Specification of Annual Catch Limits for Golden Tilefish (*Lopholatilus chamaeleonticeps)* in the South Atlantic Region

Golden Tilefish Interim Measures

Environmental Assessment Regulatory Flexibility Analysis

September 28, 2017

Definitions, Abbreviations, and Acronyms Used in the Document

ABC acceptable biological catch

ACL annual catch limits

ACT annual catch target

ALS Accumulated Landings System

AM accountability measures

ASFMC Atlantic States Marine Fisheries Commission

B a measure of stock biomass in either weight or other appropriate unit

B_{MSY} the stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}

B_{CURR} the current stock biomass

COUNCIL South Atlantic Fishery Management Council

CS consumer surplus

DPS distinct population segment

EEZ exclusive economic zone

EFH essential fish habitat

EFH-HAPC essential fish habitat-habitat areas of particular concern

ESA Endangered Species Act

F a measure of the instantaneous rate of fishing mortality

F_{CURR} the current instantaneous rate of fishing mortality

F_{MSY} the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}

FMP fishery management plan

FMU fishery management unit

LBS GW pounds gutted weight

LBS WW pounds whole weight

M natural mortality rate

MAGNUSON-STEVENS ACT Magnuson-Stevens Fishery Conservation and Management Act

MARMAP Marine Resources Monitoring Assessment and Prediction Program

MFMT maximum fishing mortality threshold

MMPA Marine Mammal Protection Act

MRFSS Marine Recreational Fisheries Statistics Survey

MRIP Marine Recreational Information Program

MSST minimum stock size threshold

MSY maximum sustainable yield

NARW North Atlantic Right Whale

NEPA National Environmental Policy Act

NMFS National Marine Fisheries Service

NOAA National Oceanic and Atmospheric Administration

NOR net operating revenue

OY optimum yield

PS producer surplus

SECRETARY Secretary of Commerce

SEDAR Southeast Data, Assessment, and Review

SEFSC Southeast Fisheries Science Center

SERO Southeast Regional Office

SMZ special management zone

SOUTH ATLANTIC southeastern united states

SPR spawning potential ratio

SSB stock spawning biomass

SSC Scientific and Statistical Committee

TAC total allowable catch

Interim Measures for Golden Tilefish in the South Atlantic

Documents:	Environmental assessment Regulatory flexibility analysis
Proposed actions:	Temporarily reduce annual catch limits for golden tilefish
Lead agency:	National Marine Fisheries Service (NMFS)
For Further Information Contact:	Mary Vara NMFS Southeast Regional Office 263 13th Avenue South St. Petersburg, FL 33701 727-824-5305 Mary.Vara@noaa.gov Karla Gore NMFS Southeast Regional Office 263 13th Avenue South St. Petersburg, FL 33701 727-824-5305 Karla.Gore@noaa.gov

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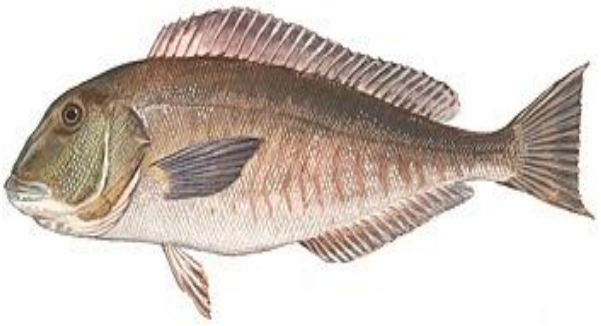
Chapter 1. Introduction



1.1 What Action Is Being Proposed?

The National Marine Fisheries Service (NMFS) is proposing interim measures to temporarily reduce the golden tilefish annual catch limits (ACL) (total, commercial, and recreational) for 2018.

1.2 Who is Proposing the Action?

The Secretary of Commerce (Secretary), through NMFS, is proposing the action. NMFS is an agency of the National Oceanic and Atmospheric Administration within the Department of Commerce. Guided by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), NMFS works with regional fishery management councils and other partners and stakeholders to assess fish stocks, establish ACLs, reduce bycatch, and enforce compliance of fisheries regulations. The South Atlantic Fishery Management Council (Council) is responsible for managing fish stocks in the South Atlantic region and recommends actions to NMFS for implementation. The Council requested that the Secretary implement the action to temporarily reduce the ACLs for golden tilefish.

1.3 What are Interim Measures?

Interim measures are temporary changes to the fishing regulations. The purpose of interim measures is to reduce the rate of overfishing while fishery managers develop long-term regulations. Fishery management councils may request the Secretary to implement interim measures. If the Council vote is unanimous, NMFS must implement the interim measures. If the vote is not unanimous, NMFS may implement the actions recommended by the Council, or implement other interim measures as determined by the Secretary, that would also reduce overfishing. As outlined in the Magnuson-Stevens Act, interim measures may remain in effect for a maximum of 180 days after the date of publication of the notice in the *Federal Register*. However, the interim measures may be extended for an additional 186 days.

1.4 Where are Golden Tilefish Managed?

Management of the federal snapper grouper fishery located off the southeastern United States (South Atlantic) in the 3-200 nautical miles United States' exclusive economic zone is conducted under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP, SAFMC 1983) (**Figure 1.1**). Golden tilefish is one of 55 species managed by the Council under the Snapper Grouper FMP.

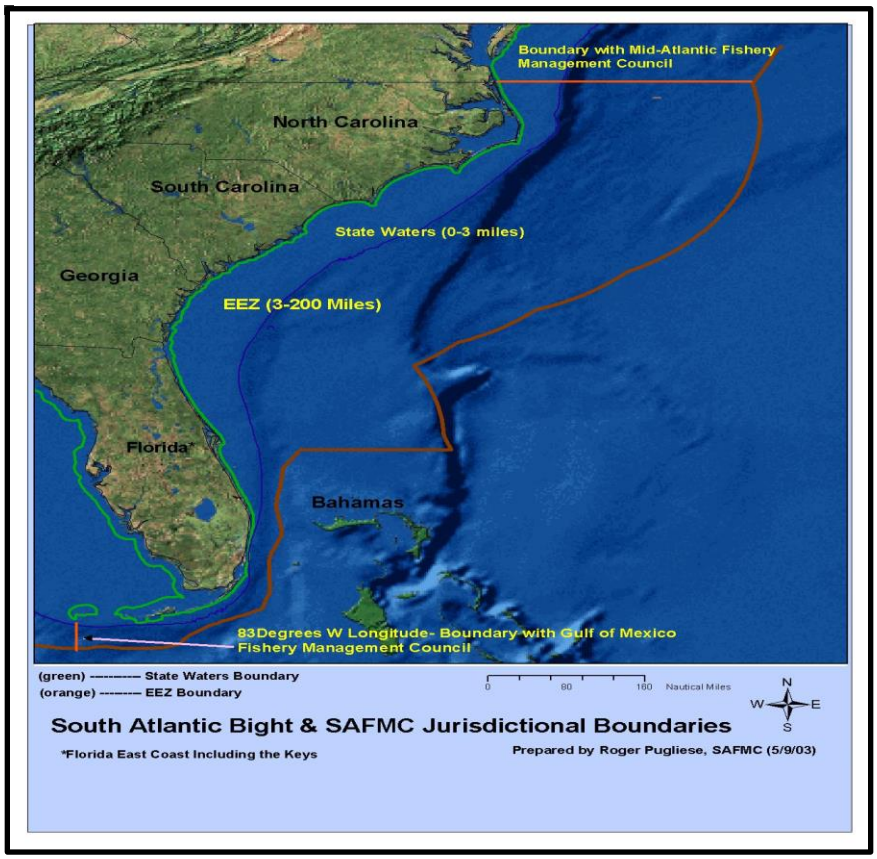


Figure 1.4.1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

1.5 Why is NMFS Considering Action (Purpose and Need)?

The status of the golden tilefish stock in the South Atlantic was updated in April 2016 with data through 2014 (SEDAR 25 Update 2016). The update indicated the golden tilefish stock is undergoing overfishing but is not overfished. On January 3, 2017, NMFS sent a letter informing the Council that the golden tilefish stock is undergoing overfishing and that management action is necessary to end overfishing (**Appendix B**). See **Section 3.2.3** and **Appendix C** for more information on the golden tilefish stock status.

Purpose for Action

Reduce the harvest of golden tilefish while the South Atlantic Fishery Management Council explores long-term options to end overfishing and rebuild the stock.

Need for Action

Reduce overfishing of golden tilefish, while minimizing to the extent practicable, adverse socio-economic effects and achieve optimum yield on a continuing basis as per the Magnuson-Stevens Fishery Conservation and Management Act.

The Council and NMFS are developing Amendment 45 to the Snapper Grouper FMP (Amendment 45). Amendment 45 will contain actions to end overfishing of golden tilefish.

The current levels of harvest would likely continue while Amendment 45 is being developed and implemented. Therefore, at their June 2017 meeting, the Council voted 12 to 1 to request that NMFS implement interim measures to reduce overfishing of golden tilefish while long-term management measures and regulations to end overfishing are developed through Amendment 45. Accordingly, the Council requested interim measures in a letter to NMFS dated June 27, 2017 (**Appendix D**). In the letter, the Council requested a reduction in the ACL for golden tilefish to the projected yield at 75%F_{MSY} (323,000 pounds gutted weight).

The purpose of the interim measures is to decrease the rate of golden tilefish overfishing by temporarily reducing the ACLs (total, commercial, and recreational) while the Council develops long-term measures to end overfishing. The reduction in ACLs would be expected to reduce adverse biological effects to the golden tilefish stock. The interim measures would likely have adverse, socio-economic effects beginning in 2018. However, the interim measures would be expected to minimize future adverse socio-economic effects by potentially reducing future reductions in harvest required to end overfishing through Amendment 45.

1.6 What are the stock status recommendations for golden tilefish?

The Council's Scientific and Statistical Committee reviewed the results of the SEDAR 25 Update 2016 at their May 3-5, 2016, meeting and made fishing level recommendations for golden tilefish in the South Atlantic (**Tables 1.6.1-1.6.2**). See **Section 3.2.3** for more information on the golden tilefish stock status.

Table 1.6.1. Stock status recommendations for golden tilefish from SEDAR 25 Update 2016.

Overfished evaluation (SSB_{2014}/SSB_{MSY})	0.85
Overfishing evaluation (F_{12-14}/F_{MSY})	1.22
MFMT	0.24
SSB_{MSY} (mature female gonad weight, pounds [lbs])	48,347
MSST (mature female gonad weight, lbs)	36,266
MSY (1,000 lbs)	560
Y at 75%F_{MSY} (1,000 lbs)	551
ABC Control Rule Adjustment	0.2
P-Star	0.3
M	0.1

Table 1.6.2. OFL and ABC recommendations for golden tilefish from SEDAR 25 Update 2016.

OFL RECOMMENDATIONS (probabilistic projections)		
Year	Landed (lbs gw)	Landed (numbers of fish)
2017	377,000	48,000
2018	402,000	52,000
2019	426,000	55,000
ABC RECOMMENDATIONS (probabilistic projections)		
Year	Landed (lbs gw)	Landed (numbers of fish)
2017	233,000	30,000
2018	267,000	34,000
2019	302,000	38,000

Source: Appendix 2; Supplement to the Stock Assessment of Golden Tilefish off the Southeastern United States 2016 SEDAR Update Assessment, Issued May 6, 2016

1.7 What is the History of Management for Golden Tilefish

The Council and NMFS first implemented regulations affecting golden tilefish in the South Atlantic region in 1993 (**Table 1.7.1)**. See **Appendix E** for a detailed history of management of the Snapper Grouper FMP.

Table 1.7.1. History of management for golden tilefish in the South Atlantic region from 1993-2017.

Document	Date Implemented	Regulations Implemented
Amendment 6 (1993)	06/27/94	• Set up separate commercial total allowable catch (TAC) levels for golden tilefish and snowy grouper; • Established commercial trip limits for snowy grouper, golden tilefish, speckled hind, and warsaw grouper; • Included golden tilefish in grouper recreational aggregate bag limits.
Amendment #11 Comprehensive Sustainable Fisheries Act Amendment (1998)	12/02/99	• Overfished/overfishing evaluations: Golden tilefish: overfished (could not estimate static spawning potential ratio).
Amendment #13C (2006)	10/23/06	• Commercial: Reduced the quota to 295,000 pounds gutted weight (lbs gw), to end overfishing; • 4,000 lbs gw trip limit until 75% of the quota is taken when the trip limit is reduced to 300 lbs gw; • Recreational: Limited possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit.
Notice of Control Date	12/4/08	• Established a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic.
Amendment #15B (2008)	12/16/09	• Revised the management reference points for golden tilefish.
Amendment #17B (2010)	1/31/11	• Specified allocations (commercial: 97% and recreational: 3%) based on long and short-term landings histories, annual catch limits (ACLs) and accountability measures (AMs) for golden tilefish to help ensure that overfishing does not occur; • Updated the framework procedure for specification of TAC; • Specified ACLs, annual catch targets, and AMs, where necessary, for nine species undergoing overfishing, including golden tilefish.
Regulatory Amendment #12 (2012)	10/9/12	• Revised the optimum yield for golden tilefish; • Increased the commercial ACL from 282,819 lbs gw to 541,295 lbs gw, and the recreational ACL from 1,578 fish to 3,019 fish; • Revised recreational AMs for golden tilefish.
Amendment #18B (2012)	5/23/13	• Limited participation and effort in the commercial sector through establishment of a longline endorsement; • Established eligibility requirements and allowed transferability of longline endorsement; • Established an appeals process; • Modified trip limits; • Specified allocations and ACLs for gear groups (longline: 75% and hook-and-line:25%).

Chapter 2. Proposed Action and Alternatives

2.1 Revise the Annual Catch Limit for Golden Tilefish through Interim Measures

Alternative 1 (No Action). Retain the current annual catch limits for golden tilefish. The total annual catch limit[1] for golden tilefish is 558,036 pounds gutted weight.

Preferred Alternative 2. Revise the golden tilefish annual catch limits[1] for 2018. The total annual catch limit would equal 323,000 pounds gutted weight (the projected yield at 75%F_{MSY}).

Alternative 3. Revise the golden tilefish annual catch limits[1] for 2018. The total annual catch limit would equal 267,000 pounds gutted weight (the projected yield at P* of 30%).

Alternative 4. Revise the golden tilefish annual catch limits[1] for 2018. The total annual catch limit would equal 420,000 pounds gutted weight (75% of the maximum sustainable yield).

Table 2.1.1. The annual catch limit alternatives for golden tilefish by sector. The preferred alternative is in bold. A conversion rate of 1.12 was used to convert pounds gutted weight (lbs gw) to pounds whole weight (lbs ww).

	Total ACL[1] in lbs gw (lbs ww)	Commercial ACL in lbs gw (lbs ww)	Commercial Hook-and-Line ACL in lbs gw (lbs ww)[4]	Commercial Longline ACL in lbs gw (lbs ww)[4]	Recreational ACL in numbers of fish[2,3] (lbs gw and lbs ww)
Alternative 1 (No Action)	558,036 (625,000)	541,295 (606,250)	135,324 (151,563)	405,971 (454,687)	3,019 (16,741 lbs gw or 18,750 lbs ww)[2]
Alternative 2 (Preferred)	**323,000** **(361,760)**	**313,310** **(350,907)**	**78,328** **(87,727)**	**234,982** **(263,180)**	**2,187** **(9,690 lbs gw or 10,850 lbs ww)[3]**
Alternative 3	267,000 (299,040)	258,990 (290,069)	64,748 (72,518)	194,242 (217,551)	1,808 (8,010 lbs gw or 8,971 lbs ww)[3]
Alternative 4	420,000 (470,400)	407,400 (456,288)	101,850 (114,072)	305,550 (342,216)	2,844 (12,600 lbs gw or 14,112 lbs ww)[3]

[1]The total ACL is allocated to the commercial sector (97%) and to the recreational sector (3%). The commercial ACL is allocated to the golden tilefish longline sector (75%) and to the hook-and-line sector (25%) (Amendment 17B,SAFMC 2010; and Amendment 18B, SAFMC 2012a).

[2] The recreational sector ACL is reported in numbers of fish. A conversion rate of 6.21 was used to convert lbs ww into numbers of fish (Regulatory Amendment 12, SAFMC 2012b).

[3] Recreational landings data collected through the Marine Recreational Information Program (MRIP) and Southeast Region Headboat Survey were used to calculate the average weight of South Atlantic golden tilefish. From 2012-2016, the average weight of recreational golden tilefish have ranged annually from 4.21 lbs gw to 5.11 lbs gw. An

average of the five-year span provides a conversion factor of 4.43 lbs gw for converting the recreational ACL into numbers of fish (**Appendix H**).

[4] Due to standard rounding, the commercial hook-and-line and longline ACLs for Alternatives 2-3 results in a change of 0.5 pounds for each component. Rounding up would cause the commercial ACL to be exceeded. Therefore, the hook-and-line ACL was rounded up to the nearest whole pound, and the longline component ACL was rounded down to the nearest whole pound.

2.2 Comparison of Alternatives:

Results of the 2016 update assessment (SEDAR 25 Update 2016) revealed that the golden tilefish stock in the South Atlantic is undergoing overfishing but is not overfished. **Alternative 1 (No Action)** would retain the existing total ACL for golden tilefish; however, this value no longer represents the best scientific information and would not reduce overfishing of golden tilefish. Under **Preferred Alternative 2-Alternative 4**, the total ACL for golden tilefish would be temporarily reduced based upon results from the updated assessment and recommendations from the South Atlantic Fishery Management Council's (Council) Scientific and Statistical Committee. **Preferred Alternative 2** would change the golden tilefish total ACL for 2018 to the projected yield at 75%F_{MSY} equal to 323,000 lbs gw. **Alternative 3** would revise the golden tilefish total ACL for 2018 at the projected yield at P* of 30% equal to 267,000 lbs gw. **Alternative 4** would revise the golden tilefish total ACL for 2018 at 75% of the maximum sustainable yield equal to 420,000 lbs gw. **Tables 2.1.1** and **4.1.1** show the commercial and recreational ACLs for each of the alternatives. **Tables 2.2.1** and **4.1.1** also illustrate the portions of the commercial ACL allocated to the hook-and-line and longline sectors for each of the alternatives. For comparison, **Tables 4.1.2** and **4.1.3** present commercial and recreational landings of golden tilefish from 2002 through 2016. Relative to **Alternative 1 (No Action),** biological benefits for golden tilefish would be greatest for **Alternative 3** since it would have the greatest reduction in the total ACL, followed by **Preferred Alternative 2** and **Alternative 4**.

In general, the higher the ACL, the greater the short-term economic and social benefits, assuming harvest does not result in overfishing and long-term management goals are met. However, the ACL does not have direct economic or social negative impacts unless the ACL is achieved or projected to be met; thereby, triggering accountability measures such as closures or other restrictive measures. The immediate, short-term ACLs proposed under each alternative are lower than what is specified under **Alternative 1 (No Action)** (**Table 2.1.1**), with **Alternative 4** being least restrictive followed by **Preferred Alternative 2** and **Alternative 3**. Assuming commercial fishing behavior does not change, it is likely that the commercial longline sector and possibly the hook-and-line commercial sector would experience a closure due to reaching their quotas (**Table 4.1.2**). The projected closure dates differ among the alternatives. Therefore, there are more expected differences in terms of realized economic effects on the commercial sector among the alternatives, with **Alternative 3** resulting in the largest negative economic effects. For the recreational sector, **Alternative 3** has the largest anticipated negative economic effect, as it has the lowest recreational ACL. Although **Preferred Alternative 2,** and **Alternatives 3**, and **4** would be expected to result in negative short-term economic effects relative to **Alternative 1** (**No Action**), they would start the process of reducing overfishing so that long-term measures from Amendment 45 would be expected to result in less onerous economic effects than if measures under **Alternative 1** (**No Action**) were to remain the same.

Adhering to sustainable harvest through an ACL is assumed to result in net long-term positive social and economic benefits. Additionally, adjustments to an ACL based on updated information from a stock assessment would be the most beneficial in the long term to fishermen and communities because catch limits would be based on the current conditions, even if the updated information indicates that a lower ACL is appropriate to sustain the stock. **Preferred Alternative 2,** and **Alternatives 3 - 4** would reduce overfishing of golden tilefish, and may be more beneficial in the long term to communities and fishermen than **Alternative 1 (No Action)**.

Since mechanisms are already in place for monitoring and enforcing the current ACL, any increase in the administrative burden from **Preferred Alternative 2-Alternative 4** would be expected to be minimal. As with any changes to regulations, administrative costs could occur associated with disseminating information and educating the public.

Chapter 3. Affected Environment

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

Affected Environment

- **Habitat environment (Section 3.1)**

  Examples include coral reefs and sea grass beds

- **Biological and ecological environment (Section 3.2)**

  Examples include populations of red snapper, corals, and turtles

- **Economic environment (Section 3.3)**

  Examples include fishing communities and economic descriptions of the fisheries

- **Social environment (Section 3.4)**

  Examples include fishing communities and social description of the fisheries

- **Administrative environment (Section 3.5)**

  Examples include the fishery management process and enforcement activities

3.1 Habitat Environment

3.1.1 Inshore/Estuarine Habitat

Golden tilefish is one of fifty-five species managed by the South Atlantic Fishery Management Council (Council) under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) (SAFMC 1983). 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[1] (FEP; SAFMC 2009) and incorporated here by reference.

3.1.2 Offshore Habitat

Predominant snapper grouper offshore fishing areas are located in live bottom and shelf-edge habitats where water temperatures range from 11º to 27º C (52º to 81º F) due to the proximity of the Gulf Stream, with lower shelf habitat temperatures varying from 11º to 14º C (52º to 57º F). Water depths range from 16 to 55 meters (54 to 180 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 in South Atlantic continental shelf habitats 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 but is most abundant offshore from northeastern Florida. South of Cape Canaveral 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 km^2) 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. There are several notable shipwrecks along the southeast coast in state and federal waters including *Lofthus* (eastern Florida), *SS Copenhagen* (southeast Florida), *Half Moon* (southeast Florida), *Hebe* (Myrtle Beach, South Carolina), *Georgiana* (Charleston, South Carolina), *U.S.S. Monitor* (Cape Hatteras, North Carolina), *Huron* (Nags Head, North Carolina), and *Metropolis* (Corolla, North Carolina).

[1] http://safmc.net/ecosystem-management/fishery-ecosystem-plan/

The distribution of coral and live hard bottom habitat as presented in the Southeast Marine Assessment and Prediction Program bottom mapping project is a proxy for the distribution of the species within the snapper grouper complex. Maps are available on the Council's Habitat and Ecosystem Atlas[2].

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

Additional information on the habitat utilized by snapper grouper species is included in Volume II of the Fishery Ecosystem Plan (FEP; SAFMC 2009).

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.

[2] http://ocean.floridamarine.org/safmc_atlas/

3.1.4 Habitat Areas of Particular Concern

Areas which meet the criteria for Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPC) 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; Council-designated Artificial Reef Special Management Zones; and deepwater Marine Protected Areas. Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

In addition to protecting habitat from fishing related degradation though fishery management plan regulations, the Council, in cooperation with the 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 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 and estuarine invasive species.

The potential impacts the actions in this amendment may have on EFH, and EFH-HAPCs are discussed in **Chapter 4** of this document.

3.2 Biological and Ecological Environment

3.2.1 Fish Populations Affected by this Amendment

The reef environment in the South Atlantic management area affected by actions in this environmental impact statement is defined by two components (**Figure 3.2.1**). Each component will be described in detail in the following sections.

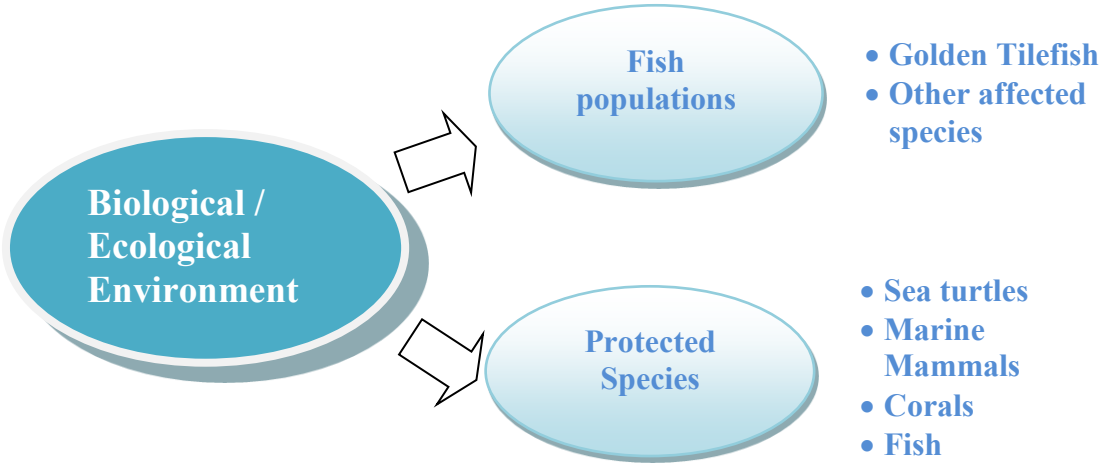


Figure 3.2.1. Two components of the biological environment described in this document.

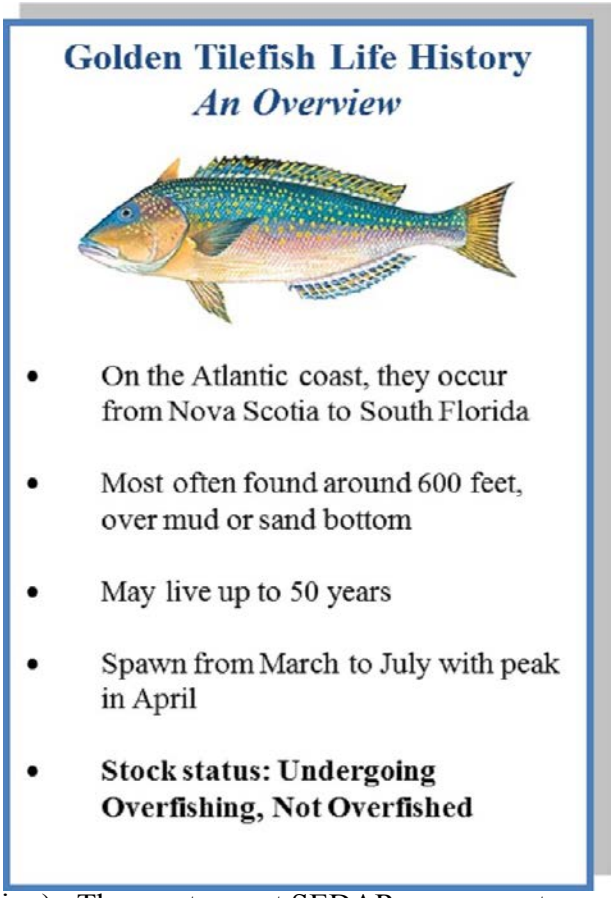
The waters off the South Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 55 species of fish, many of them neither "snappers" or "groupers." These species live in depths from a few feet (typically as juveniles) to hundreds of feet. As far as north/south distribution, the more temperate species tend to live in the upper reaches of the South Atlantic management area (black sea bass, red porgy) while the tropical variety's core residence is in the waters off south Florida, Caribbean Islands, and northern South America (black grouper, mutton snapper). These are reef-dwelling species that live amongst each other. These species rely on the reef environment for protection and food. There are several reef tracts that follow the southeastern coast. The fact that these fish populations congregate together dictates the nature of the fishery (multi-species) and further forms the type of management regulations proposed in this document.

Several species in the snapper grouper fishery management unit, though they occupy the same time and space in the reef environment, occupy different trophic niches. For example, blueline tilefish consume a higher diversity of organisms and prey that is more closely associated with the bottom (Bielsa et al. 1987). In contrast, the diet of snowy grouper is more specialized and prey items are found higher in the water column. It has been suggested that the different trophic niches reduces the interspecific competition for food items among these two species (Bielsa et al 1987).

3.2.2 Golden tilefish (*Lopholatilus chamaeleonticeps*)

Life History

Life history, biological characteristics, and stock status information for golden tilefish may be found the Southeast Data, Assessment, and Review (SEDAR) report, SEDAR 25 Update (2016), which is available on the SEDAR web site http://www.sefsc.noaa.gov/sedar/ and is hereby incorporated by reference (see **Section 3.2.3** for more information on the SEDAR process).



Golden tilefish are distributed throughout the Western Atlantic, occurring as far north as Nova Scotia, to southern Florida, and in the eastern Gulf of Mexico (Robins and Ray 1986). 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). The most recent SEDAR assessment estimated natural mortality (M) at 0.10 (SEDAR 25 Update 2016). Golden tilefish spawn off the southeast coast of the United States (U.S.) from March through late July, with a peak in April (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).

Biomass and Landings

According to SEDAR 25 (2011), estimated abundance at age showed a slight truncation of the older ages. Total estimated abundance at the end of the assessment period showed a sharp increase, reaching levels not seen since the early 1980s, albeit with a quite different age structure. This increase was driven by recruitment estimates in the early 2000s. A notably strong year class (age-1 fish) was predicted to have occurred in 2001 and was driving the increase in the population size during the six to eight years prior to the assessment.

Estimated biomass at age exhibits a different pattern than abundance at age. Total biomass declined in the early 1980's and then remained relatively low until 2001, when one big year class was predicted and biomass climbed to moderate levels in the terminal year by 2011 **(Figure 3.2.2)**. Abundance at age trends are greatly affected by the very large recruitment event estimated by the model in 2001.

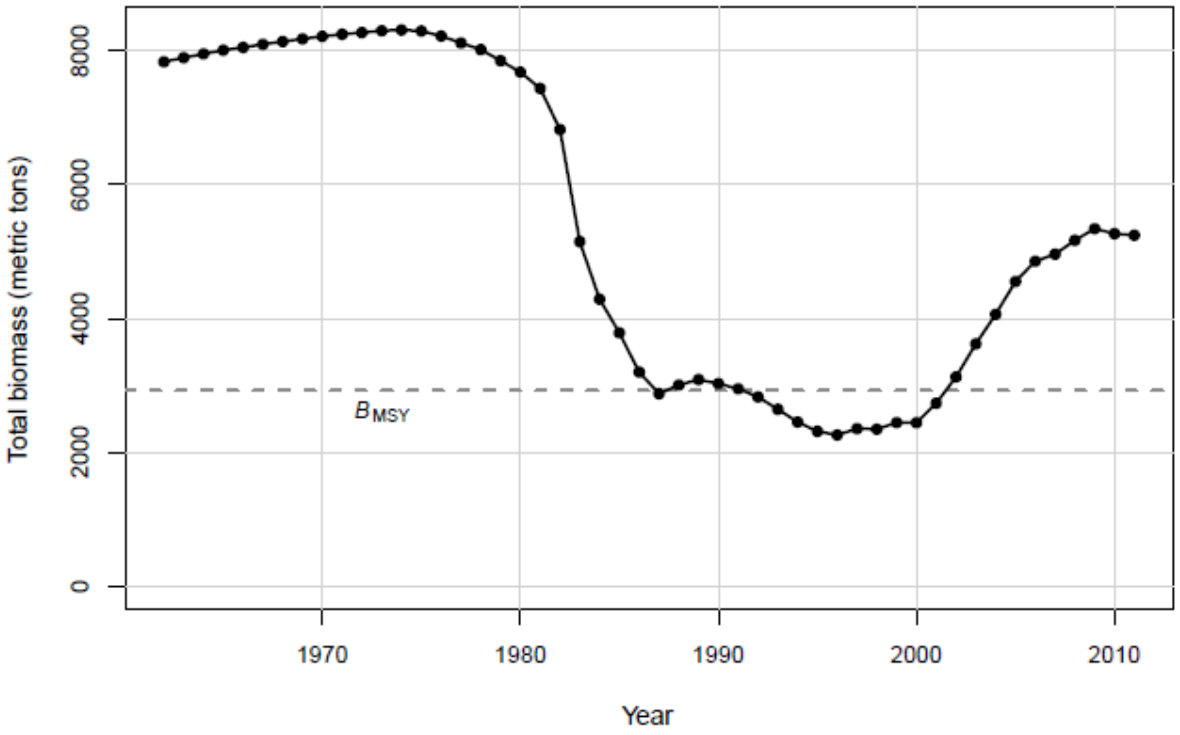


Figure 3.2.2. Estimated total biomass (metric tons) for golden tilefish.
Source: SEDAR 25 2011.

The fishing year for golden tilefish is from January 1 through December 31. Commercial and recreational landings of golden tilefish in the South Atlantic from 2002 to 2016 are provided in **Table 3.2.1**. Amendment 18B (SAFMC 2012) specified allocations and annual catch limits (ACLs) for gear groups (longline: 75% and hook-and-line: 25%). Golden tilefish are primarily harvested using bottom longline gear, and dominate total commercial landings[3]. Therefore, commercial longline landings of golden tilefish have, by far, the greatest influence on in-season prohibitions of the fishery. **Table 4.1.2** and **Table 4.1.3** in **Chapter 4** provide closure dates by sector for golden tilefish.

[3] See also SEDAR 25 Update 2016, Table 7.14, for estimated fishing mortality rates (*F*) by sector.

Table 3.2.1. South Atlantic golden tilefish commercial hook-and-line, commercial longline, and recreational landings from 2002 to 2016.

Fishing Year	Commercial Hook-and-Line (lbs gw)	Commercial Longline (lbs gw)	Recreational (number of fish)
2002	130,713	220,592	3,515
2003	66,279	151,845	12,396
2004	32,675	224,496	11,886
2005	41,056	232,755	70,304
2006	26,513	364,054	12,723
2007	49,626	250,980	2,165
2008	38,412	274,042	0
2009	28,222	299,248	8,132
2010	26,496	339,033	4,383
2011	35,107	326,294	9,864
2012	97,119	420,070	3,623
2013	85,088	452,859	4,143
2014	165,591	520,705	1,357
2015	146,927	383,754	3,596
2016	141,249	385,555	13,011

Source: Southeast Fisheries Science Center recreational (6/28/2017) and commercial (5/2/2017) ACL datasets.

Discards

Release (discard) mortality rates are unknown for many managed species; however, some SEDAR assessments include estimates of release mortality rates based on published studies. Snowy grouper are primarily caught in water deeper than 300 feet and golden tilefish are taken at depths greater than 540 feet; therefore, release mortality of the species are near 100% (SEDAR 4 2004, SEDAR 25 2011).

Discards of golden tilefish are relatively low overall in the South Atlantic (**Table 3.2.2**). The following description of golden tilefish landings is from the SEDAR 25 (2011) assessment report: "*Tilefish discards could not be calculated for the commercial fishery due to very low sample size. Fewer than 10 trips reported tilefish discards during the period 2002-2010. That total included all commercial fishing gear. Several factors suggest that few tilefish are discarded by the commercial sector. Golden tilefish have very specific habitat requirements and commercial fishermen report that they are able to eliminate bycatch of tilefish during closed seasons by avoiding known tilefish habitat. Barotrauma likely results in high fishing mortality because tilefish habitat is relatively deep (300 feet or deeper) and those fish were retained rather than discarded dead. In addition, there is no minimum size for golden tilefish. Given the rare reporting of golden tilefish discards, the ease with which tilefish bycatch can be avoided, the likely high mortality of caught fish, and the lack of minimum size which would require discarding; the SEDAR working group recognized that golden tilefish discards are probably few in number and were unlikely to affect the assessment*." For the recreational sector, "*landings, discards, and biological samples information are limited because golden tilefish is a deepwater species that is not routinely caught by recreational fishermen.*" See **Appendix H (Data Analysis)** for more information on bycatch and discards.

Table 3.2.2. The total number of South Atlantic golden tilefish discards recorded from 2006-2016 for different sectors of the commercial and recreational fisheries. Commercial discards are from self-reported logbook information and unexpanded. Discards were aggregated across years due to confidentiality concerns.

Fishery and Sector	Number
Commercial - Longline	318
Commercial - Hook-and-line	161
Recreational - Private	921
Recreational - Charter	0
Recreational - Headboat	80

Source: SEFSC Supplemental Commercial Discard Logbook (4/17/17), SEFSC recreational ACL dataset (6/27/17), and the Southeast Region Headboat Surveys dataset (3/29/17).

3.2.3 Stock Status of Golden Tilefish

Stock assessments provide an evaluation of stock health under the current management regime and other potential future harvest conditions. More specifically, the assessments provide an estimation of maximum sustainable yield (MSY) and a determination of stock status (whether *overfishing* is occurring and whether the stock is *overfished*).

The SEDAR process, initiated in 2002, is a cooperative Fishery Management Council process intended to improve the quality, timeliness and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and US Caribbean. SEDAR is managed by the fishery management councils in the Caribbean, Gulf of Mexico, and South Atlantic regions, in coordination with NMFS and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR emphasizes constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.

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

Golden Tilefish Assessment, Stock Status and Management Response

A commonly used mortality-based biological reference point is the fishing mortality rate (F) at maximum sustainable yield (F_{MSY}). The corresponding landings and stock spawning biomass (SSB) are the MSY and SSB_{MSY}. Overfishing and overfished status determination criteria for golden tilefish were defined in Amendment 15B (SAFMC 2008). Biological reference points were calculated based on MSY in pounds gutted weight (lbs gw). The stock is subject to overfishing if fishing mortality (F_{curr}) is greater than the maximum fishing mortality threshold (MFMT) defined as F_{MSY}. The stock is considered overfished if the SSB is less than the minimum stock size threshold (MSST) defined as 0.75* SSB_{MSY}.

In 2011, to support sufficient sector monitoring and management consistent with the needs of ACLs and AMs, Amendment 17B (SAFMC 2010) established a 97 percent commercial and 3 percent

recreational allocation of golden tilefish based on long and short-term landings histories. To help ensure that overfishing does not occur, the commercial ACL for golden tilefish was reduced to 282,819 lbs gw and 1,578 fish for the recreational sector.

In October 2011, the golden tilefish stock was assessed through SEDAR 25 (2011) with data through 2010. The golden tilefish stock was determined to not be overfished nor was it undergoing overfishing at that time. The stock assessment results showed that the biomass of golden tilefish increased substantially since the last assessment (SEDAR 4) and was above B_{MSY} (biomass of the population that is achieved in the long-term by fishing at F_{MSY})**.**

In 2012, based on results from SEDAR 25 (2011), Regulatory Amendment 12 (SAFMC 2012b) revised the ACL for golden tilefish to be equal to optimum yield, and set at the yield associated with 75 percent fishing mortality that will produce the MSY while the population is at equilibrium ($75\%F_{MSY}$). The South Atlantic golden tilefish commercial ACL (quota) was increased to 541,295 lbs gw, and the recreational ACL was increased to 3,019 fish. The ACLs were set at this level to ensure there was a buffer between the ACLs and acceptable biological catch (ABC) (596,429 lbs gw) to account for management uncertainty. Equilibrium values represent the yield expected, on average, over a long period from a given management strategy. Using the estimated equilibrium values as a catch limit is a risk-averse approach that sacrifices some yield over the short-term to gain stability over the long-term and prevent unrealistic expectations of fishery potential by constituents.

In 2013, Amendment 18B (SAFMC 2012a) implemented measures to reduce overcapacity by limiting participation in the golden tilefish component of the snapper grouper fishery through the establishment of longline endorsements, changes to the fishing year, allocation of the ACL between gear groups, and modifications to golden tilefish trip limits. The longline sector was allocated 75% of the commercial ACL, and the hook-and-line sector was allocated 25% of the commercial ACL.

More information on the assessment history of the golden tilefish stock can be found in Amendment 18B (SAFMC 2012a), and the history of management for golden tilefish can be found in **Section 1.7**.

Current Stock Status

An update to the SEDAR 25 (2011) was completed in April 2016 with data through 2014 (SEDAR 25 Update 2016) and indicated that the stock is currently **undergoing overfishing but is not overfished (Table 1.6.1 and Table 3.2.3).** The assessment supports a finding of subject to overfishing because $F_{2012-2014}$ (0.289) is greater than the MFMT (MFMT=0.236). The stock is not overfished because SSB_{2014} (40,980 pounds female gonad weight) is greater than the MSST (MSST=36,266 pounds female gonad weight). The assessment used a Beaufort Assessment Model, which included several modifications, notably the application of the robust multinomial likelihood function and updated age composition data, which resulted in a decreased value for MSY.

In May 2016, the Council's SSC reviewed the assessment and provided fishing level recommendations based on a P* value of 30%, and determined that the assessment is based on the best scientific information available (**Table 1.6.1** and **Table 1.6.2**). The Council received the results of the update from the SSC in June 2016. However, Council members expressed concern over the large differences in biological benchmarks and fishing level recommendations between the 2016 update and SEDAR 25.

Table 3.2.3. Stock status of golden tilefish. The SEDAR 25 Update 2016 used a Beaufort Assessment Model with data through 2014.

	SEDAR 25 Update 2016 (Terminal Year=2014)
Overfishing* (F_{CURR}/MFMT value)	Yes (1.22)
Overfished* (SSB_{2014}/MSST value)	No (1.13)
• $F_{CURR} = F_{2012\text{-}2014}$ • If F_{CURR}>MFMT, then undergoing overfishing. The higher the number, the greater degree of overfishing. • If SSB<MSST, then overfished. The lower the number, the greater degree of overfished. *See Table 1.6.1 and Table 1.6.2 for stock status values	

Future assessment

During meetings in 2016 and 2017, at the request of the Council, the SSC discussed various aspects of the golden tilefish assessment, including uncertainties that impact productivity estimates, application of the P* technique, reliability of projections from past assessments, and a possible phased-in approach to implement reduced catch levels to minimize socio-economic impacts to fishermen. Two of the primary reasons for the extensive and ongoing reviews are the social and economic consequences of the 62% reduction with the 2017 ABC suggested by the update (55% reduction with the 2018 ABC) and the unusually high buffer (34%) estimated between the ABC and the overfishing limit.

In May 2017, the SEDAR Steering Committee considered a request for a golden tilefish update assessment, which was intended to address the assessment concerns raised by the Council and SSC during their preceding reviews. While an update could not be added to the SEDAR schedule for 2017, the Southeast Fishery Science Center (SEFSC) agreed to revise the 2016 update to incorporate the latest model fitting approach to address bias concerns.

The Council formalized this request at their June 2017 meeting, where they also discussed approaches to adjusting the overfishing risk tolerance for golden tilefish and to address overfishing. The revised assessment will be reviewed by the SSC at its October 2017 meeting, and the Council is scheduled to discuss the results at their December 2017 meeting. The results of the revised assessment will be included in Amendment 45 to the Snapper Grouper FMP (Amendment 45), which is being developed to end overfishing of golden.

Because the majority of the golden tilefish landings are taken between January and early spring in most years, and the ABC recommendations will not be available until late October 2017, there is not sufficient time for the Council to take action to develop and implement Amendment 45 for the 2018 fishing season.

Therefore, the Council requested that NMFS take action to issue interim measures to set the total ACL for 2018 at the projected yield at 75%F_{MSY}, equal to 323,000 lbs gw. The interim measures would be

effective for 180 days after the date of publication and may be extended for an additional 186 days while the Council develops Amendment 45.

More information on the golden tilefish management response can be found in **Appendix C.**

3.2.4 Other Fish Species Affected

Golden tilefish are primarily taken with longline gear over mud habitat. Longline gear is also deployed in mud and rock habitat where snowy grouper (*Epinephelus niveatus*), blueline tilefish (*Caulolatilus microps*), and yellowedge grouper (*Epinephelus flavolimbatus*) could be caught along with golden tilefish. The species most likely to be captured with golden tilefish included yellowedge grouper, warsaw grouper, snowy grouper, silk snapper, and wreckfish. However, many of the overlapping occurrences for these species with golden tilefish were minimal except for yellowedge grouper. See **Appendix H** for more information on bycatch and co-occurring species. A detailed description of the life history of these species is provided in the snapper grouper SAFE report (NMFS 2005) and the Fishery Ecosystem Plan (SAFMC 2009).

3.2.5 Protected Species

There are over 50 species, or distinct population segments (DPSs) of species, protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic region. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act (MMPA) (Wynne and Schwartz 1999, Waring et al. 2013). The MMPA requires that each commercial fishery be classified by the number of marine mammals they seriously injure or kill. NMFS's List of Fisheries (LOF) classifies U.S. commercial fisheries into three categories based on the number of incidental mortality or serious injury they cause to marine mammals. More information about the LOF and the classification process can be found at: http://www.nmfs.noaa.gov/pr/interactions/fisheries/2017_list_of_fisheries_lof.html.

Five of the marine mammal species are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, and North Atlantic right whales (NARWs). In addition to those five marine mammals, six species or DPSs of sea turtles (green North Atlantic and South Atlantic DPSs, hawksbill, Kemp's ridley, leatherback, and the loggerhead Northwest Atlantic DPS); the smalltooth sawfish; five DPSs of Atlantic sturgeon; Nassau grouper, and seven species of coral (elkhorn coral, staghorn coral, rough cactus coral, pillar coral, lobed star coral, mountainous star coral, and boulder coral) are also protected under the ESA and occur within the action area of the snapper grouper fishery. Portions of designated critical habitat for the NARW, the Northwest Atlantic DPS of loggerhead sea turtles, and *Acropora* corals occur within the Council's jurisdiction.

NMFS has conducted several Section 7 consultations under the ESA to evaluate the potential effects from the South Atlantic snapper grouper fishery on ESA-listed species and their designated critical habitat. On December 1, 2016, NMFS completed its most recent biological opinion (2016 Opinion) on the snapper grouper fishery of the South Atlantic region (NMFS 2016). In the 2016 Opinion, NMFS concluded that the snapper grouper fishery's continued authorization is likely to adversely affect but is not likely to jeopardize the continued existence of the NARW, loggerhead sea turtle Northwest Atlantic DPS, leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle North Atlantic DPS, green sea turtle South Atlantic DPS, hawksbill sea turtle, smalltooth sawfish U.S. DPS, or Nassau grouper. NMFS also

concluded that designated critical habitat and other ESA-listed species in the South Atlantic region were not likely to be adversely affected. Summary information on the species that may be adversely affected by the snapper grouper fishery and how they are affected is presented below. The 2016 Opinion provides additional information on these species, how they are affected by the snapper grouper fishery, and the authorized incidental take levels of these species in the snapper grouper fishery (NMFS 2016).

3.2.5.1 North Atlantic Right Whales (NARW)

The NARW, *Eubalaena glacialis* (Rosenbaum et al. 2000), is a large baleen whale. NARWs feed on larger species of zooplankton and almost exclusively on copepods. Feeding takes place subsurface (subsurface feeding) or at the water's surface (surface skim feeding), depending on the vertical distribution of their food species. NARW dive as deep as 306 m (1,003 ft) (Mate et al. 1992).

The coastal waters of the southeastern U.S. are a wintering and the sole known calving area for NARW. NARW generally occur off South and North Carolina from November 1 through April 30 (NMFS 2008d) and have been sighted as far as about 30 nautical miles offshore (Knowlton et al. 2002; Pabst et al. 2009). Sighting records of NARW spotted in the core calving area off Georgia and Florida consist of mostly mother-calf pairs and juveniles but also some adult males and females without calves (Cole et al. 2013; Kraus and Rolland 2007; Parks et al. 2007). Based on preliminary photo-identification analysis of right whale photographs collected in the southeastern U.S., the median number of NARWs (including calves, but excluding reported or assumed calf mortalities) documented in the southeastern U.S. from the 2009-2013 calving seasons is 165 (Right Whale Consortium 2014; K. Jackson, personal communication, July 21, 2016; Waring et al. 2016). Right whale concentrations are highest in the core calving area from November 15 through April 15 (71 FR 36299, June 26, 2006); on rare occasions, right whales have been spotted as early as September and as late as July (Taylor et al. 2010). Most calves are likely born early in the calving season. NARW distribution off Georgia and Florida is restricted to the south and east by the warm waters of the Gulf Stream, which serves as a thermal limit for NARW (Keller et al. 2006). Water temperature, bathymetry, and surface chop are factors in the distribution of calving NARW in the southeastern U.S. (Good 2008; Keller et al. 2012). Systematic surveys conducted off the coast of North Carolina during the winters of 2001 and 2002 sighted eight calves, suggest the calving grounds may extend as far north as Cape Fear. Four of the calves were not sighted by surveys conducted further south. One of the cows photographed was new to researchers, having effectively eluded identification over the period of its maturation (McLellan et al. 2003).

Commercial and recreational fishers in the South Atlantic snapper grouper fishery use hook-and-line gear, spear/powerheads, and pot/traps to target black sea bass, but only pots may adversely affect NARWs (NMFS 2016). The black seas bass pot component of the snapper grouper fishery is the only component of the fishery that may adversely affect NARWs; effects from all the other gear types were discounted in the 2016 Opinion. NMFS estimated that the number of annual lethal takes for NARWs from black sea bass trap/pot gear ranged from an estimated minimum of 0.005 to a maximum of 0.08. This equates to 1 estimated lethal entanglement approximately every 25 to 42 years.

3.2.5.2 ESA-Listed Sea Turtles

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

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

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

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

Leatherbacks are the most pelagic of all ESA-listed sea turtles and spend most of their time in the open ocean. Although they will enter coastal waters and are seen over the continental shelf on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherbacks feed primarily on cnidarians

(medusae, siphonophores) and tunicates. Unlike other sea turtles, leatherbacks' diets do not shift during their life cycles. Because leatherbacks' ability to capture and eat jellyfish is not constrained by size or age, they continue to feed on these species regardless of life stage (Bjorndal 1997). Leatherbacks are the deepest diving of all sea turtles. It is estimated that these species can dive in excess of 1,000 m (Eckert et al. 1989) but more frequently dive to depths of 50 m to 84 m (Eckert et al. 1986). Dive times range from a maximum of 37 minutes to more routines dives of 4 to 14.5 minutes (Standora et al. 1984, Eckert et al. 1986, Eckert et al. 1989, Keinath and Musick 1993). Leatherbacks may spend 74% to 91% of their time submerged (Standora et al. 1984).

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

Sea turtles are vulnerable to capture by bottom longline and vertical hook-and-line gear. Hook-and-line gear used in the fishery includes commercial bottom longline gear and commercial and recreational vertical line gear (e.g., handline, bandit gear, and rod-and-reel). The magnitude of the interactions between sea turtles and the South Atlantic snapper grouper fishery was most recently evaluated in the 2016 Opinion (i.e., NMFS (2016). In **Table 3.2.4** the 3-year estimated captures and mortalities authorized for the fishery in the 2016 Opinion are specified. Section 5.2 of the 2016 Opinion presents a summary of the data sources considered for the sea turtle analyses, estimation methods, and data limitations and assumptions associated with the estimates for each fishery component. Loggerhead sea turtles are the species most affected by the proposed action. The majority of estimated sea turtle captures appear to occur in the recreational vertical lines targeting snapper grouper species due to the large amount of recreation fishing effort. However, it is also important to recognize that the sea turtle capture estimates for the recreational vertical line are also likely the most uncertain.

Table 3.2.4. Estimated 3-year sea turtle (T) and mortalities (M) estimates in the South Atlantic Snapper Grouper Fishery by fishery component and overall.

Fishery Component	Loggerhead		Kemp's ridley		Green		Hawksbill		Leatherback	
	T	M	T	M	T	M	T	M	T	M
Commercial Bottom Longline*	9	5	1	1	1	1	1	1	3	2
Commercial Vertical Line**	62	26	18	8	11	5	1	1	1	1
Recreational Vertical Line ***	546	165	159	48	96	30	2	1	1	1
All Components Combined	617	196	178	57	108	36	5	3	5	4

*Only 10 hardshell sea turtles combined are estimated to be captured every 3 years; only 1 hawksbill, Kemp's ridley or green sea turtle is expected to be captured and killed every 3 years in this component.
**No more than 90 hardshell sea turtles combined are estimated for this component.
***No more than 801 hardshell sea turtle combined are estimated for this component.

Regulations implemented through Amendment 15B to the Snapper Grouper FMP (74 FR 31225; June 30, 2009; SAFMC 2008) require all commercial or charter/headboat vessels with a South Atlantic snapper grouper permit, carrying hook-and-line gear on board, to possess required literature and release gear to aid in the safe release of incidentally caught sea turtles. Comprehensive Ecosystem-Based Amendment 2 modified these requirements (76 FR 82183; December 30, 2011; SAFMC 2011) by requiring different gear for vessels with different freeboard heights, mirroring the requirements in the Gulf of Mexico. These regulations are thought to decrease the mortality associated with accidental interactions with sea turtles.

Snapper grouper vessels transiting to and from fishing areas and moving during fishing activity also pose a potential threat to sea turtles (NMFS 2016). As explained in the 2016 biological opinion, it is very difficult to definitively or even approximately evaluate the potential risk to sea turtles stemming from specific vessel traffic from any action because of the numerous variables (e.g., vessel type, speed, traffic, environmental conditions, sea turtle abundance in area transited) that may impact vessel strike rates. This difficulty is compounded by a general lack of information on vessel use trends, particularly in regard to offshore vessel traffic.

3.2.5.3 ESA-Listed Marine Fish

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

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

Five DPSs of Atlantic sturgeon were listed since the completion of the 2006 Opinion (77 FR 5914, February 6, 2012, and 77 FR 5880, February 6, 2012). In the 2016 Opinion, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect the Atlantic sturgeon.

On June 29, 2016, NMFS published a final rule in the *Federal Register* listing **Nassau grouper** as threatened under the ESA due to a decline in its population (81 FR 42268). The Nassau grouper's confirmed distribution currently includes "Bermuda and Florida (USA), throughout the Bahamas and Caribbean Sea" (e.g., Heemstra and Randall 1993, Hill and Sadovy de Mitcheson, 2013). The Nassau grouper is primarily a shallow-water, insular fish species that has long been valued as a major fishery resource throughout the wider Caribbean, South Florida, Bermuda, and the Bahamas (Carter et al. 1994). As larvae, Nassau grouper are planktonic. After an average of 35-40 days and at an average size of 32 millimeters total length (TL), larvae recruit from an oceanic environment into demersal habitats (Colin 1992, Eggleston 1995). Juvenile Nassau grouper (12-15 centimeters TL) are relatively solitary and remain in specific areas (associated with macroalgae, and both natural and artificial reef structure) for months (Bardach 1958). As juveniles grow, they move progressively to deeper areas and offshore reefs (Tucker et al. 1993, Colin et al. 1997). Smaller juveniles occur in shallower inshore waters (3.7-16.5 meters [m]) and larger juveniles are more common near deeper (18.3-54.9 m) offshore banks (Bardach et al. 1958, Cervigón 1966, Silva Lee 1974, Radakov et al. 1975, Thompson and Munro 1978). Adult Nassau grouper also tend to be relatively sedentary and are commonly associated with high-relief coral reefs or rocky substrate in clear waters to depths of 130 m. Generally, adults are most common at depths less than 100 m (Hill and Sadovy de Mitcheson 2013) except when at spawning aggregations where they are known to descend to depths of 255 m (Starr et al. 2007). Nassau grouper form spawning aggregations at predictable locations around the winter full moons, or between full and new moons (Smith 1971, Colin 1992, Tucker et al. 1993, Aguilar-Perera 1994, Carter et al. 1994, Tucker and Woodward 1994). The most serious threats to the status of Nassau grouper today are fishing at spawning aggregations and inadequate law enforcement protecting spawning aggregations in many foreign nations. There are no known spawning aggregations within the South Atlantic Region.

Of the three basic types of gear used in the South Atlantic snapper grouper fishery by commercial and/or recreational fishers (i.e., hook-and-line gear, spear/powerheads, and black sea bass pots), NMFS believes only snapper grouper hook-and-line gear may adversely affect smalltooth sawfish and Nassau grouper. Interactions with smalltooth sawfish are limited to off Florida; and are quite rare. In the 2016 Opinion, NMFS anticipates only eight smalltooth sawfish interactions every three years in all snapper grouper hook-and-line-gear components combined and they are anticipated to all be non-lethal. Nassau grouper incidental captures appear to be more frequent. Farmer (2016) estimated that over the last 10 years, approximately 1,387 Nassau grouper have been captured annually in the fishery. Based on an estimated 20% mortality rate, Farmer (2016) estimated an annual average expected mortality of approximately 282 fish. Future anticipated captures and mortalities are expected to remain at these same levels.

3.3 Economic Environment

3.3.1 Economic Description of the Commercial Sector

Permits

Any fishing vessel that harvests and sells any of the snapper grouper species from the South Atlantic EEZ must have a valid South Atlantic commercial snapper grouper permit, which is a limited access permit. In addition, any fishing vessel that harvests golden tilefish using longline gear and sells golden tilefish from the South Atlantic EEZ must have a valid golden tilefish longline endorsement. This endorsement is also a form of limited access permit. As of July 25, 2017, there were 544 valid or renewable South Atlantic Snapper Grouper Unlimited Permits and 114 valid or renewable 225-Pound Trip-limited Permits. After a permit expires, it can be renewed or transferred up to one year after the date of expiration. The number of valid or renewable snapper grouper permits declined steadily from 2012 through 2016, partly due to the requirement that two permits are required when purchasing one permit. The total number of golden tilefish longline endorsements has remained at 22. Florida is the dominant state in both permits and endorsements in the South Atlantic region (**Table 3.3.1**).

Table 3.3.1. South Atlantic Snapper Grouper Permits and Golden Tilefish Longline Endorsements, 2012-2016.

	FL	GA	SC	NC	OTHERS	TOTAL
Unlimited Snapper Grouper Permits						
2012	416	6	53	117	12	604
2013	416	6	50	112	8	592
2014	409	6	51	112	6	584
2015	399	7	50	108	7	571
2016	391	8	51	107	8	565
Average	406	7	51	111	8	583
225-Pound Trip Limited Snapper Grouper Permits						
2012	119		2	9	2	132
2013	117		2	8	2	129
2014	113		2	8	2	125
2015	109		2	8	2	121
2016	105		1	8	2	116
Average	113		2	8	2	125
Golden Tilefish Longline Endorsements*						
2013	18		4			22
2014	18		4			22
2015	18		4			22
2016	17		4	1		22

Source: NMFS Southeast Regional Office (SERO) Permits Dataset, 2017.
*Golden tilefish longline endorsement system started in 2013.

Vessel Activity

Table 3.3.2 and **Table 3.3.3** contain information on vessel performance for commercial vessels that harvested golden tilefish in the South Atlantic in 2012-2016 using longline gear and **Table 3.3.4** and

Table 3.3.5 provide similar information for vessels that landed golden tilefish using other gear, primarily hook-and-line. The tables contain vessel counts from the NMFS SEFSC logbook data (vessel count, trips, and landings). Dockside values were generated using landings information from logbook data and price information from the NMFS SEFSC Accumulated Landings System (ALS) data. The data in **Tables 3.3.2 - 3.3.5** cover all vessels that harvested golden tilefish anywhere in the South Atlantic, regardless of trip length or species target intent.

Landings shown in **Tables 3.3.2-3.3.5** are based on logbook information for landings and NMFS ALS for prices (SEFSC-SSRG Economic Panel Data). Thus, these landings would not exactly match with golden tilefish landings shown in **Tables 4.1.2**, which are based on SEFSC ACL database. Federally permitted vessels required to submit logbooks generally report their harvest of most species regardless of whether the fish were caught in state or federal waters.

From 2012 through 2016, an average of 23 longline vessels per year landed golden tilefish in the South Atlantic (**Table 3.3.2**). The golden tilefish longline endorsement system started only in 2013. These vessels, combined, averaged 255 trips per year in the South Atlantic on which golden tilefish were landed and 182 other trips (**Table 3.3.2**). The average annual total dockside revenue (2016 dollars) for these vessels combined was approximately $1.56 million from golden tilefish, approximately $0.10 million from other species co-harvested with golden tilefish (on the same trips), and approximately $0.43 million from other trips by these vessels on trips in the South Atlantic on which no golden tilefish were harvested or occurred in other areas (**Table 3.3.3**). Total average annual revenue from all species harvested by longline vessels harvesting golden tilefish in the South Atlantic was approximately $2.10 million, or approximately $92,000 per vessel (**Table 3.3.3**). Longline vessels generated approximately 74 percent of their total revenues from golden tilefish.

Table 3.3.2. Summary of vessel counts, trips, and logbook landings (pounds gutted weight (lbs gw)) for vessels landing at least one pound of golden tilefish using **longlines**, 2012-2016.

Year	Number of Vessels	Number of South Atlantic Trips that Caught Golden Tilefish	Golden Tilefish Landings (lbs gw)	"Other Species" Landings Jointly Caught with Golden Tilefish (lbs gw)	Number of Other Trips*	Landings on Other Trips (lbs gw)
2012	28	410	440,553	10,732	154	10,732
2013	23	279	476,908	71,264	195	71,264
2014	22	231	534,156	23,443	248	23,443
2015	20	145	361,237	30,661	177	30,661
2016	23	209	397,437	40,985	136	40,985
Average	23	255	442,058	35,417	182	35,417

Source: SEFSC-SSRG Socioeconomic Panel v.4 July 2017.
*Includes South Atlantic trips on which golden tilefish were not harvested as well as trips in other areas regardless of what species were harvested, including golden tilefish.

Table 3.3.3. Summary of vessel counts and revenue (2016 dollars) for vessels landing at least one pound of golden tilefish using **longlines**, 2012-2016.

Year	Number of Vessels	Dockside Revenue from Golden Tilefish	Dockside Revenue from "Other Species" Jointly Caught with Golden Tilefish	Dockside Revenue on Other Trips	Total Dockside Revenue	Average Total Dockside Revenue per Vessel
2012	28	$1,402,426	$25,961	$312,494	$1,740,881	$62,174
2013	23	$1,565,698	$195,085	$365,763	$2,126,546	$92,459
2014	22	$1,725,400	$73,918	$682,921	$2,482,239	$112,829
2015	20	$1,417,835	$106,667	$627,046	$2,151,548	$107,577
2016	23	$1,701,642	$147,830	$172,315	$2,021,787	$87,904
Average	23	$1,562,600	$109,892	$432,108	$2,104,600	$92,589

Source: SEFSC-SSRG Socioeconomic Panel v.4 July 2017.

An average of 82 vessels per year landed golden tilefish using other gear types in the South Atlantic (**Table 3.3.4**). These vessels, combined, averaged 483 trips per year in the South Atlantic on which golden tilefish were landed and 2,862 trips taken in the South Atlantic on which golden tilefish were not harvested or in other areas (**Table 3.3.4**). The average annual total dockside revenue (2016 dollars) for these 82 vessels was approximately $0.36 million from golden tilefish, approximately $0.66 million from other species co-harvested with golden tilefish (on the same trips in the South Atlantic), and approximately $4.13 million from the other trips taken by these vessels (**Table 3.3.5**). The total average annual revenue from all species harvested by these 82 vessels was approximately $5.16 million, or approximately $62,000 per vessel (**Table 3.3.5**). Approximately 7 percent of these vessels' total revenues came from golden tilefish.

Table 3.3.4. Summary of vessel counts, trips, and logbook landings (pounds gutted weight (lbs gw)) or vessels landing at least one pound of golden tilefish using **other gears**, 2012-2016.

Year	Number of Vessels	Number of South Atlantic Trips that Caught Golden Tilefish	Golden Tilefish Landings (lbs gw)	"Other Species" Landings Jointly Caught with Golden Tilefish (lbs gw)	Number of Other Trips*	Landings on Other Trips (lbs gw)
2012	53	277	50,715	39,483	2,357	1,143,181
2013	60	249	38,579	76,220	2,350	1,086,488
2014	92	574	123,323	264,876	3,178	1,574,656
2015	106	721	126,014	323,159	3,098	1,720,532
2016	97	596	117,810	332,683	3,326	1,758,565
Average	82	483	91,288	207,284	2,862	1,456,684

Source: SEFSC-SSRG Socioeconomic Panel v.4 July 2017.
*Includes South Atlantic trips on which golden tilefish were not harvested as well as trips in other areas regardless of what species were harvested, including golden tilefish.

Table 3.3.5. Summary of vessel counts and revenue (2016 dollars) for vessels landing at least one pound of golden tilefish using **other gears**, 2012-2016.

Year	Number of Vessels	Dockside Revenue from Golden Tilefish	Dockside Revenue from "Other Species" Jointly Caught with Golden Tilefish	Dockside Revenue on Other Trips	Total Dockside Revenue	Average Total Dockside Revenue per Vessel
2012	53	$179,148	$92,235	$2,548,417	$2,819,800	$53,204
2013	60	$136,950	$207,538	$3,148,956	$3,493,444	$58,224
2014	92	$470,279	$807,280	$5,321,174	$6,598,733	$71,725
2015	106	$515,490	$1,066,187	$4,409,540	$5,991,217	$56,521
2016	97	$536,710	$1,139,089	$5,243,463	$6,919,262	$71,333
Average	82	$367,715	$662,466	$4,134,310	$5,164,491	$62,201

Source: SEFSC-SSRG Socioeconomic Panel v.4 July 2017.

Ex-vessel Prices

The dockside or ex-vessel price is the price the vessel receives at the first sale of harvest. Over the period 2012-2016, the average annual ex-vessel price per pound for golden tilefish harvested by longline vessels in the South Atlantic was $3.53 (2016 dollars), and ranged from $3.18 in 2012 to $4.28 in 2016. For vessels using other gear types in harvesting golden tilefish, the average price per pound was $4.03 and ranged from $3.53 in 2012 to $4.56 in 2016.

Commercial Sector Business Activity

Estimates of the business activity (economic impacts) in the U.S. associated with the South Atlantic golden tilefish commercial harvests were derived using the model developed for and applied in NMFS (2015) and are provided in **Table 3.3.6.** Business activity for the commercial sector is characterized in the form of full-time equivalent jobs, output (sales) impacts (gross business sales), income impacts (wages, salaries, and self-employed income), and value added impacts (difference between the sales price of a good and the cost of the goods and services needed to produce it). Income impacts should not be added to output (sales) impacts because this would result in double counting. The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors).

Table 3.3.6. Average annual business activity (thousand 2016 dollars) associated with the harvests of vessels that harvested golden tilefish in the South Atlantic, 2012-2016.

Species	Average Annual Dockside Revenue	Jobs	Output (Sales) Impacts	Income Impacts	Value Added Impacts
Golden Tilefish	$1,930	258	$19,143	$7,030	$9,932
All species*	$7,661	1,023	$75,977	$27,901	$39,421

*Includes dockside revenues and economic activity associated with the average annual harvest of all species, including golden tilefish, harvested by vessels that harvested golden tilefish in the South Atlantic.
Source: Revenue data from SEFSC-SSRG Socioeconomic Panel v.4 July 2017; economic impact results calculated by NMFS SERO using the model developed for NMFS (2015).

In addition to the business activities generated by commercial vessel landings of golden tilefish, business activities associated with commercial vessel landings of all other species landed by commercial vessels are also presented in the tables above. Vessels that harvested golden tilefish also harvested other species on trips where golden tilefish were harvested, and some took other trips in other areas on which no golden tilefish were harvested, as well as trips in areas outside the South Atlantic. All revenues from all species harvested on all of these trips contributed towards making these vessels economically viable and contribute to the economic activity associated with these vessels.

Dealers

Commercial vessels landing golden tilefish can only sell their catch to seafood dealers with valid Gulf and South Atlantic Dealer (GSAD) permit. On July 25, 2017, there were 432 dealers with a valid GSAD

permit. There are no income or sales requirements to acquire a GSAD permit. As a result, the total number of dealers can vary over the course of the year and from year to year.

Imports

Information on the imports of all snapper and grouper species, either fresh or frozen, are available at: http://www.st.nmfs.noaa.gov/st1/trade/cumulative_data/TradeDataProduct.html. Information on the imports of individual snapper or grouper species, including golden tilefish, is not available. In 2016, imports of all snapper and grouper species (fresh and frozen) were approximately 57.20 million pounds valued at approximately $176.86 million.

3.3.2 Economic Description of the Recreational Sector

Landings

Recreational landings of golden tilefish are shown in **Table 4.1.3.** In summary from 2012 through 2016, recreational anglers landed an average of 5,146 fish with a range of 1,357 fish in 2014 to 13,011 fish in 2016. On average, private/rental mode anglers (2,749 fish) landed slightly more fish than charter anglers (2,294 fish). Headboat landings of golden tilefish were relatively small (104 fish).

Angler Effort

Recreational effort derived from the Marine Recreational Information Program (MRIP) database can be characterized in terms of the number of trips as follows:

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

Other measures of effort are possible, such as directed trips (the number of individual angler trips that either targeted or caught a particular species). Estimates of the number of golden tilefish target trips and catch trips for the charter and private or rental boat modes in the South Atlantic for 2012-2016 are provided in **Table 3.3.7**. The shore mode shows no recorded target or catch trips. Only Florida and North Carolina recorded target and catch trips for golden tilefish. In addition, both target and catch trips for golden tilefish are generally sparse, so only the averages for 2012-2016 are shown. Averages are calculated only for positive trip records. Over the period examined, golden tilefish were targeted only by anglers with private or rental boats with an average of 2,732 trips per year (**Table 3.3.7**). Catch effort averaged 1,899 trips and 2,440 trips for the charter, and private or rental modes, respectively. Florida was the dominant state for both target and catch trips.

Table 3.3.7. Average number of golden tilefish recreational target and catch trips, by mode, by state, 2012-2016*.

	Charter Mode	Private/Rental Mode	All Modes
Target Trips			
Florida	nr	2,388	2,388
North Carolina	nr	344	344
Total		2,732	2,732
Catch Trips			
Florida	1,726	2,268	3,994
North Carolina	173	172	345
Total	1,899	2,440	4,339

* "nr" = none recorded. Averages based on positive entries; "nr" entries are not assumed equivalent to "0" trips; no recorded target or catch trips in Georgia and South Carolina; no recorded target or catch trips for the shore mode for all states.
Source: MRIP database, NMFS, SERO.

Similar analysis of recreational effort is not possible for the headboat mode because headboat data are not collected at the angler level. Estimates of effort by the headboat mode are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. The stationary "fishing for demersal (bottom-dwelling) species" nature of headboat fishing, as opposed to trolling, suggests that most, if not all, headboat trips and, hence, angler days, are demersal or reef fish trips by intent. Estimates of headboat effort (angler days) are provided in **Table 3.3.8.** Headboat data is collected by the NMFS Southeast Region Headboat Survey (SRHS).

Table 3.3.8. Headboat angler days and percent distribution, by state, 2011-2015.

	Angler Days			Percent Distribution		
	Florida/Georgia	North Carolina	South Carolina	Florida/Georgia	North Carolina	South Carolina
2012	123,662	20,766	41,003	69.30%	10.30%	20.40%
2013	124,041	20,547	40,963	72.90%	9.00%	18.00%
2014	139,623	22,691	42,025	75.20%	8.70%	16.10%
2015	194,979	22,716	39,702	75.75%	8.83%	15.42%
2016	196,660	21,565	42207	75.51%	8.28%	16.21%
Average	155,793	21,657	41,180	71.26%	9.91%	18.84%

Source: NMFS Southeast Region Headboat Survey (SRHS).

Permits

The for-hire sector is comprised of charter vessels and headboats (party boats). Although charter vessels tend to be smaller, on average, than headboats, the key distinction between the two types of operations is how the fee is determined. On a charter boat trip, the fee charged is for the entire vessel,

regardless of how many passengers are carried, whereas the fee charged for a headboat trip is paid per individual angler.

A federal charter/headboat (for-hire) vessel permit is required for fishing in federal waters for South Atlantic snapper grouper. On July 26, 2017, there were 1,695 vessels with a valid (non-expired) or renewable South Atlantic for-hire permits. A renewable permit is an expired limited access permit that may not be actively fished, but is renewable for up to one year after expiration. The South Atlantic snapper grouper for-hire permits are open access permits. Most for-hire vessels possess more than one for-hire permit. The number of for-hire vessel permits fluctuated from a low of 1,727 in 2014 to 1,867 in 2016, averaging 1,794 for the years 2012-2016 **(Table 3.3.9**). Florida accounted for more permits than any other states, with North Carolina also registering a fair number of for-hire vessel permits.

Table 3.3.9. South Atlantic for-hire vessel permits, by homeport state, 2012-2016.

	Florida	Georgia	South Car.	North Car.	Others	Total
2012	1,121	26	138	313	199	1,797
2013	1,120	30	150	308	191	1,799
2014	1,062	34	160	294	177	1,727
2015	1,071	45	188	308	167	1,779
2016	1,100	53	212	331	171	1,867
Average	1,095	38	170	311	181	1,794

Source: NMFS SERO Permits Dataset, 2017.

Although the for-hire permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a headboat or a charter vessel and vessels may operate in both capacities. However, if a vessel meets certain selection criteria used by the SRHS and is selected to report by the Science Research Director of the Southeast Fisheries Science Center, it is determined to operate primarily as a headboat and is required to submit harvest and effort information to the SRHS. As of February 2017, 63 South Atlantic headboats were registered in the SRHS (K. Fitzpatrick, NMFS SEFSC, pers. comm.).

There are no specific federal permitting requirements for recreational anglers to fish for or harvest reef fish. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions. For the for-hire sector, customers are authorized to fish under the charter or headboat vessel license and are not required to hold their own fishing licenses. As a result, it is not possible to identify with available data how many individual anglers would be expected to be affected by this amendment.

Economic Value

Economic value can be measured in the form of consumer surplus (CS) per additional fish kept on a trip for anglers (the amount of money that an angler would be willing to pay for a fish in excess of the cost to harvest the fish). The CS value per fish for golden tilefish is unknown but some proxies, such as the CS for snapper and the CS for grouper, may be used. The estimated value of the CS per fish for a second snapper kept on a trip is approximately $12.25, with bounds of $8.17 and $17.69 at the 95 percent confidence interval (Haab et al. 2012; values updated to 2016 dollars using GDP implicit price index), and

that for grouper is approximately $133.37, with bounds of $119.76 and $149.71 at the 95 percent confidence interval.

Economic value for for-hire vessels can be measured by producer surplus (PS) per passenger trip (the amount of money that a vessel owner earns in excess of the cost of providing the trip). Estimates of the PS per for-hire passenger trip are not available. Instead, net operating revenue (NOR), which is the return used to pay all labor wages, returns to capital, and owner profits, is used as a proxy for PS. For the South Atlantic region, estimated NOR values are $165 (2016 dollars using GDP implicit price index) per charter angler trip and $45 per headboat angler trip (C. Liese, NMFS SEFSC, pers. comm.). Estimates of NOR per golden tilefish target trip are not available.

Business Activity

Recreational fishing generates economic activity as consumers spend their income on various goods and services needed for recreational fishing. This spurs economic activity in the region where recreational fishing occurs. It should be clearly noted that, in the absence of the opportunity to fish, the income would presumably be spent on other goods and services and these expenditures would similarly generate economic activity in the region where the expenditure occurs. As such, the analysis below represents a distributional analysis only.

Estimates of the business activity (economic impacts) associated with recreational angling for golden tilefish were derived using average impact coefficients for recreational angling for all species, as derived from an add-on survey to the Marine Recreational Fisheries Statistics Survey (MRFSS) to collect economic expenditure information, as described and utilized in NMFS (2015). Estimates of the average expenditures by recreational anglers are also provided in NMFS (2015) and are incorporated herein by reference.

Recreational fishing generates business activity (economic impacts). Business activity for the recreational sector is characterized in the form of full-time equivalent jobs, output (sales) impacts (gross business sales), income impacts, and value-added impacts (difference between the value of goods and the cost of materials or supplies). Estimates of the average golden tilefish target effort (2012-2016) and associated business activity (2016 dollars) are provided in **Table 3.3.10.** Because golden tilefish directed effort during this time period was only recorded in Florida and North Carolina (**see Table 3.3.7**), estimates of business activity for the other South Atlantic states are not provided. Because of relatively few reported target trips for golden tilefish, the associated economic activities are relatively small.

Estimates of the business activity associated with headboat effort are not available. Headboat vessels are not covered in the MRFSS/MRIP so, in addition to the absence of estimates of target effort, estimation of the appropriate business activity coefficients for headboat effort has not been conducted.

Table 3.3.10. Summary of golden tilefish target trips (2012-2016 average) and associated business activity (thousand 2016 dollars). Output, value added, and income impacts are not additive.

State	Target Trips	Jobs	Output (Sales) Impacts	Income Impacts	Value Added Impacts
Florida	2,388	1	$84	$28	$49
North Carolina	344	0	$23	$8	$13

Source: Effort data from the MRIP; economic impact results calculated by NMFS SERO using the model developed for NMFS (2015).

3.4 Social Environment

This interim measure affects commercial and recreational management of golden tilefish. This section provides the background for the proposed actions, which is evaluated in **Chapter 4**. Commercial and recreational landings and permits by state are included to provide information on the geographic distribution of fishing involvement. Descriptions of the top communities involved in commercial golden tilefish are included along with the top recreational fishing communities based on recreational engagement. Community level data are presented in order to meet the requirements of National Standard 8 of the Magnuson-Stevens Act, which requires the consideration of the importance of fishery resources to human communities when changes to fishing regulations are considered. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns. Additional information on the South Atlantic recreational and commercial golden tilefish fishery is provided in the Economic Environment in **Section 3.3**.

3.4.1 Landings by State

Commercial

The majority of commercial golden tilefish landings come from waters adjacent to Florida and Georgia (80.9% on average for years 2002-2016, SEFSC ACL dataset), followed by South Carolina and North Carolina (average of approximately 19%). Data for Florida are combined with Georgia in order to maintain confidentiality, but the majority; if not all of the landings reported for the combined category occurred in Florida. Data for South Carolina and North Carolina are combined in order to maintain confidentiality and the majority of the landings reported for the combined category occurred in South Carolina. Within the commercial sector, the greatest proportion of landings are from longline fishermen (82% on average for years 2002-2016, SEFSC ACL dataset), followed by hook-and-line (18% on average). From 2002 to 2016, commercial landings ranged from 218,124 lbs gw to 686,296 lbs gw (SEFSC ACL dataset).

Recreational

The distribution of recreational golden tilefish landings by state has varied over time and the majority of landings come from waters adjacent to Florida and Georgia in the more recent past (range of 83.3% to 100% from 2009-2016, SEFSC ACL dataset); whereas the majority of landings come from waters adjacent to North Carolina in the more distant past (range of 56% to 100% from 2002-2007, SEFSC ACL dataset). Data for Florida are combined with Georgia in order to maintain confidentiality, but the majority of the landings reported for the combined category occurred in Florida waters. Within the recreational sector, the distribution of landings has varied over time with the greatest proportion of landings from charter vessels (range of 19% to 86% from 2013 to 2016, SEFSC ACL dataset) or private anglers (range of 10% to 67%), followed by headboats (average of 5%). From 2002 to 2016, recreational landings ranged from zero fish to 70,304 fish (SEFSC ACL dataset).

3.4.2 Permits by State

Commercial

South Atlantic golden tilefish endorsements, unlimited snapper grouper permits, and 225-pound trip limit snapper grouper permits are issued to individuals residing in the South Atlantic and in other states and provinces (**Table 3.4.1**). Golden tilefish endorsements, which is a commercial endorsement attached to an unlimited snapper grouper permit, are issued to individuals residing in Florida (approximately 77%, **Table 3.4.1**), followed by South Carolina (18%) and North Carolina (4.5%). The largest number of commercial unlimited snapper grouper permits are issued to individuals residing in Florida (approximately 67%), followed by North Carolina (19%), South Carolina (9%), and Georgia (approximately 1%). Individuals in other states and provinces (Illinois, Louisiana, Michigan, Minnesota, New Jersey, New York, Ohio, Ontario, Oregon, Texas, and Virginia) also hold commercial unlimited snapper grouper permits, but these states represent a smaller percentage of the total number of issued permits. The largest number of commercial 225-pound trip limited snapper grouper permits are issued to individuals residing in Florida (86%), followed by North Carolina (9%) and South Carolina (2%). Individuals in other states (New Jersey, Texas, and Virginia) also hold commercial 225-pound trip limited snapper grouper permits, but these states represent a smaller percentage of the total number of issued permits. Endorsement and permit numbers vary from those reported in Section 3.3.1 because of the date accessed.

Table 3.4.1. Number of South Atlantic golden tilefish endorsements, unlimited snapper grouper permits, and 225 pound trip limit snapper grouper permits by state.

State	Golden Tilefish Endorsement (GTFE)	Unlimited Snapper Grouper (SG1)	225-lb Trip Limit Snapper Grouper (SG2)
NC	1	102	10
SC	4	47	2
GA	0	8	0
FL	17	362	98
Other States	0	24	4
Total	**22**	**543**	**114**

Source: SERO permit office, July 20, 2017.

Recreational

South Atlantic charter/headboat for snapper grouper permits are issued to individuals residing in the South Atlantic and in other states (**Table 3.4.2**). The largest number of charter/headboat for snapper grouper permits are issued to individuals residing in Florida (approximately 58%), followed by North Carolina (19%), South Carolina (10%), and Georgia (4%). Individuals in other states (Alabama, Delaware, Iowa, Illinois, Louisiana, Massachusetts, Maryland, Maine, Missouri, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, Tennessee, Texas, Virginia, and Wisconsin) also hold charter/headboat for snapper grouper permits, but these states represent a smaller percentage of the total number of issued permits. Permit numbers vary from those reported in Section 3.3.2 because of the date accessed.

Table 3.4.2. Number of South Atlantic charter/headboat for snapper grouper permits by state.

State	Charter/Headboat for Snapper-Grouper (SC)
NC	313
SC	172
GA	63
FL	975
Other States	163
Total	**1,686**

Source: SERO permit office, July 20, 2017.

3.4.3 Fishing Communities

The descriptions of South Atlantic communities include information about the top communities based on a "regional quotient" (RQ) of commercial landings and value for golden tilefish. The RQ is the proportion of landings and value out of the total landings and value of that species for that region, and is a relative measure. These communities would be most likely to experience the effects of the proposed actions that could change the tilefish fishery and impact participants, associated businesses, and communities within the region. If a community is identified as a golden tilefish community based on the RQ, this does not necessarily mean that the community would experience significant impacts due to changes in the fishery if a different species or number of species was also important to the local community and economy. Additional detailed information about communities with the highest RQs can be found for South Atlantic communities on the Southeast Regional Office's Community Snapshots website at http://sero.nmfs.noaa.gov/sustainable_fisheries/social/community_snapshot/.

In addition to examining the RQs to understand how communities are engaged and reliant on fishing, indices were created using secondary data from permit and landings information for the commercial sector (Jepson and Colburn 2013, Jacob et al. 2013). Fishing engagement is primarily the absolute numbers of permits, landings, and value for all species. For commercial fishing, the analysis used the number of vessels designated commercial by homeport and owner address, value of landings, and total number of commercial permits for each community for all species. Fishing reliance includes the same

variables as fishing engagement divided by population to give an indication of the per capita influence of this activity. Fishing engagement and reliance data rely on fishing data up to the year 2014 and population data from the U.S. Census American Community Survey (ACS) 2010 through 2014 five-year estimates.

Using a principal component and single solution factor analysis, each community receives a factor score for each index to compare to other communities. Factor scores of both engagement and reliance were plotted for the communities with the highest RQs. Two thresholds of one and one-half standard deviation above the mean are plotted to help determine a threshold for significance. The factor scores are standardized; therefore, a score above a value of 1 is also above one standard deviation. A score above one-half standard deviation is considered engaged or reliant with anything above one standard deviation to be very engaged or reliant.

The reliance index uses factor scores that are normalized. The factor score is similar to a z-score in that the mean is always zero, positive scores are above the mean, and negative scores are below the mean. Comparisons between scores are relative; however, like a z-score, the factor score puts the community on a point in the distribution. Objectively, that community will have a score related to the percent of communities with similar attributes. For example, a score of 2.0 means the community is two standard deviations above the mean and is among the 2.27% most vulnerable places in the study (normal distribution curve). Reliance score comparisons between communities are relative; however, if the community scores greater than two standard deviations above the mean, this indicates that the community is dependent on fishing. Examining the component variables on the reliance index and how they are weighted by factor score provides a measurement of commercial reliance. The reliance index provides a way to gauge change over time in these communities and also provides a comparison of one community with another.

Landings for the recreational sector are not available by species at the community level; therefore, it is not possible with available information to identify communities as dependent on recreational fishing for golden tilefish. Because limited data are available concerning how recreational fishing communities are engaged and reliant on specific species, indices were created using secondary data from permit and infrastructure information for the southeast recreational fishing sector at the community level (Jepson and Colburn 2013, Jacob et al. 2013). Recreational fishing engagement is represented by the number of recreational permits and vessels designated as "recreational" by homeport and owners address. Fishing reliance includes the same variables as fishing engagement, divided by population. Factor scores of both engagement and reliance were plotted. Figure 3.4.3 identifies the top communities that are engaged and reliant upon recreational fishing in general.

Commercial Fishing Communities

The majority of top golden tilefish communities are located in Florida; however a few top communities are also located in South Carolina and North Carolina (**Figure 3.4.1**). The top communities collectively represent about 94% of South Atlantic golden tilefish landings and 93% of ex-vessel value. About 44% of golden tilefish is landed in the top two communities (Port Orange, Florida and Little River, South Carolina), representing about 44% of the South Atlantic-wide ex-vessel value for the species. The next top three communities (Titusville, Palm Beach Gardens, and Cocoa, Florida) collectively represent about 33% of South Atlantic golden tilefish landings and 31% of ex-vessel value.

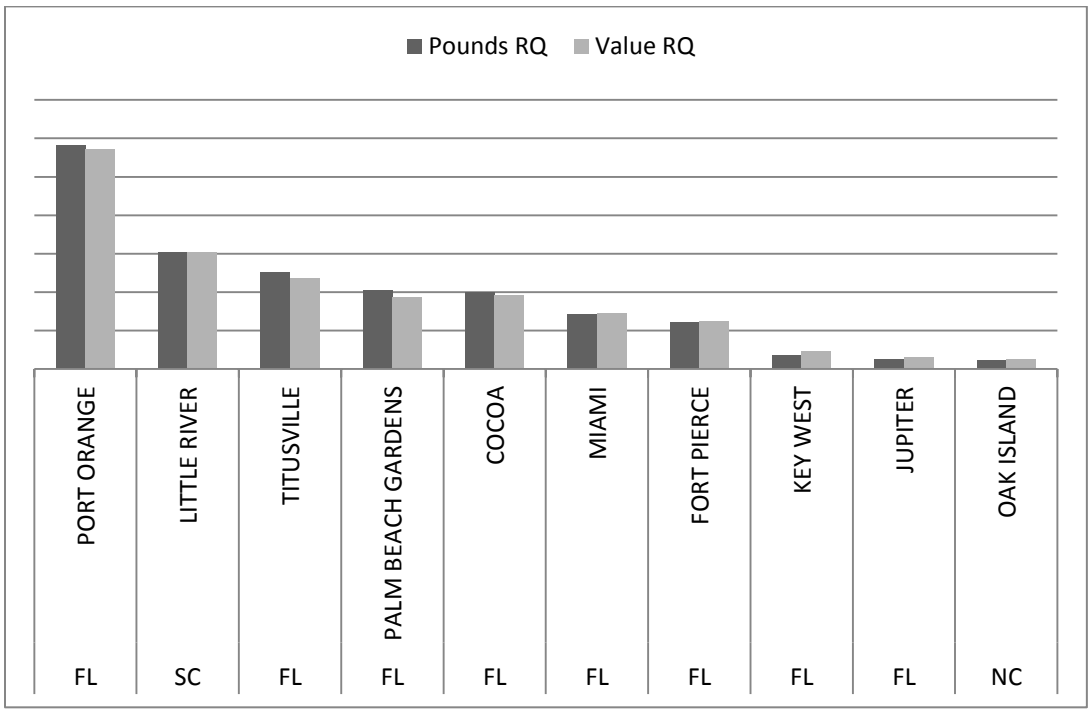


Figure 3.4.1. Top South Atlantic communities ranked by pounds and value regional of quotient (RQ) of golden tilefish. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2014.

The commercial engagement and reliance indices of the top commercial golden tilefish communities are included in **Figure 3.4.2**. The details of how these indices are generated are explained at the beginning of the Fishing Communities section. Two thresholds of one and one-half standard deviation above the mean were plotted to help determine a threshold for significance. The primary communities that demonstrate high levels of commercial fishing engagement are Little River, South Carolina and Palm Beach Gardens, Miami, Fort Pierce, Key West, and Jupiter, Florida. The community with greatest commercial reliance is Key West, Florida.

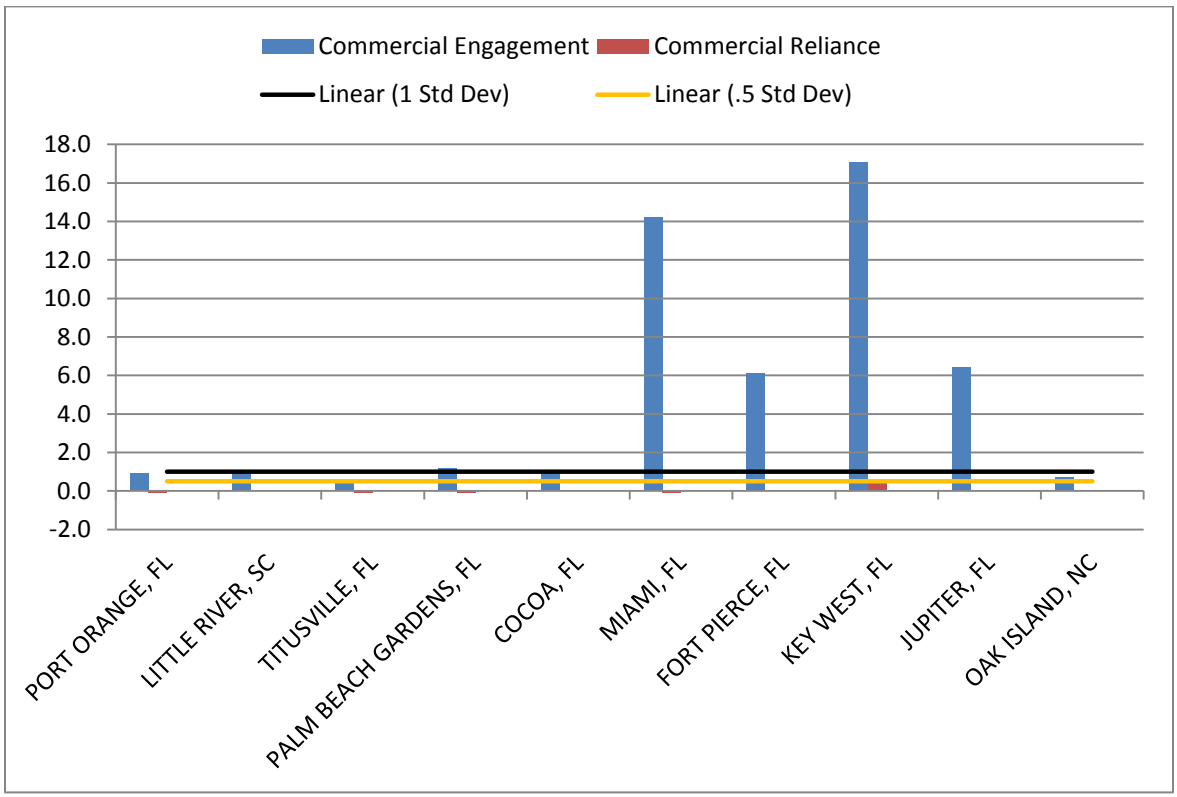


Figure 3.4.2. Commercial engagement and reliance for South Atlantic golden tilefish fishing communities. Source: SERO, Community Social Vulnerability Indicators Database 2014 (ACS 2010-2014).

Recreational Fishing Communities

Figure 3.4.3 identifies the top 20 recreational communities located in the South Atlantic that are the most engaged and reliant on recreational fishing, in general. All included communities demonstrate high levels of recreational engagement. Six communities (Key West, Florida; Marathon, Florida; Islamorada, Florida; Hatteras, North Carolina; Manteo, North Carolina; and Atlantic Beach, North Carolina) demonstrate high levels of recreational reliance.

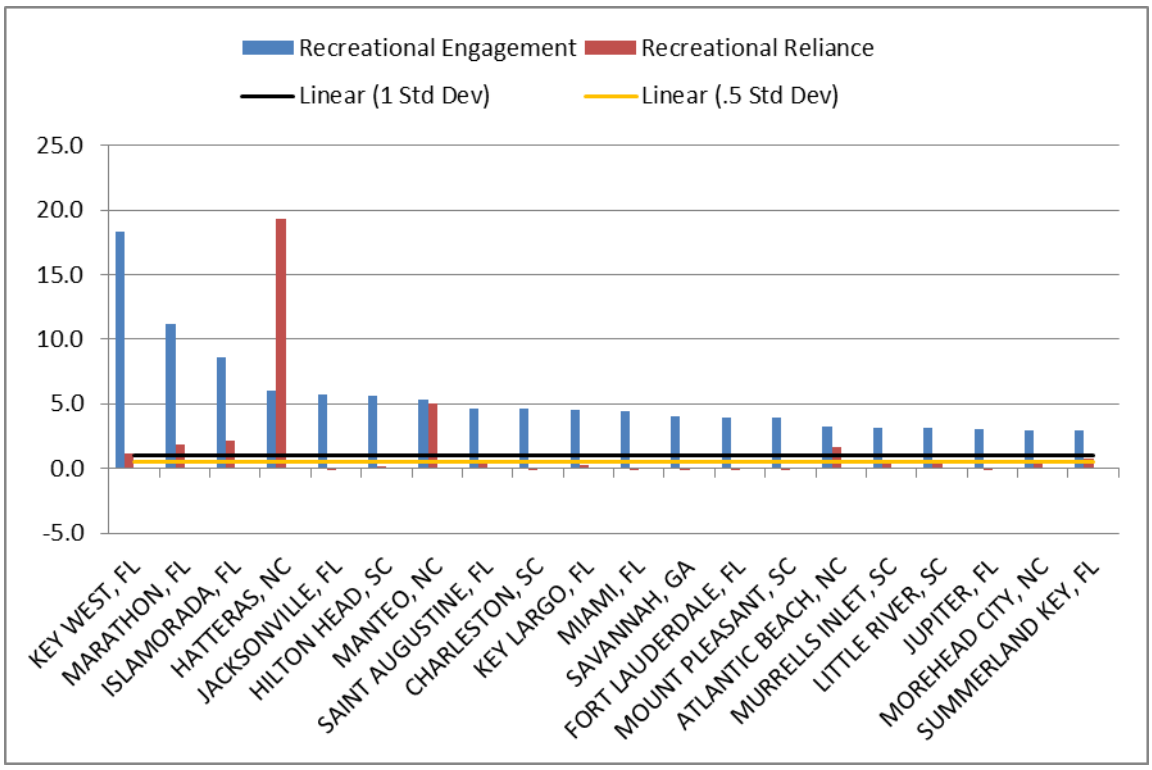


Figure 3.4.3. Top recreational fishing communities' engagement and reliance.
Source: SERO, Community Social Vulnerability Indicators Database 2014 (ACS 2010-2014).

3.4.4 Environmental Justice Considerations

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 U.S. and its territories…" This executive order is generally referred to as environmental justice (EJ).

Commercial and recreational fishermen and associated industries could be impacted by the proposed actions. However, information on the race and income status for groups at the different participation levels (individual fishermen and crew) is not available. Although information is available concerning communities overall status with regard to minorities and poverty (e.g., census data), such information is not available specific to fishermen and those involved in the industries and activities, themselves. To help assess whether any environmental justice concerns arise from the actions in this interim measure, a suite of indices were created to examine the social vulnerability of coastal communities. These indices rely on data from the U.S. Census ACS 2010 through 2014 five-year estimates. 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 five, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

Figure 3.4.4 and **Figure 3.4.5** provide the social vulnerability of the top commercial and recreational communities. Several South Atlantic communities exceed the threshold of 0.5 standard deviation for at least one of the social vulnerability indices: Cocoa, Miami, Fort Pierce, Marathon, St. Augustine, and Fort Lauderdale, Florida; Savannah, Georgia; and Manteo and Morehead City, North Carolina. The communities of Cocoa, Florida; Miami, Florida; Fort Pierce, Florida; and Savannah, Georgia exceed the threshold for all three social vulnerability indices. These communities have substantial vulnerabilities and may be susceptible to further effects from any regulatory changes depending upon the direction and extent of that change.

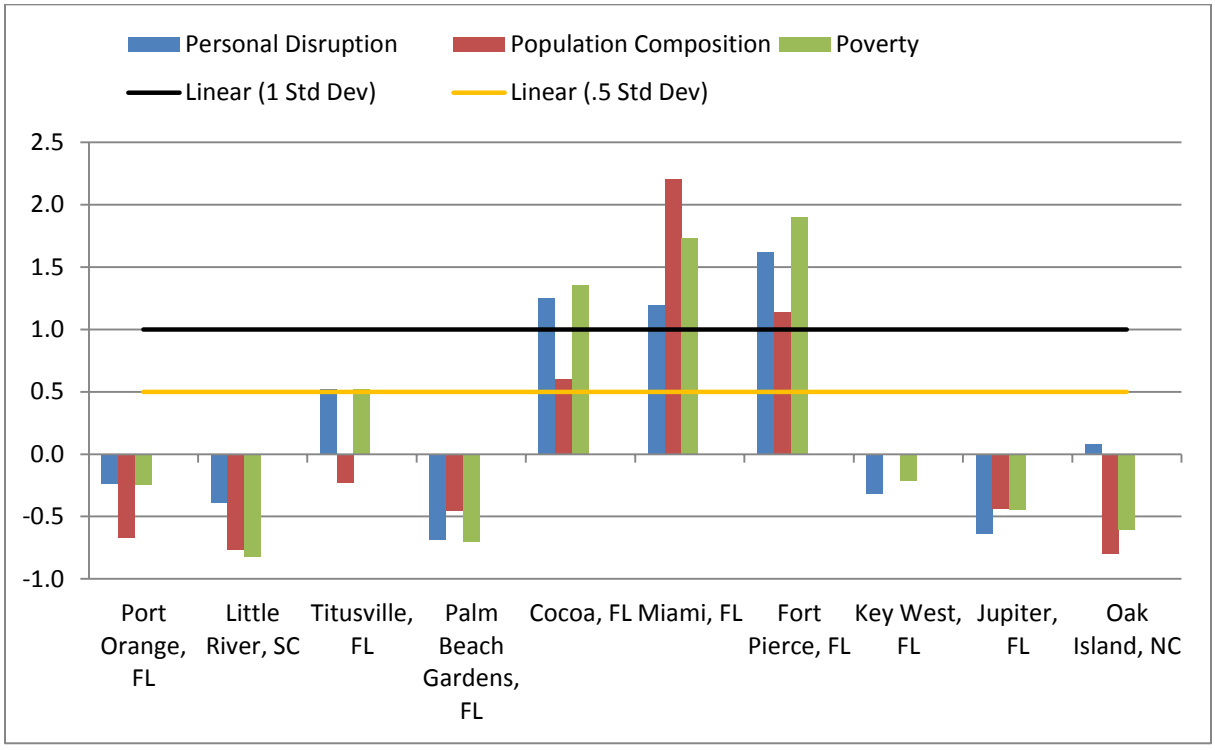


Figure 3.4.4. Social vulnerability indices for top commercial communities.
Source: SERO, Community Social Vulnerability Indicators Database 2014 (ACS 2010-2014).

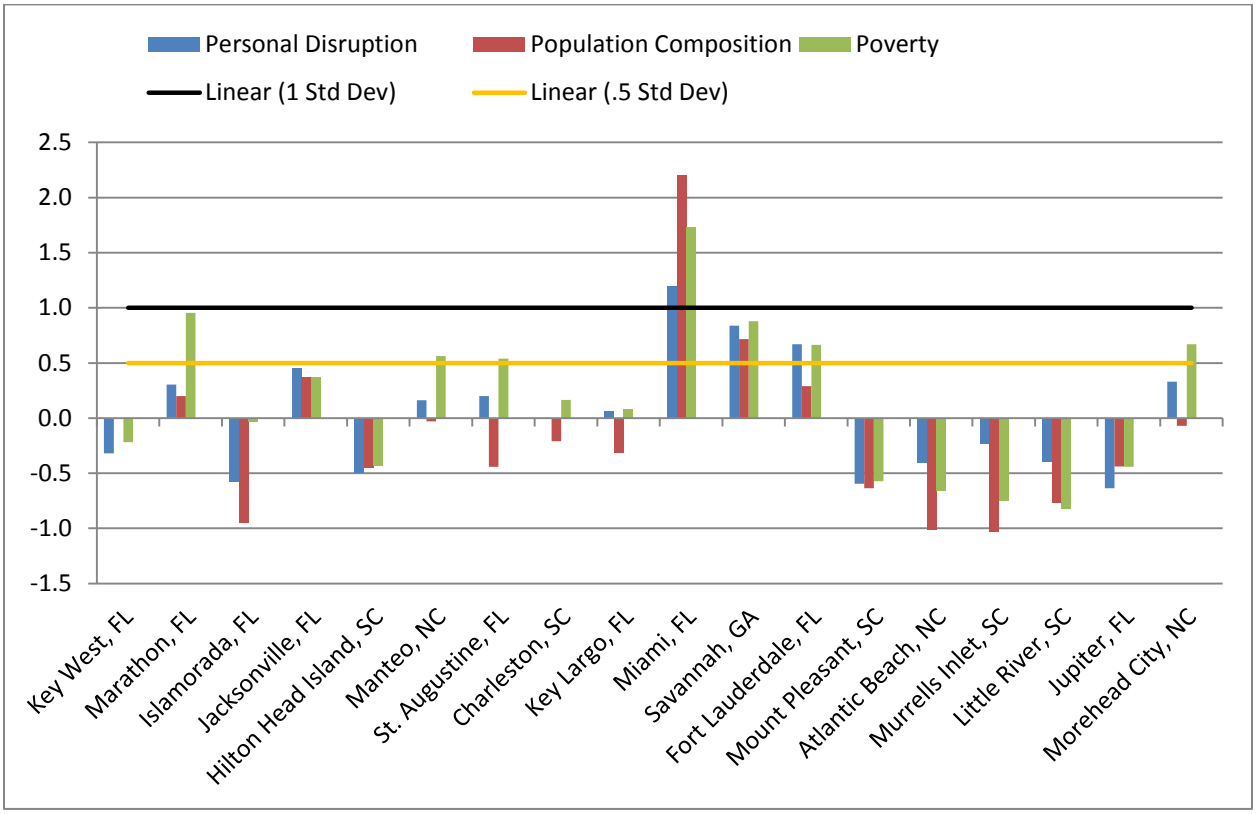


Figure 3.4.5. Social vulnerability indices for top recreational communities.
Source: SERO, Community Social Vulnerability Indicators Database 2014 (ACS 2010-2014).

People in these communities may be affected by fishing regulations in two ways: participation and employment. Although these communities may have the greatest potential for EJ concerns, no data are available on the race and income status for those involved in the local fishing industry (employment), or for their dependence on golden tilefish specifically (participation). Although no EJ issues have been identified, the absence of potential EJ concerns cannot be assumed.

3.5 Administrative Environment

3.5.1 The Fishery Management Process and Applicable Laws

3.5.1.1 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. Federal fishery management is also conducted under the authority of other laws as outlined in **Appendix G**.

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 Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from three to 200 mi offshore from the seaward boundary of North Carolina, South Carolina, Georgia, and east Florida to Key West. The 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 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 Council has adopted procedures whereby the non-voting members serving on the Council Committees have full voting rights at the Committee level but not at the full Council level. Council members serve three-year terms and are recommended by state governors and appointed by the Secretary from lists of nominees submitted by state governors. Appointed members may serve a maximum of three consecutive terms.

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters, are open to the public. The Council uses 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.

3.5.1.2 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 Council. The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters.

The South Atlantic States are also involved through the ASMFC in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of consistent state regulations to

conserve coastal species. The ASMFC is also represented at the Council level, but does not have voting authority at the Council level.

NMFS' 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.

3.5.1.3 Enforcement

Both the National Oceanic and Atmospheric Administration (NOAA) Fisheries Office of Law Enforcement (NOAA/OLE) and the U.S. Coast Guard (USCG) have the authority and the responsibility to enforce 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.

The NOAA Office of General Counsel Penalty Policy and Penalty Schedules can be found at http://www.gc.noaa.gov/enforce-office3.html.

Chapter 4. Environmental Consequences and Comparison of Alternatives

4.1 Temporarily Revise the Annual Catch Limit for Golden Tilefish Through Interim Measures

4.1.1 Biological and Ecological

The status of the golden tilefish stock in the South Atlantic was updated in April 2016 with data through 2014 (SEDAR 25 Update 2016). The update indicated the golden tilefish stock is undergoing overfishing but is not overfished. Under the proposed action, the total annual catch limits (ACL) for golden tilefish (total, commercial, and recreational) would be temporarily reduced for 2018 (**Table 4.1.1**).

Table 4.1.1. The annual catch limit alternatives for golden tilefish by sector for the proposed alternatives. The preferred alternative is in bold. A conversion rate of 1.12 was used to convert pounds gutted weight (lbs gw) to pounds whole weight (lbs ww).

	Total ACL[1] in lbs gw (lbs ww)	Commercial ACL in lbs gw (lbs ww)	Commercial Hook-and-Line ACL in lbs gw (lbs ww)[4]	Commercial Longline ACL in lbs gw (lbs ww)[4]	Recreational ACL in numbers of fish[2,3] (lbs gw and lbs ww)
Alternative 1 (No Action)	558,036 (625,000)	541,295 (606,250)	135,324 (151,563)	405,971 (454,687)	3,019 (16,741 lbs gw or 18,750 lbs ww)[2]
Alternative 2 (Preferred)	**323,000** **(361,760)**	**313,310** **(350,907)**	**78,328** **(87,727)**	**234,982** **(263,180)**	**2,187** **(9,690 lbs gw or 10,850 lbs ww)[3]**
Alternative 3	267,000 (299,040)	258,990 (290,069)	64,748 (72,518)	194,242 (217,551)	1,808 (8,010 lbs gw or 8,971 lbs ww)[3]
Alternative 4	420,000 (470,400)	407,400 (456,288)	101,850 (114,072)	305,550 (342,216)	2,844 (12,600 lbs gw or 14,112 lbs ww)[3]

[1]The total ACL is allocated to the commercial sector (97%) and to the recreational sector (3%). The commercial ACL is allocated to the golden tilefish longline sector (75%) and to the hook-and-line sector (25%) (Amendment 17B,SAFMC 2010; and Amendment 18B, SAFMC 2012a).

[2] The recreational sector ACL is reported in numbers of fish. A conversion rate of 6.21 was used to convert lbs ww into numbers of fish (Regulatory Amendment 12, SAFMC 2012b).

[3] Recreational landings data collected through the Marine Recreational Information Program (MRIP) and Southeast Region Headboat Survey were used to calculate the average weight of South Atlantic golden tilefish. From 2012-2016, the average weight of recreational golden tilefish have ranged annually from 4.21 lbs gw to 5.11 lbs gw. An average of the five-year span provides a conversion factor of 4.43 lbs gw for converting the recreational ACL into numbers of fish (**Appendix H**).

[4] Due to standard rounding, the commercial hook-and-line and longline ACLs for Alternatives 2-3 results in a change of 0.5 pounds for each component. Rounding up would cause the commercial ACL to be exceeded. Therefore, the hook-and-line ACL was rounded up to the nearest whole pound, and the longline component ACL was rounded down to the nearest whole pound.

Expected Effects to the Golden Tilefish Stock

Alternative 1 (No Action) would be expected to result in adverse biological effects to the golden tilefish stock as it would not reduce the ACL and the rate of overfishing. The current ACL is equal to the yield at 75%F_{MSY} when the stock is at equilibrium based on the previous stock assessment. The South Atlantic Fishery Management Council's (Council) Scientific and Statistical Committee (SSC) has provided a new acceptable biological catch recommendation based on the most recent stock assessment (**Table 1.6.2**). Potential adverse impacts from overfishing (fishing mortality too high) include a decrease in the average age and size structure of the golden tilefish stock, which may decrease population robustness to environmental perturbations. Also, older and larger females have greater reproductive potential because fecundity increases exponentially with size. Therefore, high fishing mortality rates can decrease the number of young each year (recruitment). In turn, continued overexploitation of any snapper grouper species may disrupt the natural community structure of the reef ecosystems that support these species. Predator species could decrease in abundance in response to a decline of an exploited species. Alternatively, predators could target other species as prey items. Conversely, the abundance of those prey and competitor species of the non-targeted species could increase in response to a decline in the abundance of a targeted species such as golden tilefish.

***Alternatives*[1]**

(preferred alternative in bold)

Alternative 1 (No Action): Retain the current annual catch limits for golden tilefish. The total annual catch limit for golden tilefish is 558,036 pounds gutted weight.

Preferred Alternative 2: Revise the golden tilefish total annual catch limit for 2018 at projected yield at 75%F_{MSY} equal to 323,000 pounds gutted weight.

Alternative 3: Revise the golden tilefish total annual catch limit for 2018 at the projected yield at P* of 30% equal to 267,000 pounds gutted weight.

Alternative 4: Revise the golden tilefish total annual catch limit for 2018 at 75% MSY equal to 420,000 pounds gutted weight.

[1]See Chapter 2 for a more detailed description of the alternatives.

Relative to **Alternative 1 (No Action)**, **Preferred Alternative 2 - Alternative 4** would have positive effects on the biological environment since they would temporarily reduce ACLs and overfishing in 2018. By reducing fishing mortality levels, the number of older, larger fish in the population could increase. A robust population with multiple year classes provides additional protections against recruitment failure since several years of poor environmental conditions can reduce survival of eggs and larvae. Reducing harvest of golden tilefish and improving the age structure of the population would be expected to allow the stock to be less susceptible to adverse environmental conditions that might affect recruitment success. The beneficial biological effects to the golden tilefish stock decrease from **Alternative 3, Preferred Alternative 2, Alternative 4,** and **Alternative 1,** as the ACLs decrease in this order.

Expected Closure Dates of the Commercial and Recreational Sectors Under Each Proposed Alternative

The current in-season accountability measure (AM) is to close the hook-and-line and longline components of the commercial sector when the component ACLs (quotas) are met or projected to be met. If commercial ACL is exceeded, including both the hook-and-line and longline component ACLs, and the combined commercial and recreational ACL is exceeded during the same fishing year, and golden tilefish are overfished based on the most recent Status of U.S. Fisheries Report to Congress, the Assistant Administrator will file a notification with the Office of the Federal Register to reduce the commercial ACL for that following fishing year by the amount of the commercial ACL overage in the prior fishing year. The current in-season AM for the recreational sector is to close the recreational sector when recreational landings reach or are projected to reach the recreational ACL. If the recreational ACL is exceeded and the golden tilefish stock is overfished, then during the following fishing year recreational landings will be monitored for a persistence in increased landings, and if necessary, the length of the recreational fishing season and the recreational ACL will be reduced by the amount of the recreational ACL overage.

Historically, in-season closures have occurred for the commercial and recreational sectors (**Table 4.1.2** and **Table 4.1.3**.). Since 2014, the commercial longline sector has closured prior to the end of the fishing year, between February and March. The commercial hook-and-line sector also endured an in-season closure during August 2014 and December 2015. Recreational closures have also occurred between June and October since 2011. Since commercial longline landings represent such a large component of the golden tilefish total landings and predicted closure dates among the action alternatives are similar **(Table 4.1.3)**, the biological effects by sector and gear group between **Preferred Alternative 2 - Alternative 4** would be expected to be similar.

Table 4.1.2. South Atlantic commercial golden tilefish landings and closure dates from 2002 to 2016.

Fishing Year	Annual Catch Limit (lbs gw)	Total Commercial landings (lbs gw)	Hook-and-Line Landings (lbs gw)	Longline Landings (lbs gw)	Commercial Closure Date
2002		351,304	130,713	220,592	
2003		218,124	66,279	151,845	
2004	1,001,663	257,171	32,675	224,496	
2005	1,001,663	273,812	41,056	232,755	
2006	295,000	390,567	26,513	364,054	10/23/2006
2007	295,000	300,606	49,626	250,980	10/3/2007
2008	295,000	312,454	38,412	274,042	8/17/2008
2009	295,000	327,471	28,222	299,248	7/15/2009
2010	295,000	365,529	26,496	339,033	4/12/2010
2011	282,819	361,401	35,107	326,294	3/9/2011
2012	541,295	517,188	97,119	420,070	2/17/2012
2013	541,295	537,946	85,088	452,859	5/5/2013
2014	• Total:541,295; • Hook-and-line: 135,324; • Longline:405,971	686,296	165,591	520,705	• Hook-and-line:8/29/2014; Longline:3/15/2014
2015	• Total: 541,295; • Hook-and-line: 135,324; • Longline:405,971	530,680	146,927	383,754	• Hook-and-line:12/8/2015; Longline:2/19/2015
2016	• Total: 541,295; • Hook-and-line: 135,324; Longline:405,971	526,804	141,249	385,555	• Longline:3/16/2016

Landings Source: Southeast Fisheries Science Center commercial (5/2/2017) ACL datasets.

Table 4.1.3. South Atlantic recreational golden tilefish landings and closure dates from 2002 to 2016.

Fishing Year	Annual Catch Limit (Number of Fish)	Total Recreational Landings (Number of Fish)	Recreational Closure Date
2002		3,515	
2003		12,396	
2004		11,886	
2005		70,304	
2006		12,723	
2007		2,165	
2008		0	
2009		8,132	
2010	1,578	4,383	
2011	1,578	9,864	10/6/2011
2012	3,019	3,623	
2013	3,019	4,143	6/3/2013
2014	3,019	1,357	6/7/2014
2015	3,019	3,596	8/11/2015
2016	3,019	13,011	8/27/2016

Landings Source: Southeast Fisheries Science Center recreational (6/28/2017) ACL datasets.
Annual Catch Limits and Closure Dates Source:
http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/index.html.

Under each of the alternatives (**Alternative 1 (No Action)-Alternative 4**), it is expected that both the commercial and recreational ACL would be met and an in-season closure is expected to occur **(Table 4.1.4).** This analysis assumes that the interim measures are implemented in early 2018 and commercial and recreational fishing behavior in 2018 are similar to those in 2010-2016[4]. Under the proposed interim measures (**Preferred Alternative 2- Alternative 4**), the closure dates are earlier in the fishing year compared to **Alternative 1 (No Action)**. See **Appendix H** for more information on the projected closure dates based on the proposed alternatives. Golden tilefish spawn off the southeast coast of the United States from March through late July. Therefore, alternatives that close golden tilefish before the spawning season would be expected to have a positive effect by potentially protecting spawning fish. Thus, **Preferred Alternative 2** and **Alternative 3** would be expected to have the greatest biological effect with respect to spawning activity since the longline sector would be expected to close before the spawning season and the commercial hook-and-line sector would be expected to close at the beginning of the spawning season.

[4] Final landings for 2017 will not be available until 2018.

Table 4.1.4. The projected closure dates of golden tilefish by sector for each alternative under Action 1.

Sector	Alternative 1 (No Action) ACL=558,036 lbs gw	Alternative 2 (Preferred) ACL=323,000 lbs gw	Alternative 3 ACL=267,000 lbs gw	Alternative 4 ACL=420,000 lbs gw
Commercial Hook-and-Line	September 28	April 26	March 31	June 15
Commercial Longline	February 27	February 1	January 27	February 12
Recreational	April 20	April 4	March 28	April 16

Expected Effects to Discards

A decrease in the recreational and commercial ACL for South Atlantic golden tilefish can result in a harvest closure that could cause an increase in golden tilefish discards while targeting other reef fish species. One management tool available to determine potential discard changes is species groupings identified by Farmer et al. (2010) using multivariate statistical analyses. The authors concluded that South Atlantic golden tilefish occur in deeper waters than many reef species and were relatively spatially restricted, possibly due to their preference of softer sediment types. The species most likely to be captured with golden tilefish included yellowedge grouper, warsaw grouper, snowy grouper, silk snapper, and wreckfish. However, it was noted that many of the overlapping occurrences for these species with golden tilefish were minimal except for yellowedge grouper. Landings of yellowedge grouper are minimal. The Farmer et al. (2010) results are similar to research by Pulver et al. (2016) that provided evidence that commercial fishers in the Gulf of Mexico were able to selectively target golden tilefish and yellowedge grouper were the only commercially managed species with a positive co-occurrence association. SEDAR 25 (2011) stated that bycatch and discards of golden tilefish were low overall in the South Atlantic and the Data Workshop panel recommended a discard mortality rate for tilefish of 100%. From these studies, it is likely any increase in discards of golden tilefish associated with a harvest closure from decreasing the ACL would be minimal due to limited co-occurrence with other targeted reef fish species. Additionally, management measures are not likely to affect golden tilefish discard mortality that is likely 100% due to the deep capture depth. Increased discards are considered wasteful and reduces overall yield obtained from the golden tilefish portion of the snapper grouper fishery.

Few golden tilefish discards were reported from 2006-2016 for the different sectors of the South Atlantic commercial and recreational fisheries (**Appendix H, Table H-2**). For the commercial sector annual discards ranged from two to 286 fish with the majority of discarding reported by vessels using longline gear. The low number of commercial discards reported is consistent with the SEDAR 25 assumption that fishers are able to eliminate bycatch of golden tilefish in closed seasons by avoiding known habitat. For the private recreational sector, 2013 is the only year with discards reported. No discards were reported by the charter recreational sector since 2006. No recreational headboat golden tilefish discards were observed until 2013, and since then, discards have fluctuated between one and 47 fish annually. The discards observed in both the commercial and recreational sectors are consistent with the SEDAR 25 conclusions that golden tilefish discards are negligible due to the ease in which bycatch can be avoided during closed seasons and the lack of a minimum size limit.

Expected Effects to Protected Species

The alternatives under this action would not significantly modify the way in which the snapper grouper fishery is prosecuted in terms of gear types used. Although **Preferred Alternative 2-Alternative 4** would decrease the ACL from the status quo, this option would not change current fishing practices for golden tilefish. Total harvest would be constrained by the commercial and recreational ACLs, and AMs are used to prevent overfishing. To the extent that lower ACLs result in less fishing effort, this could result in fewer listed species and critical habitat interactions. Therefore, there are no additional adverse impacts on Endangered Species Act (ESA)-listed species or designated critical habitats anticipated as a result of this action (see **Section 3.2.5** for a detailed description of ESA-listed species and critical habitat in the action area). Furthermore, no additional impacts on Essential Fish Habitat (EFH) or EFH-Habitat Areas of Particular Concern (EFH-HAPC) are expected to result from any of the alternatives considered for this action (see **Section 3.1.3** for detailed descriptions of EFH in the South Atlantic region).

4.1.2 Economic Effects

Modifications to the golden tilefish ACL and associated sector specific ACLs (commercial and recreational) and sub-sector ACLs (longline and hook-and-line) considered in this interim action would be expected to result in adverse, short-term economic effects directly on the participants of the golden tilefish harvesting sector and indirectly on the supporting industries, such as dealers, tackle and bait shops, and fishing communities. The long-term economic effects of the ACL reductions would depend on the measures that would be implemented under Amendment 45, which is currently in development. However, lower ACLs under the interim measures, such as those in **Alternatives 2, 3,** and **4**, would reduce overfishing such that future management actions under Amendment 45 would be expected to be less onerous (e.g., lower reductions in ACLs, less restrictive trip or bag limits) to the fishing participants and supporting industries and communities. In general, although smaller ACLs are expected to result in diminished economic benefits in the short term, they would be expected to reduce overfishing sooner and prevent the golden tilefish stock from becoming overfished, thereby resulting in greater economic benefits in the longer term. Conversely, higher ACLs would be expected to result in increased economic benefits in the short term but could result in smaller long-term economic benefits due to more restrictive management measures in the future if overfishing continues to increase.

Given current available data, economic effects on the commercial sector are expressed in terms of changes in ex-vessel revenues and those on the recreational sector as changes in consumer surplus (CS) to recreational anglers. The economic effects on the for-hire vessel segment of the recreational sector may be generally expressed in terms of changes in producer surplus (PS) as proxied by net operating revenues (NOR). A critical component in assessing the changes in NOR is the expected change in for-hire vessel trips. There is a good possibility that changes in ACLs and their consequent effects on the length of the fishing season would result in changes in for-hire vessel trips. The magnitude of these possible changes, however, cannot be determined, thus the economic effects on for-hire vessels cannot be estimated. At any rate, the NOR value (2016 dollars) per angler trip has been estimated at $165 for charter vessels and $45 for headboats.

Alternative 1 (No Action), which would maintain the current golden tilefish ACL, is not expected to affect recreational or commercial fishing for golden tilefish and would therefore not be expected to result in short-term economic effects. This alternative would not reduce overfishing of the stock. The rest of the alternatives would set the ACL below the current value. Because the sector specific ACLs in

Alternative 1 (No Action) are currently in place, they are considered as baselines for evaluating the economic effects of the various alternatives on the commercial and recreational sectors.

Changes in sector ACLs from **Alternative 1 (No Action)** for each alternative are shown in **Table 4.1.5**. Sector ACLs for **Alternative 1** (**No Action**) are presented only for reference purposes. Commercial sector changes are in lbs gw and those for the recreational sector in number of fish. Each sector's ACL is used to trigger a harvest closure in that particular sector. Because the commercial longline sector has the largest share of the stock's ACL, it would also bear the greatest reduction under each proposed alternative.

Table 4.1.5. Changes in commercial sector ACLs (lbs gw) and recreational sector ACL (number of fish) from Alternative 1. The ACL for Alternative 1 is used for reference only.

Sector	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
Commercial Longline	405,971	(170,989)	(211,729)	(100,421)
Commercial Hook-and-line	135,324	(56,996)	(70,577)	(33,474)
Recreational	3,019	(832)	(1,211)	(175)

Note: negative numbers are enclosed in parentheses.

The economic effects of each alternative relative to **Alternative 1** (**No Action**) are shown in **Table 4.1.6**. Reductions in ex-vessel revenues and CS for each alternative are proportional to the magnitude of changes in each sector's ACL. For the commercial longline sector, ex-vessel reductions would range from approximately $354,000 under **Alternative 4** to $747,000 under **Alternative 3.** For the commercial hook-and-line sector, the range of ex-vessel revenue reductions would approximately $134,000 under **Alternative 4** to $284,000 under **Alternative 3**. CS reductions for the recreational sector would range from approximately $2,000 under **Alternative 4** to $14,000 under **Alternative 3**.

Based on total and sector-specific estimates shown in **Table 4.1.6**, the alternatives may be ranked from smallest to largest economic losses as follows: **Alternative 4, Preferred Alternative 2**, and **Alternative 3.** A limitation to this ranking is the possibility that lower ACLs under the interim action may be deficient in arresting overfishing of the stock and thus more stringent measures may be required when more permanent measures are implemented under Amendment 45.

Table 4.1.6. Changes in commercial sector ex-vessel revenues and recreational CS from **Alternative 1**. Revenues and CS are in 2016 dollars.

Sector	Alternative 2 (Preferred)	Alternative 3	Alternative 4
Commercial Longline	($603,591)	($747,403)	($354,486)
Commercial Hook-and-line	($229,694)	($284,421)	($134,900)
Recreational	($10,192)	($14,835)	($2,144)
Total	($843,477)	($1,046,659)	($491,530)

Note: negative numbers are enclosed in parentheses and no discounting is applied.

In generating the revenue and CS effects, it is assumed that each sector's ACL would be fully taken and that ex-vessel prices, though different between the commercial longline and hook-and-line sectors, would not vary from month to month and across all alternatives. In addition, the CS per fish is assumed constant across all months and alternatives. For this purpose, the assumed ex-vessel price per pound is $3.53 (2016 dollars) for the longline sector and $4.03 for the hook-and-line sector. These prices are average prices per pound for the period 2012-2016. For CS per fish, the assumed value is $12.25 (2016 dollars), which is based on a recreational demand study (Haab et al. 2012).

Harvests of golden tilefish by the commercial and recreational sectors are projected to reach each sector's ACL before the normal end of the fishing year (**see Table 4.1.4**). These closures would occur under each alternative, including the no action alternative. As may be expected, the closures would occur later in the year with higher ACLs. Under **Alternative 1**, the season would last the longest. The closures would occur later in the year under **Alternative 4** than **Preferred Alternative 2**, and **Preferred Alternative 2** later than **Alternative 3**. Whether these expected closures would result in lower or higher ex-vessel revenue losses than shown in **Table 4.1.6** would depend largely on movement of price per pound. The historical price per pound could vary from month to month, but with different closure dates between the alternatives, the movement of prices would likely be different from historical levels. For example, it is possible that even under the same ACL, prices would be lower with more compressed season than with a longer open season, and thus would be different from historical prices. Given this possibility, it cannot be determined whether sector closures would result in different ex-vessel reductions from those shown in **Table 4.1.6**. For the recreational sector, estimates of CS per fish on a monthly (daily) basis are not available.

Even if the losses in ex-vessel revenues and CS shown in **Table 4.1.6** remain the same under varying closure dates, it is possible that the distribution of losses or benefits from the harvest of golden tilefish would vary across different areas. Those areas that used to harvest golden tilefish later in the year would incur more losses than those that usually fish early in the fishing year.

4.1.3 Social Effects

In general, the higher the ACL, the greater the short-term social and economic benefits that would be expected to accrue, assuming harvest does not result in overfishing and long-term management goals are met. Adhering to sustainable harvest through an ACL is assumed to result in net long-term positive social and economic benefits. However, the 2016 update assessment for golden tilefish indicated that the stock is undergoing overfishing, but is not overfished. **Alternative 1 (No Action)**, specifies an ACL which is higher than the catch level recommendation necessary to reduce overfishing. Therefore, the ACL under **Alternative 1 (No Action)** is not expected to be the most beneficial for fishermen in the long term because it is expected to result in a continuation of overfishing. Negative social impacts could result from a continuation of overfishing because of the adverse biological effects to the golden tilefish stock.

However, decreasing the available landings for golden tilefish under **Preferred Alternative 2-Alternative 4** could have negative effects on fishermen and communities if access to the golden tilefish resource is restricted. Fishermen who primarily rely on golden tilefish, such as some commercial longline fishermen, would be the most severely impacted by a reduction in available harvest. Additionally, adjustments in an ACL based on updated information from a stock assessment would have the most long-term benefits to fishermen and communities because catch limits would be based on the current

conditions, even if the updated information indicates that a lower ACL is appropriate to sustain the stock. **Preferred Alternative 2-Alternative 4** would incorporate Council and SSC recommendations and would be more beneficial in the long term to communities and fishermen than **Alternative 1 (No Action)**. However, because this is an interim measure, to continue any benefits realized under **Preferred Alternative 2 - Alternative 4** additional action must be taken. The Council is developing long-terms measures to end overfishing of golden tilefish in Amendment 45 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

4.1.4 Administrative Effects

Alternative 1 (No Action) would retain the current ACL for golden tilefish and retain the current level of administrative impacts through monitoring this ACL and applying AMs. Reducing the ACL for the golden tilefish through **Preferred Alternative 2 - Alternative 4** would not have direct impacts on the administrative environment, outside of the requisite public notices. However, in general, the lower the ACL, the more likely it is to be met (if no additional harvest restrictions are implemented), and the more likely an AM would be triggered. Since it is expected that both the commercial and recreational ACL would be met and an in-season closure is expected to occur under each of the alternatives (**Alternative 1 (No Action) - Alternative 4**) **(Table 4.1.4)**, the administrative effects are likely going to be minimal and similar.

Chapter 5. Cumulative Effects

5.1 Affected Area

The immediate impact area would be the federal 200-nautical mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and the east coast of Florida to Key West, Florida, which is also the South Atlantic Fishery Management Council's (Council) area of jurisdiction. In light of the available information, the extent of the boundaries would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range, and geographic locations of fishing businesses. Therefore, the proper geographical boundary to consider effects on the biophysical and human environment is larger than the entire South Atlantic exclusive economic zone (EEZ). The range of the affected species is described in **Chapter 3**. The most measurable and substantial effects would be limited to the South Atlantic region.

5.2 Past, Present, and Reasonably Foreseeable Actions Impacting the Affected Area

For this action, the cumulative effects analysis (CEA) includes an analysis of actions and events dating back to 1983 when the original Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic region (Snapper Grouper FMP) was implemented, and through what is expected to take place in the reasonably foreseeable future.

Past Actions

Snapper grouper regulations in the South Atlantic were first implemented in 1983. See **Appendix E** of this document for a detailed history of management for the snapper grouper fishery, and for specific actions relating to golden tilefish, see **Section 1.7**.

Generic Accountability Measures (AM) and Dolphin Allocation Amendment (including Amendment 34 to the Snapper Grouper FMP, Amendment 9 to the Golden Crab FMP, and Amendment 8 to the Dolphin and Wahoo FMP) (SAFMC 2015a), implemented on February 22, 2016 (81 FR 3731; January 22, 2016), revised the commercial and recreational AMs for numerous snapper grouper species and golden crab, and revised commercial and recreational sector allocations for dolphin in the Atlantic.

Amendment 35 to the Snapper Grouper FMP (SAFMC 2015b), implemented on June 22, 2016 (81 FR 32249; May 23, 2016), removed black snapper, mahogany snapper, dog snapper, and schoolmaster from the Snapper Grouper FMP and the regulations, and revised regulations regarding the golden tilefish longline endorsement program to clarify the intent of the endorsement program.

Amendment 36 to the Snapper Grouper FMP (SAFMC 2016b), implemented on July 31, 2017 (82 FR 29772; June 30, 2017), modified the Snapper Grouper FMP framework procedures to allow spawning special management zones (SMZs) to be established or modified through the framework process; established spawning SMZs off North Carolina, South Carolina, and Florida; established transit and anchoring provisions in the spawning SMZs; and established a sunset provision for most of the spawning SMZs. The final rule also moved the boundary of the existing Charleston Deep Artificial Reef Marine Protected Area. The purpose of the final rule was to protect spawning snapper grouper species and the

habitat where they spawn, and to reduce bycatch and bycatch mortality for snapper grouper species, including speckled hind and warsaw grouper.

Amendments specific to the golden tilefish sector of the snapper grouper fishery include:

Amendment 17B (SAFMC 2010) to the Snapper Grouper FMP established a 97 percent commercial and three percent recreational allocation of golden tilefish based on long and short-term landings histories. The commercial ACL for golden tilefish was reduced to 282,819 pounds gutted weight (lbs gw) and 1,578 fish for the recreational sector.

In October 2011, the golden tilefish stock was assessed through SEDAR 25 (2011) with data through 2010. The golden tilefish stock was determined to not be overfished nor was it undergoing overfishing at that time**.** The stock assessment results showed that the biomass of golden tilefish increased substantially since the last assessment (SEDAR 4) and was above B_{MSY} (biomass of the population that is achieved in the long-term by fishing at F_{MSY})**.** Regulatory Amendment 12 to the Snapper Grouper FMP (SAFMC 2012) revised the ACL for golden tilefish to be equal to optimum yield, and set at the yield associated with 75 percent fishing mortality that will produce the maximum sustainable yield while the population is at equilibrium ($75\%F_{MSY}$). The South Atlantic golden tilefish commercial ACL was increased to 541,295 lbs gw, and the recreational ACL was increased to 3,019 fish. The ACLs were set at this level to ensure there was a buffer between the ACLs and acceptable biological catch (596,429 lbs gw) to account for management uncertainty.

Amendment 18B to the Snapper Grouper FMP (SAFMC 2012a) implemented measures to reduce overcapacity by limiting participation in the golden tilefish component of the snapper grouper fishery through the establishment of longline endorsements, changes to the fishing year, allocation of the commercial ACL between gear groups, and modifications to golden tilefish trip limits. The longline sector was allocated 75% of the commercial ACL, and the hook-and-line sector was allocated 25% of the commercial ACL.

Present Actions

The Vision Blueprint Recreational Regulatory Amendment 26 for the Snapper Grouper FMP is currently under development and considers actions to modify recreational measures such as aggregate bag limits, seasonal closures, and minimum size limits for species in the snapper grouper fishery.

The Vision Blueprint Commercial Regulatory Amendment 27 for the Snapper Grouper FMP is currently under development, and considers actions to modify commercial measures such as fishing seasons, trip limits, seasonal closures, and minimum size limits for species in the snapper grouper fishery.

Reasonably Foreseeable Future Actions

Development of Amendment 45 to the Snapper Grouper FMP will begin after the SEDAR 25 Update 2015 is revised and reviewed by the SSC in late 2017 (**see Section 3.2.3**). The amendment will consider actions that would end overfishing of golden tilefish, such as reductions to the ACLs, and may include modifications to commercial trip limits, vessel limits, and recreational bag limits.

Expected Impacts from Past, Present, and Future Actions

The interim measures to reduce overfishing of golden tilefish alone would not result in significant cumulative impacts on the human environment. These interim measures are temporary in nature and as such would lead to temporary biological, social, or economic impacts but these impacts are not expected to result in significant cumulative biological or socioeconomic effects.

When combined with the impacts of past, present, and future actions affecting the snapper grouper fishery, specifically golden tilefish, minor cumulative impacts may accrue leading to biological or socio-economic impacts. This interim measure is necessary to reduce overfishing while the Council addresses overfishing with long-term measures in Amendment 45 to the Snapper Grouper FMP.

When viewed solely in the context of golden tilefish harvest, the reductions necessary to end overfishing are substantial, so this action, in combination with the potential actions being developed in Amendment 45, could be even more substantial. The proposed alternatives in Amendment 45 have not been developed at this time making it difficult to speculate on the potential impacts.

However, as discussed throughout this document, tilefish are a single species in the larger snapper-grouper fishery comprised of many species. All permitted vessels affected by this action have a snapper-grouper permit (commercial or for-hire), and only longline vessels require an additional permit (endorsement) specific to golden tilefish. Most vessels harvest a number of species from the snapper grouper fishery. As such, the snapper grouper fishery as a whole is the appropriate context in which to assess potential significance. When viewed in that context, golden tilefish accounts for only a small percentage of the overall harvest from the snapper grouper fishery, and a small percentage of the benefits obtained from the fishery. Thus, the actions taken in this amendment, even in combination with the actions that may be needed to end overfishing in Amendment 45 are not likely to result in cumulatively significant impacts on the fishery. See **Section 3.3** for more information on the economic description of the commercial and recreational sectors.

All of the proposed, or recently implemented, management actions affecting golden tilefish within the snapper grouper fishery are intended to improve management of the snapper grouper resource, while minimizing, to the maximum extent practicable adverse social and economic impacts.

5.3 Consideration of Climate Change and Other Non-Fishery Related Issues

Climate Change

The Environmental Protection Agency's climate change webpage[5] and NOAA's Office of Science and Technology climate webpage[6] provides background information on climate change, including indicators which measure or anticipate effects on oceans, weather and climate, ecosystems, health and society, and greenhouse gases. The United Nations Intergovernmental Panel on Climate Change's Fifth Assessment Report also provides a compilation of scientific information on climate change (November 2, 2014) (IPCC 2014).

[5] https://www.epa.gov/climate-indicators
[6] https://www.st.nmfs.noaa.gov/ecosystems/climate/index

Global climate changes could have significant effects on Atlantic fisheries. However, the full 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 (Link et al, 2015).

The effects of climate change on fish species in the Atlantic not fully understood. 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 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.

Weather Variables

Hurricane season is from June 1 to November 30, and accounts for 97% of all tropical activity affecting the Atlantic basin. These storms, although unpredictable in their annual occurrence, can devastate areas when they occur. Although these effects may be temporary, those fishing-related businesses whose profitability is marginal may go out of business and fishing communities may experience social and economic upheaval if a hurricane strikes.

Deepwater-Horizon Oil Spill

On April 20, 2010, an explosion occurred on the Deepwater Horizon MC252 oil rig, resulting in the release of an estimated 4.9 million barrels of oil into the Gulf. In addition, 1.84 million gallons of Corexit 9500A dispersant were applied as part of the effort to constrain the spill. The cumulative effects from the oil spill and response may not be known for several years.

The oil spill affected more than one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the Deepwater Horizon MC252 oil spill on the physical environment are expected to be significant and may be long-term. Oil was dispersed on the surface, and because of the heavy use of dispersants, oil was also documented as being suspended within the water column, some even deeper than the location of the broken well head. Floating and suspended oil washed onto shore in several areas of the Gulf, as well as non-floating tar balls. Whereas suspended and floating oil degrades over time, tar balls are more persistent in the environment and can be transported hundreds of miles. Oil on the surface of the water could restrict the normal process of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column. In addition, microbes in the water that break down oil and dispersant also consume oxygen; this could lead to further oxygen depletion. Zooplankton that feed on algae could also be negatively impacted, thus allowing more of the hypoxia-fueling algae to grow.

The highest concern is that the oil spill may have impacted spawning success of species that spawn in the summer months, either by reducing spawning activity or by reducing survival of the eggs and larvae. Effects on the physical environment, such as low oxygen, could lead to impacts on the ability of larvae

and post-larvae to survive, even if they never encounter oil. In addition, effects of oil exposure may create sub-lethal effects on the eggs, larva, and early life stages. The stressors could potentially be additive, and each stressor may increase the susceptibility to the harmful effects of the other.

The oil from the spill site was not detected in the South Atlantic region, and does not likely pose a threat to the South Atlantic species addressed in this amendment. Indirect and inter-related effects on the biological and ecological environment of the snapper grouper fishery in concert with the Deepwater Horizon MC252 oil spill are not well understood. Changes in the population size structure could result from shifting fishing effort to specific geographic segments of populations, combined with any anthropogenically induced natural mortality that may occur from the impacts of the oil spill. The impacts on the food web from phytoplankton, to zooplankton, to mollusks, to top predators may be significant in the future.

5.4 Overall Impacts Expected from Past, Present, and Future Actions

The proposed management actions are summarized in **Chapter 2** of this document. Detailed discussions of the magnitude and significance of the impacts of the preferred alternatives on the human environment appear in **Chapter 4** of this document. None of the impacts of the action in this document, in combination with past, present, and future actions, have been determined to be significant. The additive effects, beneficial and adverse, on the species and the fishing communities dependent on them, are not expected to result in a significant level of cumulative impacts.

The proposed action would not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places as these are not in the South Atlantic EEZ. This action is not likely to result in direct, indirect, or cumulative effects to unique areas, such as significant scientific, cultural, or historical resources, park land, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas as the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the South Atlantic region. The U.S. Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries are within the boundaries of the South Atlantic EEZ. The proposed action is not likely to cause loss or destruction of these national marine sanctuaries because the actions are not expected to result in appreciable changes to current fishing practices.

Although the action in the interim rule to temporarily revise the ACL, if implemented, would likely have adverse, socio-economic effects beginning in 2018 (see **Sections 4.1.2** and **4.1.3**), the Council has determined that the short-term effects would be justified to minimize long-term reductions in harvest (and their attendant reductions in socioeconomic benefits) that may be required if the current levels of unsustainable harvest continue to reduce the biomass of the golden tilefish stock.

5.5 Monitoring and Mitigation

The effects of the interim measures are, and will continue to be, monitored through collection of landings data by the National Marine Fisheries Service, stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations. The interim measures relate to the harvest of golden tilefish, an indigenous species in the Atlantic, and the activity being altered does not itself introduce non-indigenous species, and is not reasonably expected to facilitate the spread of such species through depressing the populations of native species. Additionally, it does not propose any

activity, such as increased ballast water discharge from foreign vessels, which is associated with the introduction or spread on non-indigenous species.

None of the beneficial or adverse impacts from the interim measures (as summarized in **Chapter 2** of this document) have been determined to be significant. See **Chapter 4** for the detailed discussions of the magnitude of the impacts of the preferred alternative on the human environment. The action in this document would not have long-term significant biological, social, or economic effects because the action is limited in scope to 180 days, with a possible extension of an additional 186 days as described in section 305(c) of the Magnuson-Stevens Act. Long-term measures to end overfishing in golden tilefish will be addressed in Amendment 45 to the Snapper Grouper FMP, which may result in short-term adverse economic effects, but beneficial long-term economic effects, and beneficial biological effects overall. A cumulative effects analysis of impacts will be completed for that amendment once actions and alternatives have been developed. The effects of the interim measures, in addition to past, present, and reasonably foreseeable actions, is not expected to affect diversity and ecosystem structure of fish communities, or safety at sea of fishermen targeting snapper grouper species, and other species managed by Council. In addition, it is likely any increase in discards of golden tilefish associated with a harvest closure from decreasing the ACL, in addition to other past, present, and reasonable foreseeable actions, will be minimal due to limited co-occurrence with other targeted reef fish species. Based on the cumulative effects analysis presented herein, the interim measures would not have any significant adverse cumulative impacts compared to, or combined with, other past, present, and foreseeable future actions.

Chapter 6. List of Preparers

Table 6.1. List of interdisciplinary plan team members for the document.

Name	Organization	Title
Mary Vara	NMFS/SERO/SF	IPT Lead/Fishery Biologist
Karla Gore	NMFS/SERO/SF	IPT Lead/Fishery Biologist
Rick DeVictor	NMFS/SERO/SF	South Atlantic Branch Chief
Mike Larkin	NMFS/SERO/SF	Data Analyst
Jeff Pulver	NMFS/SERO/SF	Data Analyst
Adam Bailey	NMFS/SERO/SF	Technical Writer
Christina Package-Ward	NMFS/SERO/SF	Social Scientist
Tony Lamberte	NMFS/SERO/SF	Economist
Nikhil Mehta	NMFS/SERO/SF	Division NEPA Specialist
Noah Silverman	NMFS/SERO	Regional NEPA Coordinator
Mary Wunderlich	NMFS/SERO/PR	Protected Resources
David Dale	NMFS/SERO/HC	Habitat
Kyle Shertzer	NMFS/SEFSC	Fishery Biologist
Scott Crosson	NMFS/SEFSC	Economist
Shephard Grimes	NOAA/GC	Attorney

NOAA=National Oceanic and Atmospheric Administration, NMFS = National Marine Fisheries Service, SERO = Southeast Regional Office, SF = Sustainable Fisheries Division, PR = Protected Resources Division, HC = Habitat Conservation Division, SEFSC=Southeast Fisheries Science Center, GC = General Counsel

Chapter 7. Agencies and Persons Consulted

Responsible Agency
NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 (TEL)
(727) 824-5320 (FAX)

List of Agencies, Organizations, and Persons Consulted
SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
SAFMC Information and Education Advisory Panel
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Georgia Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
North Carolina Division of Marine Fisheries
National Marine Fisheries Service
- Southeast Regional Office
- Southeast Fisheries Science Center

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Appendix A. Glossary

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

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

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

B_{MSY}: Biomass of population achieved in long-term by fishing at F_{MSY}.

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

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

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

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

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

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

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

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

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

Discards: Fish captured, but released at sea.

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

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

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

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

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

F: Fishing mortality.

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

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

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

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

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

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

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

$F_{30\%SPR}$: Fishing mortality that will produce a static SPR = 30%.

$F_{45\%SPR}$: Fishing mortality that will produce a static SPR = 45%.

F_{OY}: Fishing mortality that will produce OY under equilibrium conditions and a corresponding biomass of B_{OY}. Usually expressed as the yield at 85% of F_{MSY}, yield at 75% of F_{MSY}, or yield at 65% of F_{MSY}.

F_{MSY}: Fishing mortality that if applied constantly, would achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}.

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

Framework: An established procedure within a fishery management plan that has been approved and implemented by NMFS, which allows specific management measures to be modified via regulatory amendment.

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

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

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

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

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

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

Longline: Fishing method using a horizontal mainline to which weights and baited hooks are attached at regular intervals. Gear is either fished on the bottom or in the water column.

Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act): Federal legislation responsible for establishing the fishery management councils and the mandatory and discretionary guidelines for federal fishery management plans.

Marine Recreational Information Program (MRIP): Survey operated by NMFS in cooperation with states that collects marine recreational data.

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

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

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

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

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

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

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

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

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

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

Overfishing: Overfishing occurs when a stock or stock complex is subjected to a rate of fishing mortality that exceeds the maximum fishing mortality threshold (e.g., current fishing mortality rate > MFMT = overfishing).
Quota: % or annual amount of fish that can be harvested.

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

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

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

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

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

Spawning Potential Ratio (Transitional SPR): Formerly used in overfished definition. The number of eggs that could be produced by an average recruit in a fished stock divided by the number of eggs that

could be produced by an average recruit in an unfished stock. SPR can also be expressed as the spawning stock biomass per recruit (SSBR) of a fished stock divided by the SSBR of the stock before it was fished.

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

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

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

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

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

Appendix B. Letter from NMFS SERO to SAFMC

Letter from Dr. Roy Crabtree, the Regional Administrator of NOAA Fisheries Southeast Regional Office, to Dr. Michelle Duval, the Chairman of the South Atlantic Fishery Management Council, dated Jan 3, 2017, stating that the South Atlantic golden tilefish stock is undergoing overfishing

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

F/SER25: FH

Dr. Michelle Duval, Chair
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
North Charleston, South Carolina 29405

JAN 03 2017

Dear ~~Dr. Duval~~ Michelle:

NOAA Fisheries has determined management action is necessary to address overfishing of golden tilefish in the South Atlantic region. In October 2011, a Southeast Data, Assessment, and Review benchmark assessment (SEDAR 25) was completed for golden tilefish. SEDAR 25 determined that golden tilefish was not undergoing overfishing or overfished. An update of SEDAR 25 was completed in April 2016 and indicated that the stock is currently undergoing overfishing but is not overfished. The South Atlantic Fishery Management Council's (Council) Scientific and Statistical Committee (SSC) reviewed the assessment and determined that the assessment is based on the best scientific information available. The SSC subsequently provided the Council with an acceptable biological catch (ABC) recommendation for the golden tilefish stock at the Council's December 2016 meeting.

Following Council notification of an overfishing stock status, the Magnuson-Stevens Fishery Conservation and Management Act requires the Council and NOAA Fisheries to implement a plan amendment and regulations to end overfishing. I look forward to working with the Council to develop a plan to end overfishing of golden tilefish.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Cc:
F/SEC - Bonnie Ponwith
F/SER2 - Jack McGovern
F/SER25 - Rick DeVictor

Appendix C. Background Document on Golden Tilefish

Background Document on Golden Tilefish, presented at the South Atlantic Fishery Management Council meeting during June 12-16, 2017.

Background Document on Golden Tilefish

Snapper Grouper Committee Meeting
Ponte Vedra, FL

June 2017

South Atlantic golden tilefish are currently managed under provisions of Snapper Grouper Amendment 18B and Regulatory Amendment 12, including overfishing level (OFL) and acceptable biological catch (ABC) values derived from SEDAR 25 (2011). Regulatory Amendment 12 included annual values of OFL and ABC for 2012 through 2015 and a constant annual catch limit (ACL). ABC recommendations from the Scientific and Statistical Committee (SSC) were based on a P* value of 0.35 and ranged from 668,000 in 2012 to 655,000 in 2015. However, to address the high degree of uncertainty in the productivity estimates from the SEDAR 25 assessment and increase regulatory stability, the Council specified ACL on the basis of the equilibrium yield at 75% F_{MSY}. At the time this was considered a precautionary approach, as it resulted in an ACL that was about 94% of the average (2012-2015) ABC and about 52% of the average OFL.

The status of the golden tilefish stock in the South Atlantic was updated in 2016 with data through 2014 (SEDAR 25 update 2016). The update determined the golden tilefish stock is undergoing overfishing but is not overfished. The finding of overfishing was unexpected, given that the fishery had been generally managed within the limits of its ABC, well below its OFL, and the Council established a conservative ACL value that was around half of the OFL predicted from the SEDAR 25 assessment. The SSC reviewed the update during their May 2016 meeting and deemed it Best Scientific Information Available and suitable for management. The SSC provided fishing level recommendations based on a P* value of .30 and projections that were provided for the SSC report of the May 2016 meeting.

The Council received the results of the update from the SSC in June 2016. However, Council members expressed concern over the large differences in biological benchmarks and fishing level recommendations between the 2016 update and SEDAR 25. It was noted that different methodologies were used in the update and several more years of data were added to the model. It was also noted that the 2000 year class, predicted to be extremely large in the SEDAR 25 assessment and the source of much discussion during SEDAR 25 and subsequent Council and SSC review, was estimated as about average in the 2016 update. Therefore, the Council requested that the SSC discuss specific items pertaining to the update during their fall 2016 meeting including uncertainties that impact productivity estimates, application of the P* technique and the large difference between the OFL (P*=0.50) and the ABC (P*=0.30); review the performance, accuracy, and reliability of projections from past assessments; and comment on potential impacts of a phased-in approach to implementing the reduced catch levels.

As requested, the SSC discussed the items above during their October 2016 meeting but made no change to their ABC recommendation. The SSC raised concerns with the change in the robust likelihood model fitting approach applied in the update assessment, but agreed with the technical advice from the Southeast Fisheries Science Center (SEFSC) that the approach was more robust than earlier methods. The SSC reviewed the OFL-ABC buffer, and commented that the number of age samples was an important factor. The SSC did not offer comment on the phased-in approach, however, since NOAA General Counsel advised (during the SSC meeting) that such an approach would first have to be incorporated into the Council's ABC Control Rule in order to be implemented (according to revisions to the National Standard 1 Guidelines).

In December 2016, The Council approved a motion to initiate development of a plan amendment that would modify the ABC Control Rule to implement a phased-in approach to ending overfishing of golden tilefish. In addition, the Council requested that the SEFSC provide projections at P*=0.45 and P*=0.40. Under the current control rule, the P* value is recommended by the SSC based on ABC control rule criteria, so changes to the control rule may be required to enable the Council to specify the P* value directly. On January 3, 2017, the Council received a memo from the NMFS Southeast Regional Office indicating that the golden tilefish stock was undergoing overfishing. The memo noted that ABC recommendations were provided at the December 2016 Council meeting and that the Council needed to take action to end overfishing. According to the Final Rule revising guidelines for Magnuson Stevens Act National Standards 1, 3, and 7 (Federal Register, October 18 2016): "Upon notification that a stock or stock complex is undergoing overfishing, a Council should immediately begin working with its SSC (or agency scientists or peer review processes in the case of Secretarially managed fisheries) to ensure that the ABC is set appropriately to end overfishing. Councils should evaluate the cause of overfishing, address the issue that caused overfishing, and reevaluate their ACLs and AMs to make sure they are adequate."

During the March 2017 Council meeting, staff presented a possible approach for the Committee's consideration, to address overfishing, that would specify an interim ABC for golden tilefish at the projected yield at 75%F_{MSY} while an updated assessment is prepared. The Council requested the updated assessment in a March 22, 2017 memo to the SEFSC to address key uncertainties raised during the prior SSC and Council deliberations. These uncertainties included the single selectivity period that applies recent observed increased selectivity of older ages to the entire assessment period, a further change in model fitting algorithms based on published references raising bias concerns with the likelihood approach applied in the 2016 update, and concerns that the 2014 terminal year imposes excessive uncertainty. The SEFSC indicated, through a memo on March 24, 2017, that a tilefish updated could not be completed in 2017, due to concerns with analyst availability and otolith evaluation.

At its April 2017 meeting, the SSC reviewed the revised projections based on P* values of 0.45 and 0.40. The SSC also discussed the Council's request to set ABC at 75% F_{MSY}. The SSC commented that the various P* projections were very similar to each

other and to the F75% F_{MSY} projection, and decided not to deviate from their previous ABC recommendation for golden tilefish based on the P* approach as defined in the ABC Control Rule. Recommended ABC levels for 2017 through 2019 based on a P* of 0.30 are presented along with the fishing levels currently in place in **Table 1**. The current ACL for golden tilefish was set at the yield at 75%F_{MSY} when the stock is at equilibrium (625,000 pounds ww (558,036 pounds gw)) through implementation of Regulatory Amendment 12 in October 2012. Ninety-seven percent of the golden tilefish ACL is allocated to the commercial sector and 3% to the recreational sector.

The SEDAR Steering Committee discussed the Council's request for a tilefish update at their May 2017 meeting during discussion of assessment priorities. The SEFSC agreed to revise the 2016 golden tilefish update to incorporate the latest model fitting approach, as used in the recent Red Grouper assessment (SEDAR 53 2017). Results of this modification are expected to be available for the SSC to review in the fall. The Council would review the updated assessment along with the SSC's recommendations at their December 2017 meeting.

Table 1. Fishing level recommendations from SEDAR 25 (2011) and SEDAR 25 Update (2016) in pounds gutted weight (lbs gw) a P*=0.30.

	SEDAR 25 (2011) (lbs gw)	SEDAR 25 Update (2016) (lbs gw)
MSY	596,643	560,000
OFL		
2017	804,000	377,000
2018	763,000	402,000
2019	730,000	426,000
ABC		
2017	608,000	233,000
2018	596,000	267,000
2019	586,000	302,000

Commercial and recreational landings of golden tilefish from 2010 through 2015 in pounds whole weight (lbs ww) and pounds gutted weight (lbs gw) are shown in **Tables 2** and **3**, respectively. Average landings for the time period were 512,268 lbs gw and 574,143 lbs ww. The recommended ABC for 2017 (233,000 lbs gw) would represent a 55% reduction in harvest from average 2010-2015 landings, a 62% reduction from average 2014-2015 landings, and a 56% reduction from 2015 landings.

Golden Tilefish Landings (lbs gw)			
Year	Commercial	Recreational	Total
2010	365,527	9,636	375,162
2011	361,401	18,888	380,289
2012	517,282	11,513	528,795
2013	537,950	14,040	551,990
2014	704,617	4,520	709,137
2015	514,054	16,341	530,395
Average	500,139	12,490	512,268

Golden Tilefish Landings (lbs ww)			
Year	Commercial	Recreational	Total
2010	409,390	10,792	420,182
2011	404,769	21,154	425,923
2012	579,356	12,895	592,251
2013	602,504	15,724	618,228
2014	789,171	5,062	794,233
2015	575,741	18,302	594,043
Average	560,155	13,988	574,143

COMMITTEE ACTION:

OPTION 1. AWAIT RESULTS OF REQUESTED UPDATES TO THE SEDAR 25 UPDATE ASSESSMENT AND TAKE ACTION TO IMPLEMENT CHANGES IN MARCH 2018.

This option would result in changes to the 2019 fishing levels and ensure that fishing levels are adjusted based on updated assessment methodology.

OPTION 2. REQUEST THAT NMFS TAKE EMERGENCY ACTION TO IMPLEMENT THE RECOMMENDED CHANGES (TABLE 1) TO FISHING LEVELS TO END OVERFISHING.

This option could affect the 2018 fishing year. The Council would have to develop a regulatory amendment to replace the emergency rule within 1 year. Snapper grouper items would need to be re-prioritized.

OPTION 3. UTILIZE THE EXPEDITED FRAMEWORK PROCEDURE TO ADOPT NEW FISHING LEVELS FOR GOLDEN TILEFISH TO END OVERFISHING.

The expedited framework procedure could be used to adjust fishing levels but not to modify/implement management measures. If approved in September 2017 regulations could be in place for the 2018 fishing year. The expedited framework would not significantly affect priority of other snapper grouper items.

OPTION 4. INITIATE DEVELOPMENT OF A REGULATORY AMENDMENT TO IMPLEMENT RECOMMENDED CHANGES TO FISHING LEVELS AND MANAGEMENT MEASURES FOR GOLDEN TIELFISH TO END OVERFISHING.

A regulatory amendment would take one year to be developed and would allow for modifications to management measures. Regulations would affect the 2019 fishing year. Snapper grouper items would need to be re-prioritized.

OPTION 5. OTHERS??

Appendix D. Letter from SAFMC to NMFS SERO

Letter from the South Atlantic Fishery Management Council, to Dr. Roy Crabtree, the Regional Administrator of the National Marine Fisheries Service (NMFS) Southeast Regional Office, dated June 27, 2017, requesting that NMFS implement interim measures to reduce overfishing of golden tilefish

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
4055 Faber Place Drive, Suite 201, North Charleston SC 29405
Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: www.safmc.net

Dr. Michelle Duval, Chair | Charlie Phillips, Vice Chair
Gregg T. Waugh, Executive Director

June 27, 2017

Dr. Roy Crabtree, Regional Administrator
NOAA Fisheries, Southeast Region
263 13th Avenue South
St. Petersburg, FL 33701

Dear Roy:

This letter is to request that NMFS implement interim measures to reduce overfishing of Golden Tilefish in the South Atlantic region while the South Atlantic Council (Council) develops an amendment to adjust fishing levels for that stock. The status of the Golden Tilefish stock in the South Atlantic was updated in 2016 with data through 2014 (SEDAR 25 update 2016). The update indicated the Golden Tilefish stock is undergoing overfishing but is not overfished.

In May 2016, the SSC reviewed the assessment and provided fishing level recommendations based on a P* value of 30%. During meetings in 2016 and 2017, at the request of the Council, the SSC discussed various aspects of the Golden Tilefish assessment, including uncertainties that impact productivity estimates, application of the P* technique, reliability of projections from past assessments, and a possible phased-in approach to implement reduced catch levels to minimize socio-economic impacts to fishermen. Two of the primary reasons for the extensive and ongoing reviews are the social and economic consequences of the 62% reduction with the 2017 ABC suggested by the update (55% reduction with the 2018 ABC), and the unusually high buffer (34%) estimated between OFL and ABC.

In January 2017, NMFS provided a letter informing the Council that the Golden Tilefish stock was experiencing overfishing. In May 2017, the SEDAR Steering Committee considered a request for a Golden Tilefish update, intended to address the assessment concerns raised by the Council and SSC during their preceding reviews of the assessment update. While an update could not be added to the SEDAR schedule for 2017, the SEFSC agreed to revise the 2016 update to incorporate the latest model fitting approach to address bias concerns with the likelihood method approach applied in the 2016 update. The Council formalized this request at their June 2017 meeting, where they also discussed approaches to adjusting the overfishing risk tolerance for Golden Tilefish and to address overfishing. The revised assessment will be reviewed by the SSC at its October 2017 meeting, and the Council will address the results at the December 2017 meeting.

Additionally, the Council is considering revising its ABC Control Rule to incorporate recent revisions to National Standard 1 guidelines, which address ending and preventing overfishing and achieving optimum yield from federal fisheries. One such revision is the phased-in approach

to reductions of the ABC mentioned above. Also, the current ABC Control Rule mixes the uncertainty evaluation (an SSC responsibility) with risk tolerance (a Council responsibility), and relies upon the SSC to make recommendations with regard to both components. Both the Council and SSC have recommended that establishing the risk tolerance for overfishing is a Council responsibility, and support modifying the ABC Control Rule to separate uncertainty and risk determinations. While the ABC Control Rule changes will allow the Council to exercise its ability to establish an appropriate overfishing risk tolerance, an amendment modifying the ABC Control Rule will not be completed in time to address the issues with Golden Tilefish.

Because the majority of the Golden Tilefish landings are taken between January and early spring in most years, and ABC recommendations based on the revised Golden Tilefish assessment will not be available until late October 2017 for Council review in December 2017, there is not sufficient time for the Council to take action to implement the revised ABC values for the 2018 fishing season. Therefore, the Council requests that NMFS take action to issue interim measures to set the total ACL for 2018 at the projected yield at 75% F_{MSY}, equal to 323,000 pounds gutted weight. The Council understands that the interim measures would be effective for 180 days after the date of publication and may be extended for an additional 186 days while the Council develops an amendment to implement permanent measures.

Thank you for your assistance in addressing this request. Please contact Gregg Waugh or Myra Brouwer if you have any questions.

Best Regards,

Michelle A. Duval

Dr. Michelle Duval
Chair

cc: Council Members and Staff
Jack McGovern and Rick DeVictor
Monica Smit-Brunello
Bonnie Ponwith, Theo Brainerd, Trika Gerard, and Erik Williams

Appendix E. History of Management of the Snapper Grouper Fishery of the South Atlantic Region

South Atlantic Snapper Grouper History of Management
Last Updated: 7/28/17

The snapper grouper fishery is highly regulated; some of the species included in this amendment have been regulated since 1983. The following table summarizes actions in each of the amendments to the original Snapper Grouper Fishery Management Plan (Snapper Grouper FMP), as well as some events not covered in amendment actions.

*Shaded rows indicate FMP Amendments

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
FMP (1983)	08/31/83	PR: 48 FR 26843 FR: 48 FR 39463	-12" total length (TL) limit – red snapper, yellowtail snapper, red grouper, Nassau grouper; -8" limit – black sea bass; -4" trawl mesh size; -Gear limitations – poisons, explosives, fish traps, trawls; -Designated modified habitats or artificial reefs as Special Management Zones (SMZs).
Regulatory Amendment #1 (1987)	03/27/87	PR: 51 FR 43937 FR: 52 FR 9864	-Prohibited fishing in SMZs except with hand-held hook-and-line and spearfishing gear; -Prohibited harvest of goliath grouper in SMZs.
Amendment #1 (1988a)	01/12/89	PR: 53 FR 42985 FR: 54 FR 1720	-Prohibited trawl gear to harvest fish south of Cape Hatteras, NC and north of Cape Canaveral, FL; -Directed fishery defined as vessel with trawl gear and ≥200 lbs s-g on board; -Established rebuttable assumption that vessel with s-g on board had harvested such fish in the exclusive economic zone (EEZ).
Regulatory Amendment #2 (1988b)	03/30/89	PR: 53 FR 32412 FR: 54 FR 8342	-Established 2 artificial reefs off Ft. Pierce, FL as SMZs.
Emergency Rule	8/3/90	55 FR 32257	-Added wreckfish to the fishery management unit (FMU); -Fishing year beginning 4/16/90; -Commercial quota of 2 million pounds; -Commercial trip limit of 10,000 pounds per trip.
Fishery Closure Notice	8/8/90	55 FR 32635	- Fishery closed because the commercial quota of 2 million pounds was reached.
Notice of Control Date	09/24/90	55 FR 39039	-Anyone entering federal wreckfish fishery in the EEZ off S. Atlantic states after 09/24/90 was not assured of future access if limited entry program developed.
Regulatory	11/02/90	PR: 55 FR 28066	-Established artificial reef at Key Biscayne, FL as SMZ;

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #3 (1989)		FR: 55 FR 40394	-Fish trapping, bottom longlining, spear fishing, and harvesting of Goliath grouper prohibited in SMZ.
Amendment #2 (1990a)	10/30/90	PR: 55 FR 31406 FR: 55 FR 46213	-Prohibited harvest/possession of goliath grouper in or from the EEZ; -Defined overfishing for goliath grouper and other species.
Emergency Rule Extension	11/1/90	55 FR 40181	-Extended the measures implemented via emergency rule on 8/3/90.
Amendment #3 (1990b)	01/31/91	PR: 55 FR 39023 FR: 56 FR 2443	-Added wreckfish to the FMU; -Defined optimum yield (OY) and overfishing; -Required permit to fish for, land or sell wreckfish; -Required catch and effort reports from selected, permitted vessel; -Established control date of 03/28/90; -Established a fishing year for wreckfish starting April 16; -Established a process to set annual quota, with initial quota of 2 million pounds; provisions for closure; -Established 10,000 pound trip limit; -Established a spawning season closure for wreckfish from January 15 to April 15; -Provided for annual adjustments of wreckfish management measures.
Notice of Control Date	07/30/91	56 FR 36052	-Anyone entering federal snapper grouper fishery (other than for wreckfish) in the EEZ off S. Atlantic states after 07/30/91 was not assured of future access if limited entry program developed.
Amendment #4 (1991)	01/01/92	PR: 56 FR 29922 FR: 56 FR 56016	-Prohibited gear: fish traps except black sea bass traps north of Cape Canaveral, FL; entanglement nets; longline gear inside 50 fathoms; bottom longlines to harvest wreckfish; powerheads and bangsticks in designated SMZs off S. Carolina. -Defined overfishing/overfished and established rebuilding timeframe: red snapper and groupers ≤ 15 years (year 1 = 1991); other snappers, greater amberjack, black sea bass, red porgy ≤ 10 years (year 1 = 1991); -Required permits (commercial & for-hire) and specified data collection regulations; -Established an assessment group and annual adjustment procedure (framework); -Permit, gear, and vessel id requirements specified for black sea bass traps; -No retention of snapper grouper spp. caught in other fisheries with gear prohibited in snapper grouper fishery if captured snapper grouper had no bag limit or harvest was prohibited. If had a bag limit, could retain only the bag limit; -8" TL limit – lane snapper; -10" TL limit – vermilion snapper (recreational only); -12" TL limit – red porgy, vermilion snapper (commercial only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany, and silk snappers; -20" TL limit – red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers;

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
			-28" fork length (FL) limit – greater amberjack (recreational only); -36" FL or 28" core length – greater amberjack (commercial only); -Bag limits – 10 vermilion snapper, 3 greater amberjack -Aggregate snapper bag limit – 10/person/day, excluding vermilion snapper and allowing no more than 2 red snappers; -Aggregate grouper bag limit – 5/person/day, excluding Nassau and goliath grouper, for which no retention (recreational & commercial) is allowed; -Spawning season closure – commercial harvest greater amberjack > 3 fish bag prohibited in April; -Spawning season closure – commercial harvest mutton snapper >snapper aggregate prohibited during May and June; -Charter/headboats and excursion boat possession limits extended.
Amendment #5 (1992a)	04/06/92	PR: 56 FR 57302 FR: 57 FR 7886	For wreckfish: -Established limited entry system with individual transferable quotas (ITQs); -Required dealer to have permit; -Rescinded 10,000 lbs. trip limit; -Required off-loading between 8 am and 5 pm; -Reduced occasions when 24-hour advance notice of offloading required for off-loading; -Established procedure for initial distribution of percentage shares of total allowable catch (TAC).
Emergency Rule	8/31/92	57 FR 39365	For Black Sea Bass (bsb): -Modified definition of bsb pot; -Allowed multi-gear trips for bsb; -Allowed retention of incidentally-caught fish on bsb trips.
Emergency Rule Extension	11/30/92	57 FR 56522	For Black Sea Bass: -Modified definition of bsb pot; -Allowed multi-gear trips for bsb; -Allowed retention of incidentally-caught fish on bsb trips.
Regulatory Amendment #4 (1992b)	07/06/93	FR: 58 FR 36155	-For Black Sea Bass: -Modified definition of bsb pot; -Allowed multi-gear trips for bsb; -Allowed retention of incidentally-caught fish on bsb trips.
Regulatory Amendment #5 (1992c)	07/31/93	PR: 58 FR 13732 FR: 58 FR 35895	-Established 8 SMZs off South Carolina, where only hand-held, hook-and-line gear and spearfishing (excluding powerheads) was allowed.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #6 (1993)	07/27/94	PR: 59 FR 9721 FR: 59 FR 27242	-Set up separate commercial TAC levels for golden tilefish and snowy grouper; -Established commercial trip limits for snowy grouper, golden tilefish, speckled hind, and warsaw grouper; -Included golden tilefish in grouper recreational aggregate bag limits; -Prohibited sale of warsaw grouper and speckled hind; -100% logbook coverage upon renewal of permit; -Creation of the *Oculina* Experimental Closed Area; -Data collection needs specified for evaluation of possible future individual fishing quota system.
Amendment #7 (1994a)	01/23/95	PR: 59 FR 47833 FR: 59 FR 66270	-12" FL – hogfish; -16" TL – mutton snapper; -Required dealer, charter and headboat federal permits; -Allowed sale under specified conditions; -Specified allowable gear and made allowance for experimental gear; -Allowed multi-gear trips in NC; -Added localized overfishing to list of problems and objectives; -Adjusted bag limit and crew specs. for charter and head boats; -Modified management unit for scup to apply south of Cape Hatteras, NC; -Modified framework procedure.
Regulatory Amendment #6 (1994b)	05/22/95	PR: 60 FR 8620 FR: 60 FR 19683	-Established actions which applied only to EEZ off Atlantic coast of FL: Bag limits – 5 hogfish/person/day (recreational only), 2 cubera snapper/person/day > 30" TL; 12" TL – gray triggerfish.
Notice of Control Date	04/23/97	62 FR 22995	-Anyone entering federal black sea bass pot fishery off South Atlantic states after 04/23/97 was not assured of future access if limited entry program developed.
Interim Rule Request	1/16/98		-The South Atlantic Fishery Management Council (Council) requested all Amendment 9 measures except black sea bass pot construction changes be implemented as an interim request under the Magnuson-Stevens Act.
Action Suspended	5/14/98		-NMFS informed the Council that action on the interim rule request was suspended.
Emergency Rule Request	9/24/98		-Council requested Amendment 9 be implemented via emergency rule.
Amendment #8 (1997)	12/14/98	PR: 63 FR 1813 FR: 63 FR 38298	-Established program to limit initial eligibility for snapper grouper fishery: -Must have demonstrated landings of any species in the snapper grouper FMU in 1993, 1994, 1995 or 1996; and have held valid snapper grouper permit between 02/11/96 and 02/11/97; -Granted transferable permit with unlimited landings if vessel landed ≥ 1,000 pounds (lbs) of snapper grouper species in any of the years; -Granted non-transferable permit with 225 lbs trip limit to all

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			other vessels; -Modified problems, objectives, OY, and overfishing definitions; -Expanded the Council's habitat responsibility; -Allowed retention of snapper grouper species in excess of bag limit on permitted vessel with a single bait net or cast nets on board; -Allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule.
Regulatory Amendment #7 (1998a)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.
Amendment #9 (1998b)	2/24/99	PR: 63 FR 63276 FR: 64 FR 3624	-Red porgy: 14" TL (recreational and commercial); 5 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, in March and April; -Black sea bass: 10" TL (recreational and commercial); 20 fish rec. bag limit; required escape vents and escape panels with degradable fasteners in bsb pots; -Greater amberjack: 1 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, during April; quota = 1,169,931 lbs; began fishing year May 1; prohibited coring; -Specified size limits for several snapper grouper species (indicated in parentheses in inches TL): including yellowtail snapper (12), mutton snapper (16), red snapper (20); red grouper, yellowfin grouper, yellowmouth grouper, and scamp (20) ; -Vermilion snapper: 11" TL (recreational), 12" TL commercial; -Gag: 24" TL (recreational); no commercial harvest or possession > bag limit, and no purchase or sale, during March and April; -Black grouper: 24" TL (recreational and commercial); no harvest or possession > bag limit, and no purchase or sale, during March and April; -Gag and Black grouper: within 5 fish aggregate grouper bag limit, no more than 2 fish may be gag or black grouper (individually or in combination); -All snapper grouper without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runner; -Vessels with longline gear aboard may only possess snowy, warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish.
Emergency Action	9/3/99	64 FR 48326	-Reopened the Amendment 8 permit application process.
Emergency Interim	09/08/99,		-Prohibited harvest or possession of red porgy.

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Rule	expired 08/28/00	64 FR 48324 and 65 FR 10040	
Amendment #10 Comprehensive Essential Fish Habitat Amendment (1998c)	07/14/00	PR: 64 FR 37082 and 64 FR 59152 FR: 65 FR 37292	-Identified essential fish habitat (EFH) and established habitat areas of particular concern (HAPC) for species in the snapper grouper FMU.
Amendment #11 Comprehensive Sustainable Fisheries Act Amendment (1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	-Maximum sustainable yield (MSY) proxy: goliath and Nassau grouper = 40% static spawning potential ratio (SPR); all other species = 30% static SPR; -OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR -Overfished/overfishing evaluations: BSB: overfished (minimum stock size threshold (MSST)=3.72 mp, 1995 biomass=1.33 mp); undergoing overfishing (maximum fishing mortality threshold (MFMT)=0.72, F1991-1995=0.95) Vermilion snapper: overfished (static SPR = 21-27%) Red porgy: overfished (static SPR = 14-19%). Red snapper: overfished (static SPR = 24-32%) Gag: overfished (static SPR = 27%) Scamp: no longer overfished (static SPR = 35%) Speckled hind: overfished (static SPR = 8-13%) Warsaw grouper: overfished (static SPR = 6-14%) Snowy grouper: overfished (static SPR = 5-15%) White grunt: no longer overfished (static SPR = 29-39%) Golden tilefish: overfished (couldn't estimate static SPR) Nassau grouper: overfished (couldn't estimate static SPR) Goliath grouper: overfished (couldn't estimate static SPR) -overfishing level: goliath and Nassau grouper = F>F40% static SPR; all other species: = F>F30% static SPR Approved definitions for overfished and overfishing. MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. MFMT = F_{MSY}.
Amendment #12 (2000a)	09/22/00	PR: 65 FR 35877 FR: 65 FR 51248	For Red porgy: -MSY=4.38 mp; OY=45% static SPR; MFMT=0.43; MSST=7.34 mp; rebuilding timeframe=18 years (1999=year 1); -no sale of red porgy during Jan-April; -1 fish bag limit; -50 lbs. bycatch commercial trip limit May-December; -Modified management options and list of possible framework actions.
Regulatory Amendment #8 (2000b)	11/15/00	PR: 65 FR 41041 FR: 65 FR 61114	-Established 12 SMZs at artificial reefs off Georgia; revised boundaries of 7 existing SMZs off Georgia to meet CG permit specs; restricted fishing in new and revised SMZs.

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Amendment #9 (1998b) resubmitted	10/13/00	PR: 63 FR 63276 FR: 65 FR 55203	-Commercial trip limit for greater amberjack.
Amendment #13A (2003)	04/26/04	PR: 68 FR 66069 FR: 69 FR 15731	-Extended for an indefinite period the regulation prohibiting fishing for and possessing snapper grouper species within the *Oculina* Experimental Closed Area.
Notice of Control Date	10/14/05	70 FR 60058	-Considered management measures to further limit participation or effort in the commercial fishery for snapper grouper species (excluding wreckfish).
Amendment #13C (2006)	10/23/06	PR: 71 FR 28841 FR: 71 FR 55096	-End overfishing of snowy grouper, vermilion snapper, black sea bass, and golden tilefish. Increase allowable catch of red porgy. Year 1 = 2006; 1. Snowy Grouper Commercial: -Quota = 151,000 lbs gutted weight (gw) in year 1, 118,000 lbs gw in year 2, and 84,000 lbs gw in year 3 onwards. -Trip limit = 275 lbs gw in year 1, 175 lbs gw in year 2, and 100 lbs gw in year 3 onwards; Recreational: -Limit possession to one snowy grouper in 5 grouper per person/day aggregate bag limit; 2. Golden Tilefish Commercial: Quota of 295,000 lbs gw, 4,000 lbs gw trip limit until 75% of the quota is taken when the trip limit is reduced to 300 lbs gw. Do not adjust the trip limit downwards unless 75% is captured on or before September 1; Recreational: Limited possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit; 3. Vermilion Snapper Commercial: Quota of 1,100,000 lbs gw; Recreational: 12" TL size limit. 4. Black Sea Bass Commercial: Quota of 477,000 lbs gw in year 1, 423,000 lbs gw in year 2, and 309,000 lbs gw in year 3 onwards; -Required use of at least 2" mesh for the entire back panel of black sea bass pots effective 6 months after publication of the final rule; -Required black sea bass pots be removed from the water when the quota is met; -Changed fishing year from calendar year to June 1 – May 31; Recreational: Recreational allocation of 633,000 lbs gw in year 1, 560,000 lbs gw in year 2, and 409,000 lbs gw in year 3 onwards. Increase minimum size limit from 10" to 11" in year 1 and to 12" in year 2; -Reduced recreational bag limit from 20 to 15 per person per day; -Changed fishing year from the calendar year to June 1 through May 31.

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			5. Red Porgy Commercial and recreational: -Retained 14" TL size limit and seasonal closure (retention limited to the bag limit); -Specified a commercial quota of 127,000 lbs gw and prohibit sale/purchase and prohibit harvest and/or possession beyond the bag limit when quota is taken and/or during January through April; -Increased commercial trip limit from 50 lbs ww to 120 red porgy (210 lbs gw) during May through December;-- Increased recreational bag limit from one to three red porgy per person per day.
Notice of Control Date	3/8/07	72 FR 60794	-Considered measures to limit participation in the snapper grouper for-hire sector.
Amendment #14 (2007)	2/12/09	PR: 73 FR 32281 FR: 74 FR 1621	-Established eight deepwater Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deepwater snapper grouper species.
Amendment #15A (2008a)	3/14/08	73 FR 14942	- Established rebuilding plans and status determination criteria for snowy grouper, black sea bass, and red porgy.
Notice of Control Date	12/4/08	74 FR 7849	-Established a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic.
Notice of Control Date	12/4/08	74 FR 7849	-Established control date for black sea bass pot sector in the South Atlantic.
Amendment #15B (2008b)	2/15/10	PR: 74 FR 30569 FR: 74 FR 58902	-Prohibited the sale of snapper grouper harvested or possessed in the EEZ under the bag limits and prohibited the sale of snapper grouper harvested or possessed under the bag limits by vessels with a Federal charter vessel/headboat permit for South Atlantic snapper grouper were harvested; -Reduced the effects of incidental hooking on sea turtles and smalltooth sawfish; -Adjusted commercial permit renewal periods and transferability requirements; -Revised the management reference points for golden tilefish; -Implemented plan to monitor and assess bycatch; -Required a vessel that fished in the EEZ, if selected by NMFS, to carry an observer and install electronic logbook and/or video monitoring equipment provided by NMFS; -Established reference points for golden tilefish; -Established allocations for snowy grouper (95% commercial & 5% recreational); -Established allocations for red porgy (50% commercial & 50% recreational).
Amendment #16 (2009a)	7/29/09	PR: 74 FR 6297 FR: 74 FR 30964	-Specified status determination criteria for gag and vermilion snapper; For gag: -Specified interim allocations 51% commercial & 49% recreational; -Recreational and commercial shallow water grouper spawning closure January through April; -Directed commercial quota= 352,940 lbs gw;

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			-Reduced 5-fish aggregate grouper bag limit, including tilefish species, to a 3-fish aggregate; -Captain and crew on for-hire trips cannot retain the bag limit of vermilion snapper and species within the 3-fish grouper aggregate; For vermilion snapper: -Specified interim allocations 68% commercial & 32% recreational; -Directed commercial quota split Jan-June=315,523 lbs gw and 302,523 lbs gw July-Dec; -Reduced bag limit from 10 to 4 and a recreational closed season November through March; -Required venting and dehooking tools when catching snapper grouper species to reduce recreational and commercial bycatch mortality.
Amendment #19 Comprehensive Ecosystem-Based Amendment 1 (CE-BA1) (2009b)	7/22/10	PR: 75 FR 14548 FR: 75 FR 35330	-Amended coral, coral reefs, and live/hardbottom habitat FMP to establish deepwater coral HAPCs; -Created a "shrimp fishery access area" (SFAA) within the Stetson-Miami Terrace CHAPC boundaries; -Created allowable "golden crab fishing areas" with the Stetson-Miami Terrace CHAPC and Pourtales Terrace CHAPC boundaries; -Amended the golden crab FMP to require vessel monitoring.
Amendment #17A (2010a)	12/3/10 red snapper closure; circle hooks 3/3/2011	PR: 75 FR 49447 FR: 75 FR 76874	-Required use of non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear north of 28 deg. N latitude in the South Atlantic EEZ; -Specified an annual catch limit (ACL) and an accountability measure (AM) for red snapper with management measures to reduce the probability that catches will exceed the stocks' ACL; -Specified a rebuilding plan for red snapper; -Specified status determination criteria for red snapper; -Specified a fishery-independent monitoring program for red snapper. -Implemented an area closure for snapper grouper species.
Emergency Rule	12/3/10	75 FR 76890	-Delayed the effective date of the area closure for snapper grouper species implemented through Amendment 17A.
Amendment #17B (2010b)	1/30/11	PR: 75 FR 62488 FR: 75 FR 82280	-Specify ACL of 0 and prohibit fishing for speckled hind and warsaw grouper; -Prohibited harvest of 6 deepwater species seaward of 240 feet to curb bycatch of speckled hind and warsaw grouper (snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper, silk snapper). -Specify allocations, ACLs and AMs for golden tilefish; -Modified management measures as needed to limit harvest to the ACL or ACT; -Updated the framework procedure for specification of total allowable catch; -Specified ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing (snowy grouper, black

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			grouper, black sea bass, red grouper, vermilion snapper, gag, speckled hind, warsaw grouper, golden tilefish);
Regulatory Amendment #9 (2010a)	Bag limit: 6/22/11 Trip limits: 7/15/11	PR: 76 FR 23930 FR: 76 FR 34892	-Established trip limits for vermilion snapper and gag; -Increased trip limit for greater amberjack; -Harvest management measures for black sea bass (trip limit, split season quotas, carry-over of unused ACL, gear restrictions, bag limit modification, and a spawning season closure).
Regulatory Amendment #10 (2010b)	5/31/11	PR: 76 FR 9530 FR: 76 FR 23728	-Eliminated closed area for snapper grouper species approved in Amendment 17A.
Regulatory Amendment #11 (2011c)	5/10/12	PR: 76 FR 78879 FR: 77 FR 27374	-Eliminated 240 ft harvest prohibition for six deepwater species (snowy grouper, blueline tilefish, yellowedge grouper, queen snapper, silk snapper, misty grouper);
Amendment # 25 Comprehensive Annual Catch Limit Amendment (2011d)	4/16/12	PR: 76 FR 74757 Amended PR: 76 FR 82264 FR: 77 FR 15916	-Reorganize FMUs to 6 complexes (deepwater, jacks, snappers, grunts, shallow-water groupers, porgies) (see final rule for species list); -Established acceptable biological catch (ABC) control rules and established ABCs, ACLs, and AMs for species not undergoing overfishing; -Removed some species from South Atlantic FMU (Tiger grouper, black margate, blue-striped grunt, French grunt, porkfish, smallmouth grunt, queen triggerfish, crevalle, yellow jack, grass porgy, sheepshead, puddingwife); -Designated species as ecosystem component species (schoolmaster, ocean triggerfish, bank triggerfish, rock triggerfish, longspine porgy); -Specified allocations between the commercial and, recreational sectors for species not undergoing overfishing; -Limited the total mortality for federally managed species in the South Atlantic to the ACLs.
Amendment #24 (2011e)	7/11/12	PR: 77 FR 19169 FR: 77 FR 34254	-Rebuilding plan (including MSY, ACLs, AMs, and OY, and allocations) for red grouper.
Amendment #23 Comprehensive Ecosystem-based Amendment 2 (CE-BA2) (2011f)	1/30/12	PR: 76 FR 69230 FR: 76 FR 82183	-Designated the Deepwater MPAs as EFH-HAPCs; -Modify management measures for Octocoral; -Limit harvest of snapper grouper species in SC SMZs to the bag limit; -Modify sea turtle release gear; -Designated new EFP for pelagic Sargassum habitat.

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Amendment #18A (2012a)	7/1/12	PR: 77 FR 16991 FR: 77FR3 2408	-Limited participation and effort in the black sea bass sector; -Modifications to management of the black sea bass pot sector; -Improved data reporting (accuracy, timing, and quantity of fisheries statistics).
Amendment #20A (2012b)	10/26/12	PR: 77 FR 19165 FR: 77 FR 59129	- Individual transfer quota (ITQ) program for wreckfish: -Defined and reverted inactive shares; -Redistributed reverted shares; -Established a share cap; -Established an appeals process.
Regulatory Amendment #12 (2012c)	10/9/12	PR: 77 FR 42688 FR: 77 FR 61295	-Revised the ACL and OY for golden tilefish; -Revised recreational AMs for golden tilefish;
Amendment #18B (2013a)	5/23/13	PR: 77 FR 75093 FR: 77 FR 23858	For Golden Tilefish: -Limited participation and effort in the commercial sector through establishment of a longline endorsement; -Established eligibility requirements and allowed transferability of longline endorsement; -Established an appeals process; -Modified trip limits; -Specified allocations ACLs for gear groups (longline and hook-and-line); -Adjusted the fishing year.
Amendment #28 (2013b)	8/23/13	PR: 78 FR 25047 FR: 78 FR 44461	-Established regulations to allow harvest of red snapper in the South Atlantic (formula used to compute ACLs, AMs, fishing seasons).
Regulatory Amendment #13 (2013c)	7/17/13	PR: 78 FR 17336 FR: 78 FR 36113	-Revised the ABCs, ACLs (including sector ACLs), and ACTs for 37 species implemented by the Comprehensive ACL Amendment (see final rule for list of species). The revisions may prevent a disjunction between the established ACLs and the landings used to determine if AMs are triggered.
Regulatory Amendment #15 (2013d)	9/12/13	PR: 78 FR 31511 FR: 78 FR 49183	-Modified ACLs and OY for yellowtail snapper; -Modified the commercial and recreational yellowtail snapper fishing years and commercial spawning season closure; -Modified the gag commercial ACL and AM to remove the requirement that all other shallow water groupers (black grouper, red grouper, scamp, red hind, rock hind, graysby, coney, yellowmouth grouper, and yellowfin grouper) are prohibited from harvest in the South Atlantic when the gag commercial ACL is met or projected to be met.
Regulatory Amendment #18 (2013e)	9/5/13	PR: 78 FR 26740 FR: 78 FR 47574	-Revised ACLs and OY for vermilion snapper; -Modified commercial trip limit for vermilion snapper; -Modified commercial fishing season and recreational closed season for vermilion snapper; -Revised ACLs and OY for red porgy.

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Regulatory Amendment #19 (2013f)	ACL: 9/23/13 Pot closure: 10/23/13	PR: 78 FR 39700 FR: 78 FR 58249	-Specified ABC, and adjusted the ACL, recreational ACT and OY for black sea bass; -Implemented an annual closure on the use of black sea bass pots from November 1 to April 30.
Amendment #27 (2013g)	1/27/2014	PR:78 FR 78770 FR: 78 FR 57337	-Established the South Atlantic Council as the responsible entity for managing Nassau grouper throughout its range including federal waters of the Gulf of Mexico; -Modified the crew member limit on dual-permitted snapper grouper vessels; -Modified the restriction on retention of bag limit quantities of some snapper grouper species by captain and crew of for-hire vessels; -Minimized regulatory delay when adjustments to snapper grouper species' ABC, ACLs, and ACTs are needed as a result of new stock assessments; -Removed blue runner from Snapper Grouper FMP; -Addressed harvest of blue runner by commercial fishermen who do not possess a South Atlantic Snapper Grouper Permit.
Amendment #31 Joint South Atlantic and Gulf of Mexico Generic Headboat Reporting Amendment (2013h)	1/27/2014	PR: 78 FR 59641 FR: 78 FR 78779	-Included under the Generic charter/headboat reporting amendment, that modified required logbook reporting for headboat vessels to require electronic reporting, regarding snapper grouper landings.
Amendment (Revisions to Dealer Permitting and Reporting Requirements) (2013i)	8/7/2014	PR: 79 FR 81 FR: 79 FR 19490	- Modified permitting and reporting requirements for seafood dealers who first receive fish managed by the SA and Gulf through eight FMPs.
Regulatory Amendment #14 (2014a)	12/8/2014	PR: 79 FR 22936 FR: 79 FR 66316	-Modified the commercial and recreational fishing year for greater amberjack; -Modified the commercial and recreational sector fishing years for black sea bass; -Modified the recreational AM for black sea bass; -Modified the recreational AM for vermilion snapper; -Modify the commercial trip limit for gag.
Regulatory Amendment # 21 (2014b)	11/6/2014	PR: 79 FR 44735 FR: 79 FR 60379	-Modified the definition of the MSST for red snapper, blueline tilefish, gag, black grouper, yellowtail snapper, vermilion snapper, red porgy, and greater amberjack.
Amendment #29 (2014c)	7/1/2015	NOA: 79 FR 69819 PR: 79 FR 72567 FR: 80 FR 30947	-Updated the ABC control rule to incorporate methodology for determining the ABC of unassessed species; -Adjusted the ABCs for fourteen unassessed snapper grouper species (see final rule); -Adjusted the ACLs and ACTs for three species complexes and four snapper grouper species based on revised ABCs; -Established ACLs for unassessed species;

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			-Modified gray triggerfish minimum size limits; -Established a commercial split season and commercial trip limits for gray triggerfish.
Blueline Tilefish Emergency Rule	4/17/2014 through 10/10/2014 or 4/18/2015	PR: 79 FR 21636 FR:79 FR 61262	-Removed the blueline tilefish portion from the deep-water complex ACL; -Established separate commercial and recreational ACLs and AMs for blueline tilefish.
Regulatory Amendment #20 (2014d)	8/20/2015	PR: 80 FR 18797 FR: 80 FR 43033	-Adjusted the recreational and commercial ACLs for snowy grouper; -Adjusted the rebuilding strategy; -Modified the commercial trip limit; -Modified recreational bag limit; -Modified the recreational fishing season.
Amendment #32 (2014e)	3/30/2015	PR: 80 FR 3207 FR: 80 FR 16583	-End overfishing of blueline tilefish; -Removed blueline tilefish from the deepwater complex; -Specified AMs, ACLs, recreational ACLs, commercial trip limit, adjust recreational bag limit for blueline tilefish; -Specified ACLs and revised the AMs for the recreational section of the deepwater complex (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, black snapper, and blackfin snapper);
Regulatory Amendment #22 (2015a)	9/11/2015, except for the amendments to §§ 622.190(b) and 622.193(r)(1) which were effective 8/12/2015	PR: 80 FR 31880 FR: 80 FR 48277	-Adjusted ACLs and OY for gag and wreckfish;
Amendment # 33 Dolphin Wahoo Amendment 7 and Snapper Grouper Amendment 33 (2015b)	12/28/2015	NOA:80 FR 55819 PR:80 FR 60601 FR:80 FR 80686	-Allowed dolphin and wahoo fillets to enter the United States. EEZ after lawful harvest in The Bahamas; -Specified the condition of any dolphin, wahoo, and snapper grouper fillets; -Described how the recreational bag limit is determined for any fillets; -Prohibited the sale or purchase of any dolphin, wahoo, or snapper grouper recreationally harvested in The Bahamas; -Specified the required documentation to be onboard any vessels that have these fillets; -Specified transit and stowage provisions for any vessels with fillets.
Amendment #34 Generic Accountability Measures and Dolphin Allocation Amendment	2/22/2016	NOA:80 FR 41472 PR:80 FR 58448 FR:81 FR 3731	-Modified AMs for snapper grouper species (golden tilefish, snowy grouper, gag, red grouper, black grouper, scamp, the shallow-water grouper complex (SASWG: red hind, rock hind, yellowmouth grouper, yellowfin grouper, coney, and graysby), greater amberjack, the jacks complex (lesser amberjack, almaco jack, and banded rudderfish), bar jack, yellowtail snapper, mutton snapper, the snappers complex (cubera snapper, gray snapper, lane snapper, dog snapper, and

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(2015c)			mahogany snapper), gray triggerfish, wreckfish (recreational sector), Atlantic spadefish, hogfish, red porgy, the porgies complex (jolthead porgy, knobbed porgy, whitebone porgy, scup, and saucereye porgy); -Modified the AM for commercial golden crab fishery; -Adjusted sector allocations for dolphin.
Amendment #35 (2015d)	6/22/2016	NOA:81 FR 6222 PR:81 FR 11502 FR:81 FR 32249	-Removed black snapper, dog snapper, mahogany snapper, and schoolmaster from the Snapper Grouper FMP; -Clarified regulations governing the use of Golden Tilefish Longline Endorsements.
Regulatory Amendment #16 (2016a)	12/29/2016 (closure) 1/30/2017 (gear markings)	NOI: 78 FR 72868 PR: 81 FR 53109 FR: 81 FR 95893	-Revise the area where fishing with black sea bass pots is prohibited from Nov.1-April 30. -Add additional gear marking requirements for black sea bass pot gear.
Regulatory Amendment #25 (2016b)	8/12/2016 except changes to blueline tilefish, effective 7/13/2016.	PR: 81 FR 34944 FR: 81 FR 45245	-Revised commercial and recreational ACL for blueline tilefish; -Revised the recreational bag limit for black sea bass; -Revised the commercial and recreational fishing year for yellowtail snapper.
Amendment #36 (2016d)	7/31/17	NOI: 82 FR 810 PR: 82 FR 5512 FR:82 FR 29772	-Established SMZs to enhance protection for snapper grouper species in spawning condition including speckled hind and warsaw grouper.
Amendment #37 (2016c)	8/24/17	NOI: 80 FR 45641 NOA: 81 FR 69774 PR: 81 FR 91104 FR:8 2 FR 34584	-Modified the hogfish fishery management unit; -Specified fishing levels for the two South Atlantic hogfish stocks; -Established a rebuilding plan for the Florida Keys/East Florida stock; -Established/revised management measures for both hogfish stocks in the South Atlantic Region, such as size limits, recreational bag limits, and commercial trip limits.
Amendment #41 (2017a)	TBD	TBD	-Update the MSY, ABC, ACL, OY, minimum stock size threshold, designate spawning months for regulatory purposes, and revise management measures for mutton snapper.

Appendix F. Regulatory Flexibility Analysis (RFA)

1. Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration. The RFA does not contain any decision criteria; instead, the purpose of the RFA is to inform the agency, as well as the public, of the expected economic impacts of various alternatives contained in the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (FMP) or amendment (including framework management measures and other regulatory actions). The RFA is also intended to ensure that the agency considers alternatives that minimize the expected impacts while meeting the goals and objectives of the FMP and applicable statutes.

With certain exceptions, the RFA requires agencies to conduct a regulatory flexibility analysis for each proposed rule. The regulatory flexibility analysis is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. In addition to analyses conducted for the environmental assessment, the regulatory flexibility analysis provides: 1) A statement of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practical, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and, 6) a description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

Additional information on the description of affected entities may be found in **Chapter 3,** and additional information on the expected economic effects of the proposed rule may be found in **Chapter 4**.

2. Statement of the Need for, Objective of, and Legal Basis for the Proposed Action

The purpose of this action is to reduce the harvest of golden tilefish while the South Atlantic Fishery Management Council explores long-term options to end overfishing and rebuild the stock. This action arises from the need to address overfishing of the golden tilefish stock in a way that would minimize future adverse, biological effects to the golden tilefish stock and adverse, socio-economic effects to fishermen and fishing communities that utilize the golden tilefish portion of the snapper grouper fishery and achieve optimum yield on a continuing basis.

The Magnuson-Stevens Fishery Conservation and Management Act provides the statutory basis for this proposed rule.

3. Description and Estimate of the Number of Small Entities to which the Proposed Action would Apply

The proposed rule would reduce the South Atlantic golden tilefish stock and sector (commercial and recreational) annual catch limits (ACLs). As a result, this rule would directly affect federally permitted commercial fishermen fishing for golden tilefish in the South Atlantic. Recreational anglers fishing for golden tilefish would also be directly affected by this rule, but anglers are not considered business entities under the RFA. For-hire vessels will also be affected by this action but only in an indirect way. For RFA purposes only, the National Marine Fisheries Service has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (see 50 CFR § 200.2). A business primarily engaged in commercial fishing (NAICS code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including affiliates), and has combined annual receipts not in excess of $11 million for all its affiliated operations worldwide.

From 2012 through 2016, an average of 23 longline vessels per year landed golden tilefish in the South Atlantic (**Table 3.3.2**). The golden tilefish longline endorsement system started only in 2013. These vessels, combined, averaged 255 trips per year in the South Atlantic on which golden tilefish were landed and 182 other trips (**Table 3.3.2**). The average annual total dockside revenue (2016 dollars) for these vessels combined was approximately $1.56 million from golden tilefish, approximately $0.10 million from other species co-harvested with golden tilefish (on the same trips), and approximately $0.43 million from other trips by these vessels on trips in the South Atlantic on which no golden tilefish were harvested or occurred in other areas (**Table 3.3.3**). Total average annual revenue from all species harvested by longline vessels harvesting golden tilefish in the South Atlantic was approximately $2.10 million, or approximately $92,000 per vessel. Longline vessels generated approximately 74 percent of their total revenues from golden tilefish. For the same period, an average of 82 vessels per year landed golden tilefish using other gear types (mostly hook-and-line) in the South Atlantic **(Table 3.3.4**). These vessels, combined, averaged 483 trips per year in the South Atlantic on which golden tilefish were landed and 2,862 trips taken in the South Atlantic on which golden tilefish were not harvested or in other areas. The average annual total dockside revenue (2016 dollars) for these 82 vessels was approximately $0.36 million from golden tilefish, approximately $0.66 million from other species co-harvested with golden tilefish (on the same trips in the South Atlantic), and approximately $4.13 million from the other trips taken by these vessels (**Table 3.3.5**). The total average annual revenue from all species harvested by these 82 vessels was approximately $5.16 million, or approximately $62,000 per vessel. Approximately 7 percent of these vessels' total revenues came from golden tilefish.

Based on the foregoing revenue information, all commercial vessels using longlines or other gears affected by the proposed rule may be assumed to be small entities.

4. Description of the Projected Reporting, Record-keeping and Other Compliance Requirements of the Proposed Action

No duplicative, overlapping, or conflicting Federal rules have been identified with this proposed rule.

5. Identification of All Relevant Federal Rules, which may Duplicate, Overlap or Conflict with the Proposed Action

The proposed action would not introduce any changes to reporting and record-keeping and other compliance requirements which are currently required.

6. Significance of Economic Impacts on a Substantial Number of Small Entities

Substantial Number of Small Entities Criterion

All directly affected entities have been determined, for the purpose of this analysis, to be small entities. Therefore, the proposed rule would affect a substantial number of small entities.

Significant Economic Impact Criterion

The outcome of "significant economic impact" can be ascertained by examining two issues: disproportionality and profitability.

Disproportionality: Do the regulations place a substantial number of small entities at a significant competitive disadvantage to large entities?

All entities that are expected to be affected by this proposed rule are considered small entities, so the issue of disproportional effects on small versus large entities does not presently arise.

Profitability: Do the regulations significantly reduce profit for a substantial number of small entities?

Reducing the South Atlantic golden tilefish stock ACL would reduce the specific ACLs for the commercial and recreational sectors. These ACL reductions would result in ex-vessel revenue losses of approximately $600,000 for longline vessels and $229,000 for hook-and-line vessels. Ex-vessel revenue reductions for the commercial sector could result in profit reductions, although this is more likely for longline vessels as they are more dependent on golden tilefish than hook-and-line vessels.

7. Description of the Significant Alternatives to the Proposed Action and Discussion of How the Alternatives Attempt to Minimize Economic Impacts on Small Entities

Four alternatives, including the preferred alternative as described above, were considered for reducing the stock and sector ACLs for the South Atlantic golden tilefish. The first alternative, the no action alternative, would maintain the current economic benefits to all participants in the South Atlantic golden tilefish component of the snapper grouper fishery. This alternative, however, would not address the need to curtail continued overfishing of the stock, likely leading into the adoption of more stringent measures in the near future.

The second alternative would reduce the ACLs more than the preferred alternative, and thus would be expected to result in larger revenue (and profit) losses to the commercial sector. The third alternative would establish higher ACLs than the preferred alternative, and although this alternative would result in lower revenue losses to the commercial sector, the ACLs it would establish may not be enough to address the overfishing status of the stock. To an extent, this alternative would leave open a higher likelihood of

implementing more stringent measures when a more permanent management action is enacted in the near future.

Appendix G. Other Applicable Law

1.1 Administrative Procedure Act (APA)

All federal rulemaking is governed under the provisions of the APA (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Among other things under the APA, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it takes effect, with some exceptions. Through the interim measures, temporary ACLs must be implemented as soon as possible to minimize future, adverse biological effects to the golden tilefish stock and adverse socio-economic effects to fishermen and fishing communities that utilize the golden tilefish portion of the snapper grouper fishery. The proposed rule associated with this action will have a request for public comments, which complies with the APA, and upon publication of the final rule, unless the rule falls within an APA exception, there will be a 30-day wait period before the regulations are effective.

1.2 Information Quality Act (IQA)

The IQA (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-443)) which took effect October 1, 2002, directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidelines to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with OMB guidelines, and report periodically to OMB on the number and nature of complaints. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the IQA. Golden Tilefish Interim Rule has used the best available information and made a broad presentation thereof. The information contained in this document was developed using best available scientific information. Therefore, this document is in compliance with the IQA.

1.3 Coastal Zone Management Act (CZMA)

Section 307(c)(1) of the federal CZMA of 1972 requires that all federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. While it is the goal of the Council to have management measures that complement those of the states, federal and state administrative procedures vary and regulatory changes are unlikely to be fully instituted at the same time. The Council believes the actions in this amendment are consistent to the maximum extent practicable with the Coastal Zone Management Plans of Florida, Georgia, South Carolina, and North Carolina. Pursuant to Section 307 of the CZMA, this determination will be submitted to the responsible state agencies who administer the approved Coastal Zone Management Programs in the States of Florida, South Carolina, Georgia, and North Carolina.

1.4 Endangered Species Act (ESA)

The ESA of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies must ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NMFS to consult with the appropriate administrative agency (itself for most marine species, and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They are concluded informally when proposed actions may affect but are "not likely to adversely affect" threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" threatened or endangered species or adversely modify designated critical habitat.

On December 1, 2016, NMFS completed a new biological opinion on the snapper grouper fishery of the South Atlantic region. In this biological opinion, NMFS concluded that the snapper grouper fishery's continued authorization is not likely to jeopardize the continued existence of the NARW, loggerhead sea turtle Northwest Atlantic DPS, leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle North Atlantic DPS, green sea turtle South Atlantic DPS, hawksbill sea turtle, smalltooth sawfish U.S. DPS, or Nassau grouper. NMFS concluded that the proposed action is not likely to adversely affect designated critical habitat or other ESA-listed species in the South Atlantic region. Refer to **Section 3.2.5 (Protected Species**) for more information on species, or DPSs of species, protected by federal law that may occur in the EEZ of the South Atlantic region, or specific analyses ("Section 7 consultations") conducted by NMFS to evaluate the potential adverse effects from the South Atlantic snapper grouper fishery on species and critical habitat protected under the ESA.

1.5 Executive Order 12612: Federalism

E.O. 12612 requires agencies to be guided by the fundamental federalism principles when formulating and implementing policies that have federalism implications. The purpose of the Order is to guarantee the division of governmental responsibilities between the federal government and the states, as intended by the framers of the Constitution. No federalism issues have been identified relative to the actions proposed in this document and associated regulations. Therefore, preparation of a Federalism assessment under E.O. 12612 is not necessary.

1.6 Executive Order 12866: Regulatory Planning and Review

Under Section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act, emergency or interim rules are exempt from the requirements of E.O. 12866. An economic analysis of the proposed action has been conducted and incorporated in the amendment.

1.7 Executive Order 12898: Environmental Justice

E.O. 12898 requires that "to the greatest extent practicable and permitted by law…each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, 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 and possessions."

The alternatives being considered in this document are not expected to result in any disproportionate adverse human health or environmental effects to minority populations or low-income populations of Florida, North Carolina, South Carolina, or Georgia, rather the impacts would be spread across all participants in the snapper grouper fishery regardless of race or income. A detailed description of the communities impacted by the actions contained in this document and potential socioeconomic impacts of those actions are contained in **Chapter 3** and Chapter **4** of this document

1.8 Executive Order 12962: Recreational Fisheries

E.O. 12962 requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods. Additionally, the Order establishes a seven-member National Recreational Fisheries Coordination Council responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The National Recreational Fisheries Coordination Council also is responsible for developing, in cooperation with federal agencies, states and tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

The alternatives considered in this document are consistent with the directives of E.O. 12962.

1.9 Executive Order 13089: Coral Reef Protection

E.O. 13089, signed by President William Clinton on June 11, 1998, recognizes the ecological, social, and economic values provided by the Nation's coral reefs and ensures that federal agencies are protecting these ecosystems. More specifically, the Order requires federal agencies to identify actions that may harm U.S. coral reef ecosystems, to utilize their program and authorities to protect and enhance the conditions of such ecosystems, and to ensure that their actions do not degrade the condition of the coral reef ecosystem.

The alternatives considered in this document are consistent with the directives of E.O. 13089.

1.10 Executive Order 13158: Marine Protected Areas (MPAs)

E.O. 13158 was signed on May 26, 2000, to strengthen the protection of U.S. ocean and coastal resources through the use of Marine Protected Areas. The E.O. defined MPAs as "any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." It directs federal agencies to work closely with state, local and non- governmental partners to create a comprehensive network of MPAs "representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources."

The alternatives considered in this document are consistent with the directives of E.O. 13158.

1.11 Marine Mammal Protection Act (MMPA)

The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs. Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted." A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. This amendment required the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; development and implementation of take-reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fisheries; and studies of pinniped-fishery interactions. The MMPA requires a commercial fishery to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; and Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are required to obtain a marine mammal authorization by registering with the Marine Mammal Authorization Program (50 CFR 229.4). They are also required to accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans. The commercial hook-and-line components of the South Atlantic snapper grouper fishery (i.e., bottom longline, bandit gear, and handline), which target snapper grouper species are listed as part of a Category III fishery in the final List of Fisheries (LOF) for 2017 (82 FR 3655, January 12, 2017) because there have been no documented interactions between these gear and marine mammals. The action in this EA is not expected to negatively impact the provisions of the MMPA.

1.12 National Environmental Policy Act (NEPA)

This document has been written and organized in a manner that meets NEPA requirements, and thus is a consolidated NEPA document, including an EA, as described in NOAA Administrative Order (NAO) 216- 6, Section 6.03a.2.

Purpose and Need for Action

The purpose and need for this action are described in **Chapter 1**.

Alternatives

The alternatives for this action are described in **Chapter 2**.

Affected Environment

The affected environment is described in **Chapter 3**.

Impacts of the Alternatives

The impacts of the alternatives on the environment are described in **Chapter 4**.

1.13 National Marine Sanctuaries Act (NMSA)

Under the NMSA (also known as Title III of the Marine Protection, Research and Sanctuaries Act of 1972), as amended, the U.S. Secretary of Commerce is authorized to designate National Marine Sanctuaries to protect distinctive natural and cultural resources whose protection and beneficial use requires comprehensive planning and management. The National Marine Sanctuary Program is administered by the Sanctuaries and Reserves Division of NOAA. The NMSA provides authority for comprehensive and coordinated conservation and management of these marine areas. The National Marine Sanctuary Program currently comprises 13 sanctuaries around the country, including sites in American Samoa and Hawaii. These sites include significant coral reef and kelp forest habitats, and breeding and feeding grounds of whales, sea lions, sharks, and sea turtles. The three sanctuaries in the South Atlantic exclusive economic zone are the USS Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries.

The alternatives considered in this document are not expected to have any adverse impacts on the resources managed by the National Marine Sanctuaries.

1.14 Paperwork Reduction Act (PRA)

The purpose of the PRA is to minimize the burden on the public. The PRA is intended to ensure that the information collected under the proposed action is needed and is collected in an efficient manner (44 U.S.C. 3501 (1)). The authority to manage information collection and record keeping requirements is vested with the Director of the Office of Management and Budget (OMB). This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications. The PRA requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public. The action in this document is does not trigger the PRA.

1.15 Regulatory Flexibility Act (RFA)

The RFA of 1980 (5 U.S.C. 601 et seq.) requires federal agencies to assess the impacts of regulatory actions implemented through notice and comment rulemaking procedures on small businesses, small organizations, and small governmental entities, with the goal of minimizing adverse impacts of burdensome regulations and record-keeping requirements on those entities. Under the RFA, NMFS must determine whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities. If not, a certification to this effect must be prepared and submitted to

the Chief Counsel for Advocacy of the Small Business Administration. Alternatively, if a regulation is determined to significantly impact a substantial number of small entities, the RFA requires the agency to prepare an initial and final Regulatory Flexibility Analysis to accompany the proposed and final rule, respectively. These analyses, which describe the type and number of small businesses, affected, the nature and size of the impacts, and alternatives that minimize these impacts while accomplishing stated objectives, must be published in the *Federal Register* in full or in summary for public comment and submitted to the chief counsel for advocacy of the Small Business Administration. Changes to the RFA in June 1996 enable small entities to seek court review of an agency's compliance with the RFA's provisions.

As NMFS has determined whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities, a certification to this effect will be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration.

This amendment includes the RFA as **Appendix F**.

1.16 Small Business Act (SBA)

Enacted in 1953, the SBA requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise. The objectives of the SBA are to foster business ownership by individuals who are both socially and economically disadvantaged; and to promote the competitive viability of such firms by providing business development assistance including, but not limited to, management and technical assistance, access to capital and other forms of financial assistance, business training, and counseling, and access to sole source and limited competition federal contract opportunities, to help firms achieve competitive viability. Because most businesses associated with fishing are considered small businesses, NMFS, in implementing regulations, must make an assessment of how those regulations will affect small businesses. The alternatives considered in this document are consistent with the directives of the SBA.

1.17 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Fishery Conservation and Management Act to require that a FMP or FMP amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to a fishery for vessels that would be otherwise prevented from participating in the fishery because of safety concerns related to weather or to other ocean conditions. No vessel would be forced to participate in South Atlantic fisheries under adverse weather or ocean conditions as a result of the imposition of management regulations proposed in this amendment. No concerns have been raised by South Atlantic fishermen or by the U.S. Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions.

Appendix H. Data Analysis

NMFS SERO
LAPP/DM Branch

South Atlantic golden tilefish season lengths were projected by sector for each of the four alternatives in Action 1 **(Table H-1)**. Landings data for South Atlantic golden tilefish were obtained from the Southeast Fisheries Science Center (SEFSC) commercial (5/2/2017) and recreational (6/27/2017) Annual Catch Limit (ACL) datasets. Projected future landings were determined from taking a three-year average of the three most recent years of complete data for each month, as the most recent data are believed to be the best approximation of future harvest.

Table H-1. The projected closure dates of Golden Tilefish by sector for each alternative.

Sector	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
Commercial Hook-and-Line	September 28	April 26	March 31	June 15
Commercial Longline	February 27	February 1	January 27	February 12
Recreational	April 20	April 4	March 28	April 16

Commercial Hook-and-Line

Future commercial hook-and-line landings were predicted using the most recent three-year average of landings from 2014, 2015, and 2016. When monthly data were not available during those three years, 2007 data were used to substitute landings. Due to the commercial hook-and-line sector closure in 2014 (8/29/14) the monthly landings for August 2014 were expanded using the ratio of total days in the month to those when the fishery was open (ratio = 1.11). Prior to 2014, the commercial sector was not separated by gear type and typically closed prior to the end of the fishing year. Because there were no landings recorded in September 2014 due to the August closure that year, it was necessary to substitute September 2007 landings for September 2014 landings (**Figure H-1**). September 2007 landings were the most recent September landings prior to 2014. Monthly averages were converted into daily rates to project season lengths under the different alternatives (**Table H-1**). The predicted seasonal closure dates ranged from March 31 for **Alternative 3** (lowest ACL) to September 28 for **Alternative 1** (**No Action**).

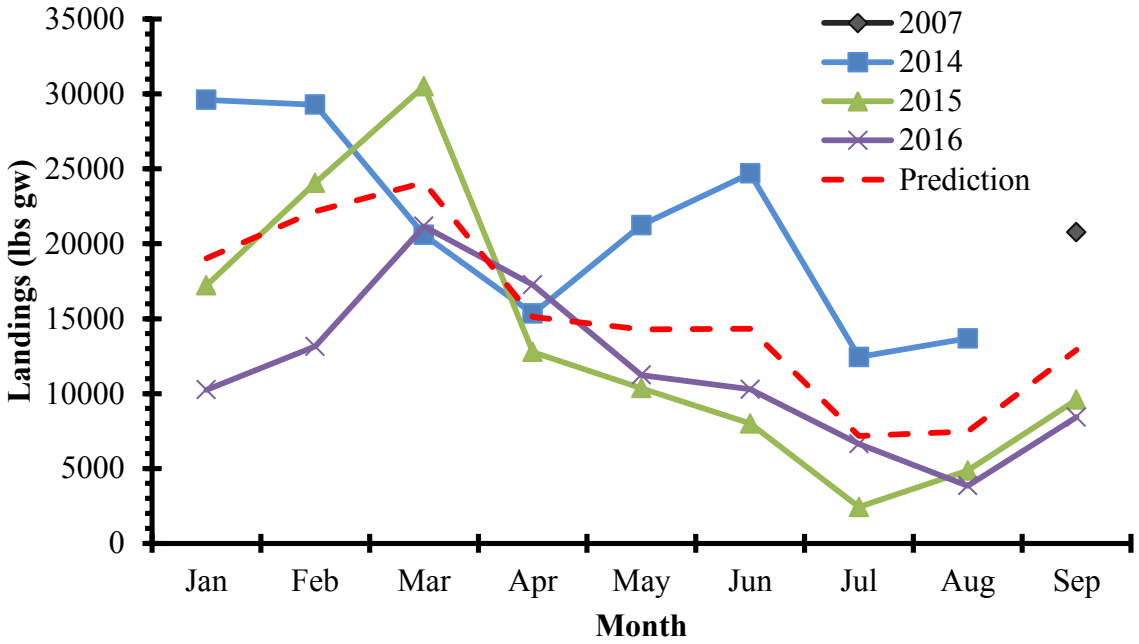


Figure H-1. South Atlantic golden tilefish commercial hook-and-line landings by month for 2007, 2014, 2015, 2016, and predicted future landings. Only data for the months of January through September are shown because all of the predicted closure dates occur in September or earlier.

Commercial Longline

Future commercial longline landings were predicted using the three-year average of landings from 2014, 2015, and 2016. In 2015, the commercial longline fishery closed in February (2/19/15), therefore the monthly average was expanded using the ratio of total days in the month to those when the fishery was open (ratio = 1.56). Since none of the projected closures extended past February, it was not necessary to predict landings beyond February (**Figure H-2**). The monthly averages were converted into daily rates to project season lengths under the different alternatives (**Table H-1**). The predicted seasonal closure dates ranged from the end of January to the end of February.

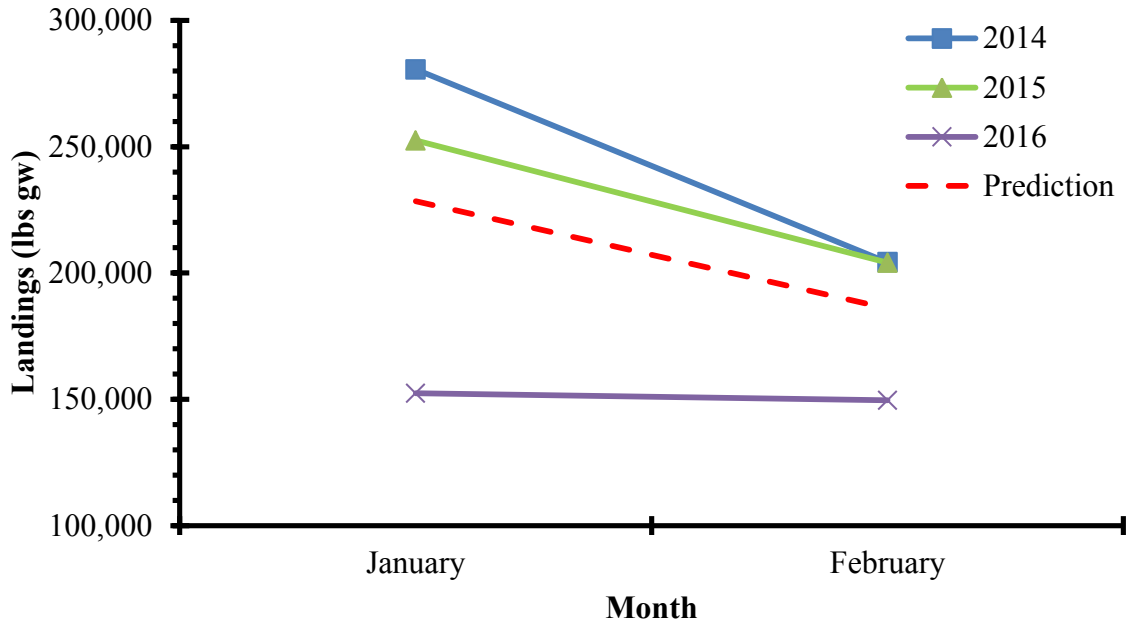


Figure H-2. South Atlantic golden tilefish longline landings by month for 2014, 2015, 2016, and predicted future landings. Only data for the months of January through February are shown because all of the predicted closure dates occur in February or earlier.

Recreational

Future January through April recreational landings were predicted from average recreational landings from 2014, 2015, and 2016. Recreational landings are collected in two-month increments called waves (e.g., January and February = wave 1, March and April = wave 2, etc.). The fishery closed during wave three (May/June) for 2014, thus it was necessary to substitute 2011 wave 3 data for 2014 wave 3 data to have three years of landings history (**Figure H-3**). The different closure dates span approximately one and a half months from the end of March under **Alternative 3** to the end of April for **Alternative 1 (No Action) (Table H-1)**.

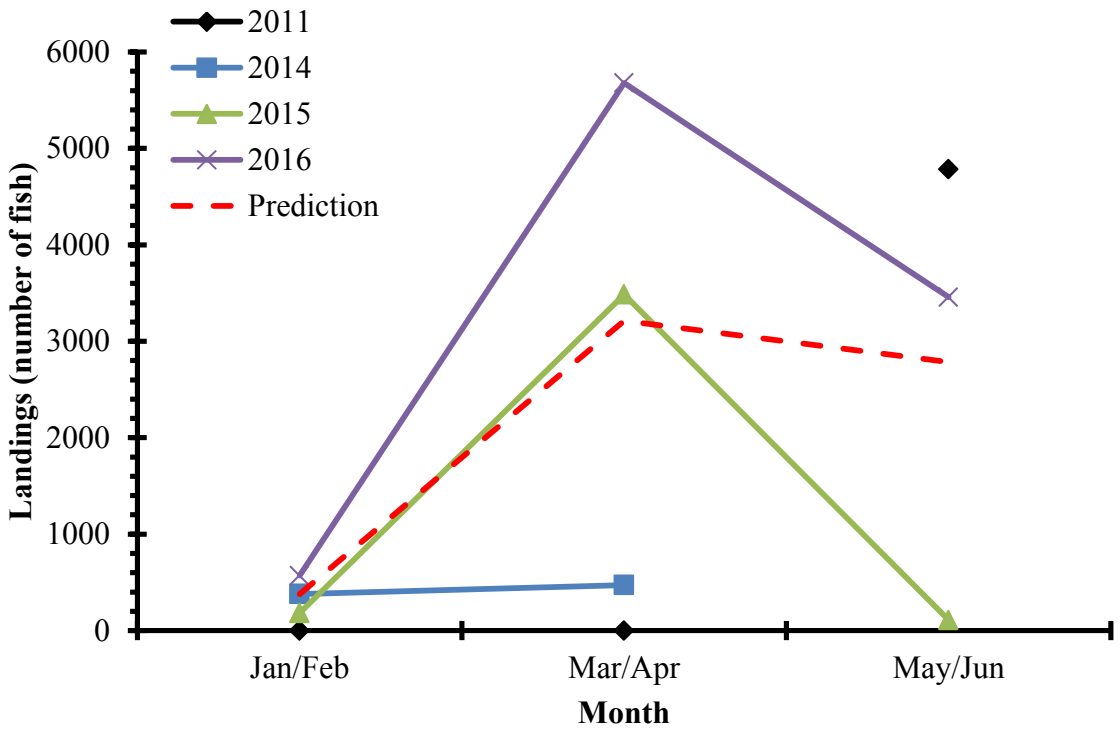


Figure H-3. South Atlantic golden tilefish recreational landings by two-month wave and predicted future landings. Only data for the months of January through June are shown because all of the predicted closure dates occur in June or earlier.

As with most projections, the reliability of the results is dependent upon the accuracy of their underlying data and input assumptions. A realistic baseline as a foundation for comparisons was attempted under the assumption that projected future landings will accurately reflect actual future landings. Uncertainty exists in this projection, as economic conditions, weather events, changes in catch-per-unit effort, fisher response to management regulations, and a variety of other factors may cause departures from this assumption.

Recreational Average Weight

The Council prefers specifying the recreational ACL in numbers of fish and the commercial ACL in pounds. The rationale is that recreational landings are already tracked in numbers of fish while commercial landings are tracked in pounds. Issues develop, however, when different size limits are considered for management and the commercial and recreational ACLs are in different units. If the minimum size limit is increased, the average size, and therefore weight, of fish harvested would also increase. If the method for converting between an ACL in pounds and an ACL in numbers does not address the change in average weight, the expected increase in the average weight of landed fish could lead to the poundage associated with the ACL specified in numbers exceeding the ACL expressed in pounds. This could also result in a perceived shift in allocations when they are compared in the original units across sectors, and if the change in weight landed is great enough, the ABC and overfishing limit (OFL) in pounds could be exceeded. To avoid these issues, the method described below was used to specify the recreational ACL for golden tilefish in numbers of fish. This method was designed to keep the numbers of fish harvested constant while allowing the yield to vary based on the possible change in

selectivity due to changes in the minimum size limit. Specifying the recreational ACL in numbers results in a lower risk of exceeding the recreational ACL.

Recreational landings data collected through the Marine Recreational Information Program (MRIP) and Southeast Region Headboat Survey were used to calculate the average weight of South Atlantic golden tilefish. From 2012-2016, the average weight of recreational golden tilefish have ranged annually from 4.21 pounds (lbs) gutted weight (gw) to 5.11 lbs gw. An average of the five-year span (2012-2016) provides an average weight of 4.43 lbs gw. Therefore, an average weight conversion factor of 4.43 lbs gw was used for converting the recreational ACL into numbers of fish.

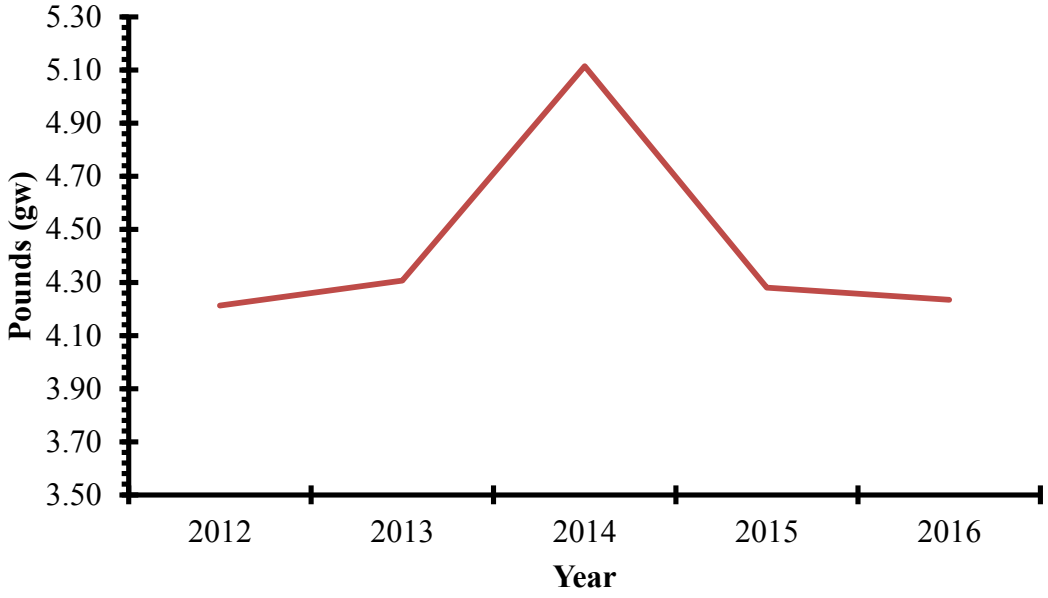


Figure H-4. The average weight (pounds gutted) of recreational golden tilefish from 2012-2016. Source: Southeast Fisheries Science Center recreational (6/7/2017) MRIP ACL dataset.

Bycatch Analysis

A decrease in the recreational and commercial ACL for South Atlantic golden tilefish can result in a harvest closure that could cause an increase in golden tilefish discards while targeting other reef fish species. One management tool available to determine potential discard changes is species groupings identified by Farmer et al. (2010) using multivariate statistical analyses. The authors concluded that South Atlantic golden tilefish occur in deeper waters than many reef species and were relatively spatially restricted, possibly due to their preference of softer sediment types. The species most likely to be captured with golden tilefish included yellowedge grouper, warsaw grouper, snowy grouper, silk snapper, and wreckfish. However, it was noted that many of the overlapping occurrences for these species with golden tilefish were minimal except for yellowedge grouper. The Farmer et al. (2010) results are similar to research by Pulver et al. (2016) that provided evidence that commercial fishers in the Gulf of Mexico able to selectively target golden tilefish and yellowedge grouper were the only commercially managed species with a positive co-occurrence association. From these studies, it is likely any increase in discards of golden tilefish associated with a harvest closure from decreasing the ACL will be minimal due to limited co-occurrence with other targeted reef fish species. Additionally, management measures are not likely to affect golden tilefish discard mortality that is likely very high currently due to the deep capture

depth. Increased discards are considered wasteful and reduces overall yield obtained from the fishery. However, if the ACL for the harvest of golden tilefish is decreased, it is expected to positively impact the stock by fostering a faster recovery rate because golden tilefish are rarely caught with other managed species.

Very few golden tilefish discards were reported from 2006-2016 for the different sectors of the South Atlantic commercial and recreational fisheries (**Table H-2**). For the commercial fishery, annual discards ranged from 2 to 286 fish with the majority of discarding reported by vessels using longline gear. The low number of commercial discards reported is consistent with the SEDAR 25 assumption that fishers are able to eliminate bycatch of golden tilefish in closed seasons by avoiding known habitat. For the private recreational sector, 2013 is the only year with discards reported. No discards were reported by the charter recreational sector since 2006. No recreational headboat golden tilefish discards were observed until 2013 and since then fluctuated between 1 and 47 fish annually. The discards observed in both the commercial and recreational fisheries are consistent with the SEDAR 25 conclusions that golden tilefish discards are negligible due to the ease in which bycatch can be avoided during closed seasons and the lack of a minimum size limit.

Table H-2. The total number of South Atlantic golden tilefish discards recorded from 2006-2016 for different sectors of the commercial and recreational fisheries. Commercial discards are from self-reported logbook information and unexpanded. Discards were aggregated across years due to confidentiality concerns.

Fishery and Sector	Number
Commercial - Longline	318
Commercial - Hook-and-line	161
Recreational - Private	921
Recreational - Charter	0
Recreational - Headboat	80

Source: SEFSC Supplemental Commercial Discard Logbook (4/17/17), SEFSC recreational ACL dataset (6/27/17), and the Southeast Region Headboat Surveys dataset (3/29/17).

References

Farmer, N. A., N. K. Mehta, M. J. Reichart, and J. A. Stephen. 2010. Species groupings from management of the South Atlantic Fishery Management Council Snapper Grouper Fishery Management Unit. SERO-LAPP-2010-06.

Pulver, J. R., H. Liu, and E. Scott-Denton. 2016. Modelling community structure and species co-occurrence using fishery observer data. ICES Journal of Marine Science, 73(7): 1750-1763.

Appendix I. Revised SSC Meeting Final Report: Additional Golden Tilefish Projection Results

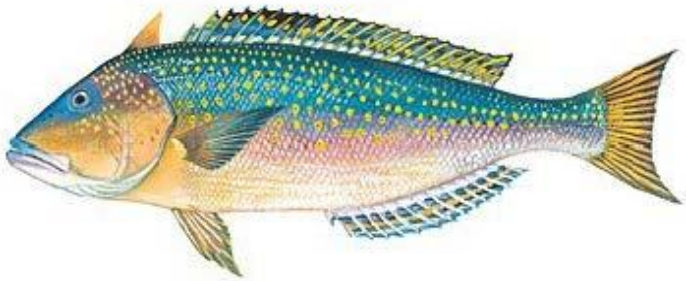
Supplement to the Stock Assessment of Golden Tilefish off the Southeastern United States
2016 SEDAR Update Assessment: Appendix 2.

Appendix 2.

Supplement to the Stock Assessment of Golden Tilefish off the Southeastern United States
2016 SEDAR Update Assessment

Supplement to the Stock Assessment of Golden Tilefish off the Southeastern United States

2016 SEDAR Update Assessment



Southeast Fisheries Science Center

National Marine Fisheries Service

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1. INTRODUCTION

This document responds to a May 4, 2016 request by the SAFMC SSC for additional projection results to accompany the Golden Tilefish Update Assessment. In response, short-term projections at $P^* = 0.30$ with management measures effective in 2017 were produced. Methods followed those described in the 2016 Golden Tilefish Update Assessment Report.

In this $P^* = 0.30$ projection, overfishing was predicted to end in 2017 and SSB exceeded SSB_{MSY} by 2020 (Table 2.1 and Figures 3.1 and 3.2. Annual landings (in numbers and 1000 lbs. gutted weight) associated with $P^* = 0.30$ are listed in Table 2.1.

2. TABLES

Table 2.1. Projection results with fishing mortality rate fixed at P = 0.30 in 2017. R = number of age-1 recruits (in 1000s), N = total stock abundance (1000 fish), F = fishing mortality rate (per year), S = spawning stock (mt), B = total stock biomass (mt), L = landings expressed in numbers (1000 fish) and gutted weight (w, in 1000 lbs), and pr.75=proportion of stochastic projection replicates with SSB ≥ MSST using the 75% definition of MSST. All values except year and probabilities are medians from the stochastic projections.*

Year	R	N	F	S(mt)	B(mt)	L(n)	L(w)	pr.75
2015	312	1518	0.2621	18	2296	66	522	0.4958
2016	306	1519	0.2621	18	2296	65	509	0.4964
2017	307	1515	0.1286	19	2296	30	233	0.5231
2018	312	1540	0.1286	20	2395	34	267	0.5898
2019	318	1578	0.1286	20	2468	38	302	0.6493
2020	323	1611	0.1286	21	2532	41	327	0.7061

Table 2.2. Projection results with fishing mortality rate fixed at P = 0.5 starting in 2017. R = number of age-1 recruits (in 1000s), N = total stock abundance (1000 fish), F = fishing mortality rate (per year), S = spawning stock (mt), B = total stock biomass (mt), L = landings expressed in numbers (1000 fish) and gutted weight (w, in 1000 lbs), and pr.75=proportion of stochastic projection replicates with SSB≥ MSST using the 75% definition of MSST. All values except year and probabilities are medians from the stochastic projections.*

Year	R	N	F	S(mt)	B(mt)	L(n)	L(w)	pr.75
2015	311	1514	0.2651	18	2301	67	523	0.4986
2016	310	1516	0.2651	18	2294	66	510	0.4926
2017	307	1516	0.2162	18	2288	48	377	0.5055
2018	309	1519	0.2162	18	2297	52	402	0.5385
2019	314	1530	0.2162	18	2295	55	426	0.5740
2020	321	1545	0.2162	18	2301	57	441	0.6076
2021	320	1555	0.2162	18	2313	58	455	0.6387
2022	322	1561	0.2162	19	2324	59	466	0.6670
2023	321	1566	0.2162	19	2337	59	471	0.6899
2024	324	1580	0.2162	19	2345	60	476	0.7118

3. FIGURES

Figure 3.1. Projection results when fishing mortality rate is fixed at F = 0.30 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians.*

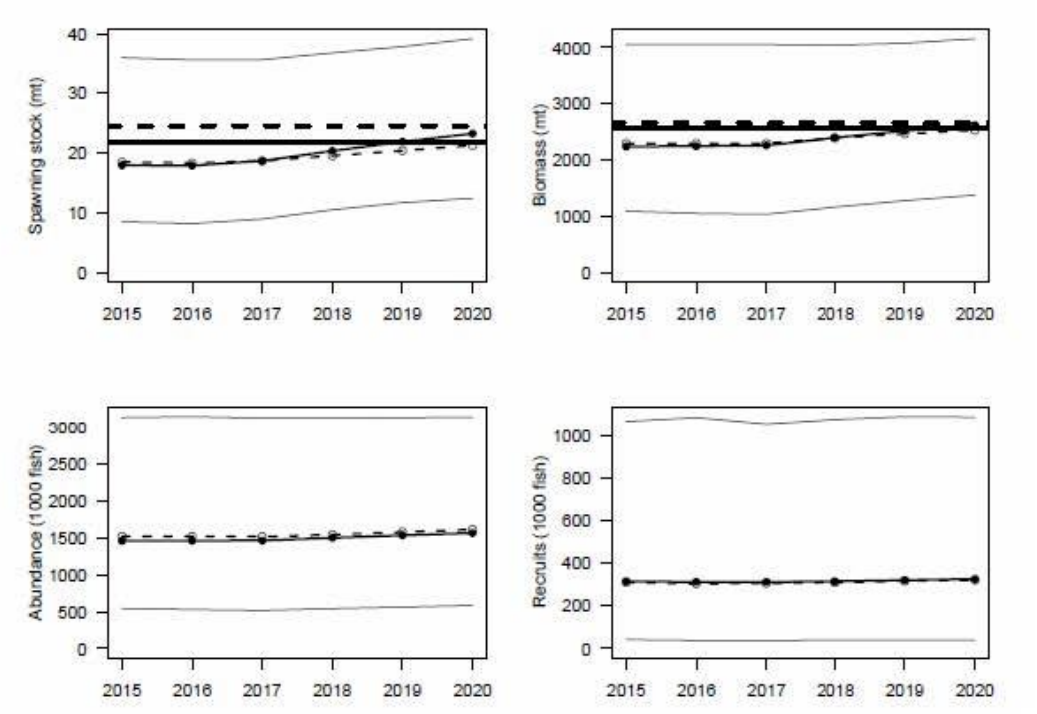

Figure 3.2. Projection results when fishing mortality rate is fixed at P = 0.30 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians. In the bottom panel, the curve represents the proportion of projection replicates for which SSB exceeds the replicate-specific MSST. Horizontal lines drawn at 0.5 and 0.7 for reference.*

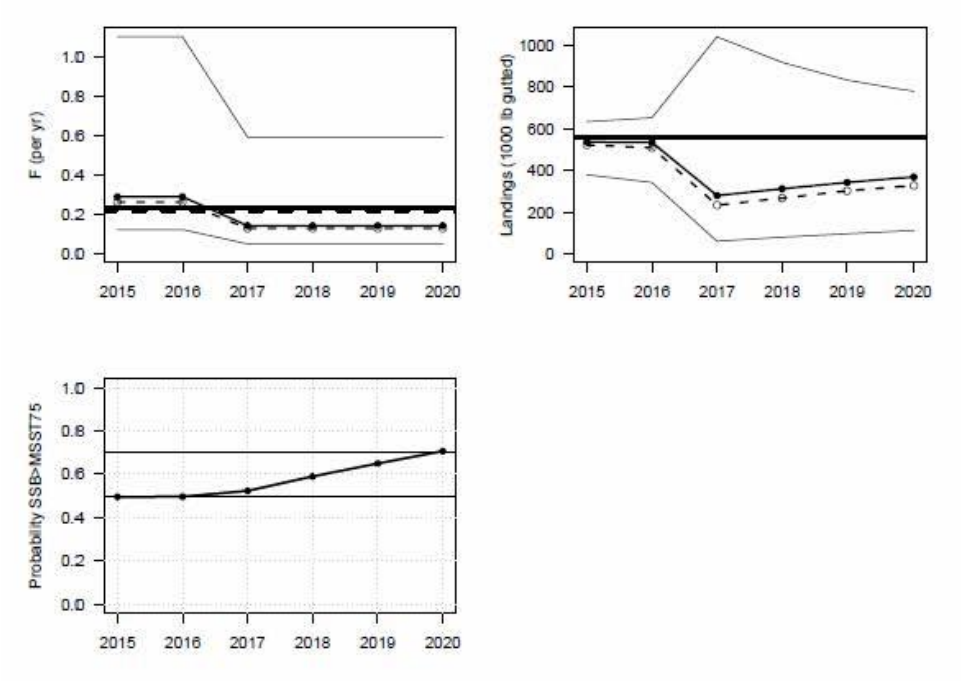

Figure 3.3. Projection results when fishing mortality rate is fixed at P = 0.50 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians.*

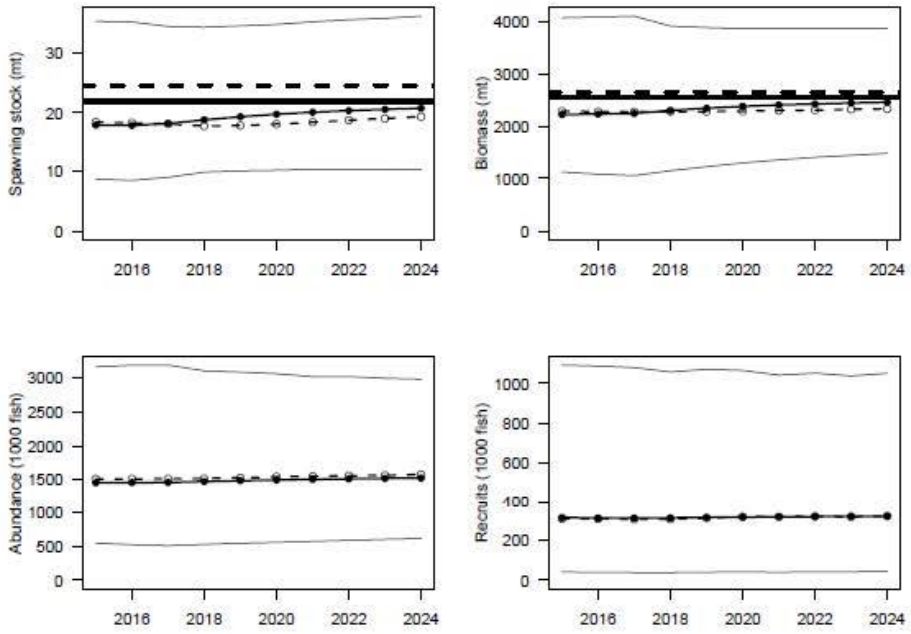

Figure 3.4. Projection results when fishing mortality rate is fixed at P = 0.50 in 2017. Expected values (base run) represented by dotted solid lines, medians represented by dashed lines with open circles, and uncertainty represented by thin lines corresponding to 5th and 95th percentiles of replicate projections. Solid horizontal lines mark MSY-related quantities; dashed horizontal lines represent corresponding medians. In the bottom panel, the curve represents the proportion of projection replicates for which SSB exceeds the replicate-specific MSST. Horizontal lines drawn at 0.5 and 0.7 for reference.*