



DRAFT

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

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ABBREVIATIONS AND ACRONYMS

ABC	Acceptable biological catch
ACCSP	Atlantic Coastal Cooperative Statistics Program
ACL	Annual Catch Limits
ACT	Annual Catch Target
AM	Accountability Measure
APA	Administrative Procedures Act
ASMFC	Atlantic States Marine Fisheries Commission
B	A measure of stock biomass in either weight or other appropriate unit
	The stock biomass expected to exist under equilibrium conditions when fishing at
	The stock biomass expected to exist under equilibrium conditions when fishing at
	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
%SPR	Fishing mortality that will produce a static SPR = 30%.
%SPR	Fishing mortality that will produce a static SPR = 45%.
	The current instantaneous rate of fishing mortality
	The rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of
	The rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of
FEIS	Final Environmental Impact Statement
FMP	Fishery management plan
FMU	Fishery management unit
FONSI	Finding of No Significant Impact
GFMC	Gulf of Mexico Fishery Management Council
IFQ	Individual fishing quota
M	Natural mortality rate
MARFIN	Marine Fisheries Initiative
MARMAP	Marine Resources Monitoring Assessment and Prediction Program
MBTA	Migratory Bird Treaty Act

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

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

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

Proposed actions:	Limit participation and effort in the golden tilefish fishery; modify management of the black sea bass pot fishery; extend the range of the snapper grouper FMP north and designate EFH in new areas; change the golden tilefish fishing year; and improve the accuracy, timing, and quantity of fisheries statistics.
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ABSTRACT

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

Actions in Amendment 18 would also adjust the golden tilefish fishing year start date in order to allow for harvest by Florida based commercial hook-and-line fishermen from September through November, and to require improvements to current data reporting requirements.

Actions in Amendment 18 would:

- Extend the range of the snapper grouper FMP north
- Designate Essential Fish Habitat (EFH) for snapper grouper species in proposed northern areas
- Limit participation in the golden tilefish fishery through an endorsement program
- Establish criteria for transferability of endorsements
- Change the golden tilefish fishing year
- Change golden tilefish commercial trip limits
- Modify management of the black seabass fishery to limit participation and effort and reduce bycatch
- Change the black sea bass fishing year and split the quota between seasons
- Establish a spawning season closure for black sea bass
- Improve the accuracy, timing, and quantity of fisheries data.

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

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SUMMARY

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

Actions proposed in Amendment 18 would:

- Extend the range of the snapper grouper FMP north
- Designate Essential Fish Habitat (EFH) for snapper grouper in new northern areas
- Limit participation in the golden tilefish fishery through an endorsement program
- Establish criteria for transferability of endorsements
- Change the golden tilefish fishing year
- Change golden tilefish commercial trip limits
- Modify management of the black seabass fishery to limit participation and effort and reduce bycatch
- Change the black sea bass fishing year and split quota into two seasons
- Establish a spawning season closure for black sea bass
- Improve the accuracy, timing, and quantity of fisheries data.

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

Alternatives Being Considered

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

1 Introduction

1.1 Background

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

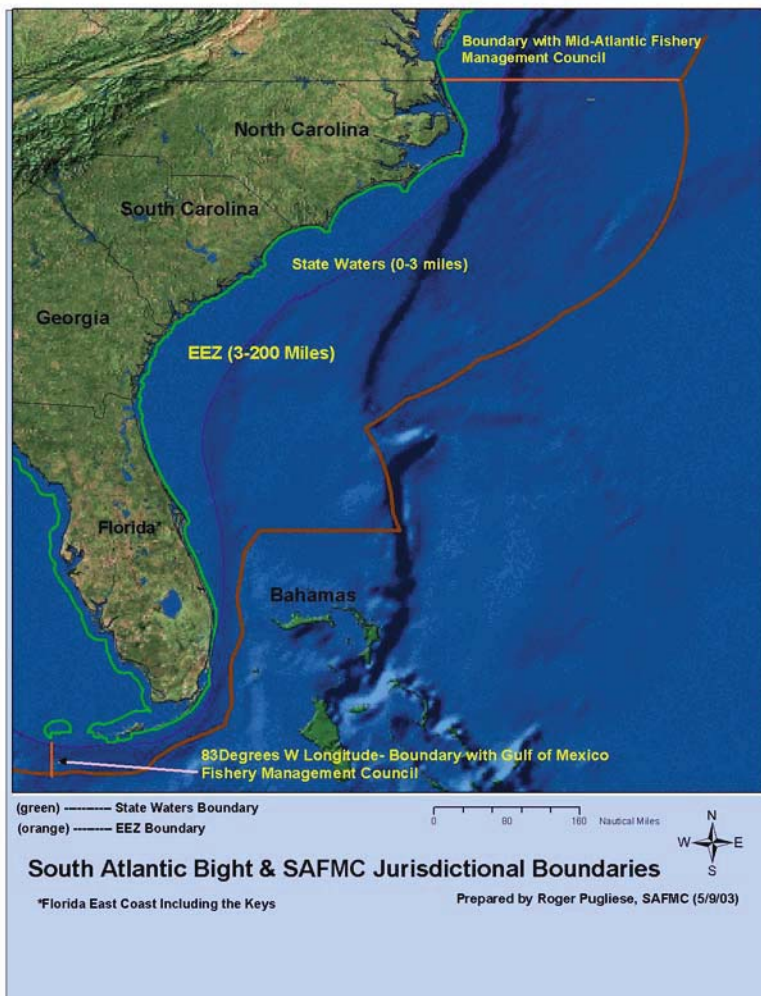


Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

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

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

1.2 Purpose and Need of Amendment 18

The purpose of Amendment 18 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region is to expand the fishery management unit to include snapper grouper species in the northern part of their range, designate essential fishery habitat for snapper grouper species in northern areas, limit participation in the golden tilefish fishery, change the golden tilefish fishing year, change the golden tilefish commercial trip limits, limit participation and effort in the black sea bass pot fishery, limit bycatch in the black sea bass pot fishery, modify the black sea bass fishing year and split the quota into two seasons and improve the accuracy, timing, and quantity of fisheries data. These actions are needed for comprehensive management of snapper grouper species throughout their range and will address issues that have arisen as a result of a more stringent regulatory regime in the South Atlantic region.

The actions proposed in Amendment 18 are described below.

Action 1: Extension of the Fishery Management Unit northward

The Council is concerned about a northward expansion of a fishery for snapper and grouper species resulting in large catches of blueline tilefish and groupers. The Council's Snapper Grouper Advisory Panel (AP) presented information documenting increasing catches of blueline tilefish and snowy grouper off the coast of Virginia. In addition, Virginia reported state records of recreationally caught blueline tilefish and snowy grouper in recent years. In response, the Virginia Marine Resources Commission (VMRC) has since established commercial and recreational limits on the harvest and landing of tilefish and grouper off the coast of Virginia (**Table 1-2**). In addition, it has been suggested snapper grouper species are becoming more common in the northern part of their range in response to increases in average water temperature due to global warming (Parker and Dixon, 1998). There have also been reports of snapper grouper species being landed in the Northeast region (XXXX).

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

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

The Council is considering extending the range northward of the snapper grouper fishery management plan for snapper grouper species in order to conserve and manage these species, since they are not managed by the Mid-Atlantic Fishery Management Council or

New England Fishery Management Council. The extension would not include black sea bass, golden tilefish, and scup since these three species are covered by Mid-Atlantic Council fishery management plans.

Note: Action 2: Establishment of a permitting program in the Northern extension and Action 3: Establishment of a management protocol for the Northern extension are being proposed by the IPT to simplify and clarify Action 1.

Action 2: Designation of Essential Fish Habitat (EFH) for Snapper Grouper in Areas Covered by the Northward Expansion

The proposed action to expand the Snapper Grouper FMP northward requires new EFH be identified to be consistent with the Magnuson-Stevens Act, which requires EFH or EFH proxies be designated for each managed species, at each life stage. Therefore, the Council is considering designating new snapper grouper EFH or EFH proxies in the Mid-Atlantic and New England areas.

Action 3: Limit Participation in the Golden Tilefish Fishery

Recent amendments to the Snapper Grouper FMP have imposed more restrictive harvest limitations on snapper grouper fishermen. In an effort to identify other species to target, fishermen may increase participation in the golden tilefish fishery. An increase in participation in the golden tilefish fishery would intensify the “race to fish” that already exists in the fishery and has resulted in a shortened season. The fishing seasons in recent years have already been shortened to such a degree that South Carolina longline fishermen, who are typically unable to fish until April or May due to weather conditions; and hook and line fishermen from Florida, who typically do not fish until the fall, are increasingly unable to participate in the fishery. Current regulations for golden tilefish include a 4,000 pound gutted weight trip limit until 75% of the quota is caught, after which, a 300 pound gutted weight trip limit is imposed. The Council is concerned an increase in participation in this fishery will deteriorate profits for current golden tilefish fishermen and has proposed an endorsement program to limit effort in the fishery.

Action 4: Transferability of Golden Tilefish Endorsements

Recent amendments to the Snapper Grouper FMP have imposed more restrictive harvest limitations on snapper grouper fishermen. In an effort to identify other species to target, fishermen may increase participation in the golden tilefish fishery. An increase in participation in the golden tilefish fishery would intensify the “race to fish” that already exists in the fishery and has resulted in a shortened season. The fishing seasons in recent years have already been shortened to such a degree that South Carolina longline fishermen, who are typically unable to fish until April or May due to weather conditions; and hook and line fishermen from Florida, who typically do not fish until the fall, are increasingly unable to participate in the fishery. Current regulations for golden tilefish include a 4,000 pound gutted weight trip limit until 75% of the quota is caught, after which, a 300 pound gutted weight trip limit is imposed. The Council is concerned an

increase in participation in this fishery will deteriorate profits for current golden tilefish fishermen and has proposed an endorsement program to limit effort in the fishery (Action 5). If the Council decides to move forward with an endorsement program, the details of the program will need to be decided. *Action 6* address the transferability of the endorsements in the proposed golden tilefish endorsement program.

Action 5: Change Golden Tilefish Fishing Year

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

Action 6: Change the Golden Tilefish Commercial Trip Limit

While Florida longline fishermen begin fishing in January or February each year, Florida hook and line fishermen traditionally participate in the golden tilefish fishery in September. However, the derby that has developed in recent years has not enabled them to participate in the fishery. The commercial golden tilefish trip limits are constructed such that longline fishermen have the opportunity to fish under a 4,000 pound trip limit early in the year while hook and line fishermen have the opportunity to fish under a smaller trip limit that is likely not high enough for longline fishermen to make a profit. Changing the commercial golden tilefish fishing year may eliminate the need for different trip limits.

Action 7: Limit Participation in the Black Sea Bass Pot Fishery

In December 2008, the Council requested NOAA Fisheries Service issue a control date of December 4, 2008. The control date sets a date in time the Council could use to limit participation; anyone entering the black sea bass pot fishery after the specified date may not be guaranteed continued participation. The Council had previously requested control dates for this fishery in 1997 and 2005. Action 9 proposes alternatives that would limit tag distribution to fishery participants based on

Action 8: Limit Effort in the Black Sea Bass Pot Fishery

The Council is concerned increased restrictions imposed through Snapper Grouper Amendments 13C and 16, including a commercial quota for black sea bass, could increase the incentive to fish for black sea bass using pots. Currently, there is no limit on the number of tags issued to fishermen who target black sea bass or the number of pots that can be fished. An increase in participation in the black sea bass fishery would also deteriorate profits for current participants in that fishery. Action 10 proposes alternatives that would reduce the number of tags distributed in the black sea bass fishery to reduce the amount of pots a fishermen could deploy.

Action 9: Reduce Bycatch in the Black Sea Bass Fishery

The Council is further concerned about the possibility of fishermen leaving large numbers of traps fishing for multiple days due to vessel or weather problems, which could unnecessarily kill many black sea bass. Fishing large numbers of traps also increases the chance that traps could be lost and “ghost fishing” could occur. Furthermore, fishing large numbers of traps increases the chance of entanglement of pot lines with right whales and other protected species. Action 11 proposes alternatives to reduce the possibility of bycatch in the black sea bass fishery.

Action 10: Implement a spawning season closure for the black sea bass pot fishery

The goal of this action is to protect black sea bass populations by implementing a closure to correspond with peak spawning of the species.

Action 11: Improvement to Commercial and For-Hire Fisheries Data

The goal of this action is to improve the accuracy, timing, and quantity of fisheries statistics collected by the current data collection programs for fisheries managed by the Council. To accomplish this goal, the Council believes modifications should be made to the current data collection programs (**Table 1-3**). Data elements improved by the action may include, but are not limited to: Landings; discards; effort; biological sampling of landings and discards; fishery independent information; and economic and social characterization of the fisheries.

Table 1-3. Current Data Collection Programs 50 CFR 622.5. Southeast Science and Research Director (SRD).

	Submit SRD Reporting Forms if Selected	Must Submit SRD Reporting Form for Each Trip	Carry Observers if Selected	Maintain Electronic Logbook if Selected	Must Provide Offloading, Purchase, and Sales Records if Selected	Carry Video Monitoring System if Selected	MRFFS Participation if Selected
Snapper grouper -commercial -for-hire -private rec.	Yes		Yes	Yes		Yes	Yes
Coastal Migratory Pelagics	Yes						
Wreckfish		Yes (for each trip)			Yes		
Golden Crab	Yes						
Dolphin Wahoo	Yes						
Shrimp - rock - penaeid	Yes						
Dealers -snapper grouper -coastal migratory pelagics -wreckfish -golden crab - dolphin wahoo - shrimp	Yes (submitted on a monthly basis)				Yes		

1.3 History of Management

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

January through April commercial closure, 1 fish bag limit, and 50 pound commercial bycatch allowance May through December.

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

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

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

Amendment 16 (SAFMC 2009) established a four month prohibition on recreational and commercial harvest of shallow-water grouper species, a five month prohibition on recreational harvest of vermilion snapper, a quota for gag, a modification to the vermilion snapper commercial quota, reductions in recreational bag limits for vermilion snapper, gag, black grouper, and the grouper aggregate; and a requirement for the commercial and recreational sectors to use venting and dehooking tools when necessary.

Amendment 17A is being developed by the Council to establish measure to end red snapper overfishing, rebuild the stock and establish annual catch limits (ACLs) for red snapper. Furthermore, Amendment 17B is being developed by the Council to specify ACLs and accountability measures (AMs) for other snapper grouper species undergoing overfishing.

Specific details on these and all the other regulations implemented in the snapper grouper can be found in Table 1.4

Table 1-4. History of management for the Snapper Grouper Fishery.

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

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

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

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #4 (1991)	01/01/92	PR: 56 FR 29922 FR: 56 FR 56016	<p>-Prohibited gear: fish traps except black sea bass traps north of Cape Canaveral, FL; entanglement nets; longline gear inside 50 fathoms; bottom longlines to harvest wreckfish**; powerheads and bangsticks in designated SMZs off S. Carolina.</p> <p>-defined overfishing/overfished and established rebuilding timeframe: red snapper and groupers ≤ 15 years (year 1 = 1991); other snappers, greater amberjack, black sea bass, red porgy ≤ 10 years (year 1 = 1991)</p> <p>-Required permits (commercial & for-hire) and specified data collection regulations</p> <p>-Established an assessment group and annual adjustment procedure (framework)</p> <p>-Permit, gear, and vessel id requirements specified for black sea bass traps.</p> <p>-No retention of snapper grouper spp. caught in other fisheries with gear prohibited in snapper grouper fishery if captured snapper grouper had no bag limit or harvest was prohibited. If had a bag limit, could retain only the bag limit.</p> <p>-8" limit – lane snapper</p> <p>-10" limit – vermilion snapper (recreational only)</p> <p>-12" limit – red porgy, vermilion snapper (commercial only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany, and silk snappers</p> <p>-20" limit – red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers.</p> <p>-28" FL limit – greater amberjack (recreational only)</p> <p>-36" FL or 28" core length – greater amberjack (commercial only)</p> <p>-bag limits – 10 vermilion snapper, 3 greater amberjack</p> <p>-aggregate snapper bag limit – 10/person/day, excluding vermilion snapper and allowing no more than 2 red snappers</p> <p>-aggregate grouper bag limit – 5/person/day, excluding Nassau and goliath grouper, for which no retention (recreational & commercial) is allowed</p> <p>-spawning season closure – commercial harvest greater amberjack > 3 fish bag prohibited in April south of Cape Canaveral, FL</p> <p>-spawning season closure – commercial harvest mutton snapper > snapper aggregate prohibited during May and June</p> <p>-charter/headboats and excursion boat possession limits extended</p>

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

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

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Notice of Control Date	04/23/97	62 FR 22995	-Anyone entering federal bsb pot fishery off S. Atlantic states after 04/23/97 was not assured of future access if limited entry program developed.
Amendment #8 (1997)	12/14/98	PR: 63 FR 1813 FR: 63 FR 38298	-established program to limit initial eligibility for snapper grouper fishery: Must demonstrate landings of any species in SG FMU in 1993, 1994, 1995 or 1996; and have held valid SG permit between 02/11/96 and 02/11/97. -granted transferable permit with unlimited landings if vessel landed \geq 1,000 lbs. of snapper grouper spp. in any of the years -granted non-transferable permit with 225 lb. trip limit to all other vessels -modified problems, objectives, OY, and overfishing definitions -expanded Council's habitat responsibility -allowed retention of snapper grouper spp. in excess of bag limit on permitted vessel with a single bait net or cast nets on board -allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.
Regulatory Amendment #7 (1998)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.
Interim Rule Request	1/16/98		-Council requested all Amendment 9 measures except black sea bass pot construction changes be implemented as an interim request under MSA
Action Suspended	5/14/98		-NMFS informed the Council that action on the interim rule request was suspended
Emergency Rule Request	9/24/98		-Council requested Amendment 9 be implemented via emergency rule
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

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

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

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

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

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

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Notice of Control Date	3/8/07	72 FR 60794	-The Council may consider measures to limit participation in the snapper grouper for-hire fishery
Amendment #14 (2007)	TBD	PR: 73 FR 32281 FR: 74 FR 1621	-Establish eight deepwater Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deepwater snapper grouper species.
Amendment #15A (2007)	3/14/08	73 FR 14942	- Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Amendment #15B (2008b)	February 15, 2010	PR: 74 FR 30569 FR:74 FR 58902	- Prohibit the sale of bag-limit caught snapper grouper species. -Reduce the effects of incidental hooking on sea turtles and smalltooth sawfish. - Adjust commercial renewal periods and transferability requirements. - Implement plan to monitor and assess bycatch, - Establish reference points for golden tilefish. - Establish allocations for snowy grouper (95% com & 5% rec) and red porgy (50% com & 50% rec).
Amendment #16 (SAFMC 2008c)	July 29, 2009	PR: 74 FR 6257 FR: 74 FR 30964	-Specify SFA parameters for gag and vermilion snapper -For gag grouper: Specify interim allocations 51%com & 49%rec; rec & com spawning closure January through April; directed com quota=348,440 pounds gutted weight; reduce 5-grouper aggregate to 3-grouper and 2 gag/black to 1 gag/black and exclude captain & crew from possessing bag limit. -For vermilion snapper: Specify interim allocations 68%com & 32%rec; directed com quota split Jan-June=168,501 pounds gutted weight and 155,501 pounds July-Dec; reduce bag limit from 10 to 4 and a rec closed season October through May 15. In addition, the NMFS RA will set new regulations based on new stock assessment. -Require de-hooking tools.
Amendment #17A (TBD)	TBD	TBD	-Specify an ACL and an AM for red snapper with management measures to reduce the probability that catches will exceed the stocks' ACL -Specify a rebuilding plan for red snapper -Specify status determination criteria for red snapper -Specify a monitoring program for red snapper
Amendment #17B (TBD)	TBD	TBD	-Specify ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing. -Modify management measures as needed to limit harvest to the ACL or ACT. -Update the framework procedure for specification of total allowable catch.
Notice of Control Date	December 4, 2008	TBD	Establishes a control date for the golden tilefish fishery of the South Atlantic

Table 1-4. Continued. History of management for the Snapper Grouper Fishery.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Notice of Control Date	December 4, 2008	TBD	Establishes control date for black sea bass pot fishery of the South Atlantic
Amendment 18 (TBD)	TBD	TBD	Extend the range of the snapper grouper FMP north and designate EFH in new areas; limit participation in the golden tilefish fishery; allow for transferability of endorsements; change the golden tilefish fishing year; change the golden tilefish trip limit; modifications to management of the black sea bass pot fishery; and improve the accuracy, timing, and quantity of fisheries statistics
Amendment 20 (TBD)	TBD	TBD	-Update wreckfish ITQ program
Comprehensive ACL Amendment	TBD	TBD	-Establish ABC control rules, establish ABCs, ACTs, and AMs for species not undergoing overfishing -Remove some species from South Atlantic FMUs -Specify allocations among the commercial, recreational, and for-hire sectors for species not undergoing overfishing -Limit the total mortality for federally managed species in the South Atlantic to the ACTs

1.4 Management Objectives

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

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

The existing management program does not currently include objectives to end overfishing and rebuild overfished stocks, actions now required by the Reauthorized Magnuson-Stevens Act. Therefore, the Council has recommended adding the following

two new management objectives to the FMP in Amendment 17A, which is under development:

14. End overfishing of snapper grouper stocks undergoing overfishing.
15. Rebuild stocks declared overfished.

2 Actions and Alternatives

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

2.1 Action 1: Extend Snapper grouper FMU Northward

Alternative 1 (No Action). Do not change the current management boundaries of the snapper grouper FMU.

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

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

However, NOAA Fisheries Service (SERO and/or NERO) must ensure that the actions will keep total mortality at or below the ACL/ACT specified for each Council's area.

2.1.1 Comparison of Alternatives

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

Alternative 2 would provide a means by which the Council may recommend management measures for these species even though they are being caught north of the Council's area of jurisdiction. Preferred **Alternative 3** would extend the management boundary further north into the Northeast Fishery Management Council's area of jurisdiction. Therefore, under both **Alternatives 2** and **3** biological impacts are expected to be beneficial; however, socioeconomic impacts could be greater than those under **Alternative 1 (No Action)**. Under the scenario whereby new permits are distributed into the northern areas by SERO and/or NERO, the socioeconomic impacts could be unchanged from the status quo but, as a result, commercial and recreational effort might increase. Alternatives for Action 1 are in **Figure 2-1**.

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

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

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

NOTE FROM IPT: In an effort to make sure that the concerns of the Mid-Atlantic Council are addressed and the alternatives selected are clear, the IPT suggests splitting Action 1 into three actions. This will allow the Council to chose the preferred alternatives on permitting and the protocol for specification of management measures

separate from deciding whether or not to extend the FMU. The suggested revision of the alternatives follows:

Action 1: Extend snapper grouper FMU northward

Alternative 1 (No Action). Do not change the current management boundaries of the snapper grouper FMU.

Alternative 2. Extend the management boundaries for all species in the Snapper grouper FMU northward to include the Mid-Atlantic Council's jurisdiction (except for black sea bass, golden tilefish, and scup).

Preferred Alternative 3. Extend the management boundaries for all species in the Snapper grouper FMU northward to include the Mid-Atlantic and New England Council's jurisdiction (except for black sea bass, golden tilefish, and scup).

Action 2: Permit requirement for Northern Extension

(Action 2 is relevant if Alternative 2 or Alternative 3 is selected as preferred in Action 1.)

Alternative 1. No Action. Current snapper grouper commercial (two-for-one) permit requirements would apply in the Northern extension.

Alternative 2. Do not require commercial snapper grouper permit in the Northern extension. (SA regulations would need to be revised to provide an exemption to the current permit requirement in the Northern area.)

Alternative 3. Create a new commercial snapper grouper permit for the Northern extension. This permit would be issued by the Southeast Regional office but apply to fishermen in the Northern extension only.

Action 3: Implementation of Management Measures Protocol

Alternative 1. No action. Do not establish a protocol to implement management measures in the Northern extension.

Alternative 2. SAFMC will specify management measures to limit total mortality to the ACL/ACT specified for the entire South Atlantic jurisdiction, including the proposed Northern expansion.

Alternative 3. SAFMC will specify management measures to limit total mortality to the ACL/ACT specified for the entire South Atlantic jurisdiction, including the proposed Northern expansion, based on recommendations from the MAFMC and NEFMC for their respective regions.

Alternative 4. MAFMC will specify management measures to limit total mortality to the ACL/ACT specified for the MAFMC region.

Alternative 5. NEFMC will specify management measures to limit total mortality to the ACL/ACT specified for the NEFMC region.

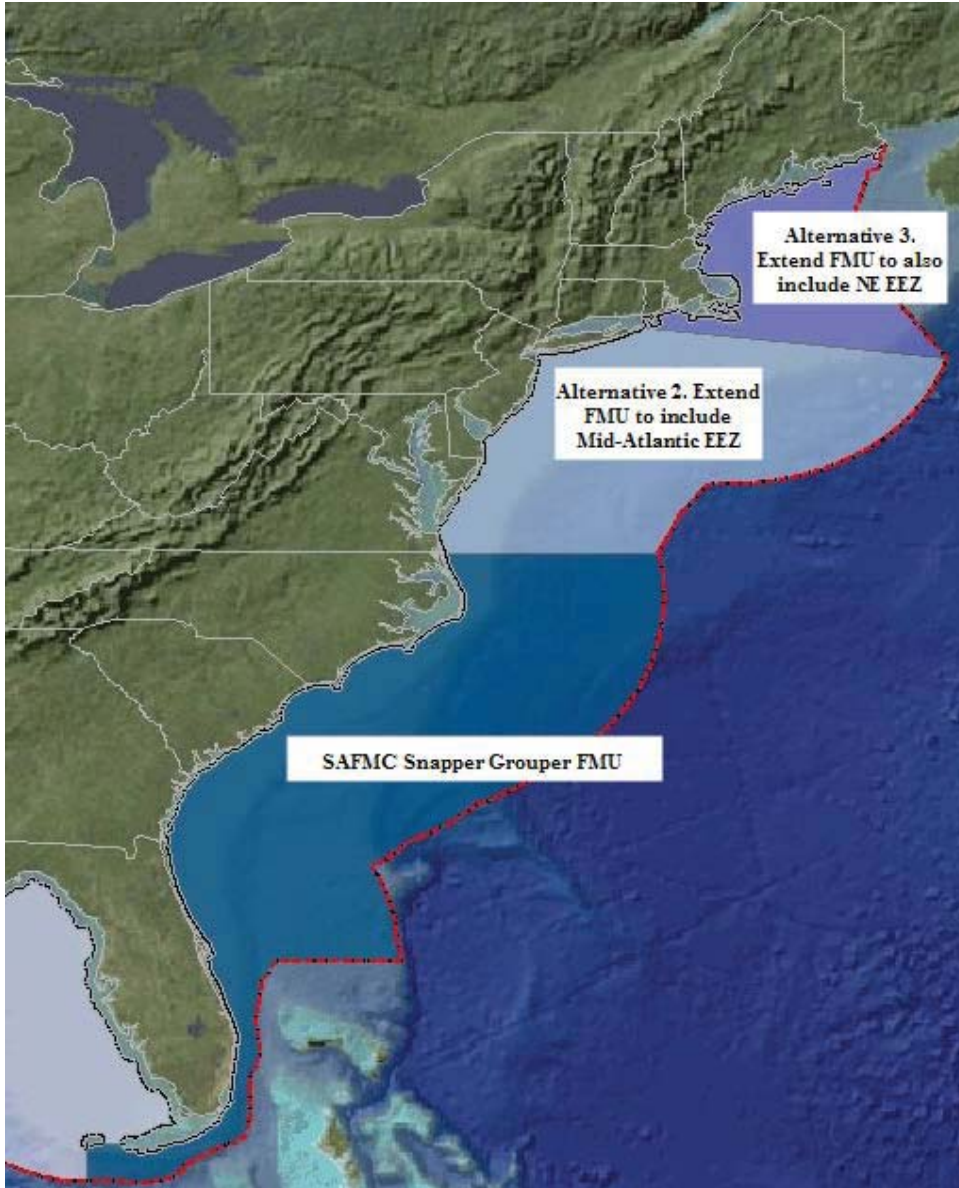


Figure 2-1. FMU alternatives.

2.2 Action 2: Designate Essential Fish Habitat (EFH) for Snapper Grouper in Northern Extension Area

(This action will only be relevant if the Council chooses Alternative 2 or 3 under Action 1.)

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

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

Preferred Alternative 3. Designate EFH for snapper grouper species in the Northern extension using the MAFMC designations as proxies, where appropriate.

2.2.1 Comparison of Alternatives

Alternative 1 would maintain the status-quo, with no change in designating essential fish habitat (EFH) in areas north of North Carolina. However, with the proposed extension of the snapper grouper fishery management unit (FMU) through the Mid-Atlantic and New England regions the Council is directed by provisions in the Magnuson-Stevens Fishery Conservation and Management Act and Final EFH Rule to describe and identify EFH for each federally managed species.

Alternative 2 could have positive biological effects for the snapper grouper species in the Mid-Atlantic and New England regions simply by the fact that the EFH designation would be refined for the species found in the northern areas. Although, this designation would take longer it would provide an accurate description of EFH for snapper grouper species in the Mid-Atlantic and New England regions.

Alternative 3 could have a positive biological effect, especially if there is a joint management plan between the Council and MAFMC, and/or the northern regions’ inclusion of the Council’s designation of EFH and EFH-HAPC habitat types. However, this rough approach may identify habitat as EFH that may not be entirely accurate for the species in the northern extension of the FMU.

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

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

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

2.3 Action 3: Limit Participation in the Golden Tilefish Fishery

Alternative 1 (No Action). Do not limit effort in the golden tilefish fishery through an endorsement program.

Alternative 2. Limit golden tilefish effort through a golden tilefish gear endorsement program: Distribute golden tilefish gear specific endorsements for snapper grouper permit holders that qualify under the eligibility requirements stated below. Only snapper grouper permit holders with a golden tilefish longline endorsement or a golden tilefish hook and line endorsement associated with their snapper grouper permit will be allowed to possess golden tilefish.

Golden Tilefish Hook and Line Endorsement Initial Eligibility Requirements

Preferred Sub-Alternative 2A. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1,000 pounds gw (with hook and line gear) when the individual’s best three of five years from 2001-2005 are aggregated. (Sub-alternative devised by the GT LAP WG.)

Sub-Alternative 2B. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds gw (with hook and line gear) when the individual’s best three of five years from 2001-2005 are aggregated. (Sub-alternative devised by the GT LAP WG)

Sub-Alternative 2C. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds gw (with hook and line gear) when the individual’s landings from 2001-2005 are averaged.

Sub-Alternative 2D. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds gw (with hook and line gear) when the individual’s landings from 1999-2008 are averaged.

Sub-Alternative 2E. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1000 pounds gw (with hook and line gear) when the individual’s landings from 1999-2008 are averaged.

Golden Tilefish Longline Endorsement Initial Eligibility Requirements

Preferred Sub-Alternative 2F. To receive a golden tilefish longline endorsement, the individual must have a total of 2,000 pounds gw golden tilefish caught (with longline gear) between 2006 and 2008. (Sub-alternative devised by the GT LAP WG)

Sub-Alternative 2G. To receive a golden tilefish longline endorsement, the individual must have a total of 5,000 pounds gw golden tilefish caught (with longline gear) between 2006 and 2008.

Sub-Alternative 2H. To receive a golden tilefish longline endorsement, the individual must have an average of 5,000 pounds gw golden tilefish caught (with longline gear) between 2006 and 2008.

2.3.1 Comparison of Alternatives

Alternative 1 (No Action) would maintain the current level of participation in the golden tilefish fishery, and may allow overcapitalization of the fishery in the future by doing so. **Alternatives 2C through 2H** would reduce or maintain the current level of participation and/or prevent overcapitalization in the fishery by limiting the number of fishery participants at any one time. The biological and socioeconomic effects of **Alternative 2** and its sub-alternatives would be similar in that they would both likely create a catch level requirement as a qualifying criterion to determine the initial number of fishery participants.

All of the sub-alternatives under **Alternative 2** would result in a reduction in the number of participants but not necessarily limit the effort or harvest in the golden tilefish fishery. It is possible that alternatives which limit the number of participants could also result in a reduction in the amount of gear deployed and golden tilefish landed. If this were the case, then biological benefits could be expected for golden tilefish and the chance of interactions with protected species could be reduced. **Preferred Sub-Alternative 2A** would result in 21 endorsements. Therefore, the biological benefits of **Sub-Alternative 2A** could be greater than **Sub-Alternative 2B** for hook and line endorsements. However, it is also possible that effort would remain the same regardless of the number of vessels fishing. Therefore the biological effects of hook and line **Sub-Alternatives 2A-2E** as well as longline **Sub-Alternatives 2F-2G** could be very similar.

The resulting socioeconomic impacts would simply be a function of the catch requirement. The higher the catch requirement, the greater the biological and socioeconomic impact would be. Among the hook and line Sub-Alternatives, **Sub-Alternative 2B** would implement the *least* restrictive requirement resulting in issuance of 26 hook and line endorsements, and **Sub-Alternative 2E** would implement the *most* restrictive endorsement eligibility requirement resulting in 7 permits that qualify for an endorsement. Among the longline Sub-Alternatives, **Preferred Sub-Alternative 2F** would implement the *least* restrictive requirement resulting in issuance of 17 longline endorsements, and **Sub-Alternative 2H** would implement the *most* restrictive endorsement eligibility requirement resulting in 10 permits that qualify for an endorsement. Who economically benefits from each of these sub-alternatives is a distributional issue and it is not expected that a smaller number of endorsements would

yield higher overall profits compared to a larger number of endorsements. The benefit of a smaller numbers of endorsements is an expectation of higher average profits per endorsement holder. Therefore, it can be expected that the highest average profits per hook and line endorsement holder would occur under **Sub-Alternative 2E** and the lowest under **Sub-Alternative 2B**. The highest average profits per longline endorsement holder would occur under **Sub-Alternative 2F** and the lowest under **Sub-Alternative 2H**.

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

	Hook and Line Endorsement Alternatives					
	Alternative 1 (No Action)	Preferred Alternative 2A	Alternative 2B	Alternative 2C	Alternative 2D	Alternative 2E
Biological	-	+	+	+	+	+
Economic	+	+/-	+/-	+/-	+/-	+/-
Social	+/-	+/-	+/-	+/-	+/-	+/-
Administrative	+/-	-	-	-	-	-

	Longline Endorsement Alternatives			
	Alternative 1 (No Action)	Preferred Alternative 2F	Alternative 2G	Alternative 2H
Biological	-	+	+	+
Economic	+	+/-	+/-	+/-
Social	+/-	+/-	+/-	+/-
Administrative	+/-	-	-	-

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

2.4 Action 4: Allow for Transferability of Golden Tilefish Endorsements

Alternative 1 (No Action). Longline and hook and line golden tilefish endorsements are not allowed to be transferred.

Alternative 2. Longline and hook and line golden tilefish endorsements can be transferred between any two individuals or entities that hold valid SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 3. Longline golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial unlimited SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.

Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 4. Hook and line golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial unlimited SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 5. Hook and line golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial limited (225 lb) SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 6. Hook and line and longline golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial unlimited SG permits. regardless of gear endorsement category.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 7. Endorsements can be changed from one gear type to another.

Question: If Alternative 7 is selected as preferred, what is the point of creating separate endorsements for the different gear types?

2.4.1 Comparison of Alternatives

Alternative 1 would not allow for transferability of golden tilefish endorsements and could result in decreased participation in the golden tilefish fishery over time as fishermen with endorsements exit the fishery permanently. Decreased participation could result in a corresponding decrease in effort and landings of golden tilefish. However, it is also possible that effort would not decrease with decreased participation and the same amount of golden tilefish would be caught, albeit with fewer participants. Therefore, among **Alternatives 1-5**, no action **Alternative 1** could have the greatest biological benefit for the golden tilefish stock if it results in decreased landings of golden tilefish. However, actions have been taken to end overfishing of golden tilefish in Amendment 13C, and Amendment 17B, if implemented, will further ensure overfishing of golden

tilefish does not occur with the establishment of annual catch limits. Therefore, there is not a biological need to decrease landings of golden tilefish.

Alternatives 2-5, which would allow transferability of golden tilefish endorsement, would not be expected to negatively impact the golden tilefish stock. The biological effects **Alternatives 2-5** would be likely be very similar. Among **Alternatives 2-5**, **Alternative 5** could have the greatest positive effect for golden tilefish because it would place the longest time period on when an endorsement could be transferred. However, as stated under **Alternative 1**, effort might not show a corresponding decrease with the number of participants in the fishery.

Under **Alternative 1** fishermen would be able to sell their snapper grouper permit but they would not be able to sell their golden tilefish gear endorsement which could result in difficulty selling their permit, vessel, and gear since permits are often sold with the vessel and gear. Since longline gear is restricted in many of the South Atlantic fisheries, sale of the gear and a larger vessel suitable for longlining for golden tilefish, would be difficult without sale of the golden tilefish longlining endorsement. **Alternatives 2-5** would provide the opportunity for new entrants without an increase in the overall number of participants. **Alternative 2** would provide the greatest amount of endorsement transfer flexibility and **Alternatives 1** and then **Alternative 5** the least. The degree of transfer flexibility could influence the aggregate profitability of the fishery and the average individual profitability. If participation remains steady over the years of the program during which transferability is not allowed, aggregate profitability of the fishery could remain steady. If, however, landings drop due to people leaving the fishery and not transferring the endorsement due to restrictions, aggregate profitability would decline. However, at the same time, individual average profitability could increase because there would be less people sharing the same amount of landings as under **Alternative 1**.

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

	Hook and Line Endorsement Alternatives				
	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 5	Alternative 5
Biological	+	+/-	+/-	+/-	+/-
Economic	+	+/-	+/-	+/-	+/-
Social	+/-	+/-	+/-	+/-	+/-
Administrative	+/-	-	-	-	-

2.5 Action 5: Adjust Golden Tilefish Fishing Year

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

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

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

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

2.5.1 Comparison of Alternatives

Alternative 1 (No Action) would retain the January 1 fishing year start date and allow the trip limit to be reduced from 4,000 lbs gutted weight to 300 lbs gutted weight if 75% of the quota was met on or before September 1. Retention of the no action **Alternative 1 (No Action)**, would allow fishermen to target golden tilefish when other fisheries such as shallow water grouper species and other species are closed. **Alternative 2** would begin the fishing year for golden tilefish in September, the period of time when the greatest commercial hook and line catches of golden tilefish have historically occurred.

Preferred Alternative 3 would begin the fishing year in August and also allow hook and line fishermen to fish during the period of time when their catches have been greatest.

Alternative 4 would start the fishing year in May but would still allow hook and line fishermen to fish for golden tilefish in the fall but there is a greater chance the quota would met sometime during September through November.

A shift in the fishing year would allow longline fishermen from South Carolina to have greater access to the golden tilefish fishery since bad weather off the Carolinas may restrict some individuals from fishing at the beginning of the fishing year. However, examination of South Carolina landings data from 2006-2008 indicates the magnitude of landings of golden tilefish during January-March is similar to those during summer months when weather is generally better off of the Carolinas.

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

	Adjust Golden Tilefish Fishing Year			
	Alternative 1 (No Action)	Alternative 2	Preferred Alternative 3	Alternative 4
Biological	-	+	+	+
Economic	+	+/-	+/-	+/-
Social	+/-	+/-	+/-	+/-
Administrative	+/-	-	-	-

2.6 Action 6: Golden Tilefish Fishing Limits

Alternative 1 (No Action). Retain the 300 pound gutted weight trip limit when 75% of the quota is taken.

Preferred Alternative 2. Remove the 300 pound gutted weight trip limit when 75% of the quota is taken.

2.6.1 Comparison of Alternatives

Alternatives 1-2 would retain or eliminated the trip limit reduction from 4,000 lbs gutted weight to 300 pounds gutted weight when 75% of the quota was met. **Preferred Alternative 2** would remove the 300 pound gutted weight trip limit when 75% of the quota is met. Reducing the 4,000 pound gutted weight trip limit to 300 pound gutted weight when 75% of the quota is met was originally intended to allow the fishery to remain open all year and allow for commercial hook and line fishermen to target golden tilefish in the fall. Based on data from 2007 to 2009, the fishery would not remain open all year even when the trip limit is reduced 300 pounds gutted weight. The advantage of retaining the 300 lb trip limit when 75% of the quota is met is that it slows the rate at which the quota is filled and increases the chance the quota will not be exceeded. However, if the quota monitoring system is operating properly, annual harvest in excess of the quota should be minor. The expected biological effects of **Preferred Alternative 2** is expected to be minimal. In the commercial fishery, most golden tilefish (92%) are taken with longline gear deployed by large vessels that make long trips and depend on large catches (> 3,000 pounds) to make a trip economically feasible. Therefore, a 300 pound gutted weight trip limit when 75% of the quota is met would shut down commercial longline sector, and might reduce their potential annual catch. If the quota monitoring system can handle large catches in short periods of time then elimination of the trip limit reduction then harvest in excess of the quota should be minor.

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

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

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

2.7 Action 7: Limit Participation in the Black Sea Bass Pot Fishery

Alternative 1 (No Action). Do not further limit participation in the black sea bass pot fishery.

Preferred Alternative 2. Limit tag distribution to black sea bass pot fishermen with valid commercial snapper grouper permits that landed at least 1 pound of black sea bass caught with pot gear between 12/8/98 and the control date of 12/04/08.

Alternative 3. Limit tag distribution to black sea bass pot fishermen with valid commercial snapper grouper permits that landed at least 1 pound of black sea bass caught with pot gear between 12/8/98 and the control date of 10/14/05.

Alternative 4. Limit tag distribution to black sea bass pot fishermen with valid commercial snapper grouper permits that landed at least 1 pound of black sea bass caught with pot gear by the date of 12/31/09.

2.7.1 Comparison of Alternatives

The Council is concerned increased restrictions imposed through Snapper Grouper Amendments 13C, 16, 17A, and 17B including a commercial quota for black sea bass, commercial quota for vermilion snapper, and seasonal closure for shallow water groupers could serve as an incentive for a greater number of fishermen with Federal snapper grouper commercial permits to fish pots for black sea bass. Currently, tags for black sea bass pots can be issued to any fisherman who possesses a Federal snapper grouper commercial permit. Table 3.4 indicates that in 2007, there were 877 fishermen who possessed Federal snapper grouper commercial permits; however, only 53 of these individuals fished black sea bass pots that year. Therefore, the potential exists for increase participation in the pot fishery for black sea bass. An increase in participation in the black sea bass pot fishery could increase the rate at which the quota is met and deteriorate profits for current participants in that fishery.

Alternative 1 (No Action) could have negative effects by creating a derby situation as more individuals become involved in the fishery resulting in the quota being met even more quickly. The biological effects of **Alternatives 1-4** could be similar since the fishery would close when the quota is met regardless of the number of participants.

Alternative 1 (No Action) could have the greatest biological effect because the quota would be met quickly and gear would be removed from the water for the longest period of time. Conversely, if there was a large number of pots in the water at the same time, this could increase the chance of entanglement with protected species.

Preferred Alternative 2 and **Alternative 3** would restrict participation in the black sea bass fishery to those individuals who historically fished pots for black sea bass. As far fewer individuals fish pots than possess Federal snapper grouper commercial permits, **Preferred Alternative 2** and **Alternative 3** would constrain participation in the fishery to a level that is more manageable and profitable. **Preferred Alternative 2** would limit participation in the black sea bass fishery to individuals with active Federal snapper

grouper commercial permits who caught black sea bass in pots between December 8, 1998, and December 4, 2008. Based on data from 1998, when the 2 for 1 limited entry system was enacted until December 4, 2008, 123 vessels would meet this criterion. **Alternative 3** would limit participation in the black sea bass fishery to individuals with active Federal snapper grouper permits who caught black sea bass with pots on or before October 14, 2005. A total of 102 vessels would meet this criterion.

The biological effects of **Alternatives 1-4** could be similar since the fishery would close when the quota is met regardless of the number of participants. **Alternative 1 (No Action)** could have the greatest biological effect because the quota would be met quickly and gear would be removed from the water for the longest period of time. Conversely, if there was a large number of pots in the water at the same time, this could increase the chance of entanglement with protected species.

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

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

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

2.8 Action 8: Limit Effort in the Black Sea Bass Pot Fishery

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

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

Preferred Alternative 3. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to 50 per vessel annually.

NOAA Fisheries Service will issue new identification tags each fishing year that will replace the tags from the previous fishing year.

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

Alternative 5. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to 100 per vessel in year 1, 50 in year 2, and 25 in year 3. NOAA Fisheries Service will issue new identification tags each fishing year that will replace the tags from the previous fishing year.

Alternative 6. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NOAA Fisheries Service. Limit the black sea bass pot tags to 100 per vessel in year 1 and 50 in year 2. NOAA Fisheries Service will issue new identification tags each fishing year that will replace the tags from the previous fishing year.

Alternative 7. Annually issue tags to individuals based on a 10% reduction in the number of tags issued as of 12/31/09.

Alternative 8. Annually issue tags to individuals based on a 25% reduction in the number of tags issued as of 12/31/09.

2.8.1 Comparison of Alternatives

If the Council takes action to limit participation in the black sea bass fishery through Action 7, **Alternative 7**, which would reduce the number of tags issued to fishermen by 10% would be the least conservative of all the alternatives in the long-term, and would therefore be the least biologically beneficial. This is because fishermen generally request and are issued more tags than for pots that they actually fish. Therefore, little reduction in the number of pots fished would likely occur under **Alternatives 7-8**. The Council's preferred alternative in Action 7 is to limit participation in the black sea bass pot fishery to vessels that fished pots and landed black sea bass between December 8, 1998, and December 4, 2008.

Alternatives 2-6, Alternative 2 would have the least beneficial effects to the biological environment as it would allow fishermen to fish up to 100 traps each year. Short-term biological and socioeconomic impacts of **Alternative 2** would be equal to **Alternatives 5 and 6** in year one; after which, **Alternatives 5 and 6** become more biologically beneficial than **Alternative 2** since they would reduce the number of traps allowed on any one vessel in successive years. Biological and socioeconomic impacts of **Preferred Alternative 3** would be moderate when compared to **Alternatives 2, 4, 5, and 6**.

Preferred Alternative 3 would be more biologically beneficial than **Alternative 2**, but less biologically beneficial than **Alternatives 4 and 5**. **Preferred Alternative 3** would have the same biological and socioeconomic impact as **Alternative 6** after the first year of implementation. **Alternative 4** would be the most biologically conservative and socioeconomically negative alternative in the short-term, and would have the same impacts as **Alternative 5** after year 2 of implementation. **Alternatives 5 and 6** only differ in their long-term impacts since **Alternative 5** would reduce the number of tags issued to 50 after the first year of implementation and reduce the number of tags again to 25 after the second year of implementation. **Alternative 6** would only reduce the number of tags to 50 after the first year of implementation, and therefore is the least biologically beneficial when compared to **Alternative 5**, but would also incur slightly less negative socioeconomic impacts than **Alternative 5**. The short term negative socioeconomic impacts would be least under **Alternatives 7-8**.

If no action is taken on limiting participation in the snapper grouper fishery (Section 2.1.4) then **Alternatives 7-8** could have a greater biological effect than **Alternatives 2-6** because **Alternatives 7-8** would only affect individuals who were issued tags. During 2003-2008, an average of 138 individuals per year requested tags when renewing their snapper grouper permit (**Table 4-5**). Under **Alternatives 2-6**, any individuals with a Federal snapper grouper commercial permit would be able to fish pots. **Table 3-4** indicates there were 877 individuals with snapper grouper permits in 2007. Therefore, if the Council does not take action to limit the number of fishermen participating in the black sea bass fishery (**Section 4.3**) then there is greater potential for additional fishermen to fish pots under **Alternatives 2-6** than under **Alternative 7-8**.

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

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

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

2.9 Action 9: Implement Measures to Reduce Bycatch in the Black Sea Bass Pot Fishery

Alternative 1 (No Action). Do not implement additional regulations stipulating when black sea bass pots must be removed from the water.

Preferred Alternative 2. Black sea bass pots must be brought back to shore at the conclusion of each trip.

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

2.9.1 Comparison of Alternatives

Alternative 1 (No Action) would continue the risks of ghost fishing due to lost pots and entanglement with protected species, particularly when gear is left at sea for long periods of time and therefore would have the least amount of biological benefit for the alternatives considered. The biological benefit of **Preferred Alternative 2** would be greater than **Alternative 3** because most trips last 1 day. Therefore, under **Preferred Alternative 2**, pots would be in the water for the least amount of time and would have the least amount of risk for ghost fishing or entanglement with protected species. The biological benefit of **Alternative 3** would be less than **Preferred Alternative 2** because it would allow fishermen to leave pots in the water for as long as 72 hours and would increase the chance that pots could be lost or could interact with protected species. Furthermore, under **Alternative 3**, fishermen would be able to return to the dock while pots soak decreasing the chance gear could be retrieved during bad weather. Selecting both **Preferred Alternative 2** and **Alternative 3** as preferred would have an intermediate biological effect in that a trip could last for as long as 72 hours but fishermen would not be able to return to the dock without their pots. However, as approximately 99% of the trips were 72 hours or less (**Table 4-13**), a restriction on the length of the trip (**Alternative 3**) is not needed.

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

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

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

2.10 Action 10: Improvements to Commercial Data Reporting

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

Under this alternative, as recently implemented by Amendment 15B, a private recreational vessel that fishes in the exclusive economic zone (EEZ), if selected by NOAA Fisheries Service, is required to maintain and submit fishing records; requires a vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, to carry an observer and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service.

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

(The current data reporting programs do not address reporting by dealers.)

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

(The current data reporting programs do not address reporting by dealers.)

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

(Alternative 4 would require 100% of vessels to have an electronic logbook; whereas, current data reporting programs only require electronic logbooks if selected.)

Preferred Alternative 5. Provide the option for fishermen to submit their logbook entries electronically via an electronic version of the logbook made available online.

Alternative 6. Implement the ACCSP quota monitoring module for the commercial sector.

Note: The IPT recommends re-wording of this alternative for clarity. Suggested revision: "Require that commercial landings and catch/effort data be submitted in accordance with ACCSP standards, using the SAFIS system."

Note: More than one preferred may be chosen.

Note: Alternative 6 may be revised to include information regarding what is required by state and federal agencies, as well as fishermen.

2.10.1 Comparison of Alternatives

It may be assumed that any alternative other than **Alternative 1 (No Action)** would contribute to more refined, complete, and timely information that can be used to inform future fishery management decisions, and would therefore, be socially and biologically beneficial. Administratively; however, each of the alternatives (with the exception of **Alternative 1**) seek to improve fisheries statistics and may result in negative impacts to greater or lesser degrees. The no action includes current data reporting requirements

(Table 1-3) including those recently implemented through Amendment 15B (74 FR 58902). Current reporting requirements do not include provisions for reporting by dealers, if selected. **Alternatives 2 and 3** would allow for the data to be collected by dealers. **Alternatives 2 and 3** differ in the level of dealer participation. **Alternative 2** would require permitted dealers to report electronically *if selected*, and **Alternative 3** would require all permitted dealers to report electronically. The administrative burden placed on the industry would be less under **Alternative 2** since only a subset of all permitted snapper grouper dealers would be required to report electronically. **Alternative 4** would incur a level of administrative impact equal to that under **Alternative 3** since all vessels with snapper grouper Federal permits would be required to have an electronic logbook tied to the vessel's GPS. It is likely that the economic and social impacts of this alternative will be high as purchasing, installing, and learning to use the equipment will take significant resources. Furthermore, additional administrative impacts would be expected to collect and process data from electronic logbooks. **Alternative 5** is likely the least costly alternative and would likely result in timely and accurate data from the fishermen who chose to participate. **Alternative 6** would require dealers to report through the SAFIS system. This alternative would result in reliable data at a cost to NOAA Fisheries Service. The SAFIS system has already been implemented in other regions with great success. Upon examination of overarching data needs and feasibility of the various alternatives, one may conclude that a combination of one or more these methods would provide the most well-rounded data collection program.

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

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

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

Action 11. Improvements to For-Hire Data Reporting

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

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

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

Alternative 4. Require vessels operating with a Federal For-Hire permit to maintain a logbook for discard characteristics (e.g., size and reason for discarding), *if selected*.

Alternative 5. Implement the ACCSP quota monitoring module for the for-hire sector.

NOTE: The IPT recommends Alternative 5 be reworded for clarity. Suggested revision: "Require that for-hire trip reports be submitted in accordance with the ACCSP standards using the SAFIS system. (The Council will need to specify daily, weekly, or monthly reporting.)"

Note: More than one preferred alternative may be chosen.

Note: Alternative 5 may be revised to include information regarding what is required by state and federal agencies, as well as fishermen.

2.10.2 Comparison of Alternatives

It may be assumed that any alternative other than **Alternative 1 (No Action)** would contribute to more refined, complete, and timely information that can be used to inform future fishery management decisions, and would therefore, be socially and biologically beneficial. However, each of the alternatives do differ in the amount and quality of data collected from the for-hire sector. Administratively, each of the alternatives to improve fisheries statistics in the for-hire sector could result in negative impacts to greater or lesser degrees relative to one another. **Alternative 2** would require all federally permitted for-hire snapper grouper vessels to report electronically; whereas, **Alternative 3** would only require a random subset of federally permitted for-hire vessels to report electronically. The amount of data gathered under **Alternative 2** would be greater than under **Alternative 3**; however, it may not be necessary to require *every* vessel report electronically if the subset of sector permittees is large enough to yield statistically significant data. Therefore, **Alternative 2** may incur greater economic and administrative hardship than is necessary to improve the current data collection regime.

Alternative 4 would be the least intrusive, and most cost effective means of gathering discard information. However, it would not collect the amount or quality of information as **Alternatives 2** or **3**, and would likely not contribute greatly to improving the current data collection program. **Alternative 4** would be most effective if combined with **Alternatives 2** or **3**. **Alternative 5** would implement the electronic reporting module through the SAFIS system, as developed by the ACCSP. This system has been implemented in other fisheries with success. The agency would specify the frequency of reporting and would incur the cost of implementation. There may be negative economic and social impacts on fishermen due to the need for access to a computer and a level of comfort with computers and software.

Table 2-10b. Summary of effects of Action 11 alternatives under consideration.

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

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

2.11 Action 12. Change in the Black Sea Bass Fishing Year (Commercial and Recreational)

Alternative 1 (No Action). Maintain the current black sea bass fishing year of June – May .

Alternative 2. Change the black sea bass fishing year (November -October) and establish a split season with November - April and May – October . Catch will be apportioned based on average landings from the last 5 years.

Alternative 3. Change the black sea bass fishing year (January-December) and establish a split season with Jan - June and July – December . Catch will be apportioned based on average landings from the last 5 years.

2.11.1 Comparison of Alternatives

Table 2-11. Summary of effects of Action 12 alternatives under consideration.

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

Economic	+	-	-
Social	-	+	+
Administrative	+	-	-

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

Action 13: Implement a Spawning Season Closure

Alternative 1 (No Action). Do not implement a spawning season closure. There is currently no spawning season closure for black sea bass.

Alternative 2: Implement a March 1-April 30th spawning season closure for black sea bass.

Sub-alternative A: For recreational sector.

Sub-alternative B: For commercial sector.

Alternative 3: Implement an April 1st-May spawning season closure for black sea bass.

Sub-alternative A: For recreational sector.

Sub-alternative B: For commercial sector.

Alternative 4: Implement a March - May spawning season closure for black sea bass.

Sub-alternative A: For recreational sector.

Sub-alternative B: For commercial sector.

Alternative 5: Implement a May - May spawning season closure for black sea bass.

Sub-alternative A: For recreational sector.

Sub-alternative B: For commercial sector

Comparison of Alternatives

Alternative 1 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.

Alternatives 2-5 would consider alternatives for various spawning season closures with options for closing the commercial sector, recreational sector, or both. **Alternative 2** 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 **Alternatives 3 and 5**. March and April accounted for 16% of black sea bass landings during the 2005-2009 fishing year. **Alternative 3**, which would close the months of April and May, would not have a great a biological benefit as **Alternative 2** because it would not include the month of March when a large proportion of the population is in spawning condition. 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 (Table 4-x1). Most

commercial landings have historically occurred during November through February. The biological benefit of **Alternative 4** would be greatest of all the alternatives considered because it would encompass the entire March-May period of peak spawning. The biological benefit of **Alternative 5** would be least of the action alternatives because it would only close May when a small proportion of the population is in spawning condition relative to March and April. Furthermore, only a small portion (4%) of the commercial landings occurred during May during the 2005-2009 fishing years (Table 4-x1). Thus, in terms of biological benefit to black sea bass, the order of alternatives from greatest benefit to least is: **Alternative 4; Alternative 2; Alternative 3; Alternative 5; and Alternative 1.**

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

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

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

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 (to F) due to the proximity of the Gulf Stream, with lower shelf habitat temperatures varying from 11° to 14° C (to 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) 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.

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

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

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

3.1.3 Essential Fish Habitat

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

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

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

3.1.3.1 Habitat Areas of Particular Concern

Areas which meet the criteria for Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for species in the snapper grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; near shore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the *Oculina* Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs).

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

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

3.2 Biological and Ecological Environment

3.2.1 Species Most Impacted By This FMP Amendment

Species most likely to be impacted by actions in Amendment 18 are black sea bass, golden tilefish, snowy grouper, and blueline tilefish. Actions in Amendment 18 could limit participation and effort in the black sea bass and golden tilefish fisheries. Extension of the fishery management unit are most likely to affect snowy grouper and blueline tilefish as these are the species in the South Atlantic fishery management unit that are most commonly north of the Council's current management jurisdiction.

3.2.1.1 Golden Tilefish, *Lopholatilus chamaeleonticeps*

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

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

3.2.1.2 Black Sea Bass, *Centropristis striata*

Black sea bass occur in the Western Atlantic, from Maine to southeastern Florida, and in the eastern Gulf of Mexico (McGovern *et al.* 2002) (Table 3-1). Separate populations were reported to exist to the north and south of Cape Hatteras, North Carolina (Wenner *et al.* 1986). However, genetic similarities suggest this is one stock (McGovern *et al.* 2002). This species is common around rock jetties and on rocky bottoms in shallow water (Robins and Ray 1986) at depths from 2-120 meters (7-394 feet). Most adults occur at depths from 20-60 meters (66-197 feet) (Vaughan *et al.* 1995).

Maximum reported size is 66.0 centimeters (26.1”) total length and 3.6 kilograms (7.9 lbs) (McGovern *et al.* 2002). Maximum reported age is 10 years (McGovern *et al.* 2002); however, ages as great as 20 years have been recorded in the Mid Atlantic region (Lavenda 1949). Natural mortality is estimated to be 0.30 (SEDAR 2 2003). The minimum size and age of maturity for females reported off the southeastern U.S. coast is 10.0 centimeters (3.6”) standard length and age 0. All females are mature by 18.0 centimeters (7.1”) standard length and age 3 (McGovern *et al.* 2002; Table 3-1). Wenner *et al.* (1986) report peak spawning occurs from March through May in the South Atlantic Bight. McGovern *et al.* (2002) indicate black sea bass females are in spawning condition during March-July, with a peak during March through May (McGovern *et al.* 2002). Some spawning also occurs during September and November. Spawning takes place in the evening. Black sea bass change sex from female to male (protogyny). Females dominate the first 5 year classes and individuals over the age of 5 are more commonly males. The size at maturity and the size at transition of black sea bass was smaller in the 1990s than during the early 1980s off the southeast U.S. Black sea bass appear to compensate for the loss of larger males by changing sex at smaller sizes and younger ages (McGovern *et al.* 2002).

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

3.2.1.3 Snowy Grouper, *Epinephelus niveatus*

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

The snowy grouper is a protogynous species. The smallest, youngest male examined by Wyanski *et al.* (2000) was 72.7 cm (28.8 in) TL and age 8. The median size and age of snowy grouper was 91.9 cm (34.5 in) and age 16. The largest specimen observed was 122 cm (48 in) TL and 30 kg (66 lbs), and 27 years old (Heemstra and Randall 1993). The maximum age reported by Wyanski *et al.* (2000) is 29 years for fish collected off of North Carolina and South Carolina. Radiocarbon techniques indicate that snow grouper

may live for as long as 40 years (Harris, South Carolina Department of Natural Resources, personal communication). Wyanski *et al.* (2000) reported that 50% of the females are mature at 54.1 cm (21.3 in) TL and 5 years of age. The smallest mature female was 46.9 cm (18.5 in) TL, and the largest immature female was 57.5 cm (22.6 in) TL.

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

3.2.1.1 Blueline tilefish, *Caulolatilus microps*

Blueline tilefish occurs in the Western Atlantic Ocean, North Carolina to southern Florida and Mexico, including the northern (and probably eastern) Gulf of Mexico (Dooley 1978). Blueline tilefish are found along the outer continental shelf, shelf break, and upper slope on irregular bottom with ledges or crevices, and around boulders or rubble piles in depths of 30-236 m (98-774 ft) and temperatures ranging from 15 to 23° C (59-73.4° F) (Ross 1978; Ross and Huntsman 1982; Robins and Ray 1986; Parker and Mays 1998).

Maximum reported size is 90 cm (35.7 in) TL and 7 kg (15 lbs) (Dooley 1978). Maximum reported age is 42 years. Harris *et al.* (2004) indicate heavy fishing pressures was likely responsible for significant decreases in the mean age of males and females from 1982-87 to 1996-99 (15 to 8.6 yr for males; 17.7 to 11.2 yr for females). The SEDAR group estimated M is between 0.04 and 0.17 (SEDAR 4 2004). Spawning occurs at night, from February to October, with a peak in May at depths of 48-232 m (157-761 ft) (Harris *et al.* 2004). This species feeds primarily on benthic invertebrates and fishes (Dooley 1978).

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

The status of black sea bass, golden tilefish, and snowy grouper have been assessed through the Southeast Data, Assessment, and Review (SEDAR) process. Blueline tilefish has not been assessed.

The SEDAR process consists of a series of workshops aimed at ensuring that each assessment is based on the best available scientific information. First, representatives from NOAA Fisheries Service, state agencies, and the South Atlantic Council, as well as experts from non-governmental organizations and academia, participate in a data

workshop. The purpose of a data workshop is to assemble and review available fishery-dependent and fishery-independent data and information on a stock, and to develop consensus about what constitutes the best available scientific information on the stock, how that information should be used in an assessment, and what type of stock assessment model should be employed.

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

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

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

3.2.2.1 Black sea bass assessment and stock status

SEDAR Assessment

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

Age-structured and age-aggregated production models were applied to available data at the assessment workshop. The age-structured model was considered the primary model,

as recommended by participants in the data workshop. The stock assessment indicated black sea bass was overfished and overfishing was occurring.

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

Stock Status

The black sea bass stock in the Atlantic is undergoing **overfishing** and is **overfished** as of 2004 (last year of data in the stock assessment update). Actions were taken in Amendment 13C to end overfishing and rebuild the stock. For black sea bass the most recent estimate of the fishing mortality rate is from 2003 and was $= 2.64$ and $= 0.429$ as the maximum fishing mortality threshold. Comparing these two numbers:

- $/MFMT = 0.729/0.355 = 6.15$

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:

- $/MSST = 4,099,884/10,511,633 = 0.39$

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

3.2.2.2 Golden tilefish assessment and stock status

SEDAR Assessment

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

Exploitation status in 2002 was analyzed relative to the maximum fishing mortality threshold (MFMT; limit reference point in F). The MFMT was assumed equal to EMS_{Y} or F_{MSY} , depending on the measure of exploitation. Stock status in 2002 was estimated relative to SSB_{MSY} and to maximum spawning size threshold (MSST). The MSST was computed as a fraction c of

SSB_{MSY}. Restrepo *et al.* (1998) recommend a default definition for that fraction: $c = \max(1 - M, 1/2)$, where M is the natural mortality rate. However, this definition does not account for age-dependent M , as was used in this assessment. Hence to accommodate the default definition, a constant M was computed that would correspond to an age-dependent M , by providing the same proportion of survivors at the maximum observed age [$M = -\log(P)/A$, where P is the proportion survivors at maximum observed age A]. This value of constant M was computed uniquely for each of the MCB runs.

Stock Status

Golden tilefish is undergoing overfishing but is not overfished. Actions were taken to end overfishing in Amendment 13C. Overfishing of golden tilefish ($F > MFMT$) began in the early 1980's and has continued in most years since then. The population responded to the fishing with a steady population decline to levels near SSB_{MSY} starting in the mid-1980's. The median value of $E(2002)/E_{MSY}$ is 1.55, with a 10th to 90th percentile range of [0.77,3.25]. The median value of $F(2002)/F_{MSY}$ is 1.53, with a range of [0.72,3.31]. The median value of $SSB(2002)/SSB_{MSY}$ is 0.95, with a range of [0.61,1.53]. The median value of $SSB(2002)/MSST$ is 1.02, with a range of [0.65,1.67].

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

3.2.2.3 Snowy grouper assessment and stock status

SEDAR Assessment

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

wrecks. Commercial and recreational landings as well as life history information from fishery-independent and fishery-dependent sources were used in the assessment.

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

Stock Status

The snowy grouper stock in the Atlantic is undergoing **overfishing** and is **overfished** as of 2004 (last year of data in the stock assessment). Actions were taken in Amendment 13C to end overfishing and rebuild the stock. For snowy grouper the most recent estimate of the fishing mortality rate is from 2002 and was $F = 0.154$ and $M = 0.05$ as the maximum fishing mortality threshold. Comparing these two numbers:

- $F/M = 0.154/0.05 = 3.08$

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

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

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

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

The estimated stock status for snowy grouper in 2002 is quite low, median of 18% for $SSB_{(2002)}/SSB_{(1972)}$. This corresponds to a stock status in 2002 relative to the virgin stock size [$SSB_{(2002)}/SSB_{(1972)}$] of about 5%. The input data for the assessment model do not include a consistent abundance index that covers the whole time period of the model. The headboat catch per unit effort and length composition data extends back to 1972, but changes in the fishery make interpretation of the observed trends in this index difficult. The headboat fishery moved inshore during the data period and consequently selectivity in the fishery changed. In the age-structured modeling, this was accommodated by dividing the headboat index into three time periods: with constant selectivity in 1972–1976, a possibly different constant selectivity in 1992–2002, and selectivity varying between them in 1977–1991. The other abundance indices do not start until 1990 or later. Therefore, the model must rely on data sources other than abundance indices for determining stock status.

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

3.2.2.4 Blueline tilefish assessment and stock status

The 2008 Report to Congress (NMFS 2009) indicates the status of blueline tilefish is unknown. Blueline tilefish has not been assessed through the SEDAR process. However, blueline tilefish is a long-lived species heavy fishing pressures has been cited as a likely cause significant decreases in the mean age of males and females from 1982-87 to 1996-99 (15 to 8.6 yr for males; 17.7 to 11.2 yr for females) Harris et al. (2004).

3.2.3 Other Affected Council-Managed Species

Black sea bass are commonly taken on hook and line trips with species such as white grunt, vermilion snapper, gray triggerfish, red snapper, and red porgy. However, most black sea bass are taken with pots where the species makes up 90% of the catch. Other affected species in black sea bass pots include gray triggerfish and white grunt. Golden tilefish are primarily taken with longline gear over mud habitat where no other snapper grouper species commonly occur. However, longline gear is also deployed in mud and rock habitat where snowy grouper, blueline tilefish, and yellowedge grouper will be caught along with golden tilefish. A detailed description of the life history of these species is provided in the snapper-grouper SAFE report (NMFS 2005).

3.3 Protected Species

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

The impacts of the South Atlantic snapper grouper fishery on ESA-listed species have been evaluated in a biological opinion on the continued authorization of snapper grouper fishing under the South Atlantic Snapper grouper Fishery Management Plan and

Amendment 13C (NMFS 2006), and during subsequent informal ESA section 7 consultations. The biological opinion stated the fishery was not likely to adversely affect any critical habitat or marine mammals (see NMFS 2006 for discussion on these species). However, the opinion did state that the snapper grouper fishery would adversely affect sea turtles and smalltooth sawfish. A discussion of these species is included below.

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

3.3.1 ESA-Listed Sea Turtles

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and travel widely throughout the South Atlantic. The following sections are a brief overview of the general life history characteristics of the sea turtles found in the South Atlantic region. Several volumes exist that cover the biology and ecology of these species more thoroughly (i.e., Lutz and Musick (eds.) 1997, Lutz *et al.* (eds.) 2002).

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

The **hawksbill's** pelagic stage lasts from the time they leave the nesting beach as hatchlings until they are approximately 22-25 cm in straight carapace length (Meylan 1988, Meylan and Donnelly 1999). The pelagic stage is followed by residency in developmental habitats (foraging areas where juveniles reside and grow) in coastal waters. Little is known about the diet of pelagic stage hawksbills. Adult foraging typically occurs over coral reefs, although other hard-bottom communities and mangrove-fringed areas are occupied occasionally. Hawksbills show fidelity to their foraging areas over several years (van Dam and Diéz 1998). The hawksbill's diet is highly specialized and consists primarily of sponges (Meylan 1988). Gravid females

have been noted ingesting coralline substrate (Meylan 1984) and calcareous algae (Anderes Alvarez and Uchida 1994), which are believed to be possible sources of calcium to aid in eggshell production. The maximum diving depths of these animals are not known, but the maximum length of dives is estimated at 73.5 minutes. More routinely, dives last about 56 minutes (Hughes 1974).

Kemp's ridley hatchlings are also pelagic during the early stages of life and feed in surface waters (Carr 1987, Ogren 1989). Once the juveniles reach approximately 20 cm carapace length they move to relatively shallow (less than 50m) benthic foraging habitat over unconsolidated substrates (Márquez-M. 1994). They have also been observed transiting long distances between foraging habitats (Ogren 1989). Kemp's ridleys feeding in these nearshore areas primarily prey on crabs, though they are also known to ingest mollusks, fish, marine vegetation, and shrimp (Shaver 1991). The fish and shrimp Kemp's ridleys ingest are not thought to be a primary prey item but instead may be scavenged opportunistically from bycatch discards or from discarded bait (Shaver 1991). Given their predilection for shallower water, Kemp's ridleys most routinely make dives of 50 m or less (Soma 1985, Byles 1988). Their maximum diving range is unknown. Depending on the life stage a Kemp's ridleys may be able to stay submerged anywhere from 167 minutes to 300 minutes, though dives of 12.7 minutes to 16.7 minutes are much more common (Soma 1985, Mendonca and Pritchard 1986, Byles 1988). Kemp's ridleys may also spend as much as 96% of their time underwater (Soma 1985, Byles 1988).

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

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

(692-764ft.) (Thayer *et al.* 1984, Limpus and Nichols 1988). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Thayer *et al.* 1984, Limpus and Nichols 1988, Limpus and Nichols 1994, Lanyon *et al.* 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994, Lanyon *et al.* 1989).

3.3.2 ESA-Listed Marine Fish

Historically the **smalltooth sawfish** in the U.S. ranged from New York to the Mexico border. Their current range is poorly understood but believed to have contracted from these historical areas. In the South Atlantic region, they are most commonly found in Florida, primarily off the Florida Keys (Simpfendorfer and Wiley 2004). Only two smalltooth sawfish have been recorded north of Florida since 1963 [the first was captured off North Carolina in 1963 and the other off Georgia in 2002 (National Smalltooth Sawfish Database, Florida Museum of Natural History)]. Historical accounts and recent encounter data suggest that immature individuals are most common in shallow coastal waters less than 25 meters (Bigelow and Schroeder 1953, Adams and Wilson 1995), while mature animals occur in waters in excess of 100 meters (Simpfendorfer pers. comm. 2006). Smalltooth sawfish feed primarily on fish. Mullet, jacks, and ladyfish are believed to be their primary food resources (Simpfendorfer 2001). Smalltooth sawfish also prey on crustaceans (mostly shrimp and crabs) by disturbing bottom sediment with their saw (Norman and Fraser 1938, Bigelow and Schroeder 1953).

3.3.3 ESA-Listed Marine Invertebrates

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

Elkhorn and **staghorn** corals are two of the major reef-building corals in the wider Caribbean. In the South Atlantic region, they are found most commonly in the Florida Keys; staghorn coral occurs the furthest north with colonies documented off Palm Beach, Florida (26°3'N). The depth range for these species ranges from <1 m to 60 m. The optimal depth range for elkhorn is considered to be 1 to 5 m depth (Goreau and Wells 1967), while staghorn corals are found slightly deeper, 5 to 15 m (Goreau and Goreau 1973).

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

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

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

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

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

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

Regulations implemented through Snapper Grouper Amendment 15B (74 FR 31225; June 30, 2009) required 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. These regulations are thought to decrease the mortality associated with accidental interactions with sea turtles and smalltooth sawfish.

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

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

Source: SEFSC Supplementary Discard Data Program

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

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

Source: NMFS 2006

3.4 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 M-Magnuson-Stevens Act and with other applicable laws summarized in **Appendix** . In most cases, the Secretary has delegated this authority to NOAA Fisheries Service.

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

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters, are open to the public. The Council uses a Scientific and Statistical Committee to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory

process is in accordance with the Administrative Procedures Act, in the form of “notice and comment” rulemaking.

3.5 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina’s marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environment and Natural Resources. The Marine Resources Division of the South Carolina Department of Natural Resources regulates South Carolina’s marine fisheries. Georgia’s marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Marine Fisheries Division of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida’s marine fisheries. Each state fishery management agency has a designated seat on the South Atlantic Council. The purpose of state representation at the 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 ASMFC in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of consistent state regulations to conserve coastal species. The ASFMC also is represented at the Council level, but does not have voting authority at the Council level.

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

3.6 Enforcement

Both the 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.

3.7 Human Environment

3.7.1 Economic Description of the Commercial Fishery

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

3.7.1.1 Gear and Fishing Behavior, South Atlantic Snapper Grouper Fishery

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

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

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

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

3.7.1.2 Landings, Ex-vessel Value, Price, and Effort, South Atlantic Snapper Grouper Fishery

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

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

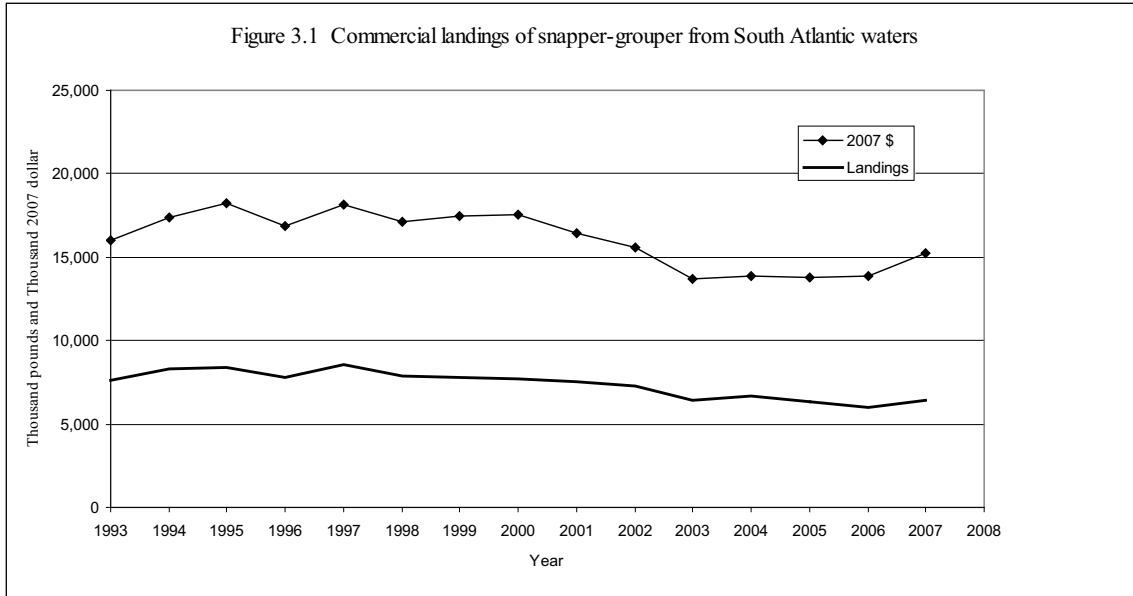


Figure 3.1. Commercial landings of snapper grouper species from South Atlantic waters.

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

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

Item	2003	2004	2005	2006	2007	Average
Trips with at least one pound of snapper grouper						
Landings of snapper grouper, thousand pounds, whole wt	6,471	6,693	6,365	6,112	6,528	6,434
Dockside revenue from snapper grouper, thousand current \$	\$12,214	\$12,155	\$12,316	\$13,069	\$15,435	\$13,038
Dockside revenue from snapper grouper, thousand 2007 \$	\$13,762	\$13,340	\$13,078	\$13,431	\$15,426	\$13,807

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

Price/lb (whole wt) for snapper grouper	\$1.89	\$1.82	\$1.93	\$2.14	\$2.36	\$2.03
BLS Producer price index for #2 diesel fuel, index=100 for 2007	43	54	80	92	100	67
Landings of other species, same trips, thousand pounds	2,092	1,651	1,751	2,116	2,122	1,946
Dockside revenue from other species, same trips, thousand 2007 \$	\$2,149	\$2,001	\$2,225	\$2,394	\$2,738	\$2,301

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

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

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

Item	2003	2004	2005	2006	2007	Average
Trips with at least one pound of snapper grouper						
Number of trips	16,545	15,045	13,756	13,224	14,753	14,665
Days away from port	27,556	24,820	22,794	23,160	24,216	26,296
Number of vessels landing snapper grouper	931	905	857	868	889	890
Number of vessels landing 101-1,000 lbs of snapper grouper	245	225	242	258	261	246
Number of vessels landing 1001-5000 lbs of snapper grouper	270	263	239	228	225	245
Number of vessels landing 5,001-10,000 lbs of snapper grouper	104	96	86	64	86	87

Table 3-4. Continued. 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.

Number of vessels landing 10,001-50,000 lbs of snapper grouper	152	133	123	127	134	134
Number of vessels landing more than 50,000 lbs of snapper grouper	20	32	29	27	28	27
Number of permitted vessels	1059	1001	909	874	877	944
Number of vessels with transferable permits*	828	782	721	697	718	749
Number of vessels with non-transferable permits	231	219	188	177	159	195
Number of dealer permits	271	269	268	251		265

Source: NOAA Fisheries Service, Southeast Fisheries Science Center logbook database as of September 22, 2008 and NOAA Fisheries Service, Southeast Regional Office permits database. *Because of possible problems in estimation for 2006, the number of vessels with transferable permits seems low (697).

The number of boats with snapper grouper permits has exhibited a mostly downward trend since 1999 (1,251 permits). There were 1,059 permits in 2003 and 877 in 2007 (**Table 3-6**). Two types of permits were created with the limited access program for the snapper grouper fishery that was implemented in 1998. The number of transferable permits that allow an unlimited harvest per trip was 828 in 2003 and 718 in 2007 compared with 938 in 1999. The number of vessels with non-transferable permits with a 225-pound trip limit declined year-by-year from 313 in 1999 to 213 in 2003 and 159 in 2007. The number of transferable permits declined, in part, because new entrants into the fishery must buy two permits and retire one as the condition for entry into the fishery. Furthermore, it is likely that the number of vessels in the snapper grouper fishery declined for economic reasons. For example, fuel prices doubled between 2003 and 2005 and continued to increase through mid-2008. By contrast, average annual prices for species in the snapper grouper management unit were relatively flat (**Table 3-3**, average annual prices represented by the ratio of annual commercial revenues to landings in current year dollars). The number of fish dealers with permits to operate in the snapper grouper fishery reached a maximum in 2003 (271) and has declined since then (**Table 3-4**, data through 2006).

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

3.7.1.3 Northeast Commercial Fishery for Snapper Grouper

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

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

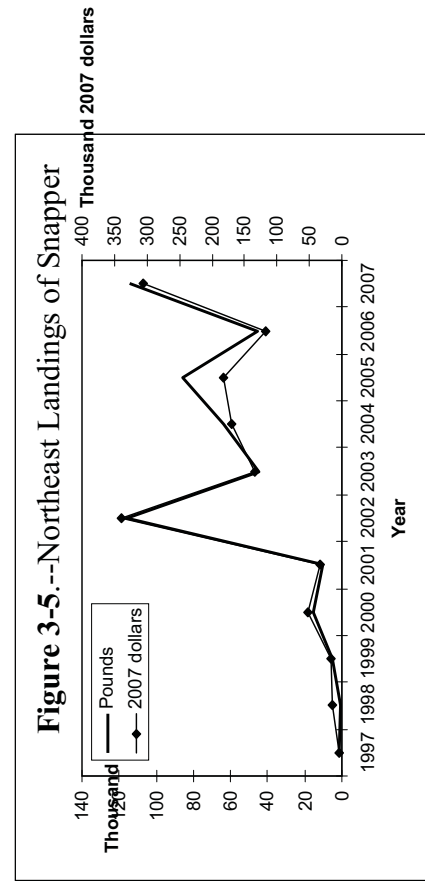
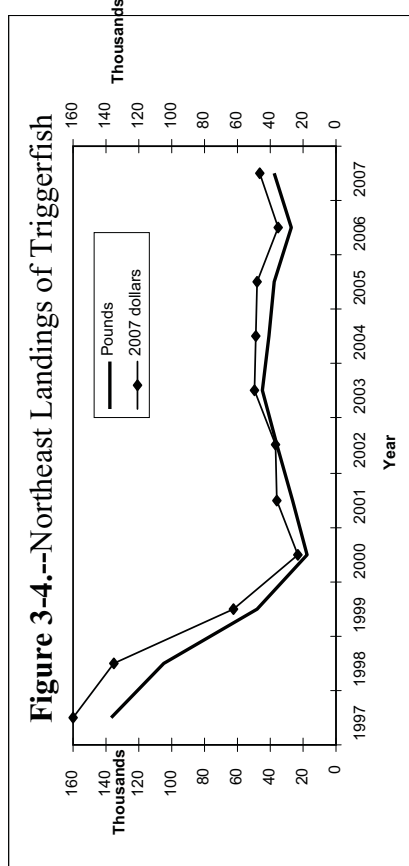
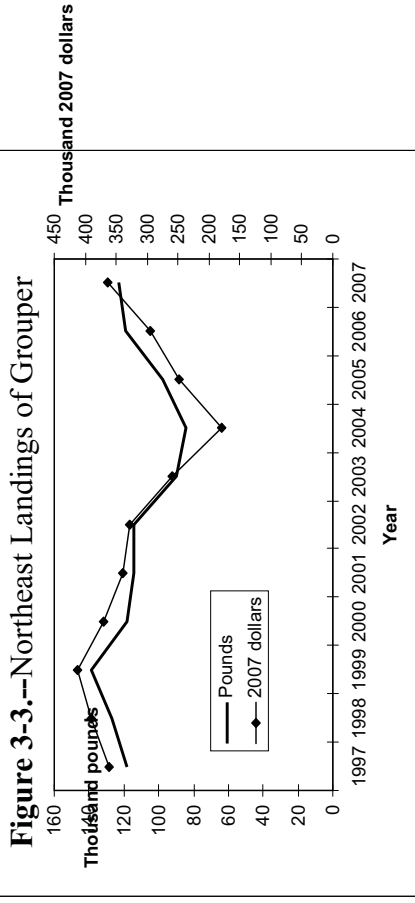
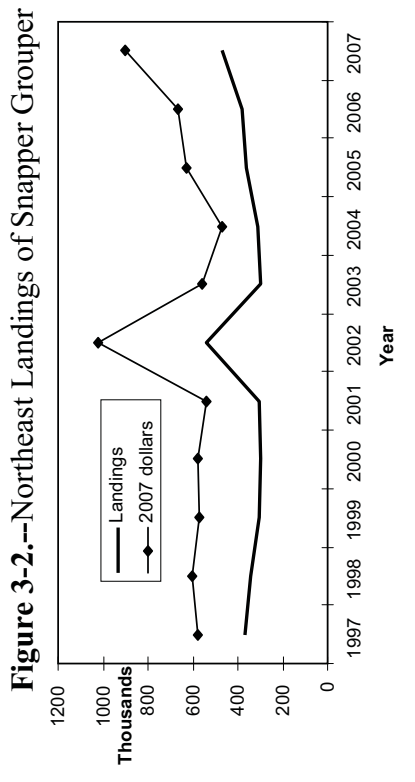
Excluding the three leading species (black sea bass, golden tilefish and scup) and counting data for trips with at least one pound of snapper grouper, annual landings in northeast Atlantic states were approximately 0.30 to 0.54 million pounds during 1997-2007 (**Figure 3-2**, 484,000 pounds at \$914,000 in 2007).³ The recent upward trend in ex-vessel value is attributable largely to the relative prices and pounds landed for three species groups, grouper, triggerfish and snapper. Grouper landings and ex-vessel value fell and then reached their 1997 levels by 2007 (**Figure 3-3**, approximately 123,000 pounds at \$364,000 in 2007).⁴ Landing of triggerfish, which are much lower in price, fell significantly (**Figure 3-4**, they were approximately 38,000 pounds at \$46,000 in 2007). On the other hand, snapper landings were much higher in 2007 than in 1997 and close to grouper (**Figure 3-5**, approximately 114,000 pounds at \$306,000 in 2007).⁵

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

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

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

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



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

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

Species or Gear	New England			Middle Atlantic			North Carolina		
	1994-1997	1998-2002	2003-2007	1994-1997	1998-2002	2003-2007	1997 only	1998-2002	2003-2007
Crevalle, Jack	0	1	0	1	3	0	1	2	1
Grouper, Snowy			0		1	0		40	55
Grouper, Red									27
Scamp								11	8
Other Grouper	0	0	1	1	1	1	118	75	15
Grunts				0	0	1	5	10	8
Hogfish				0	1	0	24	6	0
Porgy, Red				1	7	0	2	15	5
Sheepshead, Atl		0	0	13	5	10	20	19	32
Snapper, Red	0	0	0	0	0	0	1	1	1
Snapper, Vermilion						0		21	63
Spadefish		0	0	16	35	16	29	9	10
Tilefish, Blueline			1		1	7		81	61
Triggerfish	3	2	4	14	7	4	122	38	30
Total	4	5	6	46	57	50	322	316	315
By Gear									
Seines And Weirs			0	0	0	0	25	5	0
Otter Trawl Bottom, Fish	1	1	2	8	9	14	1	4	14
Otter Trawls, Other				0	0	1	8	5	7
Pots & Traps, Fish	2	1	1	2	2	2	2	4	5
Pots & Traps, Other	0	1	1	16	33	17	27	8	7
Gill Nets	0	0	0	1	2	4	13	18	21
Troll & Hand Lines	1	1	1	8	3	5	241	245	229
Long Lines, Bottom	0	0	0	0	1	2		43	17
Total	4	5	6	46	57	50	322	316	315

NMFS, NEFSC Commercial Fisheries Database (CFDBS), Woods Hole, MA, as of 07Apr09. Totals were separately computed, and they are likely lower than the sum of averages over species. Excludes black sea bass, golden tilefish and scup. Includes data for trips with landings of at least one pound of snapper grouper. Landings for North Carolina were initially reported in 1997. Data are not shown separately for some species and gear, but included in the totals. New England: Maine-Connecticut. Middle Atlantic: New York-Virginia.

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

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

Catch Areas: Several areas near North Carolina accounted for nearly three fourths of that state's landings (**Table 3-5**, 228,000 out of 315,000 pounds in 2003-2007). As indicated in **Table 3-6** (see **Figure 3-6**, on the following page), these areas include the Cape Hatteras area (area 635), three areas north and east of Hatteras (areas 631 and 632 and Hatteras Canyon, area 636), and several ocean areas south of Hatteras or 35° Latitude. Landings in the Middle Atlantic region involve catch from several areas, from Long Island Sound (area 611) through Cape Hatteras (area 636).

Table 3-6. Northeast average annual commercial landing of snapper grouper species (thousand pounds, round weight), by region of landing and selected areas of capture.

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

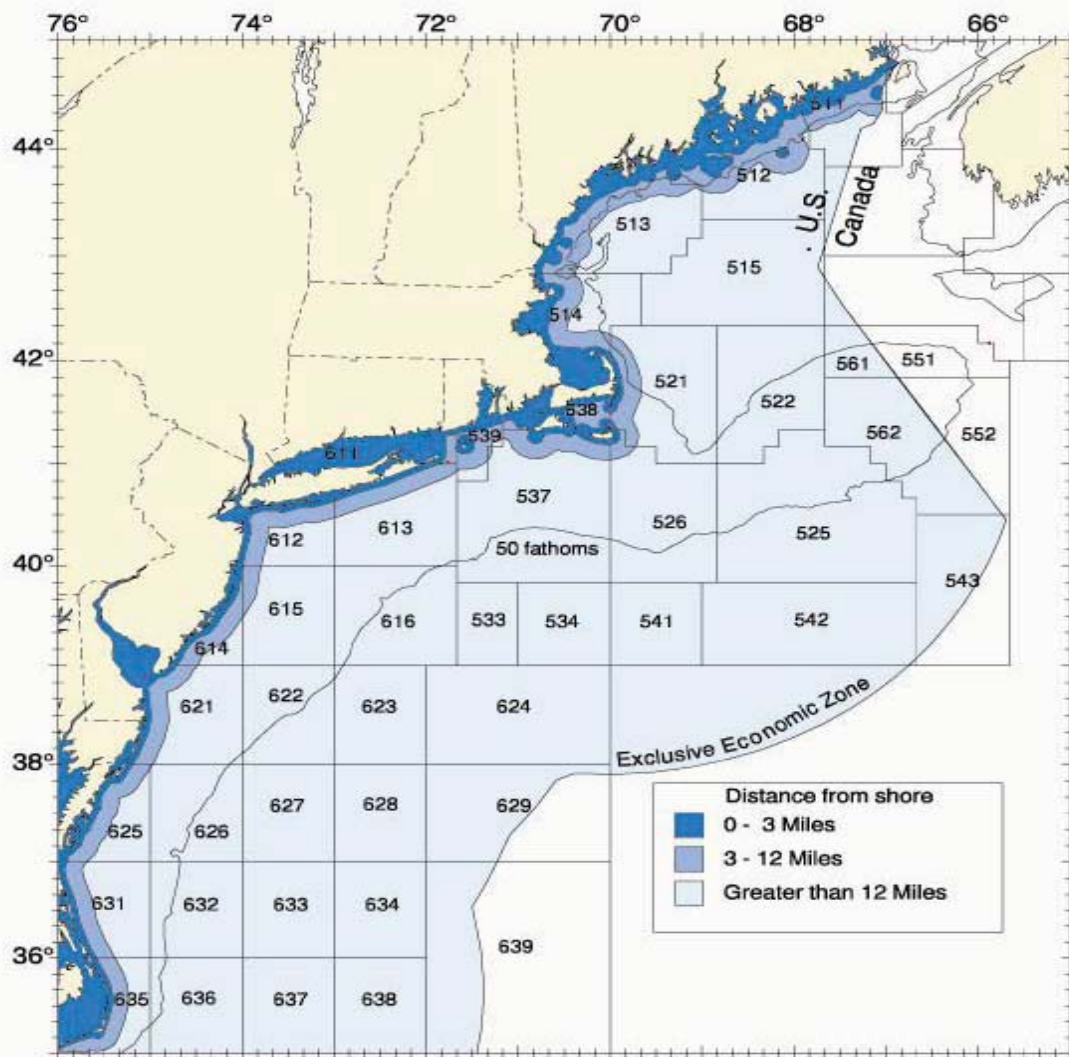


Figure 3-6. Northeast statistical areas.

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

Trips and Boats, Selected Species

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

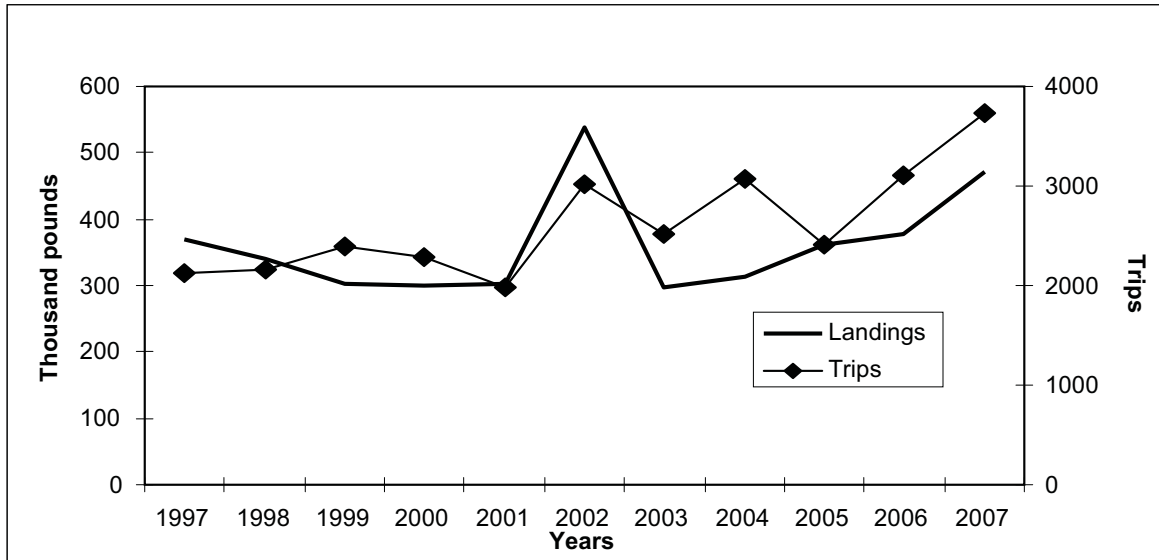


Figure 3-7. Northeast Snapper Grouper Landings and Trips.

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

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

The total number of days at sea per year rose from 436 days in 2000 (for 342 trips) to 1,676 days in 2007 (for 964 trips) (**Figure 3-8**). The average number of days at sea per trip was in the range of 1.21 days (1997) to 1.88 days (in 2005 and 2006), with the average being 1.72 days per trip in 2007. The median remained at one day per trip in 1994-2007.

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

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

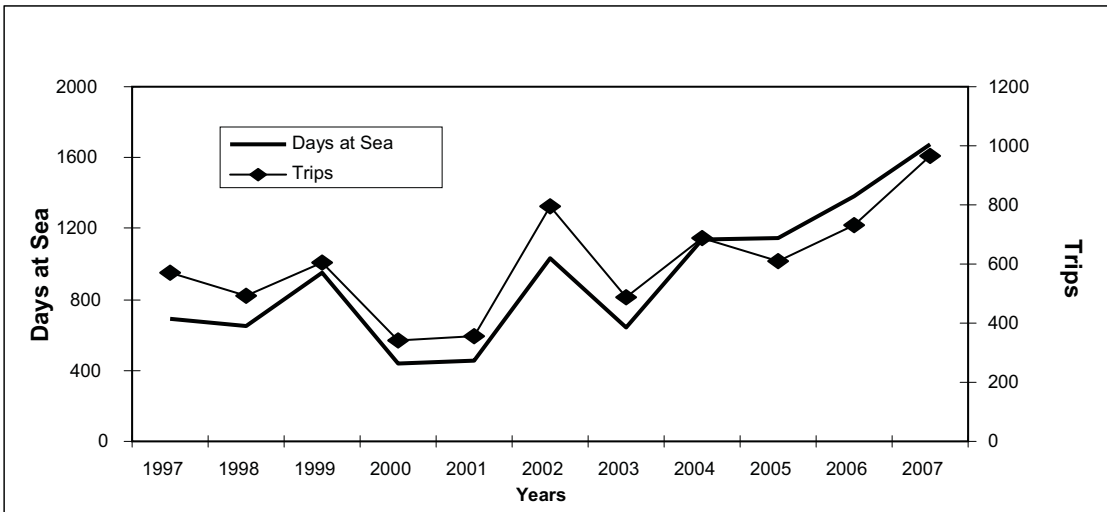


Figure 3-8. Northeast Snapper Grouper Days at Sea and Trips

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

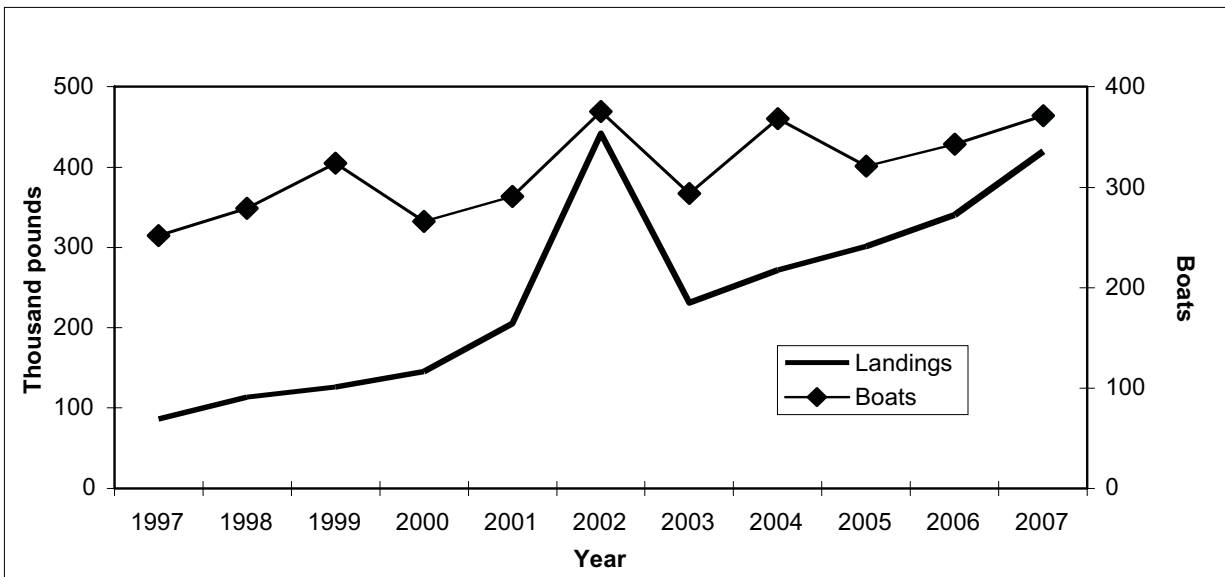


Figure 3-9. Northeast Snapper Grouper Landings and Boats.

The total pounds landed that could be associated with specific vessels (**Figure 3-9**, 1994-2007 sum of 2.79 million pounds) are lower than total pounds landed for trips (**Figures 3-7** and **3-8**, 1994-2007 sum of 4.2 million pounds). The number of vessels that could be identified rose

from 253 in 1997 to a high point of 375 in 2002 and then fluctuated (**Figure 3-9**). There were 369 vessels in 2007.

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

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

3.7.1.4 Economic Impacts

Estimates of the economic impacts of the commercial snapper grouper fishery are derived using the model developed for and applied in NMFS (2009x). Based on the average annual ex-vessel revenues for all snapper grouper species in the South Atlantic over the period 2003-2007 of \$13.8 million (2007 dollars), the commercial snapper grouper fishery is estimated to support 2,679 full time equivalent (FTE) jobs and generate approximately \$182 million in output (sales) impacts and approximately \$77 million in income impacts per year to the U.S. economy. Among the jobs supported, 350 FTE jobs are estimated to be in the harvesting sector and 213 FTE jobs are in the dealer/processor sector. Approximately two-thirds of the jobs supported by the commercial snapper grouper fishery are estimated to accrue to the restaurant sector. The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors).

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

For the individual species addressed by this amendment, black sea bass generated the largest average annual ex-vessel revenues, approximately \$937,000 (2007 dollars) per year from

2003-2007. The economic activity associated with black sea bass is estimated to support 182 FTE jobs (24 in the harvest sector and 14 in the dealer/processor sector), approximately \$12 million in output (sales) impacts, and approximately \$5 million in income impacts. All harvests by the vessels that harvest black sea bass support approximately 1,860 FTE jobs (243 in the harvest sector and 148 in the dealer/processor sector) and approximately \$126 million in output (sales) impacts and approximately \$54 million in income impacts.

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

One further caveat to these estimates should be noted. The species composition of other harvests by vessels that harvested snapper grouper has not been evaluated. For the assessment above, all revenues, regardless of the species harvested, were treated the same from a impact modeling perspective. However, in reality, not all species, and associated revenues, flow through harvesters, dealers/processors, and the consuming public in the same way. As a result, the estimates of economic effects provided above for all revenues by vessels with recorded snapper grouper harvest may be greater than or less than actual effects.

3.7.1.5 South Atlantic Snapper Grouper Fishery by State

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

Miami-Dade Counties and trips from Atlantic waters off the Florida Keys and landed in Monroe County.

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

Table 3-7. Average annual landings and dockside revenues for trips with at least one pound of species in the snapper grouper fishery, averages for 2003-2007 by state.

Item	North Carolina	South Carolina	Georgia and Northeast Florida	Central and South Florida	Florida Keys	South Atlantic
	Trips with at least one pound of snapper grouper					
Snapper grouper landings, thousand pounds, whole wt	1,816	1,591	734	790	1,504	6,434
Percentage of South Atlantic snapper grouper landings, by state	28%	25%	11%	12%	23%	100%
Dockside revenue, snapper grouper, thousand 2007 \$	\$3,738	\$3,795	\$1,651	\$1,615	\$3,008	\$13,807
Landings of other species, same trips, thousand lbs	286	125	54	1,293	188	1,946
Dockside revenue, other species, same trips, thousand 2007 \$	\$389	\$182	\$123	\$1,406	\$202	\$2,301
Number of boats*	175	64	46	342	294	921
Number of trips	2,607	916	486	4,691	5,964	14,665
Percent of trips	18%	6%	3%	32%	41%	100%
Number of days	4,727	4,702	1,946	5,473	7,661	24,509
Trips per boat	14.9	14.2	10.6	13.7	20.3	15.9
Days per trip	1.8	5.1	4.0	1.2	1.3	1.7

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

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

Table 3-8. Average annual landings (in thousands of pounds, whole weights) on trips that landed at least one pound of snapper grouper species: averages for 2003-2007, by state and species group.

Item	North Carolina		South Carolina		Georgia and Northeast Florida		Central and South Florida		Florida Keys		South Atlantic	
	1000 lbs	col%	1000 lbs	col%	1000 lbs	col%	1000 lbs	col%	1000 lbs	col%	1000 lbs	col%
Shallow water groupers	504	24%	555	32%	152	19%	107	5%	100	6%	1,418	17%
Deep water groupers	84	4%	78	5%	5	1%	28	1%	59	3%	254	3%
Tilefish	78	4%	112	6%	1	0%	227	11%	12	1%	430	5%
Shallow water snappers	10	0%	20	1%	21	3%	128	6%	887	52%	1,065	13%
Mid-shelf snappers	375	18%	366	21%	347	44%	33	2%	15	1%	1,136	14%
Triggerfish / Spadefish	131	6%	77	4%	56	7%	5	0%	2	0%	271	3%
Jacks	111	5%	159	9%	132	17%	240	12%	406	24%	1,047	12%
Grunts / porgies	127	6%	92	5%	14	2%	16	1%	24	1%	274	3%
Sea basses	395	19%	133	8%	6	1%	6	0%	0	0%	540	6%
Snapper grouper	1,816	86%	1,591	93%	734	93%	790	38%	1,504	89%	6,434	77%
Coastal pelagics	216	10%	52	3%	34	4%	1,016.50	49%	81	5%	1,399	17%

Sharks	9	0%	19	1%	6	1%	195	9%	77	5%	306	4%
Tunas	22	1%	2	0%	1	0%	1	0%	0	0%	25	0%
Other	39	2%	54	3%	13	2%	81	4%	30	2%	217	3%
All species	2,102	100%	1,717	100%	787	100%	2,083	100%	1,692	100%	8,380	100%

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

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

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

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

3.7.1.6 South Atlantic Snapper Grouper Fishery by Gear

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

3.7.1.7 The South Atlantic Commercial Fishery for Golden Tilefish

Table 3-15. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of golden tilefish, 2003-2007.

Item	2003	2004	2005	2006	2007	Average
Trips or boats with at least one pound of golden tilefish						
Number of trips with at least one pound of golden tilefish	391	336	359	331	593	402
Landings of golden tilefish, thousand pounds, whole weight	344	272	307	410	320	330
Dockside revenue from golden tilefish, thousand current \$	\$658	\$511	\$664	\$827	\$748	\$682
Dockside revenue from golden tilefish, thousand 2007 \$	\$741	\$561	\$702	\$849	\$753	\$721
Dockside price, current \$ / pound	\$1.92	\$1.88	\$2.17	\$2.02	\$2.34	\$2.06
Landings of all species, same trips, thousand pounds	686	504	497	691	408	557
Dockside revenue, all species, same trips, thousand 2007 \$	\$1,287	\$930	\$1,068	\$1,336	\$905	\$1,105
Dockside revenue, all species, all trips, same boats, thousand 2007 \$	\$2,668	\$2,264	\$2,627	\$2,801	\$2,578	\$2,588
Number of boats that landed golden tilefish	63	65	65	60	65	64
Number of boats landing 1-100 lbs per year of golden tilefish	23	20	16	25	18	20
Number of boats landing 101-1000 lbs per year of golden tilefish	21	21	25	16	19	20
Number of boats landing 1,001-5,000 lbs per year of golden tilefish	3	13	16	9	18	12
Number of boats landing more than 5,000 lbs per year of golden tilefish	15	11	8	10	10	11

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

Table 3-16. Annual landings and dockside revenues on trips with golden tilefish as the top source of trip revenue, 2003-2007.

Item	2003	2004	2005	2006	2007	Average
	Trips with golden tilefish as the top source of trip revenue					
Trips	240	233	247	216	481	283
Boats	40	43	45	33	47	42
Landings of golden tilefish, thousand pounds	307	243	276	378	312	303
Dockside revenue for golden tilefish, thousand 2007 \$	\$671	\$505	\$639	\$786	\$735	\$667
Landings of other species on trips where golden tilefish is the top source of trip revenue, thousand pounds	140	81	40	78	27	73
Dockside revenue for other species on trips where golden tilefish is the top source of trip revenue, thousand 2007 \$	\$188	\$116	\$64	\$123	\$40	\$106

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

Table 3-17. Annual landings and dockside revenues on trips with golden tilefish as a lesser source of trip revenue, 2003-2007.

	2003	2004	2005	2006	2007	Average
Trips with golden tilefish as a lesser source of trip revenue						
Trips	151	103	112	115	112	119
Boats	50	45	46	45	39	45
Landings of golden tilefish on trips with golden tilefish as a lesser source of revenue, thousand pounds	36	30	30	32	7	27
Dockside revenues for golden tilefish on trips with golden tilefish as a lesser source of revenue, thousand 2007 \$	\$70	\$56	\$63	\$63	\$18	\$54
Landings of other fish on trips with golden tilefish as a lesser source of revenue, thousand pounds	203	150	150	203	61	153
Dockside revenues for other fish on trips with golden tilefish as a lesser source of revenue, thousand 2007 \$	\$357	\$253	\$301	\$365	\$112	\$278

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

Table 3-18. Annual landings of golden tilefish for trips with at least one pound of golden tilefish, by region and primary gear, 2003-2007.

	2003	2004	2005	2006	2007	Average
	Trips with at least one pound of golden tilefish					
Golden tilefish caught off North Carolina, thousand pounds	17	40	1	2	2	12
Golden tilefish caught off South Carolina, thousand pounds	128	105	62	122	27	89
Golden tilefish caught off Georgia and northeast Florida, thousand pounds			0		0	0
Golden tilefish caught off central and southeast Florida, thousand pounds	191	126	240	283	289	226
Golden tilefish caught off Florida Keys, thousand pounds	8	1	4	2	1	3
Golden tilefish caught with vertical lines, thousand pounds	18	25	38	35	44	32
Golden tilefish caught with dive gear, thousand pounds		0	0		0	0
Golden tilefish caught with other gear, thousand pounds	325	248	269	374	296	302

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

3.7.1.8 The South Atlantic Commercial Fishery for Black Sea Bass

Table 3-23. Annual landings, dockside revenues and fishing effort, trips and boats with landings of at least one pound of black sea bass, 2003-2007.

Item	2003	2004	2005	2006	2007	Average
	Trips and boats with at least one pound of black sea bass					
Number of trips with at least one pound of black sea bass	2,238	2,372	2,056	2,172	1,949	2,157
Landings of black sea bass, thousand pounds, whole weight	597	707	460	527	409	540
Dockside revenue from black sea bass, thousand current \$	\$916	\$842	\$571	\$988	\$1,089	\$881
Dockside revenue from black sea bass, thousand 2007 \$	\$1,033	\$927	\$611	\$1,020	\$1,097	\$937
Dockside price, current \$ / pound	\$1.53	\$1.19	\$1.24	\$1.87	\$2.66	\$1.63
Landings of all species, same trips, thousand pounds	4,189	4,616	4,441	4,508	4,805	4,512
Dockside revenue, all species, same trips, thousand 2007 \$	\$4,411	\$4,643	\$4,358	\$4,549	\$4,594	\$4,511
Dockside revenue, all species, all trips, same boats, thousand 2007 \$	\$8,835	\$8,961	\$9,116	\$9,569	\$11,441	\$9,584
Number of boats that landed black sea bass	225	243	240	220	256	237
Number of boats landing 1-100 lbs per year of black sea bass	84	86	104	87	134	99
Number of boats landing 101-1,000 lbs per year of black sea bass	85	93	81	81	72	82
Number of boats landing 1,001-5,000 lbs per year of black sea bass	35	34	36	31	27	33
Number of boats landing 5,001-10,000 lbs per year of black sea bass	7	12	7	6	11	9
Number of boats landing more than 10,000 lbs per year of black sea bass	14	18	12	15	12	14

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

Table 3-24. Annual landings and dockside revenues on trips with black sea bass as the top source of trip revenue, 2003-2007.

Item	2003	2004	2005	2006	2007	Average
	Trips with black sea bass as the top source of trip revenue					
Trips	858	889	620	811	649	765
Boats	86	94	83	85	88	87
Landings of black sea bass on trips with black sea bass as the top source of revenue, thousand pounds	546	637	403	482	378	489
Dockside revenue for black sea bass on trips with red as the top source of revenue, thousand 2007 \$	\$948	\$827	\$539	\$936	\$1,023	\$855
Landings of other species, same trips	51	57	38	69	57	54
Dockside revenue for other species, same trips, thousand 2007 \$	\$62	\$66	\$43	\$94	\$76	\$68

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

Table 3-25. Annual landings and dockside revenues on trips with black sea bass as a lesser source of trip revenue, 2003-2007.

Item	2003	2004	2005	2006	2007	Average
Trips with black sea bass as a lesser source of trip revenue						
Trips	1,380	1,483	1,436	1,361	1,300	1,392
Boats	195	217	216	194	233	211
Landings of black sea bass on trips with black sea bass as a lesser source of revenue, thousand pounds	51	70	57	45	31	51
Dockside revenues for black sea bass on trips with black sea bass as a lesser source of revenue, thousand 2007 \$	\$85	\$99	\$73	\$84	\$74	\$83
Landings of other species, same trips	1,446	1,721	1,674	1,498	1,408	1,549
Dockside revenue for other species, same trips, thousand 2007 \$	\$3,316	\$3,651	\$3,704	\$3,436	\$3,422	\$3,506

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

Table 3-26. Annual landings of black sea bass for trips with at least one pound of black sea bass, by region and primary gear, 2003-2007.

	2003	2004	2005	2006	2007	Average
	Trips with at least one pound of black sea bass					
Black sea bass caught off North Carolina, thousand pounds	476	485	324	421	271	395
Black sea bass caught off South Carolina, thousand pounds	112	210	120	94	128	133
Black sea bass caught off Georgia and northeast Florida, thousand pounds	4	7	8	6	5	6
Black sea bass caught off central and southeast Florida, thousand pounds	4	5	9	7	4	6
Black sea bass caught off Florida Keys, thousand pounds			0		0	0
Black sea bass caught with vertical lines, thousand pounds	70	85	63	58	44	64
Black sea bass caught with traps, thousand pounds	521	617	390	466	362	471
Black sea bass caught with dive gear, thousand pounds	0	1	0	0	0	0
Black sea bass caught with other gear, thousand pounds	6	5	6	3	2	4

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

3.7.1.9 Imports

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

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

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

Source: NOAA Fisheries, Foreign Trade Database.

*Weights are not converted to equivalent whole weights.

3.7.2 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), Amendment 16 (SAFMC 2008), Amendment 17A (SAFMC 2010), and Amendment 17B (SAFMC 2010)] and is incorporated herein by reference.

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

3.7.2.1 Harvest

Recreational snapper grouper harvest in the South Atlantic has been variable during the period 2003-2008, averaging slightly above 11 million pounds (Table 3-28). 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 3-29). On average, Florida accounted for most of the snapper grouper harvest in the South Atlantic at approximately 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 3-28. Harvest (lbs) of snapper grouper species in the South Atlantic, by mode, 2003-2008.

Year			Shore and Private/Rental	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 3-29. Harvest (lbs) of snapper grouper species in the South Atlantic, by state, 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.

In the Mid-Atlantic, harvests of snapper grouper (species in the South Atlantic FMP) fell from 2003 to 2004, recovered in 2005 and continued to increase especially in 2007, but fell in 2008 to their lowest level (Table 3-30). For 2003-2008, total harvests averaged slightly above 550,000 lbs. The private mode dominated the harvest, averaging approximately 500,000 lbs. This was followed by the shore mode, with an average of approximately 23,000 lbs. The party/charter mode averaged at approximately 17,000 lbs. Virginia dominated all other states in harvests, averaging at slightly less than 500,000 lbs (Table 3-31). All other states registered very low harvests of snapper grouper, averaging from approximately 12,000 lbs in Maryland to 17,000 lbs in New Jersey. Snapper grouper harvests are practically absent in the months of January through April (Table 3-32). May through October accounted for practically all snapper grouper harvests in the South Atlantic. Harvests in November-December are relatively negligible.

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

Year	Shore	Party/Charter	Private/Rental	Total
2003	13,212	6,166	444,766	464,144
2004	9,999	28,386	335,171	373,556

Year	Shore	Party/Charter	Private/Rental	Total
2005	28,476	815	588,134	617,425
2006	36,272	996	585,509	622,777
2007	50,011	58,147	818,293	926,451
2008	393	5,937	332,954	339,284
Average	23,061	16,741	517,471	557,273

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

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

Year	Delaware	Maryland	New Jersey	New York	Virginia
2003	18,640	13,464	3,897	4,322	423,820
2004	15,421	5,230	25,024	11,067	316,813
2005	4,558	23,484	14,101	46,396	528,886
2006	7,268	28,152	114	2,472	584,771
2007	35,734	4,251	55,862	21,827	808,776
2008	4,069	205	2,058	2,226	330,726
Average	14,282	12,464	16,843	14,718	498,965

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

Table 3-32. Harvest (lbs) of snapper-grouper species by wave in the Mid-Atlantic, 2003-2008.

Year	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
2003	0	0	306,343	141,134	16,551	116
2004	0	0	312,660	32,104	27,094	1,699
2005	0	0	257,864	250,220	109,266	75
2006	0	0	440,000	173,101	9,676	0
2007	0	0	590,027	221,420	114,327	677
2008	0	0	137,948	197,062	3,364	910
Average	0	0	340,807	169,174	46,713	580

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

There have been very low harvests of snapper grouper in the New England area, with a 2003-2008 average of approximately 3,000 lbs (Table 3-33). The highest harvests at approximately 6,000 lbs occurred in 2007. Most of the harvests were accounted for by the private mode. Harvests by other modes are relatively negligible. Of the five New England states, only Massachusetts and Rhode Island registered some positive harvests of snapper grouper (Table 3-34). These two states did not show any harvests of snapper grouper in some years. Only the July-August and September-October waves registered some positive harvests in New England, with July-August being the dominant wave (Table 3-35).

Table 3-33. Harvest (lbs) of snapper-grouper species by mode in New England, 2003-2008.

Year	Shore	Party/Charter	Private/Rental	Total
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Year	Shore	Party/Charter	Private/Rental	Total
2003	0	0	5,689	5,689
2004	0	0	5,014	5,014
2005	0	24	0	24
2006	2,657	78	0	2,735
2007	0	46	5,893	5,939
2008	0	0	0	0
Average	443	25	2,766	3,234

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

Table 3-34. Harvest (lbs) of snapper-grouper species by state in New England, 2003-2008.

Year	Connecticut	Maine	Massachusetts	New Hampshire	Rhode Island
2003	0	0	0	0	5,689
2004	0	0	5,014	0	0
2005	0	0	24	0	0
2006	0	0	78	0	2,657
2007	0	0	5,893	0	46
2008	0	0	0	0	0
Average	0	0	1,835	0	1,399

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

Table 3-35. Harvest (lbs) of snapper-grouper species by wave in the New England, 2003-2008.

Year	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
2003	0	0	0	5,689	0	0
2004	0	0	0	5,014	0	0
2005	0	0	0	0	24	0
2006	0	0	0	0	2,735	0
2007	0	0	0	5,893	46	0
2008	0	0	0	0	0	0
Average	0	0	0	2,766	468	0

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

Black sea bass and golden tilefish are the two key snapper grouper species in the South Atlantic affected by this amendment. The distribution by mode of these species is presented in Table 3-36. Black sea bass harvests averaged (2003-2008) at approximately 780,000 lbs and golden tilefish harvests, at 57,000 lbs. Charterboats dominated in the harvest of golden tilefish, followed at a relatively low level by the shore/private mode. Headboats registered no landings of golden tilefish. Black sea bass are harvested by all modes, with the shore/private mode being the dominant sector, followed by headboats and lastly by charterboats.

Table 3-37 presents the geographic distribution of golden tilefish and black seas bass. Only two states, Florida and North Carolina, registered harvests of golden tilefish, with North

Carolina accounting for most of the harvests. All four states registered harvests of black sea bass, with South Carolina being the lead state, followed very closely by Florida, and then by North Carolina. Georgia showed low landings of black sea bass.

Seasonal distribution of the six major species is presented in Table 3-38, with the monthly headboat data aggregated to match the MRFSS two-month wave. The peak harvest period for golden tilefish was July-August and for black seas bass, May-June. On the other end, troughs occurred in January-February and November-December for golden tilefish and January-February for black sea bass. Except for January-February and September-October, a fair amount of black seas bass were harvested throughout the year. It may only be noted that the fishing year for black sea bass does not coincide with the calendar year.

Table 3-36. South Atlantic average harvest (lbs) of 2 key species in this amendment, by mode, 2003-2008.

Species	Charterboat	Headboat	Shore and Private/Rental Boat	Total
Golden Tilefish	46,202	0	10,819	57,021
Black Sea Bass	93,691	164,465	525,001	783,157

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

Table 3-37. South Atlantic average harvest (lbs) of 2 key species in this amendment, by state, 2003-2008.

Species	Florida	Georgia	South Carolina	North Carolina
Golden Tilefish	3,522	0	0	53,499
Black Sea Bass	244,222	87,574	245,727	205,635

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

Table 3-38. South Atlantic average harvest (lbs) of 2 key species in this amendment, by wave, 2003-2008.

Species	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Golden Tilefish	0	843	19,878	31,938	4,362	0
Black Sea Bass	45,768	144,853	220,940	178,973	62,636	129,988

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

For the period 2003-2008, the two key species in this amendment accounted for approximately 7.5 percent of all recreational harvests of snapper grouper in the South Atlantic.

3.7.2.2 Effort

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

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

Estimates of recreational effort (catch and target trips) for the entire snapper grouper fishery in the South Atlantic are provided in Table 3-39 for trips by mode and Table 3-40 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 3-39). 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 3-40). 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 3-39. Recreational effort (catch and target trips) for snapper grouper 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 3-40. Recreational effort (catch and target trips) for snapper grouper 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.

Recreational effort (catch and target trips) for snapper grouper in the Mid-Atlantic was not as high as in the South Atlantic (Table 3-41). On the other hand, catch and target trips did not differ significantly from each other -- a sharp contrast with what transpired in the South Atlantic where catch trips far exceeded target trips. Total catch trips in the Mid-Atlantic averaged at approximately 89,000 while total target trips averaged at approximately 78,000. In both catch and target trips, the private mode dominated the other fishing modes, followed by the shore mode, and lastly by the party/charter mode. For both the shore and party/charter modes, catch trips were higher than target trips in all years, except 2003 for the shore mode. For the private mode, catch trips were higher than target trips in some years and lower in some other years, with average catch trips being slightly lower than average target trips.

On a state-by-state basis, Virginia dominated all other states in both catch and target trips (Table 3-42). In fact, Virginia registered higher catch and target trips than the respective sum of catch and target trips from all other states. Among the other four states, Delaware registered the highest average catch trips (5,907) but also the lowest average target trips (696), whereas Maryland registered the lowest average catch trips (4,323) but also the highest average target trips (3,491).

Average catch trips were highest in July-August, although those in May-June were not too far behind (Table 3-43). Average target trips were highest in May-June, but they also do not differ much from those in May-June. Although there were some fair levels of catch and target trips in September-October, the two waves of May-June and July-August maybe considered the peak for both catch and target trips. Both catch and target trips were absent or negligible in the first four months of the year.

Table 3-41. Recreational effort (catch and target trips) for snapper grouper in the Mid-Atlantic, by mode, 2003-2008.

Year	Shore		Party/Charter		Private/Rental		Total	
	Catch	Target	Catch	Target	Catch	Target	Catch	Target
2003	2,978	10,645	28	0	50,511	48,552	53,517	59,197
2004	12,908	1,639	510	239	51,505	58,475	64,923	60,353

2005	17,355	3,713	584	0	76,092	75,544	94,031	79,257
2006	29,196	0	161	0	78,629	83,157	107,986	83,157
2007	12,421	3,739	6,400	434	115,443	105,473	134,264	109,646
2008	10,511	6,377	1,198	71	64,802	72,568	76,511	79,016
Average	14,228	4,352	1,480	124	72,830	73,962	88,539	78,438

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

Table 3-42. Recreational effort (catch and target trips) for snapper grouper in the Mid-Atlantic, by state, 2003-2008.

Year	Delaware		Maryland		New Jersey		New York		Virginia	
	Catch	Target	Catch	Target	Catch	Target	Catch	Target	Catch	Target
2003	1,920	0	4,508	0	1,073	2,297	2,536	9,349	43,480	47,550
2004	6,906	1,323	3,392	1,639	7,476	4,353	8,412	4,167	38,737	48,872
2005	6,302	0	11,259	1,409	12,557	3,713	9,471	2,606	54,442	71,528
2006	2,904	326	2,701	0	161	0	1,036	0	101,185	82,832
2007	11,758	645	0	12,116	11,593	3,368	7,593	0	103,320	93,518
2008	5,654	1,883	4,077	5,782	1,939	0	200	0	64,642	71,352
Average	5,907	696	4,323	3,491	5,800	2,289	4,875	2,687	67,634	69,275

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

Table 3-43. Recreational effort (catch and target trips) for snapper grouper in the Mid-Atlantic, by wave, 2003-2008.

	Catch Trips					
	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
2003	0	783	23,792	18,426	8,103	2,413
2004	0	0	28,729	24,942	10,696	557
2005	0	0	20,837	32,485	40,574	135
2006	0	0	41,128	62,739	4,120	0
2007	0	0	47,663	52,146	32,135	2,320
2008	0	0	18,720	40,232	17,307	253
Average	0	131	30,145	38,495	18,823	946
	Target Trips					
	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
2003	0	0	30,755	23,686	4,755	0
2004	0	0	37,100	18,662	4,480	112
2005	0	0	33,639	38,799	6,820	0
2006	0	0	50,619	28,746	3,467	326
2007	0	0	55,111	42,121	12,415	0
2008	0	0	26,738	48,538	3,741	0
Average	0	0	38,994	33,425	5,946	73

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

Both catch and target trips for snapper grouper in New England were substantially lower than those in other sub-regions (Table 3-44). Catch trips averaged only at 1,763 while target trips averaged at 1,641. The private mode showed the highest catch trips and target trips, although the shore mode came very close in terms of target trips. There were no reported catch and target trips for the party/charter mode.

Among the five states in the sub-region, Connecticut, Massachusetts, and Rhode Island registered positive numbers of catch trips, with Massachusetts showing the highest number

(Table 3-45). However, Connecticut had positive catch trips only in 2004. For target trips, only Massachusetts and Rhode Island showed positive numbers. Massachusetts had the larger number of target trips while Rhode Island had positive target trips only in 2004. Maine and New Hampshire showed no records of catch or target trips.

Only the July-August and September-October waves showed positive numbers of catch trips, and the two waves were not far apart in terms of average number of catch trips (Table 3-46). Most target trips occurred in July-August; negligible number of target trips was recorded in March-April and May-June. There were no target trips in the January-February, September-October, and November-December waves.

Table 3-44. Recreational effort (catch and target trips) for snapper grouper in New England, by mode, 2003-2008.

Year	Shore		Party/Charter		Private/Rental		Total	
	Catch	Target	Catch	Target	Catch	Target	Catch	Target
2003	393	0	0	0	1,201	0	1,594	0
2004	562	1,842	0	0	2,726	0	3,288	1,842
2005	576	0	0	0	0	0	576	0
2006	561	0	0	0	0	1,964	561	1,964
2007	0	3,046	0	0	2,895	0	2,895	3,046
2008	0	0	0	0	1,666	2,992	1,666	2,992
Average	349	815	0	0	1,415	826	1,763	1,641

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

Table 3-45. Recreational effort (catch and target trips) for snapper grouper in New England by state, 2003-2008.

Year	Connecticut		Maine		Massachusetts		New Hampshire		Rhode Island	
	Catch	Target	Catch	Target	Catch	Target	Catch	Target	Catch	Target
2003	0	0	0	0	0	0	0	0	1,594	0
2004	1,417	0	0	0	1,309	1,673	0	0	562	169
2005	0	0	0	0	0	0	0	0	576	0
2006	0	0	0	0	0	1,964	0	0	561	0
2007	0	0	0	0	2,895	3,046	0	0	0	0
2008	0	0	0	0	1,666	2,992	0	0	0	0
Average	236	0	0	0	978	1,613	0	0	549	28

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

Table 3-46. Recreational effort (catch and target trips) for snapper grouper in New England, by wave, 2003-2008.

	Catch Trips					
	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
2003	0	0	0	1,594	0	0
2004	0	0	0	1,309	1,979	0
2005	0	0	0	0	576	0
2006	0	0	0	0	561	0
2007	0	0	0	2,895	0	0
2008	0	0	0	0	1,666	0
Average	0	0	0	966	797	0

Target Trips						
	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
2003	0	0	0	0	0	0
2004	0	169	1,673	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	1,964	0	0
2007	0	0	0	3,046	0	0
2008	0	0	0	2,992	0	0
Average	0	28	279	1,334	0	0

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

Estimates of the average (2003-2008) recreational effort for the two key species in this amendment are provided in Table 3-47 for trips by mode and Table 3-48 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.

For golden tilefish, the charter mode registered the highest number of catch trips while the private mode had the highest number of target trips (Table 3-47). The shore mode showed no records of catch or target trips. On black sea bass, the private mode had the highest numbers in both catch and target trips. The other two modes, though, registered positive numbers of catch and target trips.

Only Florida and North Carolina showed positive catch and target trips for golden tilefish. North Carolina had the higher catch trips, but Florida had slightly higher target trips. All four states recorded positive numbers of catch and target trips for black sea bass. Florida had the highest catch trips, followed closely by North Carolina, then by South Carolina, and lastly by Georgia. South Carolina had the highest target trips, followed by Florida, North Carolina, and Georgia.

The seasonal distribution of recreational effort for the two key species in this amendment is presented in Table 3-49 for catch trips and Table 3-50 for target trips. The peak period for catch trips matched with peak harvests for golden tilefish (July-August). The peak harvest for black sea bass occurred in May-June, whereas the peak catch trips occurred in July-August although catch trips in May-June were not too far behind. The peak target trips for golden tilefish occurred in January-February, whereas the peak harvests occurred in May-June. For black sea bass, the peak target trips matched with the peak harvests (May-June).

Table 3-47. South Atlantic average recreational effort (catch and target trips) for the 2 key species in this amendment, in thousand trips, by mode, 2003-2008.

Species	Charter Mode Trips			Shore Mode Trips			Private Mode Trips		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
Golden Tilefish	2.6	0.2	458.8	0.0	0.0	7,127.8	1.5	0.4	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

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

Table 3-48. South Atlantic average recreational effort (catch and target trips) for the 2 key species in this amendment, in thousand trips, by state, 2003-2008.

Species	Florida			Georgia			South Carolina			North Carolina		
	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total	Catch	Target	Total
Golden Tilefish	1.1	0.4	12,275.4	0.0	0.0	959.5	0.0	0.0	2,351.0	3.0	0.2	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

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

Table 3-49. South Atlantic average catch trips (all modes) for the 2 key species in this amendment, by two-month wave, 2003-2008.

Species	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Golden Tilefish	0.4	0.0	1.0	2.1	0.6	0.0
Black Sea Bass	27.2	70.4	138.1	148.1	103.0	79.7

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

Table 3-50. South Atlantic average target trips (all modes) for the 2 key species in this amendment, by two-month wave, 2003-2008.

Species	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Golden Tilefish	0.3	0.0	0.1	0.1	0.2	0.0
Black Sea Bass	3.0	11.8	12.5	8.6	6.0	8.3

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 3-51. 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 3-52. 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 3-51. 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 3-52. 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.

3.7.2.3 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 3-53. 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 3-53. South Atlantic snapper grouper for-hire permit holders by home port state, 2003-2008.

Home Port State	Number of vessels issued for-hire vessel permits							Number of vessels with both a for-hire permit and a commercial snapper grouper permit						
	2003	2004	2005	2006	2007	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
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.

3.7.2.4 Economic Value and Expenditures

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

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 angler 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. 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 18.

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 3-54. 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 3-39 and 3-40. 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 3-54. 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					
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 3-54 reflect only effort derived from the MRFSS. Because the headboat sector in the Southeast is not covered in the MRFSS, the results in Table 3-54 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 3-51 and 3-52. 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 3-55. 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 3-55. 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).

Golden tilefish and black sea bass are the two key species in this amendment. The economic impact contributions of these species are included in the information in Tables 3-54 and 3-55. It may be noted, though, that there are no target trips for golden tilefish in headboat and shore modes or in Georgia and South Carolina (all modes). Moreover, target trips for golden tilefish in Florida are taken only by the private mode. All in all, target trips for golden tilefish in the South Atlantic are very low.

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; tabular results not shown). 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 golden tilefish target trips are approximately \$96,000 (output/sales impacts), \$54,000 (value added), and 1 FTE job total, led by the charter mode sector contributing approximately \$79,000 and \$45,000 in output (sales) and value added impacts, respectively, and 1 FTE job; and North Carolina, accounting for approximately \$82,000 and \$46,000 in output (sales) and value added impacts, respectively,

and 1 FTE job. 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 3-54.

For the reasons discussed above on the economic impacts of snapper grouper trips, estimates of the economic impacts of headboat target trips for black sea bass cannot be produced with available data. In the absence of any target trips for golden tilefish in headboats, there are no economic impacts associated with headboat target trips.

3.7.2.5 Financial Operations of the Charter and Headboat Sectors

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

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

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

The 1999 study on the for-hire sector in the Southeastern U.S. presented two sets of average gross revenue estimates for the charter and headboat sectors in the South Atlantic (Holland *et al.*, 1999). The first set of estimates were those reported by survey respondents and were as follows: \$51,000 for charterboats on the Atlantic coast of Florida; \$60,135 for charterboats in North Carolina; \$26,304 for charterboats in South Carolina; \$56,551 for charterboats in Georgia; \$140,714 for headboats in Florida; and \$123,000 for headboats in the other South Atlantic states (Holland *et al.*, 1999). The authors generated a second set of estimates using the reported average trip fee, average number of trips per year, and average number of passengers per trip (for the headboat sector) for each vessel category for Florida vessels. Using this method, the resultant average gross revenue figures were \$69,268 for charterboats and \$299,551 for headboats. Since the calculated estimates were considerably higher than the reported estimates (22 percent higher for charterboats and 113 percent higher for headboats),

the authors surmised that this was due to sensitivity associated with reporting gross receipts, and subsequent under reporting. Alternatively, the respondents could have overestimated individual components of the calculated estimates. Although the authors only applied this methodology to Florida vessels, assuming the same degree of under reporting in the other states results in the following estimates in average gross revenues: \$73,365 for charterboats in North Carolina, \$32,091 for charterboats in South Carolina; \$68,992 for charterboats in Georgia; and \$261,990 for headboats in the other South Atlantic states.

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

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

3.7.3 Social and Cultural Environment

Additional information on the social and cultural environment of the snapper-grouper fishery is contained in Amendment 13C (SAFMC 2006) and is incorporated herein by reference. Because so many communities in the South Atlantic benefit from snapper-grouper fishing, discussion of affected communities focuses on “indicator communities,” defined as communities thought to be most heavily impacted by snapper-grouper regulations.

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

To help fill information gaps, members of the South Atlantic Council's Snapper-grouper Advisory Panel, Council members, and representatives from the angling public identified communities they believed would be most impacted by the management measures proposed in

Amendment 13C on the species addressed by this amendment. Details of their designation of particular communities, and the factors considered in this designation, can be found in Amendment 13C (SAFMC 2006).

Descriptions of the indicator communities in the South Atlantic expected to be potentially affected by the actions in this amendment are included in Amendment 17B (SAFMC 2010) and are incorporated herein by reference. The following discussion covers communities in the Mid-Atlantic and New England that may be affected by the proposed extension of the Fishery Management Unit and includes information on Ocean City and West Ocean City, Maryland; Montauk, New York; and Point Judith, Rhode Island. Because fishermen in these areas would not be expected to possess the appropriate South Atlantic permits, these communities were identified as amongst the top ports for commercial landings in the Mid-Atlantic and New England for species in the snapper-grouper complex.

3.7.3.1 Communities in the Mid-Atlantic and New England

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

Ocean City and West Ocean City, Worcester County, Maryland

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

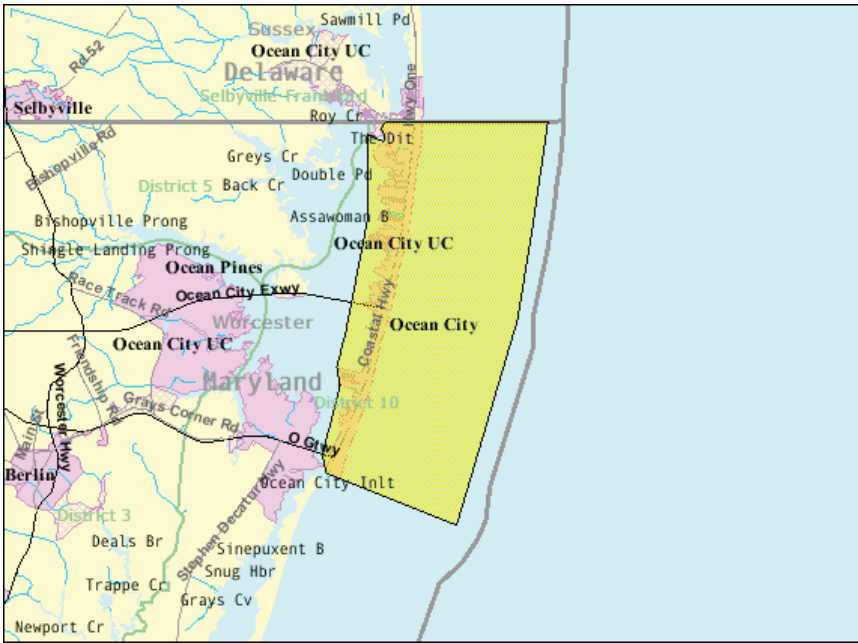


Figure 3-16. Location of Ocean City, Maryland (US Census Bureau 2000a).

Historical Background

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

Ocean City

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

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

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

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

West Ocean City

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

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

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

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

Setting

Ocean City is primarily a resort town. The real estate market has long been a problem for those seeking to buy a first home, especially blue collar workers (Lerner 2002, Guy 2003, Vandiver 2004). Fishing concerns identified in the area include the allocation of marine resources between the commercial and recreational sectors, and the potential of commercial fishing gear impacts on habitat in the area.

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

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

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

Culture

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

Each year, the [Watermen's](#) sponsors the East Coast Commercial Fishermen's and Aquaculture Trade Exposition in Ocean City, which features aquaculture and commercial

fishing seminars, gear, equipment, and boats. The Seaside Boat Show is held in February. During May, there is the Annual White Marlin Festival and Crab Soup Cookoff (Town of Ocean City 2008). One of the fish docks in West Ocean City has sponsored a “Mid-Atlantic Commercial Fishing Skills Contest”, which included competitions in rope tying, net mending, rope splicing, survival suit-donning, and other fishing-related activities (Oles 2003). January brings the Nautical and Wildlife Art Festival and October brings Harbor Day at the Docks ~ a Waterfront Heritage Festival and Phillips Annual Seafood Dinner (OCCVB nd).

Current Economy

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

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

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

Fishery Involvement in the Government

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

The Maryland Division of Natural Resources (DNR) manages fisheries in Ocean City and West Ocean City. The DNR has a Coastal Fisheries Advisory Committee which provides advice on fishery issues, preparing management plans, and works to develop objectives and management options for specific fisheries. The Committee has representation from Ocean City, West Ocean City, and different fishing groups. Ocean City also has a harbor master.

Fishing Associations

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

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

Montauk, Suffolk County, New York

Regional Orientation

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

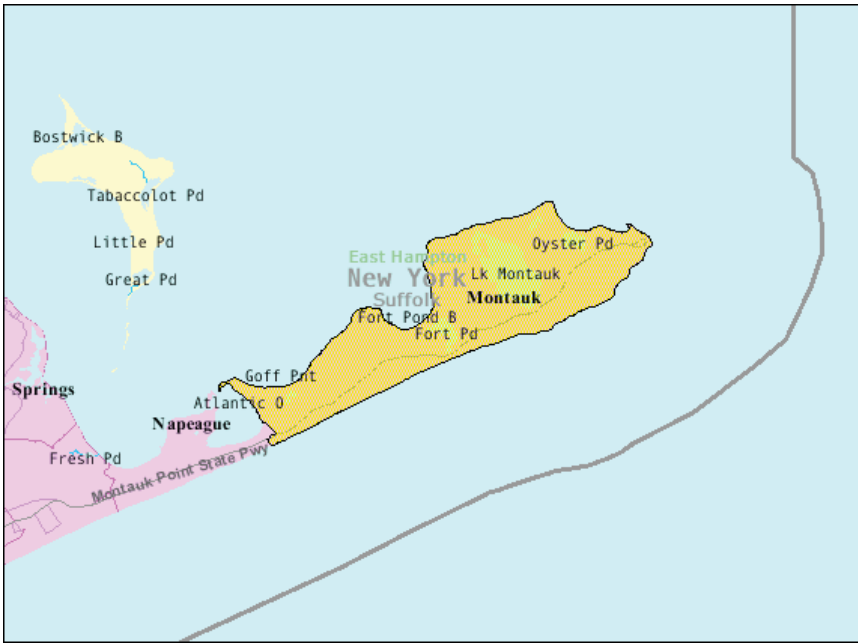


Figure 3-17. Location of Montauk, New York.

Historical Background

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

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

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

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

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

Fishing

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

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

Culture

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

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

Economy

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

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

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

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

Fishing Associations

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

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

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

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

Commercial Involvement in the Northeast Fisheries

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

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

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

Recreational Involvement in Northeast Fisheries

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

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

Point Judith/Narragansett, Washington County, Rhode Island

Regional Orientation

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

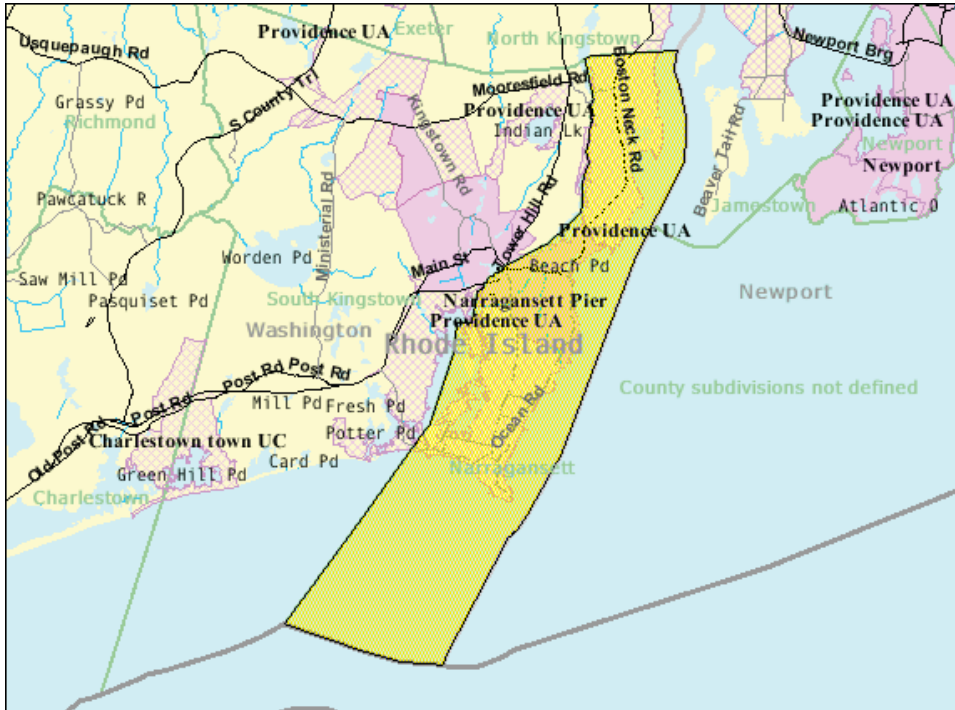


Figure 3-18. Location of Narragansett, Rhode Island (US Census Bureau 2000).

Historical Background

The area now called Narragansett was originally inhabited by the Narragansett Indians until Roland Robinson purchased it in 1675 (Town of Narragansett nd). Over the next half-

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

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

Demographics

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

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

The majority of the 2000 population was white (95.6%), with 1.3% black or African American, 1.0% Asian, 1.4% Native American, and 0.1% Pacific Islander or Hawaiian (see Figure 2). Only 1.2% of the population identified themselves as Hispanic/Latino (see Figure 3). Residents traced their backgrounds to a number of different ancestries, including Irish (31.8%), Italian (20.6%) and English (18.9%) (US Census Bureau 2000a). With regard to region of birth, 62.5% were born in Rhode Island, 34.3% were born in a different state, and 2.5% were born outside of the U.S. (including 0.8% who were not U.S. citizens).

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

Current Issues

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

Culture

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

Current Economy

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

Town Dock came to Point Judith in 1980 and is now one of the largest seafood processing companies in Rhode Island. Its facility supports unloading, processing, and freezing facilities under one roof and services “over half of the port's boats (approximately 30 full time deep sea

fishing trawlers) as well as a large day-boat fleet . . . and handle[s] all the southern New England and Mid-Atlantic species of fish including Squid, Monkfish, Flounder, Whiting, Scup, Butterfish, and Fluke.”

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

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

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

Fishery Involvement in the Government

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

Fishing Associations

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

Commercial Involvement in the Northeast Fisheries

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

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

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

Recreational Involvement in Northeast Fisheries

Rhode Island marine waters also support a sizable recreational fishing sector. "In Rhode Island, nearly 362,000 recreational marine anglers - more than half from out-of-state - made over 1.5 million trips, catching 4.3 million pounds of sport fish and releasing about 55 percent in 2004" (RIDEM 2004). This indicates that the recreational component is significant both in terms of the associated revenues generated (support industries) and harvesting capacity. Between 2001- 2005, there were 66 charter and party vessels making 7,709 total trips

registered in logbook data by charter and party vessels in Point Judith carrying a total of 96,383 anglers (MRFSS data). A 2005 survey by the Rhode Island DEM showed Point Judith to be the most popular site in the state for shore-based recreational fishing (RIDEM 2005). Narragansett has two public saltwater boat ramps (RIDEM 2005a).

3.7.3.2 Communities in the South Atlantic

3.7.3.2.1 North Carolina



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

Statewide

Overview

Of the four states in the South Atlantic region, North Carolina (**Figure 3-19**) is often recognized as possessing the most “intact” commercial fishing industry; that is, it is more robust in terms of viable fishing communities and fishing industry activity than the other three states. The state offers a wide variety of fishing opportunities, including sound fishing, trolling for tuna, bottom fishing, and shrimping. Perhaps because of the wide variety of fishing opportunities, fishermen have been better able to weather regulations and coastal development pressures, adjusting their annual fishing patterns as times have changed.

Commercial Fishing

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

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

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

Chevront and Neal (2004) also provided an overview of how North Carolina commercial snapper grouper fishermen carry out their fishery. Approximately 65% of surveyed fishermen indicated year-round fishing. Gag is the fish most frequently targeted by these fishermen, with 61% of fishermen targeting gag at some point in the year, despite the prohibition of commercial sales and limit to the recreational bag limit in March and April. Vermilion snapper (36.3%) and black sea bass (46%) are the next most frequently targeted species. A significant number of fishermen land king mackerel during each month, with over 20% of fishermen targeting king mackerel between October and May. During the gag closed season, king mackerel are targeted by about 35% of the fishermen. Other snapper/grouper complex species landed by at least 5% of the fishermen in any given month were red grouper (39.5%), scamp (27.4%), snowy grouper (9.7%), grunts (14.5%), triggerfish (13.7%), and golden tilefish (5.6%). Non-snapper/grouper complex species landed by at least 5% of the fishermen in any given month included Atlantic croaker, yellowfin tuna, bluefin tuna, dolphin, and shrimp.

By looking at the commercial landings data on the snapper grouper complex it is possible to see which communities are involved with the commercial fisheries for these species (**Table 3-51**). Although rankings can fluctuate from year to year, this can give us a starting point for

understanding some of the communities that would be impacted by more restrictive regulations.

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

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

Source: Logbook data, SEFSC 2009.

Recreational Fishing

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

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

Hatteras Village, Dare County

A detailed history of this community, from its discovery by Italian explorers in the 15th century to establishment of a National Seashore in 1953, can be found in SAFMC (2006).

Overview

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

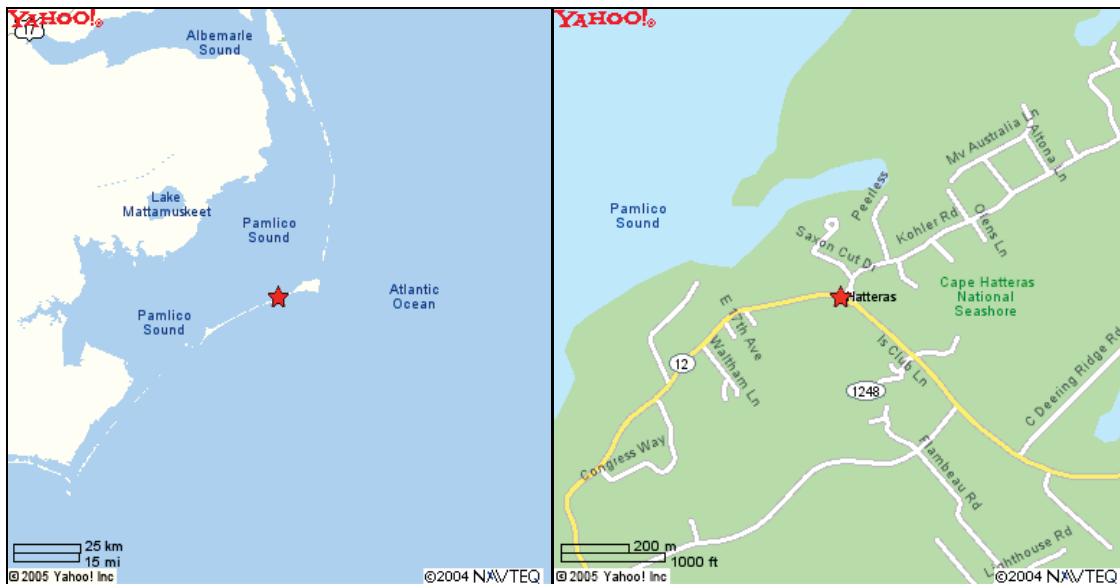


Figure 3-20. Hatteras Island and Village, Outer Banks, North Carolina.

Source: Yahoo Maps, [://www.yahoo.com](http://www.yahoo.com).

Commercial Fishing

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

Mirroring the statewide trend, the number of unlimited commercial permits held by residents of Hatteras decreased from 1999 (9 permits) to 2004 (5 permits). The number of limited commercial permits has remained at 3 (SAFMC 2006). Twenty people stated they were employed in fishing related industry in the 1998 census, with 18 of these employed by marinas. A listing of the six marinas and eight bait and tackle stores in Hatteras Village can be found in SAFMC (2006).

Recreational Fishing

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

Dare County

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



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

Overview

Figure 3-21 provides a map of Roanoke Island, including Wanchese and Manteo. While Wanchese has maintained its identity as a commercial fishing community, it faces continuing pressure from developers in nearby Manteo and other Outer Banks communities. However, the town has recently approved a zoning document that would prevent unplanned growth and would help preserve working waterfronts and residential areas (Kozak 2005). A partial community profile detailing local traffic patterns, businesses, and prominent families can be found in SAFMC (2006).

The largest industrial area in Wanchese is centered on the Wanchese Seafood Industrial Park, built to enhance business opportunities in the seafood and marine trades. Tenants of the park are able to ship products overnight to major domestic and international markets through the

airport in Norfolk, Virginia. The park is utilized by fishermen and seafood dealers, as well as boatbuilding and boat maintenance businesses. The park is full of activity and it is common to find large numbers of people, especially Hispanics, working in the marine trade industries.

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

Commercial Fishing

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

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

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

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

Recreational Fishing

As of 2005, nine boatbuilding businesses were located in Wanchese, building either pleasure yachts, recreational fishing vessels or, less often, commercial fishing vessels. There were two bait and tackle businesses and two marinas in town. All these businesses rely on the fishing industry. Manteo also maintains an active private and for-hire recreational fishing community. From 1999 to 2004, there was an increase in the number of charter/headboat licenses held, from two permits to nine permits. As most of the recreational sector for the region operates out of Manteo and Nags Head, these communities would be more affected by recreational fishing restrictions than would Wanchese.



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

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

City, Carteret County

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

Overview

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

Detailed statistics detailing community demographics of Morehead City in 1990 and 2000 can be found in SAFMC (2006). The population of Morehead City increased from 1990 to 2000, with sizable increases in the number of people declaring non-white ethnicities. Median income increased from approximately \$20,000 to nearly \$29,000 from 1990 to 2000. Median home value nearly doubled, and median rent increased 35%. The percentage of those

completing high school increased by 10%, and there was a 7% increase in those receiving a bachelor's degree or higher. The poverty level decreased. However, the unemployment rate increased. The occupations of farming, fishing, and forestry employ more than 1% of the population of Morehead City.

Commercial Fishing

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

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

Recreational Fishing

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

. Carteret County

Beaufort is located on the coast near Cape Lookout, and borders the southern portion of the Outer Banks. Its deep harbor is home to vessels of all sizes, and its marinas are a favorite stop-over for transient boaters. A detailed history of Beaufort, from its establishment to its importance as a trade center during the 17th and 18th centuries, to its later involvement in the menhaden fishing industry, can be found in SAFMC (2006).

Overview

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

Commercial Fishing

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

Recreational Fishing

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

Beach, Carteret County

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

Overview

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

Commercial Fishing

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

Recreational Fishery

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



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

Source: Yahoo Maps, [://www.yahoo.com](http://www.yahoo.com).

Ferry, Onslow County

Sneads Ferry is a historical fishing village located on the New River near the northern tip of Topsail Island (**Figure 3-23**). The river joins the Intracoastal Waterway at Sneads Ferry, with easy access to the Atlantic Ocean. A very active commercial fishing community, Sneads Ferry takes in more fish than any other Onslow County port ([://www.cbcoastline.com/areainfo](http://www.cbcoastline.com/areainfo)). It also includes Camp Lejeune, a U.S. Marine base. The Sneads Ferry Shrimp Festival has been held annually since 1971. Now grown to a two-day

event, the annual shrimp festival is the town's major fund-raiser. From its proceeds, the town established a 14-acre community park and built a 7200-sq. ft. Shrimp Festival Community Building ([.sneadsferry.com/areahistory/his_sf](http://sneadsferry.com/areahistory/his_sf)).

Overview

Census data indicate the population of Sneads Ferry increased by about 10% from 1990 to 2000, from 2,031 inhabitants to 2,248. Most new residents were white, and the number of black or African American residents decreased from 159 to 115. Median income increased from about \$20,000 to nearly \$35,000. Median home value increased from \$65,000 to \$110,000, but median rent remained about the same. The percentage of those completing high school increased by 10% and the percent of residents with at least a Bachelor's degree doubled, from 6 to 12.8%. The poverty level decreased from 20.9% to 13.5%, and the percentage of the population unemployed decreased from 8.3% to 2.2%. The percentage of residents employed in farming, fishing, and forestry decreased by half from 18.2% to 9%, while employment in sales and office occupations increased by over 17%. It is unclear who may be buying home sites on newly developed land in the town, but the town's current demographics may point to an increase in retirees in Sneads Ferry, as they are better educated, have higher incomes, and are older. The dramatic decline by approximately 50% of persons employed in extractive natural resource occupations may be due to increasing job opportunities outside of the community, the changing impacts of regulations, or status of the resources

Commercial Fishing

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

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

Recreational Fishing

Recreational fishing in Sneads Ferry is not as prominent an activity as in Morehead City. However, there are a large number of vessels with charter permits for snapper grouper homeported there. Little is currently known about recreational fishing out of Sneads Ferry, aside for its advertisement as an important tourist attraction in many websites that discuss the

community. At least five marinas cater to recreational fishermen. There are two other marinas at Camp LeJeune Marine Base, just across the Neuse River. Some smaller river and sound fishing charters operating out of the area and one headboat runs from Sneads Ferry. Other than black sea bass, it does not appear that many snapper grouper species are frequently caught recreationally from Sneads Ferry.

3.7.3.2.2 South Carolina

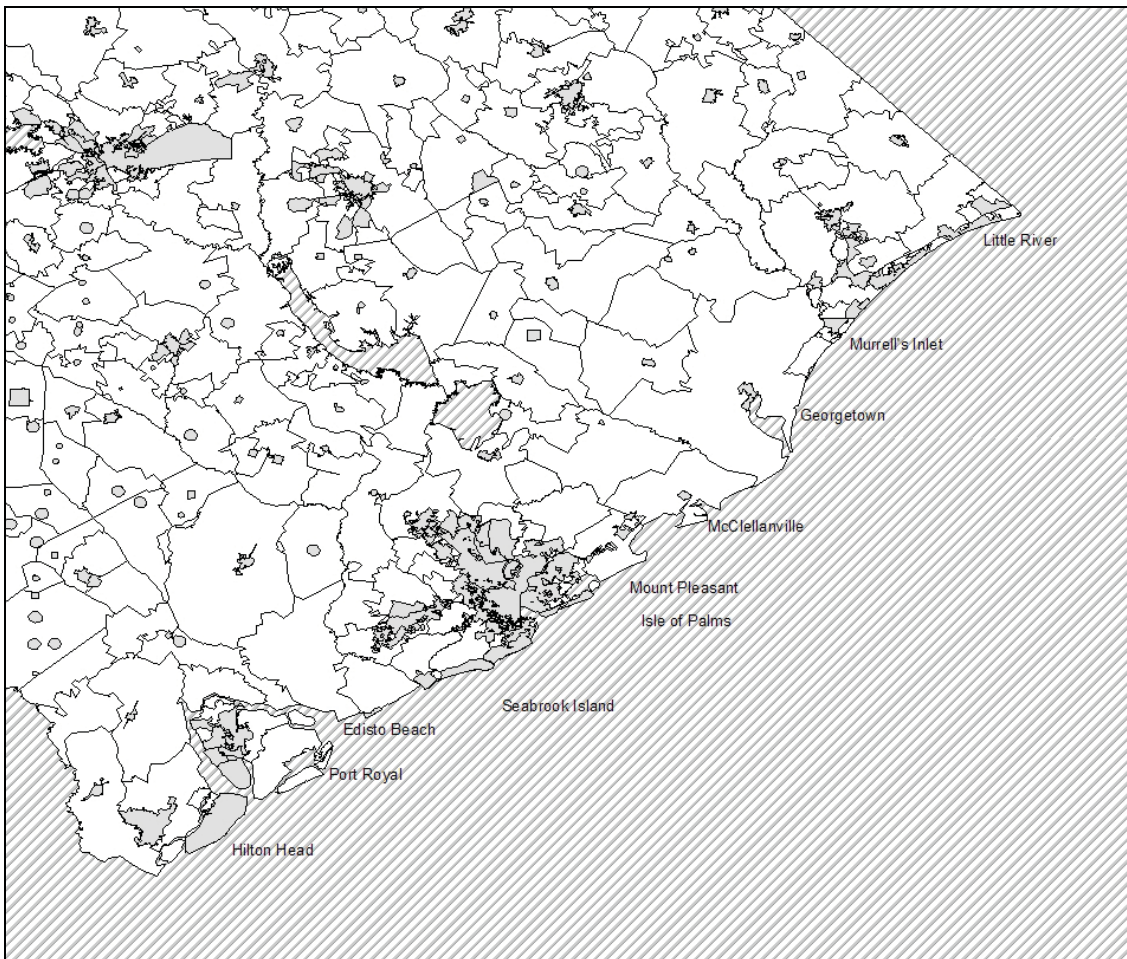


Figure 3-24. South Carolina communities with substantial fishing activity, as identified by South Atlantic Advisory Panels.

Statewide

Overview

South Carolina communities with substantial fishing activity are less developed than those in North Carolina and, over the past 20 to 30 years, the state has seen much more tourist-oriented development along its coasts than Georgia or North Carolina. In Horry County, the urban area of Myrtle Beach has expanded greatly in the past few decades, and much of the coastal area has been developed as vacation homes, condominiums, and golf courses. The communities most impacted by this development are Little River, Murrells Inlet, Pawleys Island, and Georgetown, although the latter three are located in Georgetown County (**Figure 3-24**). The same is true of rapidly developing Charleston County, and the cities and communities of McClellanville, Mt. Pleasant, Sullivans Island, Wadmalaw and Edisto Islands feel the impact of urban sprawl from the city of Charleston. Further south along the coast, the Hilton Head Island resort development has been the impetus for changing coastal landscapes in the small towns of Port Royal, Beaufort, St. Helena Island, and Bluffton.

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

Commercial Fishing

While pockets of commercial fishing activities remain in the state, most are being displaced by the development forces and associated changes in demographics. The number of unlimited commercial permits, however, increased from 74 in 1999 to 87 in 2004, while the number of limited commercial permits decreased by 75% from 12 to 4 (SAFMC 2006).

Recreational Fishing

Many areas that used to be dedicated to commercial fishing endeavors are now geared towards the private recreational angler and for hire sector. The number of federal charter/headboat permits held by South Carolina residents increased from 41 in 1999 to 111 in 2004. The majority of saltwater anglers fish for coastal pelagic species such as king mackerel, Spanish mackerel, tunas, dolphins, and billfish. A lesser number focus primarily on bottom fish such as snapper and groupers and often these species are the specialty of the headboats that run out of Little River, Murrells Inlet, and Charleston. There are 35 coastal marinas in the state and 34 sportfishing tournaments (SAFMC 2006).

River, Georgetown County

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



Figure 3-25. Little River, South Carolina, and surrounding area.
 Source: Yahoo Maps, [://www.yahoo.com](http://www.yahoo.com).

Overview

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

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

Commercial Fishing

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

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

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

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

Source: Logbook Data, SEFSC 2009.

Recreational Fishing

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

3.7.3.2.3 Georgia

Overview

Only one community in Georgia (Townsend) lands a substantial amount of the snapper grouper species addressed in this amendment. Other parts of the state involved in the commercial harvest of seafood are focused on penaeid shrimp, blue crabs, and other finfish such as flounder, shad, croaker, and mullet.

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

state involved in the commercial harvest of seafood are focused on penaeid shrimp, blue crabs, and other finfish such as flounder, shad, croaker, and some mullet.

Commercial Fishing

Unlike the pattern observed in many other areas, the number of unlimited commercial permits and limited commercial permits held by Georgia residents did not decrease from 1999 to 2004, with eight permits and one permit, respectively. In 2002, 947 vessels were registered with the state as commercial fishing vessels, 612 full-time state commercial fishing licenses were held by Georgia residents, and 147 residents held part-time state commercial fishing licenses. Within the commercial fishing fleet, 482 vessels had shrimp gear on board in that year (SAFMC 2006).

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

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

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

Source: Logbook Data, SEFSC 2009.

Recreational Fishing

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

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

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

Overview

The population of Townsend increased by over 1,000 residents from 2,413 in 1990 to 3,538 in 2000. Although there was a large relative increase in the number of Hispanic or Latino residents, from 2 to 27, most of the new inhabitants were white (1,465 in 1990 and 2,437 in 2000). Median income increased from approximately \$23,000 to \$35,000. Median home value nearly tripled, from \$33,000 in 1990 to \$98,100 in 2000, and monthly rent nearly doubled, from \$213 to \$431. In 1990, 26.9% of residents had less than a grade education, but by 2000, that number declined to 11%. The percentage of those completing high school increased by nearly 15%, while the percent receiving a bachelor's degree or higher remained about the same (8.4% to 8.9%). The percent of the population with an income below the poverty line decreased by 4%, but remained high at 14.6%. The percentage of the population unemployed increased from 3.4% to 6.5%. There has been a sizeable decline in the percentage of the population employed in manufacturing, from 29.0% to 16.2%, and the proportion of the population employed in farming, fishing, and industry remained unchanged at approximately 3%.

Commercial Fishing

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

Recreational Fishing

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

Of the snapper grouper species harvested, black sea bass, sheepshead, and vermilion snapper are the most commonly harvested fish at 5, 7 and 2%, respectively. As of 2004, residents of the Savannah area held 11 charter/headboat permits for snapper grouper, and many of these vessels are docked on Tybee Island. Residents of the area around the city of Brunswick, including Jekyll Island and Sea Island, held four snapper grouper charter/headboat permits. Interestingly, unlike the cities profiled in the Carolinas, the number of federally permitted for-hire vessels has declined dramatically. From 2003 to 2004, the number of snapper grouper permitted for hire vessels declined from 43 to 27 (NMFS 2004). The cause of this decline is unknown.

3.7.3.3 Florida

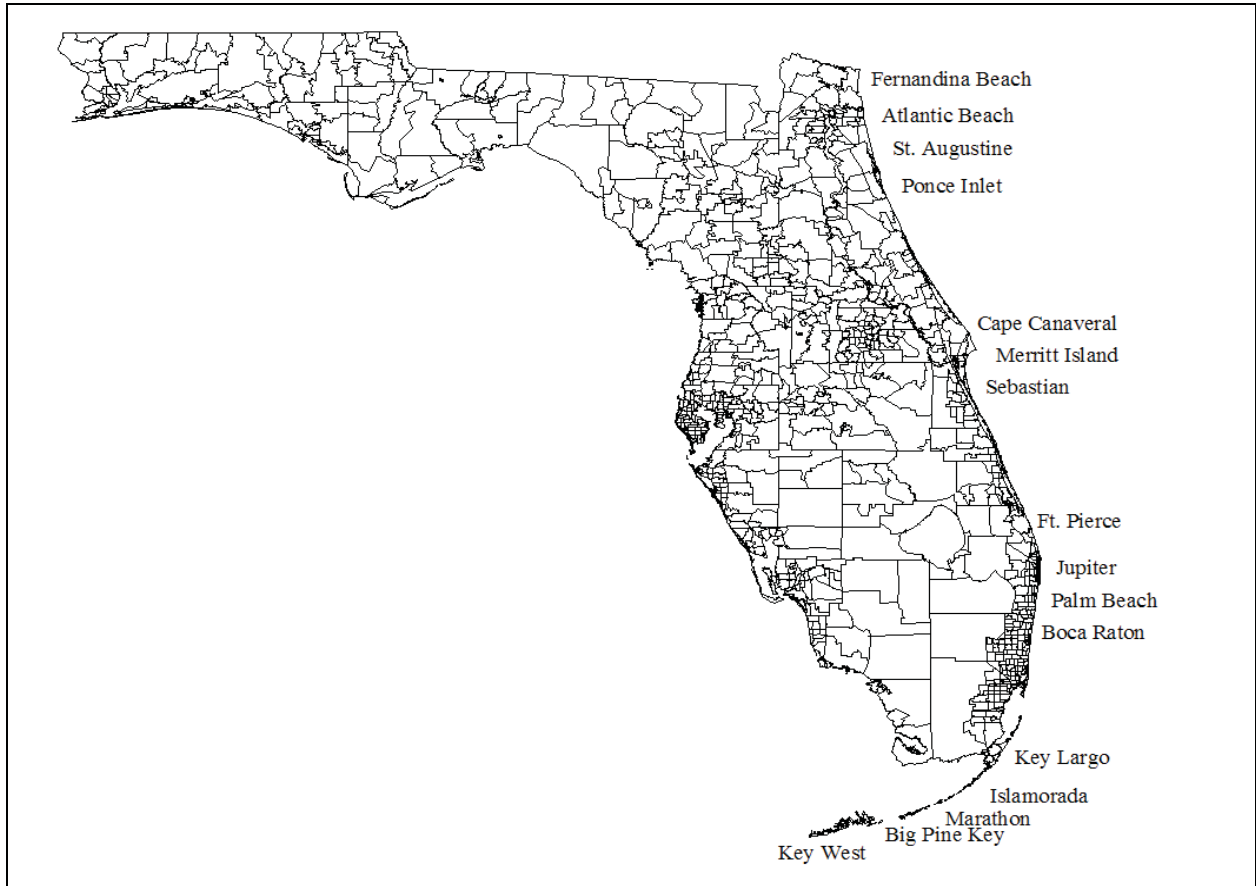


Figure 3-26. Florida communities with substantial fishing activity. Identified by South Atlantic Advisory Panels.

Source: Jepson et al. (2005).

Overview

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

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

the creation of both the Florida Keys National Marine Sanctuary and the Tortugas Sanctuary, both in the Keys.

The natural geography of Florida also sets it apart from other South Atlantic states, particularly in the area from central Florida through the Keys. The weather is amenable to fishing almost year round, though hurricanes in 2004 were particularly devastating and took a toll on all fisheries in the state, both east and west coast. There was also a cold water event that started near West Palm Beach in 2003, which moved up the east coast causing a substantial decline in snapper grouper fishing that year. The continental shelf is much narrower in Florida than elsewhere in the region, allowing fishermen to access deep waters quickly and return the same day. Finally, the species of snapper grouper available to fishermen in southern Florida are different than further north, with yellowtail snapper, gag and black grouper, and other alternative species such as stone crab, spiny lobster, dolphin, kingfish, and billfish allow a greater variety of both commercial and recreational fishing opportunities. These fisheries are important to many Florida communities identified by the Snapper grouper Advisory Panel as shown in **Figure 3-26**.

Commercial Sector

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

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

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

	Location	Pounds	Location	Pounds	Location	Pounds
Gag	Mayport	319,605	Cocoa	265,628	Jacksonville Beach	220,562
Vermillion Snapper	Mayport	833,254	St. Augustine	294,860	Atlantic Beach	124,688
Black Sea Bass	Jacksonville	6,765	Fernandina Beach	6,541	Mayport	5,524
Snowy Grouper	Key West	269,315	Pt. Orange	195,872	Tavernier	114,877
Golden tilefish	Cocoa	1,109,657	Ft. Pierce	933,150	Pt. Orange	678,863
Red snapper	Mayport	173,390	St. Augustine	108,773	Jacksonville Beach	85,461
Black grouper	Key West	951,205	Key Largo	142,787	Summerland Key	142,634
Red grouper	Tavernier	86,261	Summerland Key	75,632	Miami	62,579

Warsaw grouper	Key West	22,781	Cocoa	3,525	Tavernier	2,110
Speckled hind	Key west	77,614	Cocoa	2,528	Tavernier	847

Source: Logbook data, SEFSC 2009.

Recreational Sector

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

Canaveral, Brevard County

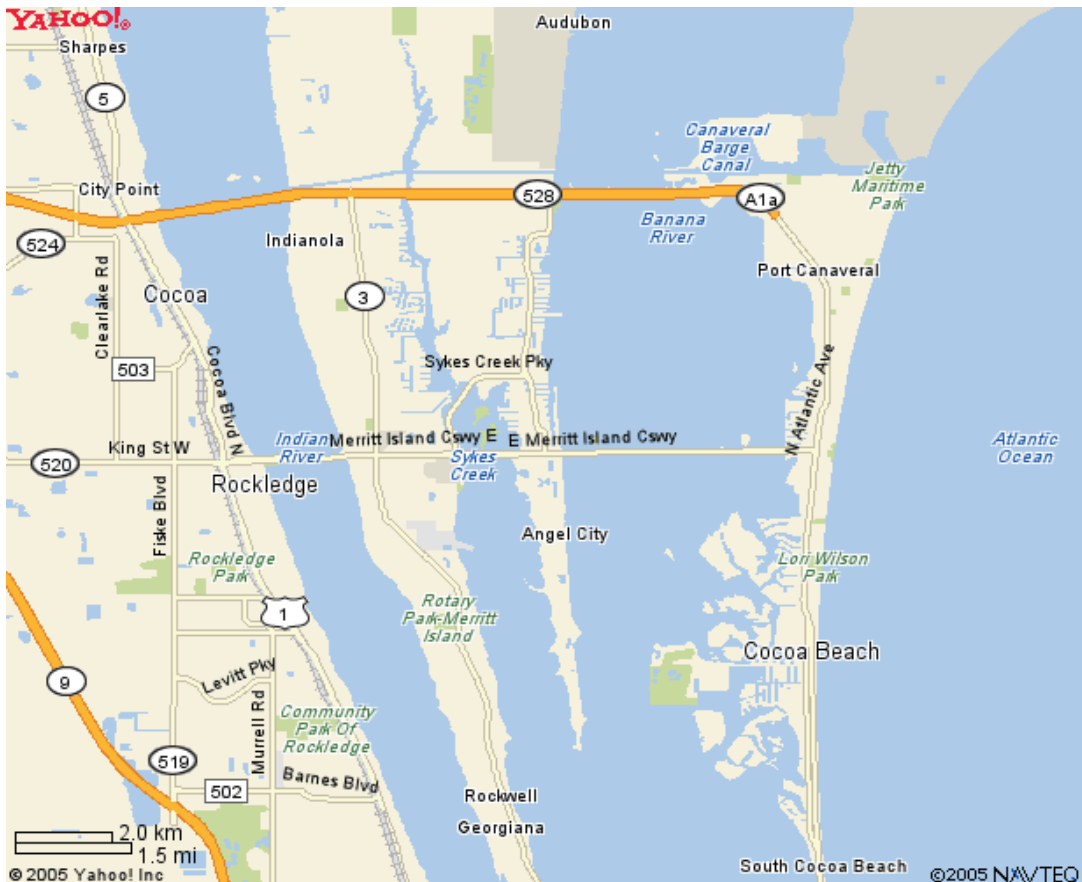


Figure 3-27. Area map of Cape Canaveral, Florida.

Source: Yahoo Maps, [://www.yahoo.com](http://www.yahoo.com).

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

Overview

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

Fisheries in central Florida generally operate in two different environments, inshore river or inlet fishing with associated lagoons, which primarily attracts recreational fishing, and offshore areas, where commercial fishing primarily occurs. Popular inshore areas include the Indian, St. Johns, and Banana Rivers and associated lagoons. Commercial exploitation of the rivers and lagoons declined after implementation of the Florida Net Ban of 1994.

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

Commercial Fishing

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

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

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

Recreational Fishing

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

As in other coastal areas of Florida, there is a fairly heavy presence in Brevard County of charter boat businesses, private marinas, and other associated businesses catering to the recreational fishing sector. The number of federally permitted charter/headboat vessels in Cape Canaveral increased from zero to seven from 1999 to 2004. According to Holland *et al.* (1999), there were approximately 32 charter boats and 2 headboats in the Canaveral/Melbourne area. Current estimates from permit files show at least 38 for-hire vessels with Snapper grouper permits homeported in Cape Canaveral or Port Canaveral, which includes approximate four headboats. That is likely a low estimate for total the total number of for-hire vessels in the area since it does not include vessels in the nearby Merritt Island and in the Cocoa/Cocoa Beach areas.

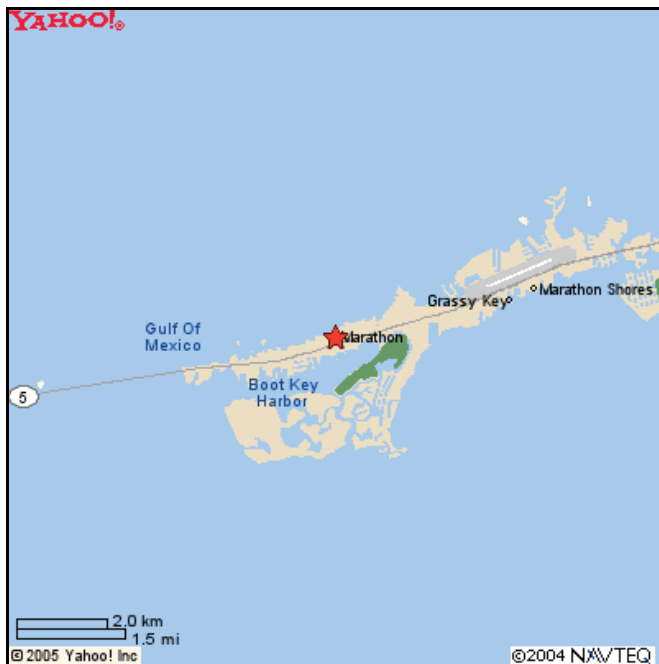


Figure 3-28. Marathon, Florida.

Source: Yahoo Maps, [://www.yahoo.com](http://www.yahoo.com).

Monroe County

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

Overview

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

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

Commercial Fishing

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

Recreational Fishing

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

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

4 Environmental Consequences

4.1 Action 1: Extend snapper grouper FMU

Alternative 1 (No Action). Do not change the current management boundaries of the snapper grouper FMU.

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

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

4.1.1 Biological Effects

The Reauthorized Magnuson-Stevens Fishery Conservation and Management Act requires the fishery management councils to set management measures to ensure total mortality (fish that are retained and mortality of fish that are discarded) is less than or equal to the annual catch limit. Available data do not support separate stocks in the Mid-Atlantic and New England Council's jurisdiction except for black sea bass, golden tilefish, and scup. Assessments

conducted through the Southeast Data Assessment and Review (SEDAR) process include data from the Mid-Atlantic and New England areas. Alternatives are shown in **Figure 4-1**.

Historically, catches of groupers and blueline tilefish have been restricted to areas from North Carolina to Florida along the east coast of the United States. Anglers fishing in deeper waters off Virginia have recently encountered blueline tilefish and snowy grouper in harvestable numbers. In 2007, the Virginia Saltwater Fishing Tournament added blueline tilefish, golden tilefish, and snowy grouper to its list of species eligible for state record recognition. In 2007, state records were set and broken for all three species (the blueline tilefish and snowy grouper also qualified as IGFA records), and anglers registered 164 blueline tilefish ([://www.dnr.state.md.us/fisheries/coastal/mtgs/101309/101309CFACpresentation.](http://www.dnr.state.md.us/fisheries/coastal/mtgs/101309/101309CFACpresentation.)). This information suggests blueline tilefish and snowy grouper are important components of the fisheries off Virginia and warrant appropriate management.

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

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

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

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

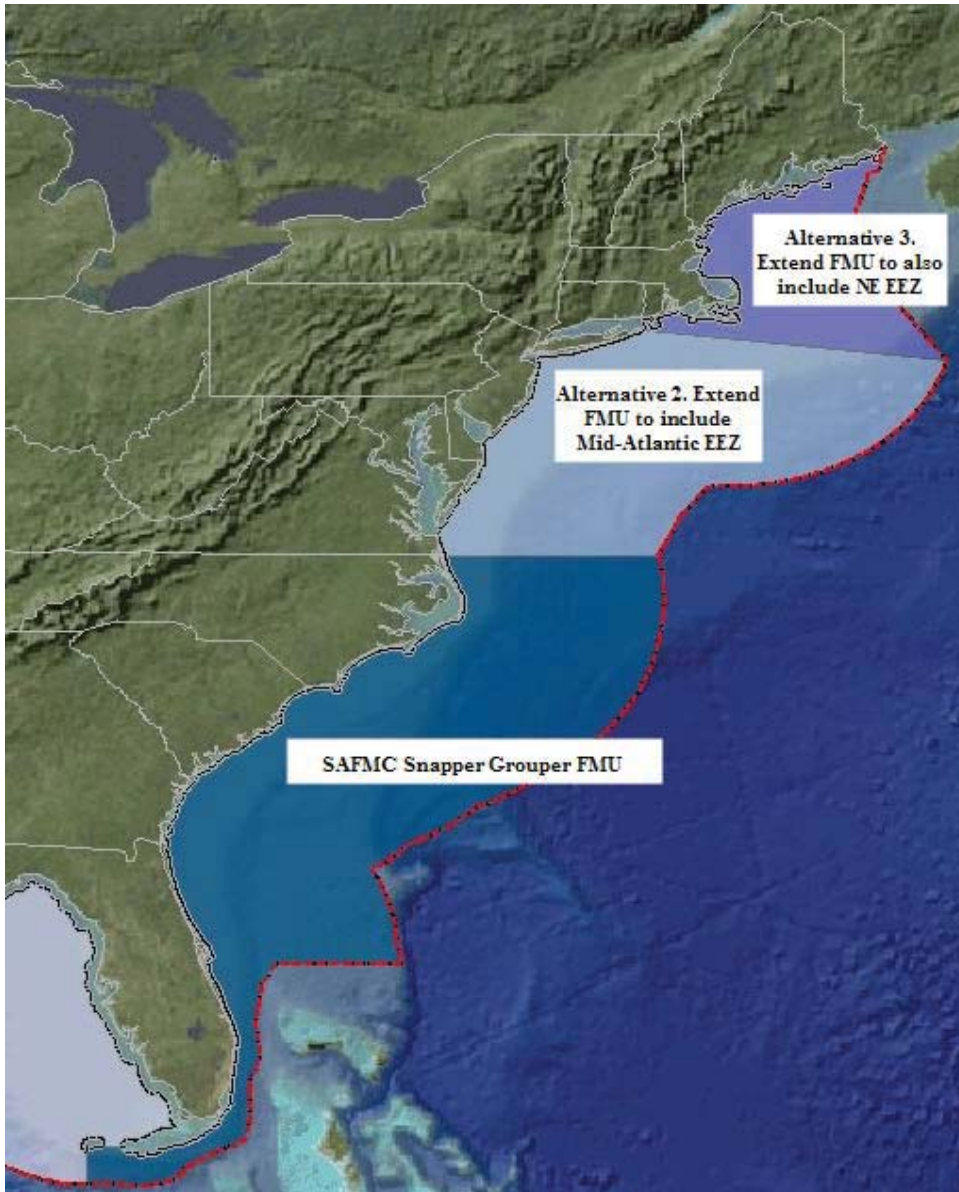


Figure 4-1. Fishery Management Unit (FMU) alternatives.
 Source: Roger Pugliese.

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

Alternative 1 (No Action) would maintain the current management boundaries for species in the snapper grouper fishery management unit (FMU). Currently, a number of snapper grouper species are landed in the Mid-Atlantic region by commercial and recreational fishermen (**Tables 4-2 and 4-3**). The low level of snapper grouper landings in the Mid-Atlantic and New England regions and information from available sources (**Tables 4-2 and 4-3**) suggests the

Mid-Atlantic and New England represent the northern part of the ranges for some of the snapper grouper species. It should be noted however that the Marine Recreational Fishery Statistical Survey uses dockside intercepts and phone interviews to estimate the catch rate of recreational fisheries. Recreational harvest is lower for certain species in the snapper grouper fishery management unit (FMU) caught in deeper water (e.g., snowy grouper and golden tilefish) compared to other species. As a result, sampling error is high for these species and there may be an underestimation or overestimation of the recreational harvest.

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

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

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

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

Year	Species	Pounds	PSE
2004	Gray Triggerfish	66,978	25.5
2004	Sheepshead	8,448	0
2004	Atlantic Spadefish	298,128	36.1
2005	Gray Triggerfish	182,038	40.4
2005	Sheepshead	121,233	74.6
2005	Atlantic Spadefish	314,147	38.1
2006	Gray Triggerfish	15,247	52.5
2006	Sheepshead	101,689	58.7
2006	Atlantic Spadefish	505,720	38.3

2007	Gray Triggerfish	140,041	20.2
2007	Sheepshead	17,782	36.8
2007	Atlantic Spadefish	757,900	15.9
2007	Blueline tilefish	4,220	78.8

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

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

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

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

Year	Species	Metric Tons	Pounds
2004	AMBERJACK	0.3	679
2004	GROUPE, SNOWY	0	70
2004	JACK, CREVALLE	0	65
2004	RUNNER, BLUE	0	26
2004	SHEEPSHEAD	0	33
2004	SNAPPER, RED	0.1	164
2004	SNAPPERS	1.1	2,397
2004	TILEFISH, BLUELINE	1.3	2,961
2004	TILEFISH, SAND	0	22
2004	TILEFISHES	1.1	2,337
2004	WRECKFISH	0	25
2005	AMBERJACK	0.1	148
2005	SHEEPSHEAD	0.1	114
2005	SPADEFISHES	0.1	139
2005	TILEFISH, SAND	0.3	559
2005	TILEFISHES	0	2
2006	SHEEPSHEAD	0.3	601
2006	SPADEFISHES	0	34
2006	TILEFISH, SAND	0.7	1,500
2006	TILEFISHES	0	13

Year	Species	Metric Tons	Pounds
2007	AMBERJACK	0	3
2007	GROUPEL, YELLOWEDGE	0.2	421
2007	JACK, CREVALLE	0	9
2007	RUNNER, BLUE	0	15
2007	SHEEPSHEAD	0.2	392
2007	SNAPPER, RED	0.1	235
2007	SNAPPERS	1.6	3,470
2007	TILEFISH, SAND	0.4	880
2007	WRECKFISH	0	29

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

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

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

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

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

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

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

If the Council chooses **Alternative 2 or Preferred Alternative 3**, then Essential Fish Habitat (EFH) would need to be specified for the areas north of North Carolina (see **Action 4**).

Alternative 1 (No Action) will likely perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. **Alternative 2 and Preferred Alternative 3** will not affect *Acropora* species or smalltooth sawfish because they do not occur in the Mid-Atlantic or Northeast regions. The impacts from **Alternative 2 and Preferred Alternative 3** on sea turtles is unclear. If they perpetuate the existing amount of fishing effort, but cause effort redistribution, any effort shift is unlikely to change the level of interaction between sea turtles and the fishery as a whole. If the expansion of the FMU causes new effort to occur in the fishery, the previously anticipated level of interaction between the fishery and sea turtles may no longer be accurate. Additionally, the endangered Atlantic salmon occurs in the Northeast region. Previous analyses of the potential impacts from snapper grouper fishing on protected species were confined to the South Atlantic and did not evaluate the potential affects to Atlantic salmon. Until an effects analysis is completed, the potential impact of **Alternative 2 and Preferred Alternative 3** on Atlantic salmon is unclear.

4.1.2 Economic Effects

Alternative 1 (No Action) maintains current management boundaries in the snapper grouper FMU. As mentioned above, increased fishing pressure could occur on overfished species like snowy grouper and red snapper. This could have negative long-term economic impacts on commercial fishermen in the South Atlantic. With the possibility of the northern movement of species, increased fishing pressure in areas north of the South Atlantic Council's jurisdiction could prevent the timely adherence to rebuilding schedules for overfished species. This would result in longer rebuilding periods and put off landings that would otherwise be made by South Atlantic fishermen.

Alternative 2 would extend the management boundaries for all species in the snapper grouper FMU northward to include the Mid-Atlantic Council's jurisdiction (except for black sea bass, golden tilefish, and scup). Such action would likely curb landings of snapper grouper species off of Mid-Atlantic states (but not the New England states) and result in positive economic benefits to South Atlantic fishermen compared to the **No Action** alternative. **Alternative 2** would contribute to rebuilding schedules being met in a timely manner which would in turn lead to higher landings than those that would occur under **Alternative 1**. Because it is unknown what regulations would be implemented by the Mid-Atlantic Council to ensure adherence to an allocation under **Alternative 2**, it is not possible to estimate the economic impacts from implementation of **Alternative 2** to Mid-Atlantic fishermen.

Preferred Alternative 3 would extend the management boundaries for all species in the snapper grouper FMU northward to include the Mid-Atlantic and New England Councils' jurisdiction (except for black sea bass, golden tilefish, and scup). This action would result in positive long-term economic benefits due to the larger management jurisdiction. **Preferred Alternative 3** would have greater long-term economic benefits compared to **Alternative 2** because a larger area is covered. Again, similar to above, because it is unknown what regulations would be implemented by the Mid-Atlantic Council to ensure adherence to an allocation under **Preferred Alternative 3**, it is not possible to estimate the economic impacts from implementation of **Preferred Alternative 3** to Mid-Atlantic and New England fishermen.

Under **Alternative 2** and **Preferred Alternative 3**, the Mid-Atlantic and New England Councils would determine if and how permits would be distributed to fishermen fishing for South Atlantic species. Since those decisions has not yet been made, it is not possible to estimate economic effects associated with permit distribution.

Non-use values, like value of biodiversity of species and existence value, associated with alternatives are highest under **Preferred Alternative 3** because this alternative offers the greatest level of protection given the larger area covered. Non-use values are lowest under **Alternative 1 (No Action)** because it poses the greatest risk to rebuilding stock levels.

4.1.3 Social Effects

Regulatory change in general may cause some of the following direct and indirect consequences: increased crew and dockside worker turnover; displacement of social or ethnic groups; increased time at sea (potentially leading to increased risk to the safety of life and boat); decreased access to recreational activities; demographic population shifts (such as the entrance of migrant populations replacing or filling a market niche); displacement and relocation as a result of loss of income and the ability to afford to live in coastal communities; increased efforts from outside the fishery to affect fishing related activities; changes in household income source; business failure; declining health and social welfare; and increased gentrification of coastal communities as fishery participants are unable to generate sufficient revenue to remain in the community. Ultimately, one of the most important measurements of social change is how these social forces, in coordination with the strategies developed and employed by local fishermen to adapt to the regulatory changes, combine to affect the local fishery, fishing activities and methods, and the community as a whole.

Additional indirect effect of fisheries management on the fishing community and related sectors includes increased confusion and differences between the community and the management sector in levels of understanding and agreement on what is best for both the resource and the community. The fact that “the science” can cause relatively large reductions in harvests is particularly disconcerting to many fishermen and concerned stakeholders. This can induce enforcement problems associated with compliance with current and future regulations, which can lead to inefficient use of resources, ineffectual regulations, and failure to meet management targets, which may precipitate additional restrictions.

Alternative 1 (No Action) would allow the continuation of all current and customary fishing behavior and, as a result, would not be expected to result in any short-term change in social benefits to fishermen, associated business, and communities. However, because stock assessments and resultant allowable harvest levels must incorporate consideration of harvest activity and biological condition throughout the range of the species, continued or increasing unregulated harvest by entities outside the South Atlantic’s jurisdiction may result in greater harvest restrictions on South Atlantic entities than would be necessary if management were extended to northern areas where the resource is also harvested, resulting in long-term reductions in social and economic benefits to entities in the South Atlantic states.

Under **Alternative 2** and **Alternative 3 (Preferred)**, although the South Atlantic Council would specify the portion of the ACL/ACT for each species and/or fishery that will be allocated to the respective northern areas, harvest or other restrictions to limit total mortality in these areas would be up to the respective regional councils. The overall historic landings by both the recreational and commercial sectors of these species are low (see Sections 3.6.1 and 3.6.2), so minimal adverse social effects on these sectors would be expected as a result of extension of the FMU, even if outright closure of northern waters (zero allocations) to reserve resource benefits for fishermen and associated businesses in the South Atlantic were to occur, though equity issues would likely be raised.

Imposition of South Atlantic permit requirements would be expected to impose substantial permit-cost effects and associated loss of social and economic benefits on fishermen in the northern states who wish to continue to harvest the snapper grouper species covered by this action. The South Atlantic two-for-one permit requirement, coupled with the high cost of these permits (on August 4, 2009, a single permit was advertised for sale on an internet billboard ([://marinersguide.com/dockswap/southatlantic/messages/6287](http://marinersguide.com/dockswap/southatlantic/messages/6287).) for \$13,000, while previous prices have been estimated to range from \$9,000-\$21,000 each (SAFMC 2008b)), and the low amount of recorded landings of snapper grouper species in the northern areas, suggests that it is unlikely any commercial fisherman could justify acquiring the necessary permits. As a result, all northern commercial fishermen who traditionally have harvested these species would be expected to experience declines in revenues, declines in associated social benefits, and associated businesses and communities would be expected to experience similar reductions in social and economic benefits.

Beyond specification of the portion of the ACL/ACT that would be allocated to the respective northern areas, the absence of harvest management by the South Atlantic Council could result in ineffective harvest management in the northern areas. If harvests are ineffectively controlled in these northern areas, the overall health of these respective species could be harmed, resulting in more restrictive management of these species throughout their range, with associated reductions in social and economic benefits. Even an allocation of zero pounds would have no direct effect on controlling harvests, which would only be controlled by action by the Mid-Atlantic and New England Councils, as appropriate. As a result, both **Alternative 2** and **Alternative 3 (Preferred)** could result in benefit transfer from South Atlantic fishermen to fishermen in the northern states. While this condition also currently exists under the status quo and would continue under **Alternative 1 (No Action)**, neither **Alternative 2** nor **Alternative 3 (Preferred)** are sufficient to address this possibility.

In general, any associated increase or decrease in benefits would be expected to vary with the magnitude of the extension of jurisdiction, with **Alternative 3 (Preferred)** extending jurisdiction to a larger area than **Alternative 2**; the larger the area, the greater the potential resource protection and long-term social and economic benefits. However, the larger the area, the greater the amount of allocation of the ACL/ACT that could be reserved for that area, thereby reducing the harvests and benefits to fishermen and associated communities in the South Atlantic. The vast majority of effort and harvests for the snapper grouper species included in this action occurs in Mid-Atlantic waters, so the majority of effects, either positive or negative, would be expected to accrue to extension of jurisdiction to the Mid-Atlantic (**Alternative 2**), with only marginal additional effects accruing to extension through New England (**Alternative 3 (Preferred)**).

4.1.4 Administrative Effects

The **Alternative 1 (No Action)** would not change the current FMU boundaries, and the expansion of a fishery for snapper grouper northward would not be addressed. Under this alternative, concern about the potential of large catches of blueline tilefish and groupers north of the current FMU area would persist, and catch limits imposed by the VMRC would remain the only management strategies for tilefish and grouper off the coast of Virginia.

Preferred Alternative 3 would incur the same administrative impacts as those described under **Alternative 2**; however, they would exist to a slightly higher degree since the area affected would be substantially larger. Administrative impacts related to permitting and implementing management measures would need to be addressed if **Alternative 2** or **Preferred Alternative 3** are implemented. **Action 2** and **Action 3** contain an analysis of the administrative impacts of **Alternative 2** and **Preferred Alternative 3**.

4.1.5 Council's Conclusions

NOTE: The IPT recommends splitting Action 1 into three actions to allow the Council to better address the permitting and specification of management measures in the Northern extension. The following is a summary of the IPT's suggestion:

Action 1: Extend snapper grouper FMU northward

Alternative 1 (No Action). Do not change the current management boundaries of the snapper grouper FMU.

Alternative 2. Extend the management boundaries for all species in the Snapper grouper FMU northward to include the Mid-Atlantic Council's jurisdiction (except for black sea bass, golden tilefish, and scup).

Preferred Alternative 3. Extend the management boundaries for all species in the Snapper grouper FMU northward to include the Mid-Atlantic and New England Council's jurisdiction (except for black sea bass, golden tilefish, and scup).

Action 2: Permit requirement for Northern Extension

(Action 2 is relevant if Alternative 2 or Alternative 3 is selected as preferred in Action 1.)

Alternative 1. No Action. Current snapper grouper commercial (two-for-one) permit requirements would apply in the Northern extension.

Alternative 2. Do not require commercial snapper grouper permit in the Northern extension. (SA regulations would need to be revised to provide an exemption to the current permit requirement in the Northern area.)

Alternative 3. Create a new commercial snapper grouper permit for the Northern extension. This permit would be issued by the Southeast Regional office but apply to fishermen in the Northern extension only.

4.2.1 Biological Impacts

4.2.2 Economic Impacts

While there are not likely to be any economic impacts to South Atlantic fishermen from any of the alternatives under Action 2, there are likely to be negative impacts to Mid-Atlantic and New England fishermen interested in fishing for commercial snapper grouper species under **Alternatives 1 and 3**, because the additional permits would likely incur additional expenses for fishermen. **Alternative 3** would likely be less burdensome than **Alternative 1** because **Alternative 3** is not likely to include a two-for-one permit requirement. **Alternative 2** would not incur any additional expenses to Mid-Atlantic and New England fishermen unless the Councils implemented a permit that fishermen were required to purchase. However, it is unknown whether a permit will be issued in the future by either of the northern Councils and therefore, this cannot be analyzed further at this time.

4.2.3 Social Impacts

4.2.4 Administrative Impacts

Alternative 1, no action, would require that the current South Atlantic snapper grouper permit would be required in the Northern extension area. Fishermen fishing in the northern extension (which will be described through Action 1) would be required to comply with the current 2-for-1 snapper grouper permit requirement. Administratively, there is expected to be an increase in the number of permits the permits office must track, but it is not expected to increase the administrative burden significantly. **Alternative 2** would not require a permit in the Northern extension area (as defined under Action 1) and would require regulatory changes in the South Atlantic regulations to provide for an exemption on permit requirements in the Northern area. **Alternative 2** may cause some issues with enforcement of the snapper grouper permit requirement as it may provide a loophole for fishermen to avoid the purchase of a 2-for-1 snapper grouper permit. **Alternative 3** would be the most administratively burdensome alternative in that the permits office would be required to issue a new permit for the Northern extension. This new permit would require compliance with the Paperwork Reduction Act and would require staff time for the development of the permit database, the permit itself, and outreach and education regarding the new permit. Depending on the extent of the Northern extension, (described in Action 1), the number of new permits could increase. However, the number of vessel owners seeking a South Atlantic snapper grouper permit in the northeast region is not likely to be significant due to climactic conditions, which make New England waters largely unsuitable for prolific snapper grouper populations. **Alternatives 1-3** will increase the administrative an enforcement burden due to the creation of new permits and the enforcement of the permit requirement in the Northern extension.

4.2.5 Council's Conclusions

4.3 Action 3: Protocol for specification of management measures

Alternative 1. No action. Do not establish a protocol to implement management measures in the Northern extension.

Alternative 2. SAFMC will specify management measures to limit total mortality to the ACL/ACT specified for the entire South Atlantic jurisdiction, including the proposed Northern expansion.

Alternative 3. SAFMC will specify management measures to limit total mortality to the ACL/ACT specified for the entire South Atlantic jurisdiction, including the proposed Northern expansion, based on recommendations from the MAFMC and NEFMC for their respective regions.

Alternative 4. MAFMC will specify management measures to limit total mortality to the ACL/ACT specified for the MAFMC region.

Alternative 5. NEFMC will specify management measures to limit total mortality to the ACL/ACT specified for the NEFMC region.

4.3.1 Biological Impacts

4.3.2 Economic Impacts

There are not likely to be any economic impacts from Alternatives 1-5. As long as appropriate management measures are implemented to maintain adherence to the ACL/ACTs specified for the MAFMC and MEFMC regions, economic benefits will accrue to all fishermen and the Nation. Specification of a protocol for implementing the management measures has no expected economic impact.

4.3.3 Social Impacts

4.3.4 Administrative Impacts

4.3.5 Council's Conclusions

4.4 Action 2: Designate Essential Fish Habitat (EFH) for Snapper grouper in Northern Extension Area

Note: Action is only relevant if the Council selects as preferred Alternative 2 or 3 under Action 1.

Snapper Grouper Amendment 18 is proposing designation of Essential Fish Habitat (EFH) for species in the Snapper Grouper Complex which occur in the Mid-Atlantic and New England regions. Thirty-six snapper grouper species are identified to occur in the Northern extension area and thus will require EFH designations.

With the proposed extension of the Snapper Grouper Management unit through the Mid-Atlantic and New England regions, the Council is required to evaluate designation of EFH for the managed species that occur in the extended area. Preliminary evaluation of landings

statistics and detailed information presented in the Councils' Fishery Ecosystem Plan (SAFMC 2009b).

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

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

Preferred Alternative 3. Designate EFH for snapper grouper species in the Northern extension using the MAFMC and NEFMC designations as proxies, where appropriate.

Essential Fish Habitat is defined in the Magnuson-Stevens Act as “all waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity”. Regional Fishery Management Councils are directed to describe and identify EFH for each federally managed species, attempt to minimize the extent of adverse effects on habitat caused by fishing and non-fishing activities, and identify actions to encourage conservation and enhancement of those habitats. It is required that EFH be based on the best available scientific information.

The definition for EFH may include habitat for an individual species or an assemblage of species, whichever is appropriate within each FMP. For the purpose of interpreting the definition of EFH: “waters” includes aquatic areas and their associated physical, chemical, and biological properties that are utilized by fish. When appropriate this may include areas used historically. Water quality, including but not limited to nutrient levels, oxygen concentration, and turbidity levels is also considered to be a component of this definition. Examples of “waters” that may be considered EFH, include open waters, wetlands, estuarine habitats, riverine habitats, and wetlands hydrologically connected to productive water bodies.

“Necessary”, relative to the definition of EFH, means the habitat required to support a sustainable fishery and a healthy ecosystem, while “spawning, breeding, feeding, or growth to maturity” covers a species full life cycle. In the context of this definition the term “substrate” includes sediment, hardbottom, structures underlying the waters, and associated biological communities. These communities could encompass mangroves, tidal marshes, mussel beds, cobble with attached fauna, mud and clay burrows, coral reefs, and submerged aquatic vegetation. Migratory routes such as rivers and passes serving as passageways to and from anadromous fish spawning grounds should also be considered EFH. Included in the interpretation of “substrate” are artificial reefs and shipwrecks (if providing EFH), and partially or entirely submerged structures such as jetties.

The NOAA Fisheries Service assists the Councils in implementing EFH by assessing the quality of available data in a four-level system:

- Level 1: species distribution data for all or part of its geographic range;
- Level 2: data on habitat-related densities or relative abundance of the species;
- Level 3: data on growth, reproduction, and survival rates within habitats; and
- Level 4: production rates by habitat.

The Final EFH Rule requires FMPs to include maps that display, within the constraints of available information, the geographic locations of EFH or the geographic boundaries within which EFH for each species and life stage is found. Maps should identify the different types of habitat designated as EFH to the extent possible. Maps should explicitly distinguish EFH from non-EFH areas and should be incorporated into a geographic information system (GIS) to facilitate analysis and presentation. While GIS, in combination with models that examine habitat requirements, can be used as a tool for designating EFH, data availability do not support such use at this time for the South Atlantic. Instead, the best use of GIS within the South Atlantic is visualizing where EFH occurs within the constraints of available information.

Mapping efforts require accuracy standards for location and thematic content as well as designation of minimum mapping units (i.e., the smallest area that the map will depict for a thematic category, such as seagrass). Mapping standards for EFH have not yet been set. While technological improvements within the surveying and remote sensing communities are rapidly increasing location and thematic accuracy, designation of minimum mapping units for EFH has not progressed similarly since enactment of the EFH Final Rule. Within the South Atlantic, especially for estuaries, the data available for mapping the locations of EFH are not at a geographic scale suitable for use in most EFH consultations. For example, data on the location of salt marshes that have a minimum mapping unit of one acre usually will not show fringe marshes, which are the subject of many EFH consultations. As additional information becomes available, it is advisable to develop minimum mapping units for the specific habitat types that are designated as EFH. These standards also might be tiered to account for geographic realm (e.g., riverine, estuarine, coastal, and offshore areas), life stages, data rich versus data poor species, and number of species within a FMP.

Species managed by the Mid-Atlantic FMC which have EFH designated and cover major habitats used by other species in the snapper grouper complex include black sea bass, scup and tilefish. This alternative proposes to designate EFH for snapper grouper species in the Northern extension by using black sea bass, scup, and golden tilefish as proxies, where appropriate.

EFH for Black Sea Bass (*Centropristis striata*), Tilefish (*Lopholatilus chamaeleonticeps*), and Scup (*Stenotomus chrysops*) has been designated by the MAFMC and these designations may be used as proxies for EFH designation for snapper grouper species in the Northern extension. Table 4-22 summarizes the EFH designation for these species. For detailed descriptions on these EFH designations, refer to [Appendix XX](#).

Table 4-22 Summary of Current EFH for Black Sea Bass, Scup and Golden Tilefish designated by the MAFMC				
Species	EFH at Life History Stage			
	<i>Egg</i>	<i>Larvae</i>	<i>Juveniles</i>	<i>Adults</i>
Black Sea Bass	<ul style="list-style-type: none"> • Estuaries • Continental Shelf (May –October) 	<ul style="list-style-type: none"> • Marine part of estuaries between Virginia and New York • Pelagic waters of 	<ul style="list-style-type: none"> • Demersal waters over the Continental Shelf (Gulf of Maine to Cape Hatteras, NC) 	<ul style="list-style-type: none"> • Demersal waters over the Continental Shelf (Gulf of Maine to Cape Hatteras, NC)

		<p>EEZ from Gulf of Maine to Cape Hatteras, NC</p> <ul style="list-style-type: none"> • Structured inshore habitat (at demersal stage) 	<ul style="list-style-type: none"> • Estuaries from VA to MA (May-October), NJ (November-April) • Rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas; offshore clam beds and shell patches 	<ul style="list-style-type: none"> • Estuaries from VA to MA (May-October), NJ (November-April) • Structured habitats (natural and man-made), sand and shell are usually the substrate preference.
Tilefish	<ul style="list-style-type: none"> • Water column between the 250 and 1200 foot isobath, from U.S. / Canadian boundary to the Virginia / North Carolina boundary • Generally found in water temperatures from 46 - 66F 	<ul style="list-style-type: none"> • Water column between the 250 and 1200 foot isobath, from U.S. / Canadian boundary to the Virginia / North Carolina boundary • Generally found in water temperatures from 46 - 66F 	<ul style="list-style-type: none"> • Water column between the 250 and 1200 foot isobath, from U.S. / Canadian boundary to the Virginia / North Carolina boundary • Generally found in water temperatures from 46 - 66F 	<ul style="list-style-type: none"> • Water column between the 250 and 1200 foot isobath, from U.S. / Canadian boundary to the Virginia / North Carolina boundary • Generally found in water temperatures from 46 - 66F
Scup	<ul style="list-style-type: none"> • Southern New England to coastal Virginia (May through August) • Waters between 55 and 73 and salinities greater than 15 ppt. 	<ul style="list-style-type: none"> • Southern New England to coastal Virginia (May through August) • Waters between 55 and 73 and salinities greater than 15 ppt. 	<ul style="list-style-type: none"> • Demersal waters over the Continental Shelf (Gulf of Maine to Cape Hatteras, NC) • Estuaries and bays between Virginia and Massachusetts (summer), • Various sands, mud, mussel and eelgrass bed type substrates • Water temperatures greater than 45 and salinities greater than 15 ppt. 	<ul style="list-style-type: none"> • Demersal waters over the Continental Shelf (Gulf of Maine to Cape Hatteras, NC) • Estuaries and bays between Virginia and Massachusetts (summer), • Wintering adults (November through April) are usually offshore, south of New York to North Carolina, in waters above 45 .

Table 4-23 identifies 36 species in the South Atlantic Snapper Grouper Complex as occurring at some life stage in the area proposed for extension based on life history information and/or

landings data . **Table 4-23** also identifies the proposed proxy designations for each of these species at each life stage. In some cases, a proxy cannot be identified for a species or a specific life stage. Those species are labeled with NSP (No Suitable Proxy) and require more information before a suitable proxy can be designated. Detailed descriptions of species distribution and life history information are available in the FEP and are summarized below.

Table 4-23. Species in the South Atlantic Snapper Complex identified in the FEP or through landings data as occurring in the Mid-Atlantic or Northeast region habitat used and possible proxy species for designation of EFH.

Species	Species Range	Habitat Requirement	Proposed EFH Proxy Designation at Life Stage
Gag <i>Mycteroperca microlepis</i>	Occurs in the Western Atlantic, from North Carolina to Key West, in the Gulf of Mexico, and in the southern portion of the Caribbean Sea. Juveniles are sometimes encountered as far north as Massachusetts.	<ul style="list-style-type: none"> • Depth range is 39-152 m (131-498 ft) • Juveniles found in estuarine and shallow coastal waters. 	Eggs: NSP Larvae: NSP Juveniles Black Sea Bass Adults: Black Sea Bass
Red Grouper <i>Epinephelus morio</i>	Distributed in the Western Atlantic, from North Carolina to southeastern Brazil, including the eastern Gulf of Mexico and Bermuda, but can occasionally be found as far north as Massachusetts	<ul style="list-style-type: none"> • Mostly found in broad shelf areas with adults occasionally being found as far north as Massachusetts • Occurs over flat rock perforated with solution holes, in the caverns and crevices of limestone reef and over rocky reef bottom. 	Eggs: NSP Larvae: NSP Juveniles: NSP Adults: Black Sea Bass
Scamp <i>Mycteroperca phenax</i>	Occurs in the Western Atlantic, from North Carolina to Key West, in the Gulf of Mexico, and in the southern portion of the Caribbean Sea. Juveniles are sometimes encountered as far north as Massachusetts.	<ul style="list-style-type: none"> • Depth range is 30-100 m (98-328 ft) • Juveniles found in estuarine and shallow coastal waters. 	Eggs: NSP Larvae: NSP Juveniles Black Sea Bass Adults: Black Sea Bass
Rock Hind <i>Epinephelus adscensionis</i>	Western Atlantic from Massachusetts to southern Brazil, Bermuda, the Gulf of Mexico, and the Caribbean	• Demersal species, inhabiting rocky reef habitat to depths of 120 m (394 ft)	Eggs: NSP Larvae: NSP Juveniles: Adults: Black Sea Bass
Snowy Grouper <i>Epinephelus niveatus</i>	Occur in the Western Atlantic from Massachusetts to southeastern Brazil, including the northern Gulf of Mexico Reported landings in VA	<ul style="list-style-type: none"> • Found at depths of 30-525 m (98-1,722 ft). • Juveniles are often observed inshore and occasionally in estuaries • Adults occur offshore over rocky bottom habitat. 	Eggs: NSP Larvae: NSP Juveniles: Adults: Tilefish
Yellowedge Grouper <i>Epinephelus flavolimbatus</i>	Occur primarily in the Western Atlantic from North Carolina to southern Brazil, including the Gulf of Mexico. However, landings of adults have occurred in the Mid-Atlantic.	<ul style="list-style-type: none"> • Occurs in rocky areas and on sand mud bottom, at depths ranging from 64 to 275 m (210 to 902 ft) • On soft bottom habitats, this fish is often seen in or near trenches or burrow-like excavations 	Eggs: NSP Larvae: NSP Juveniles: Adults: Tilefish
Warsaw Grouper <i>Epinephelus nigritus</i>	Occur in the Western Atlantic from Massachusetts to southeastern Brazil and in the Gulf of Mexico.	• Usually found on rocky ledges and seamounts at depths from 55 to 525 m (180-1,722 ft)	Eggs: NSP Larvae: NSP Juveniles: Adults: Tilefish

		<ul style="list-style-type: none"> Juveniles are sometimes observed in inshore waters on jetties and shallow reefs 	
Wreckfish <i>Polyprion americanus</i>	<p>Wreckfish occur in the Eastern and Western Atlantic Ocean, on the Mid-Atlantic Ridge, on Atlantic islands and seamounts, and in the Mediterranean Sea, southern Indian Ocean, and southwestern Pacific Ocean. In the western Atlantic, they occur from Grand Banks off Newfoundland to the Valdes Peninsula in Argentina.</p>	<p>Occur over complex bottom features in water depths of 450-600 m. Primary habitat include rocky ridge and trough features with a slope greater than 15°.</p>	<p>Eggs: NSP Larvae: NSP Juveniles: NSP Adults: NSP</p>
Yellowtail Snapper <i>Ocyurus chrysurus</i>	<p>Occurs in the Western Atlantic, ranging from Massachusetts to southeastern Brazil, including the Gulf of Mexico and Caribbean Sea.</p>	<ul style="list-style-type: none"> Inhabits waters as deep as 180 m (590 ft), and usually is found well above the bottom. Adults typically inhabit sandy areas near offshore reefs at depths ranging from 10 to 70 m (33-230 ft) being most abundant at depths of 20-40 m (66-131 ft) near the edges of shelves and banks and exhibit schooling behavior. 	<p>Eggs: NSP Larvae: NSP Juveniles: NSP Adults: NSP</p>
Mutton Snapper <i>Lutjanus analis</i>	<p>Found in the Western Atlantic from Massachusetts to southeastern Brazil, including the Caribbean Sea and the Gulf of Mexico.</p>	<ul style="list-style-type: none"> Mutton snapper can be found in depths of 25-95 m (82-312 ft). Juveniles generally occur closer to shore, over sandy, vegetated bottom habitats, while large adults are commonly found offshore among rocks and coral habitat. 	<p>Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass Adults: Black Sea Bass</p>
Cubera Snapper <i>Lutjanus cyanopterus</i>	<p>Occur in the Western Atlantic from Nova Scotia and Bermuda to Brazil.</p>	<ul style="list-style-type: none"> Adults are found mainly around ledges over rocky bottoms or around reefs, at depths of 18-55 m (59-180 ft). 	<p>Eggs: NSP Larvae: NSP Juveniles: Adults: Black Sea Bass</p>
Dog Snapper <i>Lutjanus jocu</i>	<p>Occur in the Western Atlantic from Massachusetts to northern Brazil, including the Gulf of Mexico and Caribbean.</p>	<ul style="list-style-type: none"> Found at depths of 5-30 m (16-98 ft). Adults are common around rocky or coral reefs. Young are found in estuaries, and occasionally enter rivers. 	<p>Eggs: NSP Larvae: NSP Juveniles: Adults: Black Sea Bass</p>
Schoolmaster <i>Lutjanus apodus</i>	<p>Are found in the Western Atlantic from Massachusetts to Trinidad and northern Brazil</p>	<ul style="list-style-type: none"> Found in shallow, clear, warm, coastal waters over coral reefs, from 2 to 63 m (7-207 ft) deep. Adults often seek shelter near elkhorn corals and gorgonians. Juveniles are encountered over sand bottoms with or without seagrass (<i>Thalassia</i>), and over muddy bottoms of lagoons or mangrove areas. Young sometimes enter brackish waters. 	<p>Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Black Sea Bass and Scup</p>
Red Porgy* <i>Pagrus pagrus</i>	<p>Occurs in the Western Atlantic from New York to Argentina, including the northern Gulf of Mexico.</p> <p>Landings of adults have been recorded by NMFS in the Mid-Atlantic region.</p>	<ul style="list-style-type: none"> Adults are found in deepwater near the continental shelf, over rock, rubble or sand bottoms, to depths as great as 280 m (918 ft) but most commonly captured at depths of 25-90 m (82-295 ft). Young occur in water as shallow as 18 m (59 ft). 	<p>Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Black Sea Bass and Scup</p>
Sheepshead <i>Archosargus probatocephalus</i>	<p>Occurs from Nova Scotia, Canada and northern Gulf of Mexico to</p>	<ul style="list-style-type: none"> Observed to depths as great as 15-24 m (49-80 ft). 	<p>Eggs: NSP Larvae: NSP</p>

	Brazil	<ul style="list-style-type: none"> • Inhabit bays and estuaries and are commonly found around pilings. • It freely enters brackish waters and is sometimes found in freshwater. 	Juveniles: Black Sea Bass Adults: Black Sea Bass
Jolthead Porgy <i>Calamus bajonado</i>	Occur in the Western Atlantic from Rhode Island and Bermuda, southward to Brazil, including the northern Gulf of Mexico.	<ul style="list-style-type: none"> • Inhabits coastal waters from 3 to more than 200 m (10–656 ft) in depth • Found on vegetated sand bottoms, but occurs more frequently on coral and hard bottom 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Black Sea Bass and Scup
White Grunt <i>Haemulon plumieri</i>	Occurs in the Atlantic Ocean from the Chesapeake Bay to southeastern Brazil, including the Bahamas, West Indies, eastern Gulf of Mexico, and the Central American coast	<ul style="list-style-type: none"> • A demersal fish distributed in coastal waters • Inhabits nearshore sponge-coral (“live-bottom”) habitats or offshore rocky outcrop habitats on the continental shelf along primarily the southeastern coast • Found in depths ranging from 18-55 m (59-180 ft). 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass Adults: Black Sea Bass
Tomate <i>Haemulon aurolineatum</i>	Occurs in the Western Atlantic from Massachusetts to Brazil, including the Gulf of Mexico and Caribbean Sea	<ul style="list-style-type: none"> • Inhabits seagrass beds, sand flats, patch reefs, rocky outcrops, and even muddy bottom habitat • Found in depths up to 55 m (180 ft) 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass Adults: Black Sea Bass
Greater Amberjack* <i>Seriola dumerili</i>	Occurs as far north as Nova Scotia, Canada, southward to Brazil, including the Gulf of Mexico Landings of adults have been recorded by NMFS in the Mid-Atlantic region.	<ul style="list-style-type: none"> • Found at depths of 18-360 m (60-1,181 ft) and inhabits deep reefs, rocky outcrops or wrecks and, occasionally, coastal bays • Juveniles and adults occur singly or in schools in association with floating plants or debris in oceanic and offshore waters 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Black Sea Bass and Scup
Crevalle Jack* <i>Caranx hippos</i>	Occurs in the Western Atlantic Ocean, ranging as far north as Nova Scotia, southward to Uruguay, including the northern Gulf of Mexico Landings of adults have been recorded by NMFS in the Mid-Atlantic region.	<ul style="list-style-type: none"> • Pelagic species, which is generally found over the continental shelf, although young are often found in brackish estuaries. • Found at depths from 1-350 m (3-1,148 ft). 	Eggs: NSP Larvae: NSP Juveniles: NSP Adults: NSP
Blue Runner* <i>Caranx crysos</i>	Occurs in the Western Atlantic from Nova Scotia, Canada to Brazil, including the Gulf of Mexico and Caribbean. Landings of adults have been recorded by NMFS in the Mid-Atlantic region.	<ul style="list-style-type: none"> • Pelagic species that occurs in water as deep as 100 m (328 ft), but generally stays close to the coast. • Juveniles often occur in association with floating <i>Sargassum</i>. 	Eggs: NSP Larvae: NSP Juveniles: NSP Adults: NSP
Almaco Jack <i>Seriola rivoliana</i>	Occurs from Massachusetts to northern Argentina but the extent of its distribution is not well established	<ul style="list-style-type: none"> • benthopelagic species • inhabits outer reef slopes and offshore banks, generally at depths from 15-160 m (49-525 ft) • been observed to occur in small groups • Juveniles are often seen around floating objects 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Black Sea Bass and Scup

Banded Rudderfish <i>Seriola zonanta</i>	Found in the Western Atlantic from Nova Scotia, Canada to Santos, Brazil, including the Gulf of Mexico and the Caribbean Sea.	<ul style="list-style-type: none"> • Adults are pelagic or epibenthic and confined to coastal waters over the continental shelf. 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Black Sea Bass and Scup
Bar Jack <i>Caranx ruber</i>	Occurs in the Western Atlantic from New Jersey to southern Brazil, including the Gulf of Mexico and throughout the Caribbean Sea.	<ul style="list-style-type: none"> • Commonly found in clear insular areas or coral reef habitats off mainland coasts, from depths of 3-35 m (10-115 ft). • Juveniles frequent areas with <i>Sargassum</i> and appear to be common in shallow water (0-15 m; 0-49 ft) reef habitats, but probably move to the outer margins of the shelf at or before maturity. 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Scup and Black Sea Bass
Lesser Amberjack <i>Seriola fasciata</i>	Occurs in the Western Atlantic from Massachusetts to Brazil (Robins and Ray 1986).	<ul style="list-style-type: none"> • Benthopelagic species, primarily found in depths of 55-130 m (180-427 ft). 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass and Scup Adults: Black Sea Bass and Scup
Yellow Jack <i>Caranx bartholomaei</i>	Occurs in the Western Atlantic from Massachusetts to Brazil, including the Gulf of Mexico and Caribbean Sea.	<ul style="list-style-type: none"> • Usually found in offshore reef and open marine water habitat to depths of 50 m (164 ft) • Juveniles are often found near the shore on seagrass beds and probably move to the outer margins of the shelf at or before maturity) • Often occur in association with jellyfish or floating <i>Sargassum</i> 	Eggs: NSP Larvae: NSP Juveniles: Scup Adults: Scup
Blueline Tilefish* <i>Caulolatilus microps</i>	Occurs in the Western Atlantic Ocean, North Carolina to southern Florida and Mexico, including the northern (and probably eastern) Gulf of Mexico. Landings of adults have been recorded by NMFS in the Mid-Atlantic region.	<ul style="list-style-type: none"> • Found along the outer continental shelf, shelf break, and upper slope on irregular bottom with ledges or crevices, and around boulders or rubble piles in depths of 30-236 m (98-774 ft) and temperatures ranging from 15 to 23°C (59-73.4° F) 	Eggs: Tilefish Larvae: Tilefish Juveniles: Tilefish Adults: Tilefish
Sand Tilefish* <i>Malacanthus plumieri</i>	Occur in the Western Atlantic from North Carolina and Bermuda to Venezuela, Brazil, and to Rio de la Plata in Uruguay, including the Gulf of Mexico and Caribbean Sea. Landings of adults have been recorded by NMFS in the Mid-Atlantic region.	<ul style="list-style-type: none"> • Occurs at depths of 10-153 m (33-502 ft), but is described as primarily a shallow-water benthic species • Generally occurs on sand and rubble bottoms, and is known to build mounds of rubble and shell fragments near reefs and grass beds 	Eggs: Tilefish Larvae: Tilefish Juveniles: Tilefish Adults: Tilefish
Gray Triggerfish* <i>Balistes capricus</i>	Found in the Western Atlantic from Nova Scotia to Bermuda, the northern Gulf of Mexico, and to Argentina. Landings of adults have been recorded by NMFS in the Mid-Atlantic region.	<ul style="list-style-type: none"> • Associated with live bottom and rocky outcrops from nearshore areas to depths of 100 m (328 ft) • Inhabits bays, harbors, and lagoons, and juveniles drift at the surface with <i>Sargassum</i> 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass Adults: Black Sea Bass
Ocean Triggerfish	Occurs in both the Western	<ul style="list-style-type: none"> • Found at depths of 5-60 m (16-197 ft) 	Eggs: NSP

<i>Canthidermis sufflamen</i>	Atlantic from Massachusetts to South America, including the Gulf of Mexico and Caribbean.	in mid-water or at the surface associated with <i>Sargassum</i> , near drop-offs of seaward reefs, and occasionally in shallow waters	Larvae: NSP Juveniles: Black Sea Bass Adults: Black Sea Bass
Queen Triggerfish <i>Balistes vetula</i>	Occurs in the Western Atlantic from Massachusetts to southeastern Brazil, including the Gulf of Mexico and Caribbean.	<ul style="list-style-type: none"> •Generally found over rocky or coral areas at depths of 2-275 m (7-902 ft) •Been observed over sand and grassy areas •Juveniles inhabit shallower waters, and then move into deeper water as they mature 	Eggs: NSP Larvae: NSP Juveniles: Black Sea Bass Adults: Black Sea Bass
Hogfish* <i>Lachnolaimus maximus</i>	<p>Occur in the Western Atlantic from Nova Scotia (Canada) to northern South America, including the Gulf of Mexico and Caribbean Sea.</p> <p>Landings of adults have been recorded by NMFS in the Mid-Atlantic region.</p>	<ul style="list-style-type: none"> •Primarily found in warm subtropical and tropical waters at depths of 3-30 m (10-98 ft) over open bottom or coral reef •Occasionally been captured at depths ranging from 23 to 53 m (75 to 174 ft) 	Eggs: NSP Larvae: NSP Juveniles: Scup and Black Sea Bass Adults: Black Sea Bass
Atlantic Spadefish* <i>Chaetodipterus faber</i>	<p>Occurs in the Western Atlantic, from Massachusetts to southeastern Brazil, including the Gulf of Mexico and Caribbean</p> <p>Landings of adults have been recorded by NMFS in the Mid-Atlantic region.</p>	<ul style="list-style-type: none"> •Found in depths of 3-35 m (10-115 ft), and is abundant in shallow coastal waters, from mangroves and sandy beaches, to wrecks and harbors •Juveniles are common in estuaries and adults often occur in large schools 	Eggs: NSP Larvae: NSP Juveniles: Scup and Black Sea Bass Adults: Scup and Black Sea Bass

4.1.6 Biological Effects

The biological effects of designating snapper grouper EFH and EFH-HAPC in new northern areas will follow similar guidelines and management strategies discussed in Action 1 (Section 4.1.1).

Alternative 1 would maintain the status-quo, with no change in designating EFH in areas north of North Carolina. However, with the proposed extension of the FMP through the Mid-Atlantic and New England regions the Council is directed by provisions in the Magnuson Act and Final EFH Rule to describe and identify EFH for each federally managed species. It is required that EFH be based on the best available scientific information. In the Mid-Atlantic and New England regions, the commercial and recreational harvest of snapper grouper species is relatively low (Tables 3-5, 3-6, 3-7, 3-49, 3-50, 3-51, and 3-52). In addition, data from fishery dependant or fishery independent surveys for these species are scarce to non-existent in this regard, resulting in high sampling error.

Alternative 2 could have positive biological effects for the snapper grouper species in the Mid-Atlantic and New England regions simply by the fact that the EFH designation would be refined for the species found in the Northern areas. Although, this designation would take longer it would provide an accurate description of EFH for snapper grouper species in the Northern region.

Alternative 3 could have a positive biological effect, especially if there is a joint management plan between the Council and MAFMC, and/or the northern regions' inclusion of the SAFMC's designation of EFH and EFH-HAPC habitat types. However, this rough approach may identify habitat as EFH that may not be entirely accurate for the species in the Northern extension.

4.1.7 Economic Effects

In general terms, designating EFH would be expected to generate long-term positive economic benefits as a result of enhanced resource protection and the support of sustained harvests and other ecosystem benefits. In the short-term, however, the designation of EFH may result in increased harvest restrictions in areas currently fished, with associated reductions in economic benefits to fishermen and dealers. Because each would designate additional EFH, both **Alternative 2** and **Preferred Alternative 3** would be expected to result in increased long-term economic benefits relative to **Alternative 1 (No Action)**, but also possible increased short-term reductions in economic benefits as a result of any necessary harvest restrictions. As stated above, **Alternative 2** may provide a more accurate description of EFH for snapper grouper species. As a result, **Alternative 2** may provide greater long-term economic benefits because of better management.

4.1.8 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

In general terms, designating EFH and EFH-HAPCs would be expected to generate long-term positive social benefits as a result of enhanced resource protection and the support of sustained harvests and other ecosystem benefits. In the short-term, however, the designation of EFH may result in increased harvest restrictions in areas currently fished, with associated reductions in social and economic benefits to fishermen, associated industries, and communities. Because each would designate EFH, both **Alternative 2** and **Alternative 3 (Preferred)** would be expected to result in increased long-term social benefits relative to **Alternative 1 (No Action)**, but also potential increased short-term reductions in social benefits as a result of any necessary harvest restrictions, should such be required. While specific areas of EFH linked to species needs would be designated under **Alternative 2**, where possible, identification of what harvest or other restrictions may be required to insure the protection of the relevant species is not available and is not expected to be available in the near future. Absent this information, additional substantive discussion of the expected social effects of **Alternative 2** is not possible. For those species and lifestages where EFH can be identified, **Alternative 2** would be expected to result in more accurate designations of EFH than proxies would provide and may, therefore provide a better foundation for resource protection and associated long-term social and economic benefits. However, identification of complete designations for all species and lifestages may not be possible without significant research and expenditures and completion of these research needs may result in substantial delay in the final designation of EFH, with associated delay in resource protection. Because

Alternative 3 (Preferred) would use proxies to designate the EFH, the EFH designations will by necessity be broad and may not, therefore, accurately portray the precise EFH requirements for the species in the Northern extension. This could result in excessive resource protection (if the resultant designated EFH is larger than it should be and restrictive actions are imposed on these areas) or insufficient resource protection (if the resultant designated EFH is smaller than it should be and necessary restrictions are not imposed everywhere they should be), with associated adverse social effects. Because the designation of EFH is a required component of an FMP, the adoption **Alternative 1** would result in the need for additional subsequent management action to be taken to satisfy this requirement, with the additional attendant management cost and resource (people and time) use. Such delay might also result in a perception of ineffective or inefficient management.

4.1.9 Administrative Effects

No additional administrative costs or effort would be required under **Alternative 1 (No Action)**, however the Magnuson-Stevens's Act requires that EFH be defined for all species and Northern extension action would not be in compliance with the Magnuson-Stevens's Act. **Alternative 2** would be the most administratively burdensome and require significant data collection, including fishery dependent and independent data, coordination with the Northern Council's and states and review of landings information from the Northern extension areas (as described in **Action 1**). **Alternative 2** also includes the designation of EFH- HAPCs which would require significant staff time to identify and implement. Designating EFH proxies for snapper grouper species in proposed northern areas of FMU expansion, as proposed in **Alternative 3**, would incur a moderate administrative burden. Designation of EFH proxies requires the review of current life history and landings information as well as identifying the species that may be used as proxies. In many cases, there is not enough information to make a proxy designation at many of the life history stages. Absent specific details on what specific EFH for the species in the snapper grouper FMU, the use of proxies is necessary. However, the use of proxies comes with the understanding that as information becomes available the EFH designations will be refined.

4.1.10 Council's Conclusions

4.2 Limit Participation in the Golden Tilefish Fishery

Alternative 1 (No Action). Do not limit participation in the golden tilefish fishery through an endorsement program.

Preferred Alternative 2. Limit golden tilefish participation through a golden tilefish gear endorsement program: Distribute golden tilefish gear specific endorsements for snapper grouper permit holders that qualify under the eligibility requirements stated below. Only snapper grouper permit holders with a golden tilefish longline endorsement or a golden tilefish hook and line endorsement associated with their snapper grouper permit will be allowed to possess golden tilefish.

Golden Tilefish Hook and Line Endorsement Initial Eligibility Requirements

Preferred Sub-Alternative 2A. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1,000 pounds gw (with hook and line gear) when the individual's best three of five years from 2001-2005 are aggregated. (Sub-alternative devised by the GT LAP WG.)

Sub-Alternative 2B. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds gw (with hook and line gear) when the individual's best three of five years from 2001-2005 are aggregated. (Sub-alternative devised by the GT LAP WG)

Sub-Alternative 2C. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds gw (with hook and line gear) when the individual's landings from 2001-2005 are averaged.

Sub-Alternative 2D. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 500 pounds gw (with hook and line gear) when the individual's landings from 1999-2007 are averaged.

Sub-Alternative 2E. To receive a golden tilefish hook and line endorsement, the individual must have a harvest level of 1000 pounds gw (with hook and line gear) when the individual's landings from 1999-2007 are averaged.

Golden Tilefish Longline Endorsement Initial Eligibility Requirements

Preferred Sub-Alternative 2F. To receive a golden tilefish longline endorsement, the individual must have a total of 2,000 pounds gw golden tilefish caught (with longline gear) between 2006 and 2008. (Sub-alternative devised by the GT LAP WG)

Sub-Alternative 2G. To receive a golden tilefish longline endorsement, the individual must have a total of 5,000 pounds gw golden tilefish caught (with longline gear) between 2006 and 2008.

Sub-Alternative 2H. To receive a golden tilefish longline endorsement, the individual must have an average of 5,000 pounds gw golden tilefish caught (with longline gear) between 2006 and 2008.

4.2.1 Biological Effects

Alternative 1 (No Action) would not limit effort in the golden tilefish fishery. Due to recently implemented regulations for snapper grouper and shark species, there could be an increased incentive to target golden tilefish. An increase in participation in the golden tilefish fishery would intensify the "race to fish" that already exists in the fishery and has resulted in a shortened season. The fishing seasons in recent years have already been shortened to such a

degree that South Carolina longline fishermen, who are typically unable to fish until April or May due to weather conditions; and hook and line fishermen from Florida, who typically do not fish until the fall, are increasingly unable to participate in the fishery. Current regulations for golden tilefish include a 4,000 pound gutted weight trip limit until 75% of the quota is caught, after which, a 300 pound gutted weight trip limit is imposed. The Council is concerned an increase in participation in this fishery could deteriorate profits for current golden tilefish fishermen. In addition, more participants could make it more difficult to track the commercial quota in a timely fashion and prevent overages.

All of the sub-alternatives under **Alternative 2** would result in a reduction in the number of participants but not necessarily limit the effort or harvest in the golden tilefish fishery. **Sub-Alternatives 2a-e** would require a certain harvest level during various years to receive a hook and line endorsement. **Sub-Alternative 2b** would implement the least restrictive requirement resulting in issuance of 26 hook and line endorsements; whereas, **Sub-Alternative 2e** would implement the most restrictive endorsement eligibility requirement resulting in 7 permits that qualify for an endorsement (**Table 4-6**).

Sub-Alternatives 2f-h would require a certain harvest level during various years to receive a longline endorsement. **Preferred Sub-Alternative 2f** would implement the least restrictive requirement resulting in issuance of 17 longline endorsements. **Sub-Alternative 2h** would implement the most restrictive endorsement eligibility requirement resulting in 10 permits that qualify for an endorsement. **Sub-Alternative 2g** would implement 13 (**Table 4-7**).

It is possible that alternatives which limit the number of participants could also result in a reduction in the amount of gear deployed and golden tilefish landed. If this were the case, then biological benefits could be expected for golden tilefish and the chance of interactions with protected species could be reduced. **Preferred Sub-Alternative 2a** would result in 21 endorsements. Therefore, the biological benefits of **Sub-Alternative 2a** could be greater than **Sub-Alternative 2b** for hook and line endorsements. However, it is also possible that effort would remain the same regardless of the number of vessels fishing. Therefore the biological effects of hook and line **Sub-Alternatives 2a-e** as well as longline **Sub-Alternatives 2f-g** could be very similar (**Table 4-6**). By limiting the number of participants in the golden tilefish fishery, the race for fish could be eliminated allowing for a longer fishing season and greater participation by individuals who met the endorsement requirements.

Alternative 1 (No Action) will likely perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. **Alternatives 2 and 3** and their associated sub-alternatives are unlikely to have adverse effects on listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora* species. The impacts from **Alternatives 2 and associated sub-alternatives** on sea turtles and smalltooth sawfish are unclear. Ultimately, the degree of risk reduction to ESA-listed species is relative to overall effort reduction. If **Alternative 2** and the associated sub-alternatives reduce fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

4.2.2 Economic Effects

Alternative 1 (No Action) would not limit participation or effort in the golden tilefish fishery. As a result, an increase in the number of fishermen targeting golden tilefish could occur. This could result in a decrease in the profitability of fishing for golden tilefish to historical participants and an increasingly shortened commercial season. An increase in the race for fish would likely occur, possibly resulting in safety concerns due to gear conflicts and less time and investment in maintenance of the vessel. A decrease in the quality of golden tilefish landed could also occur due to decreased time spent on storing the fish for transport to shore. This could decrease ex-vessel prices and marketing opportunities.

Alternative 2 would implement an endorsement program for golden tilefish participants. The sub-alternatives would limit the number of participants in the fishery but not necessary limit the effort or harvest. The options would add an additional requirement to that stated in the alternatives. Specifically, **Options 2-4** require that an individual or entity own a snapper grouper permit and have pounds associated with their logbooks in 2006 (**Option 2**), 2007 (**Option 3**) and 2006 or 2007 (**Option 4**). **Option 4** is the least restrictive. The sub-options identify how many pounds are needed to qualify for an endorsement with sub-option c being the most restrictive. **Sub-Alternative 2b** would implement the *least* restrictive requirement resulting in issuance of 26 hook and line endorsements. **Sub-alternative 2e** would implement the *most* restrictive endorsement eligibility requirement resulting in 7 permits that qualify for an endorsement. **Preferred Sub-alternative 2a** would result in 21 endorsements. **Sub-alternatives 2c, and 2d** would each implement 11 and 10 endorsements, respectively (**Table 4-6**).

Table 4-6. Number of Endorsements Resulting from Sub-Alternatives 2a-2e.

Hook and Line Sub-Alternatives	Eligibility Requirement	Number of Endorsements
Alternative 2a,	At least 1,000 lbs ww when best 3 of 5 yrs 2001-05 are aggregated	21
Alternative 2b	At least 500 lbs ww when best 3 of 5 yrs 2001-05 are aggregated	26
Hook and Line Sub-Alternatives	Eligibility Requirement	Number of Endorsements
Alternative 2c	At least 500 lbs ww when 2001-05 landings are averaged	11
Alternative 2d	At least 500 lbs ww when 1999-07 landings are averaged	10
Hook and Line Sub-Alternatives	Eligibility Requirement	Number of Endorsements

Alternative 2e	At least 1,000 lbs ww when 1999-07 landings are averaged	7
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Preferred Sub-Alternative 2f would implement the *least* restrictive requirement resulting in issuance of 17 longline endorsements. **Sub-alternative 2h** would implement the *most* restrictive endorsement eligibility requirement resulting in 10 permits that qualify for an endorsement. **Sub-Alternative 2g** would implement 13 (**Table 4-7**, respectively). Who economically benefits from each of these sub-alternatives is a distributional issue and it is not expected that a smaller number of endorsements will yield higher *total or aggregate* profits compared to a larger number of endorsements. The benefit of a smaller numbers of endorsements is an expectation of higher *average* profits per endorsement holder. Therefore, it can be expected that the highest average profits per hook and line endorsement holder would occur under **Sub-alternative 2e** and the lowest under **Sub-alternative 2b**. The highest average profits per longline endorsement holder would occur under **Sub-alternative 2f** and the lowest under **Sub-alternative 2h**.

Table 4-7. Number of Endorsements Resulting from Sub-Alternatives 2f-2g.

Longline Sub-Alternatives	Eligibility Requirement	Number of Endorsements
Alternative 2f	At least 2,000 lbs ww when landings from 2006-08 are aggregated	
Alternative 2g	At least 5,000 lbs ww when landings from 2006-08 are aggregated	
Longline Sub-Alternatives	Eligibility Requirement	Number of Endorsements
Alternative 2h	At least 5,000 ww lbs when landings from 2006-08 are averaged	

4.2.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

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

fishermen in response to increased restrictions on other species could exacerbate this reallocation as well as displace fishermen that have not been adversely affected by the recent regulations. While ACLs and AMs should be effective in protecting the biological health of the resource, from the perspective that traditional fishing participation and patterns results in greater social benefits, functional reallocation of harvests away from these traditional users, businesses, and communities would be expected to result in lower social benefits than protection and preservation of the more traditional participation and harvest patterns.

The intent of the adoption of one of the sub-alternatives of **Alternative 2** is to return golden tilefish harvests to the more traditional/historical participation and harvest patterns through the establishment of an endorsement program, limiting endorsement eligibility (initial eligibility; transfer considerations are the subject of Action 4) based on alternative minimum harvest performance histories. Further, the intent of the sub-options under each of the sub-alternatives is to further limit endorsement qualification to current participants in the fishery.

It should be noted that the two-tiered qualification criteria are not fully complementary in that the second criteria (current participation) may exclude fishermen that the first criteria (historical participation to address current shifts in participation/harvest activity) seeks to benefit, i.e., a fishermen's current lack of harvests could be a result of the functional reallocation of harvests that is the motivating factor for the proposed action. From this perspective, the smaller the current qualifying poundage, the less likely a historical participant will be excluded.

At the same time, however, the lower the threshold, the more likely the qualification of a participant who may have decreased their golden tilefish harvests for other reasons (e.g., fished less in general, targeted other species, etc.) and they may receive an endorsement for a fishery they have largely self-exited. While qualifying for the endorsement would give than a sellable asset, with associated social and economic benefits, equity issues may arise (i.e., why give a person an endorsement to harvest a species they do not currently harvest in any substantial amount?). It should be noted that the converse of these conditions is also true; the higher the threshold, the more likely a historic participant may be excluded, but the more likely that those who have demonstrated continued higher dependence on the resource will receive the benefits of the endorsement program.

All factors considered, in general, the higher the number of endorsements, the less disruption of current harvest patterns, and associated social conditions, but the less likely historic participation and harvest patterns can be recovered, resulting in the continued loss of the social benefits of the historic participation and harvest pattern.

Although the alternative thresholds for endorsement qualification are intended to allow historic participants to recover their historic roles, absent a companion individual shares program, like a catch shares program, such endorsement programs may reduce, but would not eliminate the current problem of shifting the season away from when North Carolina and South Carolina fishermen can safely prosecute the fishery because providing an endorsement would not eliminate the weather-related seasonal harvest access-issues of the status quo. Nevertheless, **Alternative 2** would be expected to some extent to restore the assumed

increased benefits of historical harvest participation and patterns. However, not all benefits would be expected to be restored.

The following discussion covers only the estimated maximum number of endorsement qualifiers for the various sub-alternatives and does not include consideration of the effects of the possible reduction in endorsements as a result of the sub-options. Additional discussion will be included upon finalization of the content and scope (harvest thresholds, years of consideration, etc.) of the sub-options.

Sub-Alternatives 2A-E would establish an endorsement for the hook and line sector, while **Sub-Alternative 2F-H** would establish an endorsement for the longline sector and effects comparison should be limited to comparisons within each gear sector. Estimates of the number of endorsements that could result from the respective alternatives are provided in Table 4-6 and 4-7. **Sub-Alternatives 2B** and **2E** would result in the most (26) and fewest (7) endorsements in the hook and line sector, respectively, while **Sub-Alternatives 2F** and **2H** would result in the most (17) and fewest (10) endorsements in the longline sector, respectively. Thus, total participation could range from 17 (seven hook and line and 10 longline) to 43 (26 hook and line and 17 longline) vessels, assuming endorsements for each gear sector are selected. While the period of examination does not match the full 2001-2005 qualifying years for the endorsement, the average number of unique participants in the golden tilefish fishery from 2003-2007 landing at least 101 pounds per year was approximately 43 vessels (see Table 3-15; each landings category within the same year represents a unique set of vessels, so the vessel tallies within each column may be summed; 43 equals the sum of the last three data rows under the “Average” column). Further, the average number of vessels landing more than 5,000 pounds per year over this period was 11 vessels. As a result, none of the endorsement alternatives would appear to qualify all former participants and, as a result, some social benefits may be forgone. Nevertheless, an endorsement program would be expected to help move the fishery back to historic participation patterns, resulting in greater social benefits than **Alternative 1 (No Action)**. Because **Sub-Alternative 2B** would result in the qualification of more historic participants, this alternative might be expected to result in more social benefits to the hook-and-line sector than **Sub-Alternative 2A**. However, an optimal number of participants has not been identified, from either an economic or social perspective, so assumption of greater social, or economic, benefits associated with one of these sub-alternatives relative to the other would be speculative. A similar caution should be applied to comparison of **Sub-Alternative 2F** (17 endorsements) with **Sub-Alternative 2G** (13 endorsements). In the short-term, however, it is assumed that the larger the number of historic participants that qualify for the endorsement, the greater the social benefits because of the reduced disruption of current fishery participation.

In 2008, 44 South Atlantic communities (20 in Florida and 19 in North Carolina) involving 69 dealers (33 in Florida and 29 in North Carolina) recorded tilefish landings (golden or blueline). Specific landings statistics cannot be reported due to confidentiality considerations. Although this proposed action would not limit total golden tilefish harvest, restricting participation may affect the total amount of golden tilefish harvested as well as change product flow through the various communities and dealers. If the more significant harvesters receive endorsements, total volume and the communities where most golden tilefish is landed

should not be affected. As shown in Tables 3-16 and 3-17, most golden tilefish are harvested on trips where golden tilefish are the top source of revenue. It is possible, however, that smaller harvests of golden tilefish by some fishermen make up a larger portion of total harvests quantities by these fishermen or sales activity by some dealers. As a result, while the proposed endorsement system should preserve and possibly increase the social benefits to the more active producers and dealers, and associated communities, absent fishermen landing in multiple ports and selling to multiple dealers in the same city, reduced social and economic benefits will be experienced by some communities and dealers as well as the fishermen who do not receive an endorsement.

4.2.4 Administrative Effects

Establishing an endorsement program will have some level of administrative burden on the agency related to developing and administering the program as well as providing information to the fishing community on the program. The least administratively burdensome alternative would be **Alternative 1 (no-action)**, followed by **Alternative 2** and the associated sub-alternatives, 2A-2H. However, the various sub-alternatives determine the criteria for initial eligibility for an endorsement and would not increase or decrease the administrative burden of this action relative to each other.

Administrative burden will also be felt by fishermen by **Alternative 2 and associated sub-alternatives**, through the process of applying for and renewing endorsements.

4.2.5 Council's Conclusions

4.3 Allow for Transferability of Golden Tilefish Endorsements

Alternative 1 (No Action). Longline and Hook and Line Golden Tilefish Endorsements are not allowed to be transferred.

Alternative 2. Longline and Hook and Line Golden Tilefish Endorsements can be transferred between any two individuals or entities that hold valid SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 2. Longline and hook and line golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 3. Longline golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial unlimited SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 4. Hook and line golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial unlimited SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 5. Hook and line golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial limited (225 lb) SG permits.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 6. Hook and line and longline golden tilefish endorsements can be transferred between any two individuals or entities that hold valid commercial unlimited SG permits, regardless of gear endorsement category.

- Option 1: Transferability allowed upon program implementation.
- Option 2: Transferability not allowed during the first 2 years of the program.
- Option 3: Transferability not allowed during the first 3 years of the program.
- Option 4: Transferability not allowed during the first 5 years of the program.

Alternative 7. Endorsements can be changed from one gear type to another.

Question: What is the rationale for creating separate endorsements for gear type if this Alternative is selected as preferred?

4.3.1 Biological Effects

Alternative 1 would not allow for transferability of golden tilefish endorsements and could result in decreased participation in the golden tilefish fishery over time as fishermen with endorsements exit the fishery permanently. Decreased participation could result in a

corresponding decrease in effort and landings of golden tilefish. However, it is also possible that effort would not decrease with decreased participation and the same amount of golden tilefish would be caught, albeit with fewer participants. Therefore, among **Alternatives 1-7**, no action **Alternative 1** could have the greatest biological benefit for the golden tilefish stock if it results in decreased landings of golden tilefish. However, actions have been taken to end overfishing of golden tilefish in Amendment 13C, and Amendment 17B, if implemented, will further ensure overfishing of golden tilefish does not occur with the establishment of annual catch limits. Therefore, there is not a biological need to decrease landings of golden tilefish. Since this action is administrative and does not establish immediate harvest objectives, it will not directly affect the protected species.

Alternatives 2-7, which would allow transferability of golden tilefish endorsement, would not be expected to negatively impact the golden tilefish stock. The biological effects **Alternatives 2-7** would be likely be very similar as landings would be constrained by a quota. Therefore, the effects of **Alternatives 2-7** may be more economic and administrative than biological. **Alternative 2** would allow transfer of golden tilefish hook and line or longline endorsements among individuals who hold snapper grouper Federal commercial permits. **Alternatives 3-4** would place stipulations on transfer of endorsements among specific gear types including longline gear in **Alternative 3** and hook and line gear in **Alternative 4**. **Alternatives 5 and 6** would restrict transfer of hook and line endorsements to specific categories of snapper grouper permits. **Alternative 5** would only allow transfer of hook and line endorsements among individuals with unlimited Federal snapper grouper commercial permits; whereas, **Alternative 6** would restrict transfer of hook and line endorsements to individuals who possess a limit 225 lb snapper grouper Federal commercial permit. **Alternative 7** would differ from the other alternatives in that endorsements could be transferred among gear types. **Alternative 7** could have a negative biological effect if endorsements are transferred to a gear type that has a greater amount of bycatch. Four options under **Alternatives 2-6** would put a time constraint on when transfer could begin. Among **Option 4** under **Alternatives 2-6** could have the greatest positive effect for golden tilefish because it would place the longest time period on when an endorsement could be transferred. It is possible an individual might not be able to go fishing in a particular year and there could be a resulting benefit to the resource. However, as stated under **Alternative 1**, effort might not show a corresponding decrease with the number of participants in the fishery. The rationale behind delaying transferability of endorsements, is to allow people time to develop an understanding of the value of the endorsements before selling them.

4.3.2 Economic Effects

Alternative 1 (No Action) would not allow for transferability of golden tilefish endorsements and would therefore result in decreased participation in the golden tilefish fishery over time as fishermen with endorsements exit the fishery permanently. While they will be able to sell their snapper grouper permit, they would not be able to sell their golden tilefish gear endorsement which could result in difficulty selling their permit, vessel, and gear since permits are often sold with the vessel and gear. Since longline gear is restricted in many of the South Atlantic fisheries, sale of the gear and a larger vessel suitable for longlining for golden tilefish, would be difficult without sale of the golden tilefish longlining endorsement.

Alternatives 2-6 would provide the opportunity for new entrants without an increase in the overall number of participants. **Alternative 2** would provide the greatest amount of endorsement transfer flexibility relative to **Alternative 1 (No Action)** in that it would allow transferability of all permits between any two permit holders (regardless of permit gear category). However, the permit purchased would maintain the gear category it originally held. Therefore, the total number of longline permits would remain as would the total number of hook and line permits. Currently, limited permits are not allowed to be transferred. **Alternatives 3-5** grant specific gear permits transferability allowances. There are no limited (225 lb.) permits being used to longline and therefore there is no alternative for transferability of longline limited permits.

Alternative 6 would allow maximum flexibility for unlimited permit holders whereby no permit holder would be restricted by the gear endorsement category. Alternatively, **Alternative 7** achieves the same level of flexibility without involving other individuals. That is, **Alternative 7**, which allows permit holders to switch their gear endorsement from one gear category to another, would only involve one individual filling out paperwork.

The rationale behind delaying transferability of catch privilege assets, like endorsements, is to allow people time to develop an understanding of the value of the endorsements before selling them. In general, the value of an asset under a catch share program increases over time as people come to understand the possibilities for improved management of the fishery and the impact that might have on the asset. That is, if catch shares appear to be resulting in better stock management or greater ex-vessel prices, quota share tends to increase. However, an endorsement program does not have the same characteristics as quota share and therefore a two year or more delay in transferability allowances might not be necessary. An endorsement program would decrease the race to fish that is expected to occur under **Alternative 1 (No Action)**. Therefore, there could be an increase in ex-vessel price (and therefore the value of an endorsement) if loss of quality has been a result of the race to fish occurring in recent years and ex-vessel prices have declined. However, there is no known anecdotal or other information to support this at this time. Increases in the precision of stock management are possible due to a cap on the number of participants but not to the same degree as that expected under a catch share program which is often accompanied by increases in monitoring and enforcement that enable better stock management.

Conceptually, the degree of transfer flexibility influences the aggregate profitability of the fishery and the average individual profitability. The greater the degree of transferability allowed, the greater the value of the permit is expected. Also, the greater the degree of transferability allowed, the greater the profitability of the individual who owns the permit because they have the ability to sell their permit when they need to switch to more profitable fisheries or when they are unable to fish. However, lack of participation could benefit the fishermen remaining in the fishery. Considering the above, **Alternative 2** is expected to produce the greatest aggregate and individual profitability over time for the golden tilefish fishery. **Alternative 3** would enhance profitability for longline unlimited permit holders. **Alternative 4** would enhance profitability for hook and line unlimited permit holders. Likewise, **Alternative 5** would enhance profitability for hook and line limited (225 lb.) permit holders. **Alternative 6** would benefit unlimited permit holders only. However, Options 1-4

will likely influence the degree of enhancement to profitability possible. **Option 1** would allow for transferability of permits to take place immediately upon implementation and this is expected to maximize economic benefits. **Option 4** would allow for the longest delay in transferability allowances. While this might allow for people to best assess the value of the gear endorsements and make more accurate permit market transactions, it would delay transfers that could benefit fishermen. **Options 2 and 3** would fall in between **Options 1 and 4** with regard to expected economic benefits.

If participation remains steady over the years of the program during which transferability is not allowed, aggregate profitability of the fishery could remain steady. If, however, landings drop due to people leaving the fishery and not transferring the endorsement due to restrictions, aggregate profitability would decline. However, at the same time, individual average profitability could increase because there would be less people sharing the same amount of landings as under **Alternative 1 (No Action)**.

4.3.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

The trade-off of social benefits associated with transferability options relate to considerations of whether social benefits would be enhanced if participation in the fishery can only decrease over time, (**Alternative 1 (No Action)**), would be higher under no restrictions (subject to possession of a valid commercial snapper grouper permit; **Alternative 2**) versus restrictions on gear or permit type (limited versus unlimited) (**Alternatives 3-6**), and how delay in allowing transfer may affect the social benefit stream (**Options 1-4** for **Alternatives 2-6**). Although it cannot be empirically determined with available data, an underlying assumption for the proposed endorsement requirement to harvest commercial quantities of golden tilefish and the proposed change in the fishing year is that social benefits will increase relative to the current management system. None of the endorsement qualification alternatives encompass eliminating all participation and harvest. As such, the implied conclusion is that some level of non-zero participation (and harvest) will maximize social and economic benefits (as long as the resource is not severely overfished). Although it would take time for such to occur, an inability to transfer golden tilefish endorsements, as would be the case under **Alternative 1 (No Action)**, would mean that, absent subsequent action, participation would decrease over time as fishermen retire or cease harvesting golden tilefish for other reasons, eventually ending in no participants or legal commercial harvest. This would be inconsistent with the expectation that active participation, at some unspecified level, and harvest would be expected to result in greater benefits. As a result, **Alternative 1 (No Action)** would be expected to result in reduced social benefits relative to the other alternatives. In all likelihood, however, the adoption of **Alternative 1 (No Action)** would result in subsequent future management action to allow new participation in the fishery.

Generally, it can be argued that social and economic benefits would be maximized the fewer the constraints placed on the transfer of an asset. Unencumbered transfer allows the largest pool of recipients, which would be expected to result in the payment of the highest price for the asset. As previously stated, **Alternatives 2-6** require the recipient hold a valid commercial snapper grouper permit. This restriction would be expected to reduce social benefits relative to no restriction by an indeterminate amount by not allowing anyone to purchase an endorsement. Although allowing an entity that could not use (harvest fish with) the endorsement may seem illogical because, absent a fixed associated harvest rights (catch or quota shares), removing an endorsement from active use would not affect the amount of available harvest, an entity that did not possess a valid commercial snapper grouper permit would only acquire an endorsement if positive benefits were expected to accrue. These benefits could be associated with the possibility of simply reducing effort or “taking” a boat off the water. Regardless of the nature of benefits, these benefits would be expected to be equal to or greater than the benefits of continuing to harvest golden tilefish under the endorsement, otherwise the endorsement would be sold/transferred to someone who expected to harvest golden tilefish.

Alternatives 2-6 vary by placing different restrictions on endorsement transferability. These restrictions are tacit recognitions of the two types of commercial snapper grouper permits, limited and unlimited, and the operational performance of the different gear sectors. Consistent with the logic and assumptions that resulted in the establishment of the two types of commercial snapper grouper permit, it is assumed that social and economic benefits will be maximized if this management structure is continued and, because a golden tilefish endorsement would constitute an endorsement to the permit, it is logical that the endorsement preserve this permit structure. As a result, **Alternative 2**, which would not preserve the permit structure (an endorsement from a limited permit could be transferred to an unlimited permit and vice versa), would be expected to result in reduced benefits relative to those alternatives (**Alternatives 3-6**) that preserved the permit type structure.

Because of how they address the different gear sectors in the snapper grouper fishery, further comparison of the effects of **Alternatives 2-6** should be nested. **Alternatives 3-6** vary by their recognition of and application to the different gear sectors and can all be compared to **Alternative 2**, which would have no gear restrictions. Because they consider separate single gear sectors, however, **Alternatives 3-5** cannot be compared with each other. Further, only **Alternatives 3** and **4** can be compared with **Alternative 6** because only these alternatives are exclusive to unlimited commercial snapper grouper permits.

Because they would preserve the current permit structure, **Alternatives 3-5** would be expected to result in greater social benefits than **Alternative 2**. **Alternative 6** would also preserve the permit structure and be expected to result in greater social benefits than **Alternative 2**. **Alternative 6** varies from **Alternatives 3** and **4**, however, because **Alternative 6** would not limit endorsement transfers to vessels that use the same gear. Under current commercial snapper grouper permit regulations, no constraint is placed on changing the gear type used by a vessel. As seen in Table 3-18, the majority of golden tilefish is harvested with longline gear (depicted in the table as “other gear”). Thus, although fishermen who have harvested golden tilefish to date have had the flexibility to change their gear type

and allowing endorsement transfer across gear types would preserve this flexibility. However, if stabilizing the number of participants and individual harvest performance are the goals of the endorsement system, allowing cross-gear transfers would not be consistent with the second goal because allowing additional longline fishermen to acquire golden tilefish endorsements from hook and line vessels provides a substantial opportunity to disrupt the harvest patterns for this species, at the expense of current harvesters. As a result, while the total number of participants would not be affected, because of the potential change in performance (distribution on harvests across vessels and gear sectors) and associated product flow through dealers and communities, **Alternative 6** would be expected to result in lower social benefits than **Alternatives 3** and **4**.

Alternative 7 varies from the other alternatives in that it does not deal with transfers per se but, instead, would simply allow a current endorsement for a certain gear to be changed to an endorsement for a different gear. As a result, **Alternative 7** is related to the absence of gear restrictions in **Alternatives 2** and **6** and the negative consequences of these alternatives associated with the absence of gear restrictions would apply for **Alternative 7** as well. It should be noted that some, though not all, of the potential negative consequences of gear switching would be expected to be largely limited to switching from hook and line gear to longline gear because of the fishing power associated with longline gear and subsequent potential magnitude of change. The introduction of more longline gear would be competitive to other participants, resulting in a reduction in benefits for these other participants, whereas the introduction of more hook and line gear may result in an opportunity for increased harvests and benefits for other participants (even a fishermen who chose hook and line gear when longline gear is available would be expected to experience at least no loss in benefits, otherwise hook and line gear would not be selected).

Any ability to transfer endorsements may also result in equity criticisms, similar to complaints associated with transferable catch share programs. Although the golden tilefish endorsement would not contain an entitlement to a specific harvest quantity, it would still bestow asset rights to the recipient, because endorsement possession would enable harvest, and the recipient would possess a new marketable asset. The value of this asset (the endorsement) would represent a windfall profit upon sale for the recipient, in addition to any benefits from actual harvests, a circumstance that may seem inequitable to entities denied an endorsement upon their initial issuance. While transferability would allow those denied an endorsement, or others in the SG fishery who previously did not harvest golden tilefish, an opportunity to acquire an endorsement and harvest this species, they could do so only if they purchased the endorsement, the value of which is unknown at this time. The market price would be expected to increase the lower the total number of endorsements and the higher the total value of harvests. The absence of specific harvest entitlements (catch shares) may keep transfer prices lower than they otherwise may be, even if the harvest history is also transferred, while speculation on the potential development of a catch share program may increase transfer prices (if the transfer includes the harvest history).

The magnitude of equity criticisms would be expected to increase with the value of the windfall and could increase with the immediacy of the windfall. Allowing someone to receive and immediately sell an endorsement could be considered more unfair than requiring

they keep it, whether fished or not, for a period of time before transfer is allowed. Further, because the intent of the endorsement program is to return harvests to historic patterns, delayed transfer rights increases the likelihood that endorsement recipients actually use the endorsement (i.e., harvest golden tilefish) and help achieve the expected social and economic benefits of a return to historic harvest patterns. These considerations are relevant to examination of **Options 1-4**, which apply to **Alternatives 3-6**. The determination of which option is preferable hinges on a comparison of the benefits of maximum flexibility (**Option 1**) with the benefits of “stability” (presumed to accrue to allowing the “fishery” to adjust to operation under the new endorsement system), as would occur under **Options 2-4**, and how of a period of stability is sufficient. As previously stated, generally, social and economic benefits are expected to be greater the broader the freedom to manage one’s assets (freedom to sell the endorsement without time constraints), notwithstanding the previous discussion on equity concerns. This is particularly true as situations can arise where a decision to stop fishing is not discretionary, as may be the case should an adverse health situation or personal financial crisis arise. So, to the extent that reduced ability to transfer the endorsements results in reduced benefits, the longer the restriction applies, the greater the expected reduction in social benefits. To the extent that benefits are increased with stability, and in this case stability refers to who the participants are and not their number, the appropriate question is at what point do the benefits of allowing transfer exceed the benefits of stability. This is an empirical question that cannot be answered with available data.

See Section 4.3.3 for discussion on the number of potentially affected communities and dealers with recorded tilefish landings in 2008.

4.3.4 Administrative Effects

Establishing an endorsement program (Action 5) will have some level of administrative burden on the agency related to developing and administering the program as well as providing information to the fishing community on the program. Adding transferability (Action 6) to the endorsement program will increase the administrative burden, requiring the tracking of endorsements, once transferred. The least administratively burdensome alternative would be **Alternative 1 (no-action)** which would not allow endorsement transferability, followed by **Alternatives 2-5**. **Alternative 2** would allow for endorsement transferability immediately and would have a moderate increase in administrative burden due to tracking endorsements. The addition of the waiting periods as described in **Alternatives 3-5** would not increase or decrease the administrative burden in the long term. **Alternatives 3-5** allow for a period of time in which transferability is not allowed, which may alleviate some of the administrative burden in the short term. However, once the waiting period is over, the administrative burden related to endorsement transfers will resume. **Alternative 6** and **Alternative 7** address transferability between endorsement holders from different gear types. **Neither of these alternatives would increase the administrative burden significantly but will require some documentation through the Southeast Regional permits office.**

Administrative burden will also be felt by fishermen through **Alternative 2-5**, through the process of transferring the endorsements.

4.3.5 **Council's Conclusions**

4.4 **Adjust Golden Tilefish Fishing Year**

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

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

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

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

4.4.1 **Biological effects**

Alternative 1 (No Action) would retain regulations for golden tilefish through Snapper Grouper Amendments 13C and 15A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (FMP). Golden tilefish is experiencing overfishing but it is not overfished. The Council has taken action to end overfishing but the determination about overfishing will not be changed until an assessment update is completed. Regulations for golden tilefish established a commercial quota of 295,000 pounds gutted weight with a 4,000 pound gutted weight trip limit that is reduced to 300 pounds gutted weight if 75% of the quota is met on or before September 1. In addition, regulations limited recreational catch to 1 fish per person per day. The commercial catch was based on historic landings during 1999-2003, where 98% of the total catch was captured by commercial fishermen. The commercial portion (98%) was applied to the yield at to determine the commercial quota. Amendment 17B to the FMP, if approved, would change the commercial quota for golden tilefish to 282,819 pounds gutted weight.

Alternatives 2-4 would change the fishing year for golden tilefish. Public testimony on Snapper Grouper Amendment 13C (SAFMC 2006) indicated some Florida based commercial hook-and-line fishermen are concerned an early closure could prevent them from harvesting golden tilefish from September through November, which is the time they have historically participated in the fishery. As the golden tilefish quota was met in summer of 2007, 2008, and 2009 this concern has been realized. Consequently, the Council is considering in this amendment modifying the start date of the fishing year and the stepped trip limit strategy, as appropriate, to ensure the golden tilefish regulations imposed in October 2006 through Snapper Grouper Amendment 13C (SAFMC 2006) do not unnecessarily disproportionately

impact select fishermen. However, recent regulations resulting from Amendment 16 to the FMP, have resulted in a seasonal closure for shallow water grouper species during January-April, and early closures for vermilion snapper and black sea bass. As a result, one of the only fisheries open during early 2010 was golden tilefish. Thus, commercial fishermen were able to target golden tilefish and generate some income when other fisheries, which fishermen historically targeted were closed.

Alternative 1 (No Action) would retain the January 1 fishing year start date and allow the trip limit to be reduced from 4,000 lbs gutted weight to 300 lbs gutted weight if 75% of the quota was met on or before September 1. Although the commercial hook and line catch of golden tilefish is minor (~8% during 1999-2004), 35% of the catch occurred during September and October 1999-2004. During 2007 through 2010, the quota was met before September and the fishery closed before the period of time when the greatest commercial hook and line catches of golden tilefish have historically occurred. The expected biological effects of retaining or modifying the fishing year is expected to be minimal because hook and line landings are small and total mortality is constrained by a commercial quota. A change in the fishing year would affect how and when fishing effort (longline versus hook and line) is applied to the stock throughout the year.

The Council's **Alternative 2** would begin the fishing year for golden tilefish in September, the period of time when the greatest commercial hook and line catches of golden tilefish have historically occurred. **Preferred Alternative 3** would begin the fishing year in August and also allow hook and line fishermen to fish during the period of time when their catches have been greatest. **Alternative 4** would start the fishing year in May but would still allow hook and line fishermen to fish for golden tilefish in the fall but there is a greater chance the quota would met sometime during September through November.

The biological effects of **Alternatives 2-4** would be very similar. The commercial hook and line catch of golden tilefish is small (~8%). Therefore, changing the fishing year is not likely to substantially increase the commercial hook and line catch. Furthermore, a change in the fishing year probably will not alter the number of months the commercial longline fishery operate as the percentage of golden tilefish landed was evenly distributed among all months before more restrictive regulations were implemented. Even though the fishery has closed before the end of the year from 2007 to 2010, it is unlikely that golden tilefish would be taken incidentally as bycatch since the majority of the catch is with longline gear. Furthermore, golden tilefish do not occupy the same habitat of other deep water species (i.e., snowy grouper, blueline tilefish, blackbelly rosefish, etc.). Golden tilefish prefer a mud habitat; whereas the other deep water species occur in a rocky habitat. While there is little biological benefit to changing the fishing year, a shift in the fishing year would allow hook and line fishermen to target golden tilefish in the fall; however, a change in the fishing year would also result in multiple species being open at the same time. Therefore, there could be economic benefit to some fishermen by retaining the January start date (**Alternative 1**) for golden tilefish.

Alternative 1 (No Action) would perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. **Alternatives 2-4** are unlikely

to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2-4** on sea turtles and smalltooth sawfish are unclear. Sea turtle abundance in the South Atlantic changes seasonally. Even if **Alternatives 2-4** perpetuate the existing amount of fishing effort, but causes a temporal or spatial effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

4.4.2 Economic effects

Alternatives 2-4 deals with changing management measures in the golden tilefish fishery. Under current regulations, the golden tilefish fishing year begins on January with a 4,000 pound gutted weight trip limit. Once 75% of the quota is taken, a 300 pound gutted weight trip limit goes in to place. The current golden tilefish fishery is characterized by a race to fish, a small number of longline participants taking the majority of the catch (92%), and a larger number of hook and line participants. Longline participants begin fishing in January in Florida. By April or May when the weather improves, Carolina longliners begin fishing. In September and October, hook and line fishermen begin to fish for golden tilefish. This is the time of year when they are not participating in other fisheries.

Alternatives 2-4 would all benefit hook and line golden tilefish fishermen in Florida allowing them to fish for golden tilefish in the fall months when they are not participating in other fisheries. In recent years, hook and line fishermen have not been able to fish for golden tilefish, as they have in the past, in the months of September and October due to earlier closures. Likewise, Carolina fishermen may be able to fish for more months of the year under these alternatives because they will be able to fish at the beginning of the season when weather is amenable to fishing. In past years when the season began in January, Carolina fishermen were not able to begin fishing until April or May. They could only fish for a couple of months sometimes before the 4,000 pound trip limit dropped. A May start date (**Alternative 4**) would benefit Carolina longline fishermen most compared to **Alternatives 2 and Preferred Alternative 3**. A September 1 start date (**Alternative 2**) would perhaps benefit them the least. Under current regulations, the fishery starts January. Carolina fishermen may be able to start fishing May and then fish for four months. A September start date (**Alternative 2**) may not even provide four months of fishable weather (personal communication, Matt Ruby 2008).

One significant drawback to a later start date (**Alternatives 2-4**), however, is that under **Alternative 1 (No Action)**, very little landings are available to dealers as a result of the red snapper and shallow water grouper closures imposed through Amendment 17A and the closures and reduction in ACLs for gag and vermilion in Amendment 16 and reduction in

ACLs for various species in the Comprehensive ACL Amendment. Having golden tilefish available during January to May when gag and shallow water grouper harvest is closed, could increase the ex-vessel price paid to fishermen for golden tilefish. However, the ex-vessel prices paid for other species as a result of decreased harvest in the Gulf of Mexico as a result of the oil spill has not occurred as expected (Bobby Cardin, August 2010). Even if ex-vessel prices do not increase in the early part of the year, keeping the start date at January could help dealers maintain supply and therefore keep customers.

Alternative 1 (No Action) would maintain the short-term economic status of the recreational fishery, but the potential long-term effects would be negative. The impacts of **Alternatives 2-4** on the recreational sector would be distributive in nature, and likely would not alter the overall economic effects of other management measures on the entire recreational sector.

Non-use values would not differ between the various alternatives since the alternatives do not differ in their biological impacts.

4.4.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

This action attempts to respond to the disruption, and presumed adverse social and economic consequences, of historic participation and harvest patterns as a result of recent management measures, specifically the 4,000-pound trip limit that is reduced to 300 pounds if 75% of the quota is taken on or before September 1. As discussed in the previous sections, the golden tile fish component of the snapper grouper fishery has been reduced to less than a full-year harvest activity. Further, in recent years, the trip limits and subsequent early closure have resulted in North Carolina and South Carolina fishermen, who are not able to fish for golden tilefish until spring due to weather conditions, having access to a shorter season, and Florida hook and line fishermen not being able to fish for golden tilefish at all because of quota closure. As discussed in Section 4.3.3, deviation from these historic patterns is assumed to have resulted in declines in social and economic benefits to the fishery, associated businesses, and communities.

Because **Alternative 1 (No Action)** would not make any regulatory change in the fishing year, no changes in the manner in which the fishery is prosecuted would be expected and, as a result, no changes in the current social benefits of the fishery would be expected to occur. Any decline in social benefits resulting from shifting harvest patterns away from historic/traditional harvest pattern, as discussed in the previous paragraph and Section 4.3.3, would be expected to continue. Increased deviation from historic patterns, and associated social and economic benefits, could occur if fishing effort and patterns shift in response to increasingly restrictive management on other snapper grouper species. While such shift may compensate for social and economic losses associated with these species, this shift would

increase the losses in social and economic benefits to historic commercial harvesters, and associated businesses and communities, of golden tilefish.

Alternatives 2-4 attempt to recover these reduced benefits, and prevent further losses, by adjusting the start of the fishing year. While adjusting the start of the fishing year, in conjunction with the ACL and AM, would not affect the total available quota, commencement of the fishing year in September (**Alternative 2**), August (**Alternative 3 (Preferred)**), or May (**Alternative 4**) would be expected to allow increased participation and recovery of historic harvests. The earlier the start (May), the greater the opportunity for participation by North Carolina and South Carolina fishermen, with continued potential jeopardy for Florida hook and line vessels (quota management could still close the fishery in the fall), while the later the start (September) the reverse would occur; Florida hook and line fishermen should be able to fish the entire fall under a September start, whereas North Carolina and South Carolina fishermen could face abbreviated fishing opportunities depending on fall and winter weather conditions and the pace at which the quota is harvested. The step-down trip limit would still apply, and the earlier the season began, the greater the likelihood that longline vessels, particularly Florida vessels, may lose traditional winter fishing time as these vessels would not be expected to be able to profitably fish under 300-pound trip limits. Both **Alternative 2** and **Alternative 3 (Preferred)** would be expected to result in similar fishing opportunities for Florida fishermen, and improved opportunities relative to **Alternative 4**, whereas Carolina fishermen should face better opportunities under **Alternative 3 (Preferred)** relative to **Alternative 2**, but reduced opportunities relative to **Alternative 4**.

See Section 4.3.3 for discussion on the number of potentially affected communities and dealers with recorded tilefish landings in 2008.

4.4.4 Administrative Effects

Alternative 1 (No Action), would result in no new administrative burden. **Alternatives 2-4** would adjust golden tilefish management measures to change the start date of the fishing year. Implementing either/or both of these measures would incur minor adverse administrative impacts in the form of developing outreach materials such as fishery bulletins.

4.4.5 Council's Conclusions

4.5 Change Golden Tilefish Fishing Limits

Alternative 1 (No Action). Retain the 300 lb. trip limit when 75% of the quota is taken.

Preferred Alternative 2. Close the longline fishery when the 300 pound trip limit for golden tilefish goes into effect.

4.5.1 Biological Effects

Alternative 1 (No Action) would retain regulations for golden tilefish through Snapper Grouper Amendments 13C and 15A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (FMP). Golden tilefish is experiencing overfishing but it is not overfished. The Council has taken action to end overfishing but the determination about overfishing will not be changed until an assessment update is completed. Regulations for golden tilefish established a commercial quota of 295,000 pounds gutted weight with a 4,000 pound gutted weight trip limit that is reduced to 300 pounds gutted weight if 75% of the quota is met on or before September 1. In addition, regulations limited recreational catch to 1 fish per person per day. The commercial catch was based on historic landings during 1999-2003, where 98% of the total catch was captured by commercial fishermen. The commercial portion (98%) was applied to the yield at to determine the commercial quota. Amendment 17B to the FMP, if approved, would change the commercial quota for golden tilefish to 282,819 pounds gutted weight.

Commercial longline fishermen are concerned a 300 pound gutted weight trip will not be profitable given the size of their operations. Furthermore, hook and line fishermen are concerned the quota is being met quickly and before fall when they have historically fished for golden tilefish. Consequently, the Council is considering in this amendment modifying the stepped trip limit strategy, as appropriate, to ensure the golden tilefish regulations imposed in October 2006 through Snapper Grouper Amendment 13C (SAFMC 2006) do not unnecessarily disproportionately impact select fishermen.

Alternative 1 (No Action) would retain the trip limit reduction from 4,000 lbs gutted weight to 300 pounds gutted weight if 75% of the quota was met on or before September 1. Although the commercial hook and line catch of golden tilefish is minor (~8% during 1999-2004), 35% of the hook and line catch occurred during September and October 1999-2004. During 2007 through 2009, the quota was met before September and the fishery closed before the period of time when the greatest commercial hook and line catches of golden tilefish have historically occurred.

Preferred Alternative 2 would remove the 300 pound gutted weight trip limit when 75% of the quota is met. Reducing the 4,000 pounds gutted weight trip limit to 300 lbs gutted weight when 75% of the quota is met was originally intended to allow the fishery to remain open all year and allow for commercial hook and line fishermen to target golden tilefish in the fall. Based on data from 2007 to 2009, the fishery would not remain open all year even when the trip limit is reduced 300 pounds gutted weight. However, the current advantage of retaining the 300 pound trip limit when 75% of the quota is met is that it slows the rate at which the quota is filled and increases the chance the quota will not be exceeded. The expected biological effects of removing the trip limit reduction when 75% of the quota is met is expected to be minimal. In the commercial fishery, most golden tilefish (92%) are taken with longline gear deployed by large vessels that make long trips and depend on large catches (> 3,000 pounds) to make a trip economically feasible. Therefore, a 300 pound gutted weight trip limit when 75% of the quota is met would shut down commercial longline sector, and might reduce their potential annual catch. If the quota monitoring system can handle large

catches in short periods of time then elimination of the trip limit reduction then harvest in excess of the quota should be minor.

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

4.5.2 Economic Effects

Under **Alternative 1 (No Action)**, the 300 pound trip limit that is implemented each year once 75% of the quota is taken under a 4,000 pound trip limit, is maintained. This was established by the Council to benefit hook and line fishermen who often start fishing later in the year. The trip limit attempts to preserve a portion of the commercial quota for hook and line fishermen. **Alternative 2** removes the trip limit, thereby removing preservation of a portion of the commercial quota for hook and line fishermen. This makes it more likely that longline fishermen will participate once 75% of the quota has been met since the 4,000 pound trip limit would be maintained. **Alternative 3** ensures that longliners do not fish under the 300 pound trip limit.

Action 5 has alternatives that change the golden tilefish fishing year so that longline fishermen from northern areas and hook and line fishermen can participate in the fishery more easily. If a change in the fishing year occurs under **Action 5**, there is less need for the existing 300 pound trip limit. Under the no action alternative for **Action 5** and **Alternative 2** under this action, economic benefits would increase for longliners since the 4,000 pound trip limit would be extended. Hook and liners would doubly benefit from a change in the start of the fishing year (**Action 5**) and **Alternative 3** under this action. The two actions, **Actions 5** and **6**, could be seen as substitutes for each other in that both have options that result in protection for hook and line fishermen. Because the economic effects are distribution and data used to estimate the profitability of different sized vessels using different gear, it is not possible to estimate the aggregate economic effects to the golden tilefish fishery of this action.

4.5.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

Alternative 1 (No Action) would result in the continuation of the current step-down trip limit for golden tilefish when 75% of the quota is taken. As a result, no change in customary fishing performance, as affected by this management measure, would be expected to occur. In the absence of other management change on golden tilefish harvests (see Actions 3-5), all current fishing behaviors, harvests, and associated social and economic benefits could continue. However, continuation of the step-down trip limit may be unnecessarily restricting the golden tilefish harvests by longline vessels, particularly if other proposed management changes are effective in returning harvests to historic patterns. If so, **Alternative 1 (No Action)** would be expected to result in reduced social and economic benefits relative to corrective action.

If social and economic benefits are being reduced under the status quo, this would be expected to be corrected under **Alternative 2 (Preferred)**, particularly in combination with other proposed actions for golden tilefish. **Alternative 2 (Preferred)** would eliminate the step-down and should allow longline vessels to continue to harvest profitable quantities of golden tilefish. Regardless of the decision on the proposed change in the fishing year, elimination of the step-down would be expected to accelerate quota closure of the fishery by not reducing the pace of harvest. The magnitude of impact of accelerated quota closure on vertical line fishermen would depend on how harvests are affected by the proposed endorsement requirement and change in the fishing year. Nevertheless, in tandem with the other proposed golden tilefish management changes, it is expected that the elimination of the 300-pound step-down limit would result in increased social and economic benefits relative to **Alternative 1 (No Action)**.

While **Alternative 3** would attempt to help recover the historic golden tilefish harvest patterns of Florida hook and line (vertical line) vessels by closing the longline fishery if the 300-pound trip limit is triggered, **Alternative 3** may not have any substantive effect on either the longline or hook and line sectors because it is generally assumed that longlining for golden tilefish is no longer profitable at the lower trip limit. As a result, the harvest of golden tilefish with longline gear may already currently effectively end under the status quo. If this is true, regulatory closure of this gear sector would neither increase benefits for hook and line fishermen nor impose any adverse effects on longliner fishermen.

See Section 4.3.3 for discussion on the number of potentially affected communities and dealers with recorded tilefish landings in 2008.

4.5.4 Administrative Effects

Under **Alternative 1**, the 300 pound trip limit when 75% of the quota is reached, will remain. Of the two alternatives, **Alternative 1** is the most administratively burdensome. **Alternative**

1 requires the monitoring of the quota, rulemaking when 75% of the quota is reached, and rulemaking when the fishery is closed. Associated with the rulemaking is the development of fishery bulletins and other outreach materials to fishermen. **Preferred Alternative 2**, which would remove the 300 pound trip limit once 75% of the quota is reached, would be less administratively burdensome. Under **Preferred Alternative 2**, the fishery would be closed when the quota is reached thus requiring one rulemaking and fishery bulletin. In order to make sure that the quota isn't exceeded, **Preferred Alternative 2** may require increased frequency of monitoring which may be more administratively burdensome. Of the two alternatives, **Preferred Alternative 2** would be the least difficult to enforce.

4.5.5 Council's Conclusions

4.6 Limit Participation in the Black Sea Bass Pot Fishery

Alternative 1 (No Action). Do not further limit tag distribution to the black sea bass pot fishery.

Preferred Alternative 2. Limit tag distribution to black sea bass pot fishermen with valid commercial snapper grouper permits that landed at least 1 pound of black sea bass caught with pot gear between 12/8/98 and the control date of 12/04/08.

Alternative 3. Limit tag distribution to black sea bass pot fishermen with valid commercial snapper grouper permits that landed at least 1 pound of black sea bass caught with pot gear between 12/8/98 and the control date of 10/14/05.

Alternative 4. Limit tag distribution to black sea bass pot fishermen with valid commercial snapper grouper permits that landed at least 1 pound of black sea bass with pot gear by the date of 12/31/09.

4.6.1 Biological Effects

The Council is concerned increased restrictions imposed through Snapper Grouper Amendments 13C, 16, 17A, and 17B including a commercial quota for black sea bass, commercial quota for vermilion snapper, and seasonal closure for shallow water groupers could serve as an incentive for a greater number of fishermen with Federal snapper grouper commercial permits to fish pots for black sea bass. Currently, tags for black sea bass pots can be issued to any fisherman who possesses a Federal snapper grouper commercial permit. Most black sea bass commercial landings (89%) during 2005-2008 were caught with pots, with the remainder taken with hook-and-line gear. **Table 3.4** indicates that in 2007, there were 877 fishermen who possessed Federal snapper grouper commercial permits; however, only 53 of these individuals fished black sea bass pots that year. The number of vessels that fished pots and caught black sea bass has varied during 1992 to 2008 from 49 in 2008 to 92 in 1997 (**Table 4-8**). The number of vessels fishing black sea bass pots increased from 49 in

2008 to 59 in 2009. Some of these vessels fished pots but did not request tags. Therefore, the potential exists for increase participation in the pot fishery for black sea bass.

An increase in participation in the black sea bass pot fishery could increase the rate at which the quota is met and deteriorate profits for current participants in that fishery. During the June 2008 to May 2009 fishing year, the 309,000 pound gutted weight commercial quota was met in December 2009. Therefore, it does not appear that the black sea bass fishery has much capacity for increased participation. In December 2008, the Council requested NOAA Fisheries Service issue a control date of December 4, 2008. The control date sets a date in time the Council could use to limit participation; anyone entering the black sea bass pot fishery after the specified date may not be guaranteed continued participation. Control dates were also established in 2005 and 1997. The Council requested these control dates be used as alternatives to possibly limit participation in the black sea bass fishery.

A limited access system was imposed on the snapper grouper fishery in December 1998. Currently, the only valid commercial vessel permits for South Atlantic snapper grouper are those that have been issued under the limited access criteria specified in the Snapper Grouper Fishery Management Plan. A commercial vessel permit for South Atlantic snapper grouper is either a transferable commercial permit or a 225 pound trip-limited commercial permit. A continuous permit number (cpnum) was assigned to each limited access snapper grouper permit, which did not exist under when the Federal open access snapper grouper permits during 1992-1998. Therefore, landings can be associated with the limited access permit through the cpnum and the vessel identification number beginning in December 1998. However, it is more difficult to determine landings associated with a permit without a cpnum and associated vessel identification number prior to December 1998, especially with regard to determining which of those permits remains active today.

At their March 2009 meeting, the Council recognized the difficulty in tracking landings without a cpnum and indicated an alternative, which considered the 1997 control date be moved to Appendix A as a considered but rejected alternative. The Council also indicated this control date is old and did not adequately consider present participation in the black sea bass pot fishery.

Table 4-8. Number of vessels that fished pots and caught black sea bass during 1992-2008.

Year	# vessels
1992	52
1993	71
1994	86
1995	68
1996	80
1997	92
1998	76
1999	71
2000	70
2001	59

2002	53
2003	52
2004	56
2005	51
2006	50
2007	53
2008	49
2009	59

Source: NMFS logbook data 2-26-2010.

Alternative 1 (No Action) could have negative effects by creating a derby situation as more individuals become involved in the fishery resulting in the quota being met even more quickly. Black sea bass is in a rebuilding plan and it is expected that as biomass increases that catch per unit effort would also increase, further contributing with the rate at which the quota is likely to be met.

The biological effects of **Alternatives 1-3** could be similar since the fishery would close when the quota is met regardless of the number of participants. **Alternative 1 (No Action)** could have the greatest biological effect because the quota would be met quickly and gear would be removed from the water for the longest period of time. Conversely, if there was a large number of pots in the water at the same time, this could increase the chance of entanglement with protected species.

Preferred Alternative 2 and **Alternative 3** would restrict participation in the black sea bass fishery to those individuals who historically fished pots for black sea bass. As far fewer individuals fish pots than possess Federal snapper grouper commercial permits, **Preferred Alternative 2** and **Alternative 3** would constrain participation in the fishery to a level that is more manageable and profitable.

Preferred Alternative 2 would limit participation in the black sea bass fishery to individuals with active Federal snapper grouper commercial permits who caught black sea bass in pots between December 8, 1998, and December 4, 2008. Based on data from 1998, when the 2 for 1 limited entry system was enacted until December 4, 2008, 120 vessels would meet this criterion (**Table 4-8a**). **Alternative 3** would limit participation in the black sea bass fishery to individuals with active Federal snapper grouper permits who caught black sea bass with pots on or before October 14, 2005. A total of 102 vessels would meet this criterion. These numbers are considered preliminary. Therefore, the biological effect of **Alternative 3** would be greater than **Preferred Alternative 2** since **Alternative 3** would constrain participation in the black sea bass fishery to a greater degree.

Table 4-8a. Number of fishermen with snapper grouper permits who fished pots with minimum black sea bass landings of 0, 1, 100, 250, 500, 750, and 1,000 lbs whole weight for time period between 12/8/98 to 12/4/08 (Alternative 2) and 12/8/98 to 10/14/05 (Alternative 3).

BSB Landings	Alternative 2	Alternative 3
0	123	102
1	120	102
100	107	95
250	97	85
500	85	73
1,000	66	50

4.6.2 Economic Effects

In 2009, 59 vessels fished for black sea bass with pot gear (**Table 4-8**). Under **Alternative 1 (No Action)**, over time, this number could be much greater due to the restricted landings and seasons allowed for other stocks. **Alternative 1 (No Action)** is expected to reduce profits for current participants and possibly reduce aggregate profitability of the fishery. The rationale for considering **Preferred Alternative 2** and **Alternative 3** was to limit participation to some level lower than would occur under **Alternative 1 (No Action)**. However, since the level of participation under **Alternative 1 (No Action)**, while expected to increase, is unknown, the difference in profitability between the alternatives is also largely unknown. However, since the maximum number of participants under alternatives are capped at different levels, the opportunities for long-term profits are predictable and do differ among alternatives. As stated above, **Preferred Alternative 2** would result in 123 vessels able to fish for black sea bass with pot gear. **Alternative 3** would result in 102 vessels able to fish for black sea bass with pot gear. Therefore, **Alternative 3** would result in the most restrictive level of participation in the long-run and would likely result in the highest individual and aggregate profits in the long-term. **Preferred Alternative 2** would result in the second largest individual and aggregate profits in the long-term. **Alternative 4** cannot yet be analyzed since data has not yet been made available. This analysis will be completed in early September.

4.6.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

Alternative 1 (No Action) would not make any changes to the current management of black sea bass. As a result, all current fishing practices would be allowed to continue and no changes in status quo social benefits would be expected. However, increased target effort by fishermen in response to increased restrictions on other species could create excessive pressure on the black sea bass resource as well as displace traditional harvesters. While ACLs and AMs should be effective in protecting the biological health of the resource, from the

perspective that traditional fishing participation and patterns results in greater social benefits, changes in harvest participation and patterns away from these traditional users, businesses, and communities would be expected to result in lower social benefits than protection and preservation of the more traditional participation and harvest patterns.

In 2008, 55 South Atlantic communities (29 in North Carolina and 8 in South Carolina) involving 104 dealers (63 in North Carolina and 17 in South Carolina) recorded black sea bass landings. Although a larger number of communities (16) and dealers (22) recorded black sea bass landings in Florida than in South Carolina, total landings in South Carolina (approximately 133,000 pounds) were significantly greater than in Florida (approximately 9,000 pounds). Specific landings statistics cannot be reported due to confidentiality considerations. Although this proposed action would not limit total black sea bass harvest, restricting participation may affect the total amount of black sea bass harvested as well as change product flow through communities and dealers. If the harvesters with traditionally higher landings receive tags, as may be expected, total black sea bass harvest and the landing patterns through communities where most black sea bass is landed should not be affected. It is possible, however, that smaller harvests of black sea bass by some fishermen make up a larger portion of total harvests by these fishermen or sales activity in some communities by some dealers. As a result, while a limit on tag distribution should preserve and possibly increase the social benefits for the more active producers and dealers, and associated communities, absent fishermen who receive tags landing black sea bass in multiple ports and selling to multiple dealers in the same city, reduced social and economic benefits may be experienced by some communities and dealers in addition to the losses experienced by fishermen who do not qualify for tags.

While **Alternative 2 (Preferred)** would eliminate continued harvest opportunities by fishermen who began harvesting black sea bass with pot gear after December 4, 2008, it would succeed in helping preserve the social and benefits that accrue to harvests by traditional participants. It should be noted that some of the fishing effort by new entrants (those who began harvesting black sea bass with pot gear after December 4, 2008) may be due to speculation (exploring fishing success for a new species), while some may be a in response to reduced harvests or harvest opportunities for other species an attempt to recover benefits (mitigation effort) lost in other fisheries. While **Alternative 2 (Preferred)** would result in a reduction in social and economic benefits to these fishermen, the elimination of mitigation effort may carry a greater social and economic weight due to its cumulative implications; these fishermen have experienced reduced harvest opportunities for other species and would be prevented from mitigating these losses by harvesting alternative species. Preservation or protection of harvest rights by “more” historic participants is presumed, however, to result in increased social and economic benefits, though no quantitative dependence criteria is factored into the presumption.

Alternative 3 would be expected to result in fewer qualifiers for tag distribution than **Alternative 2 (Preferred)**. As a result, more fishermen would be expected to experience reductions and social and economic benefits as a result of an inability to continue to harvest black sea bass with pots. Allowing fewer participants also increases the likelihood of altered product flow through dealers and communities, with associated reductions in social benefits.

However, some fishermen, dealers, and communities would be expected to experience increased social and economic benefits because the black sea bass quota could be channeled through fewer entities. Also, it may be argued that the use of the earlier control date in **Alternative 3** would more successfully return the fishery to its historic participants, dealers, and communities.

Alternative 4 would be expected to result in more qualifiers than all the other alternatives except **Alternative 1 (No Action)**, and would only exclude fishermen who began harvesting black sea bass with pots after 2009. As such, less re-allocation of the resource to historic participants would occur and the benefits associated with returning participation to historic participants, dealers, and communities would be expected to be decreased relative to **Alternative 2 (Preferred)** or **Alternative 3**.

It should be noted that no requirement of persistent participation (or dependency, as previously stated) is factored into the discussion above other than from the perspective that a fisherman have a valid snapper grouper permit. A fisherman could satisfy the landings qualification criterion (at least one pound of black sea bass caught with pot gear) under any of the control dates, but have subsequently ceased harvesting black sea bass with pot gear. As a result, a fisherman who has ceased harvesting black sea bass with pot gear could be allowed participation when others who may have more recently recorded harvests are excluded. This situation may raise equity concerns. The older the control date, the greater the possibility that qualifiers may no longer be active harvesters (and potentially the larger the number of non-qualifiers) and the more likely equity issues arise.

4.6.4 Administrative Effects

Alternative 1, the no-action alternative would result in the least administrative impact as it would not change the level of participation and accordingly, the distribution of black sea bass pot tags. **Preferred Alternative 2** would limit participation in the black sea bass fishery to individuals with active Federal snapper-grouper commercial permits who caught black sea bass in pots between December 8, 1998, and December 4, 2008. Based on data from 1998, when the 2 for 1 limited entry system was enacted until December 4, 2008, 123 vessels would meet this criterion and would be eligible to receive black sea bass pot tags. Under **Alternative 3** a total of 102 vessels would meet this criterion. **Alternative 4** would include participants in the fishery through December 31, 2009, which would increase participation slightly. The difference between the three alternatives are so small that there is not expected to be a significant difference in the administrative burden between **Alternative 2, Alternative 3 or Alternative 4**.

4.6.5 Council's Conclusions

4.7 Limit Effort in the Black Sea Bass Pot Fishery

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

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

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

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

Alternative 5. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NMFS. Limit the black sea bass pot tags to 100 per vessel in year 1, 50 in year 2, and 25 in year 3. NMFS will issue new identification tags each fishing year that will replace the tags from the previous fishing year.

Alternative 6. Require that each black sea bass pot in the water or at sea on a vessel in the South Atlantic EEZ have an attached valid identification tag issued by NMFS. Limit the black sea bass pot tags to 100 per vessel in year 1 and 50 in year 2. NMFS will issue new identification tags each fishing year that will replace the tags from the previous fishing year.

Alternative 7. Annually issue tags to individuals based on a 10% reduction in the number of tags they were issued as of 12/31/09.

Alternative 8. Annually issue tags to individuals based on a 25% reduction in the number of tags they were issued as of 12/31/09.

4.7.1 Biological Effects

The Council is concerned there could be increased interest to fish more black sea bass pots per trip due to greater restrictions placed on commercial fisheries through Amendments 13C, 16, and 17A and 17B. **Alternative 1 (No Action)**, by not limiting the number of black sea bass pots deployed or pot tags issued to holders of Federal commercial snapper grouper vessel permits, could result in adverse impacts to the black sea bass stock and protected species. However, under all alternatives, including **Alternative 1 (No Action)**, the restrictions mandated by the Atlantic Large Whale Take Reduction Plan (ALWTRP) final rule (72 FR 57104) would still apply to black sea bass fishermen in the South Atlantic. The ALWTRP is a program to reduce the risk of serious injury to or mortality of large whales due to incidental

entanglement in commercial fishing gear. ATWTRP regulations pertain to the universal regulations (no floating buoy lines, no wet storage of gear), gear marking requirements, sinking groundlines, floatation, and buoy lines with a weak link, etc. The black sea bass pot fishery already adheres to all regulations stipulated in the ALWTRP. For specifics of the ATWTRP regulations as they apply to the South Atlantic black sea bass fishery, see

Appendix X or the whale take reduction website:

[://www.nero.noaa.gov/whaletrp/plan/2008ALWTRPGuideVs32](http://www.nero.noaa.gov/whaletrp/plan/2008ALWTRPGuideVs32).

Without a limitation on the annual number of pot tags distributed to a fisherman, any number of pots could be deployed. During 2003 to 2009, the average number of vessels requesting tags for pots was 136 and the average number of tags requested per vessel per year was 39 (**Table 4-9**). The number of vessels requesting tags increased in 2008 and 2009. Although some fishermen requested as many as 500 tags per year, the number of vessels with recorded landings of black sea bass with pots was much less than the number of vessels requesting tags (**Table 4-10**).

Table 4-9. Number of vessels requesting tags; mean, minimum, maximum, and median number of tags/vessel requested.

Year	Number of Vessels Requesting tags	Mean # Tags Requested	Min # tags requested	Max # tags requested
2003	133	36	4	200
2004	133	40	4	200
2005	132	36	4	200
2006	133	35	4	150
2007	134	39	5	200
2008	147	41	1	500
2009	141	45	2	500
Average	136	39	3	279

Source: NMFS permits office.

Table 4-10. Number of vessels with landings of snapper grouper with pots; number of vessels with landings of snapper grouper who requested tags. Mean, minimum, maximum, median number of tags requested for vessels that fished pots; and mean, minimum, maximum number of pots fished for vessels that requested tags.

Year	# of Vessels that fished pots	# of Vessels that fished pots with tags	Mean # tags requested	Min # tags requested	Max # tags requested	Median # of tags requested	Mean # pots fished	Min # pots fished	Max # Pots Fished
2003	53	49	54	6	200	50	45	1	200
2004	59	52	56	6	200	50	43	2	160
2005	53	47	50	6	160	40	47	1	120
2006	53	46	49	4	150	49	47	1	176
2007	54	51	53	10	200	50	48	1	180

2008	50	49	54	6	200	50	35	1	150
2009	60	60	55	8	200	45	37	1	150
Average	55	51	53	7	187	48	43	1	162

Source: NMFS permits office and NMFS logbook database 5/5/10.

The Council is concerned increased restrictions imposed through Snapper Grouper Amendments 13C, 16, 17A, and 17B including a commercial quota for black sea bass, commercial quota for vermilion snapper, and spawning season closure for shallow water grouper species could increase the incentive to fish more pots per trip. Currently, there is no limit on the number of tags issued to fishermen who target black sea bass or the number of pots that can be fished. The Council is further concerned about the possibility of fishermen leaving large numbers of traps fishing for multiple days due to vessel or weather problems, which could unnecessarily kill many black sea bass. Fishing large numbers of traps also increases the chance that traps could be lost and “ghost fishing” could occur. Furthermore, fishing large numbers of traps increases the chance of entanglement of pot lines with right whales and other protected species.

Alternatives 2-8 would all have beneficial impacts to the biological environment by reducing the number of pots fished per trip, which would be accomplished by limiting the number of tags distributed to fishermen and by requiring that pots have an attached identification tag. **Alternatives 2-8** could decrease the adverse impact of pots fishing for multiple days if a fisherman was unable to retrieve large numbers of pots due to inclement weather or vessel difficulties, reduce the number of lost pots and ghost fishing, and reduce the potential for entanglement of pot lines with protected species.

The limitation on the number of pots deployed could reduce the adverse effects of continued fishing by lost gear, commonly called “ghost fishing”. Boat propellers and storms are common agents causing pots to be lost. The longer the pots are in the water (commonly called “soak-time”), the greater the opportunity for lost pots. Fishermen may not be able to retrieve pots during periods of inclement weather or vessel repairs. The Council is also considering an action, which restrict the length of time pots could be left at sea (See **Section 4-x**).

Among **Alternatives 2-6**, **Alternative 2** would have the least beneficial effects to the biological environment as it would allow fishermen to fish up to 100 pots each year. Relative to the number of pots currently fished, **Alternative 2** would reduce the average number of pots fished by trip by 8% (**Table 4-11**). **Alternative 4** would have the greatest biological effect since it would allow fishermen to fish a maximum of 25 pots. Based on data from 2005-2009, **Alternative 4** would reduce the number of pots fished per trip by 60%. The biological effect of **Preferred Alternative 3** would be intermediate between **Alternatives 2** and **4** as it would allow fishermen to fish up to 50 pots and would reduce the number of pots fished per trip by 17%. **Alternatives 5** and **6** would gradually reduce the maximum number of pots that could be fished each year from 100 to 25 (**Alternative 5**) and from 100 to 50 (**Alternative 4**). Thus, the biological effect of **Alternatives 5** and **6** would be similar to **Preferred Alternative 3** and **Alternative 4** but greater than **Alternative 2**.

Table 4-11. Number of pots fished per trip during 2005-2009.

Number of Pots	Number of Trips	Cumulative Freq	Percent Freq	Cumulative Percent
1-10	515	515	16%	16%
11-20	579	1,094	18%	34%
21-30	680	1,774	21%	54%
31-40	521	2,295	16%	70%
41-50	404	2,699	12%	83%
51-60	158	2,857	5%	88%
61-70	24	2,881	1%	88%
71-80	36	2,917	1%	90%
81-90	25	2,942	1%	90%
91-100	44	2,986	1%	92%
>100	273	3,259	8%	100%

Source: NMFS permits office and NMFS logbook database 5/5/10.

Alternatives 7 and 8 would reduce the number of tags issued to fishermen by 10% and 25%, respectively. If the Council takes action to limit participants in the black sea bass fishery, the biological effects of **Alternatives 7 and 8** would be less than **Alternatives 2-6** because a large number of pots could still be fished by some fishermen, and risks associated with lost pots and possible entanglement of trap lines with protected species would continue. Under this scenario, **Alternative 4** would have the greatest biological benefit as it would immediately reduce the number of tags to 25 per vessel per year for all participating snapper grouper commercial fishermen. **Alternative 7** would have the least amount of biological benefit as it would reduce the number of tags issued by only 10% (**Table 4-12a**). As more tags are generally issued to fishermen than pots fished, there would be little reduction in the number of pots fished under **Alternatives 7 or 8** (**Tables 4-12b and 4-12c**).

Alternative 1 (No Action) would perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. **Alternatives 2-8** are unlikely to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. The impacts from **Alternatives 2-8** on sea turtles and smalltooth sawfish are unclear. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

Table 4-12a. Average number of tags requested by individuals who fished pots in 2008, 25% and 10% reductions in issued tags, and actual number of pots fished by individuals who requested tags.

Year	Number of tags requested for vessels that fished pots			25% reduction			10% reduction			Number of pots fished for vessels that requested tags		
	average	min	max	average	min	max	average	min	max	average	min	max
2008	54	6	200	40	5	150	48	5	180	35	1	150
2009	55	8	200	41	6	150	49	7	180	37	1	150

Source: NMFS permits office and NMFS logbook database 5/5/10.

Table 4-12b. Frequency distribution of tags requested by fishermen who fished pots during 2008, distribution of tags that could be requested if reduced by 25% (**Alternative 7**) and 10% (**Alternative 8**), and actual number of pots fished in 2008.

Number of Pots	Freq requested	25% red	10% red	Freq actually fished
1 to 10	5	5	5	18
11 to 20	7	11	7	9
21 to 30	9	7	9	8
31 to 40	2	11	2	8
41 to 50	11	2	11	1
51 to 60	2	3	2	0
61 to 70	0	0	1	1
71 to 80	3	6	2	0
81 to 90	0	0	6	1
91 to 100	6	1	0	1
> 100	4	3	4	2

4.7.2 Economic Effects

In general, it is expected that the short-term economic benefits of **Alternatives 2-6** increase with the larger number of traps allowed per vessel. However, how the total number of traps in the fishery influence the catch per unit effort will ultimately determine the long-term economic impacts of these alternatives. It is possible that even a low number of traps per vessel could have negative economic impacts in the short and long-term if there are large numbers of vessels participating in the fishery. Assuming the catch per unit effort remains stable, **Alternative 2** would offer the greatest short-term economic benefits but probably the smallest long-term economic benefits since the total number of traps in the fishery is not capped. **Preferred Alternative 3** would have the next largest short-term economic benefits (and next smallest long-term economic benefits) followed by **Alternatives 3, 4, 5, and 6**, in that order. If **Alternative 1 (No Action)** alternative is chosen under the previous action, **Alternatives 7 and 8** would have the greatest long-term economic benefits compared to the other alternatives in this action because this would restrict participation to individuals (based on the time frame) *and* limit the total number of pots used.

If we assume that the number of pots carried per vessel is currently optimal for that individual vessel's operation, then any reduction in the number of vessels will have a negative impact on the profitability of that operation. **Alternative 2** restricts the number of pots per vessel to 100. While most vessels carry less than 100 pots, those that currently carry more than 100 pots will be negatively impacted since they will be restricted to 100 pots. While the cost of vessel operations remain largely fixed, except crew and food costs, the number of pots, which are used to generate revenue have decreased. The overall economic benefit of any of the alternatives will be a summation of the individual changes in profits. Given that there are only a few vessels fishing greater than 100 pots, the negative economic impacts from alternatives with larger number of pots allowed per vessel are expected to be less than the negative economic impact of the alternatives with smaller numbers of pots allowed per

vessel. Actual estimation of each vessels profitability requires vessel specific cost data, which is not available at this point in time.

4.7.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

Social effects would be expected to accrue to changes in the amount of gear allowed to be used or the manner in which it is allowed to be used if the changes affect normal fishing practices (behavior) and subsequent harvests. The intent of this action is to limit effort and prevent an increase in the number of pots used by black sea bass pot fishermen in response to increased restrictions on other species, and reduce the potential adverse effects of lost pots and long soak times. While the proposed measures may indirectly result in the reduction in harvests for some vessels, as well as limit the potential for harvest increases by fishermen, no specific harvest reductions or limits are proposed. Thus, no direct adverse social effects associated with explicit harvest reductions would be expected on average (across all current participants) and the primary social effects of the alternative limits may be largely due to reduced fishing flexibility and interference with personal fishing or business practices. These effects may take the form of reduced independence, lower job satisfaction, reduced time to engage in other activities, or increased costs, among other effects. The latter two potential effects might accrue if the proposed limits induce alteration of the normal fishing patterns, such as the frequency and duration of trips, as well as the time pattern of pot deployment, soak time, and retrieval.

Alternative 1 (No Action) would not impose any new restrictions on the number of black sea bass pots fished or tags issued and, as a result, would not be expected to result in any short-term social effects on fishermen, associated businesses, or communities. In the long term, however, increased restrictions in other fisheries may result in increased effort shift into the black sea bass pot fishery (note that this would be curtailed by proposed Action 7), resulting in decreased economic viability of current pot fishermen, increased bycatch problems, and increased environmental damage from lost pots. While any increased black sea bass revenues for new entrants or existing participants would mitigate the losses in other fisheries that motivate the increased effort in the black sea bass pot fishery, such would not be expected to compensate for the adverse effects of increased effort on the black sea bass resource and other environmental considerations (bycatch and habitat damage).

Alternatives 2-6 would limit the number of pots fished (deployed) or at sea (on the vessel) by requiring each pot have an identification tag and limit the number of tags issued per vessel per year. **Alternatives 2-4** would establish immediate tag limits (100, 50, or 25 tags), while **Alternatives 5** and **6** would establish an initial limit the first year (100 tags) with subsequent step-down limits in the following years to final limits of either 25 tags (**Alternative 5**) or 50 tags (**Alternative 6**).

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

Under current practices, tags may be replaced, if appropriate fees are paid, when tags are lost. Tag replacement would allow fishermen to continue the use of their full allotment if pots (both the pot and tag is lost) or tags (just the tag is lost) are lost, thereby maintaining their current fishing practices and associated benefits. However, tag replacement could be requested for tags that were never lost, presenting an opportunity for vessels to fish more than their allowable limit, particularly if daily return to shore or soak-time limits are not adopted. The incentive to attempt this behavior would increase with the severity of the limit. However, there is no reason to expect that such behavior would be common, nor could it be habitual as systematic request for replacement tags could easily be documented.

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

Instead of target maximums for the number of pots or tags a fisherman may possess, where only fishermen who currently exceed the maximum would be affected, **Alternative 7** and **Alternative 8** would result in uniform percentage reductions for all fishermen of either 10% or 25%, respectively. The primary difference between these alternatives and **Alternatives 2-4** is that **Alternatives 7** and **8** would impose pot reductions on all participants in the fishery,

regardless of the number of pots they traditionally fish. While such action may seem equitable from the perspective that all participants in the fishery would contribute to effort reductions, the individual burden may be disproportionate. Fishermen who previously fished more pots would experience greater reductions (individual and total); however, the reduction in pots to fishermen who traditionally fished fewer pots could result in a greater proportionate decline in harvests than the decline in harvests for fishermen experiencing a greater reduction in pots (a reduction of 2 pots for a fishermen who previously fished 20 would be less than the reduction of 4 pots to a fisherman who fished 40; however, it may be easier to “recover” the harvests “lost” by the reduction of 4 pots with the 36 remaining pots than it is to recover losses with only 18 remaining pots; thus, while the percentage reduction in pots would be equal, the fisherman “losing” the fewer number of pots could experience a greater reduction in harvests, revenues, and associated social benefits). Additionally, equal percentage reductions do not incorporate considerations of a reasonable or fair number of pots (i.e., the number of pots sufficient to support a reasonable income) for each fisherman, as could be suggested to be the foundation of the limits in **Alternatives 2-6**, or consideration that the reduction should be proportionate to the potential harm or contribution to the problem addressed by this action (the likelihood and incidence of lost traps or environmental harm would be expected to increase with the number of pots; therefore, it could be suggested that the greater the number of pots used by a fisherman, the higher the reduction should be for that fisherman in both percentage and absolute terms). The potential inequity of these considerations (considerations of fair burden and contribution to the problem) may increase with the size of the proportionate reduction (**Alternative 8** may result in greater perceptions of inequity than **Alternative 7**).

See Section 4.7.3 for discussion on the number of potentially affected communities and dealers with recorded black sea bass landings in 2008.

4.7.4 Administrative Effects

Alternative 1 requires no new administrative process and as such would be least burdensome of the alternatives. The administrative burden of **Alternatives 2-6** increases with the number of tags being issued or the complexity of the program. **Alternative 2** (100 tags per vessel) would be more burdensome than **Alternative 4** (25 tags per vessel); however, the increased burden would be very small. **Alternative 5** and **Alternative 6** would require slightly more of an administrative burden as the tag issuance would decrease each year until modified.

Alternatives 2-6 could constitute an increased burden to law enforcement since they would need to ensure that each pot was tagged and the number of traps deployed was within the legal limit. The burden to law enforcement would increase with the number of pots that could be fished. **Alternatives 7** and **8** would be the most burdensome of all the alternatives.

Administratively, it could be difficult to determine the verify actual number of tags that should be issued to each fisherman. These alternatives would be difficult to enforce because of the lack of consistency in number of pots a fisherman could deploy.

4.7.5 Council's Conclusions

4.8 Implement Measures to Reduce Bycatch in the Black Sea Bass Pot Fishery

Alternative 1 (No Action): Do not implement new regulations specifying when black sea bass pots must be retrieved from the water.

Preferred Alternative 2: Require black sea bass pots to be brought back to the shore at the conclusion of each trip.

Alternative 3: Require fishermen remove their black sea bass pots within 72 hours of the start of the fishing trip.

4.8.1 Biological Effects

The “soak-time” is determined through the method of fishing. Black sea bass pot fishermen deploy gear in three primary manners (Tom Burgess pers. comm.). The most common form of fishing (65% of all trips) is to deploy pots in the morning and retrieve them later in the day after a soak time of about 7 hours. Most of the remaining trips are for multiple days (35%; **Table 4-13**). A few fishermen leave 100-150 pots out all season and collect them at the conclusion of the fishing season. However, most fishermen on multi-day trips deploy pots at night and retrieve them the next morning for a soak time of about 17 hours. During 2005-2008, only 14 fishermen deployed more than 55 pots for an average of 106 pots deployed per trip (**Table 4-14**).

Table 4-13. Number of days away from port, number of trips, total lbs of black sea bass landed (whole weight) and number of pots fished during 2005-2008.

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

Source: NMFS logbook database 4/6/09.

Table 4-14. Pots per trip fished (1/1/05-12/31/08).

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

Source: NMFS logbook database 4/6/09.

Currently, there are instances where large numbers of pots may be left fishing for multiple days due to vessel or weather problems, which could unnecessarily kill many black sea bass. Fishing large numbers of pots also increases the chance that pots could be lost and “ghost fishing” could occur. Therefore, limitations on the length of time pots can be left at sea would reduce the adverse effects of continued fishing by lost gear. Boat propellers and storms are

common agents causing pots to be lost. Fishermen may not be able to retrieve pots during periods of inclement weather or vessel repairs. Furthermore, fishing large numbers of pots increases the chance of entanglement of pot lines with right whales and other protected species. The longer the pots are in the water, the greater the opportunity for lost pots and entanglement with protected species.

Preferred Alternative 2 would require that black sea bass pots be brought back to shore at the conclusion of a trip but would place no time limit on the length of the trip. **Alternative 3** would put a time limit of 72 hours for how long a pot could remain in the water. **Alternative 1 (No Action)** would continue the risks of ghost fishing due to lost pots and entanglement with protected species, particularly when gear is left at sea for long periods of time and therefore would have the least amount of biological benefit for the alternatives considered. The biological benefit of **Alternative 2** would be greater than **Alternative 3** because most trips last 1 day. Therefore, under **Preferred Alternative 2**, pots would be in the water for the least amount of time and would have the least amount of risk for ghost fishing or entanglement with protected species. The biological benefit of **Alternative 3** would be less than **Preferred Alternative 2** because it would allow fishermen to leave pots in the water for as long as 72 hours and would increase the chance pots could be lost or could interact with protected species. Furthermore, under **Alternative 3** fishermen would be able to return to the dock, while pots soak decreasing the chance gear could be retrieved during bad weather. Selecting both **Preferred Alternative 2** and **Alternative 3** as preferred would have an intermediate biological effect in that a trip could last for no longer than 72 hours but fishermen would not be able to return to the dock without their pots. However, as approximately 99% of the trips were 72 hours or less (**Table 4-13**), a restriction on the length of the trip (**Alternative 3**) is not needed. **Alternative 1 (No Action)** would perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. **Alternatives 2-3** are unlikely to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*.

4.8.2 Economic Effects

Alternative 1 (No Action) would not implement new regulations that limit the soak time of black sea bass pots and thus would not reduce bycatch in the fishery. **Preferred Alternative 2** and **Alternative 3** would further restrict fishing flexibility by limiting pot soak time. **Preferred Alternative 2** would not explicitly limit soak time because the length of a fishing trip would not be limited. However, **Preferred Alternative 2** may functionally limit soak time if fishermen prefer not to stay at sea longer while their pots soak or force them to stay longer at sea to maintain customary soak times. Further, under **Preferred Alternative 2**, a vessel could not return to port without retrieving all pots, even if the expected soak time was still expected to be short. Only **Alternative 3** would explicitly limit soak time. However, almost all black sea bass pot trips are less than three days, so **Alternative 3** would be expected to have little to no adverse social or economic effects. Unless suspension of the pot recovery requirement was possible, both alternatives could result in hardship or safety issues in the event of engine problems/failure or severe weather such that the vessel has to return to port prior to retrieving all pots. While notice of the suspension of these requirements would be logical in the event of pending severe weather, such as a tropical depression or hurricane,

the absence of specific procedures in the event of engine problems may create additional problems for fishermen.

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

4.8.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

Alternative 1 (No Action) would not impose any new restrictions on the black sea bass pot fishery and, as a result, would not be expected to result in any short-term adverse social effects on fishermen, associated businesses, or communities. In the long term, however, the absence of new restrictions on pot fishing would be expected to result in continued bycatch problems for other species, potential resource problems for these stocks, and associated decreased social and economic benefits associated with the fisheries for these species.

Alternative 2 (Preferred) and **Alternative 3** would be expected to help reduce bycatch, resulting in increased long-term social and economic benefits for affected species, but would restrict fishing flexibility. **Alternative 2 (Preferred)** would not explicitly limit soak time because the length of a fishing trip would not be defined or limited. However, **Alternative 2 (Preferred)** may functionally limit soak time if fishermen prefer not to stay at sea while their pots soak for extensive periods of time or force them to stay longer at sea to maintain customary soak times. Further, under **Alternative 2 (Preferred)**, a vessel could not return to port without retrieving all pots, even if the soak time was still expected to be short. Only **Alternative 3** would explicitly limit soak time. However, almost all black sea bass pot trips are less than three days, so **Alternative 3** would be expected to have little to no adverse social or economic effects associated with alteration of normal fishing behavior. Absent suspension of the pot recovery requirement under certain conditions, both alternatives could result in hardship or safety issues in the event of engine problems or severe weather requiring the vessel to return to port prior to retrieving all pots. While notice of the suspension of these requirements would be logical in the event of pending severe weather, such as a tropical depression or hurricane, the absence of specific procedures in the event of engine problems may create additional operational problems for fishermen.

See Section 4.7.3 for discussion on the number of potentially affected communities and dealers with recorded black sea bass landings in 2008.

4.8.4 Administrative Effects

Alternative 1 would not implement new regulations that limit the soak time of black sea bass pots and thus would not reduce bycatch in that fishery. **Alternative 1** would not impose new administrative burden on the agency or the industry. **Preferred Alternatives 2 and Alternative 3** would require a minimal administrative burden on SERO staff through the

development of fishery bulletins and announcements. However, these alternatives would increase enforcement responsibilities in this fishery. **Alternative 3** would be difficult to enforce as the Office of Law Enforcement has stated that limitation on gear soak time is almost impossible to enforce. **Preferred Alternative 2** would be the easiest alternative to enforce.

4.8.5 Council's Conclusions

4.9 Improve Accuracy, Timing, and Quantity of Fisheries Statistics

4.9.1 Improvements to Commercial Data Reporting

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

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

Recently, Amendment 15B implemented new recordkeeping and reporting measures including a requirement for snapper grouper private recreational vessels that fish in the exclusive economic zone (EEZ), if selected by NOAA Fisheries Service, to maintain and submit fishing records; requires a vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, to carry an observer and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service.

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

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

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

Preferred Alternative 5. Provide the option for fishermen to submit their logbook entries electronically via an electronic version of the logbook made available online.

Alternative 6. Implement the ACCSP quota monitoring module for the commercial sector.

NOTE: *IPT recommends re-wording of the alternative for clarity (re-wording suggested by ACCSP: "Require commercial landings and catch/effort data be submitted in accordance with the ACCSP standards weekly or daily as required, using the SAFIS system."*

4.9.1.1 Biological Effects

Biological Effects

Alternative 1 (No Action) would retain existing data reporting systems for the commercial sector (**Table 1-3**) including new regulations implemented through Amendment 15B which include, a requirement for private recreational vessels that fish in the exclusive economic zone (EEZ), if selected by NOAA Fisheries Service, to maintain and submit fishing records; requires a vessel that fishes in the EEZ, if selected by NOAA Fisheries Service, to carry an observer and install an electronic logbook (ELB) and/or video monitoring equipment provided by NOAA Fisheries Service. For the South Atlantic snapper grouper commercial fishery current regulations (50CFR § 622.5) require commercial and recreational for-hire participants in the South Atlantic snapper grouper fishery who are selected by the Southeast Science and Research Director (SRD) to maintain and submit a fishing record on forms provided by the SRD. Bycatch data on protected species are currently collected in the commercial snapper grouper fishery through the supplementary discard form. In 1990, the SEFSC initiated a logbook program for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic. In 2001, a separate bycatch reporting logbook was added to include numbers on the average size of discarded fish by species. The discard data are collected using a supplemental form that is sent to a 20% stratified random sample of the active permit holders. The sample selections are made each year and the selected fishermen/vessels are required to complete and submit the form for the trips they make during the following calendar year. Fishermen are not selected for the next four years after they submit a discard form for a year. However, over a five-year period, 100% of snapper grouper permit holders will have been required to report in one of the five years.

Alternative 1 (No Action) would continue to obtain fishing effort information as well as protected species interactions via a logbook. Discard data are collected using a supplemental form that is sent to a 20% stratified random sample of the active permit holders. The sample selections are made in July of each year and the selected fishermen/vessels are required to complete and submit the form for the trips they make during August through July of the following year. Fishermen are not selected for the next four years after they submit a discard form for a year. However, over a five-year period, 100% of snapper grouper permit holders will have been required to report in one of the five years. In addition, information is collected on protected species interactions. The key advantage of logbooks is the ability to use them to cover all fishing activity relatively inexpensively. However, in the absence of any observer data, there are concerns about the accuracy of logbook data in collecting bycatch information. Biases associated with logbooks primarily result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest (particularly of bycatch species), and from low compliance rates. Many fishermen may perceive that accurate reporting will result in restricted fishing effort or access. This results in a disincentive for reporting accurate bycatch data and an incentive to under-report or not report. Therefore, logbook programs are more useful in recording information on infrequently caught species and providing estimates of total effort by area and season that can then be combined with observer data to estimate total bycatch.

Commercial quotas are monitored by the NOAA Fisheries Service Southeast Fisheries Science Center (SEFSC). Landings information are obtained from dealers. Dealer selections are made for a calendar year based on the production for the previous year. Selected dealers are notified that they must report landings by the of a following month, even if no purchases were made. The SEFSC provides periodic reports to NOAA Fisheries Service Southeast Regional Office (SERO) and the Council (at least prior to each Council meeting). In addition, timing of possible closures are estimated. Periodically, quota monitoring data are compared to general canvas landings data for the same dealers. The purpose is to determine if selected dealers provide an acceptable percentage of total reported landings. The review of the general canvass landings data are also used to identify new dealers handling quota species. If new dealers are identified or if the percentage of landings accounted for by selected dealers drops below a specified percentage, additional dealers would be required to report landings.

Dealers have two options for submitting data: (1) a paper form faxed to SEFSC or (2) online reporting. To enter and use the online system, the dealer uses a valid user login ID and password. This system is secure and only users with valid user IDs and passwords can access it. Furthermore, the user ID and password is unique for each dealer and will only allow access to the data entered by an individual using that password. All entries are logged on a tracking database and each time a user enters the system and makes a change to the data, that entry, and the changes are recorded, along with the date and time the changes were made. Instructions are provided to the dealers on how to use the online system.

Some data are also collected through cooperative research projects. Cooperative research with the commercial and recreational sectors on bycatch was identified as a high priority item at the Southeast Bycatch Workshop during May 2006. There is clearly a need to characterize the entire catch of commercial fishermen and compare differences in abundance and species diversity to what is caught in fishery-independent gear. As we move towards a multi-species management approach, these types of data are essential. In addition, estimates of release mortality are needed for stock assessments but currently this is not being measured for fishery-dependent data. It is anticipated that additional cooperative research projects will be funded in the future to enhance the database on bycatch in the snapper grouper fishery in the South Atlantic.

Cooperative research projects between science and industry are being used to a limited extent to collect bycatch information on the snapper grouper fishery in the South Atlantic. For example, Harris and Stephen (2005) characterized the entire (retained and discarded) catch of reef fishes from a selected commercial fisherman in the South Atlantic including total catch composition and disposition of fishes that were released. The Gulf and South Atlantic Fisheries Foundation, Inc. obtained funding to conduct a fishery observer program within the snapper grouper vertical hook-and-line (bandit rig) fishery of the South Atlantic United States. Through contractors they randomly placed observers on cooperating vessels to collect a variety of data quantifying the participation, gear, effort, catch, and discards within the fishery.

Research funds for observer programs, as well as gear testing and testing of electronic devices are also available each year in the form of grants from the Foundation, Marine Fisheries

Initiative (MARFIN), Saltonstall-Kennedy (S-K) program, and the Cooperative Research Program (CRP). Efforts are made to emphasize the need for observer and logbook data in requests for proposals issued by granting agencies. A condition of funding for these projects is that data are made available to the Councils and NOAA Fisheries Service upon completion of a study.

Included in **Alternative 1 (No Action)** would be the measures proposed in Amendment 15B, which was recently implemented. The Council's preferred alternative in Amendment 15B allows for the implementation of interim programs to monitor and assess bycatch in the South Atlantic snapper grouper fishery until the Atlantic Coastal Cooperative Statistical Program (ACCSP) Release, Discard and Protected Species (Bycatch) Module can be fully funded. The interim programs or first phase of the alternative would allow for the collection of bycatch information utilizing a variety of methods and sources when this amendment is implemented as follows:

1. Require that selected vessels carry observers (It is the Council's intent that NOAA Fisheries Service and grant-funded programs would cover the cost of observers on snapper grouper vessels.)
2. Require selected vessels employ electronic logbooks or video monitoring (It is the Council's intent that NOAA Fisheries Service and grant-funded programs cover the cost of purchase and installation of these units.)
3. Utilize bycatch information collected in conjunction with grant-funded programs such as MARFIN and Cooperative Research Program (CRP). Require that raw data are provided to NOAA Fisheries Service and the Council.
4. Request that bycatch data collected by states are provided to NOAA Fisheries Service and the Council. Many states may have collected data on snapper grouper bycatch in the past. Furthermore, some states may be currently collecting bycatch data through studies that are conducted in state waters.
5. Develop outreach and training programs to improve reporting accuracy by fishermen.

Alternative 1 (No Action) would not require that commercial vessels with a snapper grouper permit to use the SAFIS system or vessel monitoring systems (VMS).

Alternatives 2-6 identify options for monitoring catch and effort, which are more specific than what was specified in Amendment 15B. There are no direct biological impacts from establishing a standardized reporting methodology to estimate bycatch. However, indirect impacts resulting from **Alternatives 2-6** would provide a better understanding of the composition and magnitude of catch and bycatch; enhance the quality of data provided for stock assessments; increase the quality of assessment output; provide better estimates of interactions with protected species; and lead to better decisions regarding additional measures that might be needed to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

Alternatives 2-6 differ in type, amount, and quality of data they would provide. They also differ in feasibility. **Alternatives 2 and 3** would *require dealers* to report electronically (computer or fax) and require weekly or daily reporting when it is anticipated a quota was going to be met. The difference between **Alternatives 2 and 3** is **Alternative 2** would only require selected dealers to participate in the program; whereas, **Alternative 3** would require all dealers to participate.

Alternative 4 would require all vessels with a Federal snapper grouper commercial permit to have an electronic logbook tied to the vessel's GPS onboard the vessel. This alternative differs from **Alternative 1 (No Action)** in that a vessel would only be required to use electronic logbook if it were selected.

The Council tested the use of electronic logbook reporting using the Thistle Marine HMS-110 unit to examine the magnitude and spatial distribution of fishing effort and species composition (O'Malley 2003). The project was implemented on two commercial snapper/grouper vessels in South Carolina and North Carolina from May 2002 through November 2002. Over 4,000 high spatial and temporal resolution data points on commercial catch and effort representing 19 fishing trips were captured. The Thistle box allows fishermen to record all species encountered as well as the disposition of released specimens. A comparison of electronic versus paper reporting for a single trip indicates more than twice the number of species than recorded on the trip ticket (O'Malley 2003). Catch per unit of effort (CPUE) can be expressed in different ways for this fishery and the Thistle logbook device can be configured to record all of the parameters necessary to calculate different types of CPUE. These could include catch per trip/day/hour fished, catch per hook/line/reel fished, or catch per man-trip/man-day/man-hour. The Thistle electronic logbook is also setup to record fish lengths. Electronic logbooks have the potential to automatically collect information on date, time, location, and fishing times. Information (species, length, disposition) of released species can be manually entered into the system at the end of a fishing event. If the electronic format prompts a fisherman to record data as bycatch occurs, an electronic logbook may provide better estimates of bycatch than a paper logbook. However, for electronic logbooks, like paper logbooks, biases may result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest.

Alternative 5 (Preferred) would provide the option for fishermen to submit their logbook entries electronically through an electronic version of the logbook made available online. Paper logbooks have been required for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic since 1990. In 2001, a separate bycatch reporting logbook was added to include numbers on the average size of discarded fish by species. However, in the absence of any observer data, there are concerns about the accuracy of these logbook data. Biases associated with paper logbooks primarily result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest. There is also a delay in the time in which logbook data are provided via mail to the SEFSC. Electronic logbooks could be completed more easily than paper logbooks and allow for quicker delivery of data to the SEFSC. Therefore, **Alternative 5 (Preferred)** has the potential to increase the accuracy of logbook data and speed with which it could be delivered to the SEFSC. However, since data would usually not be entered until the end of a fishing trip,

some bias from inaccuracy would be expected. Therefore, **Alternative 5 (Preferred)** would be expected to provide data with increased accuracy relative to **Alternative 1** but with less accuracy than **Alternative 4**, which would allow information to be recorded at the end of a fishing event. Furthermore, like paper logbooks, biases could still be expected due to inaccuracy in reporting of species that are caught in large numbers or are of little economic interest.

Alternatives 6 would require commercial landings and catch/effort data be submitted in accordance with the ACCSP standards weekly or daily as required, using the Standard Atlantic Fisheries Information System (SAFIS) system. SAFIS is a real-time, web-based reporting system for commercial landings on the Atlantic coast. It is comprised of three applications:

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

Data reported through SAFIS is fed into the ACCSP Data Warehouse. Beneficial biological impacts would be provided by **Alternatives 6** if data are provided more quickly from the fishermen and dealers to NOAA Fisheries Service and fishery managers. In addition to monitoring quotas in a more timely fashion than under the current quota monitoring system, the SAFIS has the potential to improve the quality of data and stock assessments.

Alternatives 1-6 are unlikely to have adverse effects on ESA-listed species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to ESA-listed species. Data collected under **Alternatives 2-6** may indirectly benefit ESA-listed species by improving the quality and quantity of data available for evaluating the impacts of the fishery on protected species.

4.9.1.2 Economic Effects

In general, an increase in the quantity and/or quality of data increases long-term economic benefits through improvements to management of the stocks. Logbooks, in particular, are seen as a low cost alternative to video monitoring, electronic logbooks and other monitoring that requires specialized equipment able to withstand harsh ocean conditions. While paper logbook submittal is already required, **Preferred Alternative 5** would provide fishermen the options to submit their logbooks online. While **Alternatives 2, 3, Preferred Alternative 5, and 6** would likely be the least expensive alternatives, **Alternative 4** would be the most expensive. **Preferred Alternative 5** and **Alternative 2** would provide the least amount of additional data, although, the data may be ready for usage quicker than under **Alternative 1 (No Action)**. Compared to the other alternatives, **Alternatives 3, 4, and 6** provide the

greatest increase in the quantity of data collected and therefore management of the fisheries. Therefore, there are greater long-term economic benefits associated with these alternatives. As stated above, **Alternative 6** would improve the quality of data available over **Alternatives 2 and 3**. This would result in higher economic benefits under **Alternative 6** compared to **Alternatives 2 and 3** or **Alternative 1 (No Action)**. The actual cost to the dealers and fishermen of submitting the data under **Alternative 6** is unknown and may be negligible in that it might simply replace filling out paper fish tickets. However, if there is an increase in frequency of data submitted required, costs could be higher. Dealers would need to have computers to submit the data as would fishermen. This cost analysis as well costing out of the other alternatives will be completed in December 2010 once electronic logbook pilot programs have been completed. It is unknown at this time how much of the costs of each of the data improvement alternatives would be paid for by government versus fishermen/dealers.

4.9.1.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

In general terms, it is assumed that while data collections programs or obligations may be individually burdensome on fishery participants, better data reporting is assumed to support better management through improved stewardship of the biological resource and the timely development and implementation of management action that meet resource targets while minimizing adverse social and economic consequences. In sum, better management, from both the resource and fishery perspective, is assumed to result in greater long-term social and economic benefits. It is not possible to state with any certainty when the amount and type of available data is sufficient for optimal assessment and management purposes so, for the purposes of this discussion, it is assumed that continued improvements in resource stewardship and fishery management will continue to be made with more data. All of alternatives under consideration, with the exception of **Alternative 1 (No Action)**, are assumed to constitute improvements to current data collection requirements. Because each of these alternatives would improve data collection relative to **Alternative 1 (No Action)**, it is assumed that each would result in greater long-term social benefits than **Alternative 1 (No Action)**.

Alternatives 2, 3, and 6 apply to snapper grouper dealers, whereas **Alternatives 4-5** apply to snapper grouper fishermen (vessels). As a result, effects comparison should be limited to comparisons within the two sub-groups. **Alternatives 2 and 3** vary only in the potential scope of coverage, where dealers would only have to report if selected under **Alternative 2**, whereas all dealers would be required to report under **Alternative 3** and **Alternative 6**. As a result, **Alternative 3** and **Alternative 6** would be expected to place an additional operational burden on more entities than **Alternative 2**, while resulting in better total data and management due to the more inclusive scope of data collection. Although **Alternative 3** and **Alternative 6** would place an increased operational burden on more entities, the individual burden would be expected to be minimal. Because computers have become more mainstream in both private and business life, it is expected that virtually all dealers currently have, or have easy access to,

most of the necessary hardware, internet accessibility, and skills to provide the required information. Use of these tools has become normal in today's business world. With the provision of access to the appropriate internet interface (i.e., the ability to sign into the web-based reporting site), compliance with any new requirements should result in minimal to no additional burden on these entities, resulting in no to minimal adverse social, or economic, impacts on these entities. It should also be noted that the difference between the two alternatives may be illusory as, operationally, all dealers could be selected for reporting under **Alternative 2**, a decision that would be at the discretion of NMFS. Thus, the functional outcome of **Alternative 2**, **Alternative 3**, and **Alternative 6** could be identical.

While all vessels with a Federal snapper grouper permit are required to submit trip logbooks, with electronic reporting required if the vessel is selected, **Alternative 4** would require that all logbooks be submitted electronically. At this time, while it is assumed that it is the intent of the Council that the responsibility for the financial burden of the cost and installation of the electronic logbook lie with grant or government funds, such is not certain, and long-term subscription or maintenance costs may still likely be the responsibility of the vessel. However, given the current mandatory logbook (paper) reporting for this fishery, other than learning how to operate an electronic logbook, the use and submission of the required information may be less burdensome than the current paper logbooks. Electronic reporting may also support both more timely and accurate reporting though, for the purpose of this discussion, it is assumed both methods accurately reflect actual harvest (and both require mandatory reporting of all trips by all vessels) and the primary benefit of electronic reporting is the data is submitted as the trip occurs rather than as part of monthly submissions.

Alternative 5 (Preferred) would ease the burden of logbook reporting for those fishermen who have access and the skills to complete electronic reporting. Although electronic logbook reporting would require a greater financial commitment (cost of a computer and internet connection) and skills (the fisherman or appropriate representative would have to have basic computer literacy skills) than paper logbook reporting, such access and skills are expected to be more the norm than the exception in today's society, such that many, if not most, fishermen would not be expected to incur any new expenditures or require substantive training. Further, electronic reporting would be optional rather than mandatory and, as such, no fishermen would be expected to adopt electronic reporting unless they made the self-determination that doing so was less burdensome than their current reporting method. While **Alternative 4** may result in better overall data relative to **Alternative 5 (Preferred)** (on the presumption that electronic reporting will result in more accurate and timely data), the optional aspect of **Alternative 5 (Preferred)** (freedom of choice) may result in a better social outcome. Further, even with optional selection, adoption rates may increase over time if those who initially choose not to use electronic reporting see others benefit from adopting this option. As a result, over time, the overall state of data reporting under **Alternative 4** and **Alternative 5 (Preferred)** could be the same.

4.9.1.4 Administrative Effects

Under **Alternative 1 (No Action)** no administrative impacts would be incurred outside of the status-quo. **Alternative 2**, which would require a dealer, if selected to report electronically, has been implemented through Amendment 15B, and is considered in **Alternative 1** (no action). Neither Alternative 1 or Alternative 2 would result in an increased administrative burden that has not been previously analyzed (Amendment 15 B). **Alternative 3** and **Alternative 4** would result in significant burden administrative burden to the agency as it would require the development of an electronic reporting system. Under these alternatives, the agency would develop the electronic reporting system and receive compliance from the Paperwork Reduction Act Office, which requires significant effort. Preferred **Alternative 5** would be the least administratively burdensome on the agency in that it would be a voluntary program and it is assumed that those that participate have some familiarity with a computer and electronic logbook programs. NOAA Fisheries would need compliance with the Paperwork Reduction Act and would produce educational materials explaining the program. **Alternative 6** would rely of the ACCSP to collect data through the SAFIS system. This system is currently operating in other regions and has been tested. The administrative burden on the agency is unknown at this time as it is not clear how the agency will be involved in the program. **Alternative 6** would require compliance with the Paperwork Reduction Act and would result in an economic cost to the Southeast Regional Office.

4.9.1.5 Council's Conclusions

4.9.2 Improvement to For-Hire Data Reporting

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

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

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

Alternative 4. Require vessels operating with a Federal For-Hire permit to maintain a logbook for discard characteristics (e.g., size and reason for discarding), *if selected*.

Alternative 5. Implement the ACCSP Quota Monitoring module for the for-hire sector.

NOTE: The IPT recommends rewording of Alternative 5 for clarity. Suggested re-wording: “Require for-hire trip reports be submitted in accordance with ACCSP standards using the SAFIS system. (The Council will need to specify daily, weekly, or monthly reporting.)”

Note: Alternative 5 may be revised to include information regarding that is required by state and federal agencies as well as fishermen.

4.9.2.1 Biological Effects

Alternative 1 (No Action) would retain existing data reporting systems for the for-hire sector. This would include those data collection measures implemented by Amendment 15B including a requirement for a vessel, if selected, that fishes in the exclusive economic zone (EEZ), to maintain and submit fishing records; to carry observers and install an electronic logbook (ELB) and/or video monitoring equipment provided by NMFS. Harvest and bycatch in the private and for-hire charter vessel sector has been consistently monitored by Marine Recreational Fishery Statistics Survey (MRFSS) since its inception. The survey uses a combination of random digit dialed telephone intercepts of coastal households for effort information and dock-side intercepts for individual trips for catch information to statistically estimate total catch and discards by species for each subregion, state, mode, primary area and wave. Bycatch is enumerated by disposition code for each fish caught but not kept (B2). Prior to 2000, sampling of the charter vessel sector resulted in highly variable estimates of catch. However, since 2000, a new sampling methodology has been implemented. A 10% sample of charter vessel captains is called weekly to obtain trip level information. In addition, the standard dockside intercept data are collected from charter vessels and charter vessel clients are sampled through the standard random digital dialing of coastal households. Precision of charter vessel effort estimates has improved by more than 50% due to these changes (Van Voorhees *et al.* 2000). Additional improvements are scheduled for MRFSS in the next few years.

Harvest from headboats is monitored by NOAA Fisheries Service at SEFCS's Beaufort Laboratory. Collection of discard data began in 2004. Daily catch records (trip records) are filled out by the headboat operators; or in some cases by NOAA Fisheries Service approved headboat samplers based on personal communication with the captain or crew. Headboat trips are subsampled for data on species lengths and weights. Biological samples (scales, otoliths, spines, reproductive tissues, stomachs) are obtained as time permits. Lengths of discarded fish are occasionally obtained but these data are not part of the headboat database.

Included in the no-action **Alternative 1 (No Action)** would be the measures proposed in Amendment 15B, which has been approved and implemented by the Secretary. The Council's preferred alternative in Amendment 15B allows for the implementation of interim programs to monitor and assess bycatch in the South Atlantic snapper grouper fishery until the ACCSP Release, Discard and Protected Species (Bycatch) Module can be fully funded. The interim programs or first phase of the alternative would allow for the collection of bycatch information utilizing a variety of methods and sources when this amendment is implemented as follows:

1. Require that selected vessels carry observers funded by the agency.
2. Require selected vessels employ electronic logbooks or video monitoring funded by the agency.

3. Utilize bycatch information collected in conjunction with grant-funded programs such as MARFIN and Cooperative Research Program (CRP). Require that raw data are provided to NOAA Fisheries Service and the Council.
4. Request that bycatch data collected by states are provided to NOAA Fisheries Service and the Council. Many states may have collected data on snapper grouper bycatch in the past. Furthermore, some states may be currently collecting bycatch data through studies that are conducted in state waters.
5. Develop outreach and training programs to improve reporting accuracy by fishermen.

Alternative 1 (No Action) would not require that for-hire vessels to use the Standard Atlantic Fisheries Information System (SAFIS) system or vessel monitoring systems (VMS). This would include those data collection measures in place as well as those implemented by Amendment 15B that includes all vessels, if selected, that fish in the EEZ, to maintain and submit fishing records; to carry observers and install an electronic logbook ELB and/or video monitoring equipment provided by NOAA Fisheries Service.

Alternatives 2 and 3 identify options for monitoring catch and effort, which are more specific than what was specified in Amendment 15B. There are no direct biological impacts from establishing a standardized reporting methodologies. However, indirect impacts resulting from **Alternatives 2 and 3** would provide a better understanding of the composition and magnitude of catch and bycatch; enhance the quality of data provided for stock assessments; increase the quality of assessment output; provide better estimates of interactions with protected species; and lead to better decisions regarding additional measures that might be needed to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

Alternatives 2 and 3 differ in type, amount, and quality of data they would provide. They also differ in feasibility. **Alternative 2** would require all vessels with a Federal for-hire permits to report landings electronically; whereas, **Alternative 3** would only require selected vessels to report electronically. Amendment 15B also includes an alternative that would require commercial, for-hire, and private vessels to install an ELB and/or video monitoring equipment provided by NMFS, if selected. Therefore, **Alternative 3** only differs from what was implemented through Amendment 15B by not specifying the type of electronic equipment that would be used to report landings.

The Council tested the use of electronic logbook reporting using the Thistle Marine HMS-110 unit to examine the magnitude and spatial distribution of fishing effort and species composition (O'Malley 2003). The project was implemented on two commercial snapper/grouper vessels in South Carolina and North Carolina from May 2002 through November 2002. Over 4,000 high spatial and temporal resolution data points on commercial catch and effort representing 19 fishing trips were captured. The Thistle box allows fishermen to record all species encountered as well as the disposition of released specimens. A comparison of electronic versus paper reporting for a single trip indicates more than twice the number of species than recorded on the trip ticket (O'Malley 2003). Catch per unit of effort (CPUE) can be expressed in different ways for this fishery and the Thistle logbook device can

be configured to record all of the parameters necessary to calculate different types of CPUE. These could include catch per trip/day/hour fished, catch per hook/line/reel fished, or catch per man-trip/man-day/man-hour. The Thistle electronic logbook is also setup to record fish lengths. Electronic logbooks have the potential to automatically collect information on date, time, location, and fishing times. Information (species, length, disposition) of released species can be manually entered into the system at the end of a fishing event. If the electronic format prompts a fisherman to record data as bycatch occurs, an electronic logbook may provide better estimates of bycatch than a paper logbook. However, for electronic logbooks, like paper logbooks, biases may result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest.

Alternative 4 would require vessels operating with a for-hire permit to maintain a logbook for discard characteristics, (e.g. the size and reason for discarding), if selected. Harvest from headboats has been monitored by NOAA Fisheries Service at SEFCS's Beaufort Laboratory since 2004. Daily catch records (trip records) are filled out by the headboat operators; or in some cases by NOAA Fisheries Service approved headboat samplers based on personal communication with the captain or crew. Fish lengths and biological samples are also collected. Alternative 4 would differ from the status quo **Alternative 1** by also requiring logbooks for the charter portion of the for-hire fishery. As landings from charter boat often dominate catches in the for-hire sector, **Alternatives 4** would provide a better understanding of the composition and magnitude of catch and bycatch, leading to better data for stock assessment and better decisions regarding measures needed manage fish resources and reduce bycatch.

Alternative 5 would require for-hire trip reports to be submitted in accordance with the ACCSP standards using the SAFIS system. This alternative is essentially the same as **Alternative 2** and would incur similar biological impacts described above. **Alternative 5** would require selected vessels to report electronically (computer or fax) through the SAFIS and require weekly or daily reporting when it is anticipated a quota was going to be met. SAFIS is a real-time, web-based reporting system for commercial landings on the Atlantic coast. It is comprised of three applications:

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

Data reported through SAFIS is fed into the ACCSP Data Warehouse. Beneficial biological impacts would be provided by **Alternative 5** if data are provided more quickly from the fishermen and dealers to NMFS and fishery managers. In addition to monitoring quotas in a more timely fashion than under the current quota monitoring system, the SAFIS has the potential to improve the quality of data and stock assessments.

The impacts on ESA-listed species from **Alternatives 1-5** for the for-hire sector will be the same as those noted in **Section 4.7.1.1**.

4.9.2.2 Economic Effects

In general, an increase in the quantity and/or quality of data increases short and long-term economic benefits through improvements to management of the stocks. Electronic reporting and paper logbooks, in particular, are seen as a low cost alternative to video monitoring, electronic logbooks and other monitoring that requires specialized equipment able to withstand harsh ocean conditions. Therefore, **Alternative 4** is perhaps the least costly alternative with **Alternative 3** being the next least costly and **Alternatives 2 and 3** being the most costly in that it is mandatory. However, **Alternatives 2 and 3** provide the least amount of additional data for use in improving management. Under **Alternatives 2, 3, and 4**, a portion of fishermen (**Alternative 3**) and all fishermen (**Alternatives 2 and 5**) would have to submit information electronically and would therefore need a computer. The cost associated with this is unknown since it is unknown how many fishermen already have computers and use computers to advertise their business services. Under **Alternative 4**, cost associated with the time required for selected fishermen to fill out logbooks for discards is unknown since the forms have not yet been created.

4.9.2.3 Social Effects

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3.

The general effects of improved data reporting, as well as the expected effects of **Alternative 1 (No Action)**, are discussed in Section 4.9.1.3.

Alternatives 2 and 3 vary only in the potential scope of coverage, where for-hire operators would only have to report if selected under **Alternative 3**, whereas all vessels would be required to report under **Alternative 2**. As a result, conceptually, **Alternative 2** would be expected to place an additional operational burden on more entities than **Alternative 3**, while resulting in better total data and management due to the more inclusive scope of data collection. Although **Alternative 2** would place an increased operational burden on more entities, it is assumed that the individual burden would be minimal, as discussed in Section 4.9.1.3. It has not been determined who would pay for the necessary systems, though it might be assumed, similar to the alternatives for the commercial sector, that it is the intent of the Council that the responsibility for the financial burden of the cost and installation of the electronic logbook lie with grant or government funds. Long-term subscription or maintenance costs would still likely be the responsibility of the vessel. Also, similar to the proposed alternatives for the commercial sector, the difference between the two alternatives may be illusory as, operationally, all vessels could be selected for reporting under **Alternative**

3. Thus, the functional outcome of both **Alternative 2** and **Alternative 3** could be identical. Finally, because the headboat sector is currently required to submit paper logbooks, the incremental burden of an electronic logbook would not be as great for this sector compared to the charter sector, as any required electronic reporting would replace existing requirements. The data collected via electronic logbook may still, however, be more accurate and received more quickly, resulting in greater management benefits, with associated social benefits, than the current system.

Alternative 4 would limit the collection of new information to discard data. As a result, the burden associated with the documentation of this information would not be as great as under **Alternatives 2** and **3**; however, in general, the amount of information collected would be less than the information collected under **Alternatives 2** and **3**, even if all vessels are selected for reporting. Specifically, **Alternative 4** would not result in improvement of harvest information relative to either alternative. While **Alternative 4** might adequately complement the existing mandatory data requirements for the headboat sector (logbook harvest and effort data), **Alternative 4** would only improve the collection of bycatch information for the charter sector. As a result the social benefits of improved data collection and fishery management would be expected to be less under **Alternative 4** relative to **Alternatives 2** and **3**. While **Alternative 4** could be combined (adopted in tandem) with either **Alternative 2** and **3**, both **Alternative 2** and **Alternative 3** deal with form or manner and frequency of reporting and not content. As a result, bycatch information could be included in the data elements required to be reported under either **Alternative 2** or **Alternative 3** and the adoption of either alternative together with **Alternative 4** should not be necessary to have both electronic reporting and the collection of bycatch data.

Alternative 5 would be expected to increase the reporting burden on for-hire vessels, while increasing the quality and utility of data. As such, the effects of **Alternative 5** would be expected to be similar to those of **Alternative 2**. While the increased reporting burden would be expected to result in reduced social benefits to affected entities, the improved data quality and utility would be expected to result in improved management (better and more timely fishery and impact assessments resulting in improved regulations) relative to **Alternative 1 (No Action)** and **Alternative 3**. Overall, the social benefits of improved management would be expected to exceed the reduced benefits associated with increased reporting burden. The actual magnitude of effects would, however, be dependent upon the as yet unspecified reporting frequency, with more frequent reporting increasing the reporting burden, while improving the quality and utility of the data, and subsequent management decisions.

It should also be noted that the adoption of **Alternative 5** could be viewed by some as inappropriate as it would require the use of a program over which neither the Council nor NMFS has direct control and which currently lacks an interface designed for the for-hire sector. While the adoption of **Alternative 2** or **Alternative 3** would similarly require the development of an appropriate interface, the expected burden would fall on NMFS. Requiring the use of SAFIS for reporting by for-hire vessels would both expand its use to a sector not currently covered (and for which no SAFIS requirements or appropriate user interface exists), and would, essentially impose the burden of program expansion on the ACCSP. While both the Council and NMFS are participants in the ACCSP development process, due to its'

cooperative design, direct control is lacking. As a result, the selection of **Alternative 5** could result in the adoption of a management requirement that cannot be implemented with any certainty. While this could be described as an administrative concern, adverse social effects accrue to management decisions viewed as inappropriate or impractical.

4.9.2.4 Administrative Effects

Alternative 3, which would require all vessels, if selected to report electronically, has been implemented through Amendment 15B, and is considered in **Alternative 1** (no action). Neither **Alternative 1** or **Alternative 3** would result in an increased administrative burden that has not been previously analyzed (Amendment 15 B). **Alternative 2** would require all vessels to report electronically which would be administratively burdensome on the agency and fishermen. **Alternative 2** and **Alternative 3** would result in significant burden administrative burden to the agency as it would require the development of an electronic reporting system. Under these alternatives, the agency would develop the electronic reporting system and receive compliance from the Paperwork Reduction Act Office, which requires significant effort. **Alternative 4** would require vessels to maintain a logbook for discard characteristics, (e.g. size and reason for discarding). As with the other reporting alternatives, **Alternative 4** would require compliance with the Paperwork Reduction Act. **Alternative 5** is functionally the same as **Alternative 2**, in that the electronic reporting will be done through the SAFIS system. **Alternative 3** is functionally the same as **Alternative 2** and **Alternative 5**.

4.9.2.5 Council's Conclusions

4.9.3 Change in the Black Sea Bass Fishing Year

Alternative 1 (No Action). Maintain the current black sea bass fishing year of June – May .

Alternative 2. Change the black sea bass fishing year so that there is a split season with November - April and May – October and apportion the catch based on average landings from the last 5 years.

Alternative 3. Change the black sea bass fishing year so that there is a split season with Jan - June and July – December and apportion the catch based on average landings from the last 5 years.

4.9.3.1 Biological Impacts

The black sea bass fishing year currently begins on June 1. Amendment 13C to the Snapper Grouper Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2006) changed the fishing year from January-December to June-

May to ensure the commercial pot fishery for black sea bass in the winter months was preserved and to provide biological protection during the spawning season.

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), reduced the recreational allocation over three years from 633,000 lbs gutted weight to 409,000 lbs gutted weight, and reduced the quota for golden tilefish. The values of 309,000 lbs gutted weight for the commercial fishery and 409,000 lbs for the recreational fishery are proposed annual catch limits (ACL) in Amendment 17B to the FMP, which is under development. Amendment 16 to the FMP (implemented in July 2009) established a January-April spawning season closure for shallow water grouper and reduced the quota for vermilion snapper.

Measures from Amendment 13C and 16 likely resulted in increased effort in the black sea bass commercial fishery during the 2009 fishing year. The average catch per pot was similar during 2008 and 2009 (Table 4-x1). 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 4-x2). 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-x1. 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-x2. 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.

Month	2008			2009		
	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 inc

29.16%

64.14%

20.24%

The Council is concerned that recent management actions has created a derby for black sea bass and commercial fishermen are concerned that the quota is being met during a period of time (November-March) that has been the most profitable for commercial black sea bass pot fishermen. **Alternative 1 (No Action)** would not alleviate the derby-like conditions, and negative economic and social negative impacts resulting from an abbreviated fishing season. However, **Alternative 1** would be expected to have positive biological impacts for black sea bass since the commercial quota and recreational ACL proposed in Amendment 17B would be expected to be met prior to peak spawning.

The spawning season varies with latitude (Musick and Mercer 1977; Mercer 1978; Wenner et al. 1986). Peak spawning for black sea bass occurs during March through May off the southeast coast of the U.S. (Wenner et al. 1986; McGovern et al. 2000). Based on data from 2005-2009, the commercial quota was expected to be met in early March and the recreational ACL would be expected to be met in January (Table 4-x3). However, during the June 2009-May 2010 fishing year the quota was met in December 2009 as a result of increased effort. Furthermore, unless there is a change in the fishing year, the recreational ACL proposed in Amendment 17B would be met just prior to peak spawning of black sea bass (Table 4-x3). McGovern et al. (2000) estimate females black sea bass spawn every three to four days during peak spawning. Therefore, the early commercial and recreational closures expected under **Alternative 1** could have positive biological effects on black sea bass including more spawning opportunities for black sea bass, which could contribute to recruitment success of the new year-class, rebuilding of the overfished stock, and long-term stock sustainability.

Table 4-x3. Average monthly catch of black sea bass (lbs gutted) and for commercial and recreational fisheries based on data from 2005-2009.

Month	Commercial	Cumulative	Recreational	Cumulative
6	23,058	23,058	90,337	90,337
7	16,672	39,730	78,482	168,819
8	19,551	59,281	74,559	243,378
9	15,343	74,624	27,025	270,403
10	21,957	96,581	26,356	296,759
11	43,531	140,112	48,924	345,682
12	56,352	196,463	48,026	393,708
1	58,027	254,491	20,846	414,555
2	49,569	304,060	21,144	435,699
3	31,162	335,222	48,228	483,927
4	21,796	357,019	52,963	536,890
5	14,300	371,319	81,880	618,770

Shaded areas show months when commercial quota (309,000 lbs gutted weight) and recreational ACL (409,000 lbs gutted weight) would be expected to be met during the June-May fishing year in Alternative 1. 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 2 would divide the fishing season into November 1-April 30 and May 1-October 31 time, and would apportion the commercial quota and recreational allocation based on average landings from the last 5 years (Table 4-x4). 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.

Given the level of average landings during 2005-2009, the commercial quota and recreational ACL would be expected to be met during March for November 1-April 30 time period. An earlier closure for the commercial fishery could occur if effort remains at the elevated levels observed in 2009. An early closure during November-March could have a positive biological affects for black sea bass by reducing fishing mortality during the peak spawning month of April. In addition, interaction with protected species that have the potential of becoming entangled in pot lines would be reduced. However, since the second six month spawning season would start during peak spawning in May, the biological benefits of **Alternative 2** would likely be less than the No Action **Alternative 1**. Based on data from 2005-2009, the commercial fishery would be expected to close in October and the recreational fishery during August for the May-September portion of the fishing year specified in **Alternative 2** (Table 4-x5). Incidental catch of black sea bass would likely occur when recreational fishermen target co-occurring species during a prolonged summer closure; however, as release mortality is low 15% (SEDAR 2 - SAR 3 2005), positive biological effects would be expected from meeting the recreational allocation.

Table 4-x4. Quota for split seasons based on proportion of average landings during fishing years for 2005-2009, and overall commercial quota of 309,000 lbs gutted weight and recreational ACL of 409,000 lbs gutted weight.

	Alternative 2		Alternative 3	
	Nov-April	May-Oct	Jan-June	May-Dec
Comm quota	216,728	92,272	164,697	144,303
Rec ACL	158,724	250,276	208,475	200,525

Table 4-x5. Average monthly catch of black sea bass (lbs gutted) and for commercial and recreational fisheries based on data from 2005-2009.

MRFSS	Commercial	Cumulative	Recreational	Cumulative
11	43,531	43,531	48,924	48,924
12	56,352	99,883	48,026	96,950
1	58,027	157,910	20,846	117,796
2	49,569	207,479	21,144	138,940
3	31,162	238,642	48,228	187,168
4	21,796	260,438	52,963	240,131
5	14,300	14,300	81,880	81,880
6	18,759	33,059	86,313	168,193
7	18,028	51,087	70,214	238,407
8	22,546	73,633	65,966	304,373
9	18,453	92,086	26,544	330,917
10	25,886	117,972	25,871	356,788

Shaded areas show months when commercial quota and recreational ACL specified in Table 4-x4 would be expected to be met during the November-April and May-September time periods specified in Alternative 2. Data for the January-May 2010

portion of the 2009 fishing year 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. Data from June-October 2010, for the 2009 fishing year are averaged from the 4 preceding years.

Alternative 3 proposes splitting the season into January 1-June 30 and July 1-December 31 and would apportion the commercial quota and recreational ACL based on average landings from the last 5 years (Table 4-x4). Based on calendar year data from 2005 to 2009, the quota and recreational ACL specified in 4-x6 would not be expected to be met until March for the commercial sector and April for the recreational sector. The quota could be met earlier for the commercial sector if elevated effort observed in 2009 persists. The biological benefit of **Alternative 3** would likely be less than **Alternatives 1** or **2** because fishing effort could occur during peak spawning in March and April. Based on data from 2005-2009, the commercial fishery would be expected to close in December and the recreational fishery during October for the July-December portion of the fishing year specified in **Alternative 3** (Table 4-x5). Incidental catch of black sea bass would be likely when recreational fishermen target co-occurring species during a prolonged summer closure; however, as release mortality is low 15% (SEDAR 2 - SAR 3 2005), positive biological effects would be expected from meeting the recreational allocation.

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 and 3** are unlikely to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. Sea turtle abundance in the South Atlantic changes seasonally. Even if **Alternatives 2 and 3** 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.

Table 4-x6. Average monthly catch of black sea bass (lbs gutted) and for commercial and recreational fisheries based on calendar year data from 2005-2009.

Month	Commercial	Cumulative	Recreational	Cumulative
1	77,635	77,635	23,000	23,000
2	60,211	137,847	23,413	46,413
3	38,335	176,181	50,607	97,019
4	31,469	207,650	55,342	152,361
5	22,299	229,949	85,815	238,176
6	23,058	253,007	90,249	328,426
7	16,672	16,672	77,000	77,000
8	19,551	36,223	72,751	149,751
9	15,343	51,566	26,576	176,327
10	21,957	73,523	25,904	202,231
11	43,531	117,054	48,306	250,536

12	56,352	173,406	47,734	298,271
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Shaded areas show months when commercial quota and recreational ACL specified in Table 4-x4 would be expected to be met during the January-June and July-December time periods specified in Alternative 3.

Note: The Council is considering establishing trip limits for the black sea bass commercial fishery. This is likely to accomplish the same socioeconomic goals as the action to split the fishing year. The IPT needs guidance from the Council if they would like this analysis completed, given discussions on trip limits and the associated analysis.

4.9.3.2 Economic Impacts

Alternatives 2 and 3 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 2 and 3** assure them of an open winter fishery. However, under **Alternatives 2 and 3**, because fishing will be occurring during peak spawning periods, there could be negative long-term economic impacts.

4.9.3.3 Social Impacts

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3. The following discussion does not incorporate consideration of the alternative seasonal closures proposed in Action 12.

As discussed in Section 4.11.1, 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 4.11.1, 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 2 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 2**, and partially closed in March. However, the fishery would be open in May under **Alternative 2** 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 2** 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 3 would be expected to result in a longer total closure in the commercial sector (over three months) than **Alternative 2**, but may result in a closure of similar duration to that under **Alternative 1 (No Action)**. As a result, **Alternative 3** would be expected to result in reduced social benefits to the commercial sector compared to **Alternative 2**, but potentially no change in social benefits relative to **Alternative 1 (No Action)**.

For the recreational sector, **Alternative 3** 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 2**. As a result, from the perspective of the total length of the closure, **Alternative 3** 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 2**. However, **Alternative 3** would help reduce overlapping closures relative to both **Alternative 1 (No Action)** and **Alternative 2** and, as a result, would be expected to result in increased social benefits associated with increased harvest flexibility.

See Section 4.7.3 for discussion on the number of potentially affected communities and dealers with recorded black sea bass landings in 2008.

4.9.3.4 Administrative Impacts

Alternative 1 (no action) would be the least administratively burdensome alternative. Both **Alternative 2** and **Alternative 3** would require a rule-making to revise the fishing year designation and prepare outreach materials to announce the change. Neither alternative is expected to result in a significant administrative burden.

4.9.3.5 Council Conclusions

4.10 Implement a Black Sea Bass Spawning Season Closure

Alternative 1 (No Action). Do not implement a spawning season closure. There is currently no spawning season closure for black sea bass.

Alternative 2. Implement a March 1-April 30 spawning season closure for black sea bass.

Sub-alternative A: For recreational sector.

Sub-alternative B: For commercial sector.

Alternative 3. Implement an April 1-May 31 spawning season closure for black sea bass.

Sub-alternative A: For recreational sector.

Sub-alternative B: For commercial sector.

Alternative 4. Implement a March 1-May 31 spawning season closure for black sea bass.

Sub-alternative A: For recreational sector.

Sub-alternative B: For commercial sector.

- Alternative 5.** Implement a May 1- May 31 spawning season closure for black sea bass.
Sub-alternative A: For recreational sector.
Sub-alternative B: For commercial sector.

4.10.1 Biological Impacts

Black sea bass are overfished and experiencing overfishing (SEDAR 2 - SAR 3 2005). Amendment 13C to the Fishery Management Plan for the South Atlantic Region (SAFMC 2006) implemented management measures to end black sea bass overfishing. Black sea bass are vulnerable to overfishing because they change sex from female to male (protogyny), achieve sizes as great as 26.1 inches total length (TL) and live for at least 10 years (SEDAR 2 2003). The age and size at 50% maturity for female black sea bass is 7 inches TL and 1 year, respectively. All females are mature by 18.0 cm (7.1 inches) standard length and age 3 (McGovern et al. 2002). Since release mortality is low for black sea bass (15%), the size limit of 10 inches TL for the recreational sector and 12 inches TL for the commercial sector appears to be allowing a portion of the population to survive and spawn. McGovern et al. (2002) found there was no significant difference in the ratio of males to females during 1978-1998 in the South Atlantic; however, in later years there was a decrease in the mean size of black sea bass in landings and a greater percentage of males at smaller sizes in later years suggesting black sea bass compensate for the loss of larger males by changing sex at smaller sizes and younger ages.

Wenner et al. (1986) report spawning occurs from March through May in the South Atlantic Bight. McGovern et al. (2002) indicate that black sea bass females are in spawning condition during March-July, with a peak during March-May. The greatest percent of females (greater than 50%) are in spawning condition during March and April (Figure 4-x). Some spawning also occurs during September and November. Spawning takes place in the evening every three to four days (McGovern et al. 2002) and larger females produce more eggs (Wenner et al. 1986).

Alternative 1 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).

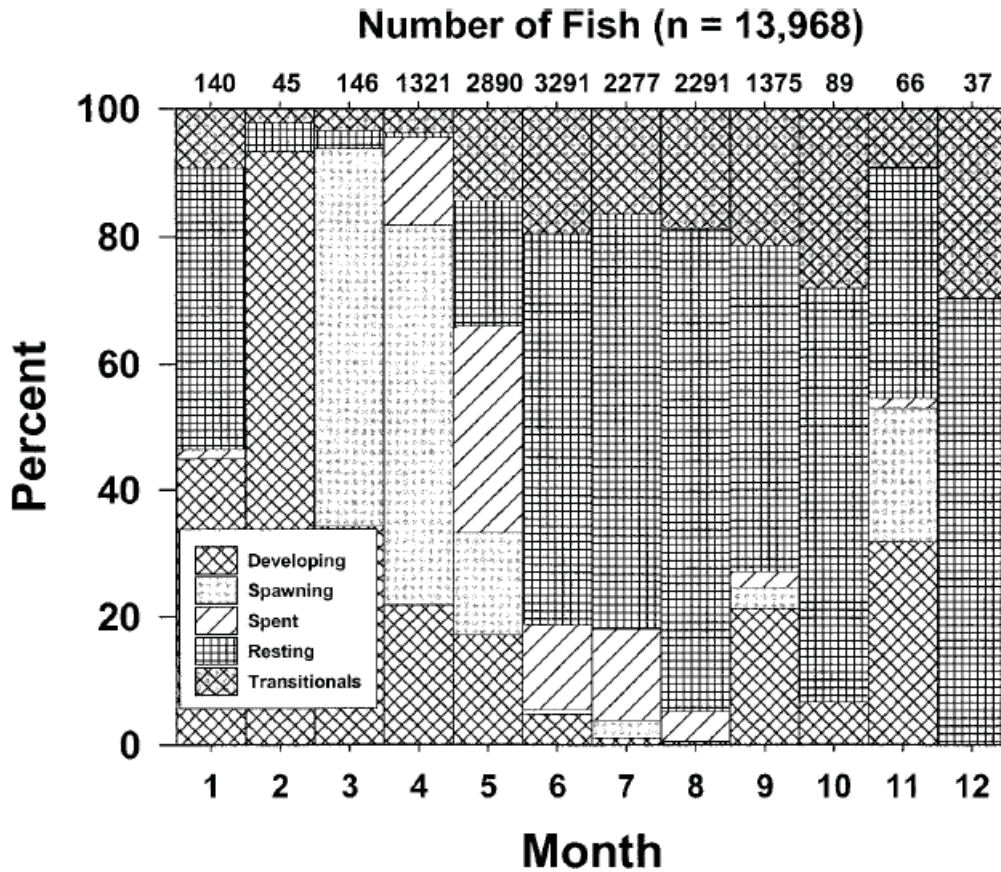


FIGURE 4.—Monthly gonadal stage percentages for 13,968 female black sea bass captured between 31°20'N and 34°00'N, 1978–1998. The number collected and examined each month is given at the top of the bar.

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

Alternatives 2-5 would consider alternatives for various spawning season closures with options for closing the commercial sector, recreational sector, or both. **Alternative 2** 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 **Alternatives 3 and 5**. March and April accounted for 16% of black sea bass landings during the 2005-2009 fishing year. **Alternative 3**, which would close the months of April and May, would not have a great biological benefit as **Alternative 2** because it would not include the month of March when a large proportion of the population is in spawning condition. 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 (Table 4-x1). Most commercial landings have historically occurred during November through February. The biological benefit of **Alternative 4** would be greatest of all the alternatives considered because it would encompass the entire March-May period of peak spawning. The biological benefit of **Alternative 5** would be least of the action alternatives because it would only close May when a small proportion of the population is in spawning condition relative to March and April. Furthermore, only a small portion (4%) of the commercial landings occurred during May during the 2005-2009 fishing years (Table 4-x1). Thus, in terms of biological benefit to black

sea bass, the order of alternatives from greatest benefit to least is: **Alternative 4; Alternative 2; Alternative 3; Alternative 5; and Alternative 1.**

Table 4-x1. Percentage of monthly landings for black sea bass during 2005-2009 fishing years.

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

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) would perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. **Alternatives 2-5** are unlikely to have adverse effects on ESA-listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora*. Sea turtle abundance in the South Atlantic changes seasonally. Even if **Alternatives 2-5** perpetuate the existing amount of fishing effort, but causes a temporal or spatial effort redistribution, any potential effort shift is unlikely to change the level of interaction between sea turtles and smalltooth sawfish and the fishery as a whole. If these alternatives reduce the overall amount of fishing effort in the fishery, the risk of interaction between sea turtles and smalltooth sawfish will likely decrease.

4.10.2 Economic Impacts

While short-term economic benefits would be greatest under **Alternative 5**, because this alternative offers the shortest spawning season closure, **Alternative 2** would result in the smallest short-term economic benefits. A later spawning season closure would benefit dealers because it would maximize the landings of black seabass during the January through April shallow water grouper closure, helping dealers to maintain supply and retain customers. The long-term economic benefits from **Alternatives 1-5** are the same as the ranking of alternatives from greatest biological benefit to least: **Alternative 4; Alternative 2; Alternative 3; Alternative 5; and Alternative 1.**

4.10.3 Social Impacts

A discussion of the general direct and indirect social consequences of regulatory change is provided in Section 4.1.3. The following discussion does not incorporate any consideration of a possible change in the fishing year.

Because a spawning season closure would be expected to result in better protection of the reproduction capabilities of a resource, the health and sustainability of the resource would be expected to be enhanced. As a result of the enhanced resource protection and a healthier sustainable resource, long-term social and economic benefits would be expected to increase.

The proposed black sea bass spawning closure is intended to enhance the opportunity for mature fish to spawn and is not intended to affect (reduce) total mortality; fishermen would be expected to change their fishing patterns, resulting in shifted black sea bass effort and harvests to the remaining open period, to the extent such is possible/practical, and normal total harvests. While such behavioral change would not be expected to have a substantive effect on total benefits associated with black sea bass harvests, some distributional effects may occur if the effort shift results in changes in activity (including species mix of commercial landings and recreational service demand) across ports, communities, dealers, or associated businesses. However, because total harvest and activity is not expected to be substantively affected, no significant direct effects on social benefits associated with black sea bass harvests would be expected.

However, total black sea bass harvests, and associated social and economic benefits, could be reduced if the length or timing of the closure makes it difficult to fully compensate or shift harvests to another period, or concurrent closures for other species severely limit substitution opportunities during the closed period. Some fishermen may prefer to have closures for multiple species overlap, allowing them to take scheduled breaks, concentrate more on vessel/gear maintenance, or engage in other activities. Others may need or prefer to fish every month and prefer closures for primary target or revenue species not overlap so that one or more alternative key species are available year-round. The longer the closure, the larger the amount of harvest that likely will need to be shifted to remaining open months. Similarly, the longer the closure, the greater the potential overlap with closures for other key species. If the black sea bass spawning closure results in an inability for the full quota to be harvested, or occurs when opportunities to harvest other species are limited, increased jeopardy to fishing businesses could occur, with the associated loss of social and economic benefits that accrues to increased personal stress and business failure.

Other factors to consider in the decision to establish a spawning closure are whether a spawning closure is appropriate from a biological perspective for the resource (i.e., is spawning sufficiently seasonal that protection is warranted), or appropriate from a management perspective (spawning may be seasonal, but the species may spawn, on average, at a smaller size than is harvested, such that sufficient spawning occurs prior to harvest and a closure may not be necessary from this perspective; however, spawning closure benefits could still accrue if the current fishery is affecting sex ratios), and identifying the appropriate period. Selecting the appropriate period to close from a biological perspective increases the likelihood that the long-term biological benefits, and associated social and economic benefits, will be

realized. As discussed in Section 4.12.1, seasonal spawning does appear to occur for black sea bass, a spawning closure is appropriate from a management perspective, and peak black sea bass spawning is believed to occur in March through May, with most spawning occurring in March and April.

The alternative proposed spawning closures will be discussed from the perspective of the potential effects discussed above and it is assumed that a spawning closure is appropriate for black sea bass. Because **Alternative 1 (No Action)** would not establish a spawning closure, no change in fishing activity or patterns, or associated social and economic benefits, would precipitate. However, black sea bass would not receive the stock benefits that a spawning closure may provide and, assuming these would translate into a more stable and sustainable resource, **Alternative 1 (No Action)** would be expected to result in reduced long-term social benefits than an appropriate spawning closure.

Because **Alternative 2** would close the fishery during the two months when most spawning is expected to occur, March and April, most of the potential spawning protection benefits would be expected to be realized. Among the alternatives considered, only **Alternative 4** would be expected to result in greater spawning protection. Based on 2005-2009 fishing-year data, on average, approximately 16 percent of the total TAC (approximately 16 percent of recreational harvests and 14 percent of commercial harvests) is harvested in March-April, and would have to be shifted to open months. Corresponding closures during this period would be shallow water grouper and red snapper for both months and both sectors, vermilion snapper for the recreational sector in March, greater amberjack for the commercial sector in April, and red porgy for the commercial sector in March and April (the harvest of goliath grouper and Nassau grouper is also prohibited year-round for both sectors, but neither species has been subject to recent harvest activity and, therefore, are not considered relevant to further consideration).

Alternative 3 would be expected to result in reduced spawning protection, and associated long-term social benefits, than **Alternative 2**, while slightly increasing the amount of black sea bass harvest needed to be shifted, approximately 17 percent of the total TAC (approximately 22 percent of recreational harvests and 10 percent of commercial harvests), increasing the possibility of foregone harvests and reduced social and economic benefits. However, the vermilion snapper closure for the recreational sector would no longer overlap the black sea bass closure, increasing substitution opportunities.

As previously stated, of the alternatives considered, **Alternative 4** would be expected to result in the greatest spawning protection, but the 3-month closure would require the largest shift of harvests, approximately 25 percent of the total TAC (approximately 29 percent of recreational harvests and 18 percent of commercial harvests) to the remaining months to maintain total harvest, and the largest possibility of foregone harvests and reduced associated social and economic benefits. No additional overlapping closures would be encountered by extension of the closure into May, and access to the shallow water grouper fishery would be available in May, increasing substitution opportunities, and associated benefits, for both sectors.

Alternative 5 would be expected to result in the least spawning protection and associated social and economic benefits. Less than 10 percent of black sea bass average annual harvests would have to be shifted to open months (approximately 13 percent of recreational harvests and 4 percent of commercial harvests), increasing the likelihood that benefits associated with harvesting the TAC would not be foregone. The only potentially significant overlapping closure under **Alternative 5** would be red snapper for both sectors.

It should be noted that in the previous discussion, unharvested TAC is assumed to result in foregone social and economic benefits. While there may be stock benefits associated with not harvesting the TAC, this assessment assumes that the assigned TAC sufficiently accounts for the biological needs of the resource, with appropriate harvest buffer, such that any unharvested portion of the TAC will not result in increased long-term harvests or associated social and economic benefits. As a result, not allowing the fishery to harvest the full TAC will only result in reduced benefits.

In summary, each of **Alternatives 2-5** would be expected to result in increased spawning protection relative to **Alternative 1 (No Action)** and associated long-term social and economic benefits. **Alternative 2** would be expected to result greater social benefits than **Alternative 3** because it would close what appear to be the more appropriate spawning months, even though the amount of transferred black sea bass harvest would be similar and **Alternative 3** would result in less closure overlap with other species. **Alternative 4** would be expected to result in the greatest social benefits associated with resource protection, but may result in the highest likelihood of the full TAC not being harvested, resulting in foregone short-term social and economic benefits. **Alternative 5** would require the least behavioral changes by black sea bass fishermen and the least potential shore-side adjustments by associated businesses and communities, but would be expected to result in the least spawning protection and associated long-term social benefits.

See Section 4.7.3 for discussion on the number of potentially affected communities and dealers with recorded black sea bass landings in 2008.

4.10.4 Administrative Impacts

Establishing a spawning season closure would result in an administrative burden associated with rulemaking and outreach to fishermen, as well as enforcement. Once the spawning season closure is implemented through rulemaking, the administrative burden lies with the Office of Law Enforcement. The enforcement burden increases with the length of the spawning season closure. The selection of both sub-alternatives under the Alternatives 2-5 would allow for concurrent spawning season closure for both the recreational and commercial sectors, which would lessen the administrative burden on law enforcement.

4.11 Research Recommendations

4.11.1 Golden tilefish

- Develop standardized techniques for aging golden tilefish. Resolve discrepancies in aging from different institutions. Additional research is needed to verify and validate age determinations.
- Sampling programs are needed to quantify discard rates. Research is also needed to identify management measures that will reduce discard mortality.
- Expand fishery-independent sampling of tilefish.
- Representative age, length, and sex composition data are needed for all fisheries (commercial, MRFSS, headboat), gear, seasons, and areas.
- Additional life history and biological research is needed to cover the full geographic range of the species.
- Fecundity information by age and length.

4.11.2 Black sea bass

- Age sampling from commercial, headboat, and MRFSS.
- Increased fishery independent sampling.
- Update fecundity information by age and length.
- Age structured models that will take into consideration historical landings.
- Estimates of release mortality by depth and fishery.
- Determine if changes in fishing operations, including species composition of the landings, might reflect catch ability of black sea bass that has not been taken into account by the assessment.
- Index of recruitment.
- Estimate the magnitude, direction, geographic extent, timing, and management implications of mixing north and south of Cape Hatteras.
- Behavioral dynamics associated with reproduction should be investigated with respect to the effects of size selective harvesting.

4.11.3 Snowy grouper

- Develop standardized techniques for aging snowy grouper. Resolve discrepancies in aging from different institutions. Additional research is needed to verify and validate age determinations.
- Sampling programs are needed to quantify discard rates. Research is also needed to identify management measures that will reduce discard mortality.
- Expand fishery-independent sampling of snowy grouper.
- Representative age, length, and sex composition data are needed for all fisheries (commercial, MRFSS, headboat), gear, seasons, and areas.
- Additional life history and biological research is needed to cover the full geographic range of the species.
- Fecundity information by age and length.
- Further research is needed into the implication of sex change for fishery management.

4.12 Socio-Cultural Research Needs

Socio-cultural research needs that have been identified by the Council's Scientific and Statistical Committee are as follows:

1. Identification, definition and standardization of existing datasets to meet short-term social analysis needs (e.g. behavioral networks based on annual rounds). Centrally locate these datasets so they are accessible to researchers and managers (realizing the constraints imposed by confidentiality);
2. Development of new variables to meet long-term social analytical needs (e.g., community health, individual health, decision-making patterns, cumulative impacts of endogenous, exogenous, and regulatory factors);
3. Longitudinal Data – monitoring needs, including historical, ethnographic, and quantitative data over time;
4. Traditional ecological knowledge/local fisheries knowledge (TEK/LFK) constructions along with scientific ecological knowledge (SEK);
5. State data (license/permit data; social survey type data) and coordination between agencies/levels;
6. Better integration of social, biological and economic variables in modeling efforts; and
7. Better efforts to include humans and human behavior in the ecosystem-based framework (e.g., representation of humans as keystone predators in the system);

Economic research needs that have been identified by the Council's Scientific and Statistical Committee are as follows:

The following issues were identified as being impediments to conducting economic research:

- Confidentiality of state data and data collected through federal research projects.
- Data collected through certain agency grants cannot be distributed without dealing with confidentiality issues.
- The inability to display confidential data.

Commercial

1. Explore the feasibility of developing computable general equilibrium models, which can incorporate the entire economy and important ecosystem components (medium priority, high cost).
2. Develop an input output model for the South Atlantic commercial fisheries. This model should be similar to the NOAA Fisheries Service model for other regions on shore-based communities (medium priority, high cost).
3. Consider alternative ways to collect data on both a social and economic basis e.g. partnerships to develop projects (high priority, medium cost).

4. Ensure availability, improve upon and collect basic data: catch, employment, effort, price, cost/earnings (very high priority, high cost).
5. Opportunity costs - rely on the studies completed in the past on the next best jobs. Include collection of data to estimate worker satisfaction bonus.
6. Integrated biological, social and economic models including dynamic optimization models.
7. Demand analysis – include the effects of imports. Studies of value added product e.g. branding and marketing strategies.
8. Include data collection and analysis on the processing sector, retail sector.
9. Research on the economic and social effects of capacity reduction.
10. Employment in the primary and secondary sectors of the fishing industry that also includes research on household budgets.
11. Cumulative impacts – economic and social.
12. Models to predict fishing behavior in the face of fishing regulations. This would include description of fishing rounds on a seasonal basis and fishing behavioral networks.
13. Non-consumptive and non-use benefits of marine protected species and essential fish habitat/habitat areas of particular concern. Also, measure the socio-cultural benefits of these species.
14. Research on live product/whole weight conversion factors on a seasonal basis possibly through the TIP program or through other biological sampling programs.

Recreational

1. Assess the feasibility of developing benefits transfer models from existing data and the MRFSS. Complete recreational demand models that are more relevant for fisheries management. These models should focus on policy relevant variables (bag, size limits, individual species and species groups). (high priority, low/medium cost)
2. Develop random utility models for predicting participation changes, economic value and behavior of recreational fishermen. (high priority, high cost for data collection).
3. Develop targeted input-output model to estimate the effects of policy changes on the economic impacts of recreational fishing. Will provide information on jobs, wages, income on affected sectors such as lodging, restaurants, bait and tackle shops, marinas, boats (medium priority, high cost).
4. Include categories/motivations of recreational anglers in models outlined in items 1 and 2 (medium priority, high cost).
5. Collect data on motivations/behavioral patterns of recreational fishermen. (medium priority, high cost).
6. Characterize participants in subsistence fisheries. (low priority, high cost).
7. Develop Valuation models and I/O models for tournament fishing. (medium priority, high cost).
8. Develop cost-earnings model for the for-hire sector (charter and headboat). (high priority, high cost). NOAA Fisheries Service is currently conducting a study.

Ecosystem based management

1. Conduct analyses to facilitate the economic valuation of ecosystem services (very high priority, high cost).

2. Explore the use of ecopath and ecosim (very high priority, high cost).

4.13 Cumulative Effects

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

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

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

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

4.13.1 Biological

SCOPING FOR CUMULATIVE EFFECTS

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

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

- I. The direct and indirect effects of the proposed actions (**Section 4.0**);
- II. Which resources, ecosystems, and human communities are affected (**Section 3.0**); and
- III. Which effects are important from a cumulative effects perspective (**information revealed in this 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. However, this amendment includes an action to extend the snapper grouper fishery management unit (FMU) northward to include the Mid-Atlantic and New England Councils jurisdiction (except for black sea bass, golden tilefish and scup). With this extension, the impact area extends to include the entire eastern seaboard. The extent of boundaries also would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. The ranges of affected species are described in **Section 3.2.5**. **Section 3.2.6** describes the essential fish habitat designation and requirements for species affected by Action 1 and Action 2.

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.

4. Identify the other actions affecting the resources, ecosystems, and human communities of concern (the cumulative effects to the human communities are discussed in Section 4).

Listed are other past, present, and reasonably foreseeable actions occurring in the South Atlantic region. These actions, when added to the proposed management measures, may result in cumulative effects on the biophysical environment.

I. Fishery-related actions affecting snapper grouper species:

A. Past

The reader is referred to **Appendix X: History of Management of the Snapper Grouper Fishery** for past regulatory activity for the fish species being impacted by this amendment. These include bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system. A brief summary of the recent past amendments follows.

Amendment 13C 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 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 18 would occur. Therefore, biological effects of the MPAs would not significantly add to or reduce the anticipated biological benefits of management actions in Amendment 18.

B. Present

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 to include the Mid-Atlantic and New England Fishery Management Council jurisdictions, designate essential fish habitat (EFH) in the proposed northern extended area, limit participation and effort, and reduce bycatch in the black sea bass fishery, limit participation in the golden tilefish fishery through an endorsement program, change the golden tilefish fishing year, and improve the accuracy and timing of fisheries statistics for the commercial and for-hire sectors.

The actions currently contained in Amendment 18, which affect snapper grouper species, specifically golden tilefish and black sea bass are intended to prevent overcapitalization while allowing fishery participants to achieve optimum yield benefits for those species. In addition

to snapper grouper fishery management issues being addressed in Amendment 18, several other snapper grouper amendments and interim measures have been developed concurrently and are in the process of approval and implementation. These include Amendment 17A and Amendment 17B to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (Amendments 17A and 17B). 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 may result from the increased management in the snapper grouper fishery through those amendments.

Recently Implemented Amendments

Amendment 16 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region was implemented on June 29, 2009. Amendment 16 implemented conservation and management measures to the commercial and recreational sectors of the snapper grouper fishery. These measures include: A four month spawning season closure of the recreational and commercial harvest of shallow water grouper species including gag, black grouper, red grouper, scamp, rock hind, red hind, coney, graysby, yellowfin grouper, yellowmouth grouper, and tiger grouper; directed commercial quotas for gag and vermilion snapper; a reduction in the recreational bag limits for shallow water grouper species and vermilion snapper; and a seasonal closure for the recreational vermilion snapper fishery. Management measures in Amendment 16 do not apply to black sea bass or golden tilefish therefore the management measures proposed by Amendment 18 will not add to the management burden for these species. However, the snapper grouper fishery as a whole has been subject to increased regulation and the measures proposed in Amendment 18 will add to the overall regulatory burden of the fishery.

On September 1, 2009, Amendment 15B to the FMP for the Snapper Grouper Fishery of the South Atlantic Region was approved by the Secretary and the final rule published on November 16, 2009. Management measures in Amendment 15B that affect red snapper in Amendment 18 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 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 18.

Amendments Developed Concurrently

Amendments 17A and Amendment 17B are being developed concurrently with Amendment 18. Amendment 17A is expected to include a rebuilding plan and management measures that would end overfishing of red snapper. Amendment 17A would also specify an annual catch limit (ACL) and accountability measures (AMs) for red snapper as required by the Magnuson-Stevens Act. One of several potential management measures being considered in Amendment 17A is a total prohibition on all fishing for red snapper as well as a large area closure for all snapper grouper fishing off the coasts of Georgia and Northern Florida. Amendment 17B is also under development and includes ACLs and AMs for 9 species undergoing overfishing and is expected to include a deepwater snapper grouper closure seaward of 240 ft. 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. Amendment 17B will directly impact the species addressed in Amendment 18.

C. Reasonably Foreseeable Future

Amendment 20 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region is currently under development. Amendment 20 will include a formal review the current wreckfish individual transferable quota (ITQ) program, and will update/modify that program according to recommendations gleaned from the review. Amendment 20 will also update the wreckfish ITQ program to comply with Reauthorized Magnuson-Stevens requirements.

The Comprehensive Annual Catch Limit (ACL) Amendment would establish ACLs and Annual Catch Targets 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 ACTs; (4) accountability measures; and (5) any necessary modifications to the range of regulations. ACL and AM for snapper grouper species being proposed for inclusion in the FMU will be specified in the Comprehensive ACL Amendment. It is unlikely any of the management measures for the species being addressed in the Comprehensive ACL Amendment would directly affect the species included in Amendment 18. However, several species are co-occurring, and species in Amendment 17B could be included in species groupings in the Comprehensive ACL Amendment 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. The Comprehensive ACL Amendment may directly impact some of the species addressed in Amendment 18 such as blue line tilefish.

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

- A. Past
- B. Present
- C. Reasonably foreseeable future

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

The snapper grouper ecosystem includes many species, which occupy the same habitat at the same time. For example, black sea bass co-occur with vermilion snapper, tomtate, scup, red porgy, white grunt, red snapper, red grouper, scamp, gag, and others. Snowy grouper are caught with other deepwater species such as blueline tilefish, yellowedge groupers and others. Therefore, many snapper grouper species are likely to be caught and suffer some mortality when regulated since they will be incidentally caught when fishermen target other co-occurring species. Other natural events such as spawning seasons, and aggregations of fish in spawning condition can make some species especially vulnerable to targeted fishing pressure. Such natural behaviors are discussed in further detail in **Section 3.2** of this document, and is hereby incorporated by reference.

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.

Species most likely to be impacted by actions in Amendment 18 are black sea bass, golden tilefish, snowy grouper, and blueline tilefish. Actions in Amendment 18 could limit participation and effort in the black sea bass and golden tilefish fisheries. Extension of the fishery management unit are most likely to affect snowy grouper and blueline tilefish as these are the species in the South Atlantic fishery management unit that are most commonly north of the Council's current management jurisdiction.

The trends in condition of black sea bass, golden tilefish, and snowy grouper is determined through the Southeast Data, Assessment and Review (SEDAR) process. As of 2004 (the last year of data used in stock assessments for these species), the black sea bass stock in the South Atlantic is undergoing **overfishing** and is **overfished**, snowy grouper in the South Atlantic is undergoing **overfishing** and is **overfished**, and golden tilefish is experiencing **overfishing**. Actions were taken in Amendment 13C to end overfishing of these species. More information on the SEDAR Assessments for these species can be found in Section 3.2.5. Blueline tilefish has not had a recent assessment.

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

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

Fish populations

Quantitative definitions of overfishing and overfished for snowy grouper, golden tilefish, black sea bass, and blueline tilefish are identified in Amendments 11 and 12 to the Snapper Grouper FMP (SAFMC 1998). Numeric values of thresholds overfishing and overfished for snowy grouper, golden tilefish, and black sea bass were updated modified in Amendment 15A. 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, and optimum yield. Amendment 15a also provided new definitions of MSST for snowy grouper and golden tilefish.

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).

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 address the increased range of snapper grouper species in the Atlantic with the extension of the FMU into the Mid-Atlantic and New England. Reports of fishermen catching species typically associated with southern waters in the northern waters may indicate a range modification due to global climate change. Actions in this amendment could decrease the carbon footprint from fishing by reducing participation in the black sea bass and golden tilefish fishery. The amendment will also allow for management of snapper grouper species in the mid and north Atlantic. Thus, these actions may address the impacts of global climate change on snapper grouper species in the Atlantic.

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 snowy grouper, assessments reflect initial periods when the stock was above and fishing mortality was fairly low. However, some species such as black sea bass were heavily exploited or possibly overfished when data were first collected. As a result, the assessment must make an assumption of the biomass at the start of the assessment period thus modeling the baseline reference points for the species.

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 for the snapper grouper fishery in the South Atlantic, 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.

Time period/dates	Cause	Observed and/or Expected Effects
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	<u>Prohibited gear</u> : fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. <u>Size/Bag limits</u> : 10" TL 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 <i>Oculina</i> habitat.	Noticeable decrease in numbers and species diversity in areas of <i>Oculina</i> off FL
July 1994	Commercial quotas and trip limits for snowy grouper and golden tilefish. Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993)	Put limit on fishing mortality of snowy grouper and golden tilefish. Initiated the recovery of snapper grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing continue for a number of snapper grouper species	Spawning potential ratio for vermilion snapper and gag is less than 30% indicating that they are overfished.

Time period/dates	Cause	Observed and/or Expected Effects
	including vermilion snapper and gag.	
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 .
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.
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.

Time period/dates	Cause	Observed and/or Expected Effects
		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; accountability measures, 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 accountability measures for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.
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 extend the FMU northward to include the mid and North Atlantic, designate EFH in the extension area, limit participation, effort and reduce bycatch in the black sea bass fishery, limit participation and change the fishing year for the golden tilefish fishery, and improve fishery statistics and data collection in the commercial and for hire fisheries. These management actions in Amendment 18 are intended to address issues that have remained after the implementation of previous amendments. Species in the FMU are assessed on a routine basis and stock status may change as new information becomes available. In addition, changes in management regulations, fishing techniques, social/economic structure, etc. can result in shifts in the percentage of harvest between user groups over time. As such, the Council has determined that certain aspects of the current management system remain inappropriate and

should be restructured. Detailed discussions of the magnitude and significance of the preferred alternatives appear in **Section 4** of this consolidated document. Below is a short summary of the biological significance and magnitude of each of the preferred alternatives chosen, and a brief discussion of their combined effect on the snapper grouper FMU and the ecosystem.

When viewed in totality, the actions in this amendment would benefit black sea bass and golden tilefish as participation is reduced through the development of pot tag limits and endorsement programs. Furthermore, unregulated species north of the Council's jurisdiction would benefit by geographic extension of the FMU.

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.

9. Determine the magnitude and significance of cumulative effects.

Current management actions, as summarized in Section 2, should reduce fishing mortality and end overfishing of gag and vermilion snapper and are expected to have a beneficial, cumulative effect on the biophysical environment. These management actions are expected to increase stock biomass, which may affect other stocks. The shallow water grouper closure during the gag spawning closure and after the directed gag commercial quota is met will help a number of species particularly red and black grouper that are listed as undergoing overfishing in the Stock Status Report to Congress.

Because gag, and to a certain extent, vermilion snapper are upper level predators preying primarily on fish, benthic invertebrates, and squid, the degree of competition for food resources between these species and other co-occurring species may increase as stock abundance increases. In addition, gag, red porgy, vermilion snapper, black sea bass, greater amberjack, red snapper, white grunt and other co-occurring species may begin to compete for habitat as they increase in abundance.

Restrictions in the catch of gag and vermilion snapper could result in fishermen shifting effort to other species. The snapper grouper ecosystem includes many species that occupy the same habitat at the same time. For example, vermilion snapper and gag co-occur with tomtate, scup, red porgy, white grunt, red grouper, scamp, and others. Therefore, restricted species are likely to still be caught since they will be incidentally caught when fishermen target other co-occurring species. Continued overexploitation of any snapper grouper species could disrupt the natural community structure of the reef ecosystems that support these species. However, some fishermen may choose to use different gear types and target species in different fisheries such as mackerel and dolphin.

Complex models are needed to better understand competition between resources and the effect of effort shifting of fishermen to other species and fisheries. The Council is working with a number of partners to develop an Ecopath model for the South Atlantic ecosystem. Full development of this model will assist in better understanding these linkages. The Council is also developing an Ecosystem FMP that will address the cumulative effects of management regulations, fishing effort, and biomass of all species in the marine ecosystem. Delaying implementation of proposed actions until these tools are completed could adversely affect gag and vermilion snapper. However, although the cumulative effects of proposed actions cannot be quantified, it is expected that the effects will be positive and synergistic.

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

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

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

The effects of the proposed action are, and will continue to be, monitored through collection of data by NMFS, States, stock assessments and stock assessment updates, life history studies, and other scientific observations.

4.13.2 Socioeconomic

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

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. In general, it can be stated, however, that the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing, in tandem with other adverse influences, the

likelihood of economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and industries. Some reverse of this trend is possible and expected. The establishment of ACLs and AMs for species undergoing overfishing is expected to help protect and sustain harvest at the OY level. However, certain pressures would remain, such as total effort and total harvest considerations, increasing input costs, import induced price pressure, and competition for coastal access.

A detailed description of the expected social and economic impacts of the actions in this amendment are contained elsewhere in **Section 4**, and in **Sections 5** and **6**, which are incorporated herein by reference. Current and future amendments are expected to add to this cumulative effect. Snapper grouper Amendment 15B prohibited the sale of bag-limit caught snapper grouper species for those who do not hold a federal commercial permit for snapper grouper. This eliminates 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 has a more pronounced effects on the for-hire sector which often uses the sale of bag-limit caught fish to pay crew members.

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 the stocks from becoming overfished, which would require recovery plans, further harvest restrictions, and additional social and economic losses.

Snapper grouper Amendment 17A will address the overfished status of red snapper. Because of red snapper bycatch in other snapper grouper fisheries, red snapper rebuilding is expected to require not only closure of the red snapper fishery for a protracted period of time, but also closure of other snapper grouper fisheries in certain areas. While red snapper is, in general and compared to other snapper grouper species, not a significant commercial species, it has greater importance as a target species to the recreational sector, especially the for-hire sector in certain areas of the South Atlantic. Thus, closure of the red snapper fishery alone may have substantive social and economic effects on some businesses and communities. Closure of additional snapper grouper fisheries to reduce red snapper bycatch in order to achieve red snapper rebuilding goals is expected to have additional and broader adverse short-term social and economic effects.

Snapper grouper Amendment 17B will specify harvest controls (ACLs and/or ACTs) and accountability measures (AMs) for several snapper grouper species, as well as a allocations for golden tilefish, and modify the framework to allow more efficient modification of these measures in the future, where necessary. While some final specifications of these measures may result in additional short-term reductions in social and economic benefits to participants in the fisheries, these measures would be expected to support more stable management and sustainable social and economic benefits from enhanced resource protection, larger and/or more consistent harvests, and long-term stable stocks.

The cumulative impact of Amendments 16, 17A, and 17B are expected to be significant for commercial and recreational fisheries participants and those indirectly impacted by the actions

contained in those amendments. The cumulative impact of Amendments 17A and 17B have been estimated and are contained in Amendment 17A. The impacts from the three amendments will likely result in commercial and for-hire vessel exit and loss of fishery infrastructure as a result.

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.

The Comprehensive ACL Amendment is expected to further reduce harvest for commercial and recreational fishermen through management measures now being developed in that document.

Snapper grouper Amendment 20, currently under development, will modify the Wreckfish ITQ program currently used to manage wreckfish. The actions in the amendment are not expected to reduce harvest levels for fishery participants but the actions may impose other restrictions on the Wreckfish fishery such as additional reporting requirements and restrictions on when Wreckfish can be landed.

4.14 Unavoidable Adverse Effects

There are several unavoidable adverse effects on the socioeconomic environment that may result from the implementation of Amendment 18. A brief summary of those effects follows.

TO BE ADDED

4.15 Effects of the Fishery on the Environment

The biological impacts of the proposed actions are described in Section 4.0, including impacts on habitat. No actions proposed in this amendment are anticipated to have any adverse impact on EFH or EFH-HAPCs for managed species. Furthermore, Action 2 proposes the designation of EFH and/or EFH-HAPCs if Action 1 is implemented, which would extend further protection to EFH in the area.

4.16 Damage to Ocean and Coastal Habitats

The action proposed in Amendment 18 would not result in any adverse impacts to ocean and coastal habitats.

The alternatives and proposed actions are not expected to have any adverse effect on the ocean and coastal habitat. Management measures implemented in the original Snapper Grouper Fishery Management Plan through Amendment 7 combined have significantly

reduced the impact of the snapper grouper fishery on EFH. The Council has reduced the impact of the fishery and protected EFH by prohibiting the use of poisons and explosives; prohibiting use of fish traps and entanglement nets in the EEZ; banning use of bottom trawls on live/hard bottom habitat north of Cape Canaveral, Florida; restricting use of bottom longline to depths greater than 50 fathoms north of St. Lucie Inlet; and prohibiting use of black sea bass pots south of Cape Canaveral, Florida. These gear restrictions have significantly reduced the impact of the fishery on coral and live/hard bottom habitat in the South Atlantic Region.

Additional management measures in Snapper Grouper 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 Snapper Grouper Amendment 9 (SAFMC 1998b), that include further restricting longlines to retention of only deepwater species and requiring that black sea bass pots have escape panels with degradable fasteners, reduce the catch of undersized fish and bycatch and ensure that the pot, if lost, will not continue to “ghost” fish. Snapper Grouper Amendment 13C (SAFMC 2006) increased mesh size in the back panel of pots, which has reduced bycatch and retention of undersized fish. Snapper Grouper Amendment 15B (SAFMC 2008b) includes an action that would implement sea turtle bycatch release equipment requirements and sea turtle and smalltooth sawfish handling protocols and/or guidelines in the permitted commercial and for-hire snapper grouper fishery effective February 15, 2010.

Snapper Grouper Amendment 16 (SAFMC 2008c) includes an action which is intended to reduce bycatch by requiring fishermen use dehooking devices effective July 29, 2009. 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 1998c) contains measures that expanded the *Oculina* Bank HAPC and added two additional satellite HAPCs. Snapper Grouper Amendment 14 (SAFMC 2007), established marine protected areas where fishing for or retention of snapper grouper species is prohibited.

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

The relationship between short-term uses and long-term productivity will be affected by

this amendment. The proposed actions limit participation and effort in both the golden tilefish (Action 3) and black sea bass fisheries (Action 8) in the short-term for the commercial sectors of the fishery. However, reductions in harvest are expected to benefit the long-term productivity of these species. Action 1, Action 2, Action 4, Action 5, Action 6, Action 9, Action 10 and Action 11 would not have any impact on the short term uses and long term productivity.

4.18 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.

Since the Snapper Grouper FMP and its implementing regulations are always subject to future changes, proceeding with the development of Amendment 18 does not represent an irreversible or irretrievable commitment of resources. NOAA Fisheries Service always has discretion to amend its regulations and may do so at any time, subject to the Administrative Procedures Act.

4.19 Monitoring and Mitigation Measures

The proposed actions would adversely affect immediate, short-term net revenues of some commercial and for-hire fishermen in the South Atlantic. The proposed actions would also adversely affect short-term consumer surplus of some recreational anglers in the South Atlantic and may result in cancelled trips and reduced expenditures to the fishery and associated industries. However, it is anticipated reductions in fishing pressure, which will reduce the likelihood that these stocks will be declared overfished, will assist in restoring the size and age structure to more natural conditions and allow stock biomass to increase to more sustainable and productive levels. As a result, the amount of fish that can be harvested should increase as the stocks rebuild. Methods to monitor the progress of rebuilding efforts may be highly variable. Large scale research entities such as MARMAP and SEFSC research cruises may gather fishery-independent data while cooperative research programs with academic institutions and headboat surveys could be used to supplement fishery-dependant data along with the MRIP reporting system. Dependent upon funding, more monitoring efforts may be implemented in the future with special emphasis on large closed areas such as the proposed deepwater snapper grouper closure in this amendment.

The short-term, adverse effects of ending overfishing can be mitigated to some degree by the type of regulations the Council selects to manage reduced catch levels. The Council's preferred alternatives contain those measures that are believed to best mitigate the unavoidable, short-term, adverse effects of limiting participation in the black sea bass and golden tilefish fisheries.

4.20 Unavailable or Incomplete Information

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

Stock assessments have been conducted on black sea bass, snowy grouper, and golden tilefish using the best available data available. Status determinations for these species were derived from the SEDAR process, which involves a series of three workshops designed to ensure each stock assessment reflects the best available scientific information. The findings and conclusions of each SEDAR workshop are documented in a series of reports, which are ultimately reviewed and discussed by the Council and their Scientific and Statistical Committee (SSC). SEDAR participants, the Council’s Advisory Panels, the Council, and NMFS staff reviewed and considered any concerns about the adequacy of the data. **Section 4.11** lists research needs that resulted from these assessments. The Council’s SSC determined that the assessments were based on the best available data.

The Council acknowledged, while stock assessment findings are uncertain, there is no reason to assume such uncertainty leads to unrealistically optimistic conclusions about stock status. Rather, the stocks could be in worse shape than indicated by the stock assessment. Uncertainty due to unavailable or incomplete information should not be used as a reason to avoid taking action. Therefore, there are reasonable foreseeable significant adverse effects of not taking action to end overfishing. Failure to take action could result in a worsening of stock status, persistent foregone economic benefits, and more severe corrective actions to end overfishing in the future.

Where information is unavailable or incomplete, such as is the case with the extension of the FMU into the Northern regions, management measures have been designed to adopt a conservative approach to increase the probability overfishing does not occur.

5 List of Preparers

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6 List of Agencies, Organizations, and Persons To Whom Copies of the Statement Are Sent

Responsible Agency

Amendment 18:

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List of Agencies, Organizations, and Persons Consulted

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

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