black grouper, red grouper, scamp, red hind, rock hind, graysby, coney, yellowmouth grouper, and yellowfin grouper) in the South Atlantic when the gag commercial ACL is met or projected to be met
Regulatory Amendment #16	TBD	TBD	-Consider removal of the November-April prohibition on the use of black sea bass pots
Amendment #27	1/27/14	PR: 78 FR 78770 FR: 78 FR 57337	-Establish the South Atlantic Council as the responsible entity for managing Nassau grouper throughout its range including federal waters of the Gulf of Mexico -Modify the crew member limit on dual-permitted snapper grouper vessels -Modify the restriction on retention of bag limit quantities of some snapper grouper species by captain and crew of for-hire vessels -Minimize regulatory delay when adjustments to snapper

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.
			grouper species' ABC, ACLs, and ACTs are needed as a result of new stock assessments -Address harvest of blue runner by commercial fishermen who do not possess a South Atlantic Snapper Grouper Permit
Amendment #28 (SAFMC 2013d)	8/23/13	PR: 78 FR 25047 FR: 78 FR 44461	-Establish regulations to allow harvest of red snapper in the South Atlantic
Regulatory Amendment #18 (SAFMC 2013e)	9/5/13	PR: 78 FR 26740 FR: 78 FR 47574	-Adjust ACLs for vermilion snapper and red porgy, and remove the 4-month recreational closure for vermilion snapper
Regulatory Amendment #19 (SAFMC 2013f)	ACL: 9/23/13 Pot closure: 10/23/13	PR: 78 FR 39700 FR: 78 FR 58249	-Adjust the ACL for black sea bass and implement an annual closure on the use of black sea bass pots from November 1 to April 30
Regulatory Amendment #17	TBD	TBD	-Adjust or establish new MPAs to enhance protection of speckled hind and warsaw grouper
Amendment #22	TBD	TBD	-Establish a recreational tagging program for snapper grouper species with small ACLs

Table C.2 Dolphin Wahoo History of Management

Time period/dates	Cause	Observed and/or Expected Effects
Effective June 28, 2004	Fishery Management Plan for the Dolphin Wahoo Fishery off the Atlantic states (Dolphin Wahoo FMP).	1) A 20-inch fork length minimum size limit for dolphin off the coasts of Georgia and Florida with no size restrictions elsewhere; (2) prohibition of longline fishing for dolphin and wahoo in areas closed to the use of such gear for highly migratory pelagic species; and (3) allowable gear to be used in the fishery (hook-and-line gear including manual, electric, and hydraulic rods and reels; bandit gear; handlines; longlines; and spearfishing (including powerheads) gear. In addition, other approved portions of the FMP were also effective on this date, including (1) the management unit and

Time period/dates	Cause	Observed and/or Expected Effects
		designations of stock status criteria for the unit; (2) a fishing year of January 1 through December 31; (3) a 1.5 million pound (or 13% of the total harvest) cap on commercial landings; (4) establishment of a framework procedure by which the SAFMC may modify its management measures; and (5) designations of Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern (HAPC).
Effective September 24, 2004	Dolphin Wahoo FMP	1) owners of commercial vessels and/or charter vessels/headboats must have vessel permits and, if selected, submit reports; (2) dealers must have permits and, if selected, submit reports; (3) longline vessels must comply with sea turtle protection measures; (4) a recreational bag limit of 10 dolphin and 2 wahoo per person per day, with a limit of 60 dolphin per boat per day (headboats are excluded from the boat limit); (5) prohibition on recreational sale of dolphin and wahoo caught under a bag limit unless the seller holds the necessary commercial permits; and (6) a commercial trip limit of 500 pounds for wahoo.
Effective November 23, 2004	Dolphin Wahoo FMP	Operators of commercial vessels, charter vessels and headboats that are required to have a federal vessel permit for dolphin and wahoo must display operator permits.
Effective Date July 22, 2010	Amendment 1 to the Dolphin Wahoo FMP (Comprehensive Ecosystem Based Amendment (CE-BA) 1)	Updated spatial information of Council-designated EFH and EFH-HAPCS.
Effective Date April 16, 2012	Amendment 2 to the Dolphin Wahoo FMP (Comprehensive ACL Amendment SAFMC 2011C)	Set ABC, ACL, ACT and AMs
Target 2014	Amendment 5 to the Dolphin Wahoo FMP	Revisions to acceptable biological catch estimates (ABCs), annual catch limits (ACLs) (including sector ACLs), recreational annual catch targets (ACTs), and accountability measures (AMs) implemented through the Comprehensive ACL Amendment; modifications to the sector allocations for dolphin; and revisions to the framework procedure in the Dolphin Wahoo FMP.

Time period/dates	Cause	Observed and/or Expected Effects

Table C.3 Golden Crab History of Management.

Time Period/Dates	Cause	Observed and/or expected Effects
April 7, 1995	Control date	Date used to establish limited access.
August 27, September 26, and October 28, 1996 and September 7, 1997.	FMP became effective	Provide biological protection to the resource (escape gaps in traps and no retention of female crabs); gear regulation (define allowable gear, degradable panel, tending requirements, gear identification, and maximum trap size by zone); provide for law enforcement (depth limitations and prohibit possession of whole fish or fillets of snapper grouper species); determine the number of participants (vessel and dealer/processor permits); collect the necessary data (vessel/fishermen and dealer/processor reporting); and a framework procedure to adjust the management program (framework adjustments and adjustments to activities authorized by the Secretary of Commerce).
1998	Framework Seasonal Adjustment #1	Revised the vessel size limitations applicable when a vessel permit is transferred to another vessel and extended through December 31, 2000, the authorization to use wire cable for a mainline attached to a golden crab trap.
1999	Amendment 2 (partially approved)	Addressed Sustainable Fishery Act definitions and other required provisions in FMPs of the South Atlantic Region.
2000	Amendment 1	Addressed Essential Fish Habitat in FMPs of the South Atlantic Region. Essential fish habitat for golden crab includes the U.S. Continental Shelf from Chesapeake Bay south through the Florida Straits (and into the Gulf of Mexico). In addition, the Gulf Stream, which occurs within

		the EEZ, is an essential fish habitat because it provides a mechanism to disperse golden crab larvae.
2000	Amendment 3	extended the authorization to use wire cable for mainlines attached to golden crab traps to December, 31, 2002; modified escape panel sizes for traps; addressed permit renewal requirements including removal of the 5,000-pound harvest requirement for renewing biannual permits and addressed the minimum harvest requirement for permit holders in the Southern Zone; allowed up to a 20% increase in vessel size from the vessel size of the original permit; created a sub-zone within the Southern Zone with specified conditions; allowed two new vessels to be permitted to fish only in the Northern Zone using an earlier list of those wanting to enter the fishery; specified status determination criteria; and modified the FMP framework to allow modifications to the sub-zone.
2010	Amendment 4	The amendment created Allowable Golden Crab Fishing Areas within the proposed Coral Habitat Areas of Particular Concern (CHAPCs); considered vessel monitoring for the golden crab fishery; and provide presentation of spatial information for Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPC) designations under the Golden Crab FMPs.
2011	Amendment 5	Established ABC, ACL and AMs for the golden crab fishery.

Appendix D. Bycatch Practicability Analysis

1 Population Effects for the Bycatch Species

1.1 Background

The Comprehensive Accountability Measure (AM) and Dolphin Allocation Amendment would create a consistent regulatory environment for AMs for many snapper grouper species, and golden crab. Currently, many species in the same fishery management unit (FMU) have different AMs, which has created a complex regulatory environment that can be difficult for fishery participants and fisheries managers to interpret. Therefore, this amendment would simplify the system of AMs to create consistency among AMs for all snapper grouper species and for golden crab. However, there are four species in the snapper grouper FMU that are not addressed in this amendment, including vermilion snapper, black sea bass, gray triggerfish, and blueline tilefish. AMs for those species are being addressed in separate amendments. The dolphin allocation action in this amendment is intended to ensure that dolphin sector allocations are determined based upon the most appropriate time series of landings data available, and using the most appropriate allocation method for the species.

1.2 Finfish Bycatch Mortality

Release mortality rates are unknown for most managed species. Recent Southeast Data, Assessment, and Review (SEDAR) assessments include estimates of release mortality rates based on published studies. Stock assessment reports can be found at http://www.sefsc.noaa.gov/sedar/.

Snapper Grouper

The recent stock assessment for yellowtail snapper chose a rate of 10% release mortality as an approximation for the lower bound on release mortality for yellowtail snapper (FWRI 2012). SEDAR 10 (2006) estimated release mortality rates of 40% and 25% for gag taken by commercial and recreational fishermen, respectively. SEDAR 24 (2010) used release mortality rates of 48% commercial; 41% for-hire, and 39% private recreational for red snapper. Commercial and recreational release mortality rates were estimated as 20% for black grouper and red grouper in SEDAR 19 (2010). SEDAR 15 (2008) estimated a 20% release mortality rate for greater amberjack. 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, SEDAR 25 2011). Commercial sector discard mortality for red porgy is 35%, and 8% for the recreational sector (2012 SEDAR 1 Update).

According to SEDAR 23 (2011), several data workshop participants observed that goliath grouper in the southeastern U.S. (i.e., South Atlantic and Gulf of Mexico waters) are subject to unknown but significant levels of release mortality, especially adult specimens brought up from

depth. Fishing mortality due to release mortality also occurs when goliath grouper are caught as incidental catch (i.e., when other species are targeted) and when fishers target (some repeatedly) goliath grouper for catch-and release fishing. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2012b) states that there is very little information on bycatch in the wreckfish portion of the snapper grouper fishery; however, the mortality rate of any released wreckfish is likely to be 100%, because the fish are typically harvested in waters deeper than 300 m (Machias et al. 2003; SAFMC 1991).

Dolphin

Commercial discards for dolphin are very low, but discards were disproportionately higher in the recreational sector (**Appendix D. Table 1**). During 2008-2012, mean private recreational landings and discards for dolphin were higher than the headboat and charterboat category (**Appendix D. Table 1**).

Appendix D. Table 1. Mean headboat, MRIP charter, MRIP private, and commercial landings and estimates of discards in the U.S. Atlantic Ocean (2008-2012). Headboat, and MRIP (charter and private) landings are in numbers of fish (N); commercial landings are in pounds whole weight (lbs ww). Discards represent numbers of fish that were caught and released alive.

	HEADBOAT			MRIP CHARTER			MRIP PRIVATE			COMMERCIAL		ALL SECTORS
Species	Catch (N)	Landings (N)	Discards (N)	Catch (N)	Landings (N)	Discards (N)	Catch (N)	Landings (N)	Discards (N)	Landings (lbs ww)	Discards (N)	Discards (N)
Dolphin	3,635	3,269	366	299,392	290,800	8,592	780,125	598,363	181,762	835,392	1,750	192,470

Sources: MRIP data from SEFSC Recreational ACL Dataset (May 2013), Headboat data from SEFSC Headboat Logbook CRNF files (expanded; May 2013), Commercial landings data from SEFSC Commercial ACL Dataset (July 10, 2013) with discard estimates from expanded SEFSC Commercial Discard Logbook (Jun 2013).
Note: Dolphin and wahoo landings include all east coast (NY-FL), but discard estimates for headboat and commercial are highly uncertain and only include NC-FL. Estimates of commercial discards are for vertical line gear only.

Release mortality rates are unknown for dolphin. Hook-and-line gear is the predominant gear used to harvest dolphin in the Atlantic (SAFMC 2003). It is likely that most mortality is a function of hooking and handling of the fish when the hook is being removed. However, sustainable seafood guides recommend dolphin harvested by hook-and-line gear in the U.S. as a "best choice" or "good alternative" since this gear has minimal bycatch issues (Blue Ocean 2010; Seafood Watch 2010). A small portion of dolphin is harvested using pelagic longlines, with sea turtles, sharks, and rays commonly caught as bycatch, but survival rates of hooked sea turtles was over 94% (Whoriskey et al. 2011).

Prager (2000) conducted an assessment of dolphin and indicated the species can withstand a high level of exploitation. Prager (2000) stated the biomass of the U.S. stock of dolphin appeared to be higher than needed to produce the maximum sustainable yield, but the results were not conclusive. The 2013 Report to Congress (NMFS 2013) indicates dolphin are neither overfished nor undergoing overfishing. Furthermore, dolphin are listed as species of "least concern" under the International Union for Conservation of Nature Red List, i.e. species that have a low risk of

extinction (IUCN 2013). A Southeast Data, Assessment, and Review (SEDAR) stock assessment for dolphin is scheduled within the next 5 years.

Golden Crab

Release mortality of golden crab is presumed to be very low. Regulations do not allow for the retention of females, and it is assumed they survive the trauma of capture.

1.3 Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality

Expected Impacts on Bycatch for the Subject Amendment Actions

None of the alternatives under either action in the Comprehensive AM and Dolphin Allocation Amendment are likely to change the current level of bycatch of target or non-target species in the Atlantic. Creating consistent AMs for most snapper grouper species and golden crab would help streamline the system of harvest controls that are intended to prevent overfishing from occurring. Making AMs the same for snapper grouper species across the FMU as well as golden crab would make implementation of AMs easier when they are needed, and fishery participants would be more likely to understand when they may or may not fish a particular species. The effects of this action on bycatch of target and non-target species are difficult to determine. For species that are not currently subject to in-season sector closures when an ACL is met or projected to be met, bycatch of target species may increase if fishermen continue to fish for other co-occurring species once their target stock is closed for the season. However, for many species in the FMU, in-season closures are already part of the system of AMs; therefore, compared to the status quo, changes in bycatch of target and non-target fish species are likely to be negligible. Survival of released species would depend on the magnitude of discard mortality. The reduction in harvest for a species during a closure would be expected to reduce the overall mortality.

The action to modify the current sector allocations for dolphin is also not expected to substantially change the level of bycatch of target and non-target species.

Appendix D. Table 2. Selected average characteristics for trips landing at least one lb (ww) of dolphin and wahoo by gear type in the South Atlantic, 2007-2011.

Dolphin	Hook & Line	Longline	Trolling	Other
Trips	1,591	91	673	24
Vessels	177	11	112	11
Days Away	2.74	2.79	1.13	2.03
lb (ww) Dolphin	99,810	16,870	39,855	901

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, (2013).

Actions have been taken to reduce bycatch and incidental catch of overfished and protected species by pelagic longline fishermen who target highly migratory pelagic species (HMS). Appendix C of the Dolphin Wahoo FMP contains data, which indicate that pelagic longlines targeting dolphin do in fact result in a bycatch of HMS species. If the commercial sector ACL is increased, as would be the case under all alternatives except **Alternative 1 (No Action)**, there is

a chance the small portion of the fishery that uses longlines may grow or those that already use that gear type may increase their fishing effort. Increasing the amount of longline gear in the water is likely to increase the risk of protected resources and HMS interactions. However, considering the very low proportion of the fishery that utilizes longline gear (See **Table 2**), it is unlikely longlining effort for dolphin will substantially increase. Longlines are not a readily used gear type for harvesting dolphin, and unless fishermen's behavior changes significantly in the near future, no increased risks to species listed under the Endangered Species Act or HMS species beyond the status quo are anticipated as a result of this action.

1.4 Past, Current, and Future Actions to Prevent Bycatch and Improve Monitoring of Harvest, Discards, and Discard Mortality.

The Comprehensive Ecosystem-Based Amendment 2 (CE-BA 2; SAFMC 2011c) included actions that removed harvest of octocorals off Florida from the Coral, Coral Reefs, and Live/Hard Bottom Habitat FMP (Coral FMP); set the octocoral annual catch limit (ACL) for Georgia, South Carolina, and North Carolina equal to 0; modified management of special management zones (SMZs) off South Carolina; revised sea turtle release gear requirements for the snapper grouper fishery that were established in Amendment 15B to the Snapper Grouper FMP (SAFMC 2008); and designated new essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern in the South Atlantic. There is no bycatch associated with ocotocoral harvest within the management area of the Coral FMP since harvest is prohibited. CE-BA 2 also included an action that limited harvest and possession of snapper grouper and coastal migratory pelagics (CMP) species to the bag limit in SMZs off South Carolina. This action could reduce bycatch of regulatory discards around SMZs by restricting commercial harvest in the area, but it would probably have very little effect on the magnitude of overall bycatch of snapper grouper species in the South Atlantic.

Discards of dolphin and wahoo are small in comparison to snapper grouper species and bycatch is believed to be minimal in the recreational, charter, and headboat sectors. Action was taken in the Dolphin Wahoo FMP to reduce bycatch by prohibiting the use of surface and pelagic longline gear for dolphin and wahoo within any "time or area closure" in the South Atlantic Council's area of jurisdiction (Atlantic Coast) which is closed to the use of pelagic gear for highly migratory pelagic species.

Other actions have been taken in recently implemented amendments that could reduce bycatch of and bycatch mortality of federally managed species in the South Atlantic. Amendment 13C to the FMP for Snapper Grouper in the South Atlantic Region (Snapper Grouper FMP; SAFMC 2006) required the use of 2-inch mesh in the back panel of black sea bass pots, which has likely reduced the magnitude of regulatory discards. Amendment 16 to the Snapper Grouper FMP (SAFMC 2009) required the use of dehooking devices, which could help reduce bycatch mortality of vermilion snapper, black sea bass, gag, red grouper, black grouper, and red snapper. 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). Furthermore, Amendment 17A to the Snapper Grouper FMP (SAFMC 2010a) required circle hooks for snapper grouper species north of 28 degrees

latitude, which is expected to reduce bycatch mortality of snapper grouper species. Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) established ACLs and AMs and addressed overfishing for the following species in the snapper grouper management complex that were listed as undergoing overfishing: golden tilefish, snowy grouper, speckled hind, warsaw grouper, black sea bass, gag, red grouper, black grouper, and vermilion snapper. Golden tilefish, black sea bass, red grouper, black grouper, and vermilion snapper are no longer experiencing overfishing.

The Comprehensive ACL Amendment (SAFMC 2011a) implemented ACLs and AMs for species not undergoing overfishing in the FMPs for snapper grouper, dolphin and wahoo, golden crab, and Sargassum, in addition to other actions such as allocations and establishing annual catch targets for the recreational sector. The Comprehensive ACL Amendment (SAFMC 2011a) also established additional measures to reduce bycatch in the snapper grouper fishery with the establishment of species complexes based on biological, geographic, economic, taxonomic, technical, social, and ecological factors. ACLs were assigned to these species complexes, and when the ACL for the complex is met or projected to be met, fishing for species included in the entire species complex is prohibited for the fishing year. ACLs and AMs likely has reduced bycatch of target species and species complexes as well as incidentally caught species.

Amendment 18A to the Snapper grouper FMP (SAFMC 2012a), included actions that could reduce bycatch of black sea bass and the potential for interactions with protected species. Actions in Amendment 18A limits the number of participants in the black sea bass pot sector, requires fishermen bring pots back to port at the completion of a trip, and limits the number of pots a fishermen can deploy. Amendment 24 to the Snapper Grouper FMP (SAFMC 2011b) established a rebuilding plan for red grouper, which was overfished and undergoing overfishing. Red grouper is no longer overfished or undergoing overfishing. Amendment 24 (SAFMC 2011b) also established ACLs and AMs for red grouper, which could help to reduce bycatch of red grouper and co-occurring species.

The final rule (78 FR 23858; April 23, 2013) for Amendment 18B to the Snapper Grouper FMP (SAFMC 2013a), established an endorsement program for the commercial golden tilefish longline sector, which could have positive effects for habitat and protected species. Regulatory Amendment 14 to the Snapper Grouper FMP (SAFMC 2014) includes actions that could adjust management measures for a number of snapper grouper species, some of which could reduce the magnitude of discards. The final rule (78 FR 49183; September 12, 2013) for Regulatory Amendment 15 to the Snapper Grouper FMP (SAFMC 2013b) included actions for yellowtail snapper and gag that are expected to reduce bycatch of snapper grouper species. Regulatory Amendment 17 to the Snapper Grouper FMP includes actions that affect marine protected areas, and could reduce bycatch of many snapper grouper species, especially speckled hind and warsaw grouper.

The South Atlantic Council's For-Hire Reporting Amendment has changed the reporting frequency by headboats from monthly to weekly, and requires that reports be submitted electronically. The action is expected to provide more timely information on landings and discards. Improved information on landings would help ensure ACLs are not exceeded. Furthermore, more timely and accurate information would be expected to 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, and lead to better decisions regarding additional measures 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.

The South Atlantic Council will develop a joint amendment with the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council) to require that all federally permitted charter vessels report landings information weekly to the Southeast Fisheries Science Center (SEFSC) electronically. Additionally, the Gulf of Mexico and South Atlantic Councils will also begin development of a joint amendment to require that all federally permitted commercial fishing vessels in the southeast also report their logbook landings information electronically. These future actions will help to improve estimates on the composition and magnitude of catch and bycatch of species affected by this amendment, as well as all other federally managed species in the southeast region.

Additional information on fishery related actions from the past, present, and future considerations can be found in Chapter 6 (Cumulative effects) of the Comprehensive AM and Dolphin Allocation Amendment.

1.5 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. As mentioned in the above section, the South Atlantic For-Hire Reporting Amendment includes an action to enhance landings data reporting in the headboat sector. Better bycatch and discard data 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, and lead to better decisions regarding additional measures 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. These improvements in harvest monitoring efforts in the headboat sector, will also be extended to the charter and commercial sectors of all fisheries in the southeast region.

Modifying the system of AMs to be consistent for all species in the snapper grouper fishery and for golden crab is unlikely to result in significant ecological effects, positive or negative, due to changes in bycatch. If fishermen continue to fish for species that co-occur with a stock that has been closed to harvest due to implementation of a modified AM under this amendment, bycatch of the prohibited species may increase during the in-season closure. However, overall, bycatch of target or non-target species is not expected to significantly increase as a result of the action in this amendment.

Dolphin and wahoo are pelagic and migratory, interacting with various combinations of species groups at different levels on a seasonal basis. Blue Ocean (2010) reported that the fishing method used to harvest dolphin in the Atlantic does little damage to physical or biogenic habitats, and that the habitat for this species remains robust and viable. The Comprehensive AM and Dolphin Allocation Amendment would not modify the gear types or fishing techniques in the dolphin segment of the dolphin wahoo fishery. Therefore, ecological effects due to changes in bycatch in this fishery are likely to be negligible if actions in this amendment are implemented. For more details on ecological effects, see **Chapters 3** and **4** of the Comprehensive AM and Dolphin Allocation Amendment.

1.6 Changes in the Bycatch of Other Fish Species and Resulting Population and Ecosystem Effects

The Comprehensive AM and Dolphin Allocation Amendment is not expected to result in major changes in bycatch of other fish species. The discard mortality rates of the assessed snapper grouper species addressed in this amendment are discussed in **Section 1.2** of this bycatch practicability analysis. Modifying the AMs to be consistent across all species in the snapper grouper FMU and for Golden Crab may increase bycatch and bycatch mortality of snapper grouper species closed to harvest due to an in-season closure. However, for many species in the FMU, in-season closures are already part of the system of AMs; therefore, compared to the status quo, changes in bycatch of target and non-target fish species are likely to be negligible. As stated earlier in this BPA, longlines gear used to harvest dolphin in the Atlantic are associated with bycatch of protected and HMS species. However, the longline component of the dolphin segment of the dolphin and wahoo fishery is very small (See **Appendix D. Table 2**), and any increase in the commercial ACL is not expected to result in an significant increase in the use of long line gear in the fishery, or associated incidental takes of protected and HMS species.

Effects on Marine Mammals and Birds

Under Section 118 of the Marine Mammal Protection Act (MMPA), the National Marine Fisheries Service (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, dolphin and wahoo, and golden crab fisheries, only the black sea bass pot is considered to pose an entanglement risk to marine mammals. The southeast U.S. Atlantic black sea bass pot sector is included in the grouping of the Atlantic mixed species trap/pot fisheries, which the 2014 Final LOF classifies as a Category II (79 FR 14418, March 14, 2014). Gear types used in these fisheries are determined to have occasional incidental mortality and serious injury of marine mammals. For the South Atlantic 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 2000. The SDDP 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 longline and hook-and-line gear components of the snapper grouper, and dolphin and wahoo fisheries in the South Atlantic are classified in the 2014 LOF as Category III fisheries, and the golden crab fishery is also classified as a Category III.

Although the black sea bass pot sector 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 sector 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 sector and large whales. NMFS' 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 exclusive economic zone 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 sector. The 2007 revisions to the Atlantic Large Whale Take Reduction Plan folded the Atlantic mixed species trap/pot fisheries into the plan (72 FR 193; October 5, 2007). The new requirements (78 FR 58249; September 23, 2013) to prohibit the use of black sea bass pots during November through April each year will help further reduce the likelihood of North Atlantic right and humpback whale entanglement in black sea bass pot gear.

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 Carolina 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 US Fish and Wildlife Service data). Interaction with fisheries has not been reported as a concern for either of these species.

Fishing effort reductions have the potential to reduce the amount of interactions between the 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, the dolphin and wahoo, and the golden crab fisheries are not likely to negatively affect the Bermuda petrel and the roseate tern.

1.7 Changes in Fishing, Processing, Disposal, and Marketing Costs

Modifying the AMs for snapper grouper species and golden crab to create a uniform regulatory environment and updating sector allocations for the dolphin segment of the dolphin and wahoo fishery are not expected to significantly alter fishing practices, processing, disposal, or marketing costs in the near or short term. In the long term, it is more likely that current fishing, processing, disposal, and marketing costs would be maintained at or near their status quo levels. Consistent AMs may help avoid ACL overages and overfishing events in the future, which would benefit the socioeconomic environment by avoiding restrictive harvest controls that would otherwise be needed to maintain harvest at sustainable levels. Using the most appropriate time series of landings data and allocation method to determine sector allocations for dolphin, are also not expected to benefit the socioeconomic environment. Because the allocation alternatives would

not change the current sector allocations by a significant degree, any impacts that may occur are likely to be minimal.

Changes in Fishing Practices and Behavior of Fishermen

The Actions proposed in the Comprehensive AM and Dolphin Allocation Amendment are not expected to change fishing practices or fishing behavior, and are likely to have little effect on the overall magnitude of discards. As stated previously, any changes to fishing behavior and subsequent changes in the level of discards or discard mortality that may result from the actions in the amendment are expected to be small, and would not jeopardize the sustainability of any target or non-target species.

1.8 Social effects of the action proposed in Regulatory Amendment 21 are addressed in Chapter 4 of the amendment.

Social effects of the actions proposed in the Comprehensive AM and Dolphin Allocation Amendment are addressed in **Chapter 4** of the amendment.

1.9 Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

The actions in the Comprehensive AM and Dolphin Allocation Amendment are not likely to change the current level of bycatch of target or non-target species in the Atlantic. Research and monitoring is ongoing to understand the effectiveness of implemented management measures from other snapper grouper, dolphin wahoo, and golden crab amendments and their effect on bycatch. 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 Approximately 20% of commercial fishermen from snapper grouper, dolphin wahoo, and Coastal Migratory Pelagics (CMP) fisheries are asked to fill out discard information in logbooks; however, a greater percentage of fishermen could be selected with emphasis on individuals that dominate landings. Recreational discards are obtained from the Marine Recreational Information Program and logbooks from the NMFS headboat program. The actions in the Comprehensive AM and Dolphin Allocation Amendment would not change any ongoing or require any new research, administrative, or enforcement costs.

Additional data collection activities for the recreational sector of the snapper grouper, dolphin wahoo, and CMP fisheries are being considered by the South Atlantic Council that could allow for a better monitoring of bycatch in the future. The South Atlantic Council is also developing an amendment to improve commercial logbook reporting for these fisheries. Some observer information for the snapper grouper fishery has been provided by the SEFSC, Marine Fisheries Initiative, and Cooperative Research Programs (CRP), but more is desired for the snapper grouper, dolphin wahoo, and CMP fisheries. Currently, for the snapper grouper fishery, headboats are required to carry observers, if selected.

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. (Foundation) conducted 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.

In the spring 2010, Archipelago Marine Research Ltd. worked with North Carolina Sea Grant and several South Atlantic Unlimited Snapper grouper Permit holders to test the effectiveness of electronic video monitoring to measure catch and bycatch. A total of 93 trips were monitored with video monitoring, 34 by self-reported fishing logbooks, and 5 by observers. Comparisons between electronic video monitoring data and observer data showed that video monitoring was a reliable source of catch and bycatch data.

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, Saltonstall-Kennedy program, and the 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 NMFS upon completion of a study.

Stranding networks have been established in the Southeast Region. The NMFS SEFSC is the base for the Southeast United States Marine Mammal Stranding Program (http://sero.nmfs.noaa.gov/pr/strandings.htm). NMFS authorizes organizations and volunteers under the MMPA to respond to marine mammal strandings throughout the United States. These organizations form the stranding network whose participants are trained to respond to, and collect samples from live and dead marine mammals that strand along southeastern United State beaches. The SEFSC is responsible for: coordinating stranding events; monitoring stranding rates; monitoring human caused mortalities; maintaining a stranding database for the southeast region; and conducting investigations to determine the cause of unusual stranding events including mass strandings and mass mortalities (http://www.sefsc.noaa.gov/species/mammals/strandings.htm).

The Southeast Regional Office and the SEFSC participate in a wide range of training and outreach activities to communicate bycatch related issues. The NMFS Southeast Regional Office issues public announcements, Southeast Fishery Bulletins, or News Releases on different topics, including use of turtle exclusion devices, bycatch reduction devices, use of methods and devices to minimize harm to turtles and sawfish, information intended to reduce harm and interactions with marine mammals, and other methods to reduce bycatch for the convenience of constituents in the southern United States. These are mailed out to various organizations, government entities, commercial interests, and recreational groups. This information is also included in newsletters and publications that are produced by NMFS and the various regional fishery management councils. Announcements and news releases are also available on the internet and broadcasted over NOAA weather radio.

NMFS established the South East Fishery-Independent Survey in 2010 to strengthen fishery-independent sampling efforts in southeast U.S. waters, addressing both immediate and long-term fishery-independent data needs, with an overarching goal of improving fishery-independent data utility for stock assessments. Meeting these data needs is critical to improving scientific advice to the management process, ensuring overfishing does not occur, and successfully rebuilding overfished stocks on schedule.

1.10 Changes in the Economic, Social, or Cultural Value of Fishing Activities and Non-Consumptive Uses of Fishery Resources

Any changes in economic, social, or cultural values are discussed in Chapter 4 of the Comprehensive AM and Dolphin Allocation Amendment.

Changes in the Distribution of Benefits and Costs

The distribution of benefits and costs expected from actions in the Comprehensive AM and Dolphin Allocation Amendment are discussed in **Chapter 3**. Economic and social effects of the action proposed in the are addressed in **Chapter 4** of this document, and these effects are discussed in relation to the baseline conditions of the fishery and fishing communities outlined in **Chapter 3** of the document.

1.11 Social Effects

The baseline social environment and social effects of the proposed actions are described in **Chapter 4** of the Comprehensive AM and Dolphin Allocation Amendment.

1.12 Conclusion

This section evaluates the practicability of taking additional action to minimize bycatch and bycatch mortality using the ten factors provided at 50 CFR section 600.350(d)(3)(i). In summary, the actions in the Comprehensive AM and Dolphin Allocation Amendment are not likely to significantly contribute or detract from the current level of bycatch in the snapper grouper fishery. The South Atlantic Council, NMFS, and the SEFSC have implemented and plan to implement numerous management measures and reporting requirements that have improved, or are likely to improve monitoring efforts of discards and discard mortality.

1.13 References

Alsop, III, F. J. 2001. Smithsonian Handbooks: Birds of North America eastern region. DK Publishing, Inc. New York, NY.

Collins, M.R., J.C. McGovern, G. R. Sedberry, H.S. Meister, and R. Pardieck. 1999. Swim bladder deflation in black sea bass and vermilion snapper: potential for increasing post-release survival. North American Journal of Fisheries Management. 19:828-832.

Cooke, S.J., D.P. Philipp, K.M. Dunmall, and J.F. Schreer. 2001. The influence of terminal tackle on injury, handling time, and cardiac disturbance of rock bass. North American Journal of Fisheries Management. Vol. 21, no. 2, pp. 333-342.

FWRI (Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute). 2012. J. O'Hop, M. Murphy, and D. Chargaris. The 2012 stock assessment report for yellowtail snapper in the South Atlantic and Gulf of Mexico. 100 Eight Avenue Southeast, St. Petersburg, Florida 33701-5020.

Harris, P. J. and J. Stephen. 2005. Characterization of commercial reef fish catch and bycatch off the southeast coast of the United States. Final Report. Cooperative Research Program Grant No. NA03NMF4540416. SEDAR 15-RD07. July 2005.

Machias, A., S. Somarkis, N. Papadroulakis, M.T. Spedicato, M. Suquet, G. Lembo, and P. Divanach. 2003. Settlement of the wreckfish (*Polyprion americanus*). Marine Biology 142:45-52.

NMFS (NOAA Fisheries Service). 2006. Endangered Species Act Section 7 Consultation on the Continued Authorization of Snapper-Grouper Fishing under the South Atlantic Snapper-Grouper Fishery Management Plan (RFFMP) and Proposed Amendment 13C. Biological Opinion. June 7.

SAFMC (South Atlantic Fishery Management Council). 1991. Amendment Number 4, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 200 pp.

SAFMC (South Atlantic Fishery Management Council). 2006. Amendment 13C to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Biological Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 631 pp. with appendices.

SAFMC (South Atlantic Fishery Management Council). 2008. Amendment 15B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Biological Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 324 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2009. Amendment 16 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery

Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 608 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2010a. Amendment 17A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 385 pp. with appendices.

SAFMC (South Atlantic Fishery Management Council). 2010b. Amendment 17B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 406 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2011a. Comprehensive Annual Catch Limit Amendment for the South Atlantic Region with Final Environmental Impact Statement, Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 755 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2011b. Amendment 24 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 256 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2011c. Comprehensive Ecosystem Based Amendment 2, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. (Amendment 23 to the Snapper Grouper FMP). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012a. Amendment 18A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012b. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013a. Amendment 18B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013b. Regulatory Amendment 15 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014. Regulatory Amendment 14 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SEDAR (Southeast Data, Assessment and Review). 2004. SEDAR 4: Deepwater Snapper Grouper Complex. Available at: http://www.sefsc.noaa.gov/sedar

SEDAR (Southeast Data, Assessment, and Review) 10. 2006. South Atlantic and Gulf of Mexico Gag Grouper. Southeast Data, Assessment and Review, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. Available at: http://www.sefsc.noaa.gov/sedar/

SEDAR 15. 2008. Stock Assessment Report 2. South Atlantic Greater Amberjack. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 17. 2008. Stock Assessment Report. South Atlantic Vermilion Snapper. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR (Southeast Data, Assessment, and Review) 24. 2010. Stock Assessment Report: South Atlantic Red Snapper. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR (Southeast Data, Assessment, and Review) 19. 2010. Stock Assessment Report: South Atlantic and Gulf of Mexico Black Grouper and South Atlantic Red Grouper. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR (Southeast Data, Assessment and Review). 2011. SEDAR 23: Goliath Grouper. Available at: http://www.sefsc.noaa.gov/sedar/Sedar

SEDAR (Southeast Data, Assessment and Review). 2011. SEDAR 25: Blueline tilefish. Available at: http://www.sefsc.noaa.gov/sedar

SEDAR (Southeast Data, Assessment, and Review) 1 Update. 2012. Stock Assessment Update: South Atlantic Red Porgy. Southeast Data, Assessment and Review, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. Available at: http://www.sefsc.noaa.gov/sedar/

SEDAR (Southeast Data, Assessment and Review). 2012. SEDAR 17: Vermilion Snapper Update. Available at: http://www.sefsc.noaa.gov/sedar

SEDAR (Southeast Data, Assessment, and Review) 17 Update. 2012. Stock Assessment Update: South Atlantic Vermilion Snapper. Southeast Data, Assessment and Review, 4055

Faber Place, Ste 201, North Charleston, S.C. 29405. Available at: http://www.sefsc.noaa.gov/sedar/

SEDAR 32. Under Development. Data Workshop Report. South Atlantic Gray Triggerfish. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

Wilde, G. R. 2009. Does venting promote survival of released fish? Fisheries 34(1):20-28.

Appendix E. Regulatory Impact Review

Appendix F. Regulatory Flexibility Analysis

Appendix G. Other Applicable Law

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.) provides the authority for fishery management in federal waters of the Exclusive Economic Zone. However, fishery management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems that support those fisheries. Major laws affecting federal fishery management decision-making are summarized below.

Administrative Procedures 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, National Marine Fisheries Service (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.

Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal activities that affect any land or water use or natural resource of a state's coastal zone be conducted in a manner consistent, to the maximum extent practicable, with approved state coastal management programs. The requirements for such a consistency determination are set forth in NOAA regulations at 15 C.F.R. part 930, subpart C. According to these regulations and CZMA Section 307(c)(1), when taking an action that affects any land or water use or natural resource of a state's coastal zone, NMFS is required to provide a consistency determination to the relevant state agency at least 90 days before taking final action.

Upon submission to the Secretary, NMFS will determine if this plan amendment is consistent with the Coastal Zone Management programs of the Atlantic states from Florida to Maine, to the maximum extent possible. Their determination will then be submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management programs for these states.

Data Quality Act

The Data Quality Act (DQA) (Public Law 106-443) effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, cartographic, narrative, or audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

Specifically, the DQA directs the Office of Management and Budget (OMB) to issue government wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by

federal agencies." Such guidelines have been issued, directing all federal agencies to create and disseminate agency-specific standards to: 1) ensure information quality and develop a pre-dissemination review process; 2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and 3) report periodically to OMB on the number and nature of complaints received.

Scientific information and data are key components of fishery management plans (FMPs) and amendments and the use of best available information is the second national standard under the Magnuson-Stevens Act. To be consistent with the DQA, FMPs and amendments must be based on the best information available. They should also properly reference all supporting materials and data, and be reviewed by technically competent individuals. With respect to original data generated for FMPs and amendments, it is important to ensure that the data are collected according to documented procedures or in a manner that reflects standard practices accepted by the relevant scientific and technical communities. Data will also undergo quality control prior to being used by the agency and a pre-dissemination review.

Endangered Species Act

The Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. Section 1531 et seq.) requires that federal agencies use their authorities to conserve endangered and threatened species. The ESA requires NMFS, when proposing a fishery action that "may affect" critical habitat or endangered or threatened species, to consult with the appropriate administrative agency (itself for most marine species, the U.S. Fish and Wildlife Service for all remaining species) to determine the potential impacts of the proposed action. Consultations are concluded informally when proposed actions may affect but are "not likely to adversely affect" endangered or threatened species or designated critical habitat. Formal consultations, including a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" endangered or threatened species or adversely modify designated critical habitat. If jeopardy or adverse modification is found, the consulting agency is required to suggest reasonable and prudent alternatives. NMFS, as part of the Secretarial review process, will make a determination regarding the potential impacts of the proposed actions.

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 NMFS) 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.

Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted." A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

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; Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are required to obtain a marine mammal authorization by registering with the Marine Mammal Authorization Program (50 CFR 229.4). They are also required to accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans. The 2014 List of Fisheries (79 FR 14418, March 14, 2014) classifies the snapper-grouper, dolphin wahoo, and golden crab fisheries as Category III fisheries. Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.

Executive Orders

E.O. 12630: Takings

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires each federal agency prepare a Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. The NOAA Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this amendment.

E.O. 12866: Regulatory Planning and Review

Executive Order 12866: Regulatory Planning and Review, 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 either implement a new fishery management plan or significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society of 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 would have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act.

On June 20, 2013, the Small Business Administration issued a final rule revising the small business size standards for several industries effective July 22, 2013 (78 FR 37398). The rule increased the size standard for Finfish Fishing from $4.0 to $19.0 million, Shellfish Fishing from $4.0 to $5.0 million, and Other Marine Fishing from $4.0 to $7.0 million. In light of these new standards, NMFS has preliminarily determined that the proposed action would not have a significant economic impact on a substantial number of small entities.

E.O. 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

This Executive Order mandates that each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions. Federal agency responsibilities under this Executive Order include conducting their programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons from participation in, denying persons the benefit of, or subjecting persons to discrimination under, such, programs policies, and activities, because of their race, color, or national origin. Furthermore, each federal agency responsibility set forth under this Executive Order shall apply equally to Native American programs. Environmental justice considerations are discussed in detail in **Section 3.3.3**.

E.O. 12962: Recreational Fisheries

This Executive Order 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, it establishes a seven-member National Recreational Fisheries Coordination Council (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. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

E.O. 13132: Federalism

The Executive Order on Federalism requires agencies in formulating and implementing policies, to be guided by the fundamental federalism principles. The Order serves to guarantee the division of governmental responsibilities between the national government and the states that was intended by the framers of the Constitution. Federalism is rooted in the belief that issues not

national in scope or significance are most appropriately addressed by the level of government closest to the people. This Order is relevant to FMPs and amendments given the overlapping authorities of NMFS, the states, and local authorities in managing coastal resources, including fisheries, and the need for a clear definition of responsibilities. It is important to recognize those components of the ecosystem over which fishery managers have no direct control and to develop strategies to address them in conjunction with appropriate state, tribes and local entities (international too).

No federalism issues have been identified relative to the actions proposed in this amendment. Therefore, consultation with state officials under Executive Order 12612 is not necessary.

Essential Fish Habitat

The amended Magnuson-Stevens Act included a new habitat conservation provision known as Essential Fish Habitat (EFH) that requires each existing and any new FMPs to describe and identify EFH for each federally managed species, minimize to the extent practicable impacts from fishing activities on EFH that are more than minimal and not temporary in nature, and identify other actions to encourage the conservation and enhancement of that EFH. To address these requirements the South Atlantic Fishery Management Council has, under separate action, approved an environmental impact statement (SAFMC 1998) to address the new EFH requirements contained within the Magnuson-Stevens Act. Section 305(b)(2) requires federal agencies to obtain a consultation for any action that may adversely affect EFH. An EFH consultation will be conducted for this action.