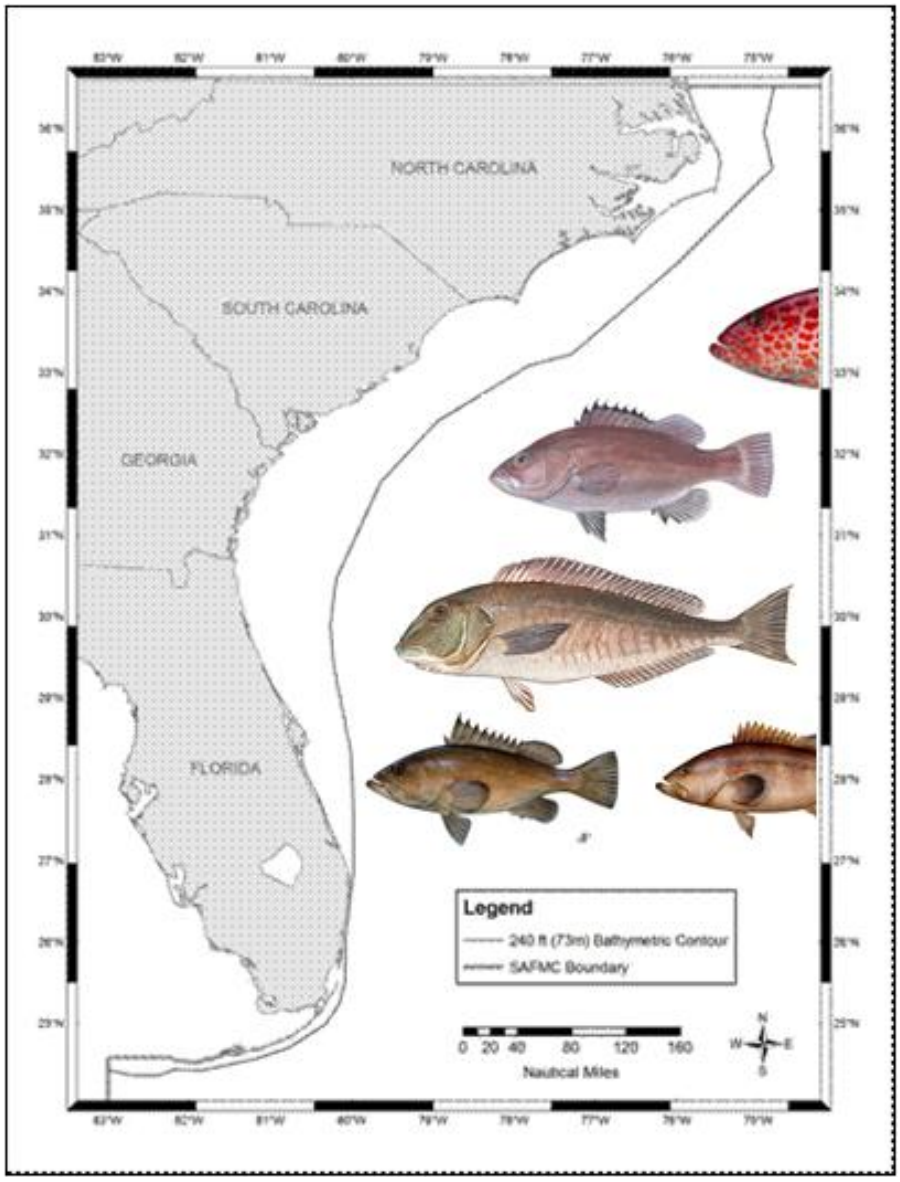

Regulatory Amendment 11

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

June 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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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**).

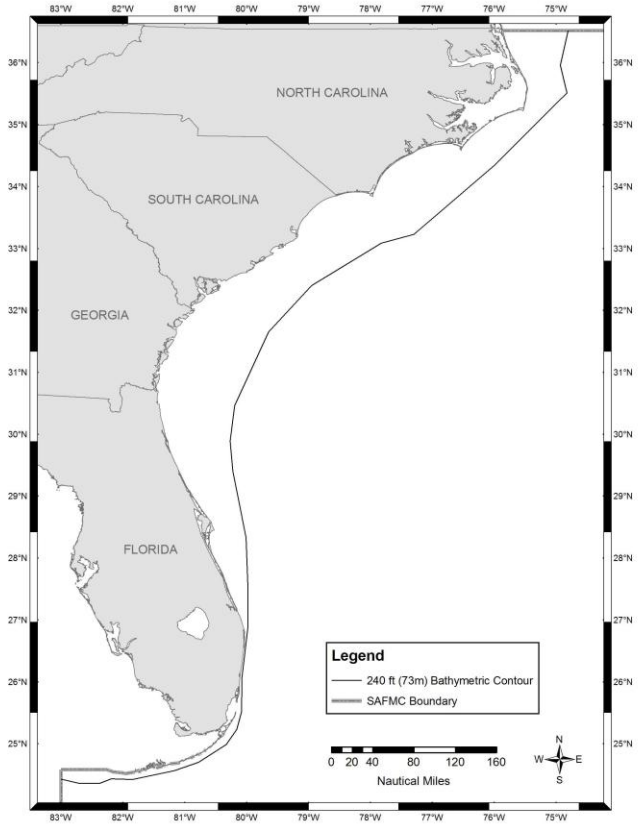


Figure 1. The 240 foot (40 fathoms; 73 m) depth line that marks the western boundary of the 40-fathom closure**.**

**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 or increasing the biological protection expected from the regulations in Amendment 17B to speckled hind and warsaw grouper. 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 or increasing the biological protection to speckled hind and warsaw grouper in the South Atlantic.

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 hindand 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 other 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.

The IPT recommends the Council consider an additional alternative to remove entire 40-fathom closure.

2.2.2 Action 2: Transit Provisions

Alternative 1 (no action). 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).

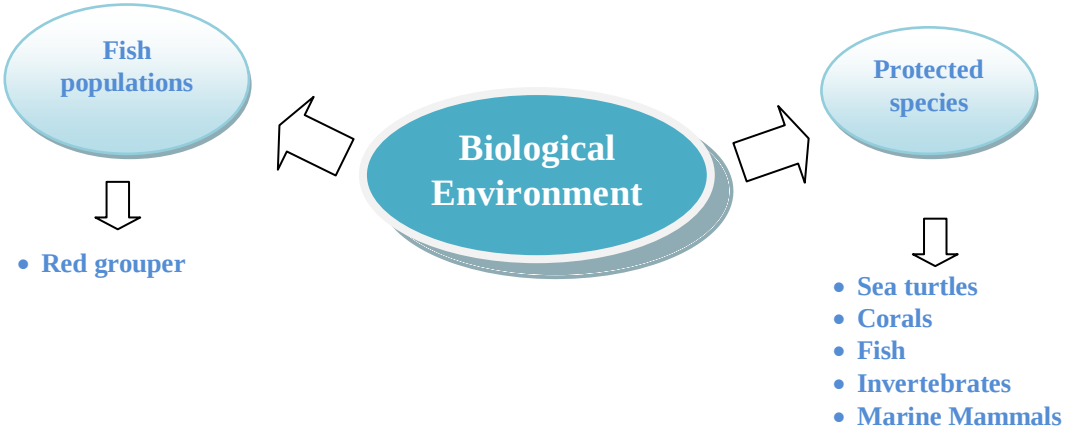
Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

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 **(Appendix D)**, 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 south eastern coast (Figure 3-2). 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.

Add figure

Snapper grouper species commonly taken with red grouper could be affected by

actions in this amendment. Snapper grouper species most likely to be affected by the proposed actions include many species that occupy the same habitat at the same time. Therefore, snapper grouper species are likely to be caught when regulated since they will be incidentally caught when fishermen target other co-occurring species.

3.2.1.1 Speckled hind

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

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

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

3.2.1.4 Blueline tilefish

3.2.1.5 Stock Status

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.

Following the assessment, the Council's Scientific and Statistical Committee (SSC) reviews the stock assessment information and advises the Council on whether the best available data were utilized and whether the outcome of the assessment is suitable for management purposes.

The following sections describe the results of the two most recent stock assessments for red grouper in the South Atlantic, in addition to the recommendations from the Scientific and Statistical Committee (SSC).

SEDAR Assessment

Stock Status

SSC Recommendation

3.2.1.6 Other Fish Species Affected

In addition to red grouper, snapper grouper species most likely to be affected by the proposed actions includes many species that occupy the same habitat at the same time. Therefore, snapper grouper species are likely to be caught when regulated since they will be incidentally caught when fishermen target other co-occurring species. The following species are ones that are most likely to be affected. Amendment 17A, Section 3.2.1, describes their life history characteristics in detail.

gag
(*Mycteroperca microlepis*)

golden tilefish
(*Lopholatilus chamaeleonticeps*)

gray triggerfish
(*Balistes capriscus*)

greater amberjack
(*Seriola dumerili*)

red snapper
(*Lutjanus campechanus*)

scamp
(*Mycteroperca phenax*)

snowy grouper
(*Epinephelus niveatus*)

vermilion snapper
(*Rhomboplites aurorubens*)

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 other 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.

The IPT recommends the Council consider an additional alternative to remove entire 40-fathom closure.

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 2-10 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.

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

Each of the alternatives have been ranked according to their anticipated biological benefits **(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**.

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

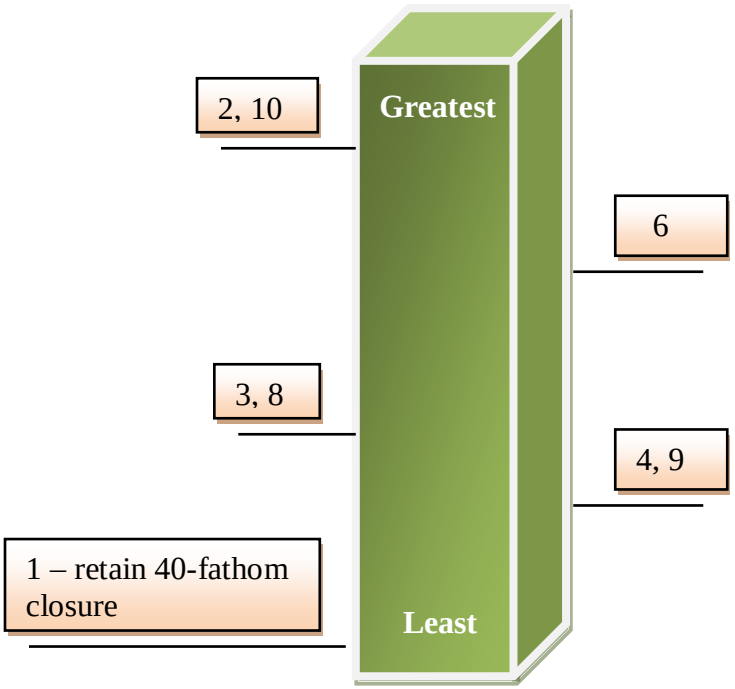


Figure 4-1. Ranking of the alternatives in terms of biological effects.

4.1.2 Economic Effects

4.1.3 Social Effects

4.1.4 Administrative Effects

4.2 Transit Provisions

Alternative 1 (no action). 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

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
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Environmental Assessment:
NMFS, Southeast Region
263 13th Avenue South
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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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Appendix A. Alternatives the Council Considered but Eliminated from Further Study and a Brief Discussion for their Elimination

The Council has not yet moved any alternatives to the Appendix.

Appendix B. Glossary

Acceptable Biological Catch (ABC): Maximum amount of fish stock than can be harvested without adversely affecting recruitment of other components of the stock. The ABC level is typically higher than the total allowable catch, leaving a buffer between the two.

ALS: Accumulative Landings System. NMFS database which contains commercial landings reported by dealers.

Biomass: Amount or mass of some organism, such as fish.

BMSY: Biomass of population achieved in long-term by fishing at FMSY.

Bycatch: Fish harvested in a fishery, but not sold or kept for personal use. Bycatch includes economic discards and regulatory discards, but not fish released alive under a recreational catch and release fishery management program.

Caribbean Fishery Management Council (CFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The CFMC develops fishery management plans for fisheries off the coast of the U.S. Virgin Islands and the Commonwealth of Puerto Rico.

Catch Per Unit Effort (CPUE): The amount of fish captured with an amount of effort. CPUE can be expressed as weight of fish captured per fishing trip, per hour spent at sea, or through other standardized measures.

Charter Boat: A fishing boat available for hire by recreational anglers, normally by a group of anglers for a short time period.

Cohort: Fish born in a given year. (See year class.)

Control Date: Date established for defining the pool of potential participants in a given management program. Control dates can establish a range of years during which a potential participant must have been active in a fishery to qualify for a quota share.

Constant Catch Rebuilding Strategy: A rebuilding strategy where the allowable biological catch of an overfished species is held constant until stock biomass reaches BMSY at the end of the rebuilding period.

Constant F Rebuilding Strategy: A rebuilding strategy where the fishing mortality of an overfished species is held constant until stock biomass reached BMSY at the end of the rebuilding period.

Directed Fishery: Fishing directed at a certain species or species group.

Discards: Fish captured, but released at sea.

Discard Mortality Rate: The percent of total fish discarded that do not survive being captured and released at sea.

Derby: Fishery in which the TAC is fixed and participants in the fishery do not have individual quotas. The fishery is closed once the TAC is reached, and participants attempt to maximize their harvests as quickly as possible. Derby fisheries can result in capital stuffing and a race for fish.

Effort: The amount of time and fishing power (i.e., gear size, boat size, horsepower) used to harvest fish.

Exclusive Economic Zone (EEZ): Zone extending from the shoreline out to 200 nautical miles in which the country owning the shoreline has the exclusive right to conduct certain activities such as fishing. In the United States, the EEZ is split into state waters (typically from the shoreline out to 3 nautical miles) and federal waters (typically from 3 to 200 nautical miles).

Exploitation Rate: Amount of fish harvested from a stock relative to the size of the stock, often expressed as a percentage.

F: Fishing mortality.

Fecundity: A measurement of the egg-producing ability of fish at certain sizes and ages.

Fishery Dependent Data: Fishery data collected and reported by fishermen and dealers.

Fishery Independent Data: Fishery data collected and reported by scientists who catch the fish themselves.

Fishery Management Plan: Management plan for fisheries operating in the federal produced by regional fishery management councils and submitted to the Secretary of Commerce for approval.

Fishing Effort: Usually refers to the amount of fishing. May refer to the number of fishing vessels, amount of fishing gear (nets, traps, hooks), or total amount of time vessels and gear are actively engaged in fishing.

Fishing Mortality: A measurement of the rate at which fish are removed from a population by fishing. Fishing mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Fishing Power: Measure of the relative ability of a fishing vessel, its gear, and its crew to catch fishes, in reference to some standard vessel, given both vessels are under identical conditions.

F30%SPR: Fishing mortality that will produce a static SPR = 30%.

F45%SPR: Fishing mortality that will produce a static SPR = 45%.

FOY: Fishing mortality that will produce OY under equilibrium conditions and a corresponding biomass of BOY. Usually expressed as the yield at 85% of FMSY, yield at 75% of FMSY, or yield at 65% of FMSY.

FMSY: Fishing mortality that if applied constantly, would achieve MSY under equilibrium conditions and a corresponding biomass of BMSY

Fork Length (FL): The length of a fish as measured from the tip of its snout to the fork in its tail.

Gear restrictions: Limits placed on the type, amount, number, or techniques allowed for a given type of fishing gear.

Growth Overfishing: When fishing pressure on small fish prevents the fishery from producing the maximum poundage. Condition in which the total weight of the harvest from a fishery is improved when fishing effort is reduced, due to an increase in the average weight of fishes.

Gulf of Mexico Fishery Management Council (GFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The GFMC develops fishery management plans for fisheries off the coast of Texas, Louisiana, Mississippi, Alabama, and the west coast of Florida.

Head Boat: A fishing boat that charges individual fees per recreational angler onboard.

Highgrading: Form of selective sorting of fishes in which higher value, more marketable fishes are retained, and less marketable fishes, which could legally be retained are discarded.

Individual Fishing Quota (IFQ): Fishery management tool that allocates a certain portion of the TAC to individual vessels, fishermen, or other eligible recipients.

Longline: Fishing method using a horizontal mainline to which weights and baited hooks are attached at regular intervals. Gear is either fished on the bottom or in the water column. Magnuson-Stevens Fishery Conservation and Management Act: Federal legislation responsible for establishing the fishery management councils and the mandatory and discretionary guidelines for federal fishery management plans.

Marine Recreational Fisheries Statistics Survey (MRFSS): Survey operated by NMFS in cooperation with states that collects marine recreational data.

Maximum Fishing Mortality Threshold (MFMT): The rate of fishing mortality above which a stock's capacity to produce MSY would be jeopardized.

Maximum Sustainable Yield (MSY): The largest long-term average catch that can be taken continuously (sustained) from a stock or stock complex under average environmental conditions.

Minimum Stock Size Threshold (MSST): The biomass level below which a stock would be considered overfished.

Modified F Rebuilding Strategy: A rebuilding strategy where fishing mortality is changed as stock biomass increases during the rebuilding period.

Multispecies fishery: Fishery in which more than one species is caught at the same time and location with a particular gear type.

National Marine Fisheries Service (NMFS): Federal agency within NOAA responsible for overseeing fisheries science and regulation.

National Oceanic and Atmospheric Administration: Agency within the Department of Commerce responsible for ocean and coastal management.

Natural Mortality (M): A measurement of the rate at which fish are removed from a population by natural causes. Natural mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Optimum Yield (OY): The amount of catch that will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems.

Overfished: A stock or stock complex is considered overfished when stock biomass falls below the minimum stock size threshold (MSST) (e.g., current biomass < MSST = overfished).

Overfishing: Overfishing occurs when a stock or stock complex is subjected to a rate of fishing mortality that exceeds the maximum fishing mortality threshold (e.g., current fishing mortality rate > MFMT = overfishing).

Quota: Percent or annual amount of fish that can be harvested.

Recruitment (R): Number or percentage of fish that survives from hatching to a specific size or age.

Recruitment Overfishing: The rate of fishing above which the recruitment to the exploitable stock becomes significantly reduced. This is characterized by a greatly reduced spawning stock, a decreasing proportion of older fish in the catch, and generally very low recruitment year after year.

Scientific and Statistical Committee (SSC): Fishery management advisory body composed of federal, state, and academic scientists, which provides scientific advise to a fishery management council.

Selectivity: The ability of a type of gear to catch a certain size or species of fish.

South Atlantic Fishery Management Council (SAFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The SAFMC develops fishery management plans for fisheries off North Carolina, South Carolina, Georgia, and the east coast of Florida.

Spawning Potential Ratio (Transitional SPR): Formerly used in overfished definition. The number of eggs that could be produced by an average recruit in a fished stock divided by the number of eggs that could be produced by an average recruit in an unfished stock. SPR can also be expressed as the spawning stock biomass per recruit (SSBR) of a fished stock divided by the SSBR of the stock before it was fished.

% Spawning Per Recruit (Static SPR): Formerly used in overfishing determination. The maximum spawning per recruit produced in a fished stock divided by the maximum spawning per recruit, which occurs under the conditions of no fishing. Commonly abbreviated as %SPR.

Spawning Stock Biomass (SSB): The total weight of those fish in a stock which are old enough to spawn.

Spawning Stock Biomass Per Recruit (SSBR): The spawning stock biomass divided by the number of recruits to the stock or how much spawning biomass an average recruit would be expected to produce.

Total Allowable Catch (TAC): The total amount of fish to be taken annually from a stock or stock complex. This may be a portion of the Allowable Biological Catch (ABC) that takes into consideration factors such as bycatch.

Total Length (TL): The length of a fish as measured from the tip of the snout to the tip of the tail.