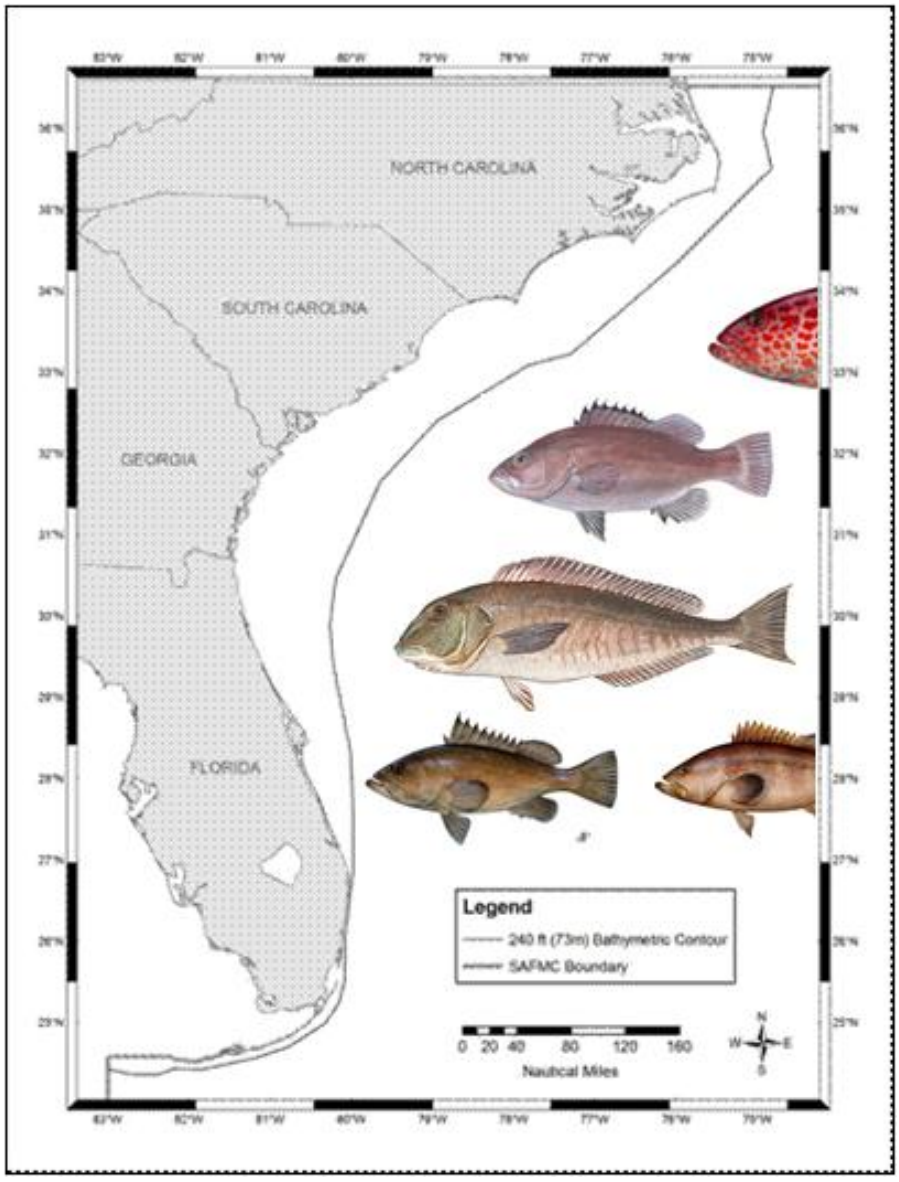

Regulatory Amendment 11

to the Snapper Grouper Fishery Management Plan of the South Atlantic Region

40-fathom Closure

Environmental Assessment | Initial Regulatory Flexibility Act Analysis | Regulatory Impact Review

Social Impact Assessment/Fishery Impact Statement

DRAFT

July 2011

Abbreviations and Acronyms Used in the FMP

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

Regulatory Amendment 11

to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Environmental Assessment, Initial Regulatory Flexibility Act Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement

Proposed actions:	Modifications to the "40-fathom closure" in terms of boundaries and species composition and specification of transit provisions
Lead agency:	FMP Amendment – South Atlantic Fishery Management Council Environmental Assessment - NOAA Fisheries Service
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NOI published:	DATE TO BE FILLED IN
Scoping meetings held:	DATE TO BE FILLED IN
Public Hearings held:	DATE TO BE FILLED IN
DEIS filed:	DATE TO BE FILLED IN
DEIS notice published:	DATE TO BE FILLED IN
DEIS Comments received by:	DATE TO BE FILLED IN
FEIS filed:	DATE TO BE FILLED IN
FEIS Comments received by:	DATE TO BE FILLED IN

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Chapter 1.
Introduction

1.1 What Actions Are Being Proposed?

Fishery managers are considering modifications to the 40-fathom closure off coast of the South Atlantic states. Modifications include reducing the number of deepwater species* currently prohibited from retention and modifications to the boundarys of the 40-fathom closure.

1.2 What is the 40-fathom Closure?

Amendment 17B implemented what is referred to as the *40-fathom closure*. Beginning January 31, 2011, possession of deepwater snapper grouper species in or from the South Atlantic exclusive economic zone in depths greater than 240 feet (40 fathoms; 73 m) was prohibited (**Figure 1**).

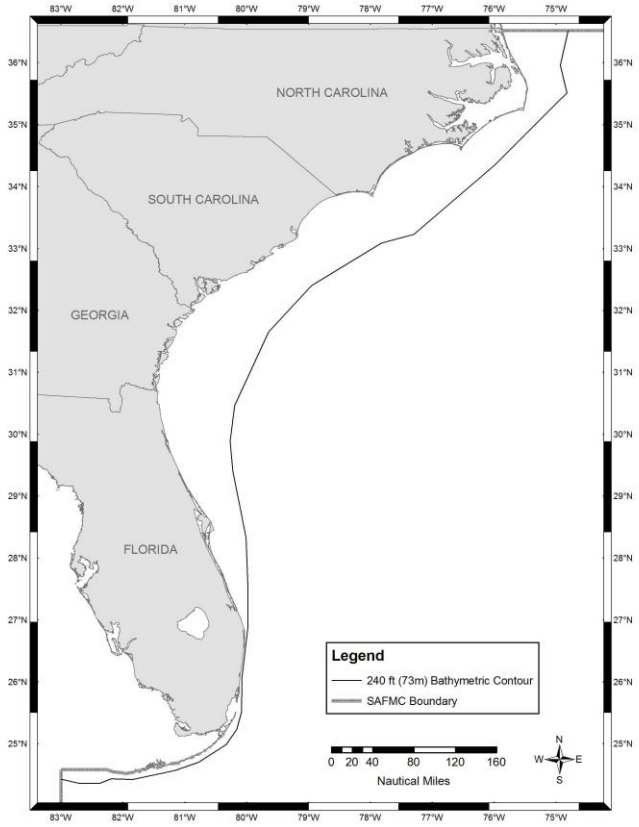


Figure 1. The 240 foot (40 fathoms; 73 m) depth line that marks the western boundary of the 40-fathom closure**.**

**What are deepwater species?*

*Species considered to be deepwater stocks include speckled hind, warsaw grouper, snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper, and silk snapper

1.3 Who is Proposing the Actions?

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

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks
- Consists of 13 voting members who are appointed by the Secretary of Commerce
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and Florida
- Develops management plans and recommends regulations to NMFS and NOAA for implementation

1.4 Why is the Council Considering Action?

There are those who believe data exists to show the deepwater stocks* may be managed in a way that decreases the socio-economic effects expected from the regulations in Amendment 17B to the Snapper Grouper Fishery Management Plan (Amendment 17B while maintaining the biological protection to speckled hind and warsaw grouper in the South Atlantic to the extent possible. More specifically, there are those who believe that the harvest of blueline tilefish off the coast of North Carolina and South Florida could be allowed without negatively affecting the mortality of speckled hind and warsaw grouper. This could be accomplished through modifications to the 40-fathom closure.

Purpose for Action

Modify regulations pertaining to the deepwater species in order to reduce the socio-economic effects expected from the regulations in Amendment 17B to the Snapper grouper FMP while maintaining the biological protection to speckled hind and warsaw grouper in the South Atlantic to the extent ~~possible~~practical.

Need for Action

To prevent unnecessary negative socioeconomic impacts that would otherwise be realized in the snapper grouper fishery and fishing community, in accordance with the provisions set forth in the MSA

1.5 Why was the 40-fathom Closure Implemented?

Speckled hind and warsaw grouper are both undergoing overfishing according to the 1st Quarter of 2011 Report to Congress on the Status of U.S. Fisheries (and in all previous such Reports to Congress). The extent to which they are overfished is unknown. The Acceptable Biological Catch recommendation from the Scientific and Statistical Committee is 0 for each species (see text box). This recommendation applies to landings and does not apply to mortality.

The South Atlantic Council is required to establish ACLs at levels to end and prevent overfishing of speckled hind and warsaw grouper, along with management measures to limit harvest levels to the ACL. In the case of speckled hind and warsaw grouper, the ACL is zero (landings only), and the deep water closure is intended to reduce depth-related bycatch mortality to reduce the probability that overfishing will occur.

Both speckled hind and warsaw grouper are extremely vulnerable to overfishing because they are slow growing, longlived, and change sex from female to male with increasing size and age. These species are not targeted due to current regulations, but when they are caught they are likely to suffer release mortality. The incidental catch of speckled hind and warsaw grouper, particularly in deep water where release mortality is high, may be responsible for the continued overfishing of these species. Therefore, the Council determined that a prohibition on the harvest and possession of speckled hind and warsaw grouper, along with their co-occurring species caught in 240 ft (40 fathoms; 73 m) and greater, was an appropriate action to reduce bycatch mortality of speckled hind and warsaw grouper at depths where depth-related release mortality is very high. Like gag, speckled hind and warsaw grouper are slow growing, long lived, and have similar life histories. Therefore, speckled hind and warsaw grouper may be expected to have similar depth related bycatch mortality rates to gag. If depth-related mortality of speckled hind and warsaw grouper is similar to gag, release mortality at depths of 240 ft (40 fathoms; 73 m) would be expected to be greater than 70 percent. The deepwater closure is expected to provide protection to the largest, most fecund fish and help ensure a natural sex ratio into the future. According to the Amendment 17B biological impacts analysis, prohibiting all harvest of deepwater snapper grouper species beyond 240 ft (40 fathoms; 73 m) would also protect spawning aggregations.

Excerpt from June 2008 SSC Report

For those data poor species identified in Amendment 17, we had landings. We attempted to develop an overarching procedure to be used for the four species, however, information from members indicated that fishery-independent projects indicated that speckled hind and Warsaw grouper were conspicuously absent from historical areas of catch. The group then decided to be address the ABCs and OFL for the individual species. Because the OFL could not be determined, the incredibly small biomass for speckled hind and Warsaw and the high degree of uncertainty associated with these species, the group felt that any catch would likely result in overfishing of these stocks and therefore felt an ABC of zero was warranted.

Chapter 2. Proposed Actions

This section contains the proposed actions being considered to meet the purpose and need. Each action contains a range of alternatives, including the no action (the current regulations). Alternatives the South Atlantic Fishery Management Council (Council) considered but eliminated from detailed study during the development of this amendment are described in **Appendix A**.

Actions in Regulatory Amendment 11

- Changes to the 40-fathom closure
- Determination of transit provisions

2.1 List of Alternatives

2.2.1 Action 1: Changes to the 40-fathom Closure

Alternative 1 (No Action). Retain existing regulations for deepwater species (snowy grouper, blueline tilefish, yellowedge grouper, warsaw grouper, speckled hind, misty grouper, queen snapper, and silk snapper), including the prohibition of fishing for, possession, and retention of deepwater snapper species beyond a depth of 240 feet (40 fathoms; 73 m).

Alternative 2. Allow harvest of blueline tilefish in the South Atlantic in the deep water (seaward of the 240 ft depth contour).

Alternative 3. Allow harvest of blueline tilefish off North Carolina in the deep water (seaward of the 240 ft depth contour).

Alternative 4. Allow harvest of blueline tilefish off North Carolina north of Cape Hatteras in the deep water (seaward of the 240 ft depth contour).

Alternative 5. Exclude blueline tilefish from the deepwater closure south of Cape Canaveral.

Alternative 6. Open the closed area in the South Atlantic seaward of 500 ft. The intent is for closed area to extend from 240 to 500 ft. (If this alternative is chosen as a preferred, a transit provision will need to be specified.)

Alternative 7. Allow harvest of snowy grouper in the South Atlantic in the deep water (seaward of the 240 ft depth contour).

Alternative 8. Allow harvest of snowy grouper off North Carolina in the deep water (seaward of the 240 ft depth contour).

Alternative 9. Allow harvest of snowy grouper off North Carolina north of Cape Hatteras in the deep water (seaward of the 240 ft depth contour)

Alternative 10. Exclude snowy grouper from the deepwater closure south of Cape Canaveral.

Alternative 11 (Preferred). Remove the prohibition of fishing for, possession, and retention of other deepwater snapper species beyond a depth of 240 feet (40 fathoms; 73 m).

2.2.2 Action 2: Transit Provisions

Alternative 1 (No Action) (Preferred). Do not allow transit through the 40-fathom closure with prohibited species onboard.

Alternative 2. The prohibition on possession does not apply to a person aboard a vessel that has snapper grouper species onboard if the vessel is in transit.

Alternative 3. The prohibition on possession does not apply to a person aboard a vessel that is in transit with snapper grouper species on board and with fishing gear appropriately stowed.

Definitions for Alternatives in Action 2

The term *"transit"* means: Underway, making way, not anchored, and a direct, non-stop progression through any snapper grouper closed area in the South Atlantic EEZ on a constant heading, along a continuous straight line course, while making way by means of a source of power at all times.

The term *"Gear appropriately stowed"* includes but is not limited to: **Terminal gear** (i.e., hook, leader, sinker, flasher, or bait) used with an automatic reel, bandit gear, buoy gear, trolling gear, hand-line, or rod and reel must be disconnected and stowed separately from such fishing gear. **Rod and reel** must be removed from the rod holder and stowed securely on or below deck; **longline gear** may be left on the drum if all gangions and hooks are disconnected and stowed below deck, hooks cannot be baited, and all buoys must be disconnected from the gear; however, buoys may remain on deck; **trawl** and **try net gear** may remain on deck, but trawl doors must be disconnected from such net and must be secured; **gill nets**, stab nets, or trammel nets must be left on the drum, any additional such nets not attached to the drum must be stowed below deck; and **crustacean traps** or **golden crab trap** cannot be baited and all buoys must be disconnected from the gear; however, buoys may remain on deck. Other methods of stowage authorized in writing by the Regional Administrator, and subsequently published in the *Federal Register,* may also be utilized under this definition.

The term *"Not available for immediate use"* means: gear that is shown to not have been in recent use and that is stowed in conformance with the definitions included under "gear appropriately stowed."

Chapter 3. Affected Environment

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

- **Habitat environment** (Section 3.1)

  Examples include coral reefs and sea grass beds

- **Biological environment** (Section 3.2)

  Examples include populations of blueline tilefish, corals, turtles

- **Human environment** (Section 3.3)

  Examples include fishing communities and economic descriptions of the fisheries

- **Administrative environment** (Section 3.4)

  Examples include the fishery management process and enforcement activities

3.1 Habitat Environment

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 (bottom dwellers) and associate with hard structures on the continental shelf that have moderate to high relief (e.g., coral reef systems and artificial reef structures, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings). Juvenile stages of some snapper grouper species also utilize inshore seagrass beds, mangrove estuaries, lagoons, oyster reefs, and embayment systems. In many species, various combinations of these habitats may be utilized during daytime feeding migrations or seasonal shifts in cross-shelf distributions. More detail on these habitat types is found in Volume II of the Fishery Ecosystem Plan (SAFMC 2009b?).

3.1.2 Offshore Habitat

Predominant snapper grouper offshore fishing areas are located in live bottom and shelf-edge habitats, where water temperatures range from 11º to 27º C (52º to 81º F) due to the proximity of the Gulf Stream, with lower shelf habitat temperatures varying from 11º to 14º C (52º to 57º F). Water depths range from 16 to 27 meters (54 to 90 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 (permanently attached) invertebrates, moderate relief reefs from 0.5 to 2 meters (1.6 to 6.6 feet), or high relief ridges at or near the shelf break consisting of outcrops of rock that are heavily encrusted with sessile invertebrates such as sponges and sea fan species. Live-bottom habitat is scattered irregularly over most of the shelf north of Cape Canaveral, Florida, but is most abundant offshore from northeastern Florida. South of Cape Canaveral, the continental shelf narrows from 56 to 16 kilometers (35 to 10 miles) wide, thence reducing off the southeast coast of Florida and the Florida Keys. The lack of a large shelf area, presence of extensive, rugged living fossil coral reefs, and dominance of a tropical Caribbean fauna are distinctive benthic characteristics of this area.

Rock outcroppings occur throughout the continental shelf from Cape Hatteras, North Carolina to Key West, Florida (MacIntyre and Milliman 1970; Miller and Richards 1979; Parker et al. 1983), which are principally composed of limestone and carbonate sandstone (Newton et al. 1971), and exhibit vertical relief ranging from less than 0.5 to over 10 meters (33 feet). Ledge systems formed by rock outcrops and piles of irregularly sized boulders are also common. Parker et al. (1983) estimated that 24% (9,443 km2) of the area between the 27

and 101 meters (89 and 331 feet) depth contours from Cape Hatteras, NC to Cape Canaveral, FL is reef habitat. Although the bottom 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 artificial reefs is limited and opinions differ as to whether or not these structures promote an increase of ecological biomass or merely concentrate fishes by attracting them from nearby, natural un-vegetated areas of little or no relief.

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 available on the Council's Internet Mapping System website: http://ocean.floridamarine.org/efh_coral/ims/viewer.htm.

Plots of the spatial distribution of offshore species were generated from the Marine Resources Monitoring, Assessment, and Prediction Program (MARMAP) data. The plots serve as point confirmation of the presence of each species within the scope of the sampling program. These plots, in combination with the hard bottom habitat distributions previously mentioned, can be employed as proxies for offshore snapper grouper complex distributions in the south Atlantic region. Maps of the distribution of snapper grouper species by gear type based on MARMAP data can also be generated through the Council's Internet Mapping System at the above address.

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 meter (100-foot) contour, such as attached macroalgae; submerged rooted vascular plants (seagrasses); estuarine emergent vegetated wetlands (saltmarshes, brackish marsh); tidal creeks; estuarine scrub/shrub (mangrove fringe); oyster reefs and shell banks; unconsolidated bottom (soft sediments); artificial reefs; and coral reefs and live/hard bottom habitats.

3.1.3.1 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).

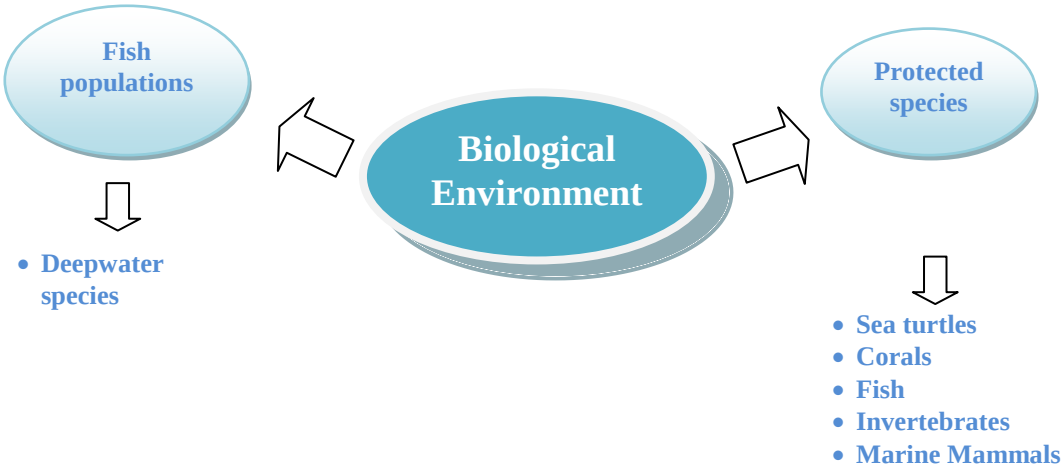
Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

In addition to protecting habitat from fishing related degradation though FMP regulations, the Council, in cooperation with NOAA Fisheries, actively comments on non-fishing projects or policies that may impact essential fish habitat. With guidance from the Habitat Advisory Panel, the Council has developed and approved policies on: energy exploration, development, transportation and hydropower re-licensing; beach dredging and filling and large-scale coastal engineering; protection and enhancement of submerged aquatic vegetation; alterations to riverine, estuarine and near shore flows; offshore aquaculture; marine invasive species and estuarine invasive species.

3.2 Biological and Ecological Environment

The reef environment in the South Atlantic management area affected by actions in this amendment is defined by two components (Figure 3-1). Each component will be described in detail in the following sections.

Figure 3-1. Two components of the biological environment described in this amendment.



3.2.1 Fish Populations

The waters off the south Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 73 species of fish, many of them neither "snappers" or "groupers". These species live in depths from a few feet (typically as juveniles) to hundreds of feet. As far as north/south distribution, the more temperate species tend to live in the upper reaches of the south Atlantic management area (black sea bass, red grouper) while the tropical variety's core residence is in the waters off south Florida waters, Caribbean Islands, and northern South America (black grouper, mutton snapper).

These are reef-dwelling species that live amongst each other. These species rely on the reef environment for protection and food. There are several reef tracts that follow the southeastern coast. The fact that these fish populations congregate together dictates the nature of the fishery (multi-species) and further forms the type of management regulations proposed in this amendment.

3.2.1.1 Speckled Hind

Speckled Hind
Stock Status

- Overfishing Unknown
- Overfished
- ABC=0 (landings only)
- ACL=0 (landings only)

Life History Information

Speckled hind occur in the Western Atlantic Ocean from North Carolina and Bermuda to the Florida Keys, and in the northern and eastern Gulf of Mexico (Heemstra and Randall 1993, in Froese and Pauly 2003). The speckled hind is solitary and found in depths from 25 m (98 ft) (Heemstra and Randall 1993) to 400 m (1,312 ft) (Bullock and Smith 1991). Heemstra and Randall (1993) reported that it most commonly occurs at depths of 60-120 m (197-394 ft). Bullock and Smith (1991) indicated that most commercial catches are taken from depths of 50 m (164 ft) or more. Juveniles occur in shallower waters.

Maximum reported size is 110 cm (43.3 in) TL and 30 kg (66 lbs) Heemstra and Randall 1993, in Froese and Pauly 2003). The maximum size and age of individuals examined by Matheson and Huntsman (1984) in the South Atlantic Bight was 110 cm (43.3 in) and 15 years, respectively. Heemstra and Randall (1993) reported a maximum age of 25 years. Estimated size at maturity is 81.1 cm (32 in), and M is estimated at from 0.14 (Froese and Pauly 2003) to 0.15 (Potts *et al.* 1998a).

The speckled hind is thought to form spawning aggregations (G. Gilmore, Dynamac Corporation, personal communication). Spawning reportedly occurs from July to September (Heemstra and Randall 1993). Prey items include fishes, crustaceans, and squids (Bullock and Smith 1991; Heemstra and Randall 1993).

3.2.1.2 Warsaw Grouper

Warsaw Grouper
Stock Status

- Overfishing Unknown
- Overfished
- ABC=0 (landings only)
- ACL=0 (landings only)

Life History Information

Warsaw grouper occur in the Western Atlantic from Massachusetts to southeastern Brazil (Robins and Ray 1986), and in the Gulf of Mexico (Smith 1971). The Warsaw grouper is a solitary species (Heemstra and Randall 1993), usually found on rocky ledges and seamounts (Robins and Ray 1986), at depths from 55 to 525 m (180-1,722 ft) (Heemstra and Randall 1993). Juveniles are sometimes observed in inshore waters (Robins and Ray 1986), on jetties and shallow reefs (Heemstra and Randall 1993).

Maximum reported size is 230 cm (91 in) TL (Heemstra and Randall 1993) and 263 kg (580 lbs) (Robins and Ray 1986). The oldest specimen was 41 years old (Manooch and Mason 1987). M was estimated by the

SEDAR group during November 2003 to range from 0.05 to 0.12 (SEDAR 4 2004). The warsaw grouper spawns during August, September, and October in the Gulf of Mexico (Peter Hood, NOAA Fisheries, personal communication), and during April and May off Cuba (Naranjo 1956). Adults feed on benthic invertebrates and on fishes (Heemstra and Randall 1993)

3.2.1.3 Snowy Grouper

Snowy Grouper
Stock Status

- Undergoing overfishing
- Overfished
- ABC=ADD
- ACL=ADD

Life History Information

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).

SEDAR Assessment

Stock assessments, through the evaluation of biological and statistical information, provide an evaluation of stock health under the current management regime and other potential future harvest conditions. More specifically, the assessments provide an estimation of maximum sustainable yield (MSY) and a determination of stock status

(whether *overfishing* is occurring and whether the stock is *overfished*).

In 2002, a process was initiated called the SouthEast, Data, Assessment, and Review (SEDAR). SEDAR is a cooperative Fishery Management Council process initiated to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and US Caribbean. SEDAR is managed by the Caribbean, Gulf of Mexico, and South Atlantic Regional Fishery Management Councils in coordination with NOAA Fisheries and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR seeks improvements in the scientific quality of stock assessments, constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.

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

- F2002/MFMT = 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:

- SSB2003/MSST = 869,503/3,498,735 = 0.25

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

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 SS_{BMSY}, respectively. The average weight and length in 2002 from the longline fishery suggests the population is near 44% and 28% of SS_{BMSY}, 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.

3.2.1.4 Blueline Tilefish

Blueline tilefish
Stock Status

- Overfishing unknown
- Overfished unknown
- ABC=592,602
- Will be specified through the Comprehensive ACL Amendment

Life History Information

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 (59-73.4º F) (Ross 1978; Ross and Huntsman 1982; Robins and Ray 1986 in Froese and Pauly 2003; 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. 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 and Wyanski In Review). This species feeds primarily on benthic invertebrates and fishes (Dooley 1978, in Froese and Pauly 2003).

3.2.1.5 Yellowedge Grouper

Yellowedge grouper
Stock Status

- Overfishing unknown
- Overfished unknown
- ABC=30,221
- Will be specified through the Comprehensive ACL Amendment

Life History Information

Yellowedge grouper occur in the Western Atlantic from North Carolina to southern Brazil, including the Gulf of Mexico. A solitary, demersal, deep-water species, the yellowedge grouper 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 (Heemstra and Randall 1993, in Froese and Pauly 2003).

Maximum reported size is 114 cm (45.3 in) TL (male) and 18.6 kg (41 lbs). Cass-Calay and Bahnick (2002) observed a maximum age of 85 years that was validated by the use of radiocarbon dating. M is estimated to be 0.05 (Cass-Calay and Bahnick 2002). Bullock et al. (1996) in the Gulf of Mexico reported that 50% of fishes are mature at 22.4 in, and that 50% of females transform into males by 81 cm (32.2 in) TL. Spawning occurs from April through October in the South Atlantic (Keener 1984; Manooch 1984; Parker and Mays 1998; Appendix 4). Ripe females were found in the eastern Gulf of Mexico from May through September (Bullock et al. 1996). Yellowedge grouper eat a wide variety of invertebrates (mainly brachyuran crabs) and fishes (Bullock and Smith 1991; Heemstra

and Randall 1993, in Froese and Pauly 2003).

3.2.1.6 Misty Grouper

Misty grouper
Stock Status

- Overfishing unknown
- Overfished unknown
- ABC=not provided by the SSC
- ACL will be specified through the Comprehensive ACL Amendment

Life History Information

Misty grouper occur in the Western and Eastern Atlantic Ocean (Heemstra and Randall 1993, in Froese and Pauly 2003). In the Western Atlantic, it ranges from Bermuda and the Bahamas to Brazil (Robins and Ray 1986). The misty grouper is a solitary, bathydemersal species. Adults generally occur at depths from about 100 to 550 m © Duane Raver (327 to 1,803 ft) (Robins 1967). Juveniles occur in shallower waters (e.g., 30 m (98 ft)).

Little is known about the age, growth, and reproduction of this species. Maximum reported size is 160 cm (63 in) TL and 100 cm (39 in) TL for males and females, respectively. Maximum reported weight is 107 kg (236 lbs) (Heemstra and Randall 1993, in Froese and Pauly 2003). The estimated size at maturity is 81.1 cm (31.9 in), and M is 0.14 (Froese and Pauly 2003). This species feeds primarily on fishes, crustaceans, and squids (Heemstra and Randall 1993, in Froese and Pauly 2003).

3.2.1.7 Queen Snapper

Queen snapper
Stock Status

- Overfishing unknown
- Overfished unknown
- ABC=not provided by the SSC
- ACL will be specified through the Comprehensive ACL Amendment

Life History Information

Queen snapper occurs in the Western Atlantic, ranging from Bermuda and North Carolina to Brazil, including the Gulf of Mexico and Caribbean Sea. It is commonly found near oceanic islands, and is particularly abundant in the Bahamas and the Antilles. This species is bathydemersal species (Allen 1985 in Froese and Pauly 2003) and moves offshore to deep-water reefs and rocky ledges as it grows and matures (SAFMC 1999). Allen (1985, in Froese and Pauly 2002) indicates it is primarily found over rocky bottom habitat, in depths of 100 to 450 m (327 to 1,475 ft). Thompson and Munro (1974a) report it was caught on mud slopes of the south Jamaica shelf at a depth of 460 m (1,508 ft) (Thompson and Munro 1974a). Maximum reported size is 100 cm TL (39 inches, male). Maximum reported weight is 5,300 g (11.7 lbs) (Allen 1985, in Froese and Pauly 2003). Size at maturity and age at first maturity are estimated as 53.6 cm TL (21 inches) and 1 year, respectively. Spawning is reported to occur during April and May off St. Lucia (Murray et al. 1998).

Approximate life span is 4.7 years; natural mortality rate, 0.76 (Froese and Pauly 2003). Primary prey items include small fishes and

squids (Allen 1985 in Froese and Pauly 2003).

3.2.1.8 Silk Snapper

Silk snapper
Stock Status

- Overfishing unknown
- Overfished unknown
- ABC=27,519 lbs
- ACL will be specified through the Comprehensive ACL Amendment

Life History Information

Silk snapper occur in the Western Atlantic, from North Carolina to Brazil, including the Bahamas and the northern Gulf of Mexico. It is commonly found along rocky ledges, in depths of 91-242 m (299-794 ft) (Robins and Ray 1986 in Froese and Pauly 2003). Adults are generally found further offshore than juveniles (SAFMC 1999), and usually ascend to shallow water at night (Allen 1985, in Froese and Pauly 2003). However, juveniles are sometimes observed on deep reefs (Robins and Ray 1986 in Froese and Pauly 2003). Silk snapper form moving aggregations of similar-sized individuals (Boardman and Weiler 1980).

Maximum reported size is 83.0 cm (32.9 in) TL and 8.3 kg (18.3 lb) (Allen 1985, in Froese and Pauly 2003). Size at maturity and age at first maturity are estimated at 43.4 cm (17.2 in) TL and 6.3 years, respectively (Froese and Pauly 2003). Silk snapper do not change sex. Spawning occurs in June, July, and August in waters off North and South Carolina (Grimes 1987).

Silk snapper eat primarily fishes, shrimps, crabs, gastropods, cephalopods, tunicates, and some pelagic items, including urochordates (Allen 1985, in Froese and Pauly 2003).

3.2.2 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). In addition to those six marine mammals, 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*]) are protected under the ESA. Portions of designated critical habitat for North Atlantic right whales and Acropora corals also occur within the Council's jurisdiction. The Comprehensive ACL Amendment, Sections 3.5.4 and 3.5.5 (these may be changing), describes the life history characteristics of these species and discusses the features essential for conservation found in each critical habitat area.

3.2.2.1 ESA Listed Sea Turtles

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

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

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

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

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

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

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

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

3.2.2.2 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).

3.2.2.3 ESA Listed Marine Invertebrates

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

Elkhorn and **staghorn** corals are two of the major reef-building corals in the wider Caribbean. In the South Atlantic region, they are found most commonly in the Florida Keys; staghorn coral occurs the furthest north with colonies documented off Palm Beach, Florida (26º3'N). 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).

3.2.2.4 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 3-1**).

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
Vertical Hook-and-Line Sea Turtle Catch Data					
8/1/01-7/31/02	April	2482	Unidentified	1	Alive
8/1/01-7/31/02	November	3377	Loggerhead	1	Alive
8/1/02-7/31/03	February	2780	Loggerhead	1	Alive
8/1/02-7/31/03	November	3474	Loggerhead	1	Alive
8/1/02-7/31/03	November	3476	Unknown	1	Alive
8/1/02-7/31/03	December	3476	Unknown	1	Alive
Bottom Longline Sea Turtle Catch Data					
8/1/01-7/31/02	August	3674	Leatherback	1	Alive
8/1/03-7/31/04	January	3575	Loggerhead	1	Unknown

Source: SEFSC Supplementary Discard Data Program

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

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

Source: NMFS 2006

3.3 Human Environment

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

3.4.1.1 Federal Fishery Management

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

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

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

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

3.4.1.2 State Fishery Management

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

The South Atlantic States are also involved through the 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.

3.4.1.3 Enforcement

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

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

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

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. NOAA General Counsel requested public comment through December 20 2010, on a new draft policy.

Chapter 4. Environmental Consequences

4.1 Changes to the 40-fathom Closure

Alternative 1 (No Action). Retain existing regulations for deepwater species (snowy grouper, blueline tilefish, yellowedge grouper, warsaw grouper, speckled hind, misty grouper, queen snapper, and silk snapper), including the prohibition of fishing for, possession, and retention of deepwater snapper species beyond a depth of 240 feet (40 fathoms; 73 m).

Alternative 2. Allow harvest of blueline tilefish in the South Atlantic in the deep water (seaward of the 240 ft depth contour).

Alternative 3. Allow harvest of blueline tilefish off North Carolina in the deep water (seaward of the 240 ft depth contour).

Alternative 4. Allow harvest of blueline tilefish off North Carolina north of Cape Hatteras in the deep water (seaward of the 240 ft depth contour).

Alternative 5. Exclude blueline tilefish from the deepwater closure south of Cape Canaveral.

Alternative 6. Open the closed area in the South Atlantic seaward of 500 ft. The intent is for closed area to extend from 240 to 500 ft. (If this alternative is chosen as a preferred, a transit provision will need to be specified.)

Alternative 7. Allow harvest of snowy grouper in the South Atlantic in the deep water (seaward of the 240 ft depth contour).

Alternative 8. Allow harvest of snowy grouper off North Carolina in the deep water (seaward of the 240 ft depth contour).

Alternative 9. Allow harvest of snowy grouper off North Carolina north of Cape Hatteras in the deep water (seaward of the 240 ft depth contour)

Alternative 10. Exclude snowy grouper from the deepwater closure south of Cape Canaveral.

Alternative 11 (Preferred). Remove the prohibition of fishing for, possession, and retention of other deepwater snapper species beyond a depth of 240 feet (40 fathoms; 73 m).

4.1.1 Biological Effects

Alternative 1 (No Action) would retain the existing regulations for deepwater species (snowy grouper, blueline tilefish, yellowedge grouper, warsaw grouper, speckled hind, misty grouper, queen snapper, and silk snapper), including the prohibition of fishing for, possession, and retention of other deepwater snapper species beyond a depth of 240 feet (referred to herein as the "40-fathom closure"). The following discussion of the expected effects to the biological environment was included in Amendment 17B to the Snapper Grouper Fishery Management Plan (Amendment 17B):

> Closing the area beyond 240 feet **(Alternative 4 Preferred)**, to deepwater snapper grouper fishing, would provide protection to the largest, most fecund fish and promote a natural sex ratio into the future. Speckled hind are thought to form spawning aggregations, which can be susceptible to targeted fishing pressure (G. Gilmore, Dynamac Corporation, personal communication). Prohibiting all harvest of deepwater snapper grouper species beyond 240 feet would also protect these spawning aggregations, as well as decrease bycatch mortality of speckled hind, warsaw grouper, and other co-occurring deepwater snapper grouper species.

Alternatives 2-11 would modify the regulations established through Amendment 17B. **Alternatives 2-5** would exempt blueline tilefish from the harvest prohibition deeper than 240 feet; whereas, **Alternatives 7-10** would exempt snowy grouper from these regulations. **Alternative 6** would open the closed area for deepwater snapper grouper species in the South Atlantic seaward of 500 feet and maintain a closed area from 240 to 500 feet. The South Atlantic Council is considering **Alternative 6** as some fishermen have stated warsaw grouper and speckled hind are not caught in waters deeper than a 500 foot depth while fishing for snowy grouper and blueline tilefish in the Florida Keys. **Alternative 11 (Preferred)** would remove the 40-fathom closure from the regulations.

Data Sets Evaluated

- Commercial logbook
- Headboat survey
- Reef Fish Observer
- MARMAP
- Accumulated Landing System
- Trip tickets
  -North Carolina
  -South Carolina
  -Georgia
  -Florida

There is uncertainty around the determination of biological effects from an analysis of the fishery-dependent and independent data. As documented in **Appendix C**, uncertainty is created by the following attributes of the datasets:

- Lack of detailed data on location of the catches;
  (For example, landings in the North Carolina Trip Ticket data set are separated into state or federal waters and north or south of Cape Hatteras);
- Under-reporting due to 1992 prohibition on sale of warsaw grouper and speckled hind;
- Depth of capture unavailable for most datasets;
- Relatively small number of warsaw grouper and speckled hind records;
- Limited fishery-dependent catch records and fishery-independent sampling in deeper waters; and,
- Limited fishery-independent sampling north of Cape Hatteras and south of Cape Canaveral.

The following five questions are used to determine the likely effects to the biological environment from Alternatives 2 through 10.

(1) Have speckled hind and warsaw grouper been encountered off the South Atlantic coast north of Cape Hatteras?

Speckled hind and warsaw grouper are rarely encountered by headboat and commercial fishermen north of Cape Hatteras **(Table 4-1).**

Table 4-1. Percent of warsaw grouper and speckled hind records north of Cape Hatteras, NC.

	North of Cape Hatteras	
Dataset	**Warsaw Grouper**	**Speckled Hind**
ALS	0%	0%
Florida Trip Ticket	0%	2%
Headboat Survey	0%	1%
MARMAP	0%	0%
RFOP	0%	0%
CLB	0%	2%

Sampling by MARMAP and Reef Fish Observer Program (RFOP) has not occurred in sites north of Cape Hatteras.

(2) Have speckled hind and warsaw grouper been encountered off the South Atlantic coast south of Cape Canaveral?

Speckled hind and warsaw grouper are sometimes encountered by headboat and commercial fishermen south of Cape Canaveral **(Table 4-2).**

Table 4-2. Percent of warsaw grouper and speckled hind records south of Cape Canaveral, FL.

	South of Cape Canaveral	
Dataset	**Warsaw Grouper**	**Speckled Hind**
ALS	4%	12%
Florida Trip Ticket	24%	1%
Headboat Survey	5%	3%
MARMAP	0%	0%
RFOP	0%	0%
CLB	0%	5%

Sampling by MARMAP and Reef Fish Observer Program is very limited south of Cape Canaveral.

(3) Have speckled hind and warsaw grouper been encountered off the South Atlantic coast north of Cape Hatteras beyond 240 foot depth?

Speckled hind and warsaw grouper are rarely encountered north of Cape Hatteras in waters greater than a 240 foot depth **(Table 4-3)**. Depth of capture is not available for headboat. Few MARMAP or RFOP data are available north of Cape Hatteras.

Table 4-3. Percent of observations by depth and area north of Cape Hatteras, NC.

	Speckled Hind				Warsaw Grouper			
Range	**Comm LB***	**Discard LB**	**RFOP**	**MARMAP**	**Comm LB***	**Discard LB**	**RFOP**	**MARMAP**
>240 ft North of 3500	4%	0%	0%	0%	0%	0%	0%	0%

*Ratio of lbs landed.

(4) Have speckled hind and warsaw grouper been encountered off the South Atlantic coast north south of Cape Canaveral beyond 240 foot depth?

Speckled hind and warsaw grouper are rarely encountered south of Cape Canaveral in waters greater than a 240 foot depth **(Table 4-4)**. Depth of capture is not available for headboat. Few MARMAP or RFOP data are available south of Cape Canaveral.

Table 4-4. Percent of observations by depth and area south of Cape Canaveral, FL.

	Speckled Hind				Warsaw Grouper			
Range	Comm LB*	Discard LB	RFOP	MARMAP	Comm LB*	Discard LB	RFOP	MARMAP
>240 ft South of 2700	2%	0%	0%	0%	0%	0%	0%	0%

*Ratio of lbs landed.

(5) Have speckled hind and warsaw grouper been encountered off the South Atlantic coast beyond 500 foot depth?

Speckled hind and warsaw grouper are rarely encountered in waters greater than a 500 foot depth **(Table 4-5)**. Depth of capture is not available for headboat. Few MARMAP or RFOP data are available from waters greater than a 500 foot depth.

Table 4-5. Percent of observations by depth and area in EEZ waters greater than 500 ft..

	Speckled Hind				Warsaw Grouper			
Range	Comm LB*	Discard LB	RFOP	MARMAP	Comm LB*	Discard LB	RFOP	MARMAP
>500 ft Entire EEZ	4%	0%	0%	0%	0%	0%	0%	0%

*Ratio of lbs landed.

(6) Are speckled hind and warsaw grouper caught on trips where blueline tilefish or snowy grouper are caught?

Cluster analyses indicated low association between warsaw grouper and speckled hind with blueline tilefish and snowy grouper. This finding may be attributable to the unique habitat preferences of these species. Warsaw grouper inhabit steep cliffs, notches, and rocky ledges of the continental shelf break (Manooch and Mason 1987), and speckled hind inhabit high- and low-profile hard bottom (Huntsman and Dixon 1976). Blueline tilefish inhabit irregular bottoms comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom where they live in burrows (Parker and Ross 1986; Parker and Mays 1998). The majority of snowy grouper landings in the South Atlantic are in waters deeper than 500 ft, where speckled hind and warsaw grouper are extremely rare.

Cluster analysis results suggest allowing harvest of blueline tilefish and snowy grouper would unlikely result in significant increases in the mortality of speckled hind or warsaw grouper, although low levels of bycatch of these species might occur. The cluster analysis indicated low levels of association between warsaw grouper and speckled hind with blueline tilefish and snowy grouper. This is supported by anecdotal information from fishermen. In addition, it appears as speckled hind and warsaw grouper have different habitat preferences than blueline tilefish and a shallower depth distribution than the exploited phase of the snowy grouper stock.

Ranking of Alternatives

Alternatives

1. No action. Retain 40-fathom closure
2. Allow blueline entire EEZ
3. Allow blueline off NC
4. Allow blueline north of Cape Hatteras
5. Allow blueline south of Cape Canaveral
6. Open 240-500 ft
7. Allow snowy grouper entire EEZ
8. Allow snowy grouper of NC
9. Allow snowy grouper north of Cape Hatteras
10. Allow snowy grouper south of Cape Canaveral
11. Remove the 40-fathom closure from the regulations.

Each of the alternatives have been ranked according to their anticipated biological effects **(Figure 4-1). Alternative 1** would have the least amount of negative biological impacts as the alternative would retain the 40-fathom closure. Encounters with speckled hind and warsaw grouper are greater south of Cape Canaveral than they are north of Cape Hatteras or north of the North Carolina/Virginia border. As such, the alternatives that would allow fishing for blueline tilefish and snowy grouper north of Cape Hatteras (**Alternatives 4 and 9**) would have fewer negative biological impacts to the stocks than the other action alternatives. Effects to the biological environment would be expected to be similar between alternatives that allow fishing for snowy grouper and those that allow blueline tilefish beyond a 240 foot depth. This is because the probability of catching either species with speckled hind and warsaw grouper is low according to the cluster analysis outlined in **Appendix C**. **Alternative 11 (Preferred)** would have the potential for the greatest level of biological effects as it would allow the greatest amount of fishing.

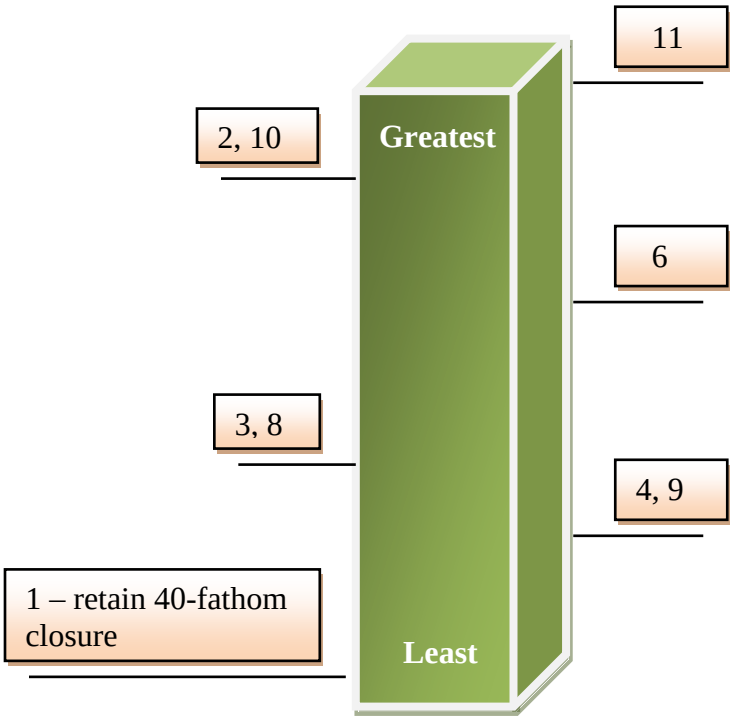


Figure 4-1. Ranking of the alternatives in terms of biological effects.

4.1.2 Economic Effects

4.1.3 Social Effects

4.1.4 Administrative Effects

4.2 Transit Provisions

Alternative 1 (No Action) (Preferred). Do not allow transit through the 40-fathom closure with prohibited species onboard.

Alternative 2. The prohibition on possession does not apply to a person aboard a vessel that has snapper grouper species onboard if the vessel is in transit.

Alternative 3. The prohibition on possession does not apply to a person aboard a vessel that is in transit with snapper grouper species on board and with fishing gear appropriately stowed.

4.2.1 Biological Effects

4.2.2 Economic Effects

4.2.3 Social Effects

4.2.4 Administrative Effects

Chapter 5. Cumulative Effects

5.1 Biological

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 1997) 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.

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

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

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

2. Establish the geographic scope of the analysis.

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

3. Establish the timeframe for the analysis.

Establishing a timeframe for the CEA is important when the past, present, and reasonably foreseeable future actions are discussed. It would be advantageous to go back to a time when there was a natural, or some modified (but ecologically sustainable) condition. However, data collection for many fisheries began when species were already fully exploited. Therefore, the timeframe for analyses should be initiated when data collection began for the various fisheries. For the species addressed in this amendment, landings data through 2009 was used in the subject biological analysis.

4. Identify the other actions affecting the resources, ecosystems, and human communities of concern (the cumulative effects to the human communities are discussed in Section 4).

Listed are other past, present, and reasonably foreseeable actions occurring in the South Atlantic region. These actions, when added to the proposed management measures, may result in cumulative effects on the biophysical environment.

I. Fishery-related actions affecting the snapper grouper species addressed in this amendment

A. Past

The reader is referred to **Appendix X** of this document for past regulatory activity for the relevant snapper grouper species. These include bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system.

Snapper Grouper Amendment 13C (SAFMC 2006) was implemented on October 23, 2006. Amendment 13C established quotas, trip limits, and bag limits to end overfishing of snowy grouper, golden tilefish, vermilion snapper, and black sea bass. It also increased harvest of red porgy consistent with the rebuilding program.

Snapper Grouper Amendment 14 (SAFMC 2007) was implemented on February 12, 2009. Implementing regulations established eight Type 2 Marine Protected Areas (MPAs) in federal waters ranging from North Carolina to Florida (see **Figure 5-1**). 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). Studies to assess the effectiveness of the deepwater MPAs have been conducted annually by the Southeast Fisheries Science Center since 2004. For purposes of this amendment, the Council will use these studies to determine whether a change in the size and/or configuration of the existing MPAs is needed to increase the biological benefits to deepwater snapper grouper species, particularly for speckled hind and warsaw grouper.

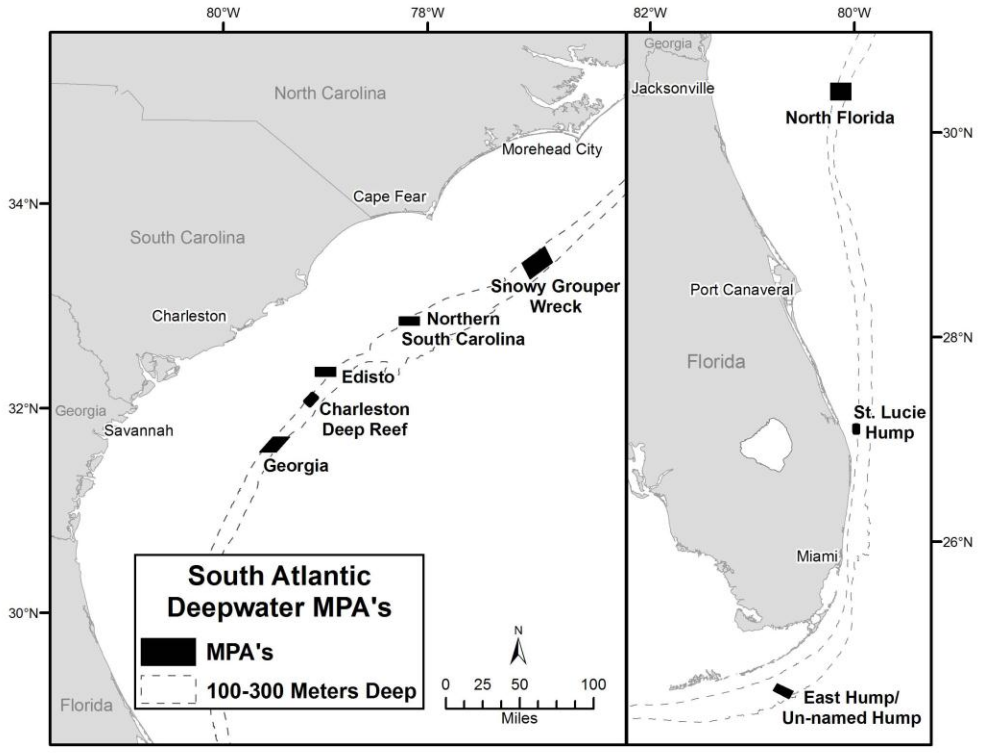


Figure 5-1. Marine protected areas implemented under Snapper Grouper Amendment 14.

Amendment 16 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2009a) was partially approved by the Secretary of Commerce; all regulations were effective on 7/29/09. Amendment 16 implemented a January-April shallow water grouper spawning season closure and created a five- month seasonal closure for vermilion snapper.

Snapper Grouper Amendment 17A (SAFMC 2010a) included a rebuilding plan and management measures that would end overfishing of red snapper. Amendment 17A specified an Annual Catch Limit (ACL) and Accountability Measures (AMs) for red snapper as required by the Magnuson-Stevens Act. One of several management measures the Council considered in Amendment 17A was a large area closure for all snapper grouper fishing off the coasts of Georgia and Northern Florida. These closure would have enhanced the expected biological benefits of the spawning season closure for shallow water grouper in Snapper Grouper Amendment 16, and the deepwater snapper grouper closure in Snapper Grouper Amendment 17B. The Final Rule, issued on December 3, 2010, extended the prohibition of red snapper in federal waters throughout the South Atlantic EEZ effective immediately. The implementation of the area closure, however, was delayed. The Council approved Regulatory Amendment 10 (SAFMC 2011) for submission to the Secretary of Commerce during its

December 2010 meeting in order to eliminate the area closure based on updated stock assessment information for red snapper (SEDAR 24, 2010).

Amendment 17B (SAFMC 2010b) was effective on January 31, 2011. The amendment established Annual Catch Limits (ACLs) and Accountability Measures (AMs) and addressed overfishing for nine species in the snapper grouper management complex listed as undergoing overfishing: golden tilefish, snowy grouper, speckled hind, warsaw grouper, black grouper, black sea bass, gag, red grouper, and vermilion snapper. Measures in the amendment included the deepwater closure (240 ft. seaward) for deepwater species to help protect warsaw grouper and speckled hind. The closure was also intended to help protect other deepwater species where release mortality is estimated at 100% for the multi-species fishery, and to ensure catches remain below the Annual Catch Limits for these species. Additional measures in the amendment included a reduction in the snowy grouper bag limit to one fish per vessel per trip; establishment of a combined ACL for gag, black grouper, and red grouper of 662, 403 lbs (gutted weight) for the commercial fishery, and 648,663 lbs (gutted weight) for the recreational fishery; an allocation of 97% commercial and 3% recreational for the golden tilefish fishery based on landings history; and establishment of accountability measures as necessary.

The 240-feet closure implemented through Amendment 17B has likely precluded much of the effort shift into deeper water that may have otherwise taken place as a result of the spawning season closure in Amendment 16. The remaining available species, such as black sea bass, vermilion snapper, and golden tilefish, are managed under commercial quotas and the effort shift into those fisheries as a result of the combined effects of Snapper Grouper Amendments 16 and 17B has partly contributed to the quotas being met faster.

B. Present

In addition to snapper grouper fishery management issues being addressed in this amendment, other snapper grouper amendments have been developed concurrently and are in the process of approval and implementation.

Amendment 23 to the Snapper Grouper FMP is included in the Comprehensive Ecosystem-Based Amendment 2 (CE-BA 2) currently in the process of submission to the Secretary of Commerce. The amendment would limit harvest of snapper grouper species in Special Management Zones off South Carolina to the bag limit.

Amendment 24 to the Snapper Grouper FMP is being developed to address overfishing of red grouper. The amendment would re-define MSY and MSST,

establish a rebuilding schedule and a rebuilding strategy for the fishery, specify ABC, sector allocations, sector ACLs and OY, and AMs.

Amendment 25 to the Snapper Grouper FMP is included in the Comprehensive Annual Catch Limit Amendment. The amendment is being developed to meet the requirements of the Magnuson-Stevens Act to establish ACLs and AMs for species not undergoing overfishing including snapper grouper complex species, dolphin, wahoo, and golden crab. Actions contained within the ACL Amendment include: (1) Removal of species from the snapper grouper fishery management unit (including queen snapper and misty grouper); (2) establishment of species groupings; (3) specification of jurisdictional and sector allocations; (4) management measures to limit recreational and commercial sectors to their ACLs; (5) AMs; and (6) any necessary modifications to the range of regulations.

Mackerel Amendment 18 is currently under development and would establish Annual Catch Limits (ACLs), Accountability Measures (AMs), and Annual Catch Targets (ACTs) for king mackerel, Spanish mackerel, and cobia. A number of snapper grouper fishers also participate in the mackerel fishery.

Spiny Lobster Amendment 10 is currently under development and would establish Annual Catch Limits (ACLs), Accountability Measures (AMs), and Annual Catch Targets (ACTs) for lobsters. A number of snapper grouper fishers also participate in the lobster fishery.

C. Reasonably Foreseeable Future

Amendment 18A to the FMP for the Snapper Grouper Fishery of the South Atlantic Region is currently under development. The amendment would limit effort in the black sea bass fishery, reduce bycatch in the black sea bass fishery, and improve the accuracy and timing of fisheries statistics. In addition, the amendment would change the constant-catch rebuilding strategy for black sea bass and change the recreational AMs put in place for black sea bass through Amendment 17B. A stock assessment for back sea bass is currently underway. It is the Council's intent for Amendment 18A to address any needed changes to the management of this fishery as a result of the stock assessment.

Amendment 18C to the Snapper Grouper FMP is currently under development and will contain actions addressing golden tilefish. Actions would include limiting participation in the golden tilefish fishery, allocating commercial quota between gear groups, changing the golden tilefish fishing year, and changing the commercial trip limit.

As mentioned previously, studies to assess the effectiveness of the deepwater MPAs have been conducted annually by the Southeast Fisheries Science Center since 2004. For purposes of this amendment, the Council will use these studies to determine whether a change in the size and/or configuration of the existing MPAs is needed to increase the biological benefits to deepwater snapper grouper species, particularly for speckled hind and warsaw grouper. In addition, the Council intends to obtain information directly from fishermen on areas that may be considered for spawning closures to further protect populations of speckled hind and warsaw grouper.

Regulatory Amendment 9 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 9; SAFMC 2011b) addresses trip limits for vermilion snapper, gag, and greater amberjack. Regulatory Amendment 9 also includes alternatives that modify the bag limit for black sea bass. Regulations are effective on July 15, 2011 and June 22, 2011 for the trip limits and black sea bass bag limit reduction, respectively.

Amendment 20 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (under development) would update the Individual Transfer Quota program for wreckfish.

Amendment 24 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (under development) would establish a rebuilding plan for red grouper, establish MSY, OY, ACL and AMs.

Additionally, the Council has requested an amendment to explore alternate management methods specifically for red snapper for long-term implementation (Amendment 22), and other snapper grouper species (Amendment 21).

Insert info on NC EFP?

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

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 since 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.

How global climate changes will affect Gulf of Mexico and South Atlantic fisheries is unclear. Climate change can impact marine ecosystems through ocean warming by increased thermal stratification, reduced upwelling, sea level rise; and through increases in wave height and frequency, loss of sea ice, and increased risk of diseases in marine biota. Decreases in surface ocean pH due to absorption of anthropogenic CO_2 emissions may impact a wide range of organisms and ecosystems, particularly organism that absorb calcium from surface waters, such as corals and crustaceans (IPCC 2007, and references therein).

The BP/Deepwater Horizon oil spill event, which occurred in the Gulf of Mexico on April 20, 2010, is not expected to impact fisheries operating the South Atlantic. Oil from the spill site has not been detected in the South Atlantic region, and is not likely to pose a threat to South Atlantic snapper grouper species included in this regulatory amendment.

AFFECTED ENVIRONMENT

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

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

The trends in condition of deepwater snapper grouper species are documented through the Southeast Data, Assessment and Review (SEDAR) process. The status of each of the assessed stocks is described in **Section 3.2.1.5** of this document.

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

This step is important in outlining the current and probable stress factors on snapper grouper species identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the

resources cannot be sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

Fish populations

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

Applicable stock assessment sources include:

- SEDAR 4 (2004) - SEDAR 4 was charged with developing stock assessments for deepwater snapper grouper species in the South Atlantic and Caribbean. Based on the available data, the data workshop panel recommended moving forward with analytical assessments for snowy grouper and tilefish in the South Atlantic. The data workshop reports, however, include compilations of data for all species initially considered.
- Potts and Brennan (2001) for speckled hind, black grouper, and red grouper; and
- Huntsman et al. (1993) for warsaw grouper.

Detailed discussions of the science and processes used to determine the stock status of these species are contained in the information sources above and are hereby incorporated by reference.

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 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).

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

Time period/dates	Cause	Observed and/or Expected Effects
1960s-1983	Growth overfishing of many reef fish species.	Declines in mean size and weight of many species including black sea bass.
August 1983	4" trawl mesh size to achieve a 12" TL commercial vermilion snapper minimum size limit (SAFMC 1983).	Protected youngest spawning age classes.
Pre-January 12, 1989	Habitat destruction, growth overfishing of vermilion snapper.	Damage to snapper grouper habitat, decreased yield per recruit of vermilion snapper.
January 1989	Trawl prohibition to harvest fish (SAFMC 1988).	Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many reef species including vermilion snapper, and gag.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	Prohibited gear: fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. Size/Bag limits: 10" TL vermilion snapper (recreational only); 12" TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20" TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991).	Protected smaller spawning age classes of vermilion snapper.
Pre-June 27, 1994	Damage to *Oculina* habitat.	Noticeable decrease in numbers and species diversity in areas of *Oculina* off FL
July 1994	Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993)	Initiated the recovery of snapper grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing continue for a number of snapper grouper species including vermilion snapper and gag.	Spawning potential ratio for vermilion snapper and gag is less than 30% indicating that they are overfished.
February 24, 1999	Gag and black: 24" total length (recreational and commercial); 2 gag or black grouper bag limit within 5 grouper aggregate; March-April commercial closure. Vermilion snapper:" total length (recreational). Aggregate bag limit of no more than 20 fish/person/day for all snapper grouper species without a bag	F for gag vermilion snapper remains declines but is still above F_{MSY}.

Time period/dates	Cause	Observed and/or Expected Effects
	limit (1998a).	
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 vermilion snapper occur in some of these areas.
Effective March 20, 2008	Snapper grouper FMP Amendment 15A (SAFMC 2008a)	Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Effective Dates Dec 16, 2009, to Feb 16, 2010.	Snapper grouper FMP Amendment 15B (SAFMC 2008b)	End double counting in the commercial and recreational reporting systems by prohibiting the sale of bag-limit caught snapper grouper, and minimize impacts on sea turtles and smalltooth sawfish.
Effective Date July 29, 2009	Snapper grouper FMP Amendment 16 (SAFMC 2009a)	Protect spawning aggregations and snapper grouper in spawning condition by increasing the length of the spawning season closure, decrease discard mortality by requiring the use of dehooking tools, reduce overall harvest of gag and vermilion snapper to end overfishing.
Effective Date January 4, 2010	Red Snapper Interim Rule (NMFS 2010)	Prohibit commercial and recreational harvest of red snapper from January 4, 2010, to June 2, 2010 with a possible 186-day extension. Reduce overfishing of red snapper while long-term measures to end overfishing are addressed in Amendment 17A.
Effective dates are as follows: Prohibition on the harvest and possession of red snapper (December 3,	Snapper Grouper FMP Amendment 17A (SAFMC 2010a)	SFA parameters for red snapper; ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; accountability measures. Establish rebuilding plan for red snapper.

Time period/dates	Cause	Observed and/or Expected Effects
2010); area closure for South Atlantic snapper grouper (January 3, 2011); and circle hook requirement (March 3, 2011).		
Effective January 3, 2011	Emergency Rule	Delayed the implementation of the snapper grouper area closure until June 1st, 2011
Effective Date January 31, 2011	Snapper Grouper FMP Amendment 17B (SAFMC 2010b)	ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; AMs, for species undergoing overfishing.
Effective Date May 31, 2011	Regulatory Amendment 10 (SAFMC 2011a)	Removed area closure implemented through Amendment 17A to reduce mortality of red snapper.
Effective Dates June 22, 2011 (bsb bag limit reduction) and July 15, 2011 (commercial trip limits)	Regulatory Amendment 9 (SAFMC 2011b)	Control derby fisheries for black sea bass, vermilion snapper, gag, and greater amberjack and reduce the bag limit for black sea bass
Target 2011	Snapper Grouper FMP Amendment 18A	Prevent overexploitation in the black sea bass fishery, revise rebuilding strategy and AMs for black sea bass, and improve data collection timeliness and data quality.
Target, 2011	Comprehensive ACL Amendment.	ACLs, ACTs, and AMs for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.
Target 2012	Snapper Grouper FMP Amendment 20 (Wreckfish)	Review the current ITQ program and update the ITQ program as necessary to comply with MSA LAPP requirements.
Target 2012	Snapper Grouper FMP Amendment 18C	Prevent overexploitation in the golden tilefish fishery.
Target 2012	Snapper Grouper FMP Amendment 24	Rebuilding plan for red grouper
Target 2013	Snapper Grouper FMP Amendment 22	Establish a sustainable long-term management program for red snapper.

9. Determine the magnitude and significance of cumulative effects.

Proposed management actions, as summarized in **Section 2** of this document, would remove the 240-foot closure implemented through Amendment 17B and therefore allow harvest of deepwater species (snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper and silk snapper) beyond 240 feet. Detailed discussions of the magnitude and significance of the preferred alternatives appear in **Section 4** of this document.

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

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

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

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

5.2 Socioeconomic

Chapter 6. Other Things to Consider

6.1 Unavoidable Adverse Effects

6.2 Effects of the Fishery on Essential Fish Habitat

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

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

6.3 Damage to Ocean and Coastal Habitats

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

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

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

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

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

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

The Council's Comprehensive Habitat Amendment (SAFMC 1998b) contains measures that expanded the *Oculina* Bank Habitat of Particular Concern (HAPC) and added two additional satellite HAPCs. Amendment 14 (SAFMC 2007), established marine protected areas where fishing for or retention of snapper grouper species would be prohibited.

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

6.5 Irreversible and Irretrievable Commitments of Resources

6.6 Unavailable or Incomplete Information

Chapter 7. List of Preparers

Table 7-1. List of regulatory Amendment 11 preparers.

Name	Agency/Division	Area of Amendment Responsibility	Education	Years of Experience
Myra Brouwer	SAFMC	IPT Lead/Fishery Biologist		
Rick DeVictor	NMFS/SF	IPT Lead/Fishery Biologist		
David Dale	NMFS/HC	EFH Specialist		
Amanda Frick	NMFS/PR	Geographer		
Andy Herndon	NMFS/PR	Biologist		
Stephen Holiman	NMFS/SF	Economist		
Tony Lamberte	NMFS/SF	Economist		
Jack McGovern	NMFS/SF	Fishery Scientist		
Kate Michie	NMFS/SF	Fishery Management Plan Coordinator		
Kate Quigley	SAFMC	Economist		
Monica Smit-Brunello	NOAA/GC	Attorney Advisor		

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

Table 7-2. List of Regulatory Amendment 11 interdisciplinary plan team members.

Name	SAFMC	Title
Myra Brouwer	SAFMC	IPT Lead/Fishery Biologist
John Carmichael	SAFMC	SAFMC Data Program Managers
Anik Clemens	NMFS/SF	Technical Writer Editor
David Dale	NMFS/HC	EFH Specialist
Rick DeVictor	NMFS/SF	IPT Lead/Fishery Biologist
Otha Easley	NMFS/LE	Supervisory Criminal Investigator
Nick Farmer	NMFS/SF	Data Analyst
Amanda Frick	NMFS/PR	Geographer
Andy Herndon	NMFS/PR	Fishery Biologist (Protected Resources)
Stephen Holiman	NMFS/SF	Economist
David Keys	NMFS	Regional NEPA Coordinator
Tony Lamberte	NMFS/SF	Economist
Jennifer Lee	NMFS/PR	Fishery Biologist (Protected Resources)
Anna Martin	SAFMC	Coral Biologist
Jack McGovern	NMFS/SF	Fishery Biologist
Kate Michie	NMFS/SF	Fishery Biologist
Janet Miller	NMFS/SF	Program Specialist (Permits)
Kate Quigley	SAFMC	Economist
Noah Silverman	NMFS/SF	NEPA Specialist
Monica Smit-Brunello	NOAA/GC	Attorney
Andy Strelcheck	NMFS/SF	Fishery Biologist

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

Chapter 8. List of Agencies, Organizations, and Persons To Whom Copies of the Statement are Sent

Responsible Agency

Regulatory Amendment 11:
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
Charleston, South Carolina 29405
(843) 571-4366 (TEL)
Toll Free: 866-SAFMC-10
(843) 769-4520 (FAX)
safmc@safmc.net

Environmental Assessment:
NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 (TEL)
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List of Agencies, Organizations, and Persons Consulted

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

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