Regulatory Amendment 9 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region and Environmental Assessment

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ABBREVIATIONS AND ACRONYMS

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

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

REGULAOTORY AMENDMENT 9 TO THE FISHERY MANAGEMENT PLAN FOR THE SNAPPER GROUPER FISHERY OF THE SOUTH ATLANTIC REGION

INCLUDING AN ENVIRONMENTAL ASSESSMENT

Proposed actions:	Establish trip limits for black sea bass, vermilion snapper, gag, and greater amberjack. Specify split season quotas for the black sea bass fishery and spawning season closure under the current Framework Procedure.
Lead agency:	FMP Amendment – South Atlantic Fishery Management Council EA - NOAA Fisheries Service
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ABSTRACT

Amendments 13C, 16, and 17B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region implemented harvest reductions, recreational and commercial allocations, recreational and commercial annual catch limits (ACLs), and accountability measures (AMs) for black sea bass, gag, and vermilion snapper, which are undergoing overfishing. ALCs and AMs for greater amberjack are being established in the Comprehensive ACL Amendment for the South Atlantic Region. The current catch limits, in combination with management measures designed to manage these stocks, have the potential to encourage derby style fisheries. As overfishing is ended for black sea bass, gag, and vermilion snapper and biomass increases, their respective ACLs are likely to be met earlier and earlier each fishing season. An increasingly restrictive regulatory environment compounds this problem in the form of effort shifts from other more restricted fisheries into the fisheries for black sea bass, gag, greater amberjack, and vermilion snapper. In order to prevent the progressive shortening of fishing seasons for these species Regulatory Amendment 9 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 9) is being developed to establish trip limits for black sea bass, vermilion snapper, greater amberjack, and vermilion snapper. Regulatory Amendment 9 also includes alternative for split season quotas and a spawning season closure for the black sea bass fishery under the current Framework Procedure for Setting Total Allowable Catch for Snapper Grouper (Framework).

The current Framework allows for adjustments to be made to harvest parameters such as quotas, trip limits, bag limits, size limits, and seasonal or area closures via regulatory amendment. Regulatory amendments require less time to implement than a standard fishery Management Plan amendment, and are effective until modified unlike temporary or emergency rules.

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1.1 Background

Management of the Federal snapper grouper fishery located off the South Atlantic in the 3-200 nautical mile (nm) U.S. Exclusive Economic Zone (EEZ) is conducted under the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 1983) (Figure 1-1). The FMP and its amendments are developed under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), other applicable Federal laws, and executive orders (E.O.s) and affect the management of 73 species, listed below (Appendix S. Other Applicable Law).

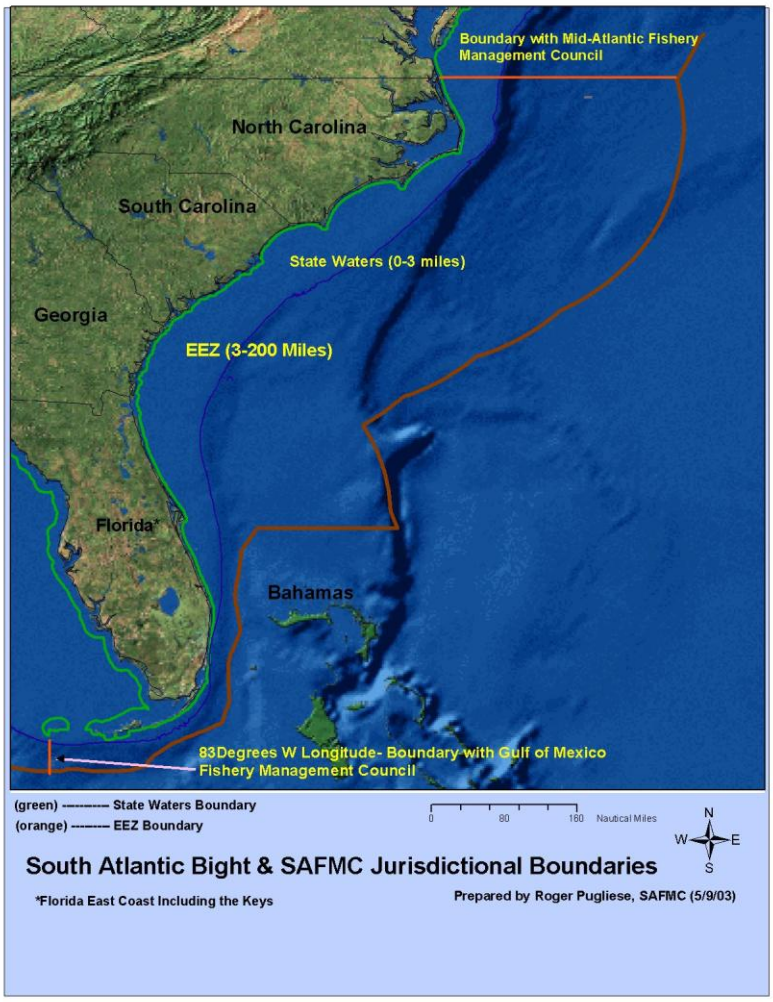


Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

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

1.2 Purpose of the Proposed Action

The purpose of the proposed action is to prevent the potential formation of derby fisheries for black sea bass, vermilion snapper, greater amberjack, and gag, through the implementation of trip limits, split season quotas, and spawning season closures.

1.3 Need for the Proposed Action

The need for this action is to comply with the Magnuson-Stevens Fishery Conservation and Management Act's national standards, to ensure equity in harvest opportunities, and promote safety at sea through the prevention of derby style fisheries, while minimizing adverse socioeconomic impacts.

1.4 Background

Black Sea Bass

Black sea bassis undergoing overfishing and being managed under a rebuilding plan. Management measures to rebuild the stock is currently in place, including a commercial quota and recreational allocation, now referred to as annual catch limits (ACLs). Seven other snapper grouper species are also undergoing overfishing. Harvest restrictions placed on those, and other co-occurring species such as vermilion snapper and gag, has led to some effort shifts to fisheries such as black sea bass. Because black sea bass, vermilion snapper, and gag are managed with commercial quotas, which have been reduced in recent years to end overfishing, effort shifts to those fisheries in addition to increased biomass levels, have resulted in their respective quotas being met earlier each year. The June-May fishing year for black sea bass closed on December 20, 2009, and October 6, 2010.

Amendment 13C to the Fishery Management Plan for the Snapper Grouper Fishery of the Southeast Region implemented management measures to reduce harvest of black sea bass by 35%. The total allowable catch (TAC) was reduced to 847,000 lbs whole weight, and of that TAC, 309,000 lbs gutted weight was allocated to the commercial sector as the annual commercial quota. After the quota is met all pots are required to be removed from the water. The fishing season was also changed to from the calendar year to June 1 through May 31. Additionally, the bag limit was reduced from 20 to 15 black sea bass per person per day and the minimum size limit was increased to 12 inches total length.

Gag

Amendment 16 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 16) implemented a new commercial quota for gag which is 352,940 lbs gutted weight, which was intended to cause an initial 35% reduction in commercial harvest. In addition to reducing the quota for gag, Amendment 16 also includes a management measure that prohibits all harvest of shallow water grouper when the gag quota is met. Amendment 17B, if approved and implemented through rulemaking, would establish a group commercial annual catch limit (ACL) for gag, red grouper, and black grouper, of 662,403 lbs gutted weight,which is equivalent to the expected catch resulting from the implementation of management measures for red grouper and black grouper in Amendment 16 and the gag ACL specified in Amendment 16. Commercial possession of shallow water groupers would be

prohibited when either the gag or the gag, black grouper, and red grouper ACL is projected to be met. The low quota combined with a rebuilding stock, could lead to the quota being met more and more quickly overtime, encouraging a derby style fishery to form.

Vermilion Snapper

Overfishing of vermilion snapper during 1999-2001 was addressed in Amendment 13C. At that time it was unclear if vermilion snapper were overfished in addition to experiencing overfishing based upon the a poorly defined stock recruitment relationship. Therefore, the Council and the Council's Scientific and Statistical Committee (SSC) felt it was best to account for this uncertainty by capping commercial landings at 1,100,000 lbs, which was slightly lower than the commercial portion of optimum yield (1,114,310 lbs gutted weight), until the 2007 stock assessment was completed.

A new aged based assessment for vermilion snapper completed in 2008 verified vermilion snapper was experiencing overfishing but indicated the stock was not overfished. Based on the results of the new assessment, Amendment 16 reduced commercial harvest of vermilion snapper by 29%, and implemented a split season quota 315,523 pounds gutted weight during January through June, and 302,523 pounds gutted weight from July through December. Additionally, recreational harvest of vermilion snapper is prohibited from November through March each year. As the vermilion snapper stock rebuilds there will be more fish available for harvest, increasing the chance that the quotas will be met sooner each year, and could also result in a derby fishery. In 2010, the January through June quota was met on March 19, 2010 and the the July through December on October 7, 2010. The quota closure is expected even earlier in 2011 if no trip limits are implemented to prevent such an event.

Greater Amberjack

Amendment 9 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region established measures for greater amberjack that: reduced the recreational bag limit from 3 to 1 greater amberjack per person per day; maintained the prohibition on harvest and possession in excess of the bag limit during April; established a quota at 63% of 1995 landings (quota=1,169,931 pounds gutted weight); began the fishing year on May 1; prohibited sale of fish harvested under the bag limit when the season is closed; and prohibited coring. Currently, there is a 1,000 pound gutted weight trip limit, which is effective each year until the quota is reached. Since the trip limit was implemented, the commercial quota for greater ameberjack has never been reached. With increased restrictions on other snapper grouper species through Amendments 13C and 16, there has been an interest in increasing the trip limit for greater amberjack.

Framework Actions

The current Framework Procedure for Setting Total Allowable Catch for Snapper Grouper (Framework) allows for adjustments to be made to harvest parameters such as quotas, trip limits, bag limits, size limits, and seasonal or area closures via regulatory amendment. Regulatory amendments are the type of amendment associated with implementing framework actions. Regulatory amendments require less time to implement than a standard Fishery Management Plan amendment, and are effective until modified unlike temporary or emergency rules. Frameworkactions are implemented by the Regional Administrator and require less public and

Council participation when compared to the lengthy amendment process. The majority of public participation and Council weigh-in on framework issues typically takes place when the framework procedures are initially drafted during the amendment process. Eliminating these time-consuming factors would enable harvest modifications to be expedited when they are most needed. The overall harvest limitations for black sea bass, gag, and vermilion snapper were implemented through the amendments mentioned above, which were subjected to many levels of Council and public input. Therefore, establishing trip limit or split season quota within the bounds of the previously set harvest levels fall within the scope of adjustments able to made through regulatory amendment.

1.5 History of Management for Black Sea Bass, Gag , Greater Amberjack, and Vermilion Snapper

The snapper grouper fishery is highly regulated; some of the species included in this Fishery Management Plan (FMP) have been regulated since 1983. A detailed history of management for all species in the snapper grouper fishery management unit may be found in **Appendix T**. Below is an annotated list of FMP amendments that contained actions specifically related to black sea bass, vermilion snapper, and gag.

Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 1983

The original Fishery Management Plan (FMP) included provisions to prevent growth overfishing in thirteen species in the snapper grouper complex and established a procedure for preventing overfishing in other species; established minimum size limits for red snapper, yellowtail snapper, red grouper, Nassau grouper, and black sea bass, a 4" trawl mesh size to achieve a 12" total length minimum size limit for vermilion snapper; and included additional harvest and gear limitations. Regulatory Amendment 1 (1987) implemented special management zones (SMZ) off South Carolina and Georgia.

Amendment 4 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 1991

Amendment 4 prohibited the use of various gear, including fish traps, the use of bottom longlines for wreckfish, and powerheads in special management zones off South Carolina; established bag limits and minimum size limits for several species; established income requirements to qualify for permits; and required that all snapper grouper species possessed in South Atlantic Federal waters must have heads and fins intact through landing.

Regulatory Amendment 5 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 1992

Regulatory Amendment 5 modified the definition of black seabass pots, allowed multi-gear trips, and allowed retention of incidentally caught fish.

Amendment 9 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region1997

Amendment 9 imposed the following regulatory changes for black sea bass, vermilion snapper, gag, and greater amberjack:

- Increased the black sea bass minimum size limit from 8" TL to 10" TL for both recreational and commercial fishermen,established a recreational bag limit of 20 black sea bass per person per day, ; required escape vents and escape panels with degradable fasteners in black sea bass pots;
- Increased the recreational vermilion snapper minimum size limit from 10" to 11" TL and retained the current 10-fish bag limit;
- Increased the gag minimum size limit from 20" TL to 24" TL for both recreational and commercial fishermen, prohibited harvest and possession of gag in excess of the bag limit during March and April, prohibited purchase and sale of gag during March and April, and specified that within the 5-fish aggregate grouper bag, no more than 2 fish may be gag grouper or black grouper (individually or in combination); and
- Established measures for greater amberjack that reduced the recreational bag limit from 3 to 1 greater amberjack per person per day, maintained the prohibition on harvest and possession in excess of the bag limit during April, established a quota at 63% of 1995 landings (quota=1,169,931 pounds), began the fishing year on May 1, prohibited sale of fish harvested under the bag limit when the season is closed, and prohibited coring.

Amendment 11 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 1998

Amendment 11 amended the FMP to make definitions of maximum sustainable yield (MSY), optimum yield, overfishing, and overfished consistent with "National Standard Guidelines". Amendment 11 also identified and defined fishing communities, addressed bycatch management measures, and defined the red snapper F_{MSY} SPR proxy as $F_{30\%SPR}$.

Amendment 13C to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 2006

Amendment 13C to the Snapper Grouper FMP became effective October 23, 2006. The amendment addresses overfishing for snowy grouper, golden tilefish, black sea bass, and vermilion snapper. The amendment also allows for a moderate increase in the harvest of red porgy as stocks continue to rebuild.

Amendment 15A to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 2008

Amendment 15A to the Snapper Grouper FMP became effective was approved by the Secrtary of Commerce on March 14, 2008.

. The amendment was developed by the Council to: 1) update management reference points for snowy grouper, black sea bass, and red porgy; 2) modify rebuilding schedules for snowy grouper and black sea bass; 3) define rebuilding strategies for snowy grouper, black sea bass, and red porgy; and 4) redefine the minimum stock size threshold for the snowy grouper stock. was approved March 14, 2008.

Amendment 16 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 2009

The amendment includes measures to end overfishing for gag and vermilion snapper. For **gag** these measures include: 1) define interim allocations based on landings at 51% commercial and 49% recreational; 2) establish a January through April spawning season closure for gag for both commercial and recreational sectors where no fishing for and/or possession of gag would be

allowed. In addition, during the closure no fishing for and/or possession of the following species would be allowed - black grouper, red grouper, scamp, red hind, rock hind, yellowmouth grouper, tiger grouper, yellowfin grouper, graysby, and coney; 3) establish a directed commercial quota of 352,940 pounds (gutted weight); 3) reduce the current 5-grouper aggregate recreational bag limit to a 3-grouper aggregate bag limit and reduce the existing bag limit from 2 gag or black grouper to 1 gag or black grouper combined; and 4) exclude the captain and crew on for-hire vessels from possessing a bag limit for groupers. For **vermilion snapper** these measures include: 1) define interim allocations based on landings of 68% commercial and 32% recreational; 2) establish a commercial quota of 315,523 pounds gutted weight January through June; and 302,523 pounds gutted weight July through December; 3) reduce the recreational bag limit from 10 fish to 5 fish; and 4) establish a recreational closed season November through March.

Amendment 17B to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 2010

The amendment will establish Annual Catch Limits (ACLs) and Accountability Measures (AMs) and address overfishing for eight species in the snapper grouper management complex currently listed as undergoing overfishing (golden tilefish, snowy grouper, speckled hind, warsaw grouper, black sea bass, gag, red grouper, and vermilion snapper). Amendment 17B also includes actions for black grouper, which has recently been determined to not be overfished or experiencing overfishing. Measures in Amendment 17B include the establishment of a combined ACL for gag, black grouper, and red grouper of 662,403 lbs (gutted weight) for the commercial fishery, and 648,663 lbs (gutted weight) for the recreational fishery, and establishment of accountability measures as necessary.

Amendments 18A and 18B to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region 2011

Amendment 18A currently includes several management alternatives including modifications to the black sea bass pot and golden tilefish fisheries as well as actions to improve data collection. Amendment 18B includes actions to extend the fishery management unit north of the area of current jurisdiction and address essential fish habitat for snapper-grouper species in these areas.

Management Objectives

Objectives of the Snapper Grouper FMP, as modified through Amendment 17A 2010, are shown below.

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

13. Evaluate and minimize localized depletion.
14. End overfishing of snapper grouper stocks undergoing overfishing.
15. Rebuild stocks declared overfished.

2 Actions and Alternatives

Species affected by the proposed actions and alternatives below include black sea bass, vermilion snapper, greater amberjack, and gag. Alternatives the Council considered but eliminated from detailed study during the development of this amendment are described in **Appendix A**.

The environmental assessment (EA) provides relevant background information and in-depth analyses of each action alternative considered by the Council. Thus, the subject EA complies with Section 102 of the National Environmental Policy Act by providing the Secretary of Commerce all the information needed to make a prudent decision regarding approval of the amendment and subsequent implementation through the rulemaking process.

2.1 Harvest Management Measures for Black Sea Bass

Alternative 1 (No Action). ~~Quota~~ Commercial ACL is 309,000 lbs gutted weight. There is no trip limit.

Alternative 2. Establish a commercial trip limit for the black sea bass fishery (all gear)

Sub- Alternative 2a. Establish a 500 lb gw (590 lb ww) trip limit.

Sub- Alternative 2b. Establish a 750 lb gw (885 lb ww) trip limit.

Sub- Alternative 2c. Establish a 1,000 lb gw (1,180 lb ww) trip limit.

Sub- Alternative 2d. Establish a 1,250 lb gw (1,475 lb ww) trip limit.

Sub- Alternative 2e. Establish a 1,000 lb gw (1,180 lb ww) trip limit; reduce to 500 lbs gutted weight (590 lb ww) when 75% of the quota is met.

Sub- Alternative 2f. Establish a 2,000 lb gw (2,360 lb ww) trip limit.

Sub- Alternative 2g. Establish a 2,500 lb gw (2,950 lb ww) trip limit. *(added by Council at Sept. 2010 meeting)*

Sub- Alternative 2gh. Establish a ~~trip limit that will keep the fishery open all year (~~340 lbs gw trip limit~~).~~ *IPT suggests just changing text to 340 lb trip limit since different trip limits would keep the fishery open all year depending on year chosen.*

~~**Alternative 3.** Establish separate trip limits for the pot and other fisheries (hook and line, spear).~~
~~**Alternative 3a.** Establish a 500 lb gw (590 lb ww) trip limit for pot fishery and a 50 lb gw (59 lb ww) trip limit for other fisheries.~~
~~**Alternative 3b.** Establish a 750 lb gw (885 lb ww) trip limit for pot fishery and a 75 lb gw (89 lb ww) trip limit for other fisheries.~~
~~**Alternative 3c.** Establish a 1,000 lb gw (1,180 lb ww) trip limit for pot fishery and a 100 lb gw (118 lb ww) trip limit for other fisheries.~~
~~**Alternative 3d.** Establish a trip limit for the pot (340 lb gw) and other fisheries (17 lb gw) that will keep the fishery open all year.~~ *(Moved to Considered but rejected per Sept. 2010 Council motion)*

~~**Alternative 3.** Establish a split commercial season for black sea bass.~~

Sub- Alternative 3a. Separate commercial ACLs quotas for June-November and December-May based on historical proportions of landings.

Sub-Alternative 3b. Separate commercial ACLs quotas for June-December and January-May based on historical proportions of landings.

Sub-Alternative 3c. Carry over unused portion of commercial ACL from first part of fishing year to second portion of season.

Sub-Alternative 3d. Carry over unused portion of commercial ACL from second part of fishing year to next fishing year.

Sub-Alternative 3e. Allow fishing for black sea bass with black sea bass pots until all but 100,000 pounds is harvested, and allow hook and line fishing to continue. Start second season for the remainder of the quota on June 1 of every year.

Alternative 3f. Close the pot portion of the fishery until all but 50,000 lbs of the commercial ACL is left and reopen the commercial pot fishery on January 1. *(added by Council at Sept. 2010 meeting)*

Alternative 4. Change the black sea bass fishing year (November - October) and establish a split season with November 1st – April 30th and May 1st – October 31st. Catch will be apportioned based on average landings from the last 5 years.

Alternative 5. Change the black sea bass fishing year (January-December) and establish a split season with Jan 1st – June 30th and July 1st – December 31st. Catch will be apportioned based on average landings from the last 5 years.

IPT suggests Alternative 3 be restructured as indicated below for ease of analyses. The Council made a motion that Sub-Alternatives 3c and 3d should be removed from Amendment 18A without stating where they should go. The IPT recommends the Council either formally add these alternatives from Amendment 18A to Reg. Amendment 9, or formally move them the considered but rejected section of Amendment 18A

Alternative 3. Retain the June-May fishing year. Specify separate commercial ACLs for June-November and December-May based on landings from 2006-2009.

Alternative 4. Retain the June-May fishing year. Specify commercial ACLs for June-December and January-May based on landings from 2006-2009.

Alternative 5. Change the black sea bass fishing year to November-October. Specify separate commercial ACLs for November-April 30 and May 1-October based on landings from 2006-2009.

Alternative 6. Change the black sea bass fishing year to January-December. Separate commercial ACLs for January-June and July-December based on landings from 2006-2009.

Alternative 7. Under **Alternatives 3-6**, carry over unused portion of commercial ACL from first part of fishing year to second portion of season.

Alternative 8. Under **Alternatives 3-6**, carry over unused portion of commercial ACL from second part of fishing year to next fishing year.

Alternative 9. Under **Alternatives 3-6,** close fishing for black sea bass with pots when all but 100,000 pounds is harvested. Fishing with other allowable gear types would occur for the remainder of the sub-season. Start second season for the remainder of the quota for all allowable gear types.

Alternative 10. Under **Alternatives 3-6,** close fishing for black sea bass with pots when all but 50,000 pounds is harvested. Fishing with other allowable gear types would occur for the remainder of the sub-season. Start second season for the remainder of the quota for all allowable gear types. *(added by Council at Sept. 2010 meeting)*

Alternative 11 ~~6~~. Close the pot fishery when 90% of the commercial ACL is met.

Alternative 12 ~~6~~. Establish a spawning season closure for black sea bass.
(the sub-alernatives below were removed from Amendment 18 and incorporated here per Sept. 2010 Council motion)

Sub-Alternative ~~6a~~12a: Implement a March 1-April 30th spawning season closure for black sea bass, would apply to commercial and recreational sectors.

Sub-Alternative ~~6b~~12b: Implement an April 1st-May 31st spawning season closure for black sea bass, would apply to commercial and recreational sectors.

Sub -Alternative ~~6c~~ 12c: Implement a March 1st- May 31st spawning season closure for black sea bass, would apply to commercial and recreational sectors.

Sub-Alternative ~~6d~~12d: Implement a May 1st- May 31st spawning season closure for black sea bass, would apply to commercial and recreational sectors.

IPT Note
The type of control specified by Alternatives 7 and 8 is going to put a lot of pressure on the Center to monitor the quota. As usual, we probably will end up with closing dates that are projected rather than observed. And given that the season is short, the projections might have to be made before the season even begins. If this is the case, then we might as well just specify a fixed season for pot fishing and not worry about monitoring and projections.

IPT Suggestion
Specify two seasons, one in which all gears may participate, and the other for all gears except pots. Specify the fishing year so that one of the seasons corresponds to the traditional winter pot fishery. The Nov-Oct fishing year probably would fit this objective best. Pot fishing would be allowed from Nov-April only. Realistically, given the low ACL for sea bass, this season probably would close in Dec or Jan, but it would allow pots to fish in the winter when they are most efficient and would allow other gears to fish in winter and summer months.

2.1.1 Comparison of Alternatives

No Action Alternative 1 would not implement any regulations to slow down the rate at which the quota is being met for black sea bass. **Alternative 2** would consider a single trip limit for black sea bass harvested with pot and hook and line. Based on estimated data for the June 2009-May 2010 fishing year, a 500 lb gutted weight trip limit (**Sub-Alternative 2a**) would keep the fishery open through February 2010 and almost two months longer than the **No Action Alternative 1.** Trip limits of 750 to 1,250 lbs gutted weight would result in January closures (**Sub-Alternatives 2b-2d**), and **Sub-Alternative 2e**, which would reduce a 1,000 lb gutted weight trip limit to 500 lbs gutted weight when 75% of the quota is met would have a similar effect as **Sub-Alternative 2a**. **Sub-Alternative 2f** would establish a 2,000 lb gutted weight (2,360 lb whole weight) trip limit, under **Sub-Alternative 2f** the expected quota closure dates would be almost identical to the No Action **Alternative 1** and would have little effect of extending the black sea bass fishery. **Sub-Alternative 2g** would establish a 2,500 lb gutted weight (2,775 lb whole weight) tip limit. As with **Sub-Alternative 2f**, a 2,500 lb trip limit would provide little effect on extending the fishing season for black sea bass. **Alternative 2h** would specify a trip limit that would allow the black sea bass fishery to remain open throughout the June-May fishing year.

Under **Alternatives 3**, the second portion of the fishing season would begin in December when fish houses usually shut for Christmas (Tom Burgess, pers.com.). **Alternative 5** would change the fishing year to November-October and divide the fishing season into November-April and May-October. The commercial quota would be apportioned into seasons based on average landings from 2006-2009. While this alternative would help to maintain the winter commercial fishery for the black sea bass and provide some relief from the developing derby conditions, a May 1 start for the second half of the fishing year could result in substantial fishing occurring during a portion of peak spawning. Splitting the harvest season into two components under **Alternatives 3-6** would allow black sea bass fishermen to capitalize on the resources over a longer period of time, rather than in one compressed season. Establishing two commercial fishing seasons would ensure the fishery two distinct opportunities for harvest. **Alternatives 3-6** would not set a trip limit so there would not be a problem with fishermen unexpectedly exceeding the trip limit and having to release black sea bass from pots, which could result in some discard mortality. Given the current level of fishing pressure, the quotas would be expected to met early during each fishing season for the four sub-alternatives. This would result in periods of time of no fishing for black sea bass with pots, which would have a positive biological effects for black sea bass, which is overfished and in a rebuilding plan as well as protected species that have the potential of becoming entangled in pot lines. Furthermore, an early closure during December-May under **Alternative 3**, January-May under **Alternative 4**, November-April under **Alternative 5**, and January-June under **Alternative 6** would protect black sea bass when they are in spawning condition.

Alternative 7 would allow an unused portion of a quota during the first part of a fishing season to be used in the second portion of the same season. **Alternative 8** would allow an unused

portion of a quota during the second portion of a fishing season to be used during the next fishing year. Adding the unused portion of a quota to the following fishing could result in the ACL for the the following portion of the fishing year to be exceeded and trigger AMs. Furthermore, if the amount of quota carried forward was large enough, the ABC or OFL could be exceeded and the fishery would be considered to be experiencing overfishing. Therefore, while it is feasible to carry forward an unused portion of a quota from the first part of a fishing year into the second, there are problems associated with carrying quota into a new fishing year.

Alternative 9 would be expected to result in early closures when applied to **Alternatives 3-6**. Closures during March-May peak spawning for black sea bass would be expected under **Alternative 3**, **4,** and **6**. **Alternative 5** could allow fishing to occur during the May portion of peak spawning. **Alternative 10** would be expected to result in early closures when applied to **Alternatives 3-6**. Closures during March-May peak spawning for black sea bass would be expected under **Alternative 3** and **Alternative 4**. **Alternatives 5** and **6** could allow fishing to occur during the May and March portions of peak spawning, respectively. **Alternative 11** would be expected to reduce bycatch mortality of black sea bass to some degree by allowing a small harvest of black sea bass after the majority of the quota has been harvested with pot gear.

Sub-Alternative 12a would encompass a larger portion of the March-May peak spawning season for black sea bass than **Sub-Alternatives 12b** and **12c**. March and April accounted for 16% of black sea bass landings during the 2005-2009 fishing year. **Sub-Alternative 12b**, would not have as great a biological benefit as **Sub-Alternative 12a** because it would not include the month of March when a large proportion of the population is in spawning condition. April and May accounted for 18% of the total landings during the 2005-2009 fishing year but only 10% of the commercial sector occurred during those months. The biological benefit of **Sub-Alternative 12c** would be greatest of all the alternatives considered because it would encompass the entire March-May period of peak spawning. The biological benefit of **Sub-Alternative 12d** would be least of the action alternatives because it would only close May when a small proportion of the population is in spawning condition relative to March and April. The biological benefit to black sea bass, the order of sub-alternatives from greatest benefit to least is: **Sub-Alternative 12c; Sub-Alternative 12a; Sub-Alternative 12b;** and **Sub-Alternative 12d**.

Insert Socioeconomic comparison

Table 2-1. Comparison of effects of trip limits, split seasions, and spawning season closures for black sea bass.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action)	(+-) there would be no biological effect other than the continued rebuilding of the stock because the fishery would still close when the quota is met, it would just be met sooner and sooner each year. The earlier the ACL is met the more likely the spawning stock would protected during spawning season in March-May.	(-) The fishing season would the shortest under this alternative, reducing the opportunity to fish.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 2 Comercial trip limit for BSB	(+-) Because the fishery is managed through a quota, and the quota would remain the same there would be no significant biological impact. However, under larger bag limits the fishery is more likely to reach the ACL before peak spawning season, which could help protect the spawning stock.	The smallest trip limits may reduce the overall number of trips because large vessels would not realize adequate prfits from sales to counter the cost of going out on a short trip.
Alternative 3 Separate commercial ACLs for June-November and December-May based on landings from 2006-2009	(+-) Overall there would not be asignificant biological impact since fishing would end when the split season ACL is met. However, there is a greater likelihood that fishing would take place during spawning season if the Dec.-May ACL is not met early.	
Alternative 4 Separate commercial ACLs for June-December and January-May based on landings from 2006-2009.	(+-) Overall there would not be a significant biological impact since fishing would end when the split season ACL is met. However, there is a greater likelihood that fishing would take place during spawning season if the Jan.-May ACL is not met early.	
Alternative 5 November-October fishing year and separate commercial ACLs for November-April 30 and May 1-October based on landings from 2006-2009.	(+-) Overall there would not be a significant biological impact since fishing would end when the split season ACL is met. However, there is a greater likelihood that fishing would take place during spawning season.	
Alternative 6 January-December fishing year and separate commercial ACLs for January-June and July-December based on landings from 2006-2009.	(+-) Overall there would not be a significant biological impact since fishing would end when the split season ACL is met. However, there is a greater likelihood that fishing would take place during spawning season if the Jan.-June ACL is not met early.	
Alternative 7 Carry over unused portion of commercial ACL from first part of fishing year to second portion of season.	(+-) Overall there would not be a significant biological impact since fishing would end when the split season ACL is met. However, there is a greater likelihood that fishing would take place during spawning season.	

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 8 carry over unused portion of commercial ACL from second part of fishing year to next fishing year.	(-) The ACL could be exceeded, and the carry over amount could be large enough to exceed the ABC or OFL.	
Alternative 9 Close pot sector when all but 100,000 lbs is harvested, other allowable gear types would be allowed, start second season for the remainder of the quota for all allowable gear types.	(+-) Could result in early closures when applied to Alternatives 3-6, the fishing during the spawning season would cease under Alternatives, 3, 4, and 6. Alternative 6 could allow fishing during the spawning season. Overall there is expected to be no significant biological impact.	
Alternative 10 Close pot sector when all but 50,000 lbs is harvested, other allowable gear types would be allowed, start second season for the remainder of the quota for all allowable gear types.	(+-) Could result in early closures when applied to Alternatives 3-6, the fishing during the spawning season would cease under Alternatives, 3 and 4. Alternatives 5 and 6 could allow fishing during the spawning season. Overall there is expected to be no significant biological impact.	
Alternative 11 Close pot fishery when 90% of the commercial ACL is met.	(+) May reduce bycatch mortality by allowing some small amount of harvest after the ACL has been met for pot gear.	
Alternative 12 Spawning season closure for black sea bass.	(+) Alternatives that encompass the March-May spawning season would be most beneficial.	

(-) overall negative impacts, (+) overall positive impacts, (- +) neutral impacts

2.2 Trip Limits for Vermilion Snapper

Alternative 1 (No Action). Commercial ACL ~~quota~~ is 315,523 lbs gw (350,231 lbs ww) during January-June and 302,523 lbs gw (335,800 lbs ww) during July-December. There is no commercial trip limit.

Alternative 2. Establish a 1,000 lb gw (1,110 lb ww) commercial trip limit. (Snapper Grouper AP preferred alternative from June 2008).

> **Sub-Alternative 2a.** Establish a 1,000 lb gw (1,110 lb ww) commercial trip limit and reduce to 500 lbs gw (555 lbs ww) when 75% of the quota is met. (*IPT needs to which season? The first or second or both for all these alternatives?)*

Alternative 3. Establish a 1,500 lb gw (1,665 lb ww) commercial trip limit. *(added by the Council at the Sept. 2010 meeting)*

Alternative ~~3~~4. Establish a 750 lb gw (833 lb ww) trip limit.

Sub-Alternative ~~3~~4a. Establish a 750 lb gw (833 lb ww) commercial trip limit and reduce to 400 lbs gw (444 lbs ww) when 75% of the ACL is met.

Alternative5. Establish a 500 lb gw (555 lb ww) commercial trip limit.

Alternative ~~5~~ 6. Establish a 400 lb gw (444 lb ww) commercial trip limit.

2.2.1 Comparison of Alternatives

No Action **Alternative 1** would not implement any regulations to slow down the rate at which the quota is being met for vermilion snapper and provide no relief to derby conditions that may be occurring. **Alternative 1** could have positive biological effects if effort is reduced for long periods of time including a portion of the time of peak spawning, which occurs during June-August. However, **Alternative 1** could also have negative biological effects when fishermen target co-occurring species and discard dead vermilion snapper. **Alternative 2** could be expected to extend the fishing season by about a month for both July-December and January-June. Reducing the trip limit from 1,000 lb gutted weight to 500 lb gutted weight during July-December 2009 and January-June 2010 (**Sub-Alternative 2a**) would extend the fishing season by approximately two weeks. **Alternative 3** could be expected to extend the fishing season by about three weeks for both July-December and January-June.

Alternative 4 would be expected to extend the fishing by about two months during the July-December 2009 and January-June 2010 fishing years. Reducing the trip limit to 400 lbs gutted weight when 75% of the ACL is met (**Sub-Alternative 4a**) would be expected to extend the fishing season by about two weeks. **Alternative 5** (500 lb gutted weight trip limit) would have been expected to extend the June-December 2009 fishing season through November; whereas during January-June, this trip limit might keep the season open through the end of May due to a lower number of trips and a greater percentage of trip being constrained by the trip limit. Under **Alternative 6**, the ACL would likely have been met in December for the June-December 2009 fishing and June during January-June 2010. Overall, a trip limit between a 400 and 500 lb gutted weight would be needed to keep the fishery open for the whole fishing seasons.

Insert socioeconomic comparison

Table 2-2. Comparison of effects of trip limits on vermilion snapper.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action)	(+-) Overall no significant biological impact is expected. Could reduce effort for long periods of time, but could also lead to increased dead discards when fishermen target co-occuring species during the quota closure.	
Alternative 2 1,000 lb gw commercial trip limit	(+-) Because vermilion is managed under a split season ACL already, there is no significant biological benefit expected from trip limits because the ACLs remain the same regardless of the trip limit.	

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 3 1,500 lb gw commercial trip limit	(+-) Because vermilion is managed under a split season ACL already, there is no significant biological benefit expected from trip limits because the overall harvest would remain the same regardless of the trip limit.	
Alternative 4/4a. 750 lb gw trip limit/reduce to 400 lbs gw when 75% of the ACL is met	(+-) There is no significant biological benefit expected from trip limits, however, this alternative may hedge against an ACL overage by slowing the pace of harvest when the ACL is close to being caught.	
Alternative 5 500 lb gw commercial trip limit	(+-) Because vermilion is managed under a split season ACL already, there is no significant biological benefit expected from trip limits because the overall harvest would remain the same regardless of the trip limit.	
Alternative 6 400 lb gw commercial trip limit	(+-) Because vermilion is managed under a split season ACL already, there is no significant biological benefit expected from trip limits because the overall harvest would remain the same regardless of the trip limit.	

(-) overall negative impacts, (+) overall positive impacts, (- +) neutral impacts

2.3 Trip Limit for Gag

Alternative 1 (No Action). Quota is 352,940 lbs gw. Seasonal closure occurs during January-April. There is no trip limit.

Alternative 2. Establish a 1,000 lb gw (1,180 lb ww).

Sub-Alternative 2a. Establish a 1,000 lb gw (1,180 lb ww) trip limit and reduce to 100 lbs gw (118 lbs ww) when 75% of the quota is met.

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

Sub-Alternative 3a. Establish a 750 lb gw (885 lb ww) trip limit and reduce to 100 lbs gw (118 lbs ww) when 75% of the quota is met.

2.3.1 Comparison of Alternatives

No Action Alternative 1 would retain the measures established through Amendment 16, which became effective on July 19, 2009. The measures include a 352,940 lbs gutted weight (416,469 lbs whole weight) quota and a January-April spawning season closure. The quota was not met in 2009. If future landings were similar to those in 2007, a 1,000 lb gutted weight pound trip limit (**Alternative 2**) would not keep the season open all year. However, if the 1,000 lb gutted weight trip limit was reduced to 100 lbs gutted weight (**Alternative 2a**) when 75% of the quota was met, the quota would come within 30,000 lbs of being met. Under **Alternative 3** (750 lb gutted weight), the gag fishery would be expected to remain open until the end of December. The biological effects of the alternatives would be least for status quo **Alternative 1**.

Insert Socioeconomic comparison

Table 2-3. Comparison of effects of trip limits on gag.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action)	(+-) No significant biological impact is expected; however, no measures would be taken to account for anticipated effort shifts.	
Alternative 2 1,000 lb gw commercial trip limit	(+-) No significant biological impact is expected from the implementation of trip limits because overall harvest would remain the same. However reducing the pace of harvest when the ACL is close to being caught would hedge against an ACL overage.	
Alternative 3 750 lb gw commercial trip limit	(+-) No significant biological impact is expected from the implementation of trip limits because overall harvest would remain the same. However reducing the pace of harvest when the ACL is close to being caught would hedge against an ACL overage.	

(-) overall negative impacts, (+) overall positive impacts, (- +) neutral impacts

2.4 Trip Limit for Greater Amberjack

Alternative 1. No Action ~~(Status quo)~~. Retain the current commercial regulations for greater amberjack in the South Atlantic:

Table 2.4 Current Commercial Regulations for Greater Amberjack

Commercial ACL	Size Limit	Trip Limit	Fishing Season	Other

1,169,931 lb gw	36" FL	1,000 lb gw	Closed April 1-30	No sale in April; purchase and sale prohibited once quota is reached. After quota is met, possession limited to 1/person/day or 1/person/trip, whichever is more restrictive

~~36" FL size limit; 1,000 lb trip limit, commercial season closed April 1-30; 1,169,931 lb quota (gutted weight). No sale after quota is reached. After the commercial quota is met, all purchase and sale is prohibited and harvest and/or possession is limited to the recreational bag limit. This prohibition does not apply to fish harvested, landed, and sold prior to the quota being reached and held in cold storage by a dealer. No sale in April. Possession limited to 1/person/day or 1/person/trip, which is morerestrictive. 1,000 lb trip limit unti the commercial ACL is reached~~.

Alternative 2. Change the commercial trip limit for greater amberjack.

Alternative 2a. Increase the greater amberjack commercial trip limit to 2,000 lbs.

Alternative 2b. Increase the greater amberjack commercial trip limit to 1,500 lbs.

Alternative 3. Change the commercial trip limit for greater amberjack to 2,000 lbs gw (2,080 lbs ww) for vessels making multi-day trips north of Cape Canaveral. For all other trips the 1,000 lb trip limit would apply. *(added by the Council at their Sept. 2010 meeting)*

Alternative 4. Change the commercial trip limit for greater amberjack to 2,500 lbs gw (2,600 lbs ww) for vessels making multi-day trips north of Cape Canaveral. For all other trips the 1,000 lb trip limit would apply. *(added by the Council at their Sept. 2010 meeting)*

(The IPT needs a definition of "multi-day". The current analysis considered multi-day greater than 24 hrs. in duration.)

2.4.1 Comparison of Alternatives

Alternative 1 (No Action) would retain the commercial regulations in place for greater amberjack including a 36" fork length minimum size limit, a 1,000 lb gutted weight trip limit, a April 1-30 prohibition on harvest, and a 1,169,931 pound gutted weight quota. SEDAR 15 (2008) indicates the stock is not experiencing overfishing (F_{2006}/F_{MSY} = 0.531) and is not overfished (SSB_{2006}/SSB_{MSY} = 1.096). Furthermore, the commercial quota has never been met since it was established through Amendment 9 in 1999 (SAFMC 1997). With increased restrictions on other snapper grouper species through Amendments 13C and 16, there has been an interest in increasing the trip limit for greater amberjack.

Alternative 2 would increase the trip limit for greater amberjack from 1,000 lbs gutted weight to 2,000 lbs gutted weight under **Alternative 2a** and 1,500 lbs gutted weight under **Alternative 2b**. During the 2008 fishing year (May 2008 – April 2009) the estimated landings of greater

amberjack from logbook data was 730,854 lbs gutted weight. Based on data from the 2008 fishing year, the commercial quota of 1,169, 931 lb gutted weight quota would not be reached with either the 2,000 lb trip limit proposed under **Alternative 2a** or the 1,500 lb trip limit proposed under **Alternative 2b** (Table 2-x).

Table 2-5. Estimated landings of greater amberjack expected from increased trip limit. Based on data from May 2008-April 2009 from NMFS Logbook.

trip limit (gutted weight)	whole weight	gutted weight
Alternative 1 - 1,000 lbs	760,089	730,854
Alternative 2a - 2,000 lbs	927,529	891,854
Alternative 2b - 1,500 lbs	843,809	811,354

Among the proposed alternatives, status quo (**Alternative 1**) would have the greatest positive biological effect since it would not result in an increased harvest of greater amberjack. **Alternative 2a**, which would allow for the largest increase in the trip limit would have the greatest negative biological effect on the species. However, the recent assessment indicates the stock is not overfished and is not experiencing overfishing. Based on data from the 2008 fishing year, increasing the trip limit to 2,000 lbs gutted weight would result in landings that are approximately 280,000 lbs less than the quota. Furthermore, incidental mortality of greater amberjack would be expected to be low if the quota was met due to low a low release mortality rate. Therefore, none of the alternatives are expected to have negative biological effects on the stock of greater amberjack.

Insert socioeconomic comparison

Table 2-5. Comparison of effects of trip limits on greater amberjack.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action)	(+-) No significant biological impact is expected; however, no measures would be taken to account for anticipated effort shifts.	
Alternative 2 Change the commercial trip limit for greater amberjack, 2,000 lbs or 1,500 lbs.	(+-) Because the ACL was never met under the current trip limit, increasing the trip limit could potentially lead to overall increased catch. However, analysis shows that the ACL would still not be met under trip limits of 2,000 or 1,500 lbs.	
Alternative 3 Change the trip limit to 2,000 lbs gw for vessels making multi-day trips north of Cape Canaveral. For all other trips the 1,000 lb trip limit would apply.	(+-) No significant biological impact is expected since the quota woud not reached.	

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 4 Change trip limit to 2,500 lbs gw for vessels making multi-day trips north of Cape Canaveral. For all other trips the 1,000 lb trip limit would apply.	(+-) No significant biological impact is expected since the quota woud not reached.	

(-) overall negative impacts, (+) overall positive impacts, (- +) neutral impacts

3 Affected Environment

3.1 Habitat

3.1.1 Inshore/Estuarine Habitat

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

3.1.2 Offshore Habitat

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

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

rugged living fossil coral reefs, and dominance of a tropical Caribbean fauna are distinctive benthic characteristics of this area.

Rock outcroppings occur throughout the continental shelf from Cape Hatteras, North Carolina to Key West, Florida (MacIntyre and Milliman 1970; Miller and Richards 1979; Parker *et al*. 1983), which are principally composed of limestone and carbonate sandstone (Newton *et al*. 1971), and exhibit vertical relief ranging from less than 0.5 to over 10 meters (33 feet). Ledge systems formed by rock outcrops and piles of irregularly sized boulders are also common. Parker *et al*. (1983) estimated that 24% (9,443 km^2) of the area between the 27 and 101 meters (89 and 331 feet) isobaths from Cape Hatteras, NC to Cape Canaveral, FL is reef habitat. Although the benthic communities found in water depths between 100 and 300 meters (328 and 984 feet) from Cape Hatteras, NC to Key West, FL is relatively small compared to the whole shelf, this area, based upon landing information of fishers, constitutes prime reef fish habitat and probably significantly contributes to the total amount of reef habitat in this region.

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

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

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

3.1.3 Essential Fish Habitat

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

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

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

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

In addition to protecting habitat from fishing related degradation though FMP regulations, the Council, in cooperation with NOAA Fisheries Service, actively comments on non-fishing projects or policies that may impact essential fish habitat. The Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. With guidance from the Advisory Panel, the Council has developed and approved habitat policies on: Energy exploration, development, transportation and hydropower re-licensing; beach dredging and filling and large-scale coastal engineering; protection and enhancement of submerged aquatic vegetation; and alterations to riverine, estuarine and nearshore flows (Appendix C of Habitat Plan; SAFMC 1998e).

3.2 Biological/Ecological Environment

3.2.1 Species Most Impacted By This FMP Amendment

3.2.1.1 Gag, *Mycteroperca microlepis*

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

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

Huntsman *et al.* (1999) indicated gag are vulnerable to overfishing since they are long-lived, late to mature, change sex, and aggregate to spawn. The estimated natural mortality rate is 0.14 (SEDAR 10 2007). Maximum reported size for gag is 145 centimeters (57.5 inches) TL and 36.5 kilograms (81 pounds) (Heemstra and Randall 1993), and maximum reported age is 26 years (Harris and Collins 2000). Gag is a sequential hermaphrodites, changing sex from female to male with increased size and age (Coleman *et al.* 1996; McGovern *et al.* 1998; Coleman *et al.* 2000). All individuals less than 87.5 centimeters (34.7 inches) TL are females. At 105.0

centimeters (41.6 inches) TL, 50% of fishes are males. Almost all gag are males at sizes greater than 120.0 centimeters (47.5 inches) TL (McGovern *et al.* 1998).

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

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

3.2.1.2 Vermilion Snapper, *Rhomboplites aurorubens*

Vermilion snapper occur in the Western Atlantic, from North Carolina to Rio de Janeiro. It is most abundant off the southeastern United States and in the Gulf of Campeche (Hood and Johnson 1999). The vermilion snapper is demersal (bottom-dwelling), commonly found over rock, ledges, live-bottom, gravel, or sand bottoms near the edge of the continental and island shelves (Froese and Pauly 2003). It occurs at depths from 18 to 122 meters (59 to 400 feet), but is most abundant at depths less than 76 meters (250 feet). Individuals often form large schools. This fish is not believed to exhibit extensive long range or local movement (SEDAR SAR 2 2003).

The maximum size of a male vermilion snapper, reported by Allen (1985), was 60.0 centimeters (23.8 inches) TL and 3.2 kilograms (7.1 pounds). Maximum reported age in the South Atlantic Bight was 14 years (Zhao *et al.* 1997; Potts *et al.* 1998). SEDAR 2-SAR2 (2003) recommends that natural mortality (M) be defined as 0.25/year, with a range of 0.2-0.3/year.

This species spawns in aggregations (Lindeman *et al.* 2000) from April through late September in the southeastern United States (Cuellar *et al.* 1996). Zhao *et al.* (1997) indicated that most spawning in the South Atlantic Bight occurs from June through August. Eggs and larvae are pelagic.

Vermilion snapper are gonochorists meaning that males and females do not change sex during their lifetime. All vermilion snapper are mature at 2 years of age and 20.0 centimeters (7.9

inches) (SEDAR SAR2 2003). Cuellar *et al.* (1996) collected vermilion snapper off the southeastern United States and found that all were mature. The smallest female was 16.5 centimeters (6.5 inches) FL and the smallest male was 17.9 centimeters (7.1 inches) FL (Cuellar *et al.* 1996). Zhao and McGovern (1997) reported that 100% of males that were collected after 1982 along the southeastern United States were mature at 14.0 centimeters (5.6 inches) TL and age 1. All females collected after 1988 were mature at 18.0 centimeters (7.1 inches) TL and age 1.

This species preys on fishes, shrimp, crabs, polychaetes, and other benthic invertebrates, as well as cephalopods and planktonic organisms (Allen 1985). Sedberry and Cuellar (1993) reported that small crustaceans (especially copepods), sergestid decapods, barnacle larvae, stomatopods, and decapods dominated the diets of small (< 50 millimeters (2 inches) SL) vermilion snapper off the Southeastern United States. Larger decapods, fishes, and cephalopods are more important in the diet of larger vermilion snapper.

3.2.1.3 Black Sea Bass, *Centropristis striata*

Black sea bass occur in the Western Atlantic, from Maine to southeastern Florida, and in the eastern Gulf of Mexico (McGovern *et al.* 2002) (Table 3-1). Separate populations were reported to exist to the north and south of Cape Hatteras, North Carolina (Wenner *et al.* 1986). However, genetic similarities suggest this is one stock (McGovern *et al.* 2002). This species is common around rock jetties and on rocky bottoms in shallow water (Robins and Ray 1986) at depths from 2-120 meters (7-394 feet). Most adults occur at depths from 20-60 meters (66-197 feet) (Vaughan *et al.* 1995). Black sea bass north of the Virginia/North Carolina border are currently managed as part of the Fishery Management Plan for Summer Flounder, Scup, and Black Sea Bass and are managed by the Mid-Atlantic Fishery Management Council. Black sea bass occurring south of the Virginia/North Carolina boarder are managed by the South Atlantic Fishery Management Council under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

Maximum reported size is 66 centimeters (26.1 inches) total length and 3.6 kilograms (7.9 pounds) (McGovern *et al.* 2002). Maximum reported age is 10 years (McGovern *et al.* 2002); however, ages as great as 20 years have been recorded in the Mid Atlantic region (Lavenda 1949; Froese and Pauly 2003). Natural mortality is estimated to be 0.30 (SEDAR 2 2003b). The minimum size and age of maturity for females reported off the southeastern U.S. coast is 10 centimeters (3.6 inches) standard length and age 0. All females are mature by 18.0 centimeters (7.1 inches) standard length and age 3 (McGovern *et al.* 2002; Table 3-1). Wenner *et al.* (1986) report peak spawning occurs from March through May in the South Atlantic Bight. McGovern *et al.* (2002) indicate black sea bass females are in spawning condition during March-July, with a peak during March through May (McGovern *et al.* 2002). Some spawning also occurs during September and November. Spawning takes place in the evening. Black sea bass change sex from female to male (protogyny). Females dominate the first 5 year classes and individuals over the age of 5 are more commonly males. The size at maturity and the size at transition of black sea bass was smaller in the 1990s than during the early 1980s off the southeast U.S. Black sea bass appear to compensate for the loss of larger males by changing sex at smaller sizes and younger ages (McGovern *et al.* 2002).

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

3.2.1.4 Greater Amberjack, *Seriola dumerili*

The greater amberjack is a pelagic and epibenthic species that occurs in the Indo-West Pacific, and in the Western and Eastern Atlantic Oceans. In the Western Atlantic, it occurs as far north as Nova Scotia, Canada, southward to Brazil, including the Gulf of Mexico (Paxton *et al.* 1989, Manooch and Potts 1997a; Manooch and Potts 1997b; Harris et al. 2007). The greater amberjack is found at depths of 18-360 meters (60-1,181 feet). It inhabits deep reefs, rocky outcrops or wrecks and, occasionally, coastal bays (Manooch and Potts 1997b; Harris et al 2007). Juveniles and adults occur singly or in schools in association with floating plants or debris in oceanic and offshore waters.

This species is the largest jack (Robins and Ray 1986). Maximum reported size is 190 centimeters (75 inches) and 80.6 kilograms (177.7 pounds) (Paxton *et al.* 1989). Size at maturity and age at 50% maturity for females is estimated as 73.3 centimeters (28.9.3 inches) TL and 1.3 years, respectively (Harris et al. 2007). Maximum reported age is 17 years (Manooch and Potts 1997a). Greater amberjack are gonochorists (separate sexes). Based on the occurrence of migratory nucleus oocytes and postovulatory follicles, spawning occurs from January through June, with peak spawning in April and May. Although fish in spawning condition were captured from North Carolina through the Florida Keys, spawning appears to occur primarily off south Florida and the Florida Keys (Harris et al. 2007). Greater amberjack in spawning condition were sampled from a range of depths, although the bulk of samples were from the shelf break. Tagging data indicate that greater amberjack are capable of extensive movement that might be related to spawning activity. Greater amberjack tagged off South Carolina have been recaptured off Georgia, east Florida, Florida Keys, west Florida, Cancun Mexico, Cuba, and the Bahamas (MARMAP, unpublished data). Primary food items include fishes, such as bigeye scad, and invertebrates (Paxton *et al.* 1989).

3.3 Science Underlying the Management of Snapper Grouper Species Most Impacted By This FMP Amendment

The status of gag, vermilion snapper, black sea bass, and greater amberjack has been recently assessed through the Southeast Data, Assessment, and Review (SEDAR) process.
The SEDAR process consists of a series of workshops aimed at ensuring that each assessment is based on the best available scientific information. First, representatives from NOAA Fisheries Service, state agencies, and the South Atlantic Council, as well as experts from non-governmental organizations and academia, participate in a data workshop. The purpose of a data workshop is to assemble and review available fishery-dependent and fishery-independent data and information on a stock, and to develop consensus about what constitutes the best available scientific information on the stock, how that information should be used in an assessment, and what type of stock assessment model should be employed.

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

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

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

3.3.1 Gag assessment and stock status

SEDAR assessment

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

Available data on the stock included abundance indices, recorded landings, and samples of annual size compositions and age compositions from fishery-dependent sources. Three fishery–dependent abundance indices were developed by the data workshop: one from the NOAA Fisheries Service headboat survey, one from the commercial logbook program, and one from the MRFSS survey. There were no usable fishery–independent abundance data for this stock of gag. Landings data were available from all recreational and commercial fisheries. The assessment included data through 2004.

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

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

Status

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

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

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

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

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

This comparison is referred to as the overfished ratio. If the ratio is less than 1, then the stock is overfished. The Council took measures to end overfishing in Amendment 16, which was implemented in July 2009.

3.3.2 Vermilion Snapper assessment and stock status

SEDAR assessment

A SEDAR stock assessment workshop was convened at the NOAA Center for Coastal Fisheries and Habitat Research Beaufort, North Carolina, on Monday, April 4, 2007. The workshop's objectives were to conduct an update assessment of the vermilion snapper off the southeastern U.S. and to conduct stock projections based on possible management scenarios. Participants in the update assessment included state and federal scientists, Council AP and SSC members, and various observers. All decisions regarding stock assessment methods and acceptable data were made by consensus (SEDAR Assessment Update #3 2007).

Available data on the species included all those utilized for the benchmark assessment conducted in 2002; no additional data sources were identified during the scoping workshop. These data were abundance indices, recorded landings, and samples of annual size compositions

from indices and landings. Four abundance indices were used in the benchmark assessment: one from the NMFS headboat survey and three from the SC MARMAP fishery-independent monitoring program. Landings data were available from all recreational and commercial fisheries. While the MARMAP chevron trap index decreased in recent years, the remaining abundance indices showed neither marked increase nor decline during the assessment period (1976–2006).

The statistical model of catch at length as developed for the benchmark assessment was used as the only assessment model. The assessment workshop provided the base run of the model, identical to that used in the benchmark assessment. This base run was used for the estimation of benchmarks and stock status. The benchmark assessment concluded that the high degree of uncertainty in recruitment and spawning stock biomass estimates meant that reliable biomass based benchmarks could not be developed from the assessment, and this was found to be the case for the update assessment as well.

The ratio of fishing mortality in 2006 to F_{MAX} was 2.05, compared to 1.71 in the benchmark assessment, suggesting that overfishing continues. Projections were used to evaluate the potential of the stock to be rebuilt, but could only be conducted for constant F scenarios. Four projections were considered: $F=F_{MAX}$; $F=85\%F_{MAX}$; $F=75\%F_{MAX;}$ and $F=65\%F_{MAX}$. The results of each were very similar.

Recognizing the need for a new benchmark assessment, NOAA Fisheries Service and the state of South Carolina began sampling available vermilion snapper otoliths (ear bones) to enable an age-based assessment. Further, the SEDAR steering committee replaced white grunt in the SEDAR schedule with vermilion snapper. A new age based assessment for vermilion snapper was completed in 2008 (SEDAR 17 2008). Three different model structures were applied: a statistical catch-at-age model; stock reduction analysis; and a surplus production model. In addition, catch curve analysis was used to examine mortality. The primary model was a statistical catch-at-age model implemented with the AD Model Builder software.

Stock Status

The vermilion snapper stock in the Atlantic is **undergoing overfishing** as of 2006 (last year of data in the stock assessment update). This means fish are being removed more quickly than the stock can replace them such that the maximum sustainable yield (MSY) cannot be achieved. The Council compares the current fishing mortality rate (F) to the level of fishing mortality that would result in overfishing (maximum fishing mortality threshold or MFMT) and if the current F is greater than the MFMT, overfishing is occurring. For vermilion snapper the most recent estimate of the fishing mortality rate is from 2006 and was = 0.729. The Council is using the fishing mortality rate that produces the greatest yield per fish (F_{MAX} = 0.355) as the maximum fishing mortality threshold. F_{MAX} is being used as a proxy for F_{MSY} (F_{MSY} = Fishing mortality rate that would produce maximum sustainable yield) because the SSC did not have confidence in the calculated biomass reference points. The SSC does have confidence in the fishing mortality rate estimates from the SEDAR assessment. Comparing these two numbers:

- F_{2006}/MFMT = 0.729/0.355 = 2.05

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

SEDAR 17 (2008) confirmed that the stock is experiencing overfishing but indicated the stock is not overfished. The base run of the catch-at-age model estimated the current stock status to be: $SSB_{2007}/SSB_{MSY} = 0.86$ and $SSB_{2007}/MSST = 1.10$, both indicating the stock is not overfished. It estimated the current fishery status in 2007 to be: $F_{2007}/F_{MSY} = 1.27$, indicating the stock was subject to overfishing in 2007.

3.3.3 Black sea bass assessment and stock status

SEDAR assessment

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

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

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

Stock Status

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

- $F_{2003}/MFMT = 0.729/0.355 = 6.15$

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

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

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

If the ratio is less than 1, then the stock is overfished. An update assessment is scheduled for 2010.

3.3.4 Greater amberjack assessment and stock status

SEDAR assessment

Greater amberjack was assessed at SEDAR 15 2008. A statistical catch-at-age model and a surplus-projection model were considered in this assessment. A surplus-production model treats all fish in the population as having similar characteristics such as vulnerability to predation or to being caught in the fishery, and similar reproductive capacity. However, in fish populations natural mortality decreases with age, as fish become larger, and fecundity increases with age. A catch-at-age model takes into account the changes in those characteristics with the age of the fish. Because of this enhanced ability to capture demographics, the catch-at-age model was chosen for evaluating stock status and providing management benchmarks and advice. Data used for this assessment consist of records of commercial catch for the handline and commercial dive fisheries, logbook and port sampler data from the recreational headboat fishery, and Marine Recreational Statistical Survey data of the rest of the recreational sector. Commercial longline and other landings were included with the hook and line landings for analysis. Greater amberjack were a recreationally-caught species until the late 1980's, when the commercial handline fishery began to target them. Since the early 1990's, landings have been fairly equal between the commercial and recreational sectors. Discards of greater amberjack are relatively low. The estimated time series of fishing mortality rate (F) shows a general increasing trend from the 1980s through the mid-1990s, and then a decline from the 1990s to the present value (around F = 0.23).

Fishing mortality is compared to what the fishing mortality would be if the fishery were operating at maximum sustainable yield (F_{MSY}). This ratio (F/F_{MSY}) indicates that overfishing has not occurred over most of the assessment period, except in 1992, 1994, and 1999. Minimum size limits have increased the age at full selection and the fishing mortality has reduced the number of older fish, suggesting that current landings are being supported by only 2 to 4 year classes in any given year. Total estimated stock abundance averages 1.5 million fish and varies with a slightly decreasing trend. Abundance peaked with the strong 1986 year class, and again in 2001. Total abundance tapers off gradually thereafter to the estimate of slightly more than million fish in 2006. Estimated spawning stock biomass has gradually and steadily decreased over the assessment period.

Stock Status

SEDAR 15 (2008) applies to greater amberjack within US waters of the South Atlantic from Monroe, FL (including the Gulf of Mexico) through Massachusetts. The greater amberjack stock **is not undergoing overfishing and is not overfished** as of 2006 (last year of data in the stock assessment update). For greater amberjack the most recent estimate of the fishing mortality rate

is from 2006 and was = 0.225 and F_{MSY} = 0.424 as the maximum fishing mortality threshold. Comparing these two numbers:

- F_{2006}/MFMT = 0.531

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

The greater amberjack stock in the Atlantic is not overfished. For greater amberjack, the estimated level of spawning stock biomass in 2006 was 2,126 metric tons. The Minimum stock size threshold (MSST) = 1,455 metric tons. Comparing these two numbers:

- SSB_{2005}/MSST = 1.461

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

3.5 Protected Species

There are 31 different species of marine mammals that may occur in the EEZ of the South Atlantic region. All 31 species are protected under the MMPA and six are also listed as endangered under the ESA (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). There are only three known interactions between the South Atlantic snapper grouper fishery and marine mammals. All three marine mammals were likely dolphins, all were caught in Florida on handline gear, and all three animals were released alive. Other species protected under the ESA occurring in the South Atlantic include five species of sea turtle (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]). A discussion of these species is included below. Designated critical habitat for the *Acropora* corals also occurs within the South Atlantic region.

The impacts of the South Atlantic snapper grouper fishery on ESA-listed species have been evaluated in a biological opinion on the continued authorization of snapper grouper fishing under the South Atlantic Snapper Grouper Fishery Management Plan and Amendment 13C (NMFS 2006), and during subsequent informal ESA section 7 consultations. The biological opinion stated the fishery was not likely to adversely affect any critical habitat or marine mammals (see NMFS 2006 for discussion on these species). However, the opinion did state that the snapper grouper fishery would adversely affect sea turtles and smalltooth sawfish. A discussion of these species is included below.

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

3.5.1 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 contained ctenophores and pelagic snails (Frick 1976, Hughes 1974). At approximately 20 to 25 cm carapace length, juvenile green sea turtles 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 feet) (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 a Kemp's ridleys may be able to stay submerged anywhere from 167

minutes to 300 minutes, though dives of 12.7 minutes to 16.7 minutes are much more common (Soma 1985, Mendonca and Pritchard 1986, Byles 1988). Kemp's ridleys may also spend as much as 96% of their time underwater (Soma 1985, Byles 1988).

Leatherbacks are the most pelagic of all ESA-listed sea turtles and spend most of their time in the open ocean. Although they will enter coastal waters and are seen over the continental shelf on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherbacks feed primarily on cnidarians (medusae, siphonophores) and tunicates. Unlike other sea turtles, leatherbacks' diets do not shift during their life cycles. Because leatherbacks' ability to capture and eat jellyfish is not constrained by size or age, they continue to feed on these species regardless of life stage (Bjorndal 1997). Leatherbacks are the deepest diving of all sea turtles. It is estimated that these species can dive in excess of 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 are known to 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).

3.5.2 ESA-Listed Marine Fish

Historically the smalltooth sawfish in the U.S. ranged from New York to the Mexico border. Their current range is poorly understood but believed to have contracted from these historical areas. In the South Atlantic region, they are most commonly found in Florida, primarily off the Florida Keys (Simpfendorfer and Wiley 2004). Only two smalltooth sawfish have been recorded north of Florida since 1963 [the first was captured off North Carolina in 1963 and the other off Georgia in 2002 (National Smalltooth Sawfish Database, Florida Museum of Natural History)]. Historical accounts and recent encounter data suggest that immature individuals are most common in shallow coastal waters less than 25 meters (Bigelow and Schroeder 1953, Adams and Wilson 1995), while mature animals occur in waters in excess of 100 meters (Simpfendorfer pers. comm. 2006). Smalltooth sawfish feed primarily on fish. Mullet, jacks, and ladyfish are believed to be their primary food resources (Simpfendorfer 2001). Smalltooth sawfish also prey

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

3.5.3 ESA-Listed Marine Invertebrates

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

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

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

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

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

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

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

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

Regulations through snapper grouper amendment 15B (74 FR 58902; November 16, 2009) require all commercial or charter/headboat vessels with a South Atlantic snapper-grouper permit, carrying hook-and-line gear on board, to possess required literature and release gear to aid in the safe release of incidentally caught sea turtles and smalltooth sawfish.

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

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

Source: SEFSC Supplementary Discard Data Program

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

Species	Amount of Take	Total
Green	Total Take	39
	Lethal Take	14
Hawksbill	Total Take	4
	Lethal Take	3
Kemp's ridley	Total Take	19
	Lethal Take	8
Leatherback	Total Take	25

Species	Amount of Take	Total
	Lethal Take	15
Loggerhead	Total Take	202
	Lethal Take	67
Smalltooth sawfish	Total Take	8
	Lethal Take	0

Source: NMFS 2006

3.6 Administrative Environment

3.6.1 The Fishery Management Process and Applicable Laws

3.6.1.1 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 U.S. Exclusive Economic Zone (EEZ), an area extending 200 nautical miles from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

Responsibility for Federal fishery management decision-making is divided between the U.S. Secretary of Commerce and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary of Commerce (Secretary) is responsible for collecting and providing the data necessary for the councils to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws summarized in Section 7.0. In most cases, the Secretary has delegated this authority to NOAA Fisheries Service.

The South Atlantic Fishery Management Council is responsible for conservation and management of fishery resources in Federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 miles offshore from the seaward boundary of the States of North Carolina, South Carolina, Georgia, and east Florida to Key West. The Council has thirteen voting members: one from NOAA Fisheries Service; one each from the state fishery agencies of North Carolina, South Carolina, Georgia, and Florida; and eight public members appointed by the Secretary. On the South Atlantic Council, there are two public members from each of the four South Atlantic States. Non-voting members include representatives of the U.S. Fish and Wildlife Service, U.S. Coast Guard, State Department, and Atlantic States Marine Fisheries Commission (ASMFC). The South Atlantic Council has adopted procedures whereby the non-voting members serving on the Council Committees have full voting rights at the Committee level but not at the full Council level. Council members serve three-year terms and are recommended by

State Governors and appointed by the Secretary of Commerce from lists of nominees submitted by State governors. Appointed members may serve a maximum of three consecutive terms. Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters, are open to the public. The Council uses an to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking.

3.6.1.2 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 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 ASMFC also is represented at the Council level, but does not have voting authority at the Council level.

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

3.7 Enforcement

Both the National Oceanic and Atmospheric Administration (NOAA) Fisheries Office for Enforcement (NOAA/OLE) and the United States Coast Guard (USCG) have the authority and the responsibility to enforce South Atlantic Council regulations. NOAA/OLE agents, who

specialize in living marine resource violations, provide fisheries expertise and investigative support for the overall fisheries mission. The USCG is a multi-mission agency, which provides at sea patrol services for the fisheries mission.

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

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

3.8 Human Environment

3.8.1 Economic Description of the Commercial Fishery

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

3.8.1.1 Gear and Fishing Behavior

The commercial snapper grouper fishery utilizes vertical lines, longlines, black sea bass pots/traps, spears, and powerheads (i.e., spears with spring-loaded firearms). Vertical lines are used from the North Carolina/Virginia border to the Atlantic side of Key West, Florida. The majority of hook and line fishermen use either electric or hydraulic reels (bandit gear) and generally have 2-4 bandit reels per boat. Historically, the majority of the bandit fleet fished year round for snapper grouper with the only seasonal differences in catch associated with the regulatory spawning season closures in March and April for gag. Recently, Snapper Grouper FMP Amendment 16 implemented a closed season from January through April for shallow water groupers and a commercial quota for vermilion snapper that could result in closures if the spring and/or fall sub-quotas are filled. Most fluctuations in fishing effort during the open seasons in this fishery are a result of the weather. Trips can be limited during hurricane season and during the winter months from December through March. Some fishermen stop bandit fishing to target king mackerel when they are running.

The Council allows the use of bottom longlines north of St. Lucie Inlet, Florida, in depths greater than 50 fathoms. Bottom longline gear is used to target snowy grouper and golden tilefish.

Longline boats are typically bigger than bandit boats, their trips are longer, and they cost more to operate because they operate farther offshore. A longline spool generally holds about 15 miles of cable. Longlines are fished from daylight to dark because sea lice eat the flesh of hooked fish at night. The fishery is operated year long with little or no seasonal fluctuation barring hurricane disruption.

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

Black sea bass pots are used exclusively to target black sea bass, though bycatch of other snapper grouper species is allowed. The pots have mesh size, material, and construction restrictions to facilitate bycatch reduction. All sea bass pots must have a valid identification tag attached and more than 87% of tags in April 2003 were for vessels with homeports in North Carolina. Fishing practices vary by buoy practices, setting/pulling strategies, number of pots set, and length of set, with seasonal variations. The South Carolina pot fishery is mainly a winter fishery with short soak times (in some cases about an hour) and relatively few pots per boat. Most trips are day trips with pots being retrieved before heading to port. The North Carolina pot fishery also is primarily a winter fishery with some fishermen continuing to pot through the summer. North Carolina fishermen tend to use more pots than those in South Carolina. Although most North Carolina trips with sea bass pots last one day, more pots are left to soak for several days than in South Carolina. Many participants in the black sea bass fishery are active in other fisheries, including the recreational charter fishery during the summer months. Many snapper grouper permit holders maintain pot endorsements but are not active in the pot fishery.

3.8.1.2 Landings, Revenue and Economic Impact

The NOAA Fisheries southeast logbook database is used to analyze commercial fishing behavior at the boat and trip level (Table 3-3). In 2003-2007, logbook-reported landings for snapper grouper averaged 6.4 million pounds and $13.8 million in 2007 dollars. Adding the $2.3 million for other species landed on the same trips, the trip value comes to $16.1 million (2007 dollars, Table 3-3). For the 890 boats that made these snapper grouper trips, the ex-vessel value for logbook-reported landings for all trips/species averaged $22.8 million. Based on logbook data during these five years, the comparable annual average gross revenue was in the range of $24,000 to $27,000 per boat (median, $9,650 to $10,740 per boat; maximum, $210,000 to $360,000 per boat, all data in 2007 dollars). Note that adding what was not reported in the logbooks (ALS data, see footnote 1), landings may have been 861,000 pounds and $569,000 higher in 2003-2007.

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

dealer/processor sector. Approximately two-thirds of the jobs supported by the commercial snapper grouper fishery are estimated to accrue to the restaurant sector. The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors).

Vessels that harvested snapper grouper species also harvested other species, on the trips where snapper grouper were harvested as well as on other trips on which no snapper grouper were harvested. All revenues from all species on all these trips contributed towards making these vessels economically viable and contributed to the economic activity associated with these vessels. The average annual total ex-vessel revenues from all species (including snapper grouper) harvested during this period (2003-2007) by vessels that harvested snapper grouper species was approximately $22.8 million (2007 dollars). The economic activity associated with these revenues is estimated to support 4,426 FTE jobs (578 in the harvesting sector and 352 in the dealer/processor sector) and generate approximately $300 million in output (sales) impacts and approximately $128 million in income impacts.

For the individual species addressed by this amendment, vermilion snapper generated the largest average annual ex-vessel revenues, approximately $2.5 million (2007 dollars) per year from 2003-2007, followed by gag at approximately $1.8 million (2007 dollars). The economic activity associated with these two species is estimated to support 485 FTE jobs (63 in the harvest sector and 39 in the dealer/processor sector) and 352 FTE jobs (46 in the harvest sector and 28 in the dealer/processor sector), respectively. The vermillion snapper revenues are estimated to generate approximately $33 million in output (sales) impacts and $14 million in income impacts, while the gag revenues are estimated to generate approximately $24 million and $10 million in economic output (sales) and income impacts, respectively. All harvests by the respective vessels that harvest these species support approximately 2,000 FTE jobs (260 in the harvest sector and 158 in the dealer/processor sector), and approximately $135 million in output (sales) impacts and approximately $58 million in income impacts, each. It should be noted, however, that the estimates for the economic activity associated with the harvest of all species by vessels that harvest either vermilion snapper or gag are not additive because some, if not many, of these individual vessels likely harvest both species.

Figure 3-1. Commercial landings & revenue, snapper -grouper

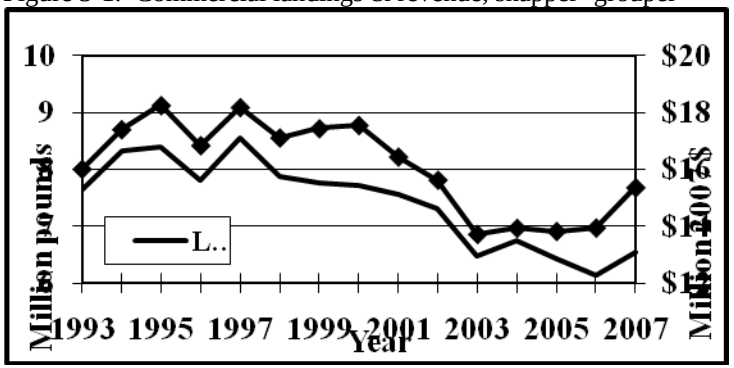


Figure 3-2. Days at sea and trips, snapper grouper

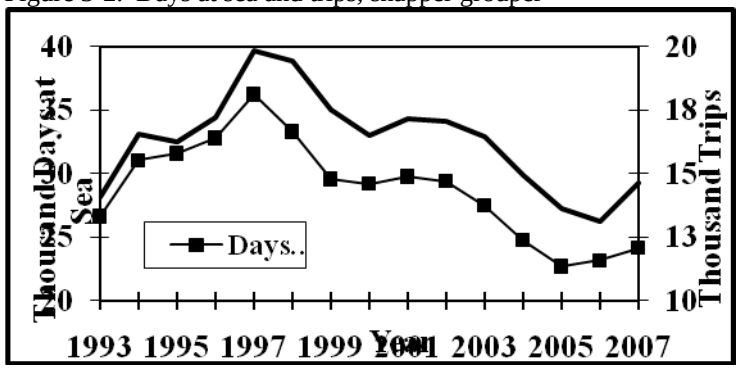


Figure 3-3. Boats and trips, snapper grouper

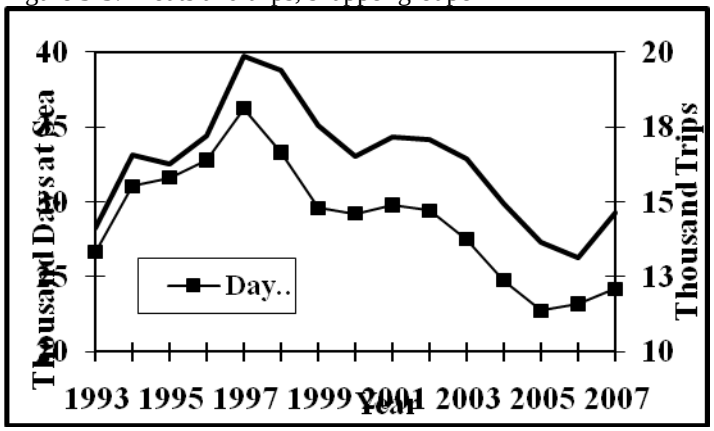
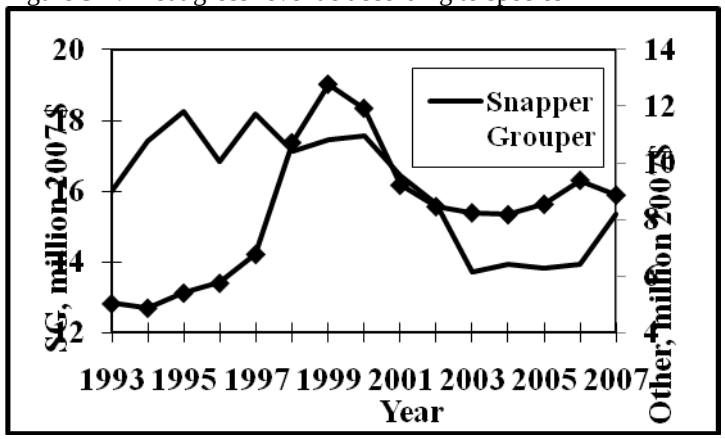


Figure 3-4. Boat gross revenue according to species



Figures 3-1 – 3-4. Commercial landings and revenue, days at sea and trips, days at sea and boats, boat gross revenue.

3.8.1.3 Landings, Ex-vessel Value, Price, and Effort

The landings of snapper grouper declined 28% from a high of ~~8.~~ 8.6 million pounds in 1997 to 6.1 million pounds in 2006, while effort declined by a third (Figures 3-1 to 3-3). The number of boats fell from a high of 1,301 in 1998 to 857 in 2005. Days at sea fell 37% from 36,264 to 22,794 between 1997 and 2005, while trips fell 34% from 19,860 to 13,138 (in 2006).

Counting all of their trips, the boats typically landed more snapper grouper than other species in terms of dollar value. The revenue from species other than snapper grouper rose between 1993 and 1999, peaking at $12.8 million (Figure 3-4). Total boat revenue peaked at $30.2 million in 1999 and averaged approximately the same in 2003-2007 as in 1993-1997 (2007 dollars).

The shallow water groupers and mid-shelf snappers are the largest species groups by volume and value within the snapper grouper fishery. Vermilion snapper in the mid-shelf snapper group is the largest volume species in the fishery, and accounted for 15% of total landings and 18% of dockside revenue on average in 2003-2007 (totals, Table 3-3). Gag is the largest volume shallow-water grouper, and accounted for 9% of total landings and 13% of dockside revenue.

Table 3-3. Annual landings and dockside (ex-vessel) revenues for trips with at least one pound of species in the snapper grouper fishery management unit, 2003-2007, landings in whole weight.

Item	2003	2004	2005	2006	2007	Average
Snapper grouper, 1,000 lbs	6,471	6,693	6,365	6,112	6,528	6,434
Snapper grouper, 1,000 2007 $	$13,762	$13,340	$13,078	$13,431	$15,426	$13,807
Price/lb (whole wt), current $	$1.89	$1.82	$1.93	$2.14	$2.36	$2.03
Price index for #2 diesel fuel	43	54	80	92	100	67
Other spp, same trips, 1,000 lbs	2,092	1,651	1,751	2,116	2,122	1,946
Other spp, same trips, 1,000 2007 $	$2,149	$2,001	$2,225	$2,394	$2,738	$2,301
Boat rev, all spp/trips, 1,000 2007 $	$21,967	$22,120	$22,377	$23,338	$24,232	$22,807

Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008, and Accumulated Landings System database as of September 17, 2008. NOAA Fisheries Service, Southeast Regional Office permits database. The BLS Consumer Price Index for all Urban Consumers was used to adjust dockside revenues and average annual prices for inflation. Data in last row computed separately, and results may differ if computed as for the previous rows. BLS Producer price index for #2 diesel fuel, index=100 for 2007.

The number of boats with snapper grouper permits exhibited a downward trend from 1,251 in 1999 to 877 in 2007, averaging 944 in 2003-2007 (Table 3-4). Two types of permits were created with the limited access program for the snapper grouper fishery that was implemented in 1998. The number of transferable permits that allow an unlimited harvest per trip was 938 in

1999 and 718 in 2007. The number of vessels with non-transferable permits with a 225-pound trip limit declined year-by-year from 313 in 1999 to 159 in 2007. The number of transferable permits declined, in part, because new entrants into the fishery must buy two permits and retire one as the condition for entry into the fishery. Furthermore, it is likely that the number of vessels in the snapper grouper fishery declined for economic reasons. For example, fuel prices more than doubled between 2003 and 2007 and continued to increase through mid-2008. By contrast, average annual prices for species in the snapper grouper management unit were relatively flat.

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

Item	2003	2004	2005	2006	2007	Average
Number of trips	16,545	15,045	13,756	13,224	14,753	14,665
Days away from port	27,556	24,820	22,794	23,160	24,216	26,296
Boats landing snapper grouper	931	905	857	868	889	890
Number of permitted boats	1059	1001	909	874	877	944
Boats with transferable permits	828	782	721	697	718	749
Boats with non-transferable permits	231	219	188	177	159	195
	Number of boats according to landings of snapper grouper					
1-100 lbs per boat per year	140	156	138	164	155	151
101-1,000 lbs per boat per year	245	225	242	258	261	246
1,001-5,000 lbs per boat per year	270	263	239	228	225	245
5,001-10,000 lbs per boat per year	104	96	86	64	86	87
10,001-50,000 lbs per boat per year	152	133	123	127	134	134
More than 50,000 lbs per boat per year	20	32	29	27	28	27

Source: Same as first table, this section.

From 2003 through 2007, there were on average 890 boats and 14,665 trips per year on which at least one pound of snapper grouper species was landed (Table 3-4).[1] On average, 493 of the 890 boats landed at least 1000 pounds of snapper grouper species annually; 248 boats landed at least 5,000 pounds; 161 boats landed at least 10,000 pounds; and 27 boats landed at least 50,000 pounds of snapper grouper species.

3.8.1.4 The South Atlantic Snapper Grouper Fishery by State

The following discussion provides annual averages for 2003-2007. To maintain the confidentiality of individual reporting units, summaries are provided for regions defined as North Carolina, South Carolina, Georgia and northeast Florida, and central-southeast Florida. Northeast Florida consists of trips landed in Nassau, Duval, and St. Johns Counties; the central-

[1] Fishermen with a permit to fish in Federal waters are required to submit a logbook report to the NMFS with information about landings, gear type, approximate location of trip and date of landing. Trip revenue was calculated as landings multiplied by average prices from the NMFS Accumulated Landings System. The logbook database does not include landings from trips in state waters by fishermen who do not have Federal permits.

southeast Florida region consists of trips landed in Flagler through Miami-Dade Counties; and the Florida Keys region consists of trips from Atlantic waters landed in Monroe County.

Among the specified regions, snapper grouper landings and trips were not proportional (Table 3-5). For example, boats in central-southeast Florida made 32% of the trips and accounted for 12% of the total snapper grouper harvest. However, the disparity was less for trip revenue and days fished in this and other instances; that is, boats in central-southeast Florida had 19% of the trip revenue and 22% of the days fished. The differences have to do with the greater quantities of lower valued coastal pelagic species on trips in central-southeast Florida and other factors.

Table 3-5. Average annual landings & dockside revenues for trips with at least one pound of species in the snapper grouper fishery, averages for 2003-2007 by state (quantities in whole weight).

Item	North Carolina	South Carolina	Georgia-northeast Florida	Central-southeast Florida	Florida Keys	South Atlantic
Snapper grouper, 1,000 lbs	1,816	1,591	734	790	1,504	6,434
Percent of landings	28%	25%	11%	12%	23%	100%
Snapper grouper, 1,000 2007 $	$3,738	$3,795	$1,651	$1,615	$3,008	$13,807
Other spp, same trips, 1,000 lbs	286	125	54	1,293	188	1,946
Trip revenue, 1,000 2007 $	$4,127	$3,977	$1,774	$3,021	$3,210	$16,108
Percent of trip revenue	26%	25%	11%	19%	20%	100%
Number of boats*	175	64	46	342	294	921
Number of trips	2,607	916	486	4,691	5,964	14,665
Percent of trips	18%	6%	3%	32%	41%	100%
Number of days	4,727	4,702	1,946	5,473	7,661	24,509
Percent of days fished	19%	19%	8%	22%	31%	100%
Trips per boat	14.9	14.2	10.6	13.7	20.3	15.9
Days per trip	1.8	5.1	4.0	1.2	1.3	1.7

Source: Same as first table, this section. *Some boats land in more than one area.

Table 3-6. Average annual landings (in thousands of pounds, whole weight) on trips that landed at least one pound of snapper grouper species: averages for 2003-2007, by state & species group.

Species	North Carolina		South Carolina		Georgia-northeast Florida		Central-southeast Florida		Florida Keys		South Atlantic	
	lbs	%	lbs	%	lbs	%	lbs	%	lbs	%	lbs	%
Shallow-water groupers	504	24%	555	32%	152	19%	107	5%	100	6%	1418	17%
Deep-water groupers	84	4%	78	5%	5	1%	28	1%	59	3%	254	3%
Tilefish	78	4%	112	6%	1	0%	227	11%	12	1%	430	5%
Shallow-water snappers	10	0%	20	1%	21	3%	128	6%	887	52%	1065	13%
Mid-shelf snappers	375	18%	366	21%	347	44%	33	2%	15	1%	1136	14%
Triggerfish / Spadefish	131	6%	77	4%	56	7%	5	0%	2	0%	271	3%
Jacks	111	5%	159	9%	132	17%	240	12%	406	24%	1047	12%
Grunts / porgies	127	6%	92	5%	14	2%	16	1%	24	1%	274	3%
Sea basses	395	19%	133	8%	6	1%	6	0%	0	0%	540	6%
Snapper grouper	1816	86%	1591	93%	734	93%	790	38%	1504	89%	6434	77%
Coastal pelagic spp	216	10%	52	3%	34	4%	1016	49%	81	5%	1399	17%
Sharks	9	0%	19	1%	6	1%	195	9%	77	5%	306	4%
Tunas	22	1%	2	0%	1	0%	1	0%	0	0%	25	0%
Other species	39	2%	54	3%	13	2%	81	4%	30	2%	217	3%

All species	2102	100%	1717	100%	787	100%	2083	100%	1692	100%	8380	100%
Source: Same as first table, this section.												

Reading the percentages down in Table 3-6, coastal pelagic species account for more than 10% of the landings only in central-southeast Florida. Shallow-water groupers and mid-shelf snappers account for more than 10% of the landings in the Carolinas and through Georgia and northeast Florida. Sea bass accounted for more than 10% of the landings in North Carolina only. Jacks account for more than 10% in Georgia and northeast Florida through the Keys.

3.8.1.5 The Snapper Grouper Fishery by Gear

The following discussion provides annual averages from 2003 to 2007. To maintain the confidentiality of individual reporting units, summaries are provided for vertical lines, longlines, black sea bass pots, and all other gears combined. The all-other-gear category includes trolling lines, nets, and other gears. Most of the snapper grouper harvest, including vermilion snapper and gag, is taken by some type of vertical hook-and-line gear. There are exceptions. Black sea bass are harvested primarily with black sea bass pots, while golden tilefish and yellowedge grouper are harvested primarily with bottom longlines. Some species, such as snowy grouper, are harvested by both vertical lines and longlines. Longlines used in the shark fishery may catch snapper grouper as secondary species.

The average quantities of snapper grouper species harvested from 2003-2007 included 5.2 million pounds worth $11.3 million (in 2007 dollars) per year with vertical lines, 0.41 million pounds with longlines, 0.12 million pounds with black sea bass pots, 0.22 million pounds with dive gear, and 0.51 million pounds with other gear (Table 3-7). Vertical lines accounted for 78% of all trips that landed at least one pound of snapper grouper, 81% of the snapper grouper landed, 81% of days fished, and 76% of the trip revenue. Trips with longlines tend to be longer than trips with other gear.

Table 3-7. Annual landings and dockside revenues for trips with at least one pound of species in the snapper grouper fishery by primary gear, 2003-2007, landings in whole weight.

Item	Diving	Hook & Line	Longline	Traps	Other gear	Total
Snapper grouper, 1,000 lbs	219	5,185	408	116	506	6,434
Percentage of landings	3%	81%	6%	2%	8%	100%
Snapper grouper, 1,000 2007$	$571	$11,314	$895	$168	$861	$13,807
Other spp, same trips, 1,000 lbs	49	674	265	941	17	1,946
Percentage of landings, other	3%	35%	14%	48%	1%	100%
Trip revenue, thousand 2007 $	$762	$12,272	$1,048	$1,148	$880	$16,108
Percentage of trip revenue	5%	76%	7%	7%	5%	100%
Number of boats*	65	723	27	50	245	1,110
Number of trips	648	11,405	246	690	1,676	14,665
Percent of trips	4%	78%	2%	5%	11%	100%
Number of days fished	920	19,910	924	944	1,811	24,509
Percent of days fished	4%	81%	4%	4%	7%	100%
Trips per boat	10.0	15.8	9.0	13.8	6.8	13.2
Days per trip	1.4	1.7	3.8	1.4	1.1	1.7

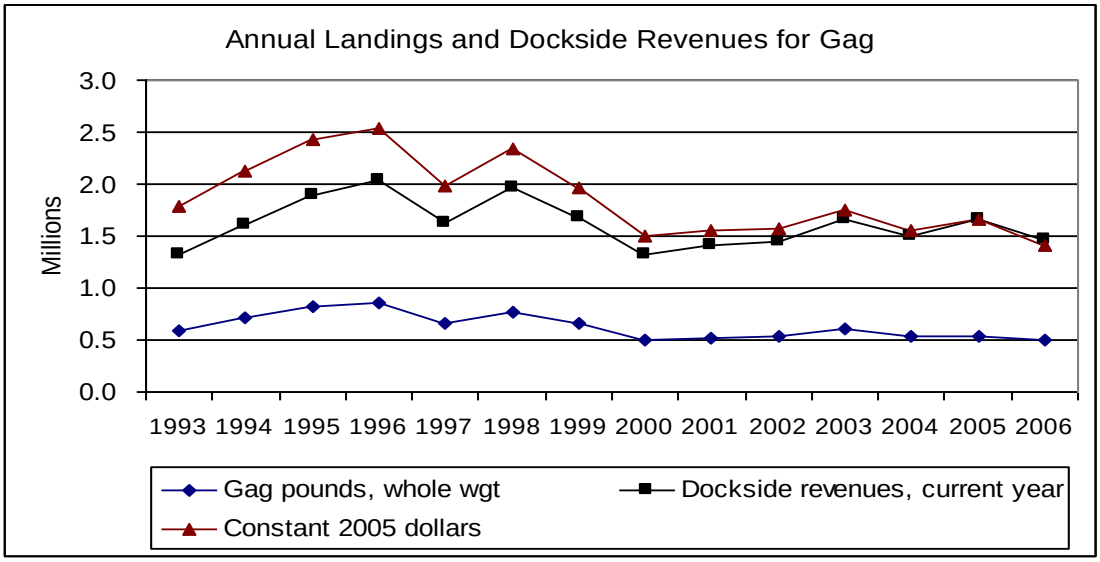
Source: Same as first table, this section.

3.8.1.6 The Commercial Fishery for Gag

According to logbook data, commercial landings of gag ranged from a high of 0.85 million pounds (whole weight) worth approximately $2.03 million in 1996 to a low of 0.50 million pounds worth $1.6 million in 2006 (Figure 3-5). Dockside revenue and pounds landed fluctuate in the same direction, which suggests that ex-vessel demand is price elastic. The policy implication is that regulations that reduce industry landings in the short-term are expected to reduce dockside revenue in the short-term. Conversely, dockside revenue is expected to increase over time if regulation successfully increases biomass and landings.

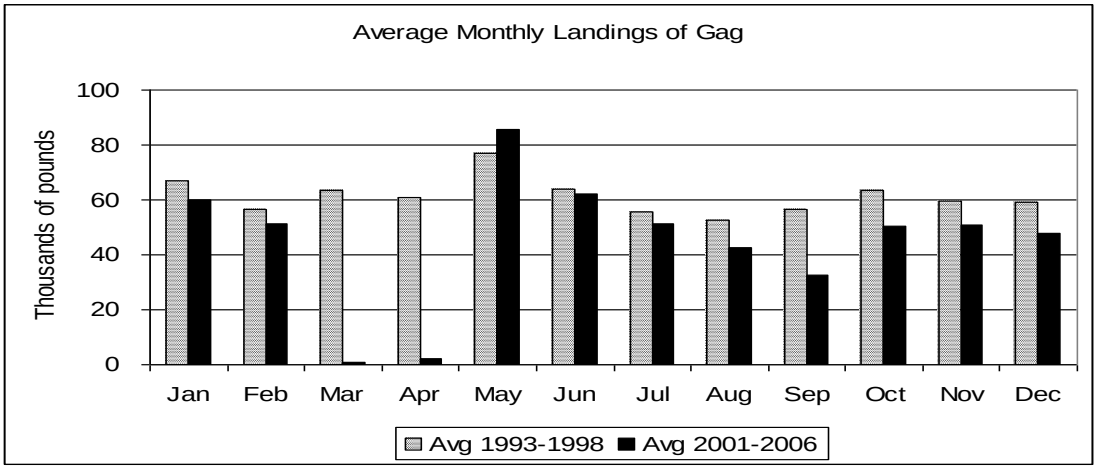
The time series for gag is defined by regulatory periods, with landings between 1993 and 1998 usually exceeding landings between 2001 and 2006. Between 1992 and 1998, the fishery for gag was regulated with a 20-inch minimum size limit. Beginning in 1999, the size limit was increased to 24 inches and the fishery was closed in March and April to protect the spawning stock. Prior to 1999, average monthly landings were highest in May and lowest in August (Figure 3-6). After the closure and larger size limit were implemented, average monthly landings increased in May, but otherwise declined in the remaining open months when compared to the 1993-1998 period, especially in September.

Figure 3-5. Annual landings and dockside revenue for gag, 1993-2006



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

Figure 3-6. Monthly average landings of gag, 1993-1998 and 2001-2006.



Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of October 10, 2007.

On average in 2003-2007, 2,286 trips per year landed at least one pound of gag, and the landings came to 554,000 pounds with a value of $1.8 million in 2007 dollars (Table 3-8). On the same trips, the landings for all species came to 2.6 million pounds and the trip revenue came to $6.0 million. The ex-vessel value for all species and trips by the 292 boats that landed gag came to $10.2 million. The boats were not uniformly productive in the fishery for gag. Ninety-six of the 292 boats landed 100 pounds or less per year on average during 2003-2007, 160 boats landed 101 to 5,000 pounds, and 36 boats landed more than 5000 pounds.

Table 3-8. Annual landings, dockside revenue and fishing effort, trips and boats with landings of at least one pound of gag, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least one pound of gag	2,481	2,182	2,200	2,082	2,487	2,286
Gag, thousand pounds	598	532	541	496	605	554
Gag, thousand current $	$1,636	$1,521	$1,651	$1,617	$2,140	$1,713
Gag, thousand 2007 $	$1,844	$1,668	$1,751	$1,661	$2,136	$1,812
Dockside price, current $ / pound	$2.73	$2.86	$3.05	$3.26	$3.53	$3.09
All spp, same trips, thousand lbs	2,576	2,509	2,584	2,363	2,819	2,570
All spp, same trips, 1,000 2007 $	$5,898	$5,482	$5,845	$5,629	$7,154	$6,001
Boat rev, all spp/trips, 1,000 2007$	$9,923	$9,538	$10,357	$9,238	$12,137	$10,239
Number of boats that landed gag	302	292	302	259	305	292
	Number of boats according to landings of gag grouper					
1-100 lbs per boat per year	99	100	100	90	92	96
101-1,000 lbs per boat per year	89	92	103	74	100	92
1,001-5,000 lbs per boat per year	76	68	64	61	72	68
5,001-10,000 lbs per boat per year	25	19	22	21	30	23
More than 10,000 lbs per boat / year	13	13	13	13	11	13

Source: Same as first table, this section.

Gag was the primary source of revenue on an average of 1,042 trips per year in 2003-2007, and a lesser source of revenue on 1,244 trips (Table 3-9 and Table 3-10). The trips on which gag was the primary source of revenue accounted for approximately 71% (391,000 pounds) of the total

commercial harvest of gag and 470,000 pounds of other species (other groupers, snappers, jacks, grunts, porgies and non-snapper grouper species). On the 1,244 trips for which gag was a lesser source of revenue, landings of gag came to 164,000 pounds with an ex-vessel value of $527,000, compared with 1.5 million pounds for other species and an ex-vessel value of $3.2 million (Table 3-10). Along the Atlantic coast, more of the landings of gag occur in the Carolinas than farther south (Table 3-11). Approximately 81% of the gag is landed with vertical lines, and most of the remainder is landed with dive gear.

Table 3-9. Annual landings and dockside revenue on trips with gag as the top source of trip revenue, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least one pound of gag	1,183	1,011	1,044	904	1,070	1,042
Boats	184	193	188	169	206	188
Gag, thousand pounds	415	385	372	341	440	391
Gag, thousand 2007 $	$1,282	$1,212	$1,213	$1,149	$1,567	$1,284
Other spp, same trips, 1,000 lbs	505	482	432	418	512	470
Other spp, same trips, 1,000 2007 $	$1,015	$935	$877	$861	$1,142	$966

Source: Same as first table, this section.

Table 3-10. Annual landings and dockside revenue on trips with gag as a lesser source of trip revenue, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least one pound of gag	1,298	1,171	1,156	1,178	1,417	1,244
Boats	263	247	253	225	262	250
Gag, thousand pounds	184	147	169	155	166	164
Gag, thousand 2007 $	$562	$456	$538	$512	$569	$527
Other spp, same trips, 1,000 lbs	1,472	1,496	1,611	1,449	1,701	1,546
Other spp, same trips, 1,000 2007 $	$3,039	$2,878	$3,217	$3,107	$3,876	$3,224

Source: Same as first table, this section.

Table 3-11. Annual landings of gag for trips with at least one pound of gag, by region and primary gear, 2003-2007 (landings in thousand pounds, whole weight).

Landing region or primary gear	2003	2004	2005	2006	2007	Average
North Carolina	141	143	175	154	141	151
South Carolina	234	233	216	204	241	226
Georgia and northeast Florida	100	88	90	71	117	93
Central and southeast Florida	120	66	58	66	101	82
Florida Keys	3	2	1	1	4	2
Vertical lines	455	450	467	410	462	447
Diving gear	131	76	67	81	133	98
Other gear	13	7	6	5	11	8

Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008.

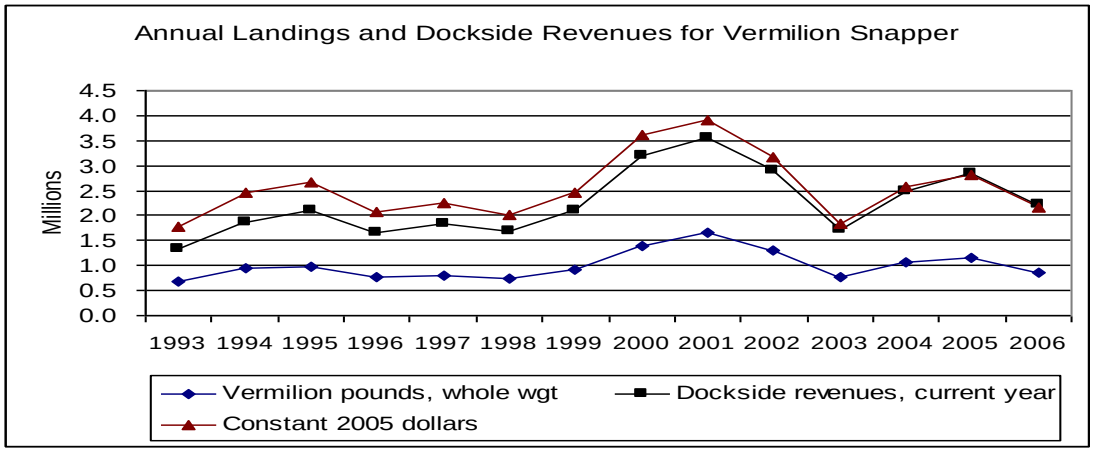
3.8.1.7 The Commercial Fishery for Vermilion Snapper

Logbook-reported commercial landings of vermilion snapper in 1993-2006 ranged from 0.68 million pounds ($1.33 million) in 1993 to 1.65 million pounds ($3.54 million) in 2001 (Figure 3-7). Landings of vermilion snapper began to increase in 1999 coincident with the implementation of more restrictive regulations for gag, peaked in 2001, and then declined through 2003 when

unusually cold-water temperatures reduced the availability of fish in the summer and fall of 2003. Landings of vermilion snapper recovered in 2004 and 2005, but not to the levels of 2001 and 2002. Dockside revenue generally displayed the same trend over time as commercial landings, which suggests that ex-vessel demand for vermilion snapper is price elastic. Hence, regulations that reduce industry landings in the short-term are expected to reduce dockside revenue in the short-term. Conversely, dockside revenue is expected to increase over time if regulation successfully increases biomass and landings.

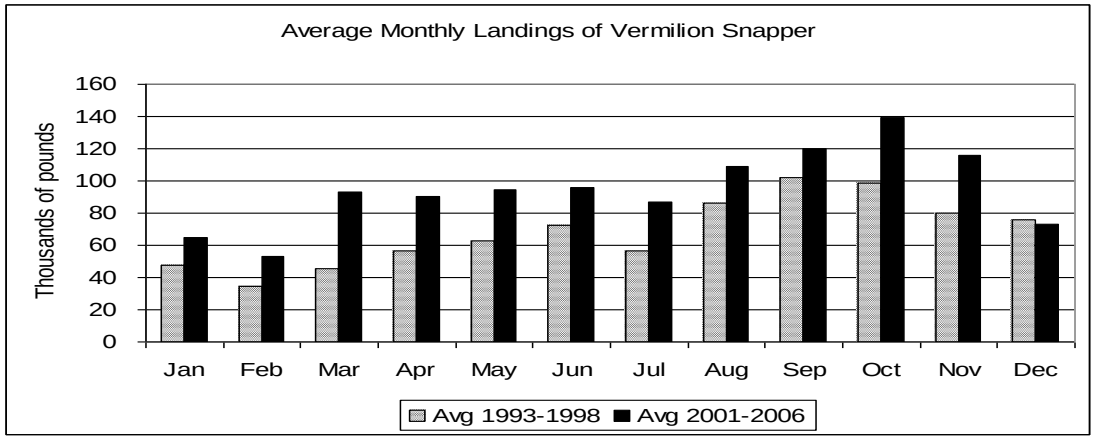
Vermilion snapper are landed throughout the year, with peak months from August through November (Figure 3-8). Average monthly landings were higher for all months except December during 2001-2006 compared with 1993-1998. The greatest relative monthly increases in average landings between the two periods occurred during March and April, which could reflect a shift in fishing effort from gag to vermilion in response to the closed season for gag that was implemented in 1999.

Figure 3-7. Annual landings and dockside revenue for vermilion snapper, 1993-2006.



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

Figure 3-8. Monthly average landings, vermilion snapper, 1993-1998 & 2001-2006.



Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of October 10, 2007.

Logbook-reported landings of vermilion snapper averaged 993,000 pounds in 2003-2007 and had an ex-vessel value of $2.5 million in 2007 dollars (Table 3-12). An average of 2,230 trips landed one or more pounds of vermilion snapper and landed 3.2 million pounds of all species worth $7.2 million (2007 dollars; Table 3-12).

Table 3-12. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of vermilion snapper, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least 1 lb vermilion snapper	2,171	2,147	2,170	2,107	2,554	2,230
Vermilion snapper, thousand pounds	769	1,071	1,152	865	1,108	993
Vermilion snapper, thousand current $	$1,866	$2,274	$2,552	$2,083	$3,078	$2,370
Vermilion snapper, thousand 2007 $	$2,100	$2,490	$2,704	$2,140	$3,070	$2,501
Dockside price, current $ / pound	$2.43	$2.12	$2.21	$2.41	$2.78	$2.39
All species, same trips, 1000 lbs	2,796	3,131	3,210	3,026	3,777	3,188
All species, same trips, 1,000 2007 $	$6,377	$6,629	$7,012	$6,889	$9,086	$7,199
Boat rev, all spp/trips, 1,000 2007 $	$9,517	$9,383	$9,550	$10,124	$12,741	$10,263
Boats that landed vermilion snapper	248	255	252	233	275	253
	Number of boats according to landings of vermilion snapper					
1-100 lbs per boat per year	91	95	99	89	111	97
101-1,000 lbs per boat per year	66	75	59	63	70	67
1,001-5,000 lbs per boat per year	38	28	38	35	37	35
5,001-10,000 lbs per boat per year	26	13	18	12	18	17
More than 10,000 lbs per boat / year	27	44	38	34	39	36

Source: Same as first table, this section.

Revenue for the 253 boats that landed at least one pound of vermilion snapper came to $10.2 million for all species and all trips, including trips by these boats that did not land vermilion snapper. The boats were not uniformly productive in the fishery for vermilion snapper. Ninety-seven of the 253 boats landed 100 pounds or less, 164 boats landed 1,000 pounds or less, 52 landed 1,001 to 10,000 pounds, and 36 boats landed more than 10,000 pounds (Table 3-12).

Table 3-13. Annual landings and dockside revenues on trips with vermilion snapper as the top source of trip revenue, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least 1 lb vermilion snapper	956	1024	1059	809	1063	982
Boats	152	159	156	135	147	150
Vermilion snapper, thousand pounds	630	911	992	687	901	824
Vermilion snapper, thousand 2007 $	1716	2126	2329	1717	2496	2077
Other species, same trips, thousand pounds	722	834	963	733	997	850
Other species, same trips, thousand 2007 $	1323	1391	1754	1348	1842	1532

Source: Same as first table, this section.

Vermilion snapper was the primary source of revenue on 982 trips per year on average in 2003-2007 (Table 3-13). These trips accounted 83% of the landings and ex-vessel value for vermilion snapper: 824,000 pounds at $2.1 million (Table 3-13). On these trips, other species accounted for 850,000 pounds and $1.5 million in revenue (groupers, jacks, grunts, porgies, and non-snapper grouper species).

Vermilion snapper were caught as a lesser source of revenue on 1,248 trips for gag, scamp, and red grouper in the shallow-water grouper fishery and snowy grouper in the deep-water grouper fishery (Table 3-14). These trips accounted for an annual average of 169,000 pounds of vermilion snapper ($424,000 in 2007 dollars) and 1.3 million pounds ($3.2 million) of other species. Vermilion snapper is landed mostly in the Carolinas through Georgia and northeast Florida and vertical lines are the leading gear (Table 3-15).

Table 3-14. Annual landings and dockside revenues on trips with vermilion snapper as a lesser source of trip revenue, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least 1 lb vermilion snapper	1,215	1,123	1,111	1,298	1,491	1,248
Boats	220	221	213	203	255	222
Vermilion snapper, thousand pounds	140	160	160	178	207	169
Vermilion snapper, thousand 2007 $	$385	$364	$376	$423	$574	$424
Other species, same trips, 1,000 lbs	1,304	1,225	1,095	1,428	1,672	1,345
Other spp, same trips, 1,000 2007 $	$2,955	$2,748	$2,554	$3,401	$4,175	$3,166

Source: Same as first table, this section.

Table 3-15. Annual landings of vermilion snapper for trips with at least one pound of vermilion snapper, by region and primary gear, 2003-2007 (landings in whole weight).

Landing region or primary gear	2003	2004	2005	2006	2007	Average
North Carolina	238	311	422	320	522	363
South Carolina	286	414	424	259	264	329
Georgia and northeast Florida	225	331	291	277	312	287
Central and southeast Florida	11	7	10	4	8	8
Florida Keys	9	8	5	5	1	6
Vertical lines	764	1,066	1,145	859	1,098	986
Diving gear	2	2	4	4	5	3
Other gear	4	3	3	2	4	3

Source: Same as first table, this section.

3.8.1.8 The Commercial Fishery for Black Sea Bass

According to logbook data, black sea bass were landed on an average 2,157 trips per year in 2003-2007, with landings of 540,000 pounds worth $937,000 in 2007 dollars (Table 3-20). Landings of other species on the same trips, 4.0 million pounds, brought trip revenue to $4.5 million in 2007 dollars. Black sea bass were landed by an average of 237 boats in 2003-2007, with 181 of them landing 1,000 pounds or less per year and 23 of them landing more than 5,000 pounds. For these boats, black sea bass accounted for 9.8% of the $9.6 million of the ex-vessel value for all logbook-reported landings of all species on all trips, including trips by these boats that did not land black sea bass.

Table 3-20. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of black sea bass, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least 1 lb black sea bass	2,238	2,372	2,056	2,172	1,949	2,157

Black sea bass, thousand pounds	597	707	460	527	409	540
Black sea bass, thousand current $	$916	$842	$571	$988	$1,089	$881
Black sea bass, thousand 2007 $	$1,033	$927	$611	$1,020	$1,097	$937
Dockside price, current $ / pound	$1.53	$1.19	$1.24	$1.87	$2.66	$1.63
All species, same trips, 1,000 lbs	4,189	4,616	4,441	4,508	4,805	4,512
All species, same trips, 1,000 2007 $	$4,411	$4,643	$4,358	$4,549	$4,594	$4,511
Boat rev, all spp/trips, 1,0000 2007 $	$8,835	$8,961	$9,116	$9,569	$11,441	$9,584
Boats that landed black sea bass	225	243	240	220	256	237
	Number of boats according to landings of black sea bass					
1-100 lbs per boat per year	84	86	104	87	134	99
101-1,000 lbs per boat per year	85	93	81	81	72	82
1,001-5,000 lbs per boat per year	35	34	36	31	27	33
5,001-10,000 lbs per boat per year	7	12	7	6	11	9
More than 10,000 lbs per boat / year	14	18	12	15	12	14
Source: Same as first table, this section.						

Black sea bass was the top source of revenue for 765 trips on average in 2003-2007, and a lesser source on 1,392 trips (Table 3-21 and Table 3-22). On the 765 trips for which it was the top source of revenue, black sea bass accounted for 489,000 pounds of landings worth $855,000 in 2007 dollars, and other species accounted for 54,000 pounds worth $68,000 in 2007 dollars. These 765 trips accounted for 35% of all trips that landed at least one pound of black sea bass, 91% of total landings of black sea bass, and 97% of total ex-vessel value for black sea bass.

Table 3-21. Annual landings and dockside revenues on trips with black sea bass as the top source of trip revenue, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least 1 lb black sea bass	858	889	620	811	649	765
Boats	86	94	83	85	88	87
Black sea bass, thousand pounds	546	637	403	482	378	489
Black sea bass, thousand 2007 $	$948	$827	$539	$936	$1,023	$855
Other species, same trips, 1,000 lbs	51	57	38	69	57	54
Other species, same trips, 1,000 2007 $	$62	$66	$43	$94	$76	$68
Source: Same as first table, this section.						

Table 3-22. Annual landings and dockside revenues on trips with black sea bass as a lesser source of trip revenue, 2003-2007 (landings in whole weight).

Item	2003	2004	2005	2006	2007	Average
Trips with at least 1 lb black sea bass	1,380	1,483	1,436	1,361	1,300	1,392
Boats	195	217	216	194	233	211
Black sea bass, thousand pounds	51	70	57	45	31	51
Black sea bass, thousand 2007 $	$85	$99	$73	$84	$74	$83
Other species, same trips, 1,000 lbs	1,446	1,721	1,674	1,498	1,408	1,549
Other species, same trips, 1,000 2007 $	$3,316	$3,651	$3,704	$3,436	$3,422	$3,506
Source: Same as first table, this section.						

For the 1,392 trips for which it was a lesser source of revenue, landings of black sea bass came to 51,000 pounds worth $83,000 in 2007 dollars, compared with 1.5 million pounds for other species worth $3.5 million. Among South Atlantic states, black sea bass is landed primarily in

North Carolina and South Carolina (Table 3-23). The species is landed mostly with black sea bass pots and vertical lines are a distant second.

Table 3-23. Annual landings of black sea bass for trips with at least one pound of black sea bass, by region and primary gear, 2003-2007, landings in thousand pounds whole weight.

Landing region or primary gear	2003	2004	2005	2006	2007	Average
North Carolina	476	485	324	421	271	395
South Carolina	112	210	120	94	128	133
Georgia and northeast Florida	4	7	8	6	5	6
Central and southeast Florida	4	5	9	7	4	6
Florida Keys			0		0	0
Vertical lines	70	85	63	58	44	64
Traps	521	617	390	466	362	471
Diving gear	0	1	0	0	0	0
Other gear	6	5	6	3	2	4

Source: Same as first table, this section.

3.8.1.9 The Commercial Fishery for Greater Amberjack

3.8.1.11 Imports

Imports have been a major source of seafood supply in the United States, and the domestic snapper grouper market is not an exception. During 2003-2007, imports of fresh and frozen snappers and groupers remained at relatively high levels, averaging 48 million pounds, product weight, a year (Table 3-28). By way of comparison, the average logbook-reported landings of snapper grouper caught in South Atlantic waters were 7.8 million pounds, whole weight. The dominance of imports in the snapper grouper market may be expected to exert limits on the movement of domestic ex-vessel prices resulting from changes in domestic landings of snappers and groupers.

Table 3-28. U.S. imports of snapper and grouper (product weight)

	Fresh snapper & grouper		Frozen snapper & grouper		Total	
Year	Million pounds	Million 2007$	Million pounds	Million 2007$	Million pounds	Million 2007$
2003	34	66	10	16	44	82
2004	33	68	10	15	43	83
2005	36	76	14	22	50	99
2006	35	81	13	24	49	104
2007	38	87	14	26	52	113
Ave	35	76	12	21	48	96

Source: NOAA Fisheries, Foreign trade data base; see footnote, first table in this section.

3.8.2 Economic Description of the Recreational Fishery

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

The South Atlantic recreational fishery is comprised of the private sector and for-hire sector. The private sector includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire sector is composed of the charterboat and headboat (also called partyboat) sectors. Charterboats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person. The type of service, from a vessel- or passenger-size perspective, affects the flexibility to search different fishing locations during the course of a trip and target different species since larger concentrations of fish are required to satisfy larger groups of anglers.

3.8.2.1 Harvest

Recreational snapper grouper harvest in the South Atlantic has been variable during the period 2003-2008, averaging slightly above 11 million pounds (Table 3-29). On average, the private/shore mode of fishing accounted for the largest harvests at around 7.62 million pounds (MP). Well below this harvest level are those of the charter mode at 1.92 MP and headboat at 1.63 MP. Harvests in each state also fluctuated during the same period (Table 3-30). On average, Florida accounted for most of the snapper grouper harvest in the South Atlantic at around 6.90 MP, followed by North Carolina at 2.21 MP, South Carolina at 1.51 MP, and lastly by Georgia at 0.62 MP.

Table 3-29. Harvest (lbs) of snapper grouper species by mode in the South Atlantic, 2003-2008.

Year	Charterboat[1]	Headboat[2]	Shore and Private/Rental Boat[1]	Total
2003	2,301,303	1,375,688	7,265,886	10,942,877
2004	1,517,384	1,889,010	6,688,596	10,094,990
2005	2,313,468	1,649,210	6,123,049	10,085,727
2006	1,998,902	1,648,405	7,282,328	10,929,635
2007	1,697,350	1,893,031	8,777,570	12,367,950
2008	1,720,683	1,306,996	9,572,258	12,601,945
Average	1,924,848	1,627,057	7,618,281	11,170,521

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab and MRFSS database, NOAA Fisheries, NMFS, SERO.
[1] Pounds of A and B1 fish estimated from the MRFSS Survey.
[2] The total annual estimate of headboat catch derived from data collected through the NMFS headboat survey.

Table 3-30. Harvest (lbs) of snapper grouper species by state in the South Atlantic, 2003-2008.

Year	Florida	Georgia	South Carolina	North Carolina
2003	7,848,011	770,993	1,042,157	1,281,714
2004	5,970,816	763,609	1,625,212	1,735,353
2005	6,696,212	622,302	852,105	1,915,107
2006	6,474,221	746,982	1,466,944	2,241,489
2007	7,173,255	320,927	2,079,880	3,199,767
2008	7,262,726	490,209	1,980,075	2,866,928
Average	6,904,207	619,170	1,507,729	2,206,726

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

There are six snapper grouper species most affected by this amendment. The distribution by mode of these species in the South Atlantic is presented in Table 3-31. With the exception of black grouper, all species showed relatively large harvests over the 2003-2008 period. Black sea bass accounted for the largest harvest at an average of 0.78 MP, followed somewhat closely by gag at an average of 0.62 MP and vermilion snapper at an average of 0.60 MP. Except for vermilion snapper, the shore and private mode of fishing dominated in the harvest of the six major species. Headboats dominated in the harvest of vermilion snapper.

Table 3-32 presents the geographic distribution of the six major species. Florida registered harvests of all six species while Georgia and North Carolina did not show any harvests of black grouper. Georgia registered very low landings of red grouper, whereas South Carolina registered relatively low landings of black grouper. In addition, North Carolina showed relatively low landings of red snapper.

Seasonal distribution of the six major species is presented in Table 3-33, with the monthly headboat data aggregated to match the MRFSS two-month wave. Except for black grouper, the peak harvest period for the subject species was May-June. November-December and July-August were the peak months for black grouper. Troughs occurred in January-February for all species, except black grouper whose trough occurred in March-April.

Table 3-31. South Atlantic average harvest (lbs) of 6 major species in this amendment, by mode, 2003-2008.

Species	Charterboat	Headboat	Shore and Private/Rental Boat	Total
Gag	101,539	64,547	456,471	622,558
Vermilion Snapper	111,521	379,710	105,005	596,237
Red Snapper	109,882	62,432	230,733	403,048
Black Sea Bass	93,691	164,465	525,001	783,157
Black Grouper	2,568	13,556	33,051	49,174
Red Grouper	51,741	45,662	401,412	498,815

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

Table 3-32. South Atlantic average harvest (lbs) of 6 major species in this amendment, by state, 2003-2008.

Species	Florida	Georgia	South Carolina	North Carolina
Gag	385,393	14,042	39,089	184,034
Vermilion Snapper	183,484	45,941	231,503	135,308
Red Snapper	339,374	33,621	20,553	9,499
Black Sea Bass	244,222	87,574	245,727	205,635
Black Grouper	49,082	0	93	0
Red Grouper	128,496	50	8,143	362,127

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

Table 3-33. South Atlantic average harvest (lbs) of 6 major species in this amendment, by two-month wave, 2003-2008.

Species	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Gag	83,007	84,466	153,795	116,837	88,176	96,278
Vermilion Snapper	28,129	84,106	190,469	159,457	85,613	48,463
Red Snapper	38,262	65,142	115,309	64,838	57,314	62,183
Black Sea Bass	45,768	144,853	220,940	178,973	62,636	129,988
Black Grouper	9,616	3,080	6,800	13,069	3,176	13,433
Red Grouper	17,380	77,091	199,260	105,223	62,412	37,449

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

For the period 2003-2008, the six major species in this amendment accounted for about 26 percent of all recreational harvests of snapper grouper in the South Atlantic.

3.8.2.2 Effort

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

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

Estimates of recreational effort for the entire snapper grouper fishery in the South Atlantic are provided in Table 3-34 for trips by mode and Table 3-35 for trips by state. The total column refers to the total number of trips taken by anglers in the South Atlantic snapper grouper fishery and not to the sum of catch and target trips.

In the South Atlantic, total angler trips were highest for the private mode, followed by the shore mode, and then by the charter mode (Table 3-34). In addition, average catch trips were highest on those taken through the private mode and lowest on those through the charter mode. The same is true with target trips: they were highest for private mode and lowest for charter mode. For the charter mode, target trips rose steadily through the years while catch trips peaked in 2007. Shore mode catch trips dropped from 2003 to 2004 but steadily increased thereafter to a peak in 2007; shore mode target trips fell from 2003 to 2005 and increased thereafter to a peak in 2007. For the private mode, both catch and target trips fell in 2004 but increased thereafter, reaching a peak in 2007.

By far, Florida registered the highest total angler trips, followed in order by North Carolina, South Carolina, and Georgia (Table 3-35). The same pattern holds for catch trips but not quite for target trips, with South Carolina registering slightly higher target trips than North Carolina. For Florida, both catch and target trips fell in 2004, subsequently rose in the following years, and peaked in 2007. Georgia catch trips fluctuated between 2003 and 2006 and remained at relatively high levels in the last two years; target trips fell substantially in 2004, remained at low levels until 2007, and rose in 2008 to a level close to that in 2003. South Carolina catch trips fluctuated at relatively low levels between 2003 and 2005 but at higher levels in subsequent years; target trips fell in 2004 but subsequently rose to a peak in 2007. Catch trips in North Carolina steadily rose over the years and peaked in 2007; target trips, on the other hand, fluctuated throughout the period.

Table 3-34. Recreational effort for the snapper grouper fishery in the South Atlantic, in thousand trips, by mode, 2003-2008.

	Charter Mode Trips			Shore Mode Trips			Private Mode Trips		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
2003	117	24	412	982	247	6,493	2,026	687	9,963
2004	135	33	434	851	199	6,754	1,867	496	9,369
2005	127	32	508	924	192	7,009	2,055	517	10,073
2006	109	31	459	1,151	257	8,211	2,520	556	10,749
2007	136	47	501	1,308	297	7,983	3,163	783	13,137
2008	124	48	439	1,002	270	6,317	2,629	772	11,009
Avg.	125	36	459	1,036	244	7,128	2,377	635	10,717

Man-made and beach/bank trips are excluded.
Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-35. Recreational effort for the snapper grouper fishery in the South Atlantic, in thousand trips, by state, 2003-2008.

	Florida			Georgia			South Carolina			North Carolina		
	Catch	**Target**	**Total**	**Catch**	**Target**	**Total**	**Catch**	**Target**	**Total**	**Catch**	**Target**	**Total**
2003	2,716	761	11,444	92	46	971	141	95	2,098	175	56	2,354
2004	2,342	558	10,660	87	26	936	184	85	2,239	239	59	2,721
2005	2,595	607	12,049	96	26	851	143	58	2,083	272	48	2,607
2006	3,126	627	13,115	66	28	790	214	133	2,629	374	56	2,885
2007	3,780	876	15,169	117	26	926	295	140	2,529	416	86	2,996
2008	2,947	841	11,215	226	42	1,282	246	134	2,528	336	73	2,740
Avg.	2,918	712	12,275	114	32	959	204	108	2,351	302	63	2,717

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

Estimates of the average (2003-2008) recreational effort for the six species most affected by this amendment are provided in Table 3-36 for trips by mode and Table 3-37 for trips by state. The total column refers to the total number of angler trips by mode or by state and not to the sum of catch trips and target trips.

In terms of catch and target trips, the private mode dominated the other two fishing modes in all six species (Table 3-36). Catch trips were highest for black sea bass across all modes. Target trips, on the other hand, varied by mode: black sea bass was highest for charter and private modes while red snapper was highest for the shore mode. The charter mode showed no target trips for black and red grouper and the shore mode registered no target trips for vermilion snapper.

There are also observable regional variations in catch and target trips for the six major species (Table 3-37). In both catch and target trips, Florida dominated all other states for most species. An exception is black seas bass in which South Carolina registered higher target trips than any other states, although Florida still registered the highest catch trips for this species. Georgia showed no catch and target trips for black grouper and red grouper. South Carolina showed no target trips for both black and red grouper. North Carolina registered no catch and target trips for black grouper and no target trips for red snapper.

The seasonal distribution of recreational effort for the six major species in this amendment is presented in Table 3-38 for catch trips and Table 3-39 for target trips. The peak period for catch trips matched with peak harvests for red snapper, black grouper, and red grouper. Catch trips for vermilion snapper and black sea bass peaked in July-August, whereas harvests of these species peaked in May-June. Catch trips for gag peaked in November-December, whereas harvests peaked in May-June. For target trips, the match between peak trips and peak harvests occurred with vermilion snapper, black sea bass, black grouper, and red grouper. Peak target trips for gag and red snapper occurred in July-August, whereas peak harvests for these two species occurred in May-June.

Table 3-36. South Atlantic average recreational effort for 6 major species in this amendment, in thousand trips, by mode, 2003-2008.

	Charter Mode Trips			Shore Mode Trips			Private Mode Trips		
Species	**Catch**	**Target**	**Total**	**Catch**	**Target**	**Total**	**Catch**	**Target**	**Total**
Gag Grouper	7.6	1.8	458.8	9.8	1.7	7,127.8	99.7	37.4	10,716.6
Vermilion Snapper	27.6	0.8	458.8	0.9	0.0	7,127.8	58.6	2.2	10,716.6
Red Snapper	14.7	3.1	458.8	1.5	3.5	7,127.8	72.3	43.7	10,716.6
Black Sea Bass	35.0	3.7	458.8	40.6	0.9	7,127.8	490.8	45.7	10,716.6
Black Grouper	0.8	0.0	458.8	0.8	0.1	7,127.8	14.3	3.4	10,716.6
Red Grouper	9.3	0.0	458.8	1.5	0.4	7,127.8	59.1	3.6	10,716.6

Man-made and beach/bank trips are excluded.
Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-37. South Atlantic average recreational effort for 6 major species in this amendment, in thousand trips, by state, 2003-2008.

	Florida			Georgia			South Carolina			North Carolina		
Species	**Catch**	**Target**	**Total**	**Catch**	**Target**	**Total**	**Catch**	**Target**	**Total**	**Catch**	**Target**	**Total**
Gag Grouper	93.1	38.6	12,275.4	3.0	0.0	959.5	5.1	1.3	2,351.0	15.8	1.0	2,717.2
Vermilion Snapper	59.2	1.7	12,275.4	6.0	0.0	959.5	10.5	1.1	2,351.0	11.4	0.3	2,717.2
Red Snapper	78.6	46.2	12,275.4	6.2	1.7	959.5	2.7	2.3	2,351.0	1.0	0.0	2,717.2
Black Sea Bass	197.7	12.0	12,275.4	43.4	5.7	959.5	143.9	23.1	2,351.0	181.4	9.6	2,717.2
Black Grouper	15.7	3.6	12,275.4	0.0	0.0	959.5	0.2	0.0	2,351.0	0.0	0.0	2,717.2
Red Grouper	52.6	3.5	12,275.4	0.0	0.0	959.5	0.8	0.0	2,351.0	16.4	0.4	2,717.2

Man-made and beach/bank trips are excluded.
Source: MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3-38. South Atlantic average catch trips (all modes) for the 6 major species in this amendment, by two-month wave, 2003-2008.

Species	**Jan-Feb**	**Mar-Apr**	**May-Jun**	**Jul-Aug**	**Sept-Oct**	**Nov-Dec**
Gag	15.3	15.8	19.5	17.6	24.1	24.9
Vermilion Snapper	8.7	15.1	19.5	22.6	12.5	8.7
Red Snapper	9.5	15.7	18.8	17.9	13.1	13.6
Black Sea Bass	27.2	70.4	138.1	148.1	103.0	79.7
Black Grouper	2.5	2.0	3.0	2.9	1.9	3.6
Red Grouper	10.3	10.7	17.3	11.1	8.3	12.3

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

Table 3-39. South Atlantic average target trips (all modes) for the 6 major species in this amendment, by two-month wave, 2003-2008.

Species	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Gag	6.5	8.4	7.3	8.9	3.4	6.3
Vermilion Snapper	0.7	0.6	0.9	0	0.4	0.4
Red Snapper	4.0	10.3	10.2	12.0	6.7	7.1
Black Sea Bass	3.0	11.8	12.5	8.6	6.0	8.3
Black Grouper	0.5	0.5	0.8	0.7	0.3	0.8
Red Grouper	0.5	0.4	1.1	0.6	0.4	0.9

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

Similar analysis of recreational effort is not possible for the headboat sector since data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. Despite the inability to associate headboat effort with specific species, the stationary bottom nature of headboat fishing, as opposed to trolling, suggests that most headboat trips and, hence, angler days, are snapper grouper trips by intent.

The state-by-state distribution of headboat angler days is presented in Table 3-40. Due to very low headboat angler days for Georgia, entries for Georgia are combined with those of Florida. For the period 2003-2008, total headboat angler days fluctuated around the mean of 230,878 days. On average, Florida accounted for the largest number of angler days (157,764), or about 68 percent of all headboat angler days. Nevertheless, the numbers for South Carolina (47,524 days) and North Carolina (25,591 days) are far from being negligible.

The seasonal distribution of headboat angler days is presented in Table 3-41. The peak for angler days consistently occurred in July-August each year. The troughs occurred in the last two months of the year, except for 2004 and 2008 when troughs occurred in September-October.

Table 3-40. South Atlantic headboat angler days, 2003-2008.

	Florida	South Carolina	North Carolina	Total
2003	145,011	36,556	22,998	204,565
2004	173,701	50,461	27,255	251,417
2005	171,078	34,036	31,573	236,687
2006	175,522	56,074	25,736	257,332
2007	157,150	60,729	29,002	246,881
2008	124,119	47,287	16,982	188,388
Average	157,764	47,524	25,591	230,878

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

Table 3-41. South Atlantic headboat angler days, by two-month wave, 2003-2008.

	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
2003	21,805	36,363	48,210	59,982	22,431	15,774
2004	27,593	45,468	59,144	70,141	22,811	26,260
2005	27,672	41,799	54,892	70,369	21,390	20,565
2006	27,432	48,572	60,525	73,413	29,344	18,046
2007	24,285	41,464	57,268	75,900	27,029	20,935
2008	21,587	36,634	49,223	51,635	13,768	15,541
Average	25,062	41,717	54,877	66,907	22,796	19,520

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

3.8.2.3 Permits

For-hire vessels in the South Atlantic are required to have a snapper grouper for-hire permit to fish for or possess snapper grouper species in the EEZ. The number of permitted vessels for the period 2003-2008 is provided in Table 3-44. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners have been known to purchase open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire permits issued in the South Atlantic snapper grouper fishery steadily increased over the years, from 1,477 permits in 2003 to 1,811 permits in 2008. Most of the increases would likely be for strictly for-hire business, since permits issued for vessels operating as for-hire and commercial entities remained about flat from 2005 to 2006, fell in 2007, and increased in 2008. The majority of snapper grouper for-hire permitted vessels were home-ported in Florida; a good number of vessels were also home-ported in North Carolina and South Carolina. Interestingly, there were several vessels with homeports in states other than those within the South Atlantic Council's area of jurisdiction. Most of the vessels with both for-hire and commercial permits were home-ported in the South Atlantic Council's area of jurisdiction.

The for-hire permit does not distinguish between whether the vessel operates as a charterboat or headboat. Based on a 1997 survey, Holland *et al.* (1999) estimated that a total of 1,080 charter vessels and 96 headboats supplied for-hire services in all South Atlantic fisheries during 1997.

Table 3-42. South Atlantic snapper grouper for-hire permit holders by home port state, 2003-2008.

	Number of vessels issued for-hire vessel permits							Number of vessels with both a for-hire permit and a commercial snapper grouper permit						
Home Port State	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**Avg.**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**Avg.**
Florida	957	1,084	1,119	1,108	1,140	1,125	**1,115**	148	151	148	151	122	128	**141**

	Number of vessels issued for-hire vessel permits							Number of vessels with both a for-hire permit and a commercial snapper grouper permit						
North Carolina	206	232	254	284	315	342	**272**	45	42	43	46	40	43	**43**
South Carolina	122	108	121	119	129	140	**123**	34	33	33	34	24	25	**31**
Georgia	36	27	33	33	30	27	**31**	4	2	2	2	3	4	**3**
Virginia	5	13	10	10	8	18	**11**		4	3	2		0	**2**
Other States	69	48	51	62	69	85	**64**	8	3	5	3	2	3	**4**
Gulf States	82	82	79	65	63	74	**74**							
Total	**1,477**	**1,594**	**1,667**	**1,681**	**1,754**	**1,811**	**1,690**	**239**	**235**	**234**	**238**	**191**	**203**	**224**

Source: Southeast Permits Database, NOAA Fisheries, SERO.

3.8.2.4 Economic Value, Expenditures, and Economic Impacts

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

Estimates of the economic value of a day of saltwater recreational fishing in the South Atlantic indicate that the mean value of access per marine recreational fishing trip is $109.31 for the South Atlantic (Haab *et al.* 2001). While this estimate is not specific to snapper grouper fishing trips, it may shed light on the magnitude of an angler's willingness to pay for this type of recreational experience.

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

In their study of the North Carolina for-hire fishery, Dumas et al. (2009) estimated several measures of consumer surplus for anglers fishing through the for-hire mode. Anglers were distinguished as to whether fishing was their primary or secondary purpose for taking the trip to the coasts. An additional snapper grouper caught and kept would generate consumer surplus of

$93.51 per trip for primary purpose anglers and $60.79 per trip for secondary purpose anglers. Consumer surplus per site per trip for primary purpose anglers ranged from $4.88 to $27.03 in charter trips taken in Federal waters, or from $0.35 to $9.55 in charter trips taken in state waters. The corresponding range of values for secondary purpose anglers were $0.24 to $16.62 for charter trips in Federal waters, or $0.12 to $16.54 for charter trips in state waters. On headboat trips in both state and Federal waters, consumer surplus per site per trip ranged from $0.59 to $4.12 for primary purpose anglers and from $0.48 to $4.76 for secondary purpose anglers. Consumer surplus trip for the opportunity to take a for-hire fishing trip was estimated at $624.02 per angler per trip on charterboats and $101.64 per anger per trip on headboats.

In addition to the above economic values, there are estimates of the economic value of a red snapper and a red snapper trip provided in (NOAA 2008). Although these values are derived for the Gulf of Mexico recreational fishery, they can be used as proxy values for the South Atlantic fishery. It is noted, however, that red snapper is a significantly more important recreational target fishery in the Gulf of Mexico than in the South Atlantic. As a result, the estimates of economic value may overstate the true values for the South Atlantic. The estimated CS to a recreational angler of one red snapper is $6.04, while the estimated CS of a red snapper fishing trip is $53.53. These values were used to estimate the impacts of the red snapper interim rule in the South Atlantic.

Most recently, NOAA Fisheries Service Southeast Science Center (NMFS 2009) developed estimates of consumer surplus per angler trip based on various studies and data in the last ten years (see **Appendix N**). 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 2009 dollars) $112 to $128 for red snapper, $123 to $128 for grouper, $11 for other snappers, and $80 for snapper grouper. These values are deemed directly applicable in assessing the changes in consumer surplus due to management measures in Amendment 17A.

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. PS 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 PS associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are also provided in NMFS (2008). These values are not PS estimates because they are not net of crew costs and returns to the owner. The estimated net operating revenues per angler trip for the for-hire sector are $162 for a charterboat trip and $78 for a headboat trip.

The NOAA Fisheries Service Southeast Science Center recently provided estimates of charterboat and headboat net operating revenues for various areas in the Southeast (NMFS 2009). These estimates were culled from several studies – Liese et al. (2009), Dumas et al. (2009), Holland et al. (1999), and Sutton et al. (1999). Estimates of net operating revenue per angler trip (2009 dollars) on representative charter trips are $135 for east Florida, $146 for Louisiana through east Florida, $156 for northeast Florida, and $128 for North Carolina. For charter trips into the EEZ only, net operating revenues are $141 in east Florida and $148 in northeast Florida. For full day and overnight trips only, net operating revenues are $160 in North

Carolina and $155 in central and south North Carolina. Net operating revenues per angler trip are lower for headboats than for charterboats. Net operating revenue estimates for a representative headboat trip are $48 in the Gulf of Mexico, $63 in North Carolina, and $68 in central and south North Carolina. For full day and overnight headboat trips, net operating revenues are $74 in North Carolina and $77 in central and south North Carolina.

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

Estimates of the economic impacts of the recreational snapper grouper fishery were derived using average output (sales) and job (FTE) impact coefficients for recreational angling across all fisheries (species), as derived by an economic add-on to the MRFSS, and described and utilized in USDOC (2009). Estimates of the average expenditures by recreational anglers are provided in USDOC (2009) and are incorporated herein by reference. Estimates of the average snapper grouper effort (2003-2007) and associated economic impacts (2007 dollars) are provided in Table 3-43. Snapper grouper target trips were selected as the measure of snapper grouper effort. More trips catch snapper grouper than target snapper grouper, however, as described in Tables 3-34 and 3-35. Estimates of the economic impacts associated with snapper grouper catch trips can be calculated based on the ratio of catch trips to target trips because the average output impact and jobs per trip cannot be differentiated by trip intent. For example, if the number of catch trips were three times the number of target trips for a particular state and mode, the estimate of the associated output or jobs impacts would equal three times the estimate associated with target trips. The total 2007 output (sales) impacts across all modes and states for trips which targeted snapper grouper was approximately $43.3 million, the value added impact was approximately $25.3 million, and the economic activity associated with these trips supported an estimated 467 FTE jobs. The contributions by private/rental mode anglers were the greatest, accounting for approximately half of the total impacts. It should be noted that output impacts and value added impacts are not additive.

Table 3-43. Summary of snapper grouper target trips (2003-2007 average) and associated economic impacts (2007 dollars). Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	East Florida	Total
	Shore Mode				
Target Trips	22,713	12,046	6,650	210,735	252,144
Output Impact	$3,620,977	$1,093,668	$100,261	$5,810,261	$10,625,167
Value Added Impact	$2,016,356	$608,981	$60,119	$3,373,175	$6,058,631
Jobs	44	13	1	62	120
	Private/Rental Mode				
Target Trips	58,883	85,387	22,275	402,804	569,349
Output Impact	$3,209,442	$3,726,440	$337,692	$14,698,955	$21,972,529
Value Added Impact	$1,809,705	$2,174,328	$204,838	$8,783,407	$12,972,278
Jobs	35	42	3	155	234
	Charter Mode				

	North Carolina	South Carolina	Georgia	East Florida	Total
Target Trips	1,493	3,068	1,543	24,665	30,769
Output Impact	$556,467	$966,706	$91,719	$9,041,651	$10,656,542
Value Added Impact	$312,290	$546,149	$53,530	$5,323,074	$6,235,044
Jobs	7	12	1	93	113
	All Modes				
Target Trips	83,089	100,501	30,468	638,204	852,262
Output Impact	$7,386,885	$5,786,815	$529,671	$29,550,867	$43,254,238
Value Added Impact	$4,138,351	$3,329,458	$318,488	$17,479,656	$25,265,953
Jobs	85	68	5	309	467

Source: effort data from the MRFSS, economic impact results calculated by NMFS SERO using the model developed for USDOC (2009).

As noted in the previous paragraph, the values provided in Table 3-47 reflect only effort derived from the MRFSS. Because the headboat sector in the Southeast is not covered in the MRFSS, the results in Table 3-43 do not include estimates of the economic impacts by headboat anglers. Estimates of headboat effort are available, however, from the NMFS Headboat Survey and are provided in Tables 3-42 and 3-41. Species target information, however, is not collected in the Headboat Survey, which prevents the generation of estimates of the number of headboat target trips for individual species. It is assumed for the purpose of this assessment, though, that while some headboat anglers may not care what species they catch, all headboat anglers expect to catch snapper grouper due to the bottom fishing-nature of headboat angling. As a result, using total headboat effort as a proxy for snapper grouper target effort is not expected to be a significant issue for estimating the economic impacts associated with snapper grouper trips in the headboat sector.

Estimates of the economic impacts associated with headboat snapper grouper effort are provided in Table 3-44. Aside from the issue of possibly using too high a measure of target effort, it should be noted that the estimates of economic impacts are expected to be substantially higher than actual impacts because they were generated using the average impact values associated with charter trips. Because the headboat sector is not included in the MRFSS in the South Atlantic, appropriate estimates of the economic impacts per headboat trip in South Atlantic states were not generated in the development of USDOC (2009) and are not available. Estimates of the impacts of charter trips are expected to be substantially greater than those of headboat trips. The difference in fee scale for charter trips compared to headboat trips, where charter trip is rented on a boat basis whereas anglers pay per person for headboat trips, may be the primary determinant in the difference, but other factors, such as different rates of tourist versus local clientele, may also contribute. The headboat (party boat) sector is included in the MRFSS in the mid-Atlantic (and New England) states and the estimated output (sales) impact per trip for charter and party boats combined in the mid-Atlantic states ranges from approximately $140 to $180 (2007 dollars), whereas the output (sales) impact per charter trip across all South Atlantic states is estimated to exceed $300. Further, the mid-Atlantic values may exceed actual values for just headboat (partyboat) trips because they incorporate charter trips as well in their total. Rather than use an alternative value from outside the region, this analysis simply uses the higher South

Atlantic charter value and notes that actual impacts could be substantially less than the estimated value.

Table 3-44. Summary of snapper grouper headboat trips (2003-2007 average) and associated economic impacts (2007 dollars). Note: these estimated economic impact values may substantially exceed actual values because they are based on average trip values from charter trips. Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia+Florida	Total
Trips	27,312	47,571	164,492	239,375
Output Impact	$10,179,650	$14,989,306	$60,299,176	$85,468,133
Value Added Impact	$5,712,840	$8,468,342	$35,499,819	$49,681,001
Jobs	130	191	620	941

Source: effort data from the NMFS Headboat Survey, economic impact results calculated by NMFS SERO using the model developed for USDOC (2009).

As seen in Table 3-36, among the major snapper grouper species, black sea bass, red snapper, and gag have been subject to the most recreational target effort, on average, from 2003-2007. The economic impact contributions of these species are included in the information in Table 3-44. Individually, the economic impacts associated with target trips for black sea bass are estimated to be approximately $3 million (2007 dollars) in output (sales) impacts, approximately $1.7 million in value added impacts, and the economic activity associated with trips for these species is estimated to support 35 FTE jobs (based on the average annual number of black sea bass target trips, 2003-2007; tabular results not shown). It should be noted that because these results are embedded in the results for the entire snapper grouper fishery, they are not additive to the totals in Table 3-43. Across all states, private/rental mode target trips for black sea bass accounted for the largest portion of these impacts, approximately $1.9 million in output (sales) impacts, approximately $1.1 million in value added impacts, and 21 FTE jobs, and across all modes South Carolina led with approximately $1.8 million in output (sales) impacts, approximately $1.0 million in valued added impacts, and 22 FTE jobs. The comparable values for red snapper target trips are approximately $2.3 million (output/sales impacts), $1.3 million (value added), and 24 FTE trips total, led by the private/rental mode sector contributing approximately $1.3 million and $800,000 in output (sales) and value added impacts, respectively, and 14 FTE jobs; and Florida, accounting for approximately $2 million and $1.2 million in output (sales) and value added impacts, respectively, and 21 of the total 24 FTE jobs. Finally, the comparable numbers for gag target trips are approximately $2 million in output (sales) impacts, approximately $1.2 million in value added impacts, and the economic activity associated with this species supports 20 FTE jobs. The private/rental boat mode again contributed the largest portion of these impacts, approximately $1.2 million and $700,000 in output (sales) and value added impacts, respectively, and 13 FTE jobs, and most of the activity occurred in Florida, accounting for approximately $1.9 million and $1.1 million in output (sales) and value added impacts, respectively, and accounted for 19 of the total 20 FTE jobs associated with this species.

For the reasons discussed above on the economic impacts of snapper grouper trips, estimates of the economic impacts of headboat target trips for individual snapper grouper species cannot be produced with available data.

3.8.2.5 Financial Operations of the Charter and Headboat Sectors

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

For headboats, the average fee in Florida was $29 for a half-day trip and $45 for a full day trip. For North and South Carolina, the average base fee was $34 per person for a half-day trip and $61 per person for a full day trip. Most of these headboat trips operated in Federal waters in the South Atlantic (Holland *et al.* 1999).

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

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

in average gross revenues: $73,365 for charterboats in North Carolina, $32,091 for charterboats in South Carolina; $68,992 for charterboats in Georgia; and $261,990 for headboats in the other South Atlantic states.

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

A more recent study of the North Carolina for-hire fishery provides some updated information on the financial status of the for-hire fishery in the state (Dumas et al., 2009). Depending on vessel length, regional location, and season, charter fees per passenger per trip ranged from $168.14 to $251.59 for a full-day trip and from $93.63 to $123.95 for a half-day trip; headboat fees ranged from $72.50 to $81.78 for a full-day trip and from $38.08 to $45 for a half-day trip. Charterboats generated a total of $55.7 million in passenger fees, $3.2 million in other vessel income (e.g., food and beverages), and $4.8 million in tips. The corresponding figures for headboats were $9.8 million in passenger fees, $0.2 million in other vessel income, and $0.9 million in tips. Non-labor expenditures (e.g., boat insurance, dockage fees, bait, ice, fuel) amounted to $43.6 million for charterboats and $5.3 million for headboats. Summing across vessel lengths and regions, charter vessels had an aggregate value (depreciated) of $120.4 million and headboats had an aggregate value (depreciated) of $10.2 million.

3.8.3 Social and Cultural Environment

Descriptions of the social and cultural environment of the snapper grouper fishery are contained in Jepson *et al.* (2005) and SAFMC (2010a) and are incorporated herein by reference. The following information utilizes NMFS summary harvest data (2005-2009) located at http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html to identify the states which have accounted for the highest commercial landings of the species covered by this proposed amendment and 2008 NMFS Accumulated Landings System (ALS) data to identify the number of communities and dealers with recording landings of each respective species. More recent ALS data, which summarizes harvest information at the community level, is not available.

For the four species covered by this proposed amendment, over the period 2005-2009, North Carolina recorded the highest proportion of black sea bass (approximately 81% of regional commercial harvests in terms of pounds landed), gag (approximately 37%, and vermilion snapper (approximately 48%). Florida was the dominant state for the remaining species, greater amberjack, accounting for approximately 93% of regional harvests. Among all four species, gag harvests were the most evenly distributed among multiple states, with South Carolina following North Carolina (37%) closely at approximately 36% and Florida with approximately 26%. Vermilion snapper was the next most evenly distributed species, with South Carolina and Florida accounting for approximately 27% and 23% of total regional harvests, respectively.

In 2008, a total of 104 dealers located in 54 communities recorded landings of black sea bass, led by 63 dealers in 28 communities located in North Carolina. The North Carolina communities with the highest landings and at least three dealers were Sneads Ferry, Wanchese, Beaufort, and

Wilmington. In South Carolina, which recorded the second highest black sea bass commercial harvests over 2005-2009, dealers in Little River recorded the highest landings.

For vermilion snapper, 107 dealers in 61 communities recorded landings in 2008, led by 52 dealers in 26 communities in North Carolina, and 34 dealers in 23 communities in Florida. The communities in North Carolina with at least three dealers and the highest landings were Morehead City, Beaufort, and Sneads Ferry. No Florida community with substantive landings of vermilion snapper met the three-dealer threshold. South Carolina recorded fewer dealers and communities than Florida, 18 and 8, respectively, with Murrells Inlet and Little River the dominant communities.

Gag purchases in 2008 were distributed among 107 dealers in 62 communities, led by 48 dealers in 29 communities in Florida, 43 dealers in 24 communities in North Carolina, and 14 dealers in 8 communities in South Carolina. The communities with the largest volume of activity and at least three dealers were Wilmington and Hampstead in North Carolina, whereas no communities in either Florida or South Carolina satisfied the three-dealer threshold.

Finally, 36 dealers in 25 communities recorded purchases of greater amberjack in 2008, led by 33 dealers in 22 communities in Florida. Only two communities, however, Miami and Ft. Pierce, recorded significant landings and had three or more dealers recording purchases.

Descriptions of most of the communities listed above can be found in Jepson *et al.* (2005). Jepson *et al.* (2005) also contains description of numerous other South Atlantic communities with substantial fishing activity, but which have not have been listed due to confidentiality concerns. Substantially more overlap of key communities could be seen if confidentiality issues did not exist. Further, it is emphasized that the listing of these communities should not be assumed to directly imply significant social vulnerability to supply disruption of these species, as vulnerability would be a function of the importance of an individual species or species group relative to total harvests of all other species. For example, while Sneads Ferry was the top landing destination for black sea bass in North Carolina in 2008, black sea bass accounted for only approximately 7% of total landings in both pounds and value. The relevant proportions for Wilmington are 2% of pounds and 3.5% of revenues. These proportions do not necessarily imply that black sea bass are not a significant revenue or cultural species to individual fishermen, dealers, or the community as a whole in either community. Rather, this example is provided to simply emphasize that a more holistic examination is required to determine the significance of the potential social effects of harvest changes motivated by regulatory action.

4 Environmental Effects

4.1 Harvest Management Measures for Black Sea Bass

Alternative 1 (No Action). ~~Quota~~ Commercial ACL is 309,000 lbs gutted weight. There is no trip limit.

Alternative 2. Establish a commercial trip limit for the black sea bass fishery (all gear)

Sub- Alternative 2a. Establish a 500 lb gw (590 lb ww) trip limit.

Sub- Alternative 2b. Establish a 750 lb gw (885 lb ww) trip limit.

Sub- Alternative 2c. Establish a 1,000 lb gw (1,180 lb ww) trip limit.

Sub- Alternative 2d. Establish a 1,250 lb gw (1,475 lb ww) trip limit.

Sub- Alternative 2e. Establish a 1,000 lb gw (1,180 lb ww) trip limit; reduce to 500 lbs gutted weight (590 lb ww) when 75% of the quota is met.

Sub- Alternative 2f. Establish a 2,000 lb gw (2,360 lb ww) trip limit.

Sub- Alternative 2g. Establish a 2,500 lb gw (2,950 lb ww) trip limit. *(added by Council at Sept. 2010 meeting)*

Sub- Alternative 2gh. Establish a ~~trip limit that will keep the fishery open all year (~~340 lbs gw trip limit~~)~~. *IPT suggests just changing text to 340 lb trip limit since different trip limits would keep the fishery open all year depending on year chosen.*

~~**Alternative 3.** Establish separate trip limits for the pot and other fisheries (hook and line, spear).~~
~~**Alternative 3a.** Establish a 500 lb gw (590 lb ww) trip limit for pot fishery and a 50 lb gw (59 lb ww) trip limit for other fisheries.~~
~~**Alternative 3b.** Establish a 750 lb gw (885 lb ww) trip limit for pot fishery and a 75 lb gw (89 lb ww) trip limit for other fisheries.~~
~~**Alternative 3c.** Establish a 1,000 lb gw (1,180 lb ww) trip limit for pot fishery and a 100 lb gw (118 lb ww) trip limit for other fisheries.~~
~~**Alternative 3d.** Establish a trip limit for the pot (340 lb gw) and other fisheries (17 lb gw) that will keep the fishery open all year.~~ *(Moved to Considered but rejected per Sept. 2010 Council motion)*

~~**Alternative 3.** Establish a split commercial season for black sea bass.~~

~~**Sub- Alternative 3a.** Separate commercial ACLs quotas for June-November and December-May based on historical proportions of landings.~~

~~**Sub-Alternative 3b.** Separate commercial ACLs quotas for June-December and January-May based on historical proportions of landings.~~

~~**Sub-Alternative 3c.** Carry over unused portion of commercial ACL from first part of fishing year to second portion of season.~~

~~**Sub-Alternative 3d.** Carry over unused portion of commercial ACL from second part of fishing year to next fishing year.~~

~~**Sub-Alternative 3e.** Allow fishing for black sea bass with black sea bass pots until all but 100,000 pounds is harvested, and allow hook and line fishing to continue. Start second season for the remainder of the quota on June 1 of every year.~~

~~**Alternative 3f.** Close the pot portion of the fishery until all but 50,000 lbs of the commercial ACL is left and reopen the commercial pot fishery on January 1. *(added by Council at Sept. 2010 meeting)*~~

~~**Alternative 4.** Change the black sea bass fishing year (November -October) and establish a split season with November 1st – April 30th and May 1st – October 31st. Catch will be apportioned based on average landings from the last 5 years.~~

~~**Alternative 5.** Change the black sea bass fishing year (January-December) and establish a split season with Jan 1st – June 30th and July 1st – December 31st. Catch will be apportioned based on average landings from the last 5 years.~~

IPT suggests Alternative 3 be restructured as indicated below for ease of analyses. The Council made a motion that Sub-Alternatives 3c and 3d should be removed from Amendment 18A without stating where they should go. The IPT recommends the Council either formally add these alternatives from Amendment 18A to Reg. Amendment 9, or formally move them the considered but rejected section of Amendment 18A

Alternative 3. Retain the June-May fishing year. Specify separate commercial ACLs for June-November and December-May based on landings from 2006-2009.

Alternative 4. Retain the June-May fishing year. Specify commercial ACLs for June-December and January-May based on landings from 2006-2009.

Alternative 5. Change the black sea bass fishing year to November-October. Specify separate commercial ACLs for November-April 30 and May 1-October based on landings from 2006-2009.

Alternative 6. Change the black sea bass fishing year to January-December. Separate commercial ACLs for January-June and July-December based on landings from 2006-2009.

Alternative 7. Under **Alternatives 3-6**, carry over unused portion of commercial ACL from first part of fishing year to second portion of season.

Alternative 8. Under **Alternatives 3-6**, carry over unused portion of commercial ACL from second part of fishing year to next fishing year.

Alternative 9. Under **Alternatives 3-6,** close fishing for black sea bass with pots when all but 100,000 pounds is harvested. Fishing with other allowable gear types would occur for the remainder of the sub-season. Start second season for the remainder of the commercial ACL for all allowable gear types.

Alternative 10. Under **Alternatives 3-6,** close fishing for black sea bass with pots when all but 50,000 pounds is harvested. Fishing with other allowable gear types would occur for the remainder of the sub-season. Start second season for the remainder of the commercial ACL for all allowable gear types. *(added by Council at Sept. 2010 meeting)*

Alternative 11 ~~6~~. Close the pot fishery when 90% of the commercial ACL is met.

Alternative 12 ~~6~~. Establish a spawning season closure for black sea bass.
(the sub-alernatives below were removed from Amendment 18 and incorporated here per Sept. 2010 Council motion)

Sub-Alternative ~~6a~~12a: Implement a March 1-April 30th spawning season closure for black sea bass, would apply to commercial and recreational sectors.

Sub-Alternative ~~6b~~12b: Implement an April 1st-May 31st spawning season closure for black sea bass, would apply to commercial and recreational sectors.

Sub -Alternative ~~6c~~ 12c: Implement a March 1st- May 31st spawning season closure for black sea bass, would apply to commercial and recreational sectors.

Sub-Alternative ~~6d~~12d: Implement a May 1st- May 31st spawning season closure for black sea bass, would apply to commercial and recreational sectors.

IPT Note
The type of control specified by Alternatives 7 and 8 is going to put a lot of pressure on the Center to monitor the quota. As usual, we probably will end up with closing dates that are projected rather than observed. And given that the season is short, the projections might have to be made before the season even begins. If this is the case, then we might as well just specify a fixed season for pot fishing and not worry about monitoring and projections.

IPT Suggestion
Specify two seasons, one in which all gears may participate, and the other for all gears except pots. Specify the fishing year so that one of the seasons corresponds to the traditional winter pot fishery. The Nov-Oct fishing year probably would fit this objective best. Pot fishing would be allowed from Nov-April only. Realistically, given the low ACL for sea bass, this season probably would close in Dec or Jan, but it would allow pots to fish in the winter when they are most efficient and would allow other gears to fish in winter and summer months.

4.1.1 Biological Effects

Amendment 13C (implemented in October 2006), reduced the black sea bass quota over three years from 477,000 lbs gutted weight (June 2006-May 2007) to 309,000 lbs gutted weight (June 2008-May 2009). Amendment 16 (implemented in July 2009) established a January-April spawning season closure for shallow water grouper and reduced the quota for vermilion snapper, and likely resulted in increased effort in the black sea bass fishery during the 2009 fishing year.

As a result of Amendments 13C and 16, the black sea bass 309,000 lb gutted weight quota was met on December 20, 2009, for the June 2008-May 2009 fishing year. No Action **Alternative 1**

would not implement any regulations to slow down the rate at which the quota is being met for black sea bass. The increase in landings during the June 2009 to May 2010 fishing year appears to be the result in increased effort. The average catch per pot was similar during 2008 and 2009 (Table 1). However, the number of trips that fished pots was 1.6 times greater in the June 2009 to May 2010 fishing year than during the previous fishing year (Table 2). There was also an increase in the number of trips that caught black sea bass with other gear types (predominantly hook and line).

Table 4-1. Average catch per trip (lbs gutted weight) and percentage of landings from pots during fishing years (June – May) for 2006-2009. Other category is 99% hook and line gear. NMFS logbook data.

Year	all gear	Pots	other	% pot landings
2006	214	554	31	90.62%
2007	165	501	25	89.15%
2008	198	621	28	89.81%
2009	188	643	31	87.83%

Table 4-2. Number of trips by gear for black sea bass taken during June-December 2008 and 2009. Other category is 99% hook and line gear. NMFS logbook data.

	2008			2009		
Month	all gear	pots	other	all gear	pots	other
6	197	17	180	274	46	228
7	198	24	174	229	37	192
8	179	22	157	244	47	197
9	88	11	77	241	74	167
10	138	34	104	200	65	135
11	194	58	136	210	73	137
12	172	71	101	108	47	61
Total	1,166	237	929	1,506	389	1,117
Percent increase				29.16%	64.14%	20.24%

Alternative 2 would consider a single trip limit for black sea bass harvested with pot and hook and line. To determine trip limits for black sea bass under **Alternatives 2** , it was necessary to account for the increased effort that occurred in 2009. As the black sea bass fishery closed on December 20, 2009, landings were estimated for January-June 2010. This was done by using trip information from the NMFS logbook during January-June 2008 and increasing the number of trips by 64% for the pot fishery, and by 20% for the remaining gear (predominantly hook and line) during that time period. It is noted that the quota was met sooner during the 2010 fishing year so projected dates when quota is met for the various trip limits could be an underestimate.

Based on estimated data for the June 2009-May 2010 fishing year, a 500 lb gutted weight trip limit (**Sub-Alternative 2a**) would keep the fishery open through February 2010 and almost two months longer than the No Action **Alternative 1** (Table 3). Trip limits of 750 to 1,250 lbs gutted weight would result in January closures (**Sub-Alternatives 2b-2d**), and **Sub-Alternative 2e**,

which would reduce a 1,000 lb gutted weight trip limit to 500 lbs gutted weight when 75% of the quota is met would have a similar effect as **Sub-Alternative 2a**. The similarities among the alternatives is likely due to an average catch that is lower than the specified trip limits in **Sub-Alternatives 2b-2e**. Therefore, many trips are not constrained by the trip limit.

Table 4-3. Projected date of black sea bass commercial closure various trip limits. Shaded area represents date the 309,000 lb gutted weight quota was actually met. Values in parentheses represent expected landings at end of fishing year if quota not met.

Fishing Year	**Alternative 1** No trip limit.	**Alternative 2a** 500 lb trip limit.	**Alternative 2b** 750 lb trip limit.	**Alternative 2c** 1,000 lb trip limit.	**Alternative 2d** 1,250 lb trip limit.	**Alternative 2e** 1,000 lb trip limit reduce to 500 lb trip limit when 75% quota met.
June 2006-May 2007	12-Feb	29-May	16-Mar	28-Feb	25-Feb	15-Mar
June 2007-May 2008	23-May	Not met (226,947)	Not met (273,051)	Not met (295,228)	Not met (307,587)	Not met (280,303)
June 2008-May 2009	25-Feb	Not met (249,126)	Not met (305,768)	23-Mar	7-Mar	30-Apr
June 2009-May 2010	20-Dec	9-Feb	19-Jan	6-Jan	5-Jan	28-Jan

Sub-Alternative 2f would establish a 2,000 lb gutted weight (2,360 lb whole weight) trip limit. Table 5 reveals that less than 1% of trips with all gear types and about 1% of pot trips had catches at or greater than this trip level. Therefore, under **Sub-Alternative 2f** the expected quota closure dates would be almost identical to the No Action **Alternative 1** and would have little effect of extending the black sea bass fishery. **Sub-Alternative 2g** would establish a 2,500 lb gutted weight (2,775 lb whole weight) tip limit. As with **Sub-Alternative 2f**, a 2,500 lb trip limit would provide little effect on extending the fishing season for black sea bass.

Alternative 2h would specify a trip limit that would allow the black sea bass fishery to remain open throughout the June-May fishing year. In the absence of a closure, it is estimated that the increased effort would have resulted in landings of 660,126 lbs gutted weight during the June 2009 to May 2010 fishing year. An approximate trip limit of 340 lbs gutted weight would be needed to keep the 2009 fishing year open (Table 4). Amendment 18A is under development and includes proposed actions to limit the number of pots that can be fished and the requirement that fishermen return pots to shore at the conclusion of a trip. There is a possibility that fishermen could exceed the trip limit when retrieving pots and fishermen would have to empty the catch from the pots. As shown in Table 5, only 14% of the trips exceeded at trip level of 508 lbs gutted weight. In contrast, only 4 to 5% of pot trips had catches greater than 1,000 lbs gutted weight (Table 5). Although release mortality of black sea bass from pots is considered to be low, some mortality would be expected if fishermen were to release fish from pots after a trip limit is met.

Table 4-4. Reduction in total catch and approximate trip limit needed to keep fishery open all year based on data from black sea bass Jun-May fishing years for 2006-2009.

Year	Reduction	Trip limit
2008	6%	1,271
2009*	53%	340

*Data for 2009 are estimated after closure assuming similar increase in effort during June – December 2009.

Table 4-5. Trip limit, number of trips, amount of pounds (gutted weight), and percent reduction in harvest provided by a trip limit during June 2008 - May 2009 and June 2009 - May 2010 fishing years. Includes all gear. Data for 2009 are incomplete.

	2008				2009			
Trip Limit	# Trips	% Trips	Pounds over trip	% Reduct	# Trips	% Trips	Pounds over trip	% Reduct
0	1,959	100.00%	387,048	100.00%	1,517	100.00%	335,834	100.00%
17	1,100	56.15%	363,009	93.79%	793	52.27%	314,215	93.56%
34	859	43.85%	346,628	89.56%	625	41.20%	300,249	89.40%
51	748	38.18%	333,080	86.06%	528	34.81%	288,829	86.00%
68	684	34.92%	320,980	82.93%	485	31.97%	278,709	82.99%
85	623	31.80%	309,887	80.06%	459	30.26%	269,294	80.19%
97	597	30.47%	302,160	78.07%	439	28.94%	262,555	78.18%
127	537	27.41%	285,408	73.74%	414	27.29%	247,651	73.74%
148	517	26.39%	274,282	70.87%	398	26.24%	237,542	70.73%
169	488	24.91%	263,609	68.11%	388	25.58%	227,670	67.79%
212	464	23.69%	243,499	62.91%	365	24.06%	208,825	62.18%
254	431	22.00%	224,546	58.01%	349	23.01%	190,955	56.86%
339	368	18.79%	190,567	49.24%	299	19.71%	158,548	47.21%
424	327	16.69%	161,034	41.61%	248	16.35%	131,145	39.05%
508	273	13.94%	135,555	35.02%	208	13.71%	108,339	32.26%
593	238	12.15%	113,971	29.45%	173	11.40%	89,101	26.53%
678	209	10.67%	94,916	24.52%	143	9.43%	73,300	21.83%
763	172	8.78%	79,055	20.43%	113	7.45%	60,423	17.99%
847	141	7.20%	65,870	17.02%	97	6.39%	49,829	14.84%
932	121	6.18%	54,757	14.15%	80	5.27%	40,779	12.14%
1,017	105	5.36%	45,127	11.66%	62	4.09%	33,667	10.02%
1,102	89	4.54%	36,829	9.52%	56	3.69%	27,755	8.26%
1,186	73	3.73%	29,879	7.72%	45	2.97%	22,706	6.76%
1,271	59	3.01%	24,194	6.25%	38	2.50%	18,527	5.52%
1,356	52	2.65%	19,531	5.05%	30	1.98%	15,142	4.51%
1,441	46	2.35%	15,391	3.98%	22	1.45%	12,552	3.74%
1,525	36	1.84%	11,789	3.05%	17	1.12%	10,614	3.16%
1,610	29	1.48%	8,978	2.32%	16	1.05%	8,949	2.66%
1,695	22	1.12%	6,862	1.77%	14	0.92%	7,421	2.21%
1,907	14	0.71%	3,169	0.82%	7	0.46%	4,781	1.42%
2,119	5	0.26%	1,168	0.30%	6	0.40%	3,032	0.90%
2,331	2	0.10%	671	0.17%	4	0.26%	1,820	0.54%
2,542	1	0.05%	411	0.11%	4	0.26%	820	0.24%
2,754	1	0.05%	199	0.05%	1	0.07%	302	0.09%
2,966	0	0.00%	0	0.00%	1	0.07%	52	0.02%

The Council considered separate trip limits for the pot and hook and line fisheries at their September 2010 meeting (See Appendix A). Because black sea bass are predominately taken with pots (Table 1), the Council determined establishing trip limits for the hook and line component of the fishery would have little impact on extending the black sea bass pot fishery.

Alternative 3-6 includes alternatives, which could modify the fishing year and establish a split season commercial ACLs for black sea bass based on historical proportions of landings. A**lternatives 3 and 4** would retain the current June-May fishing year for black sea bass and establish two six month commercial ACLs based on data from 2006-2009 (Table 4-x4). Under **Alternatives 3**, the second portion of the fishing season would begin in December when fish houses usually shut for Christmas (Tom Burgess, pers.com.). Based on estimated data, which takes into consideration increased effort for the June 2009-May 2010 fishing year, the quota for the June-November portion of fishing year would be met in September and the quota for the December-May portion of the fishing year would be met in January (Table 4-x4).

For **Alternative 4**, the first portion of the fishing season would extend through the month of December with the second half beginning in January. **Alternative 4** would divide the quota more evenly among the two time periods and could be better economically for fishermen. It is estimated the commercial quota for June-December would be met in October and the commercial quota for January-May would be met in January.

Alternative 5 would change the fishing year to November-October and divide the fishing season into November-April and May-October. The commercial quota would be apportioned into seasons based on average landings from 2006-2009 (Table 4-x4). Based on estimated data for the 2009 fishing year, the November-April quota would be met in January and the May-October quota would be met in August. **Alternative 6** would change the fishing year to January-December and proposes splitting the season into January-June and July-December. The expected dates that the quota would be met, when increased effort during the 2009 fishing year is considered, would be during February for the January-June portion of the fishing year and October for the July-December portion of the fishing year.

vermilion snapper in Amendment 16), would allow black sea bass fishermen to capitalize on the resources over a longer period of time, rather than in one compressed season. Establishing two commercial fishing seasons would ensure the fishery two distinct opportunities for harvest. **Alternatives 3-6** would not set a trip limit so there would not be a problem with fishermen unexpectedly exceeding the trip limit and having to release black sea bass from pots, which could result in some discard mortality. Given the current level of fishing pressure, the quotas would be expected to met early during each fishing season for the four alternatives (Table 4-x4). This would result in periods of time of no fishing for black sea bass with pots, which would have a positive biological effects for black sea bass, which is overfished and in a rebuilding plan as well as protected species that have the potential of becoming entangled in pot lines. Furthermore, an early closure during December-May under **Alternative 3**, January-May under **Alternative 4**, November-April under **Alternative 5**, and January-June under **Alternative 6** would protect black sea bass when they are in spawning condition. McGovern *et al.* (2002) indicate black sea bass females are in spawning condition during March-July, with a peak during March through May (Figure 4-x). While **Alternative 5** would help to maintain the winter

commercial fishery for the black sea bass and provide some relief from the developing derby conditions, a May 1 start for the second half of the fishing year could result in substantial fishing occurring during a portion of peak spawning. Opening black sea bass during November and January under **Alternatives 3, 4, and 6** could increase the possibility of entanglement with right whales since this is the time of year when they may occur off the South Atlantic states.

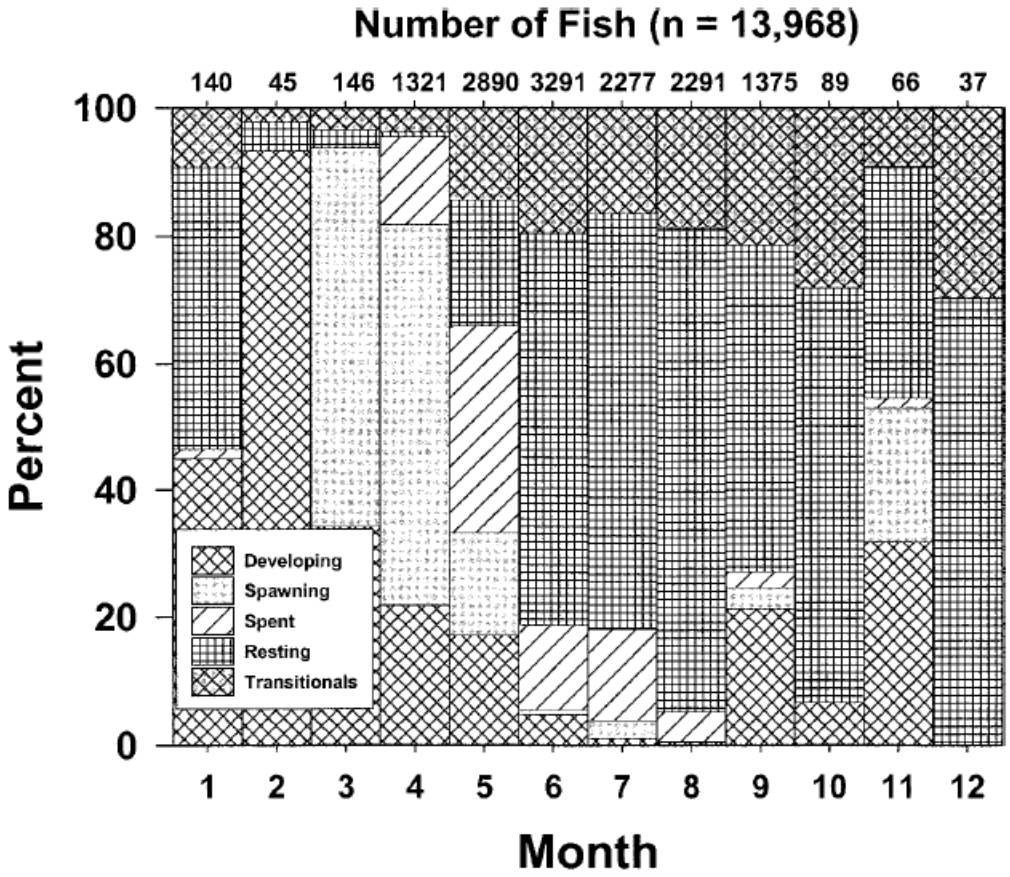


FIGURE 4.—Monthly gonadal stage percentages for 13,968 female black sea bass captured between 31°20′N and 34°00′N, 1978–1998. The number collected and examined each month is given at the top of the bar.

Figure 4-x. Black sea bass spawning information from McGovern et al. (2002).

Table 4-6. Quota (lbs gutted weight) for split seasons for **Alternatives 3-6** based on proportion of average landings during fishing years for 2006-2009. Expected date quota would be met.

	Alternative 3		Alternative 4		Alternative 5		Alternative 6	
	June-Nov	Dec-May	June-Dec	Jan-May	Nov-April	May-Oct	Jan-June	July-Dec
Comm Quota	128,547	180,453	176,945	132,055	211,024	97,976	151,338	157,662
Date quota met	15-Sep	29-Jan	15-Oct	18-Jan	26-Jan	21-Aug	8-Feb	24-Oct

Alternative 7 would allow an unused portion of a quota during the first part of a fishing season to be used in the second portion of the same season. This option is used for the split season for vermilion snapper. **Alternative 8** would allow an unused portion of a quota during the second

portion of a fishing season to be used during the next fishing year. Adding the unused portion of a quota to the following fishing could result in the ACL for the following portion of the fishing year to be exceeded and trigger AMs. Furthermore, if the amount of quota carried forward was large enough, the ABC or OFL could be exceeded and the fishery would be considered to be experiencing overfishing. Therefore, while it is feasible to carry forward an unused portion of a quota from the first part of a fishing year into the second, there are problems associated with carrying quota into a new fishing year. Any reduction of harvest would have increased biological effects and would enhance rebuilding of black sea bass.

Alternative 9 would prohibit harvest of black sea bass with pots under **Alternatives 3-6** when all but 100,000 lbs gutted weight is projected to be landed but would allow harvest of black sea bass with allowable gear types to continue. Harvest of black sea bass with pots would begin again during second part of the fishing specified in **Alternatives 3-6**, and would continue until the quota is met. **Alternative 9** would be expected to result in early closures when applied to **Alternatives 3-6** (Table 4-7). Closures during March-May peak spawning for black sea bass would be expected under **Alternative 3**, **4, and 6**. **Alternative 5** could allow fishing to occur during the May portion of peak spawning.

Table 4-7. Expected quotas and date when quotas would be met under Alternative 9 for the fishing seasons proposed under **Alternatives 3-6**.

	Alternative 3		Alternative 4		Alternative 5		Alternative 6	
Fishing year	June-Nov	Dec-May	June-Dec	Jan-May	Nov-Apr	May-Oct	Jan-June	July-Dec
Expected Pot Catch	184,630	82,803	184,630	92,954	192,686	68,167	201,715	65,473
Expected H&L catch	35,918	4,212	35,918	2,865	31,488	16,521	31,716	10,014
Date all but 100,000 lbs met	10-Nov		10-Nov		12-Jan		18-Feb	
Date quota met		5-Jan		25-Jan		13-Aug		3-Sep

Alternative 10 would prohibit harvest of black sea bass with pots under **Alternatives 3-6** when all but 50,000 lbs gutted weight is projected to be landed but would allow harvest of black sea bass with allowable gear types to continue. Harvest of black sea bass with pots would begin again during second part of the fishing specified in **Alternatives 3-6**, and would continue until the quota is met. **Alternative 10** would be expected to result in early closures when applied to **Alternatives 3-6** (Table 4-8). Closures during March-May peak spawning for black sea bass would be expected under **Alternative 3** and **Alternative 4**. **Alternatives 5 and 6** could allow fishing to occur during the May and March portions of peak spawning, respectively.

Table 4-8. Expected quotas and date when quotas would be met under Alternative 10 for the fishing seasons proposed under Alternatives 3-4.

	Alternative 3		Alternative 4		Alternative 5		Alternative 6	
Fishing year	June-Nov	Dec-May	June-Dec	Jan-May	Nov-Apr	May-Oct	Jan-June	July-Dec
Expected Pot Catch	226,746	43,166	226,746	44,459	241,440	27,142	248,307	23,969

Expected H&L catch	35,918	3,169	35,918	1,728	31,488	8,984	31,716	4,930
Date all but 50,000 lbs met	9-Dec		9-Dec		27-Jan		6-Mar	
Date quota met		26-Dec		10-Jan		28-Jun		1-Aug

Alternative 11 would close the pot fishery when 90% of the commercial quota is met and allow other gear types to be used until the quota is met. Historically, approximately 90% of the black sea bass harvest has been taken with pots. Landings on trips where hook and line gear is used is very small (Table 4-1). Fishermen are able to target black sea bass with pots; however, black sea bass are more likely incidental catch when fishermen use hook and line gear to target co-occurring species. Therefore, **Alternative 11** would be expected to reduce bycatch mortality of black sea bass to some degree by allowing a small harvest of black sea bass after the majority of the quota has been harvested with pot gear.

Alternative 1 (No Action) would perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. **Alternatives 2 -11** are unlikely to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. Sea turtle abundance in the South Atlantic changes seasonally. Even if **Alternatives 2 - 11** perpetuate the existing amount of fishing effort, but causes a temporal or spatial effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

Alternatives 1-11 would not implement a spawning season closure for black sea bass. However, a spawning season closure could provide black sea bass with more spawning opportunities, which could contribute to recruitment success of a new year-class, help rebuild the stock more quickly, and in a more stable and sustainable resource. It is noted that the current regulations implemented through Amendment 13C have resulted in a commercial closure of black sea bass during spawning season as the commercial quota for the June 1 2009-May 31 2010 fishing year was met in December 2009. However, a change in the fishing year is being considered in the amendment to relieve derby conditions that may be occurring resulting in the quota being met very quickly, which could result in fishing during the peak spawning season. Furthermore, unless there is a change in the fishing year, it is expected that the recreational ACL proposed in Amendment 17B would be met just prior to peak spawning of black sea bass (Table 4-x3 in Section 4-11? What is this?).

Sub-Alternatives 12a-12d would consider alternatives for various spawning season closures with options for closing the commercial sector, recreational sector, or both. **Sub-Alternative 12a** would establish a March 1-April 30. This alternative would encompass a larger portion of the March-May peak spawning season for black sea bass than **Sub-Alternatives 12b and 12c**. March and April accounted for 15% of black sea bass landings during the 2006-2009 fishing year. **Sub-Alternative 12b**, which would close the months of April and May, would not have a great a biological benefit as **Sub-Alternative 12a** because it would not include the month of

March when a large proportion of the population is in spawning condition. April and May accounted for 16% of the total landings during the 2006-2009 fishing year but only 8% of the commercial sector occurred during those months (Table 4-9). Most commercial landings have historically occurred during November through February. The biological benefit of **Sub-Alternative 12c** would be greatest of all the alternatives considered because it would encompass the entire March-May period of peak spawning. The biological benefit of **Sub-Alternative 12d** would be least of the action alternatives because it would only close May when a small proportion of the population is in spawning condition relative to March and April. Furthermore, only a small portion (3%) of the commercial landings occurred during May during the 2006-2009 fishing years (Table 4-9). Thus, in terms of biological benefit to black sea bass, the order of sub-alternatives from greatest benefit to least is: **Sub-Alternative 12c; Sub-Alternative 12a; Sub-Alternative 12b;** and **Sub-Alternative 12d**.

Table 4-9. Percentage of monthly landings for black sea bass during 2006-2009 fishing years.

Month	MRFSS	HB	Comm	Total
6	15%	15%	6%	11%
7	11%	15%	5%	9%
8	11%	11%	6%	9%
9	4%	7%	5%	5%
10	4%	6%	7%	5%
11	10%	4%	13%	10%
12	10%	4%	16%	11%
1	4%	3%	14%	7%
2	4%	3%	12%	7%
3	8%	8%	8%	8%
4	8%	12%	5%	7%
5	13%	12%	3%	9%

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

Alternative 1 (No action) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2** through **12** are unlikely to have adverse effects on listed *Acropora* species. Black sea bass pots are prohibited south of St. Lucie Inlet, Florida. The northern extent of *Acroporas'* range in Florida is West Palm Beach, south of the black sea bass trapping boundary. Because the range of *Acropora* and the black sea bass pot fishery do not overlap, black sea bass pots will not interact with *Acropora* colonies. Previous ESA consultations determined the hook-and-line sector of the snapper grouper fishery was not likely to adversely affect *Acropora* species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species.

The impacts to protected species from **Alternative 2** and its sub-alternatives, **Alternatives 3, 4, 7, 8, 9, 10, 11**, and **Alternative 12** and its sub-alternatives are uncertain. If these alternatives ultimately reduce overall fishing effort, then the risk of interactions between protected resources and the fishery will likely be reduced. However, if these alternatives result in an effort shift and

not an actual effort reduction, then the alternatives are unlikely to reduce the risk of adverse effects to protected species from interactions with the fishery.

The impacts of **Alternatives 5** and **6** on sea turtles and smalltooth sawfish are unclear. If these alternatives ultimately reduce overall fishing effort, then the risk of interactions between these species and the fishery will likely be reduced. However, if these alternatives result in an effort shift and not an actual effort reduction, then the alternatives are unlikely to reduce the risk of adverse effects to these species from interactions with the fishery. **Alternative 5** may have negative impacts on the North Atlantic right whale. North Atlantic right whales migrate up and down the East Coast annually. Peak migrations occur once in the winter (November/December) and once in spring (March/April). During the winter migration, animals move from northern feeding ground off New England to calving grounds off Florida/Georgia. Migration begins again in the spring when mothers and newly born calves leave the southern calving grounds to return to the northern feeding grounds. North Atlantic right whales are especially susceptible to entanglement in vertical buoy lines and buoyant groundlines. Changing the black sea bass season to November-October will likely lead to an increased number of traps in the water at the very time North Atlantic right whales begin to migrate through the area; increasing the potential for interactions with the fishery. **Alternative 6** may be slightly more beneficial to North Atlantic right whales. Delaying the start of the fishing season may allow some North Atlantic right whales to migrate without encountering black sea bass pots. However, if animals delay their migration the potential negative impacts to North Atlantic right whales from **Alternatives 5** and **6** may be very similar

0.1.1 Economic Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg.

Alternatives 4 and **5** would alleviate the derby occurring under **Alternative 1 (No Action)** and therefore have short term economic benefits. Alternatives 2 and 3 also seem to benefit some fishermen by providing for greater harvest availability during the winter fishery. Apparently, some fishermen charter during the summer months and when they enter the black sea bass fishery later in the year, the fishery has less commercial quota available to catch. **Alternatives 4** and **5** assure them of an open winter fishery. However, under **Alternatives 4** and **5**, because fishing would be occurring during peak spawning periods, there could be negative long-term economic impacts.

0.1.2 Social Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg
A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.xx. The following discussion does not incorporate consideration of the alternative seasonal closures proposed in Action 12.

As discussed in Section 4.xx, the motivation for this action is to address the derby that appears to have developed in the commercial black sea bass and the closures that may occur in the recreational sector as a result of ACL/AM management. Derby conditions (market gluts and accelerated quota closures) and ACL closures are generally expected to result in reduced social

and economic benefits compared to fisheries that remain open year-round or are managed with fixed closures because of the increased ability to plan fishing and other activities around a fixed schedule. While harvests would still have to be monitored, such that complete fixed open and closed periods could not be guaranteed, allocating an annual quota or ACL to split seasons increases the flexibility to ensure that the fishery is open, or has a higher probability of being open, in specific months, and reduce the likelihood of longer closures. This allows harvests to be better timed with seasonal demand and/or reduced overlap with closures for other species, potentially resulting in increased social and economic benefits.

It should be noted that seasonal splitting is not intended or expected to change the total amount of harvest, only alter the distribution of harvest. As a result, benefits narrowly associated with the total quantity of harvest would not be expected to be affected by seasonal splitting. It is expected, however, is that the reallocation of harvests across the seasons and resultant open months would result in increased social and economic benefits.

Alternative 1 (No Action) would not change either the fishing year or establish split seasons. As a result, **Alternative 1 (No Action)** would not be expected to result in any change in fishing behavior, harvest patterns, or associated social benefits to fishermen or associated businesses or communities. **Alternative 1 (No Action)** would be expected to result in persistence and possible worsening of derby conditions and accelerated recreational closures, and associated declines in social and economic benefits. As described in Section 4.xx, the commercial quota would be expected to be met in March, resulting in a closure of the fishery for more than two months, although that may be an optimistic outcome based on the much earlier closure of the 2009 fishing year (June 2009 through May 2010) in December 2009. If Amendment 17B is implemented, the recreational black sea bass ACL would be projected to be harvested in January, resulting in a closure of approximately four months. Significant overlapping closures during these periods include red snapper for both sectors (all months), shallow water grouper for both sectors (January through April), vermilion snapper for the recreational sector (January through March), red porgy for the commercial sector (January through April), and greater amberjack for the commercial sector (April). As previously stated, the greater the amount of overlap of closures for different species, the greater the potential reduction in total social benefits because of reduced substitution possibilities.

Alternative 4 may result in a shorter total closure in the commercial sector and resultant increased social and economic benefits compared to **Alternative 1 (No Action)**. The fishery would be expected to remain closed in April under both **Alternative 1 (No Action)** and **Alternative 4**, and partially closed in March. However, the fishery would be open in May under **Alternative 4** at the expense of a partial closure in October. While this substitution would not reduce any competing overlaps, the commercial fishery would be expected to experience shorter continuous closures, reducing the jeopardy to maintaining revenue flows and markets.

For the recreational sector, **Alternative 4** would not be expected to significantly alter the total period of potential closure relative to **Alternative 1 (No Action)**, with the recreational sector still projected to be closed more than three months. However, the closure would be broken up across the seasons rather than continuous, which may help to maintain fishing activity in the fishery. A reduction in overlapping closures would be expected, with black sea bass able to be harvested in

January through part of March when the harvest of red snapper, shallow water grouper, and vermilion snapper is prohibited. As previously stated, any reduction in overlapping closures would be expected to increase angler flexibility to fish for alternative species, and increase social benefits.

Alternative 5 would be expected to result in a longer total closure in the commercial sector (over three months) than **Alternative 4,** but may result in a closure of similar duration to that under **Alternative 1 (No Action)**. As a result, **Alternative 5** would be expected to result in reduced social benefits to the commercial sector compared to **Alternative 4**, but potentially no change in social benefits relative to **Alternative 1 (No Action)**.

For the recreational sector, **Alternative 5** may result in a total closure that is approximately the same in length (a little more than four months; May-June and November-December, plus portions of April and October) or slightly longer than the expected closure relative to both **Alternative 1 (No Action)** (February-May and part of January). The expected closure under **Alternative 3** would be longer than the expected closure under **Alternative 4**. As a result, from the perspective of the total length of the closure, **Alternative 4** would be expected to result in equal to lower social benefits to the recreational sector than **Alternative 1 (No Action)** and lower social benefits than **Alternative 4** However, **Alternative 5** would help reduce overlapping closures relative to both **Alternative 1 (No Action)** and **Alternative 4** and, as a result, would be expected to result in increased social benefits associated with increased harvest flexibility.

See Section 4.xx for discussion on the number of potentially affected communities and dealers with recorded black sea bass landings in 2008.

0.1.3 Administrative Effects

Administrative effects for **Alternative 1 (No Action)** would be the least of all the alternatives considered. **Alternative 2** would require the specification of a trip limit and the preparation of subsequent trip limit reduction and/or closure notices. **Alternatives 3, 4, 5**, and **6**, would all require monitoring two separate fishing seasons, and therefore, the dissemination of two ACL closure notices. Therefore, **Alternatives 3, 4, 5**, and **6**, would similarly increase the administrative burdend when compared with **Alternative 2**. The cost and time associated with implementing **Alternatives 7** and **8** would be added to any one of **Alternatives 3-6**, and thus increase the adminsitratvie burden for those overall. Constantly carrying over unused portions of the ACL to other seasonas or fishing years could be cumbersome given the issues with landings data time lags. **Alternatives 9** and **10** would be the most administratively burdensome of all the alternatives considered. **Alternatives 9** and **10** would require projecting when either 100,000 or 50,000 lbs is left to be harvested, at which point a notice informing sea bass pot fishermen the pot fishery is closed would be distributed. Enforcement efforts may be complicated under **Alternatives 9** and **10** if it is not clear when the pot fishery is closed and what other gear types are allowed during the sea bass pot gear closure. **Alternative 11** would not additional cost or administrative effort over the current situtaiton since it would simply require continued monitoring of the ACL, and distribution of a closure notice to the pot sector when 90% of the ACL is projected to be met. Spawning season closures included under **Alternative 12** would not

require increased time, enforcement, or funds over the status quo, other than issuing a reminder notice of the spawning season closure if necessary.

0.1.4 Council's Conclusions

4.2 Trip Limit for Vermilion Snapper

Alternative 1 (No Action). Commercial ACL ~~quota~~ is 315,523 lbs gw (350,231 lbs ww) during January-June and 302,523 lbs gw (335,800 lbs ww) during July-December. There is no commercial trip limit.

Alternative 2. Establish a 1,000 lb gw (1,110 lb ww) commercial trip limit. (Snapper Grouper AP preferred alternative from June 2008).

> **Sub-Alternative 2a.** Establish a 1,000 lb gw (1,110 lb ww) commercial trip limit and reduce to 500 lbs gw (555 lbs ww) when 75% of the commercial ACL is met.

Alternative 3. Establish a 1,500 lb gw (1,665 lb ww) commercial trip limit**.** *(added by the Council at the Sept. 2010 meeting)*

Alternative 4. Establish a 750 lb gw (833 lb ww) trip limit.

> **Sub-Alternative 4a.** Establish a 750 lb gw (833 lb ww) commercial trip limit and reduce to 400 lbs gw (444 lbs ww) when 75% of the commercial ACL is met. *(The IPT would like to know which season, the first, the second, or both)*

Alternative 5. Establish a 500 lb gw (555 lb ww) commercial trip limit.

Alternative 6. Establish a 400 lb gw (444 lb ww) commercial trip limit.

4.2.1 Biological Impacts

Alternative 1 (No Action) would retain the measures established through Amendment 16, which became effective on July 19, 2009. The measures include a 315,523 lbs gutted weight (350,231 lbs whole weight) quota during January-June and 302,523 lbs gutted weight (302,523 lbs whole weight) quota during July-December.

In July-December 2009, the 302,523 lb gutted weight vermilion snapper was closed on September 18, 2009 but the quota was exceeded. Examination of logbook data indicates the quota would have been met on September 9, 2009 (Table 4-10). Using catch per trip information from the NMFS logbook, it was predicted in 2008 that the 302,523 lb gutted weight quota would have been met on September 16, 2008. Therefore, the timing of the July-December quota closure would have been similar in 2008 and 2009. Further, the number of trips and magnitude of vermilion snapper landings during August 2008 and August 2009 was similar (Table 4-11). An increase in the number of trips and a corresponding increase in landings might have been

expected following the implementation of new management regulations to reduce the vermilion snapper quota. The July-December 2010 quota was met on October 7, 2010.

Table 4-10. Date July-December 302,523 lb gutted weight quota expected to be met.

Jan-June	Date quota met
July-Dec 2008	9/16/2008
July-Dec 2009	9/9/2009

Table 4-11. Number of trips and vermilion snapper landings (lbs gutted weight) during August 2008 and 2009.

August	2008	2009
trips	306	283
catch	132,644	131,796

During January-June 2010, the 315,523 lb gutted weight quota was met on March 19, 2010. However, using 2009 catch per trip information from NMFS logbook, it was estimated the 315,523 lb gutted weight quota would have been met on June 1, 2009 (Table 4-12). The earlier closure of vermilion snapper in 2010 did not appear to be the result of an increased number of trips but rather an increase in the catch per trip of vermilion snapper (Table 4). The average catch per trip during January-February 2010 twice what it was during the same time in January-February 2009. There was a very slight decrease in the average length of a trip during January-February from 3.8 days in 2008 to 3.4 days in 2010 (Table 4-13). The increased catch per trip in January-February 2010 could have been a function of the vermilion snapper fishery being closed during October through December 2009 or greater efficiency in fishermen targeting vermilion snapper while other shallow water grouper is closed.

Table 4-12. Date January-June 315,523 lb gutted weight quota expected to be met.

Jan-June	Date quota met
Jan-June 2009	6/1/2009
Jan-June 2010	3/19/2010

Table 4-13. Number of trips, catch per trip (lbs gutted weight) and landings (lbs gutted weight) during January-February 2008-2010.

Year	# trips	Mean/trip	Sum
2008	355	295	104,846
2009	322	325	104,749
2010	280	800	223,909

Alternative 1 (No Action) would not implement any regulations to slow down the rate at which the quota is being met for vermilion snapper and provide no relief to derby conditions that may be occurring. **Alternative 1 (No Action)** could have positive biological effects if effort is reduced for long periods of time including a portion of the time of peak spawning, which occurs

during June-August. However, **Alternative 1 (No Action)** could also have negative biological effects when fishermen target co-occurring species and discard dead vermilion snapper. **Alternatives 2-6** provides a range of trip limits that could possibly prolong the vermilion snapper fishing season. **Alternative 2, Sub-Alternative 2a**, and **Alternative 3** were suggested by vermilion snapper commercial fishermen.

To determine the effect trip limits for vermilion snapper under **Alternatives 2-6**, it was necessary to estimate landings that would have occurred after the vermilion snapper was closed in September 2009 and March 2010, and to account for the increased catch per trip, which occurred in January-June 2010. This was done by using trip information from the NMFS logbook during June 2009 through March 2010. The missing values following when the quota was met was assumed to equal the average landings two months prior. Trip limits were applied to actual trips. For example, if the trip limit was 1,000 lbs gutted weight, the maximum landings on a trip was set to 1,000 lbs gutted weight.

Alternative 2 would establish a 1,000 lb gutted weight trip limit for vermilion snapper. This alternative was suggested as a preferred management measure at the Snapper Grouper Advisory Panel meeting in June 2008. Establishing a 1,000 lb gutted weight trip limit could be expected to extend the fishing season by about a month for both July-December and January-June (Tables 4-14 and 4-15). Reducing the trip limit from 1,000 lb gutted weight to 500 lb gutted weight during July-December 2009 and January-June 2010 (**Sub-Alternative 2a**) would extend the fishing season by approximately two weeks. This is because many trips are below the 500 lb gutted weight trip limit (Table 4-16). It is noted that the dates at which the quota would be met in Tables 5 and 6 does not consider an increase in the number of trips that could occur after a trip limit is imposed. Establishing a 1,500 lb gutted weight trip limit (**Alternative 3**) could be expected to extend the fishing season by about three weeks for both July-December and January-June (Tables 4-14 and 4-15).

Table 4-14. Date 302,523 lb gutted weight quota and 75% of quota would be met during July-December 2009. Shaded area represents month when quota would be met.

Month	Alt 1	Alt 2 1,000 lb	Alt 3 1,500 lb	Alt 4 750 lb	Alt 5 500 lb	Alt 6 400 lb	Sub-Alt 2a 1,000 to 500	Sub-Alt 4a 750 to 400
7	144,495	104,034	121,386	90,657	70,769	60,603	104,034	90,657
8	276,291	203,226	235,057	178,161	140,511	121,539	203,226	178,161
9	415,484	338,788	356,565	263,423	206,428	178,046	290,037	251,058
10	550,979	456,165	474,154	349,806	274,258	236,768	357,867	309,780
11	686,473	573,543	591,743	436,189	342,088	295,489	425,696	368,502
12	821,968	690,920	709,332	522,572	409,917	354,211	493,526	427,224
Data quota met	9-Sep	21-Sep	17-Sep	14-Oct	13-Nov	4-Dec	5-Oct	26-Oct
Data 75% of quota met	8-Aug	9-Sep	26-Aug	17-Sep				

Table 4-15. Date 315,523 lb gutted weight quota and 75% of quota would be met during January-June 2009. Shaded area represents month when quota would be met.

Month	Alt 1	Alt 2 1,000 lb	Alt 3 1,500 lb	Alt 4 750 lb	Alt 5 500 lb	Alt 6 400 lb	Sub-Alt 2a 1,000 to 500	Sub-Alt 4a 750 to 400
1	161,817	104,114	87,725	128,353	66,459	56,066	104,114	87,725
2	223,909	149,132	126,338	182,505	96,819	82,133	149,132	126,338

3	361,330	272,672	238,944	318,316	190,555	163,503	264,922	238,944
4	481,773	363,562	318,592	424,421	254,073	218,003	328,441	299,229
5	602,217	454,453	398,240	530,526	317,591	272,504	391,959	353,729
6	722,660	545,343	477,888	636,631	381,110	327,005	455,477	408,230
Data quota met	20-Mar	14-Apr	28-Apr	29-Mar	29-May	23-Jun	24-April	9-May
Data 75% of quota met	3-Mar	22-Mar	29-Mar	12-Mar	21-Apr			

Alternative 4 would specify a 750 lb gutted weight trip limit, which would be expected to extend the fishing by about two months during the July-December 2009 and January-June 2010 fishing years. Reducing the trip limit to 400 lbs gutted weight when 75% of the ACL is met (**Sub-Alternative 4a**) would be expected to extend the fishing season by about two weeks. **Alternative 5** (500 lb gutted weight trip limit) would have been expected to extend the June-December 2009 fishing season through November; whereas during January-June, this trip limit might keep the season open through the end of May due to a lower number of trips and a greater percentage of trip being constrained by the trip limit (Table 4-16). Under the 400 lb gutted weight trip limit specified in **Alternative 6**, the ACL would likely have been met in December for the June-December 2009 fishing and June during January-June 2010.

In the absence of any ACL, the expected harvest for July-December 2009 would have been 821,968 lbs gutted weight and the expected harvest for January-June 2010 would be 722,660 lbs gutted weight. When comparing expected landings to the seasonal ACLs of 302,523 and 315,523 lbs gutted weight, a reduction in harvest of 63% and 58% would be needed, for July-December 2009 and January-June 2010, respectively. Table 4-16 shows that between a 400 and 500 lb gutted weight trip limit would be needed to keep the fishery open for the whole fishing seasons.

Table 4-16. Trip limit, number of trips, amount of pounds (gutted weight), and percent reduction in harvest provided by a trip limit during June-December 2009 and January-June 2010. Data for 2010 are incomplete.

	June-July 2009				Jan-June 2010			
Trip Limit	# Trips	% Trips	Pounds over trip	% Harvest Reduction	# Trips	% Trips	Pounds over trip	% Harvest Reduction
0	755	100.00%	379,201	100.00%	334	100.00%	248,276	100.00%
90	476	63.05%	328,644	86.67%	282	84.43%	220,681	88.89%
104	461	61.06%	322,334	85.00%	278	83.23%	216,898	87.36%
135	430	56.95%	308,280	81.30%	260	77.84%	208,442	83.96%
158	407	53.91%	298,799	78.80%	249	74.55%	202,712	81.65%
180	395	52.32%	289,779	76.42%	241	72.16%	197,219	79.44%
225	368	48.74%	272,645	71.90%	227	67.96%	186,766	75.23%
270	353	46.75%	256,409	67.62%	210	62.87%	176,977	71.28%
450	258	34.17%	202,111	53.30%	173	51.80%	142,865	57.54%
541	237	31.39%	179,890	47.44%	144	43.11%	128,819	51.89%
631	205	27.15%	159,956	42.18%	130	38.92%	116,429	46.90%
721	177	23.44%	142,675	37.63%	116	34.73%	105,386	42.45%
811	155	20.53%	127,987	33.75%	106	31.74%	95,339	38.40%

Trip Limit	June-July 2009				Jan-June 2010			
	# Trips	% Trips	Pounds over trip	% Harvest Reduction	# Trips	% Trips	Pounds over trip	% Harvest Reduction
901	142	18.81%	114,653	30.24%	94	28.14%	86,314	34.77%
991	123	16.29%	102,599	27.06%	89	26.65%	78,042	31.43%
1,081	114	15.10%	91,869	24.23%	82	24.55%	70,346	28.33%
1,171	104	13.77%	82,180	21.67%	79	23.65%	63,038	25.39%
1,261	93	12.32%	73,082	19.27%	70	20.96%	56,458	22.74%
1,351	82	10.86%	65,231	17.20%	65	19.46%	50,363	20.29%
1,441	73	9.67%	58,199	15.35%	58	17.37%	44,952	18.11%
1,532	62	8.21%	52,192	13.76%	55	16.47%	39,956	16.09%
1,622	56	7.42%	46,814	12.35%	47	14.07%	35,417	14.27%
1,712	51	6.75%	42,046	11.09%	44	13.17%	31,374	12.64%
1,802	47	6.23%	37,597	9.91%	37	11.08%	27,774	11.19%
2,027	34	4.50%	29,205	7.70%	30	8.98%	20,220	8.14%
2,252	26	3.44%	22,811	6.02%	22	6.59%	14,144	5.70%
2,477	22	2.91%	17,503	4.62%	17	5.09%	9,762	3.93%
2,703	22	2.91%	12,548	3.31%	12	3.59%	6,326	2.55%
2,928	16	2.12%	8,086	2.13%	7	2.10%	4,027	1.62%
3,153	12	1.59%	4,988	1.32%	5	1.50%	2,539	1.02%
3,378	7	0.93%	2,739	0.72%	3	0.90%	1,645	0.66%
3,604	5	0.66%	1,413	0.37%	2	0.60%	1,084	0.44%
3,829	2	0.26%	626	0.17%	2	0.60%	633	0.26%
4,054	1	0.13%	262	0.07%	1	0.30%	326	0.13%
4,279	1	0.13%	37	0.01%	1	0.30%	101	0.04%

The dates specified in Tables 4-14 and 4-15 do not consider some trips would be shortened by the trip limit and fishermen might increase the number of trips to compensate for a lower trip limit. It might be expected that decrease in the trip limit, there might be an increase in the number of trips. However, fuel costs and distance traveled to fishing grounds would also be a factor in whether or not a fishermen would increase the number of trips. With small trip limits, the cost of fuel moving to and from the fishing grounds could limit profit to the extent that the trip would not be taken. Table 4-16 provides some indication of the percentage of trips greater than the proposed trip limits during July-December 2009 and January-June 2010. For example, approximately 34% of the July-December 2009 trips and 52% of the January-June trips had catches greater than 450 lbs gutted weight. Therefore, if the trip limit was set at 400 or 500 lbs gutted weight (**Alternatives 5** and **6**), and trips were profitable, an increase in the number of trips could be expected. About 15% of the July-December 2009 trips and 25% of the January-June trips had catches greater than 1,000 lbs gutted weight. Therefore, even with the largest trip limit, some increase in the number of trips could be expected.

Individuals from different states could prefer different trip limits depending on distance they have to run to fish for vermilion snapper and number of days at sea needed to make a trip profitable. Vessels that landed vermilion snapper in Georgia had the highest landings of vermilion snapper and spent the greatest number of days at sea. The shortest trip length and smallest average catch of vermilion snapper occurred in North Carolina.

Table 4-17. Average number of days away and landings of vermilion snapper (lbs whole weight) for vessels that landed vermilion snapper during 2008-2009.

STATE	Obs	Variable	Label	Mean
Florida	1,019	AWAY	AWAY	2.84789
		totlbs		532.6734
Georgia	190	AWAY	AWAY	6.384211
		totlbs		1318.63
South Carolina	1,114	AWAY	AWAY	5.958707
		totlbs		335.5679
North Carolina	2,438	AWAY	AWAY	2.784249
		totlbs		375.0621

Tables (4-18) – (4-21) and associated figures show vermilion snapper landed in respective states were generally caught offshore of those states. For fishermen who landed vermilion snapper in North Carolina, 17% were caught off of South Carolina. Therefore, some North Carolina fishermen are likely running fairly long distances before landing their catch. The shelf edge is fairly wide off of Georgia, as a result, longer trips and larger vermilion snapper catches may be due to the distance offshore fishermen travel to get to fishing grounds. In contrast, the shelf is fairly narrow off Florida, which may be responsible the fewer days at sea when compared to Georgia and South Carolina.

Table 4-18. Statistical grids identifying location where 96% of the vermilion snapper were caught and subsequently landed in NC. Shaded area in figure shows where 69% of vermilion snapper were caught.

Grid	Percent	Cumulative Percent
3476	26.89%	26.89%
3377	25.41%	52.30%
3278	17.04%	69.34%
3179	8.80%	78.14%
3277	5.06%	83.20%
3474	3.99%	87.19%
3378	3.66%	90.85%
3477	3.10%	93.94%
3376	2.60%	96.54%

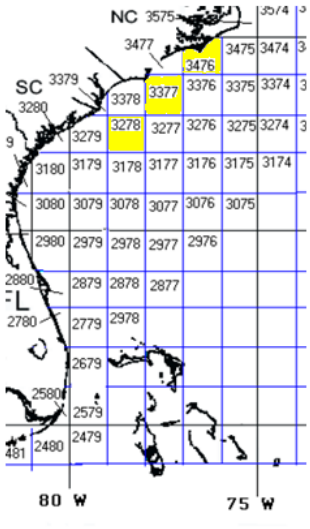


Table 4-19. Statistical grids identifying location where 98% of the vermilion snapper were caught and subsequently landed in SC. Shaded area shows where 79% of the vermilion snapper were caught.

Grid	Percent	Cumulative Percent
3378	35.70%	35.70%
3279	25.64%	61.34%
3278	17.37%	78.72%
3377	7.97%	86.68%
3477	3.29%	89.98%
3179	2.82%	92.80%
3379	1.64%	94.44%
3180	1.49%	95.92%
3277	1.12%	97.05%
3376	1.01%	98.05%

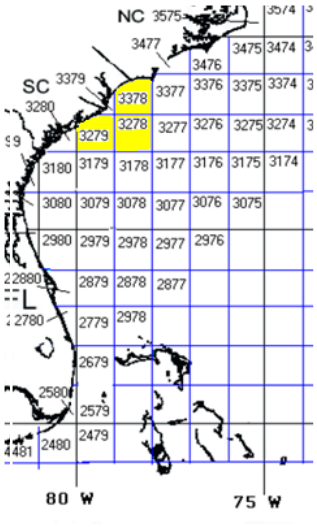


Table 4-20. Statistical grids identifying location where 90% of the vermilion snapper were caught and subsequently landed in GA.

Grid	Percent	Cumulative Percent
3080	39.87%	39.87%
3180	32.38%	72.25%
3179	17.98%	90.23%

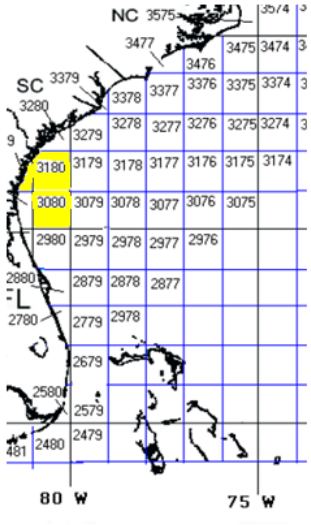
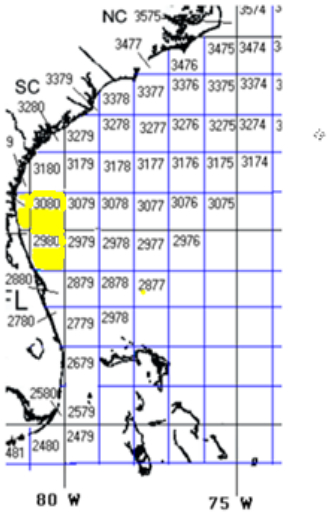


Table 4-21. Statistical grids identifying location where 97% of the vermilion snapper were caught and subsequently landed in FL. Shaded area shows were 95% of the vermilion snapper were caught.

Grid	Percent	Cumulative Percent
3080	67.28%	67.28%
3081	14.82%	82.10%
2980	11.15%	93.24%
3180	2.19%	95.43%
2779	1.29%	96.73%



Alternative 1 (No action) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2** through **6** are unlikely to have adverse effects on listed *Acropora* species and ESA-listed marine mammals. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect *Acropora* species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species.

The impacts of **Alternatives 2** through **6** on sea turtles and smalltooth sawfish are uncertain. If these alternatives ultimately reduce overall fishing effort, then the risk of interactions between these species and the fishery will likely be reduced. However, if these alternatives result in an effort shift and not an actual effort reduction, then the alternatives are unlikely to reduce the risk of adverse effects from interactions with the fishery.

4.2.2 Economic Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg

4.2.3 Social Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg

4.2.4 Administrative Effects

Alternative 1 (No Action) would maintain the current cost and time associated with monitoring the vermilion snapper ACLs and issuing notices upon each season's closure. Therefore, **Alternative 1 (No Action)** would have the lowest administrative impact. **Alternatives 2-6** would all increase the administrative burden because the would require enforcement of trip limits. **Sub-Alternatives 2a**. and **4a**. would incur the greatest administrative impact since they would both not only require enforcement a trip limit, but also the issuance of a notice of reduced trip limits once 75% of the ACL is met.

4.2.5 Council's Conclusions

4.3 Trip Limit for Gag

Alternative 1 (No Action). ACL is 352,940 lbs gw. Seasonal closure occurs during January-April. There is no trip limit.

Alternative 2. Establish a 1,000 lb gw (1,180 lb ww).

Sub-Alternative 2a. Establish a 1,000 lb gw (1,180 lb ww) trip limit and reduce to 100 lbs gw (118 lbs ww) when 75% of the commercial ACL is met.

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

Sub-Alternative 3a. Establish a 750 lb gw (885 lb ww) trip limit and reduce to 100 lbs gw (118 lbs ww) when 75% of the commercial ACL is met.

4.3.1 Biological Effects

Alternative 1 (No Action) would retain the measures established through Amendment 16, which became effective on July 19, 2009. The measures include a 352,940 lbs gutted weight (416,469

lbs whole weight) quota and a January-April spawning season closure. The quota was not met in 2009. Table 4-22 shows the 352,940 lb gutted weight quota would have been met in 2007. Estimated 2009 landings under the various trip limit alternatives is presented in Table 4-23.

Table 4-22 Landings (pounds gutted weight) of gag during May-December 2006 to 2009.

Year	ww	gw
2006	403,188	341,684
2007	490,588	415,753
2008	356,680	302,271
2009	357,428	302,905

The effect of a trip limit was determined by setting the maximum landings to an actual trip in the NMFS logbook. For example, if the trip limit was 500 lbs gutted weight, then all trips that had landings in excess of 500 lbs were changed to have landings equal to that catch level.

Although the gag landings did not exceed the quota during 2009, it is possible effort could increase during 2010 due to closures for vermilion snapper and black sea bass. Table 3 shows the effect of proposed trips limits in **Alternatives 2** through **3** on gag landings during May-December 2007.

Table 4-23. Expected cumulative landings of gag during May-December 2009 for various trip limit alternatives. Alternatives 4-6 will be moved to Appendix A.

Month	Alt 1	Alt 2 1,000	Alt 3 750
5	34,009	34,014	33,809
6	77,680	77,065	75,542
7	110,769	108,669	105,769
8	145,796	142,881	138,537
9	184,899	181,706	176,761
10	228,237	225,043	219,836
11	264,760	261,455	255,389
12	302,905	298,270	290,734

Table 4-24. Expected cumulative landings of gag during May-December 2007 for various trip limit alternatives. Alternatives 4-6 will be moved to Appendix A.

Month	Alt 1	Alt 2 1,000	Alt 3 750	Alt 2a 1,000 to 100	Alt 3a 750 to 100
5	74,653	64,330	57,889	64,330	57,889
6	159,990	140,646	128,546	140,646	128,546
7	210,544	187,406	172,614	187,406	172,614
8	253,901	229,898	212,997	229,898	212,997
9	280,097	255,809	238,532	255,809	238,532
10	311,799	284,241	265,336	282,630	265,336
11	352,959	322,566	302,097	299,419	282,126
12	415,753	380,706	356,598	321,619	304,326
quota met	30-Nov	14-Dec	31-Dec		
75% met	17-Sep	15-Oct	29-Oct		

If future landings were similar to those in 2007, an 1,000 lb gutted weight pound trip limit (**Alternative 2**) would not keep the season open all year (Table 4-24). However, if the 1,000 lb gutted weight trip limit was reduced to 100 lbs gutted weight (**Alternative 2a**) when 75% of the quota was met, the quota would come within 30,000 lbs of being met. Under **Alternative 3** (750 lb gutted weight), the gag fishery would be expected to remain open until the end of December. The quota would not be met under the remaining alternatives. A 15% reduction in gag harvest during May-December 2007 (352,940/415,753) to keep the fishery open all season. Table 6 also shows the required trip limit to keep the 2007 trip limit open all year would be between 678 and 763 lbs gutted weight. The biological effects of the alternatives would be least for **Alternative 1 (No Action)**.

The dates specified in Table 4-24 do not consider some trips would be shortened by the trip limit and fishermen might increase the number of trips to compensate for a lower trip limit. It might be expected that decrease in the trip limit, there might be an increase in the number of trips. However, fuel costs and distance traveled to fishing grounds would also be a factor in whether or not a fishermen would increase the number of trips. With small trip limits, the cost of fuel moving to and from the fishing grounds could limit profit to the extent that the trip would not be taken. Table 4-24 provides some indication of the percentage of trips greater than the proposed trip limits. For example, less than 4% of the trips in Table 4-25 for gag were greater than 1,000 lbs gutted weight; therefore, an small increase in the trips would be expected if this trip limit were established. Furthermore, less than 10% of the trips had catches greater than 500 lbs gutted weight so a greater number of increased trips would be expected but it would not be substantial.

Table 4-25. Number of trips, % trips, pounds over trips and % reduction in harvest for trip limit for gag.

Trip Limit	May-June 2007				May-June 2009			
	# Trips	% Trips	Pounds over trip	% Reduct	# Trips	% Trips	Pounds over trip	% Reduct
0	2,078	100.00%	415,753	100.00%	1,897	100.00%	302,905	100.00%
85	1,111	53.46%	286,903	69.01%	964	50.82%	187,561	61.92%
97	1,025	49.33%	273,400	65.76%	885	46.65%	175,763	58.03%
127	831	39.99%	246,021	59.17%	740	39.01%	151,706	50.08%
148	734	35.32%	229,459	55.19%	658	34.69%	136,995	45.23%
169	651	31.33%	214,804	51.67%	594	31.31%	123,743	40.85%
212	531	25.55%	189,801	45.65%	468	24.67%	101,261	33.43%
254	437	21.03%	169,449	40.76%	367	19.35%	83,705	27.63%
424	234	11.26%	115,080	27.68%	164	8.65%	41,907	13.84%
508	193	9.29%	96,734	23.27%	115	6.06%	30,376	10.03%
593	170	8.18%	81,263	19.55%	84	4.43%	22,172	7.32%
678	138	6.64%	68,308	16.43%	64	3.37%	16,071	5.31%
763	114	5.49%	57,704	13.88%	45	2.37%	11,618	3.84%
847	98	4.72%	48,693	11.71%	33	1.74%	8,456	2.79%
932	88	4.23%	40,803	9.81%	23	1.21%	5,970	1.97%
1,017	83	3.99%	33,662	8.10%	16	0.84%	4,379	1.45%
1,102	74	3.56%	27,089	6.52%	11	0.58%	3,209	1.06%
1,186	62	2.98%	21,366	5.14%	9	0.47%	2,373	0.78%
1,271	50	2.41%	16,610	4.00%	5	0.26%	1,784	0.59%
1,356	41	1.97%	12,815	3.08%	3	0.16%	1,462	0.48%
1,441	32	1.54%	9,825	2.36%	3	0.16%	1,208	0.40%
1,525	25	1.20%	7,515	1.81%	2	0.11%	992	0.33%
1,610	22	1.06%	5,519	1.33%	2	0.11%	823	0.27%
1,695	12	0.58%	3,996	0.96%	2	0.11%	653	0.22%
1,907	9	0.43%	2,004	0.48%	1	0.05%	326	0.11%
2,119	3	0.14%	706	0.17%	1	0.05%	114	0.04%
2,331	2	0.10%	191	0.05%	0	0.00%	0	0.00%
2,542	0	0.00%	0	0.00%	0	0.00%	0	0.00%
2,754	0	0.00%	0	0.00%	0	0.00%	0	0.00%
2,966	0	0.00%	0	0.00%	0	0.00%	0	0.00%
3,178	0	0.00%	0	0.00%	0	0.00%	0	0.00%
3,390	0	0.00%	0	0.00%	0	0.00%	0	0.00%
3,602	0	0.00%	0	0.00%	0	0.00%	0	0.00%
3,814	0	0.00%	0	0.00%	0	0.00%	0	0.00%
4,025	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Alternative 1 (No action) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2** and **3** and their sub-alternatives are unlikely to have adverse effects on listed *Acropora* species and ESA-listed marine mammals. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect *Acropora* species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species.

The impacts of **Alternatives 2** and **3** and their sub-alternatives on sea turtles and smalltooth sawfish are uncertain. If these alternatives ultimately reduce overall fishing effort, then the risk of interactions between these species and the fishery will likely be reduced. However, if these alternatives result in an effort shift and not an actual effort reduction, then the alternatives are unlikely to reduce the risk of adverse effects from interactions with the fishery.

4.3.2 Economic Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg

4.3.3 Social Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg

4.3.4 Administrative Effects

Alternative 1 (No Action) would maintain the current cost and time associated with monitoring the vermilion snapper ACLs and issuing notices upon each season's closure. Therefore, **Alternative 1 (No Action)** would have the lowest administrative impact. **Alternatives 2** and **3** would all increase the administrative burden because the would require enforcement of trip limits. **Sub-Alternatives 2a**. and **3a**. would incur the greatest administrative impact since they would both not only require enforcement a trip limit, but also the issuance of a notice of reduced trip limits once 75% of the ACL is met.

4.4 Trip Limit for Greater Amberjack

Alternative 1. No Action ~~(Status quo)~~. Retain the current commercial regulations for greater amberjack in the South Atlantic:

Table 4.26 Current Commercial Regulations for Greater Amberjack

Commercial ACL	**Size Limit**	**Trip Limit**	**Fishing Season**	**Other**
1,169,931 lb gw	36" FL	1,000 lb gw	Closed April 1-30	No sale in April; purchase and sale prohibited once quota is reached. After quota is met, possession limited to 1/person/day or 1/person/trip, whichever is more restrictive

~~36" FL size limit; 1,000 lb trip limit, commercial season closed April 1-30; 1,169,931 lb quota (gutted weight). No sale after quota is reached. After the commercial quota is met, all purchase and sale is prohibited and harvest and/or possession is limited to the recreational bag limit. This prohibition does not apply to fish harvested, landed, and sold prior to the quota being reached~~

~~and held in cold storage by a dealer. No sale in April. Possession limited to 1/person/day or 1/person/trip, which is morerestrictive. 1,000 lb trip limit unti the commercial ACL is reached~~.

Alternative 2. Change the commercial trip limit for greater amberjack.

Alternative 2a. Increase the greater amberjack commercial trip limit to 2,000 lbs.

Alternative 2b. Increase the greater amberjack commercial trip limit to 1,500 lbs.

Alternative 3. Change the commercial trip limit for greater amberjack to 2,000 lbs gw (2,080 lbs ww) for vessels making multi-day trips north of Cape Canaveral. For all other trips the 1,000 lb trip limit would apply. *(added by the Council at their Sept. 2010 meeting)*

Alternative 4. Change the commercial trip limit for greater amberjack to 2,500 lbs gw (2,600 lbs ww) for vessels making multi-day trips north of Cape Canaveral. For all other trips the 1,000 lb trip limit would apply. *(added by the Council at their Sept. 2010 meeting)*

(The IPT needs a definition of "multi-day". The current analysis considered multi-day greater than 24 hrs. in duration.)

4.4.1 Biological Effects

Alternative 1 (No Action) would retain the commercial regulations in place for greater amberjack including a 36" fork length minimum size limit, a 1,000 lb gutted weight trip limit, a April 1-30 prohibition on harvest, and a 1,169, 931 lb gutted weight quota. SEDAR 15 (2008) indicates the stock is not experiencing overfishing (F_{2006}/F_{MSY} = 0.531) and is not overfished (SSB_{2006}/SSB_{MSY} = 1.096). Furthermore, the commercial quota has never been met since it was established through Amendment 9 in 1999 (SAFMC 1997; Table 4-27)). With increased restrictions on other snapper grouper species through Amendments 13C and 16, there has been an interest in increasing the trip limit for greater amberjack.

Table 4-27. Annual commercial landings (whole weight and gutted weight) of greater amberjack during 1986 to 2009. Data provided by the Southeast Fisheries Science Center.

Year	whole weight	gutted weight
1986	414,590	398,644
1987	1,295,813	1,245,974
1988	1,181,594	1,136,148
1989	1,107,288	1,064,700
1990	1,678,728	1,614,162
1991	1,990,243	1,913,695
1992	1,951,386	1,876,333
1993	1,503,252	1,445,435
1994	1,583,182	1,522,290
1995	1,549,312	1,489,723

Year	whole weight	gutted weight
1996	1,219,049	1,172,163
1997	1,023,967	984,584
1998	954,111	917,414
1999	813,012	781,742
2000	655,229	630,028
2001	670,671	644,876
2002	675,164	649,196
2003	604,753	581,493
2004	813,589	782,297
2005	783,399	753,268
2006	472,619	454,441
2007	508,940	489,365
2008	655,818	630,594

Alternative 2 would increase the trip limit for greater amberjack from 1,000 lbs gutted weight to 2,000 lbs gutted weight under **Sub-Alternative 2a** and 1,500 lbs gutted weight under **Sub-Alternative 2b**. During the 2008 fishing year (May 2008-April 2009) the estimated landings of greater amberjack from logbook data was 730,854 lbs gutted weight. In order to estimate what the landings would be with an increased trip limit it was assumed that all fishermen who reached the 1,000 lb gutted weight trip limit would achieve the new trip limit. Further, it was assumed that the same amount of overage of the 1,000 lb gutted weight trip limit would occur with a higher trip limit. It was also assumed that trips, which did not achieve the 1,000 lb gutted weight trip limit, would not reach a higher trip limit.

Based on data from the 2008 fishing year, the commercial quota of 1,169, 931 lb gutted weight quota would not be reached with either the 2,000 lb trip limit proposed under **Sub-Alternative 2a** or the 1,500 lb trip limit proposed under **Sub-Alternative 2b** (Table 4-28). The quota would not be reached under Alternatives 3 or 4, which would only allow an increase trip limits for vessels that were away for more than one day and fished north of Cape Canaveral. Effort could increase on greater amberjack due to restrictions proposed in Amendments 17A and 17B. This could result in the quota being met before the fishing year is completed. Since SEDAR 15 (2008) indicates release mortality rate of greater amberjack is low (20%), high mortality of greater amberjack after a quota was met would not be likely.

Table 4-28. Estimated landings of greater amberjack expected from increased trip limit. Based on data from May 2008-April 2009 from NMFS Logbook.

Trip limit (gutted weight)	whole weight	gutted weight
Alternative 1 - 1,000 lbs	760,089	730,855
Alternative 2a - 2,000 lbs	929,961	894,194
Alternative 2b - 1,500 lbs	839,510	807,222
Alternative 3 - 2,000 lbs N Canaveral, Multiday	792,297	761,824

Alternative 3 - 2,500 lbs N Canaveral, Multiday	813,054	781,783

Among the proposed alternatives, **Alternative 1 (No Action)** would have the greatest positive biological effect since it would not result in an increased harvest of greater amberjack. **Sub-Alternative 2a**, which would allow for the largest increase in the trip limit would have the greatest negative biological effect on the species. However, the recent assessment indicates the stock is not overfished and is not experiencing overfishing. Based on data from the 2008 fishing year, increasing the trip limit to 2,000 lbs gutted weight in **Sub-Alternative 2a** would result in landings that are approximately 276,000 lbs less than the quota. Furthermore, incidental mortality of greater amberjack would be expected to be low if the quota was met due to low a low release mortality rate. Therefore, none of the alternatives are expected to have negative biological effects on the stock of greater amberjack.

Alternative 1 (No action) will likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2**, its sub alternatives, and **Alternatives 3** and **4** are unlikely to have adverse effects on listed *Acropora* species and ESA-listed marine mammals. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect *Acropora* species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species.

The impacts to sea turtles and smalltooth sawfish from **Alternatives 2,** its sub alternatives**,** and **Alternatives 3** and **4** are uncertain. If these alternatives ultimately reduce overall fishing effort, then the risk of interactions between these species and the fishery will likely be reduced. However, if these alternatives result in an effort shift and not an actual effort reduction, then the alternatives are unlikely to reduce the risk of adverse effects from interactions with the fishery.

4.4.2 Economic Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg

4.4.3 Social Effects

This section will be updated for Dec. briefing book, but not for the Nov. SSC mtg

4.4.4 Administrative Effects

Because there is already a trip limit in place, simply increasing the trip limit would not result in any adminstirative impacts over the status quo. However, under **Alternatives 3** and **4** enforcement of two distinct trip limits may be very difficult to enforce because the length of the trip may not be definitively determined.

5 Cumulative Effects

This section will be updated when preferds are chosen by the Council.

As directed by the National Environmental Policy Act (NEPA), federal agencies are mandated to assess not only the indirect and direct impacts, but the cumulative impacts of proposed actions as well. NEPA defines a cumulative impact as *"the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time"* (40 C.F.R. 1508.7). Cumulative effects can either be additive or synergistic. A synergistic effect is when the combined effects are greater than the sum of the individual effects.

Various approaches for assessing cumulative effects have been identified, including checklists, matrices, indices, and detailed models (MacDonald 2000). The Council on Environmental Quality (CEQ) offers guidance on conducting a Cumulative Effects Analysis (CEA) in a report titled "Considering Cumulative Effects under the National Environmental Policy Act". The report outlines 11 items for consideration in drafting a CEA for a proposed action.

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.
2. Establish the geographic scope of the analysis.
3. Establish the timeframe for the analysis.
4. Identify the other actions affecting the resources, ecosystems, and human communities of concern.
5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.
6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.
7. Define a baseline condition for the resources, ecosystems, and human communities.
8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.
9. Determine the magnitude and significance of cumulative effects.
10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.
11. Monitor the cumulative effects of the selected alternative and adapt management.

This CEA for the biophysical environment will follow a modified version of the 11 steps. Cumulative effects for the socio-economic environment will be analyzed separately.

5.1 Biological

SCOPING FOR CUMULATIVE EFFECTS

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

The Council on Environmental Quality (CEQ) cumulative effects guidance states that this step is done through three activities. The three activities and the location in the document are as follows:

I. The direct and indirect effects of the proposed actions **(Section 4.0)**;
II. Which resources, ecosystems, and human communities are affected **(Section 3.0)**; and
III. Which effects are important from a cumulative effects perspective **(information revealed in this Cumulative Effects Analysis (CEA)**?

2. Establish the geographic scope of the analysis.

The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West, which is also the South Atlantic Fishery Management Council's 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. Therefore, the proper geographical boundary to consider effects on the biophysical environment is larger than the entire South Atlantic exclusive economic zone. The ranges of affected species are described in **Section 3.2.1**. 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. Therefore, the timeframe for analyses should be initiated when data collection began for the various fisheries. In determining how far into the future to analyze cumulative effects, the length of the effects will depend on the species and the alternatives chosen. Long-term evaluation is needed to determine if management measures have the intended effect of improving stock status.

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 speckled hind, warsaw grouper, golden tilefish, snowy grouper, and red snapper.

A. Past

The reader is referred to **Section 1.3 History of Management** for past regulatory activity for the fish species. These include bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system.

Amendment 13C to the FMP for the Snapper Grouper Fishery of the South Atlantic Region became effective October 23, 2006. The amendment addresses overfishing for snowy grouper, golden tilefish, black sea bass and vermilion snapper. The amendment also allows for a moderate increase in the harvest of red porgy as stocks continue to rebuild. Amendment 13C 2006 is hereby incorporated by reference. Analysis found in **Appendix E** show minimal reductions (< 2%) in commercial red snapper removals resulting from Amendment 13C. Therefore, ancillary effort reductions in the red snapper fishery due to management measures in Amendment 13C would not result in any significant reduction in harvest of red snapper that could be counted toward the overall harvest reductions needed to end overfishing of the specie.

Amendment 14 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region was implemented on February 12, 2009. Implementing regulations for Amendment 14 established eight Type 2 Marine Protected Areas (MPAs) (see Figure 5-1) within which, all fishing for snapper grouper species is prohibited as is the use of shark bottom longline gear. Within the MPAs trolling for pelagic species is permitted. The MPAs range in area from 50 to 506 square nautical miles and are located off of North Carolina, South Carolina, Georgia and Florida. The MPAs are expected to enhance the optimum size, age, and genetic structure of slow-growing, long-lived, deepwater snapper grouper species. A Type 2 MPA is an area within which fishing for or retention of snapper grouper species is prohibited but other types of legal fishing, such as trolling, are allowed. The prohibition on possession does not apply to a person aboard a vessel that is in transit with fishing gear appropriately stowed. MPAs are being used as a management tool to promote the optimum size, age, and genetic structure of slow growing, long-lived deepwater snapper grouper species (speckled hind, snowy grouper, warsaw grouper, yellowedge grouper, misty grouper, golden tilefish, blueline tilefish, and sand tilefish. Because of the small sizes of the MPAs, it is unlikely that any significant reductions in overall mortality of species also affected by Amendment 17A would occur. Therefore, biological effects of the MPAs would not significantly add to or reduce the anticipated biological benefits of management actions in Amendment 17A.

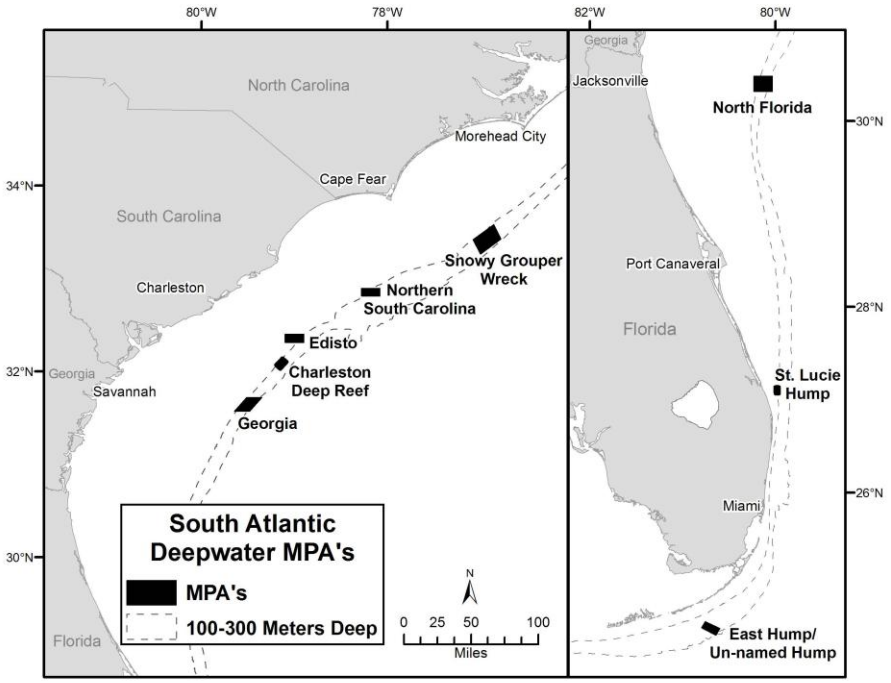


Figure 5-1 Marine protected areas implemented under Snapper Grouper Amendment 14 (SAFMC 2007).

B. Present

In addition to snapper grouper fishery management issues being addressed in this amendment, several other snapper grouper amendments have been developed concurrently and are in the process of approval and implementation. Current closures, including quota closures, seasonal closures, and area closures are outlined in **Appendix I.** of this document.

Most recently, Amendment 16 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2008c) was partially approved by the Secretary of Commerce. Amendment 16 includes provisions to extend the shallow water grouper spawning season closure, create a five month seasonal closure for vermilion snapper, require the use of dehooking gear if needed, reduce the aggregate bag limit from five to three grouper, and reduce the bag limit for black grouper and gag to one gag or black grouper combined within the aggregate bag limit. The expected effects of these measures include significant reductions in landings and overall mortality of several shallow water snapper grouper species including, gag, black grouper, red grouper, and vermilion snapper. Specifically, the use of dehooking tools may reduce the release mortality of red snapper that are incidentally caught while fishing for other snapper grouper species. Model output in **Appendix E** shows that Amendment 16 could contribute up to a 16% reduction in commercial red snapper harvest, which has been included in the

baseline conditions upon which the needed red snapper reductions have been derived.

On September 1, 2009, Amendment 15B to the FMP for the Snapper Grouper Fishery of the South Atlantic Region was approved by the Secretary. Management measures in Amendment 15B that affect red snapper in Amendment 17A include prohibition of the sale of bag limit caught snapper grouper species for fishermen not holding a Federal commercial permit for South Atlantic snapper grouper, an action to adopt, when implemented, the Atlantic Coastal Cooperative Statistics Program (ACCSP) release, discard and protected species module to assess and monitor bycatch, allocations for snowy grouper, and management reference points for golden tilefish.

Since some recreational fishermen may intentionally catch more fish than they can consume with the intent to sell, prohibiting the sale of those fish by recreational fishermen could decrease fishing effort; and therefore, may have small biological benefits. Adopting a bycatch monitoring method would not yield immediate biological benefits, but may help to inform future fishery management decisions with increased certainty using data collected from the ACCSP. Biological benefits from Amendment 15B are not expected to result in a significant cumulative biological effect when added to anticipated biological impacts under Amendment 17A.

Amendment 17B to the FMP for the Snapper Grouper Fishery of the South Atlantic Region is currently under development and is expected to include a deepwater snapper grouper closure seaward of 240 ft in addition to establishing annual catch limits (ACLs) and accountability measures (AMs) for species experiencing overfishing. The closures proposed in Amendment 17A, if implemented through rulemaking, would enhance the expected biological benefits of the spawning season closure for shallow water grouper in Amendment 16, and the proposed deepwater snapper grouper closure in Amendment 17B. It is possible that a snapper grouper closure proposed in Amendment 17A could overlap, to some degree, the deepwater closure proposed in Amendment 17B, and would therefore, enhance the biological benefit to red snapper and other deepwater species. Even greater biological benefit may accrue in the proposed Amendment 17A areas that would extend into the proposed 17B deepwater closure area (**Alternative 4 (Preferred)**) since no snapper grouper fishing would be allowed, rather than only prohibiting the harvest of deepwater species.

C. Reasonably Foreseeable Future

Amendment 18 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region is currently under development. Measures in Amendment 18 would extend the snapper grouper FMP northward, limit effort in the black sea bass and golden tilefish fisheries, change the golden tilefish fishing year, improve the accuracy and timing of fisheries statistics, and designate essential fish habitat in the proposed snapper grouper northern area. The actions currently contained in Amendment 18, which affect red snapper, are intended to prevent overcapitalization while allowing fishery participants to achieve optimum yield benefits for those species. The actions to limit participation in the black sea bass and golden tilefish fisheries in Amendment 18 could hedge against any foreseeable effort shifts to those fisheries that might result from an area closure in Amendment 17A.

The Comprehensive Annual Catch Limit (ACL) Amendment would consider ACLs and Annual Catch Targets (ACTs) for other Federally managed South Atlantic species not experiencing overfishing in other FMPs including Snapper Grouper. Other actions contained within the ACL Amendment may include: (1) choosing ecosystem component species; (2) allocations; (3) management measures to limit recreational and commercial sectors to their ACLs and ACTs; (4) AMs; and (5) any necessary modifications to the range of regulations. It is unlikely any of the management measures for the species being addressed in the Comprehensive ACL Amendment would directly affect red snapper in Amendment 17A. However, several species are co-occurring, and are included in species groupings e.g., the shallow water snapper grouper complex and the deepwater snapper grouper complex. Therefore, if regulations are implemented in the future that may biologically benefit one species in a species complex, it is likely others in the same complex may also realize biological benefits.

Finally, the space industry in Florida centered on Cape Canaveral is experiencing severe difficulties due to the ramping down and cancellation of the Space Shuttle Program. This program's loss coupled with additional fishery closures will negatively impact this region. However, declining economic conditions due to decline in the space industry may lessen the pace of waterfront development and associated adverse social and economic pressures on fishery infrastructure.

II. Non-Council and other non-fishery related actions, including natural events affecting red snapper.

A. Past
B. Present
C. Reasonably foreseeable future

In terms of natural disturbances, it is difficult to determine the effect of non-Council and non-fishery related actions on stocks of snapper grouper species. Annual variability in natural conditions such as water temperature, currents, food availability, predator abundance, etc. can affect the abundance of young fish, which survive the egg and larval stages each year to become juveniles (i.e., recruitment). This natural variability in year class strength is difficult to predict as it is a function of many interactive and synergistic factors that cannot all be measured (Rothschild 1986). Furthermore, natural factors such as storms, red tide, cold water upwelling, etc. can affect the survival of juvenile and adult fishes; however, it is very difficult to quantify the magnitude of mortality these factors may have on a stock. Alteration of preferred habitats for snapper grouper species could affect survival of fish at any stage in their life cycles. However, estimates of the abundance of fish, which utilize any number of preferred habitats, as well as, determining the impact habitat alteration may have on snapper grouper species, is problematic.

The snapper grouper ecosystem includes many species, which occupy the same habitat at the same time. For example, red snapper co-occur with vermilion snapper, tomtate, scup, red porgy, white grunt, black sea bass, red grouper, scamp, gag, and others. Therefore, red snapper are likely to be caught and suffer some mortality when regulated since they will be incidentally caught when fishermen target other co-occurring species. Red snapper recruitment has been measured from the 1950's to the present time and shows a decline from the earliest years to a low in the mid-1900s. Since then there have been several moderately good year classes in 1998, 1999, and 2000, and then another decline through 2003, with an apparent strong year class occurring in 2006. These moderately good year classes have grown and entered the fishery over the past couple years and are likely responsible for the higher catches being reported by recreational and commercial fishermen. Other natural events such as spawning seasons, and aggregations of fish in spawning condition can make some species especially vulnerable to targeted fishing pressure. Such natural behaviors are discussed in further detail in **Section 3.2** of this document, and is hereby incorporated by reference.

Include oil spill impacts later on

AFFECTED ENVIRONMENT

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

In terms of the biophysical environment, the resources/ecosystems identified in earlier steps of the CEA are the fish populations directly or indirectly affected by the regulations. This step should identify the trends, existing conditions, and the ability to withstand stresses of the environmental components.

The trends in condition of gag, vermilion snapper, black sea bass, snowy grouper, golden tilefish, and red snapper are documented through the Southeast Data, Assessment and Review (SEDAR) process. Warsaw grouper, and speckled hind have not been recently assessed. Assessments for red grouper and black grouper will be completed in 2010. However, given the best available science, each of these stocks has been determined to be undergoing overfishing, meaning that

fishing related mortality is greater than the maximum fishing mortality threshold. The status of each of these stocks is described in detail in **Section 3.3** of this document.

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

This step is important in outlining the current and probable stress factors on snapper grouper species identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the resources cannot be sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

Fish populations

Numeric values of overfishing and overfished thresholds are being updated in this amendment for red snapper. These values includes maximum sustainable yield (MSY), the fishing mortality rate that produces MSY (F_{MSY}), the biomass or biomass proxy that supports MSY (B_{MSY}), the minimum stock size threshold below which a stock is considered to be overfished (MSST), the maximum fishing mortality threshold above which a stock is considered to be undergoing overfishing (MFMT), and optimum yield (OY).

Definitions of overfishing and overfished for species addressed in this amendment can be found in the most recent stock assessment sources included in **Table 1-2** of this document. Applicable stock assessment sources include SEDAR 4 (2004) for golden tilefish and snowy grouper; Potts and Brennan (2001) for speckled hind, black grouper, and red grouper; Huntsman *et al.* (1993) for warsaw grouper; SEDAR Update 1 (2005) for black sea bass; SEDAR 10 (2006) for gag; SEDAR Update #3 (2007) for vermilion snapper; and SEDAR 15 (2008) for red snapper. Of these species, snowy grouper, black sea bass, and red snapper have been declared overfished. All others have been determined to be undergoing overfishing according to their respective overfishing and overfished definitions. Detailed discussions of the science and processes used to determine the stock status of these species is contained in the previously mentioned information sources and are hereby incorporated by reference.

Climate change

Global climate changes could 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 (Kennedy et al. 2002).

Actions from this amendment could decrease the carbon footprint from fishing if some fishermen stop or reduce their number and duration of trips due to the proposed area closure. It is unclear how climate change would affect snapper grouper 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 impact snapper grouper 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. Actions in this amendment are expected to reduce harvest of red snapper and may also decrease fishing mortality of other co-occurring species; thus these actions may partially mitigate the negative impacts of global climate change on snapper grouper species.

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

The purpose of defining a baseline condition for the resource and ecosystems in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. The SEDAR assessments show trends in biomass, fishing mortality, fish weight, and fish length going back to the earliest periods of data collection. For some species such as gag and snowy grouper, assessments reflect initial periods when the stocks were above B_{MSY} and fishing mortality was fairly low. However, some species such as vermilion snapper and black sea bass were heavily exploited or possibly overfished when data were first collected. As a result, the assessment must make an assumption of the biomass at the start of the assessment period thus modeling the baseline reference points for the species.

For a detailed discussion of the baseline conditions of each of the species addressed in this amendment the reader is referred to those stock assessment and stock information sources referenced in **Item Number 6** of this CEA.

DETERMINING THE ENVIRONMENTAL CONSEQUENCES OF CUMULATIVE EFFECTS

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

Table 5-1. The cause and effect relationship of fishing and regulatory actions within the time period of the Cumulative Effects Analysis (CEA).

Time period/dates	Cause	Observed and/or Expected Effects
1960s-1983	Growth overfishing of many reef fish species.	Declines in mean size and weight of many species including black sea bass.
August 1983	4" trawl mesh size to achieve a 12" TL commercial vermilion snapper minimum size limit (SAFMC 1983).	Protected youngest spawning age classes.
Pre-January 12, 1989	Habitat destruction, growth overfishing of vermilion snapper.	Damage to snapper grouper habitat, decreased yield per recruit of vermilion snapper.
January 1989	Trawl prohibition to harvest fish (SAFMC 1988).	Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many reef species including vermilion snapper, and gag.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	Prohibited gear: fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. Size/Bag limits: 10" TL vermilion snapper (recreational only); 12" TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20" TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991).	Protected smaller spawning age classes of vermilion snapper.
Pre-June 27, 1994	Damage to *Oculina* habitat.	Noticeable decrease in numbers and species diversity in areas of *Oculina* off FL
July 1994	Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993)	Initiated the recovery of snapper grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing	Spawning potential ratio for vermilion snapper and gag is less than 30% indicating

Time period/dates	Cause	Observed and/or Expected Effects
	continue for a number of snapper grouper species including vermilion snapper and gag.	that they are overfished.
February 24, 1999	Gag and black: 24" total length (recreational and commercial); 2 gag or black grouper bag limit within 5 grouper aggregate; March-April commercial closure. Vermilion snapper: 11" total length (recreational). Aggregate bag limit of no more than 20 fish/person/day for all snapper grouper species without a bag limit (1998c).	F for gag vermilion snapper remains declines but is still above F_{MSY}.
October 23, 2006	Snapper grouper FMP Amendment 13C (SAFMC 2006)	Commercial vermilion snapper quota set at 1.1 million lbs gutted weight; recreational vermilion snapper size limit increased to 12" TL to prevent vermilion snapper overfishing
Effective February 12, 2009	Snapper grouper FMP Amendment 14 (SAFMC 2007)	Use marine protected areas (MPAs) as a management tool to promote the optimum size, age, and genetic structure of slow growing, long-lived deepwater snapper grouper species (e.g., speckled hind, snowy grouper, warsaw grouper, yellowedge grouper, misty grouper, golden tilefish, blueline tilefish, and sand tilefish). Gag and vermilion snapper occur in some of these areas.
Effective March 20, 2008	Snapper grouper FMP Amendment 15A (SAFMC 2008a)	Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Effective Dates Dec 16, 2009, to Feb 16, 2010.	Snapper grouper FMP Amendment 15B (SAFMC 2008b)	End double counting in the commercial and recreational reporting systems by prohibiting the sale of bag-limit caught snapper grouper, and minimize impacts on sea turtles and smalltooth sawfish.
Effective Date July 29, 2009	Snapper grouper FMP Amendment 16 (SAFMC 2008c)	Protect spawning aggregations and snapper grouper in spawning condition by increasing the length of the spawning season closure, decrease discard mortality by requiring the use of dehooking tools, reduce overall harvest of gag and vermilion snapper to end overfishing.

Time period/dates	Cause	Observed and/or Expected Effects
Effective Date January 4, 2010	Red Snapper Interim Rule	Prohibit commercial and recreational harvest of red snapper from January 4, 2010, to June 2, 2010 with a possible 186-day extension. Reduce overfishing of red snapper while long-term measures to end overfishing are addressed in Amendment 17A.
Target 2010	Snapper Grouper FMP Amendment 17A.	SFA parameters for red snapper; ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; accountability measures. Establish rebuilding plan for red snapper.
Target 2010	Snapper Grouper Amendment 17B	ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; AMs, for species undergoing overfishing.
Target 2010	Snapper Grouper FMP Amendment 18	Extend the snapper grouper FMU northward, review and update wreckfish ITQ system, prevent overexploitation in the black sea bass and golden tilefish fisheries, improve data collection timeliness and data quality.
Target 2010	Snapper Grouper FMP Amendment 19	Amend the FMP to present spatial information of Council-designated Essential Fish Habitat and Essential Fish Habitat-Habitat Areas of Particular Concern.
Target January 1, 2011	Comprehensive ACL Amendment.	ACLs, ACTs, and AMs for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.
Target 2011	Amendment 20 (Wreckfish)	Review the current ITQ program and update the ITQ program as necessary to comply with MSA LAPP requirements.

9. Determine the magnitude and significance of cumulative effects.

Proposed management actions, as summarized in **Section 2** of this document, would establish ACLs and AMs and establish management measures to end red snapper overfishing and are expected to have a beneficial, cumulative effect on the biophysical environment. These management actions are expected to protect and increase stock biomass, which may affect other stocks. Detailed discussions of the magnitude and significance of the preferred alternatives appear in **Section 4** of this consolidated document. Below is a short summary of the biological significance and magnitude of each of the preferred alternatives chosen, and a brief discussion of their combined effect on the snapper grouper fishery management unit (FMU) and the ecosystem.

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

The cumulative effects on the biophysical environment are expected to be positive. Avoidance, minimization, and mitigation are not applicable.

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

The effects of the proposed action are, and will continue to be, monitored through collection of data by NOAA Fisheries Service, states, stock assessments and stock assessment updates, life history studies, and other scientific observations. **Section 4.5** of this document contains a full discussion and analysis of monitoring program alternatives for red snapper.

5.2 Socioeconomic

A description of the human environment, including a description of commercial and recreational snapper grouper fisheries and associated key fishing communities is contained in **Section 3.0**. A description of the history of management of the snapper grouper fishery is contained in **Section 1.3**. Participation in and the economic performance of the fishery have been effected by a combination of regulatory, biological, social, and external economic factors. Regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Gear restrictions, notably fish trap and longline restrictions, have also affected harvests and economic performance. The limited access program implemented in 1998/1999 substantially affected the number of participants in the fishery. Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have played a role in determining the changing composition of the fishery. Additional factors, such as changing career or lifestyle preferences, stagnant to declining ex-vessel fish prices due to imports, increased operating costs (e.g., gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for non-fishery uses have impacted both the commercial and recreational fishing sectors.

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. For each regulatory action, expected effects are projected. However, these projections typically only minimally, if at all, are capable of incorporating the variety of external factors, and evaluation in hindsight is similarly incapable of isolating regulatory effects from other factors, as in, what portion of a change was due to the regulation versus due to input cost changes, random variability of species availability, the sale of a fish house or docking space for condominium development, or even simply fishermen behavioral changes unrelated to the regulation.

The establishment of ACLs and AMs for species undergoing overfishing is expected to help protect and sustain harvest at the optimum yield (OY) level. However, certain pressures would remain, such as total effort and total harvest considerations, increasing input costs, import induced price pressure, and competition for coastal access. A detailed description of the

expected social and economic impacts of the actions in this amendment are contained elsewhere in **Section 4**, and in **Sections 5** and **6**. Current and future amendments are expected to add to this cumulative effect. Snapper Grouper Amendment 15B prohibited the sale of bag-limit caught snapper grouper species for those who do not hold a Federal commercial permit for snapper grouper. This would eliminate the ability of the recreational angler to subsidize the cost of a fishing trip through the sales of snapper grouper, and may therefore, decrease recreational demand. This action would have more pronounced effects on the for-hire sector which often uses the sale of bag-limit caught fish to pay crew members. The cumulative impacts of eliminating the ability to sell bag limit caught snapper grouper and the restrictions on red snapper specifically in this amendment could be perceived as being significant to this sector.

Snapper Grouper Amendment 16 addressed overfishing in the gag and vermilion snapper fisheries. The corrective action in response to overfishing always requires harvest reductions and more restrictive regulation. Thus, additional short-term adverse social and economic effects would be expected. These restrictions will hopefully prevent; however, the stocks from becoming overfished, which would require recovery plans, further harvest restrictions, and additional social and economic losses. A red snapper interim rule was put in place from January 4, 2010, to June 2, 2010, to reduce overfishing of red snapper while Amendment 17A is developed and can be extended for an additional 186 days.

Snapper Grouper Amendment 17B established establish ACLs, AMs, and ACTs for a number of snapper grouper species, and specify golden tilefish allocations. Some of these actions are expected to result in additional harvest restrictions on the snapper grouper fishery, and additional short-term adverse social and economic effects

Snapper Grouper Amendment 18 will examine limiting participation and effort in the golden tilefish and black sea bass pot fisheries, and consider extending the range of the FMP north through the Mid-Atlantic and New England Council areas, among other actions. While restrictions of this nature would in theory allow No Action total harvests for the respective species to continue, these restrictions may result in the redistribution of harvests among traditional users, resulting in those who are able to increase their harvests, and associated social and economic benefits, and those who suffer reduced harvests, with associated losses in benefits. For those who would be expected to experience a possible reduction in harvests, these reductions may occur on top of declining benefits as a result of other recent or developing management action.

5.2 Socioeconomic

A description of the human environment, including a description of commercial and recreational snapper grouper fisheries and associated key fishing communities is contained in **Section 3.0**. A description of the history of management of the snapper grouper fishery is contained in **Section 1.3**. Participation in and the economic performance of the fishery have been effected by a combination of regulatory, biological, social, and external economic factors. Regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Gear restrictions, notably fish

trap and longline restrictions, have also affected harvests and economic performance. The limited access program implemented in 1998/1999 substantially affected the number of participants in the fishery. Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have played a role in determining the changing composition of the fishery. Additional factors, such as changing career or lifestyle preferences, stagnant to declining ex-vessel fish prices due to imports, increased operating costs (e.g., gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for non-fishery uses have impacted both the commercial and recreational fishing sectors.

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. For each regulatory action, expected effects are projected. However, these projections typically only minimally, if at all, are capable of incorporating the variety of external factors, and evaluation in hindsight is similarly incapable of isolating regulatory effects from other factors, as in, what portion of a change was due to the regulation versus due to input cost changes, random variability of species availability, the sale of a fish house or docking space for condominium development, or even simply fishermen behavioral changes unrelated to the regulation.

The establishment of ACLs and AMs for species undergoing overfishing is expected to help protect and sustain harvest at the OY level. However, certain pressures would remain, such as total effort and total harvest considerations, increasing input costs, import induced price pressure, and competition for coastal access. A detailed description of the expected social and economic impacts of the actions in this amendment are contained elsewhere in **Section 4**, and in **Sections 5** and **6**. Current and future amendments are expected to add to this cumulative effect. Snapper Grouper Amendment 15B prohibited the sale of bag-limit caught snapper grouper species for those who do not hold a Federal commercial permit for snapper grouper. This would eliminate the ability of the recreational angler to subsidize the cost of a fishing trip through the sales of snapper grouper, and may therefore, decrease recreational demand. This action would have more pronounced effects on the for-hire sector which often uses the sale of bag-limit caught fish to pay crew members. The cumulative impacts of eliminating the ability to sell bag limit caught snapper grouper and the restrictions on red snapper specifically in this amendment could be perceived as being significant to this sector.

Snapper Grouper Amendment 16 addressed overfishing in the gag and vermilion snapper fisheries. The corrective action in response to overfishing always requires harvest reductions and more restrictive regulation. Thus, additional short-term adverse social and economic effects would be expected. These restrictions will hopefully prevent; however, the stocks from becoming overfished, which would require recovery plans, further harvest restrictions, and additional social and economic losses. A red snapper interim rule was put in place from January 4, 2010, to June 2, 2010, to reduce overfishing of red snapper while Amendment 17A is developed and can be extended for an additional 186 days.

Snapper Grouper Amendment 17B established ACLs, AMs, and ACTs for a number of snapper grouper species, and specify golden tilefish allocations. Some of these actions are expected to

result in additional harvest restrictions on the snapper grouper fishery, and additional short-term adverse social and economic effects. Alternatives for the management of red snapper could interact with additional alternatives proposed in Amendment 17B that are not considered in the present analyses (above). In particular, the proposed alternatives considered in Amendment 17A do not include any commercial quotas for red grouper or black grouper, while Amendment 17B proposes to limit the aggregate harvest of gag, red grouper and black grouper.

The aggregate ACL on the harvest of gag, red grouper and black grouper in Amendment 17B would dampen the prediction in the analysis of Amendment 17A of a longer season for shallow water groupers, and would limit the ability of fishermen to benefit from a longer open season by harvesting larger quantities of red grouper, black grouper and other shallow water groupers given the alternatives proposed in Amendment 17A. When Amendments 17A and 17B are considered jointly, the open season for shallow water groupers still is predicted to last longer than with Amendment 16, but would close sooner than if the ACL had not been specified in Amendment 17B. Therefore, the expected increase in net operating revenues during the fourth quarter will not be as large as was predicted in the analysis of Amendment 17A given the no-action alternative for Amendment 17B, and the overall losses due to the alternatives in Amendment 17A will be larger than originally predicted.

6 Other Things to Consider

6.1 Unavoidable Adverse Effects

Regulatory Amendment 9 includes no actions that are expected to result in unavoidable adverse effects.

6.2 Effects of the Fishery on the Essential Fish Habitat

The biological impacts of the proposed actions are described in Section 4.0, including impacts on habitat. No actions proposed in this amendment are anticipated to have any adverse impact on essential fish habitat (EFH) or EFH-Habitat of Particular Concern (EFH-HAPC) for managed species including species in the snapper grouper complex. Any additional impacts of fishing on EFH identified during the public hearing process will be considered, therefore the Council has determined no new measures to address impacts on EFH are necessary at this time. The Council's adopted habitat policies, which may directly affect the area of concern, are available for download through the Habitat/Ecosystem section of the Council's website: http://map.mapwise.com/safmc/Default.aspx?tabid=56.

NOTE: The Final EFH Rule, published on January 17, 2002, (67 FR 2343) replaced the interim Final Rule of December 19, 1997 on which the original EFH and EFH-HAPC designations were made. The Final Rule directs the Councils to periodically update EFH and EFH-HAPC information and designations within fishery management plans. As was done with the original Habitat Plan, a series of technical workshops were conducted by Council habitat staff and a draft plan that includes new information has been completed pursuant to the Final EFH Rule.

6.3 Damage to Ocean and Coastal Habitats

The alternatives and proposed actions are not expected to have any adverse effect on the ocean and coastal habitat.

Management measures implemented in the original Snapper Grouper Fishery Management Plan through Amendment 7 combined have significantly reduced the impact of the snapper grouper fishery on essential fish habitat (EFH). The Council has reduced the impact of the fishery and protected EFH by prohibiting the use of poisons and explosives; prohibiting use of fish traps and entanglement nets in the exclusive economic zone; banning use of bottom trawls on live/hard bottom habitat north of Cape Canaveral, Florida; restricting use of bottom longline to depths greater than 50 fathoms north of St. Lucie Inlet; and prohibiting use of black sea bass pots south of Cape Canaveral, Florida. These gear restrictions have significantly reduced the impact of the fishery on coral and live/hard bottom habitat in the South Atlantic Region.

Additional management measures in Amendment 8 (SAFMC 1997), including specifying allowable bait nets and capping effort, have protected habitat by making existing regulations more enforceable. Establishing a controlled effort program limited overall fishing effort and to the extent there is damage to the habitat from the fishery (e.g. black sea bass pots, anchors from fishing vessels, impacts of weights used on fishing lines and bottom longlines), limited such impacts.

In addition, measures in Amendment 9 (SAFMC 1998b), that include further restricting longlines to retention of only deepwater species and requiring that black sea bass pot have escape panels with degradable fasteners, reduce the catch of undersized fish and bycatch and ensure that the pot, if lost, will not continues to "ghost" fish. Amendment 13C (SAFMC 2006) increased mesh size in the back panel of pots, which has reduced bycatch and retention of undersized fish. Amendment 15B (SAFMC 2008b) implemented sea turtle bycatch release equipment requirements, and sea turtle and smalltooth sawfish handling protocols and/or guidelines in the permitted commercial and for-hire snapper grouper fishery.

Amendment 16 (SAFMC 2008c), implemented an action to reduce bycatch by requiring fishermen use dehooking devices. Limiting the overall fishing mortality reduces the likelihood of over-harvesting of species with the resulting loss in genetic diversity, ecosystem diversity, and sustainability.

Measures adopted in the Coral and Shrimp FMPs have further restricted access by fishermen that had potential adverse impacts on essential snapper grouper habitat. These measures include the designation of the *Oculina* Bank HAPC and the rock shrimp closed area (see the Shrimp and Coral FMP/Amendment documents for additional information).

The Council's Comprehensive Habitat Amendment (SAFMC 1998b) contains measures that expanded the *Oculina* Bank Habitat of Particular Concern (HAPC) and added two additional

satellite HAPCs. Amendment 14 (SAFMC 2007), established marine protected areas where fishing for or retention of snapper grouper species would be prohibited.

6.4 Relationship of Short-Term Uses and Long-Term Productivity

The relationship between short-term uses and long-term productivity will not be affected by this amendment.

6.5 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are defined as commitments that cannot be reversed, except perhaps in the extreme long-term, whereas irretrievable commitments are lost for a period of time. There are no irreversible commitments for this amendment.

6.6 Unavailable or Incomplete Information

The Council on Environmental Quality, in its implementing regulations for the National Environmental Policy Act, addressed incomplete or unavailable information at 40 CFR 1502.22 (a) and (b). That regulations has been considered. There are two tests to be applied: 1) Does the incomplete or unavailable information involve "reasonable foreseeable adverse effects…;" and 2) is the information about these effects "essential to a reasoned choice among alternatives…".

7 List Of Preparers

Name	Title	Agency	Division	Location
David Dale	EFH Specialist	NMFS	HC	SERO
Rick DeVictor	Environmental Impact Scientist	SAFMC	N/A	SAFMC
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David Keys	NEPA Specialist	NMFS	N/A	SERO
Tony Lamberte	Economist	NMFS	SF	SERO
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Nikhil Mehta	Fishery Biologist	NMFS	SF	SERO
Kate Michie	Fishery Management Plan Coordinator	NMFS	SF	SERO
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Jim Waters	Economist	NMFS	Economics	SEFSC
Gregg Waugh	Deputy Director	SAFMC	N/A	SAFMC

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

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Gregg Waugh – SAFMC staff
Myra Brower – SAFMC staff
Roger Pugliese – SAFMC staff
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8 List of Agencies, Organizations, and Persons To Whom Copies of the Statement Are Sent

Responsible Agency

Amendment 17A:

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Environmental Impact Statement:

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List of Agencies, Organizations, and Persons Consulted

SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
SAFMC Education and Outreach Advisory Panel
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Georgia Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
North Carolina Division of Marine Fisheries
North Carolina Sea Grant
South Carolina Sea Grant
Georgia Sea Grant
Florida Sea Grant
Atlantic States Marine Fisheries Commission
Gulf and South Atlantic Fisheries Development Foundation
Gulf of Mexico Fishery Management Council
National Marine Fisheries Service
- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

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