

Regulatory Amendment 16

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



June 2013



Environmental Assessment

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Abbreviations and Acronyms Used in the FMP

ABC	acceptable biological catch	FMP	fishery management plan
ACL	annual catch limits	FMU	fishery management unit
AM	accountability measures	M	natural mortality rate
ACT	annual catch target	MARMAP	Marine Resources Monitoring Assessment and Prediction Program
B	a measure of stock biomass in either weight or other appropriate unit	MFMT	maximum fishing mortality threshold
B_{MSY}	the stock biomass expected to exist under equilibrium conditions when fishing at F _{MSY}	MMPA	Marine Mammal Protection Act
B_{OY}	the stock biomass expected to exist under equilibrium conditions when fishing at F _{OY}	MRFSS	Marine Recreational Fisheries Statistics Survey
B_{CURR}	The current stock biomass	MRIP	Marine Recreational Information Program
CPUE	catch per unit effort	MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
DEIS	draft environmental impact statement	MSST	minimum stock size threshold
EA	environmental assessment	MSY	maximum sustainable yield
EEZ	exclusive economic zone	NEPA	National Environmental Policy Act
EFH	essential fish habitat	NMFS	National Marine Fisheries Service
F	a measure of the instantaneous rate of fishing mortality	NOAA	National Oceanic and Atmospheric Administration
F_{30%SPR}	fishing mortality that will produce a static SPR = 30%	OFL	overfishing limit
F_{CURR}	the current instantaneous rate of fishing mortality	OY	optimum yield
F_{MSY}	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B _{MSY}	RIR	regulatory impact review
F_{OY}	the rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of B _{OY}	SAMFC	South Atlantic Fishery Management Council
FEIS	final environmental impact statement	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 16 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Environmental Assessment

Proposed action: Modify management of the commercial golden tilefish longline sector of the snapper grouper fishery to lengthen the fishing season and minimize derby conditions.

Lead agency: FMP Amendment – South Atlantic Fishery Management Council
Environmental Assessment – National Marine Fisheries Service (NMFS) Southeast Regional Office

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Summary

Regulatory Amendment 16 to the Fishery Management Plan of the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 16) is being developed to lengthen the season and address concerns about derby conditions in the longline fishery for golden tilefish. Amendment 18B established an endorsement program for the commercial longline golden tilefish sector, allocated the commercial annual catch limit (ACL) between the longline and hook-and-line sectors, and established a trip limit for those fishermen who did not qualify for a longline endorsement.

The final rule implementing Amendment 18B published in April 2013.

Even after the provisions of Amendment 18B, golden tilefish fishermen approached the Council with concerns about derby fishing conditions continuing. The fishermen suggested ways to slow down fishing and extend the season for longliners. This regulatory amendment proposes an action to address those concerns.

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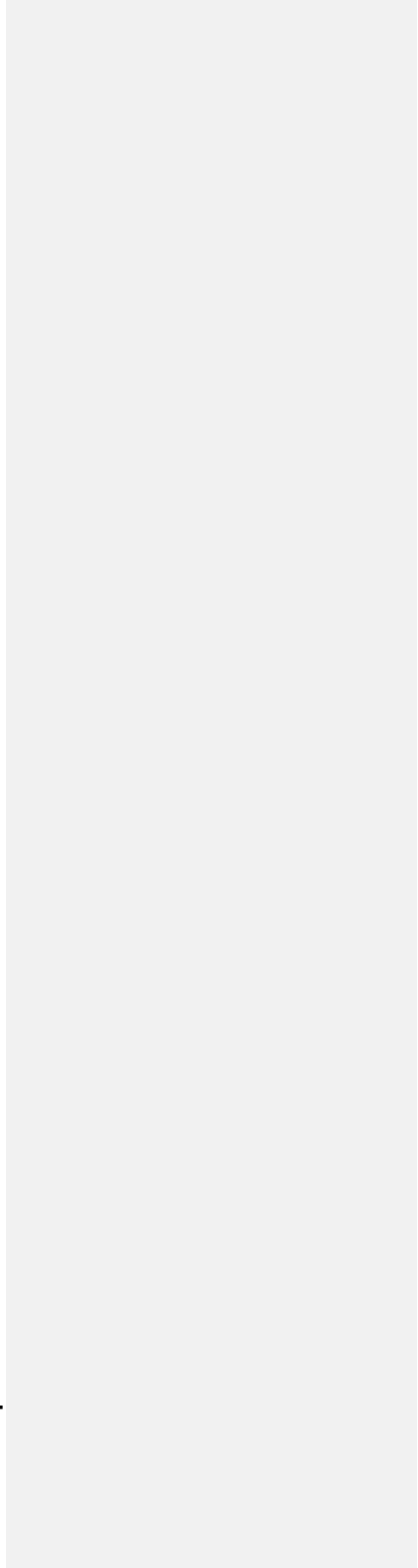
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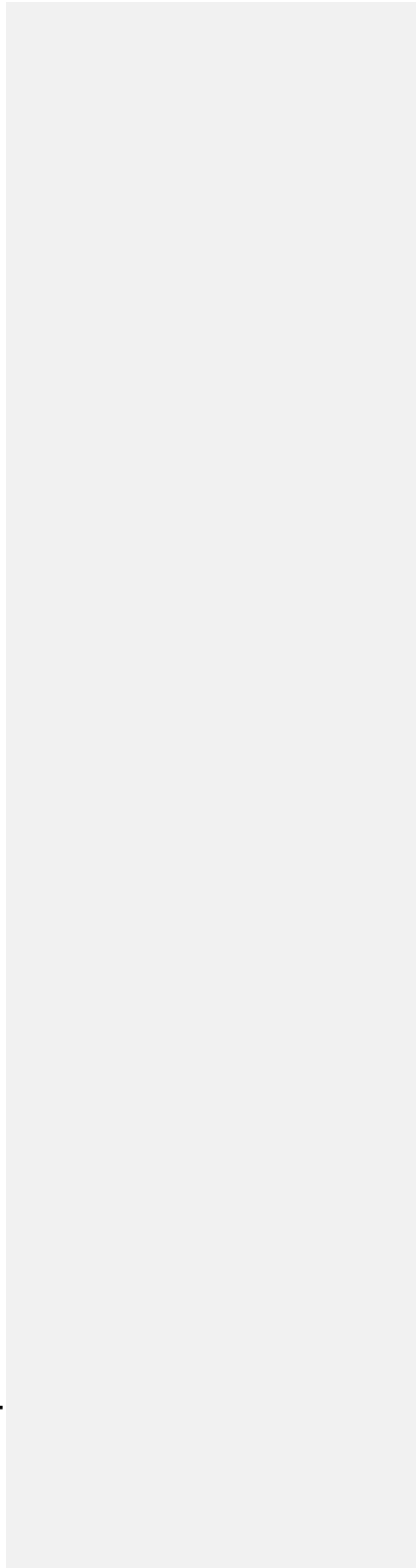
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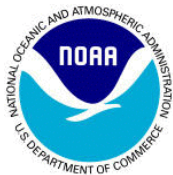
Chapter 1. Introduction

1.1 What Actions Are Being Proposed?

Regulatory Amendment 16 proposes actions to extend the golden tilefish fishing season by alternating fishing either by one week or by two weeks.

1.2 Who is Proposing the Actions?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the actions. The South Atlantic Council develops the regulatory amendment and submits it to the National Marine Fisheries Service (NMFS) who publishes a rule to implement the regulatory 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: 8 appointed by the Secretary of Commerce, 1 representative from each of the 4 South Atlantic states, the Southeast Regional Director of NMFS, and 4 non-voting members
- Responsible for developing fishery management plans and amendments under the Magnuson-Stevens Act; and recommends actions to NMFS for implementation
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West with the exception of Mackerel which is from New York through Florida, and Dolphin-Wahoo which is from Maine through Florida

1.3 Why is the South Atlantic Council Considering Action?/Purpose & Need

The *purpose* of Regulatory Amendment 16 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region is to ameliorate existing derby conditions in the commercial longline sector of the golden tilefish portion of the snapper grouper fishery and lengthen the commercial longline golden tilefish fishing season.

The *need* for the amendment is to increase safety at sea while promoting biological benefits by distributing fishing effort over a longer period of time, and to promote socio-economic benefits.

Purpose for Action

1) Ameliorate existing derby conditions in the commercial longline sector of the golden tilefish portion of the snapper grouper fishery and 2) lengthen the commercial longline fishing season

Need for Action

The need for the amendment is to increase safety at sea while promoting biological benefits by distributing fishing effort over a longer period of time, and to promote socio-economic benefits.

1.4 Which species are affected by this action?

Regulatory Amendment 16 affects golden tilefish in waters of the South Atlantic. Golden tilefish have been assessed (SEDAR 25 2011) and the annual catch limit (ACL) and allowable biological catch (ABC) were revised through Regulatory Amendment 12 (SAFMC 2012). Through the recently implemented Amendment 18B, an endorsement program for the commercial longline sector was established, the ACL allocation was split between the hook-and-line and longline sectors and a trip limit was established for those that did not qualify for the longline endorsement.

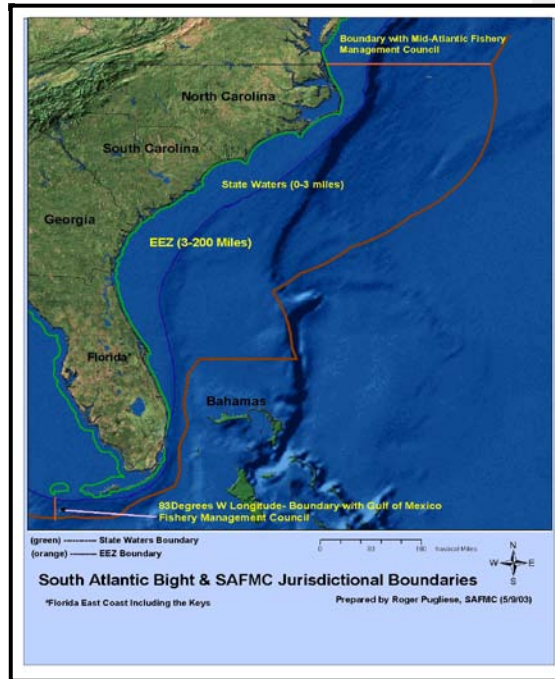


Figure 1.4.1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

1.5 Stock Assessment Information Considered in This Amendment

The actions and alternatives in Regulatory Amendment 16 are based on the results of a stock assessment update for golden tilefish completed through the Southeast Data, Assessment, and Review (SEDAR) process in 2011 with data through 2010 (SEDAR 25 2011). The assessment indicated that the U.S. southeast stock of golden tilefish is currently not overfished and overfishing is not occurring. The stock assessment results show that the biomass of golden tilefish has increased substantially since the last assessment and is now above B_{MSY} . As a result of SEDAR 25, Regulatory Amendment 12 (SAFMC 2012) was implemented to adjust the ACL and ABC for golden tilefish in the South Atlantic.

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1: Extend the fishing season for longline vessels in the golden tilefish portion of the snapper grouper fishery in the South Atlantic.

Alternative 1 (No Action). Vessels with golden tilefish longline endorsements are limited to 4,000 pounds per trip with no step-down trip limit.

Alternative 2. Require vessels with golden tilefish longline endorsements to fish for two weeks beginning on January 1 and stop fishing for the following two weeks. Continue fishing in this manner until the golden tilefish longline ACL is met or is projected to be met.

Alternative 3. Require vessels with golden tilefish longline endorsements to fish every other week beginning on January 1 and until the golden tilefish longline ACL is met or is projected to be met.

Summary of the Effects of Alternatives

Biological

The current closures of snapper grouper and other commercial fishing seasons greatly affect the intensity and duration of longline fishing for golden tilefish. Under the no-action alternative, it is expected that the ACL will be harvested in the first half of the year, as has been done in previous years. **Alternative 2** and **Alternative 3** propose to alternate between one week of fishing and one week of closed fishing or two weeks of open fishing and two weeks of closed fishing, respectively.

Economic

Social

Chapter 3. Affected Environment

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

- **Habitat environment** (Section 3.1)
- **Biological and ecological environment** (Section 3.2)
- **Human environment** (Sections 3.3)
- **Administrative environment** (Section 3.4)

3.1 Habitat Environment

3.1.1 Inshore/Estuarine Habitat

Many snapper grouper species utilize both pelagic and benthic habitats during several stages of their life histories; larval stages of these species live in the water column and feed on plankton. Most juveniles and adults are demersal (bottom dwellers) and associate with hard structures on the continental shelf that have moderate to high relief (e.g., coral reef systems and artificial reef structures, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings). Juvenile stages of some snapper grouper species also utilize inshore seagrass beds, mangrove estuaries, lagoons, oyster reefs, and embayment systems. In many species, various combinations of these habitats may be utilized during daytime feeding migrations or seasonal shifts in cross-shelf distributions. Additional information on the habitat utilized by species in the Snapper Grouper Complex is included in Volume II of the Fishery Ecosystem Plan (FEP, SAFMC 2009b) and incorporated here by reference. The FEP can be found at: <http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx>.

3.1.2 Offshore Habitat

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

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

Rock outcroppings occur throughout the continental shelf from Cape Hatteras, North Carolina to Key West, Florida (MacIntyre and Milliman 1970; Miller and Richards 1979; Parker et al. 1983), which are principally composed of limestone and carbonate sandstone (Newton et al. 1971), and exhibit vertical relief ranging from less than 0.5 to over 10 meters (33 ft). Ledge systems formed by rock outcrops and piles of irregularly sized boulders are also common. Parker et al. (1983) estimated that 24% (9,443 km²) of the area between the 27 and 101-meter (89 and 331 ft) depth contours from Cape Hatteras, North Carolina to Cape Canaveral, Florida is reef habitat. Although the bottom communities found in water depths between 100 and 300 meters (328 and 984 ft) from Cape Hatteras, North Carolina to Key West, Florida is relatively small compared to the whole shelf, this area, based upon landing information of fishers, constitutes prime reef fish habitat and probably significantly contributes to the total amount of reef habitat in this region.

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

The distribution of coral and live hard bottom habitat as presented in the Southeast Marine Assessment and Prediction Program (SEAMAP) bottom mapping project is a proxy for the distribution of the species within the snapper grouper complex. The method used to determine hard bottom habitat relied on the identification of reef obligate species including members of the

snapper grouper complex. The Florida Fish and Wildlife Research Institute (FWRI), using the best available information on the distribution of hard bottom habitat in the South Atlantic region, prepared ArcView maps for the four-state project. These maps, which consolidate known distribution of coral, hard/live bottom, and artificial reefs as hard bottom, are available on the South Atlantic Fishery Management Council's (South Atlantic Council) online map services provided by the newly developed SAFMC Habitat and Ecosystem Atlas:

http://ocean.floridamarine.org/safmc_atlas/. An introduction to the system is found at: <http://www.safmc.net/EcosystemManagement/EcosystemBoundaries/MappingandGISData/tabid/632/Default.aspx>.

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

3.1.3 Essential Fish Habitat

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

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

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

3.1.4 Habitat Areas of Particular Concern

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

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

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

3.2 Biological and Ecological Environment

3.2.1 Fish Populations Affected by this Amendment

Golden tilefish (*Lopholatilus chamaeleonticeps*) are distributed throughout the Western Atlantic, occurring as far north as Nova Scotia, to southern Florida, and in the eastern Gulf of Mexico (Robins and Ray 1986). According to Dooley (1978), golden tilefish occurs at depths of 80-540 meters (263-1,772 feet). Robins and Ray (1986) report a depth range of 82-275 meters (270-900 feet) for golden tilefish. It is most commonly found at about 200 meters (656 feet), usually over mud or sand bottom but, occasionally, over rough bottom (Dooley 1978). Maximum reported size is 125 centimeters (50 inches) total length and 30 kilograms (66 pounds) (Dooley 1978; Robins and Ray 1986). Maximum reported age is 40 years (Harris et al. 2001). Radiocarbon aging indicates golden tilefish may live for at least 50 years (Harris, South Carolina Department of Natural Resources, personal communication). Golden tilefish spawn off the southeast coast of the U.S. from March through late July, with a peak in April (Table 3-1; Harris et al. 2001). Grimes et al. (1988) indicate peak spawning occurs from May through September in waters north of Cape Canaveral. Golden tilefish primarily prey upon shrimp and crabs, but also eat fishes, squid, bivalves, and holothurians (Dooley 1978).

3.2.2 Stock Status of Golden Tilefish

Golden tilefish were assessed through the Southeast Data, Assessment and Review (SEDAR) process in 2011 with data through 2010 (SEDAR 25 2011). SEDAR is a cooperative Fishery Management Council process initiated to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean. The Caribbean, Gulf of Mexico, and South Atlantic Fishery Management Councils manage SEDAR in coordination with 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.

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

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

Assessment History

The first stock assessment for golden tilefish was conducted in 1990 (PDT 1990) using data from 1972 through 1988/89. Spawning Stock Ratio (SSR) (SSR is considered to be the same as Spawning Potential Ratio (SPR)) was only calculated for the commercial fishery: (a) Carolinas = 35%, (b) North Florida = 28%, and (c) South Florida = 42%. A series of stock assessments conducted by NMFS (1991), Huntsman et al. (1992), and Potts and Brennan (2001) provided estimates of SSR/SPR based on catch curves:

Assessment Year	Catch Data From	Overall SSR
1991	1988	31%
1992	1990	21%
2001	2000	20-34%

In 2004, golden tilefish was assessed as part of SEDAR 4, using landings, age, length, and abundance index data through 2002 (SEDAR 4 2004). For the 2004 assessment, two models were considered: (1) a statistical catch-at-age (SCAA) model and (2) an age-aggregated production model. The results of the primary SCAA model indicated overfishing of the resource post-1988 with spawning stock biomass hovering right around the value corresponding to the maximum sustainable yield (MSY) for that same time. The terminal 2002 model estimates suggested the golden tilefish stock was undergoing overfishing and that the stock was very close to the overfished definition. Static SPR in the 2004 assessment was estimated to be about 31% in 2002.

Current Status

The SEDAR 25 (2011) assessment of the golden tilefish stock indicated that the U.S. southeast stock of tilefish is currently not overfished and overfishing is not occurring. The stock assessment results show that the biomass of golden tilefish has increased substantially since the last assessment and is now above B_{MSY} (Figure 3-1).

Estimated time series of stock status (spawning stock biomass (SSB)/minimum stock size threshold (MSST)) shows decline in the early 1980s, and then increase since the mid-2000s. Estimates of SSB have remained below MSST throughout the 1990s and early 2000s. Current stock status was estimated to be $SSB_{2010}/MSST = 2.43$. If this ratio is greater than one, then the stock is not overfished. The uncertainty analysis suggested that the estimate of a stock that is not overfished (i.e., $SSB > MSST$) is robust. Age structure estimated by the model shows fewer

older fish than the (equilibrium) age structure expected at MSY. However, in the terminal year (2010), ages 1-7 approached the MSY age structure.

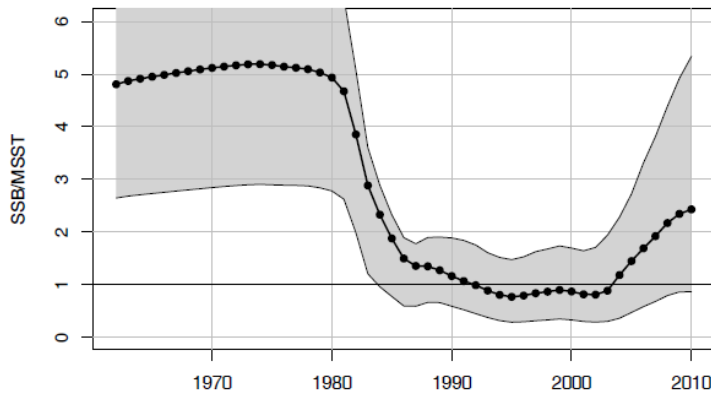


Figure 3-1. Estimated total biomass (metric tons) at start of year. Horizontal dashed line indicates B_{MSY} . Source: SEDAR 25 (2011).

The estimated time series of F/F_{MSY} suggests that overfishing has occurred throughout some of the assessment period. Spikes in the early 1980s through 2004 are due primarily to the longline fleet. Current fishery status in the terminal year, with current F represented by the geometric mean from 2008-2010, is estimated to be $F_{2008-2010}/F_{MSY} = 0.36$. If this ratio is below one, then the stock is not undergoing overfishing. This estimate indicates that overfishing is not occurring and appears robust across the uncertainty analyses.

The South Atlantic Council's SSC reviewed the assessment results and accepted the base run and the recommendations of the SEDAR 25 Review Panel. The SSC recommended using the values from the SEDAR 25 Review Workshop Report, which are specified in Regulatory Amendment 12 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 12 (SAFMC 2012)). The SSC recommended establishing the acceptable biological catch (ABC), based on the South Atlantic Council/SSC ABC Control Rule, at a level that would result in a 35% probability (P^*) of overfishing. The overfishing limit (OFL) is specified by the South Atlantic Council's SSC based on the yield at F_{MSY} . Values for OFL for 2012-2015, based on the most recent stock assessment (SEDAR 25 2011), are shown in **Table 3-1**.

Table 3-1. OFL, ABC, and ACL for golden tilefish based on projections of yield at F_{MSY} (OFL), equilibrium yield at $75\%F_{MSY}$ from SEDAR 25, and ABC from SEFSC (January 27, 2012 Regulatory Amendment 12 (SAFMC 2012)).

Values are in pounds whole weight (conversion factor for gutted weight for golden tilefish is 1.12).

Year	OFL	Total ABC	ACL (Am17B) 75% F_{MSY}	ACL (Reg Am 12) Equilibrium 75% F_{MSY}
2012	1,386,000	668,000	1,062,000	625,000
2013	1,242,000	669,000	991,000	625,000
2014	1,124,000	666,000	931,000	625,000
2015	1,031,000	655,000	880,000	625,000

Based on results from SEDAR 25 (2011) Regulatory Amendment 12 increased the golden tilefish ACL 625,000 pounds whole weight (558,036 pounds gutted weight). The commercial and recreational ACLs are 606,250 pounds whole weight (541,295 pounds gutted weight) and 3,019 fish, respectively. Below are current values in whole weight (ww) and gutted weight (gw) when the stock is at equilibrium for MSY and OY from SEDAR 25 based on specifications in Amendment 17B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2010).

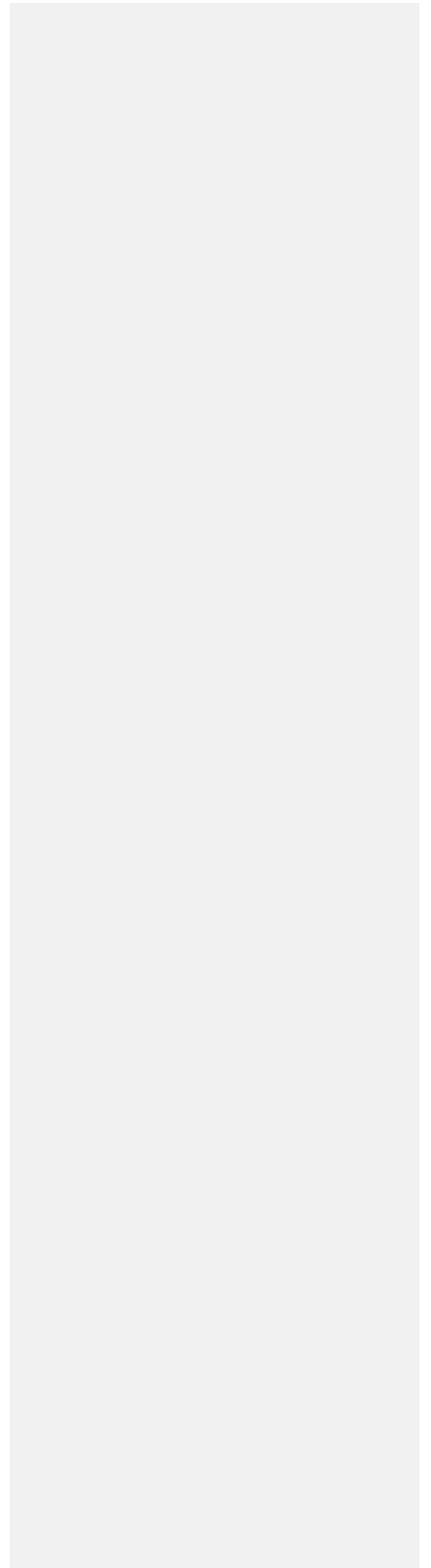
MSY = 638,000 pounds ww (569,643 pounds gw)

ACL and OY = yield at $75\%F_{MSY}$ = 625,000 pounds ww (558,036 pounds gw).

3.3 Protected Species

There are 40 species protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region and are under the purview of NMFS. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act. Six of these marine mammal species are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). In addition to those six marine mammals, five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; five distinct population segments of Atlantic sturgeon; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]) are also protected under the ESA. Portions of designated critical habitat for North Atlantic right whales and *Acropora* corals also occur within the South Atlantic Council's jurisdiction. **Section 3.5** in the Comprehensive ACL Amendment (SAFMC 2011b), and **Section 3.2.2** in Regulatory Amendment 13 to the Snapper Grouper FMP (SAFMC 2013), describe the life history characteristics in detail for these species. **Section 3.5** of the Comprehensive ACL Amendment and **Section 3.2.2** of Regulatory Amendment 13 are hereby incorporated by reference and may be found at: <http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx> and http://sero.nmfs.noaa.gov/sf/pdfs/Reg13_FINAL_Dec2012.pdf, respectively. The potential impacts from the continued authorization of the South Atlantic snapper grouper fishery on all

ESA-listed species have been considered in previous ESA Section 7 consultations. Summaries of those consultations and their determination are in **Appendix F**. Those consultations indicate that of the species listed above, sea turtles and smalltooth sawfish are the most likely to interact with the snapper grouper fishery.



3.3 Human Environment

3.3.1 Economic Description of the Commercial Sector

The proposed action concerns commercial harvest of golden tilefish by longline only. Consequently, the following description of the fishery does not concern the snapper grouper fishery as a whole nor recreational fishing of golden tilefish, but instead, is limited to commercial longline fishing for golden tilefish. Descriptions of the snapper grouper fishery as a whole and recreational harvest of golden tilefish can be found in the environmental assessments for Amendments 18A (SAFMC 2012a) and 18B (SAFMC 2013a) and are incorporated by reference.

Amendment 18B established the golden tilefish endorsement program in 2013, which distributed golden tilefish longline endorsements to snapper grouper permit holders that caught an average of at least 5,000 lb gw golden tilefish with longline gear for the best three years within the period from 2006 through 2011. As of May 7, 2013, there are 23 vessels with golden tilefish longline endorsements (http://sero.nmfs.noaa.gov/operations_management_information_services/constituency_services_branch/freedom_of_information_act/common_foia/index.html), and all have an unlimited (harvest) snapper grouper permit because a condition of the endorsement is that the endorsement must have an associated valid or renewable unlimited permit. The endorsement program was implemented effective May 23, 2013 (SERO FB13-033).

The 23 endorsements represent approximately 4% of the unlimited harvest snapper grouper permits (SERO PIMS). Over half of the vessels with an endorsement have shark directed and king mackerel permits, while approximately 9% of the vessels have no other limited access permits. Some endorsement holders have more than one endorsement. One person (identity of interest)? holds three endorsements and three hold two endorsements each. Consequently, 17 persons hold the 23 endorsements. Approximately 88% of these persons have a Florida address and the remaining 12% a South Carolina address. Approximately 83% of the endorsements are held by persons with a Florida address, while the remaining 17% are held by persons with a South Carolina address.

Presently, the commercial ACL for golden tilefish is divided by gear, with 75% of the ACL (405,971 lbs gw) allocated to longliners. The commercial golden tilefish fishing year is from January 1 through December 31 or until the ACL is reached. Before May 23, 2013, the trip limit was 4,000 lb gw until 75% of the ACL is landed, and became 300 lb gw after that until the season closed. However, Amendment 18B established a separate trip limit for vessels that harvest golden tilefish without an endorsement and removed the trip limit decrease to 300 lb. As of May 23, 2013, the trip limit for those with an endorsement is 4,000 lb gw and 500 lb gw for those without an endorsement throughout the open season.

In 2013, the fishing year ended on May 5, which represents the second longest open season

in the past five years (**Figure 3.4.1**). During the 5-year period from 2009 through 2013, the quota/ ACL decreased from 295,000 lb to 282,819 lb, then increased to 541,295 lb. The average daily landings rate increased steadily from 2009 through 2012, but decreased in 2013 (**Figure 3.4.2**).

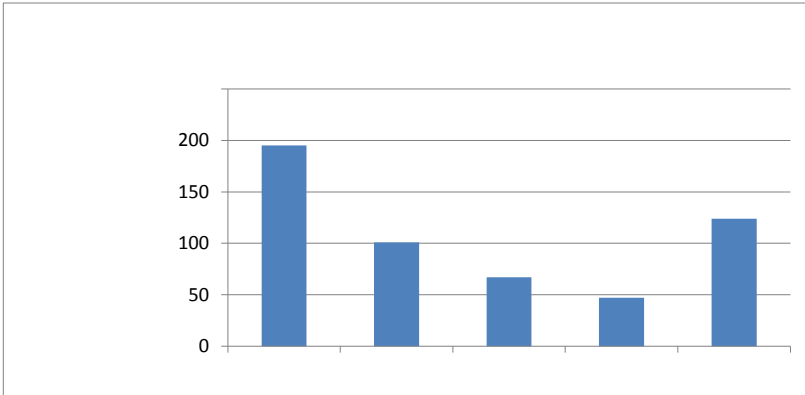


Figure 3.3.1. Number of days commercial golden tilefish season was open.
Source: Federal Register 2009 through 2013.

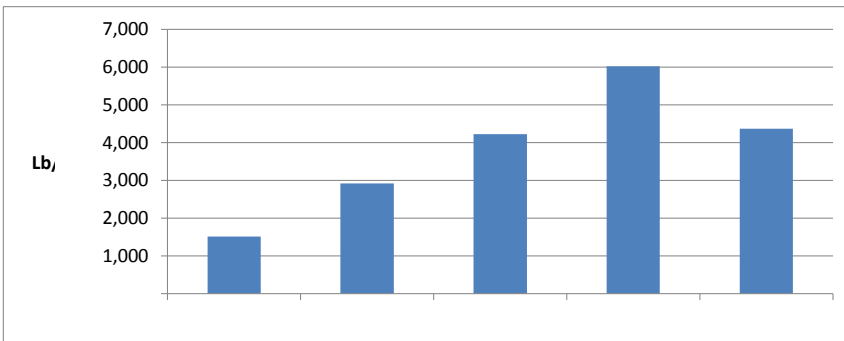


Figure 3.3.2. Average landings (lb gw) per day of open season, 2009 through 2013.
Source: Federal Register 2009 – 2013.

The closures of snapper grouper and other commercial fishing seasons greatly affect the intensity and duration of longline fishing for golden tilefish. In the South Atlantic, the commercial fishing seasons for the following species are closed from January 1 through April 30 each year: gag, black grouper, red grouper, scamp, red hind, rock hind, coney, graysby, yellowfin grouper, yellowmouth grouper, and red porgy. The commercial wreckfish season is

closed from January 15 through April 15, and greater amberjack from April 1 through April 30. The red snapper, goliath grouper, Nassau grouper, speckled hind and warsaw grouper seasons are closed year-round

(http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/commercial_sa/index.html). The black sea bass season, which begins on June 1 and ends on May 1, has closed before January 1 for the past five fishing seasons. Combined, these closures substantially reduce the number of species that vessels with an endorsement (and unlimited snapper grouper permit) can land from January 1 through April 30. That likely explains why approximately 65% of the vessels with an endorsement also have a shark directed permit. The shark bottom longline season includes, but is not limited to, January 1 through April 30.

Golden tilefish has firm texture and a mild, somewhat sweet, flavor that derives from the shrimp and crab that they eat. Tilefish is typically sold fresh whole and graded and priced by size (Seafoodsource.com), and it can be purchased fresh along the entire South Atlantic coast. New York typically is the largest tilefish producing state, followed in turn by Florida and New Jersey. The appearance and texture of tilefish make it a substitute for grouper, snapper, and halibut and a closer substitute to tilapia and amberjack. Its similarity to higher priced white fish has resulted in it being mislabeled and sold as red snapper and halibut (Warner et al. 2013) and grouper (Consumer Reports 2011). Golden tilefish is also known as golden snapper (NOAA FishWatch.gov), suggesting it can be sold as golden snapper, although it is not a snapper species. Moreover, tilefish is not a substitute of the higher price white fish in regards to it being equally safe to eat. Both the EPA and FDA advise pregnant and nursing women, women of childbearing age and young children to avoid eating tilefish (http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm). For those who can and do eat tilefish, Monterey Bay Aquarium Seafood Watch has rated golden tilefish from the South Atlantic as a species to be avoided, while golden tilefish harvested from the mid-Atlantic are considered a good alternative.

In the mid-Atlantic, tilefish harvest tends to be year-round, which promotes a stable price. In the South Atlantic, however, the relatively short season causes an early season spike in market supply that depresses the ex-vessel price that fishermen receive in the mid-Atlantic, especially in New York (MAFMC 2012). Although the ex-vessel price per pound of tilefish can be substantially lower than the price of more valued snapper and grouper, golden tilefish has represented approximately 5% of all snapper grouper revenue (SAFMC 2012). Its importance is much greater when snapper grouper and other seasons are closed. From 2005 through 2011, a total of 43 longline vessels with valid permits landed golden tilefish. Their annual average revenues were approximately \$835,000 (2010 dollars) from golden tilefish or \$1,218,000 from all species, inclusive of golden tilefish caught in the same trips as golden tilefish (SAFMC 2012). Those average annual revenues from golden tilefish represented approximately 69% of the total average annual revenues from all species of all trips that landed golden tilefish during those years. The dockside (ex-vessel) price (in 2010 dollars) from 2006 through 2010 ranged from \$2.60 to \$3.02 (**Figure 3.3.3**). A stated purpose of the longline endorsement program is to increase the dockside price. That coupled with an increase in the length of the season would

likely reduce the impact of South Atlantic landings on prices in the mid-Atlantic in the beginning of the calendar year.

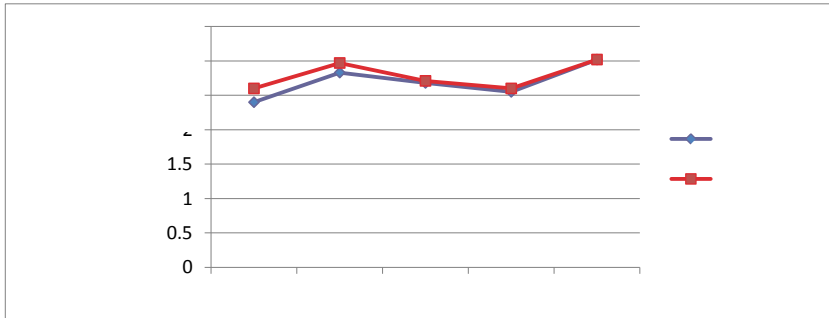


Figure 3.3.3. Average dockside price of golden tilefish, 2006 – 2010.
Source: SAFMC 2012.

3.3.1.1 Permits

A commercial permit is required to harvest or possess commercial quantities of snapper grouper from the EEZ. There are two types of commercial snapper grouper permits, an unlimited permit, which is a transferable (subject to restrictions) that allows unlimited harvest of snapper grouper species, subject to trip limits or seasonal restrictions, and a non-transferable trip-limited permit that limits the owner to 225 lbs of snapper grouper harvest per trip. Both permits are limited access permits. The number of commercial snapper grouper permits for 2007-2012 is provided in **Table 3.3.4**. According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 121 225-pound trip-limited snapper grouper permit holders and 551 unlimited snapper grouper permit holders as of January 22, 2013.

Every year from 2007 through 2011, the number of vessels landing at least one pound of snapper grouper was higher than the number of snapper grouper permits (**Table 3.4.1** and **Table 3.4.4**). This is not totally unexpected. While a permit is assigned to a vessel, permits and vessels need not have a one-to-one correspondence as a permit can be used on multiple vessels at different times during a year or across multiple years. **On the other hand, the average annual number of vessels landing black sea bass was approximately 31% of snapper grouper permits, indicating the relative importance of black sea bass as a source of revenue for many vessels in the commercial snapper grouper fishery. It is probable that some vessels, particularly those that fished black sea bass pots relied more on black sea bass as their major source of revenue from the snapper grouper fishery.**

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Table 3.3.4. Number of South Atlantic commercial snapper grouper permits, 2007-2012.

	Unlimited	Limited	Total

2007	695	165	860
2008	665	151	816
2009	640	144	784
2010	624	139	763
2011	569	126	695
2012	558	123	681
Average	625	141	766

Source: NMFS SERO Permits Data Base

3.3.2 Social and Cultural Environment

Descriptions of the social and cultural environment of the golden tilefish fishery are contained in the Comprehensive Annual Catch Limit Amendment (SAFMC 2011c) and are incorporated herein by reference where appropriate.

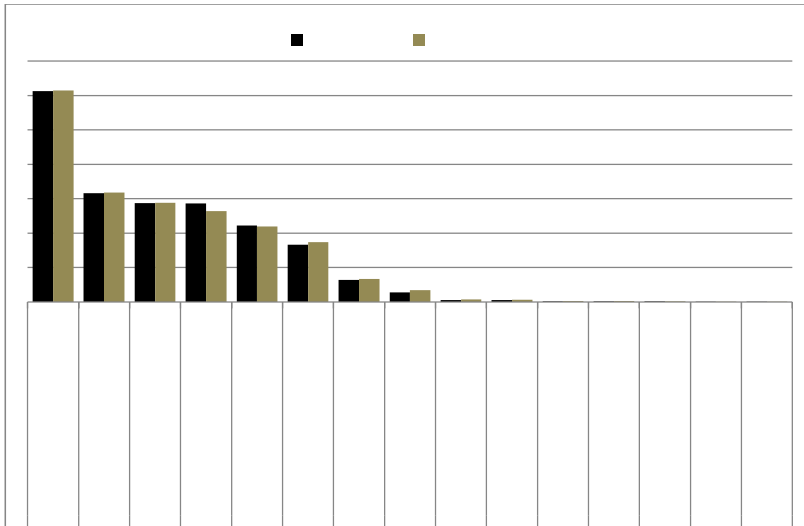


Figure 3.3.4. Golden Tilefish Value and Pounds Regional Quotient for South Atlantic Fishing Communities in 2011.
Source: NMFS SERO.

Figure 3.3.4 provides a depiction of golden tilefish regional quotient of pounds and value of landings for the top 15 South Atlantic communities with tilefish landings in 2011. A regional quotient is the amount of local landings and/or value divided by the total landings and value for the region. For this analysis, total landings for tilefish in the Florida Keys communities were included in the South Atlantic region as we are unable to disaggregate landings at the community level to Gulf or Atlantic at this time. Values for regional quotient of pounds and value are not reported to address confidentiality concerns. However, **Figure 3.3.4** still provides an indication of the proportion of tilefish that is landed by the top 15 communities. For more detailed discussions and demographic characteristics of some communities included in **Figure 3.3.4** see SAFMC (2011c) or Jepson et al. (2005).

Southeast Commercial and Recreational Engagement and Reliance on Fishing

Selecting the set of communities from **Figure 3.3.4** for regional quotient for golden tilefish a comparison of two indices recently developed to understand overall dependence on commercial fishing are presented below. To better capture how South Atlantic fishing communities are

engaged and reliant on fishing overall, indices were created using secondary data from permit and landings information for the commercial and recreational sectors (Colburn and Jepson, 2012; Jacob et al., 2012). Fishing engagement is primarily the absolute numbers of permits, landings and value within a community. Fishing reliance has many of the same variables as engagement divided by population to give an indication of the per capita impact of this activity within a given community.

Using a principal component and single solution factor analysis each community receives a factor score for each index to compare to other communities. Using the top fourteen communities (census data were not available for Hatteras, NC and therefore does not have indices developed at this time), factor scores of both engagement and reliance for commercial fishing were plotted onto radar a graph. Each community's factor score is located on the axis radiating out from the center of the graph to its name. Factor scores are connected by colored lines and are standardized, therefore the mean is zero. Two thresholds of 1 and 1/2 standard deviation above the mean are plotted onto the graphs to help determine a threshold for significance. Because the factor scores are standardized a score above 1 is also above one standard deviation. A score above 1/2 standard deviation is considered moderately engaged or reliant, while over 1 standard deviation is considered very engaged or reliant

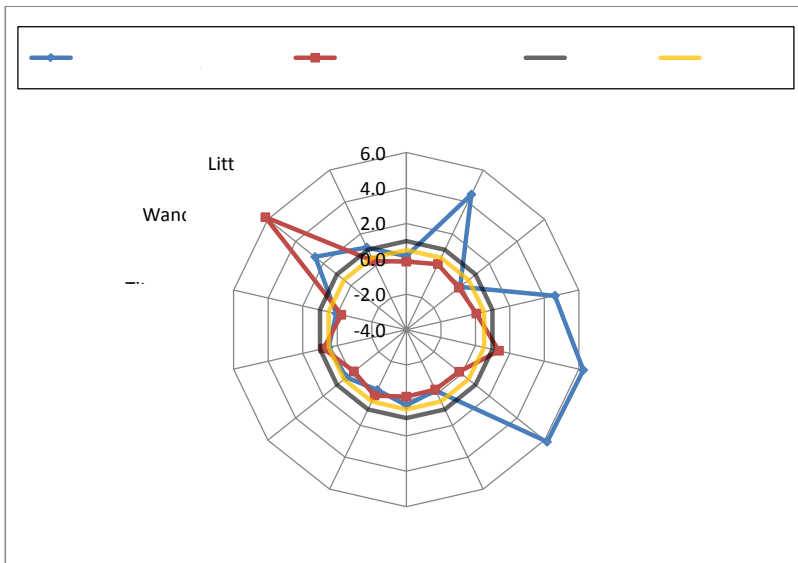


Figure 3.3.5. Commercial Fishing Engagement and Reliance for Southeast Golden Tilefish Fishing Communities.
Source: SERO Social Indicators Database.

Using the thresholds of fishing dependence described above, **Figure 3.3.5** suggests that several communities that land tilefish in the Southeast are moderately to substantially engaged in

commercial fishing: Ft. Pierce, FL; Jupiter, FL; Key West, FL; Miami, FL; Tavernier, FL; Wanchese, NC, and Little River, SC. The communities of Key West, FL; Tavernier, FL and Wanchese, NC are all engaged and reliant on commercial fishing and therefore likely dependent upon fishing for a substantial part of the local economy.

3.3.3 Environmental Justice

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. The main focus of Executive Order 12898 is to consider “the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories...” This executive order is generally referred to as environmental justice (EJ).

Commercial fishermen and coastal communities in the South Atlantic may experience some impacts by the proposed action. However, information on the race and income status for many of the individuals involved in fishing is not available. To assess where EJ concerns might exist, census data have been assessed to examine whether any coastal communities have poverty or minority rates that exceed thresholds for raising EJ concerns.

The threshold for comparison used was 1.2 times the state average for the proportion of minorities and population living in poverty (EPA 1999). If the value for the community is greater than or equal to 1.2 times this average, then the community is considered an area of potential EJ concern. Census data from the American Community Survey for the year 2010 were used to calculate the percentages and thresholds.

Table 3.4.5. Southeast Communities Exceeding the Poverty Environmental Justice Thresholds for 2011.

Community	Percent in Poverty	State threshold	Percent Over threshold
Cocoa, FL	27	16.56	10.44
Ft. Pierce, FL	28.1	16.56	11.54
Miami, FL	27.3	16.56	10.74

Source: NMFS SERO 2012.

There were three communities that exceeded the poverty threshold and both are listed in **Table 3.4.5**. There were two Florida communities that exceeded the threshold for minorities: Ft. Pierce and Miami. To take a closer look at those factors associated with EJ, a recently created database offers a comparable suite of measures of social vulnerability that is more comprehensive.

A suite of indices was created to examine the social vulnerability of coastal communities and is depicted in **Figure 3.4.6**. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of 5, disruptions such as higher separation rates, higher crime rates and unemployment all are signs of populations experiencing vulnerabilities. These vulnerabilities signify that it may be difficult for someone living in these communities to recover from significant social disruption that might stem from a change in their ability to work or maintain a certain income level.

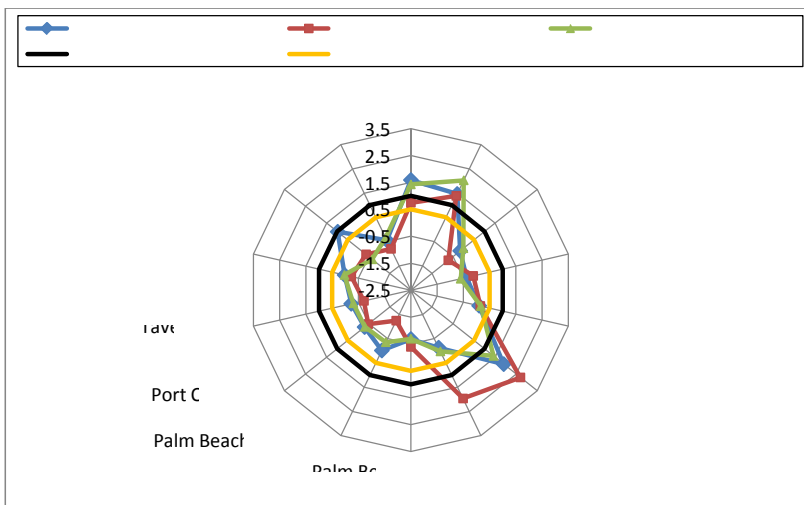


Figure 3.4.6. Social Vulnerability Indices for South Atlantic Golden Tilefish Fishing Communities. Source: SERO Social Indicators Database.

As depicted in **Figure 3.4.6** the communities of Cocoa, FL; Ft. Pierce, FL; Miami, FL; Miramar, FL, and Wanchese, NC exceed the threshold of 1 standard deviation above the mean for at least one or more of the social vulnerability indices. The communities of Cocoa, FL; Ft. Pierce, FL, and Miami, FL, exceed the thresholds for all three of the indicators, which correlates with the EJ thresholds above. It would be expected that these communities may exhibit vulnerabilities to social or economic disruption because of regulatory change that may have negative social impacts dependent upon their engagement and reliance upon fishing and whether the regulatory change would have adverse effects. Those communities that exhibit several index scores exceeding the threshold, especially 1 standard deviation, would be the most vulnerable. This is not to say that these communities will be negatively affected, but they may experience difficulties if there were to be adverse impacts from the actions within this amendment. These are the communities that would be most at risk depending upon their fishing engagement and reliance. Wanchese, NC, is engaged and reliant on commercial fishing, but exhibits only one

social vulnerability index over the threshold. Ft. Pierce is highly engaged in commercial fishing but not as reliant, however it exhibits strong social vulnerabilities. Cocoa, FL, is neither engaged nor reliant upon commercial fishing although it shows the largest regional quotient for tilefish and has high social vulnerabilities.

Local Quotient for Tilefish

Below are those communities that exhibit social vulnerabilities with their local quotients (LQ) by species. The local quotient is the percentage of landed pounds and value a species represents out of all landings and value for a particular community. The focus here is where golden tilefish (tilefish) ranks in terms of LQ for those communities that exhibit social vulnerabilities as they are more likely to experience impacts as a result of regulatory change.

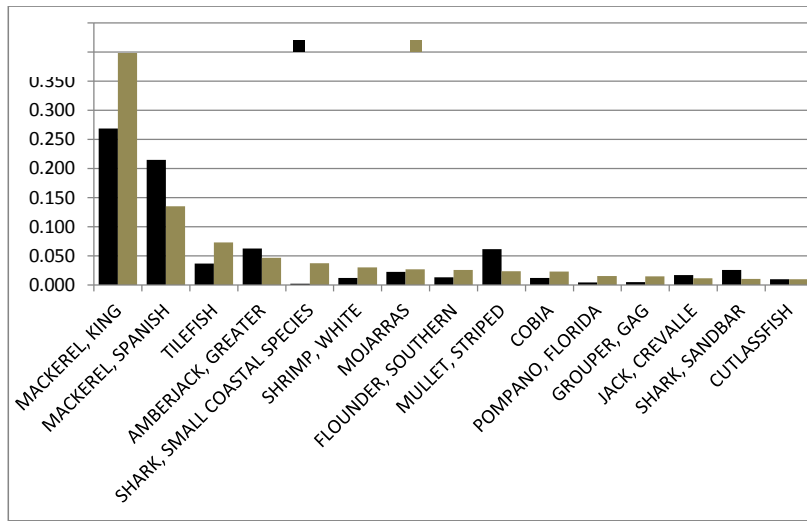


Figure 3.4.7. Local Quotient of Value and Pounds by top 15 species ranked by value for Cocoa, FL in 2011.
Source: NMFS SERO.

With its high regional quotient, it is not surprising to see that tilefish is third in terms of local quotient for the community of Cocoa, FL (**Figure 3.4.7**). Yet it is far less when compared to either king or Spanish mackerel with regard to local quotient capturing a little over 5%. With high social vulnerabilities, Cocoa could be susceptible to negative social impacts if regulatory changes within the amendment were to have adverse effects.

Ft. Pierce also has a local quotient of a little over 5% for tilefish which ranks fifth when compared to all species as depicted in **Figure 3.4.8**. Again, for Ft. Pierce both king and Spanish mackerel are the dominant catch. Because Ft. Pierce does show high social vulnerabilities, it too

could experience negative social impacts if the regulatory change were to have adverse impacts upon the golden tilefish component of the fishery.

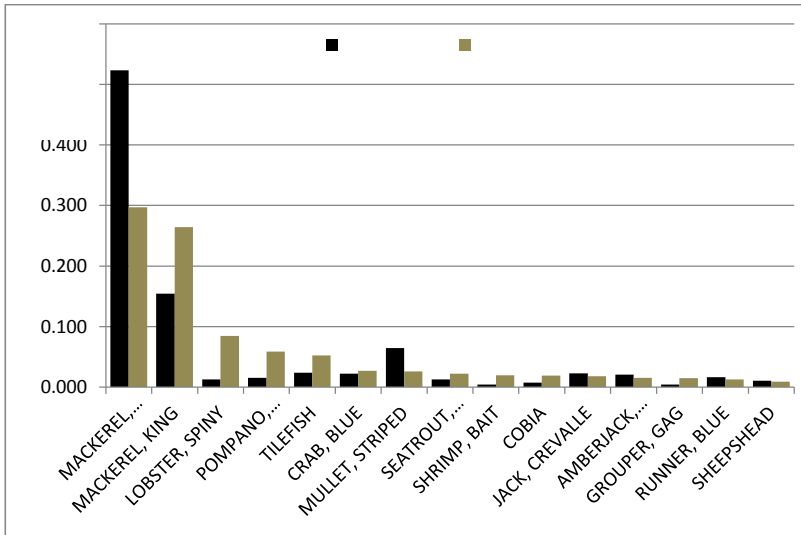


Figure 3.4.8. Local Quotient of Value and Pounds by top 15 species ranked by value for Fort Pierce in 2011.
Source: NMFS SERO.

Golden tilefish is not represented in the top fifteen species for overall value of local quotient in Wanchese, NC in **Figure 3.4.9** and therefore would have a value of less than 1% of local quotient. Blueline tilefish is the only tilefish that ranks within the top 15. It is unlikely that Wanchese would experience many negative impacts due to regulatory changes to golden tilefish management.

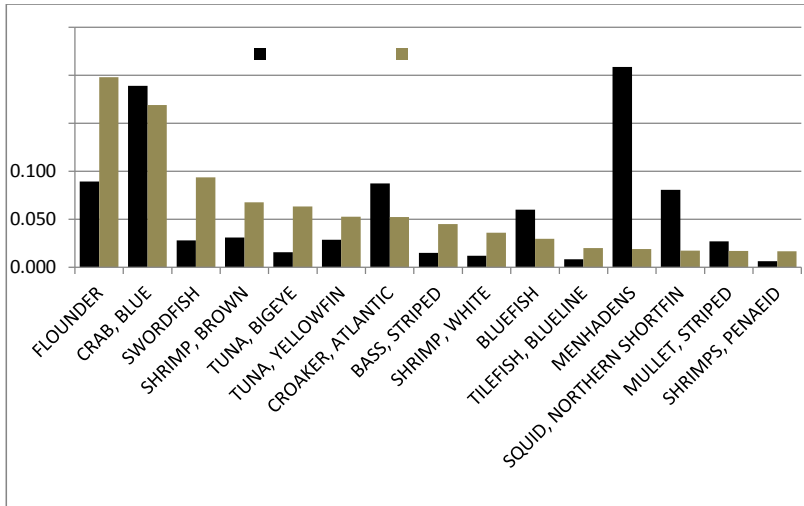


Figure 3.4.9. Local quotient of value and pounds by top 15 species ranked by value for Wanchese, NC, in 2011.
Source: NMFS SERO.

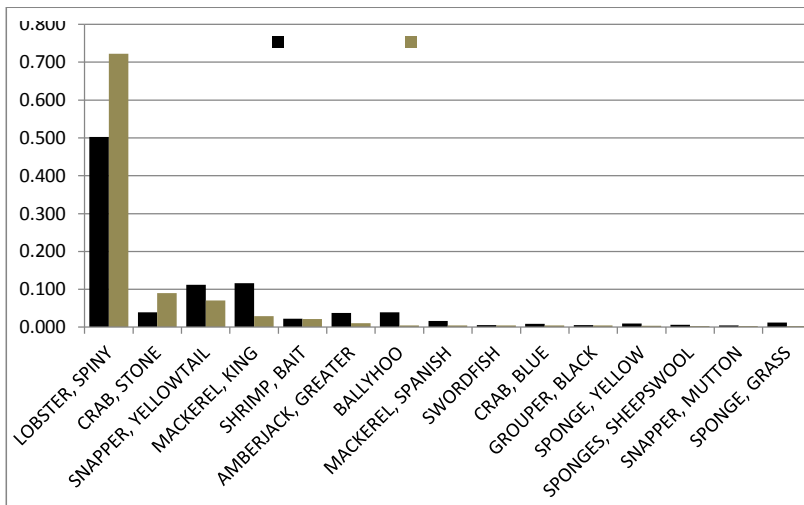


Figure 3.4.10. Local quotient of value and pounds by top 15 species ranked by value for Miami, FL, in 2011.
Source: NMFS SERO.

Miami, which exhibits high social vulnerability, shows no tilefish in the top 15 species for local quotient in 2011. Miami does exhibit high social vulnerabilities, but may not be affected as much by changes to tilefish regulations as its major fishery in terms of local quotient is spiny lobster.

For those communities that rely very little on tilefish but exhibit high social vulnerabilities, it would be expected that few negative social impacts would result if the regulatory change were to have adverse effects. Those communities that do rely on tilefish and have moderate to high social vulnerabilities may experience negative social impacts if there were adverse effects from this amendment.

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

3.4.1.1 Federal Fishery Management

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

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

The South Atlantic Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 miles offshore from the seaward boundary of North Carolina, South Carolina, Georgia, and east Florida to Key West. The South Atlantic Council has thirteen voting members: one from NMFS; one each from the state fishery agencies of North Carolina, South Carolina, Georgia, and Florida; and eight public members appointed by the Secretary. On the South Atlantic Council, there are two public members from each of the four South Atlantic States. Non-voting members include representatives of the U.S. Fish and Wildlife Service, U.S. Coast Guard, State Department, and Atlantic States Marine Fisheries Commission (ASMFC). The South Atlantic

Council has adopted procedures whereby the non-voting members serving on the South Atlantic Council Committees have full voting rights at the Committee level but not at the full South Atlantic Council level. South Atlantic Council members serve three-year terms and are recommended by state governors and appointed by the Secretary from lists of nominees submitted by state governors. Appointed members may serve a maximum of three consecutive terms.

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

3.4.1.2 State Fishery Management

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

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

NMFS’s State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation

Act) programs. Additionally, it works with the ASMFC to develop and implement cooperative State-Federal fisheries regulations.

3.4.2 Enforcement

Both the NMFS Office for Law Enforcement (NOAA/OLE) and the United States Coast Guard (USCG) have the authority and the responsibility to enforce South Atlantic Council regulations. NOAA/OLE agents, who specialize in living marine resource violations, provide fisheries expertise and investigative support for the overall fisheries mission. The USCG is a multi-mission agency, which provides at-sea patrol services for the fisheries mission.

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

Administrative monetary penalties and permit sanctions are issued pursuant to the guidance found in the Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions for the NOAA Office of the General Counsel – Enforcement Section. This Policy is published at the Enforcement Section’s website: <http://www.gc.noaa.gov/enforce-office3.html>.

Chapter 4. Environmental Consequences and Comparison of Alternatives

4.1 Action 1: Extend the fishing season for longline vessels in the golden tilefish portion of the snapper grouper fishery in the South Atlantic.

Alternative 1 (No Action). Vessels with golden tilefish longline endorsements are limited to 4,000 pounds per trip with no step-down trip limit.

Alternative 2. Require vessels with golden tilefish longline endorsements to fish for two weeks beginning on January 1 and stop fishing for the following two weeks. Continue fishing in this manner until the golden tilefish longline ACL is met or is projected to be met.

Alternative 3. Require vessels with golden tilefish longline endorsements to fish every other week beginning on January 1 and until the golden tilefish longline ACL is met or is projected to be met.

4.1.1 Biological Effects

The current closures of snapper grouper and other commercial fishing seasons greatly affect the intensity and duration of longline fishing for golden tilefish. In the South Atlantic, the commercial fishing seasons for the following species are closed from January 1 through April 30 each year: gag, black grouper, red grouper, scamp, red hind, rock hind, coney, graysby, yellowfin grouper, yellowmouth grouper, and red porgy. The commercial wreckfish season is closed from January 15 through April 15, and greater amberjack from April 1 through April 30. The red snapper, goliath grouper, Nassau grouper, speckled hind and warsaw grouper seasons are closed year-round (http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/commercial_sa/index.html). The black sea bass season, which begins on June 1 and ends on May 1, has closed before January 1 for the past five fishing seasons. Combined, these closures substantially reduce the numbers of species that vessels with an endorsement (and unlimited snapper grouper permit) can land from January 1 through April 30.

The commercial golden tilefish sector has been subject to shortened fishing seasons due to the rapid harvest of the annual catch limit (ACL). The fishing year begins on January 1st and the ACL has regularly been harvested quickly. In 2010, the fishery was closed in April; in 2011, it was closed in March and in 2012, the fishery closed in February. For the 2013 fishing year, the

fishery closed on May 5, 2013, making it the longest commercial golden tilefish season in four years.

In 2012, Regulatory Amendment 12 was implemented based on results from SEDAR 25 (2011) which increased the golden tilefish annual catch limit to 606,250 pounds whole weight (541,295 pounds gutted weight) for the commercial fishery and 3,019 fish for the recreational sector. However, even with the increased ACL, the fishery closed in May 2013 and 75% of the ACL was harvested by February 2013, triggering a 300 pound trip limit.

The final rule to implement Amendment 18B published in the Federal Register on April 23, 2013 (78 FR 23858). Amendment 18B establishes a commercial golden tilefish endorsement program; an appeals process for those who feel they were incorrectly excluded from the endorsement program; establishes a provision to allow the transfer of endorsements; allocates 75% of the commercial annual catch limit to the longline sector and 25% to the hook-and-line sector; changes the golden tilefish trip limit to remove the 300-pound gutted weight trip limit when 75% of the ACL is caught; and establishes a 500-pound gutted weight trip limit for those who do not qualify for a golden tilefish endorsement.

In order to qualify for an endorsement, Unlimited Snapper grouper permit holders or Trip-Limited permit holders must have landings history that shows average golden tilefish landings using longline gear of at least 5,000 pounds gutted weight for the best three years within the period 2006 through 2011. Based on these criteria, 23 endorsements were mailed to qualifying permit holders in early May 2013. Letters were also mailed to those snapper grouper permit holders who have landed golden tilefish in the past but did not qualify for an endorsement. Permit holders may appeal the decision until August 21, 2013. The endorsement program effectively begins on May 23, 2013 however, because the ACL was reached on May 5, 2013, the endorsements will take effect in the next fishing year.

Although the endorsement program may help alleviate derby conditions associated with the fishery, it is not likely to eliminate them altogether. The endorsement program limits golden tilefish longline fishermen to 23 endorsement holders. However, in past years an average of 15 vessels harvested golden tilefish with longline gear.

Table 4.1.1. Number of vessels that caught golden tilefish with longline (LL) during 2004-2012. Data linked to active permits.

Year	# LL
2004	20
2005	13
2006	11
2007	16
2008	12
2009	12
2010	20
2011	18
2012	
Average	15

Under the no-action alternative, it is expected that the ACL will be harvested in the first half of the year, as has occurred in previous years. The endorsement program is likely to not have an impact on the rate of harvest as most of the recent active golden tilefish longliners have received endorsements. **Alternative 2** and **Alternative 3** propose to alternate between two weeks of fishing and two weeks of closed fishing or one week of open fishing and one week of closed fishing, respectively. Under both alternatives, longline endorsement holders would be subject to the 4,000 pound trip limit during the open periods.

To project when the ACL would be met, 2013 quota monitoring data were obtained from the SEFSC. Preliminary quota monitoring landings for 2013 totaled 531,970 lbs gw. A total of 383,008 lbs gw of landings were reported with longline gear, 47,381 lbs gw were reported with other gears (primarily handline, bandit, electric), and 101,582 lbs gw did not have a reported gear type for landing.

Vessels qualifying for golden tilefish longline endorsements (n=23) were matched with quota monitoring landing records by vessel ID (as indicated in permit records) to determine the amount of longline landings in 2013 attributed to vessels qualifying for longline endorsements. Of the 383,008 lbs gw of landings reported by longline gear, 319,564 lbs gw were reported by vessels qualifying for a longline endorsement and 63,444 lbs gw were reported by vessels not qualifying for a longline endorsement. Additionally, of the 47,381 lbs gw reported for other gears, 16,720 lbs gw were attributed to vessels qualifying for a longline endorsement. These landings were added to the longline landings for vessels with longline endorsements in determining weekly catch rates.

Because a large portion (19%) of landings did not have a reported gear type, landings with unknown gear type were proportionally allocated on a daily basis based on landings with known gear types. Landings were summarized for each day the season by the following categories : longline endorsement qualifiers, vessels not qualifying for a longline endorsement, other gears, and unknown gears. Unknown landings for each day were then allocated to longline endorsement qualifiers, endorsement non-qualifiers, and other gears based on the proportion of landings each accounted for on that particular day. A total of 413,507 pounds was attributed to longline vessels qualifying for longline endorsements, 72,608 lbs gw to vessels not qualifying for a longline endorsement, and 39,442 lbs gw to vessels using other gears that did not qualify for a longline endorsement (Note: this estimate for other gear is lower than the estimate reported above because landings by other gears associated with longline vessels qualifying for a longline endorsement (16,720 lbs gw) were deducted from the other gear landings and added to longline landings for catch rate estimation).

Once landings were assigned to gear type, weekly average catch rates were computed for vessels qualifying for longline endorsements. Season lengths were then projected using actual data for 2013 when the trip limit was 4,000 lbs (Jan 1-Feb 17 and Mar 13-21). If the proposed season was open when the 4,000 lb trip limit was not in effect during 2013, then random samples

of daily catch rates were taken from reported landings during Jan 1-Feb 17 and Mar 13-21. Two sets of random samples were drawn to evaluate the sensitivity of projection results to random samples drawn. Random daily catch rates were then used to estimate average daily catch rates on days when a 300-lb trip limit was previously in place (Feb 18-Mar 12, and after Mar 21). Landings were cumulatively summed until the ACL was met and the closure date was determined. **Table 4.1.2** summarizes these results.

Table 4.1.2. Estimated closure dates for Alternatives 1-3.

Alternative	Closure Date	
	Proj Method 1 ¹	Proj Method 2 ²
Alt 1 (continuous season)	2-Mar	4-Mar
Alt 2 (two weeks on/two weeks off)	8-Apr	30-Apr
Alt 3 (one week on/one week off)	15-Apr	24-Apr

Under **Alternative 1 (No Action)**, with continuous fishing the fishery would be expected to be open for 63 days. Projections estimate that under **Alternative 2** the fishery would be open for 64 days and under **Alternative 3** would be open for 58 days (**Table 4.1.3**).

Table 4.1.3. Estimated days commercial longline golden tilefish season would be open under proposed alternatives.

Alternative	Closure Date	
	Proj Method 1 ³	Proj Method 2 ⁴
Alt 1 (continuous season)	61	63
Alt 2 (two weeks)	56	64
Alt 3 (weekly)	56	58

~~The current closures of snapper grouper and other commercial fishing seasons greatly affect the intensity and duration of longline fishing for golden tilefish. In the South Atlantic, the commercial fishing seasons for the following species are closed from January 1 through April 30 each year: gag, black grouper, red grouper, scamp, red hind, rock hind, coney, graysby, yellowfin grouper, yellowmouth grouper, and red porgy. The commercial wreckfish season is closed from January 15 through April 15, and greater amberjack from April 1 through April 30. The red snapper, goliath grouper, Nassau grouper, speckled hind and warsaw grouper seasons are closed year-round~~

¹ Projection method 1 uses actual daily landings reported in 2013 when trip limit = 4,000 lbs gw. If proposed season is open when the 300 lb trip limit was in place then daily average landings were randomly selected based on landings reported during Jan 1-Feb 17 and Mar 13-21.

² Projection method 2 was the same as projection method 1 but used a different random sample of daily catch rates.

³ Projection method 1 uses actual daily landings reported in 2013 when trip limit = 4,000 lbs gw. If proposed season is open when the 300 lb trip limit was in place then daily average landings were randomly selected based on landings reported during Jan 1-Feb 17 and Mar 13-21.

⁴ Projection method 2 was the same as projection method 1 but used a different random sample of daily catch rates.

~~(http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/commercial_sa/index.html). The black sea bass season, which begins on June 1 and ends on May 1, has closed before January 1 for the past five fishing seasons. Combined, these closures substantially reduce the numbers of species that vessels with an endorsement (and unlimited snapper grouper permit) can land from January 1 through April 30.~~

Alternative 1 (No Action) would likely perpetuate the existing level of risk for interactions between ESA-listed species and the fishery. **Alternatives 2 and 3** are unlikely to have adverse effects on listed *Acropora* species. Previous ESA consultations determined the snapper grouper fishery was not likely to adversely affect these species. These alternatives are unlikely to alter fishing behavior in a way that would cause new adverse effects to *Acropora* species. **Alternative 2** and **Alternative 3** are unlikely to have adverse effects on listed Atlantic sturgeon since golden tilefish are harvested well offshore from where Atlantic sturgeon occur. The impacts from **Alternative 2** and **Alternative 3** on sea turtles and smalltooth sawfish are unclear. Ultimately, the degree of risk reduction to ESA-listed species is relative to overall effort reduction. If the action alternatives reduce fishing effort in the golden tilefish component of the snapper grouper fishery, the risk of interaction between sea turtles and smalltooth sawfish would likely decrease.

4.1.2 Economic Effects

Alternative 1 (No Action) is not expected to have any additional economic effect as it is the status quo. **Alternatives 2 and 3** are not expected to have an economic effect unless it can be shown that spreading out the season over a longer period of time will reduce the number of fish on the market at one time and increase the ex-vessel value received by the fishermen. There are no data to indicate specifically how, or if either **Alternative 2** or **Alternative 3** will affect ex-vessel values.

4.1.3 Social Effects

Implementation of a system that allows alternating open and closed harvest for the longline sector of the golden tilefish fishery (**Alternatives 2 and 3**) will affect primarily the 23 longline endorsement holders, and associated crew, dealers, and businesses. Most (19) of the endorsement holders are based in Florida, and primarily in Volusia County (communities include Port Orange and Daytona Beach) and the community of Sebastian in Indian River County. The system of alternating two weeks (**Alternative 2**) or one week (**Alternative 3**) of longline harvest has support by several of the endorsement holders.

The current system that incorporates only a 4,000-lb trip limit has resulted in derby conditions, which will likely continue under **Alternative 1 (No Action)**. The recent establishment of the golden tilefish longline endorsement program was intended to cap participation but did not reduce conditions or include a provision to lengthen the season. **Alternatives 2 and 3** are expected to lengthen the season, which should result in benefits to the longline fleet, crew, dealers, and associated businesses and communities.

4.1.4 Administrative Effects

Alternative 1 (No Action) would result in no new administrative burden. The agency would bear administrative burdens associated with rulemaking, outreach and enforcement for **Alternative 2** and **Alternative 3**. However, there would be no difference in administrative burden on the agency between **Alternative 2** and **Alternative 3**. **Alternatives 2** and **Alternative 3** would require extensive outreach to fishery participants to inform them of the on/off closure schedule. Due to the endorsement program, the pool of participants has been limited to 23, making outreach easier. Both action alternatives would require fishery participants to remain aware of the on/off schedule to avoid any enforcement action.

Chapter 5. Council's Choice for the Preferred Alternative

5.1.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.1.2 Law Enforcement Advisory Panel Comments and Recommendations

5.1.3 Scientific and Statistical Committee Comments and Recommendations

5.1.4 Public Comments and Recommendations

5.1.5 South Atlantic Council Choice for Preferred Alternative

Chapter 6. Cumulative Effects

6.1 Biological

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 (**Chapter 4**);
- II. Which resources, ecosystems, and human communities are affected (**Chapter 3**); 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 Council's area of jurisdiction. The extent of boundaries also would depend upon the degree of fish immigration/emigration and larval transport; whichever has the greatest geographical range. The ranges of affected species are described in **Section 3.2.1**. **Section 3.1.3** describes the essential fish habitat designation and requirements for species affected by this amendment.

3. Establish the timeframe for the analysis.

Establishing a timeframe for the CEA is important when the past, present, and reasonably foreseeable future actions are discussed. It would be advantageous to go back to a time when there was a natural, or some modified (but ecologically sustainable) condition. However, data collection for many fisheries began when species were already fully exploited. Therefore, the timeframe for analyses should be initiated when data collection began for the various fisheries. In determining how far into the future to analyze cumulative effects, the length of the effects will depend on the species and the alternatives chosen.

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

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

I. Fishery-related actions affecting golden tilefish.

A. Past

The reader is referred to **Table 6.1.1** and **Appendix F** (History of Management) of this document for past regulatory activity for snapper grouper species, including golden tilefish. These include bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system.

Amendment 13C to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) addressed overfishing of golden tilefish and implemented several management measures to limit harvest of the species in commercial and recreational sectors. Amendment 13C to the Snapper Grouper FMP (Amendment 13C; SAFMC 2006) reduced the annual commercial golden tilefish quota from 1,001,663 pounds gutted weight (gw) (1,121,863 pounds whole weight (gw)) to 295,000 pounds gw (331,000 pounds ww). After the commercial quota is met, all purchase and sale is prohibited and harvest and/or possession is limited to the bag limit. Amendment 13C also specified a commercial trip limit of 4,000 pounds gw (4,480 pounds whole weight) until 75% of the quota is taken when the trip limit is reduced to 300 pounds (335 pounds gw). No adjustment would be made to the trip limit if 75% of the quota is attained after September 1. Amendment 13C also limited the possession of golden tilefish to one per person per day within the 5-grouper per person per day aggregate recreational bag limit.

Amendment 15B to the Snapper Grouper FMP (Amendment 15B; SAFMC 2008b) became effective on December 16, 2009. Management measures in Amendment 15B include prohibition of the sale of bag limit caught snapper grouper species for fishermen not holding a federal commercial permit for South Atlantic snapper grouper; an action to adopt, when implemented, the Atlantic Coastal Cooperative Statistics Program release, discard and protected species module to assess and monitor bycatch; allocations for snowy grouper; and management reference points for golden tilefish. Biological benefits from Amendment 15B are not expected to result in a significant cumulative biological effect when added to anticipated biological impacts under this amendment.

Amendment 17B to the Snapper Grouper FMP (Amendment 17B; SAFMC 2010b), which was implemented on January 31, 2011 established ACLs, annual catch targets, and accountability measures (AMs) for 8 species experiencing overfishing including golden tilefish; modified management measures to limit total mortality to the ACL; and updated the framework procedure for specification of total allowable catch. Amendment 17B established a commercial annual catch limit (ACL) for golden tilefish of 282,819 pounds gw, and a recreational ACL of 1,578 fish. Amendment 17B also prohibited the harvest and possession of deepwater snapper grouper species (snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper, and silk snapper) at depths greater than 240 feet. The intent of this measure was to reduce bycatch of speckled hind and warsaw grouper.

B. Present

In addition to snapper grouper fishery management issues being addressed in this amendment, several other snapper grouper amendments have been developed concurrently and are in the process of approval and implementation. Not all of these amendment directly affect golden tilefish.

Amendment 20A to the Snapper Grouper FMP (Amendment 20A; SAFMC 2011e) would distribute shares from inactive participants in the wreckfish individual transferable quota (ITQ) to active shareholders. The South Atlantic Council approved Amendment 20A in December 2011. The proposed rule for Amendment 20A published on March 20, 2012, and the comment period ended on April 30, 2012.

Amendment 24 to the Snapper Grouper FMP (Amendment 24; SAFMC 2011d) considers a rebuilding plan for red grouper, which is overfished and undergoing overfishing. The South Atlantic Council approved Amendment 24 in December 2011. The final rule published in the *Federal Register* on June 11, 2012, and became effective on July 11, 2012

Regulatory Amendment 12 to the Snapper Grouper FMP (Regulatory Amendment 12; SAFMC 2012) includes alternatives to adjust the golden tilefish ACL based on the results of a new assessment, which indicates golden tilefish are no longer experiencing overfishing and are not overfished. Regulatory Amendment 12 also includes an action to adjust the recreational AM. Regulatory Amendment 12 was approved for submission to the Secretary of Commerce by the South Atlantic Council at their March 2012 meeting and sent for formal review on May 2, 2012.

In a letter dated June 19, 2012, the South Atlantic Council requested NOAA Fisheries Service to allow harvest and possession of red snapper in 2012 through emergency regulations. At their June 11-15, 2012, meeting, the South Atlantic Council reviewed new information in the form of red snapper rebuilding projections, 2012 acceptable biological catch levels, and 2012 discard mortality levels. After accounting for the 2012 discard mortalities, the South Atlantic Council determined that directed harvest could be allowed without compromising the rebuilding of the stock to target levels.

The South Atlantic Council has recently completed and is developing amendments for coastal migratory pelagic species, spiny lobster, golden crab, dolphin-wahoo, shrimp, and octocorals. See the South Atlantic Council's Web site at <http://www.safmc.net/> for further information on South Atlantic Council managed species.

C. Reasonably Foreseeable Future

Amendment 20B to the Snapper Grouper FMP are currently under development. The amendment will include a formal review of the current wreckfish ITQ program, and will update/modify that program according to recommendations gleaned from the review. The amendments will also update the wreckfish ITQ program to comply with Reauthorized Magnuson-Stevens Act requirements.

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

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

The snapper grouper ecosystem includes many species, which occupy the same habitat at the same time. For example, black sea bass co-occur with vermilion snapper, tomtate, scup, red porgy, white grunt, red snapper, red grouper, scamp, gag, and others. Therefore, many snapper grouper species are likely to be caught and suffer some mortality when regulated since they will be incidentally caught when fishermen target other co-occurring species. In contrast, golden tilefish prefer a mud habitat and can be targeted without significant bycatch from other snapper grouper species. Other natural events such as spawning seasons, and aggregations of fish in spawning condition can make some species especially vulnerable to targeted fishing pressure. Such natural behaviors are discussed in further detail in **Section 3.2** of this document.

How global climate changes will affect the golden tilefish component of the snapper grouper fishery is unclear. Climate change can impact marine ecosystems through ocean warming by increased thermal stratification, reduced upwelling, sea level rise, 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 CO₂ emissions may impact a wide range of organisms and ecosystems, particularly organisms 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 the South Atlantic golden tilefish.

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 species most likely to be impacted by actions in Amendment 18B is golden tilefish, *Lopholatilus chamaeleonticeps*. Trends in the condition of golden tilefish are determined through the Southeast Data, Assessment and Review (SEDAR) process. In 2004, golden tilefish was assessed as part of SEDAR 4 (2004), using landings, age, length, and abundance index data through 2002. The model estimates suggested the golden tilefish stock was undergoing overfishing and that it was very close to being overfished.

The latest stock assessment for golden tilefish (SEDAR 25 2011) indicated that the South Atlantic population is not overfished nor undergoing overfishing. The current level of spawning stock biomass (SSB_{2010}) is estimated to be well above the Minimum Stock Size Threshold (MSST) -- $SSB_{2010}/MSST = 2.43$. The current level of fishing is slightly higher than one-third of F_{MSY} ($F_{2008-2010}/F_{MSY} = 0.36$). More information on the SEDAR Assessments for golden tilefish can be found in **Section 3.2.2**.

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

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

Fish populations

Quantitative definitions of overfishing and overfished for golden tilefish are identified in Amendments 11 and 12 to the Snapper Grouper FMP (SAFMC 1998b). Numeric values of thresholds overfishing and overfished for golden tilefish were updated/modified in Amendment 15B (SAFMC 2008b). These values include 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). Amendment 15B to the Snapper Grouper FMP also provided new definitions of MSST for golden tilefish. Amendment 15B became effective in December 2009.

Climate change

Global climate changes could have significant effects on South Atlantic fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems;

altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (Kennedy et al. 2002).

It is unclear how climate change would affect snapper grouper species in the South Atlantic. Climate change can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly impact snapper grouper species in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts will occur.

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

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

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

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities (Table 6-1).

Table 6.1.1. 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
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 1988a).	Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many snapper grouper species.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	<u>Prohibited gear</u> : fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC.	Reduce mortality of snapper grouper species.

Time period/dates	Cause	Observed and/or Expected Effects
	<u>Size/Bag limits:</u> 10" TL vermilion snapper (recreational only); 12" TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20" TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991).	
Pre-June 27, 1994	Damage to <i>Oculina</i> habitat.	Noticeable decrease in numbers and species diversity in areas of <i>Oculina</i> off FL
July 1994	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 golden tilefish.	Spawning potential ratio for golden tilefish is less than 30% indicating that they are overfished.
July 1994	Commercial quota for golden tilefish; commercial trip limits for golden tilefish; include golden tilefish in grouper recreational aggregate bag limits (SAFMC 1994a).	
February 24, 1999	All S-G without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runners. Vessels with longline gear aboard may only possess snowy, Warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish (SAFMC 1998a).	
Effective October 23, 2006	Snapper grouper Amendment 13C (SAFMC 2006)	Commercial vermilion snapper quota set at 1.1 million lbs gw; recreational vermilion snapper size limit increased to 12" TL to prevent vermilion snapper overfishing.
Effective February 12, 2009	Amendment 14 (SAFMC 2007)	Use marine protected areas (MPAs) as a management tool to promote the optimum size, age, and genetic structure of slow growing, long-lived deepwater snapper grouper species (e.g., speckled hind, snowy grouper, warsaw grouper, yellowedge grouper, misty grouper, golden tilefish, blueline tilefish, and sand tilefish). Gag and vermilion snapper occur in some of these areas.
Effective March 20, 2008	Amendment 15A (SAFMC 2008a)	Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Effective Dates Dec 16,	Amendment 15B (SAFMC 2008b)	End double counting in the commercial

Time period/dates	Cause	Observed and/or Expected Effects
2009, to Feb 16, 2010.		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	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	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 June 3, 2010, to Dec 5, 2010	Extension of Red Snapper Interim Rule	Extended the prohibition of red snapper to reduce overfishing of red snapper while long-term measures to end overfishing are addressed in Amendment 17A.
Effective Date December 4, 2010	Amendment 17A (SAFMC 2010a).	Specified 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. Large snapper grouper area closure inn EEZ of NE Florida. Emergency rule delayed the effective date of the snapper grouper closure.
Effective Date January 31, 2011	Amendment 17B (SAFMC 2010b)	Specified ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; AMs, for species undergoing overfishing. Established a harvest prohibition of six snapper grouper species in depths greater than 240 feet.
Effective Date June 1, 2011	Regulatory Amendment 10 (SAFMC 2010c)	Removed of snapper grouper area closure approved in Amendment 17A.
Effective Date July 15, 2011	Regulatory Amendment 9 (SAFMC 2011a)	Harvest management measures for black sea bass; commercial trip limits for gag, vermilion and greater amberjack
Effective Date May 10, 2012	Regulatory Amendment 11 (SAFMC 2011b)	Removed the harvest prohibition of six deepwater snapper grouper species implemented in Amendment 17B.

Time period/dates	Cause	Observed and/or Expected Effects
Effective Date April 16, 2012	Comprehensive ACL Amendment (SAFMC 2011c)	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.
July 11, 2012	Amendment 24 (Red Grouper) (SAFMC 2011d)	Established a rebuilding plan for red grouper, specified ABC, and established ACL, ACT and revised AMs for the commercial and recreational sectors.
Effective Date July 1, 2012	Amendment 18A (SAFMC 2012a)	Established an endorsement program for black sea bass commercial fishery; established a trip limit; specified requirements for deployment and retrieval of pots; made improvements to data reporting for commercial and for-hire sectors
Effective Dates: September 17, 2012 (commercial); September 14, 2012 (recreational)	Temporary Rule through Emergency Action (Red snapper)	Established limited red snapper fishing seasons (commercial and recreational) in 2012.
Effective Date January 7, 2013	Amendment 18A Transferability Amendment	Reconsidered action to allow for transfer of black sea bass pot endorsements that was disapproved in Amendment 18A.
Effective Date October 26, 2012	Amendment 20A (Wreckfish) (SAFMC 2012b)	Redistributed inactive wreckfish shares.
Effective Date October 9, 2012	Regulatory Amendment 12 (SAFMC 2012c)	Adjusted the golden tilefish ACL based on the results of a new stock assessment and modified the recreational golden tilefish AM.
Effective Date May 23, 2013	Amendment 18B (SAFMC 2013)	Establish a commercial longline endorsement program for golden tilefish; establish an appeals process; allocate the commercial ACL by gear; establish trip limit for the hook-and-line sector
Target 2013	Amendment 22 (under development)	Develop a recreational tag program for red snapper and deepwater species (snowy grouper, golden tilefish and wreckfish) in the South Atlantic.
Target 2013	Regulatory Amendment 13 (under review)	Adjust ACLs and allocations for unassessed snapper grouper species with MRIP recreational estimates

Time period/dates	Cause	Observed and/or Expected Effects
Target 2013	Amendment 27 (under review)	Establish the SAFMC as the managing entity for yellowtail and mutton snappers and Nassau grouper in the Southeast U.S., modify the SG framework; modify placement of blue runner in an FMU or modify management measures for blue runner
Target 2013	Amendment 28 (under review)	Modify red snapper management measures, including the establishment of a process to determine future annual catch limits and fishing seasons.

9. Determine the magnitude and significance of cumulative effects.

Proposed management actions, as summarized in **Section 2** of this document, would limit participation and change the fishing year for the golden tilefish portion of the snapper grouper fishery. These management actions in Amendment 18B to the Snapper Grouper FMP are intended to address issues that have remained after the implementation of previous amendments. Species in the snapper grouper fishery management unit (FMU) are assessed on a routine basis and stock status may change as new information becomes available. In addition, changes in management regulations, fishing techniques, social/economic structure, etc. can result in shifts in the percentage of harvest between user groups over time. As such, the South Atlantic Council has determined that certain aspects of the current management system remain inappropriate and should be restructured. Detailed discussions of the magnitude and significance of the preferred alternatives appear in **Section 4** of this consolidated document. Below is a short summary of the biological significance and magnitude of each of the preferred alternatives chosen, and a brief discussion of their combined effect on the snapper grouper FMU and the ecosystem.

When viewed in totality, the actions in this amendment would benefit golden tilefish as participation is reduced through the establishment of an endorsement programs.

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.

6.2 Socioeconomic

A description of the human environment, including a description of commercial and recreational snapper grouper fisheries and associated key fishing communities is contained in **Chapter 3**. A description of the history of management of the snapper grouper fishery is contained in **Appendix F**.

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

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. In general, it can be stated, however, that the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing, in tandem with other adverse influences, the likelihood of economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and industries. Some reverse of this trend is possible and expected. The establishment of ACLs and AMs for species undergoing overfishing is expected to help protect and sustain harvest at the optimum yield level. However, certain pressures would remain, such as total effort and total harvest considerations, increasing input costs, import induced price pressure, and competition for coastal access.

A detailed description of the expected social and economic impacts of the actions in this amendment is contained in **Chapters 4, 5, and 6**. Current and future amendments are expected to add to this cumulative effect. Amendment 15B to the Snapper Grouper FMP prohibited the sale of bag-limit caught snapper grouper species for those who do not hold a federal commercial permit for snapper grouper. This eliminates the ability of the recreational angler to subsidize the cost of a fishing trip through the sales of snapper grouper and may, therefore, decrease recreational demand. This action has a more pronounced effect on the for-hire sector, which often uses the sale of bag-limit caught fish to pay crewmembers.

Amendment 16 to the Snapper Grouper FMP addressed overfishing in the gag and vermilion snapper fisheries. The corrective action in response to overfishing always requires harvest reductions and more restrictive regulation. Thus, additional short-term adverse social and economic effects would be expected. These restrictions will hopefully prevent the stocks from becoming overfished, which would require recovery plans, further harvest restrictions, and additional social and economic losses.

Amendment 17A to the Snapper Grouper FMP addressed the overfishing and overfished status of red snapper. Red snapper is, in general and compared to other snapper grouper species, not a significant commercial species, it has greater importance as a target species to the recreational sector, especially the for-hire sector in certain areas of the South Atlantic.

Amendment 17B to the Snapper Grouper FMP specified harvest controls (ACLs and/or ACTs) and AMs for several snapper grouper species, as well as a allocations for golden tilefish, and modify the framework to allow more efficient modification of these measures in the future, where necessary. While some final specifications of these measures may result in additional short-term reductions in social and economic benefits to participants in the fisheries, these measures would be expected to support more stable management and sustainable social and economic benefits from enhanced resource protection, larger and/or more consistent harvests, and long-term stable stocks.

The cumulative impact of Amendments 16, 17A, and 17B to the Snapper Grouper FMP are expected to be significant for commercial and recreational fisheries participants and those indirectly impacted by the actions contained in those amendments. The cumulative impact of Amendments 17A and 17B to the Snapper Grouper FMP have been estimated and are contained in Amendment 17A to the Snapper Grouper FMP. The impacts from the three amendments will likely result in commercial and for-hire vessel exit and loss of fishery infrastructure as a result.

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

Other amendments are expected to be implemented during 2012, which could further affect harvest of snapper grouper species. The Comprehensive ACL Amendment has been approved by the Secretary of Commerce and will specify ACLs for snapper grouper species not undergoing overfishing. Regulations for the Comprehensive ACL Amendment were implemented on April 16, 2012. Amendment 18A contains measures to limit participation and effort in the black sea bass fishery, reduce bycatch in the black sea bass pot fishery, changes to the rebuilding strategy and other necessary changes to the management of black sea bass as a result of the 2011 stock assessment. Regulatory Amendment 11 became effective on May 10, 2012 and removed the deepwater closure beyond 240 ft for six deepwater snapper grouper species. Amendment 20A would distribute shares from inactive participants in the wreckfish ITQ system to active shareholders. Amendment 24 considers a rebuilding plan for red grouper, which is overfished and undergoing overfishing. The South Atlantic Council approved Amendment 24 in December 2011 and regulations will become effective on July 11, 2012. Regulatory Amendment 12 includes alternatives to increase the ACL for golden tilefish based on the results of a new stock assessment. The South Atlantic Council approved Regulatory Amendment 12 at their March 2012 meeting and regulations became effective on October 9, 2012.

Chapter 7. List of Preparers

Table 7.1.1. List of Regulatory Amendment 16 interdisciplinary plan team members. [Needs Updating]

Name	Organization	Title
Andy Herndon	NMFS/PR	Protected Resources Biologist
Brian Chevront	SAFMC	Economist
David Dale	NMFS/HC	EFH Specialist
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Jack McGovern	NMFS/SF	Fishery Biologist
John Carmichael	SAFMC	Science and Statistics Program Manager
Kari MacLauchlin	SAFMC	Fishery Social Scientist
Karla Gore	NMFS/SF	Fishery Biologist
Mike Errigo	SAFMC	Data Analyst
Mike Jepson	NMFS/SF	Fishery Social Scientist
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Myra Brouwer	SAFMC	Fishery Biologist
Nick Farmer	NMFS/SF	Fishery Biologist
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Anne Marie Eich	NMFS/SF	Technical Writer & Editor
Stephen Holiman	NMFS/SF	
Denise Johnson	NMFS/SF	Economist

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. Agencies and Persons Consulted

Responsible Agency

Regulatory Amendment 16:

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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
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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