Final Regulatory Amendment 12

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

Golden Tilefish ACL/OY Adjustment, Specification of Commercial ACT, and Revision of Recreational AMs

Environmental Assessment Initial Regulatory Flexibility Act Analysis Regulatory Impact Review

Fishery Impact Statement

MAY 2012

Definitions, Abbreviations, and Acronyms

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

Final
Regulatory Amendment 12

(Golden Tilefish ACL, OY, ACT, & Recreational AMs) to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Environmental Assessment, Initial Regulatory Flexibility Act Analysis, Regulatory Impact Review, and Fishery Impact Statement

Proposed actions:	For golden tilefish, modify the optimum yield (OY), annual catch limit (ACL), annual catch target (ACT), and recreational accountability measures (AMs).
Lead agency:	FMP Amendment – South Atlantic Fishery Management Council EA - NOAA Fisheries Service
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Public Hearing held:	March 8, 2012 January 24-February 2, 2012 (for Amendment 18B)

(Note: Snapper Grouper Amendment 18B previously included actions that would have adjusted the Annual Catch Limit (ACL)/Optimum Yield (OY) and Accountability Measures (AMs) for golden tilefish.)

Abstract

The South Atlantic Fishery Management Council (South Atlantic Council) intends to implement the Annual Catch Limit (ACL) increases based on the new golden tilefish stock assessment. The assessment, conducted in 2011 with data through 2010, concluded golden tilefish are not overfished and overfishing is not occurring.

Actions in Regulatory Amendment 12 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region would:

- Modify the Optimum Yield (OY) and Annual Catch Limit (ACL) for golden tilefish in the South Atlantic
- Consider establishing an Annual Catch Target (ACT) for the golden tilefish commercial sector in the South Atlantic
- Revise recreational Accountability Measures (AMs) for golden tilefish in the South Atlantic

In addition, the Scientific and Statistical Committee (SSC) has specified the Overfishing Limit (OFL) and calculated the Acceptable Biological Catch (ABC) based on the Council/SSC ABC Control Rule.

This Final Environmental Assessment (EA) has been prepared to analyze the effects of implementing regulations to achieve the actions listed above.

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SUMMARY

Regulatory Amendment 12 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Golden Tilefish, *Lopholatilus chamaeleonticeps*

Why is the South Atlantic Council taking Action?

The South Atlantic Fishery Management Council (South Atlantic Council) intends to increase the Annual Catch Limit (ACL) based on the new golden tilefish stock assessment (SEDAR 25 2011). The assessment, conducted in 2011 with data through 2010, concluded golden tilefish are not overfished and overfishing is not occurring.

Purpose for Action

The purpose of this proposed action is to adjust the Annual Catch Limit (ACL) and Optimum Yield (OY), specify a commercial Annual Catch Target (ACT), and revise recreational Accountability Measures (AMs) for the golden tilefish component of the snapper grouper fishery.

Need for Action

These adjustments address the recent stock assessment results based on data through 2010.

What Are the Proposed Actions?

There are 3 actions being proposed in Regulatory Amendment 12 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 12). Each *action* has a range of *alternatives*, including a "no action alternative" and a "preferred alternative".

Proposed Actions in Regulatory Amendment 12

1. Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish
2. Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector
3. Revise Recreational Accountability Measures (AMs) for Golden Tilefish

➡

Indicates the Council's preferred alternative(s)

What Is the Status of the Golden Tilefish Stock?

Golden tilefish were assessed through the Southeast Data, Assessment, and Review (SEDAR) process in 2011 using data through 2010.

SEDAR is a cooperative Fishery Management Council process initiated to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and US Caribbean. The Caribbean, Gulf of Mexico, and South Atlantic Fishery Management Councils manage SEDAR in coordination with NOAA Fisheries and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR seeks improvements in the scientific quality of stock assessments, constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.

Golden Tilefish Life History
An Overview

On the Atlantic coast, they occur from Nova Scotia to South Florida.

Most often found around 600 feet, over mud or sand bottom.

May live up to 50 years.

Spawn from March to July with peak in April.

Not undergoing overfishing, not overfished.

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

The stock assessment for golden tilefish (SEDAR 25 2011) indicated that the South Atlantic population is **<u>not overfished nor undergoing overfishing</u>**. The current level of spawning stock biomass (SSB_{2010}) is estimated to be well above the Minimum Stock Size Threshold (MSST) -- $SSB_{2010}/MSST = 2.43$. The current level of fishing is slightly higher than one-third of F_{MSY} ($F_{2008\text{-}2010}/F_{MSY} = 0.36$).

What Are the Alternatives?

Action 1. Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish

Alternative 1 (No Action). ACL and OY = yield at 75%F_{MSY}.

Alternative 2. ACL = OY = Acceptable Biological Catch (ABC).

Alternative 3. ACL = OY = 90% of the ABC.

Alternative 4. ACL = OY = 80% of the ABC.

Alternative 5 (Preferred). ACL = OY = yield at 75%F_{MSY} when stock is at equilibrium.

Proposed Actions in Regulatory Amendment 12

1. **Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish**
2. Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector
3. Revise Recreational Accountability Measures (AMs) for Golden Tilefish

Summary of Effects of Action 1:

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action). ACL & OY = yield @ 75% F_{MSY}.	Based on updated biomass data, the ACL would exceed MSY and ABC, which is not consistent with the Magnuson-Stevens Act guidelines.	Based on updated biomass data, the ACL would exceed MSY and ABC, which is not consistent with the Magnuson-Stevens Act guidelines.
Alternative 2. ACL = OY = ABC.	Least biological benefits since no buffer between ACL & ABC.	Highest short-term benefits but could be lower in long-term given no buffer between ACL & ABC.
Alternative 3. ACL = OY = 90% of the ABC.	Biological benefits intermediate between **Alternatives 2** and **4** since 10% buffer between ACL & ABC.	Short-term benefits intermediate between **Alternatives 2** and **4** but higher in long-term given a 10% buffer between ACL & ABC.
Alternative 4. ACL = OY = 80% of the ABC.	Highest biological benefits since 20% buffer between ACL & ABC.	Lowest short-term benefits but higher in long-term given a 20% buffer between ACL & ABC.
Alternative 5 (Preferred). ACL = OY = yield @ 75% F_{MSY} when stock is at equilibrium.	High, sustainable biological benefits since the ACL is set at the yield at 75%F_{MSY} when stock is at equilibrium and there is a buffer between ACL & ABC.	Sustainable short-term and long-term benefits since the ACL is set at 75%F_{MSY} when stock is at equilibrium and there is a buffer between ACL & ABC.

Action 2. Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector

Alternative 1 (No Action) (Preferred). No commercial Annual Catch Target (ACT) currently exists for golden tilefish.

Alternative 2. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 90% of the commercial sector ACL.

Alternative 3. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 75% of the commercial sector ACL.

Alternative 4. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 50% of the commercial sector ACL.

Proposed Actions in Regulatory Amendment 12

1. Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish
2. **Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector**
3. Revise Recreational Accountability Measures (AMs) for Golden Tilefish

Council's Intent for ACT

The Council's intent, under Alternatives 2-4, is that if the commercial ACT is met, or projected to be met, the commercial sector would be closed; harvest and possession would be limited to the bag limit and no sale would be allowed. There are no Accountability Measures (AMs) in place that would require landings over the ACL to be deducted from the following year or that would provide for any underage of the ACL to be added the following year.

Summary of Effects of Action 2:

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action) (Preferred). No commercial ACT currently exists.	Negative biological effects possible if overfishing results from continued overages.	Highest short-term benefits but possible negative long-term benefits if overfishing results from continued overages.
Alternative 2. Commercial ACT = 90% commercial ACL.	Negative biological effects lower than **Alternative 1 (No Action)**.	Short-term benefits lower than **Alternative 1 (No Action)** but higher than **Alternatives 3** and **4**. Positive long-term benefits since risk of lower landings due to quota overages is reduced.
Alternative 3. Commercial ACT = 75% commercial ACL.	Negative biological effects intermediate between **Alternatives 2** and **4**.	Lower short-term benefits than **Alternative 4** but higher positive long-term benefits since risk of lower landings due to quota overages is reduced.
Alternative 4. Commercial ACT = 50% commercial ACL.	Least negative biological effects since 50% buffer between ACL & ACT and greatest assurance that ACL is not exceeded.	Least short-term benefits but most positive long-term benefits.

Action 3. Revise Recreational Accountability Measures (AMs) for Golden Tilefish

Alternative 1 (No Action). Do not revise current recreational AMs for golden tilefish.

If the recreational ACL is exceeded, the Regional Administrator (RA) shall publish a notice to reduce the length of the following recreational fishing season by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing season. Compare the recreational ACL with projected recreational landings over a range of years. For 2010, use only 2010 landings. For 2011, use the average landings of 2010 and 2011. For 2012 and beyond, use the most recent three-year running average.

Alternative 2. Specify the recreational in-season AM trigger.

Sub-alternative 2a. Do not specify an AM trigger.

Sub-alternative 2b (Preferred). If the annual landings exceed the ACL in a given year.

Alternative 3. Specify the recreational in-season AM.

Sub-alternative 3a. Do not specify an in-season AM.

Sub-alternative 3b (Preferred). The Regional Administrator (RA) shall publish a notice to close the recreational sector when the ACL is projected to be met.

Alternative 4. Specify the recreational post-season AM.

Sub-alternative 4a (Preferred). Monitor following year and shorten season as necessary. If the ACL is exceeded, the following year's recreational landings would be monitored in-season for persistence in increased landings. The Regional Administrator (RA) will publish a notice to reduce the length of the recreational fishing season as necessary.

Sub-alternative 4b. Payback. If the recreational ACL is exceeded, and golden tilefish are overfished, the Regional Administrator (RA) shall publish a notice to reduce the recreational ACL in the following season by the amount of the overage.

Proposed Actions in Regulatory Amendment 12

1. Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish
2. Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector
3. **Revise Recreational Accountability Measures (AMs) for Golden Tilefish**

Summary of Effects of Action 3:

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action). Reduce length of following season and use 3-year running average.	Possible biological benefits due to reduction of fishing season if ACL exceeded with 3-year average.	Possible negative short-term and long-term impacts due to reduction of fishing season if ACL exceeded with 3-year average.
Sub-alternative 2a. No AM trigger.	Least amount of biological benefits.	High short-term indirect benefits but diminishing long-term benefits due to potential ACL overages. Negative impacts greater than **Sub-alternative 2b (Preferred)**.
Sub-alternative 2b (Preferred). If landings exceed ACL in given year.	Does not address anomalous spikes in landings; only one year's data used to determine trigger.	Negative short-term indirect economic effects but less than **Alternative 1 (No Action)**. Increased socioeconomic benefits over time due to avoidance of unnecessary AMs being triggered.
Sub-alternative 3a. No in-season AM.	May have negative effects since there would be less of a chance that ACL overages are prevented.	Short-term benefits higher than under **Sub-alternative 3b (Preferred)** but lower long-term benefits due to potential ACL overages
Sub-alternative 3b (Preferred). Regional Administrator closes recreational sector when ACL projected to be met.	High biological benefits due to greater assurance that the ACL will not be exceeded.	Lower short-term benefits than under **Sub-alternative 3a** but higher long-term by preventing ACL overages.
Sub-alternative 4a (Preferred). Monitor following year and shorten season as necessary.	Moderate biological benefits since the following fishing season and associated mortality is addressed.	Ensures that AMs are triggered when absolutely necessary; beneficial in the short term but lower benefits over long term due to potential ACL overages.
Sub-alternative 4b. Payback. If recreational ACL exceeded, and golden tilefish are overfished, reduce the recreational ACL in the following season.	Highest biological benefit by reducing the following year ACL by the amount of the overage; critical if stock is overfished.	Negative short-term impacts higher than **Sub-alternative 4a (Preferred)** but higher long-term benefits by ensuring resource sustainability

Chapter 1.
Introduction

1.1 What Action Is Proposed?

Regulatory Amendment 12 to the Snapper Grouper Fishery Management Plan of the South Atlantic Region (Regulatory Amendment 12) contains three actions:

(1) Modify the Optimum Yield (OY) and Annual Catch Limit (ACL) for golden tilefish in the South Atlantic,
(2) Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector in the South Atlantic, and
(3) Revise the recreational Accountability Measures (AMs) for golden tilefish in the South Atlantic.

1.2 Who is proposing the Action?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the actions. The South Atlantic Council develops the actions and regulations for review and implementation by the National Marine Fisheries Service (NOAA Fisheries Service) who ultimately approves, disapproves, or partially approves the actions on behalf of the Secretary of Commerce. NOAA Fisheries Service is an agency within the National Oceanic and Atmospheric Administration.

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks
- Consists of 13 voting members who are appointed by the Secretary of Commerce and 4 non-voting members
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West
- Develops management plans and regulations for review and implementation by NOAA Fisheries Service

1.3 Where is the Project Located?

Management of the federal snapper grouper fishery (including golden tilefish), located off the South Atlantic in the 3-200 nautical mile U.S. Exclusive Economic Zone (EEZ), is conducted under the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 1983) (**Figure 1-1**).

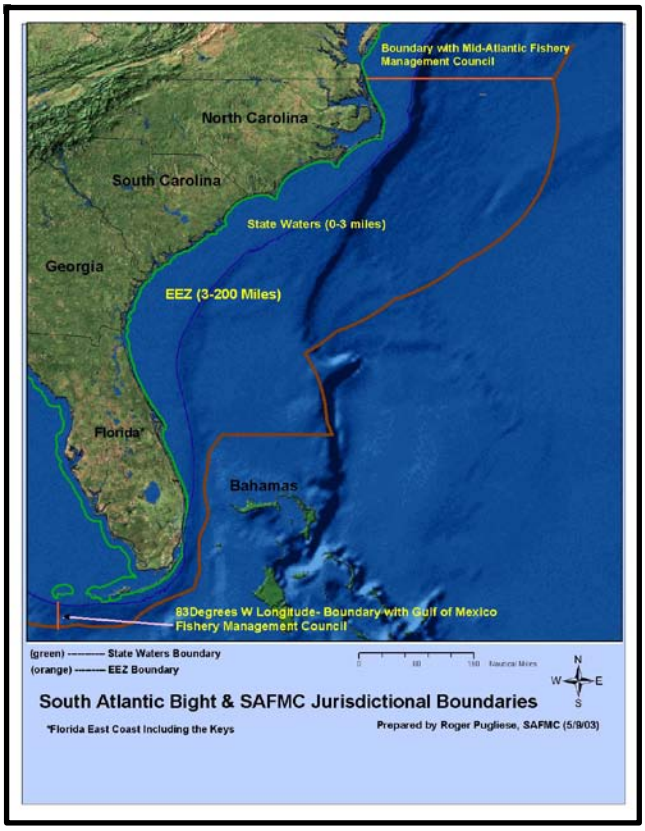

Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

1.4 Why is the South Atlantic Council Considering Action?

The purpose of this proposed action is to adjust the Annual Catch Limit (ACL) and Optimum Yield (OY) for the golden tilefish component of the snapper grouper fishery based on results of the new stock assessment conducted in 2011 with data through 2010 (SEDAR 25 2011).

Purpose for Action

The purpose of this proposed action is to adjust the Annual Catch Limit (ACL) and Optimum Yield (OY), consider specifying a commercial Annual Catch Target (ACT), and revise recreational Accountability Measures (AMs) for the golden tilefish component of the snapper grouper fishery.

Need for Action

These adjustments address the recent stock assessment results based on data through 2010.

1.5 What Are Annual Catch Limits (ACLs) and Accountability Measures (AMs) and Why are they required?

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires NOAA Fisheries Service and the Regional Fishery Management Councils to prevent overfishing, to achieve (on a continuing basis) the Optimum Yield (OY) from federally managed fish stocks, and to rebuild stocks that have been determined to be overfished. These mandates ensure management of fishery resources for the greatest overall benefit to the nation, particularly with respect to providing food production and recreational opportunities, and protecting marine ecosystems.

Reauthorization of the Magnuson-Stevens Act in 2007 required implementation of new tools that would end and prevent overfishing in order to achieve the OY from a fishery. The tools are ACLs and AMs.

An Annual Catch Limit (ACL) is the level of annual catch (both landings and discard mortality) of a stock that, if met or exceeded, triggers some corrective action. The Accountability Measures (AMs) are management controls to prevent exceeding the ACLs and to correct for overages of ACLs if they occur. An AM might be an in-season closure if catch approaches the ACL or it may require reducing the ACL by an overage that occurred the previous fishing year.

1.6 How Does the South Atlantic Council Determine the ACLs?

Annual Catch Limits (ACLs) are lower than the Overfishing Limit (OFL) and the Acceptable Biological Catch (ABC) **(Figure 1-2)**. The South Atlantic Council's Scientific and Statistical Committee (SSC) determines the OFL. The South Atlantic Council and SSC developed the ABC control rule. The South Atlantic Council approved the control rule and added it to the Comprehensive ACL Amendment (SAFMC 2011c). NOAA Fisheries Service approved the Comprehensive ACL Amendment on January 18, 2012, and regulations were implemented on April 16, 2012. The ABC is calculated using the South Atlantic Council/SSC ABC Control Rule.

The Overfishing Limit (OFL) is an estimate of the catch level above which overfishing is occurring and comes from a stock assessment. The Acceptable Biological Catch (ABC) is defined as the level of a stock's annual catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty, and should be specified based on the South Atlantic Council/SSC's ABC control rule.

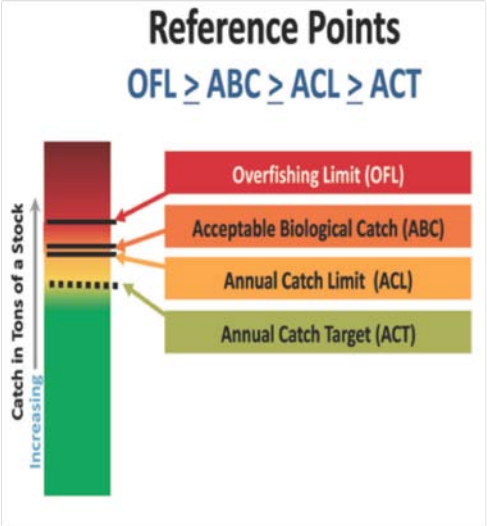

Figure 1-2. The relationship of the ACL, ABC, and OFL to each other.

1.7 How does this relate to golden tilefish?

Results of the assessment of the golden tilefish stock in the South Atlantic (SEDAR 25 2011), completed in 2011 with data through 2010, indicated the stock is **not overfished** and is **not undergoing overfishing**. In November 2011, the Scientific and Statistical Committee (SSC), using the Council/SSC Acceptable Biological Catch (ABC) Control Rule, has recommended establishing the ABC at a level that would result in a 35% probability of overfishing. **The SSC also specified the Overfishing Limit (OFL) from SEDAR 25 as the yield at F_{MSY}.** Actions in this amendment would implement the SSC's OFL and ABC recommendations.

Amendment 17B (SAFMC 2010b) specified the ACL for golden tilefish as the yield from fishing at 75% of F_{MSY}. However, based on the most recent stock assessment (SEDAR 25 2011), the yield at 75% of F_{MSY} is greater than the ABC recommended by the South Atlantic Council's SSC (**Tables 4-2a and 4-2b**) using the South Atlantic Council's ABC Control Rule specified in the Comprehensive ACL Amendment (SAFMC 2011c). The values in **Tables 4-2a and 4-2b** are projections at the level the SSC specified based on the South Atlantic Council/SSC ABC Control Rule (Probability of Overfishing (P*) = 35%).

The SSC specified the OFL for golden tilefish as the yield at F_{MSY}. Values for OFL for 2012-2015 based on the most recent stock assessment (SEDAR 25 2011) are shown in **Tables 4-2a and 4-2b**.

The South Atlantic Council sets the Annual Catch Limit (ACL). The South Atlantic Council is adjusting the ACL for golden tilefish in response to new information from SEDAR 25 (SEDAR 25 2011) and the SSC through Regulatory Amendment 12.

The National Standard 1 (NS 1) Guidelines indicate that the ACL cannot exceed the ABC recommendation provided by a Fishery Management Council's SSC. The actions taken in this Regulatory Amendment 12 would revise the OY/ACL definitions to be consistent with NS 1 and to optimize yield in the golden tilefish component of the snapper grouper fishery. Regulatory Amendment 12 also includes alternatives for a commercial Annual Catch Target (ACT) where the target catch is set lower to account for management uncertainty due to continued commercial quota overages. This amendment also includes an action and alternatives to adjust the recreational Accountability Measures (AMs).

Chapter 2. Proposed Actions

2.1 Action 1. Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish

Alternative 1 (No Action). ACL and OY = yield at 75%F_{MSY}.

Alternative 2. ACL = OY = Acceptable Biological Catch (ABC).

Alternative 3. ACL = OY = 90% of the ABC.

Alternative 4. ACL = OY = 80% of the ABC.

Alternative 5 (Preferred). ACL = OY = yield at 75%F_{MSY} when stock is at equilibrium.

Comparison of Alternatives

Estimates of yield and productivity for fish stocks are available as both equilibrium and static values. Equilibrium values represent the yield expected, on average, over a long period from a given management strategy. Examples are quantities such as the Maximum Sustainable Yield (MSY) and Optimum Yield (OY). Static values represent the yield that can be taken at any given point in time and may be more or less than the equilibrium values. Examples are the yield estimated by stock assessment projections and presented as the result of a particular exploitation rate applied at a particular time. The important quantities in determining both static or equilibrium yield from a population are the amount of fish in the population, usually presented in stock biomass (weight), and the fishing pressure or rate of removal, usually presented as a rate (i.e., fishing mortality rate or F). Below are current values in whole weight (ww) and gutted weight (gw) *when the stock is at equilibrium* for MSY and OY from the latest stock assessment based on specifications in Amendment 17B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 17B) (SAFMC 2010b).

MSY	= 638,000 pounds ww (569,643 pounds gw)
ACL and OY = yield at 75%F_{MSY}	= 625,000 pounds ww (558,036 pounds gw)

Alternatives 1 (No Action) - 4 represent static estimates of ACL, where yield values are estimated by stock assessment projections (**Tables 4-2a and 4-2b**). **Preferred Alternative 5** represents estimates of ACL based on the yield at 75%F_{MSY} when the stock is at equilibrium. Under all of the alternatives OY would equal ACL. The National Standard 1 (NS 1) Guidelines state that if OY is set close to the MSY, which is the equilibrium value for OFL, the conservation and management measures in the fishery must have very good control of the amount of catch in order to

achieve the OY without overfishing. The ACLs under **Alternatives 1 (No Action)** and **2** are greater than the long-term equilibrium value of MSY.

Alternative 1 (No Action) would retain the definition of ACL = yield at 75% of F_{MSY} for golden tilefish. Examination of values for **Alternative 1 (No Action)** in **Tables 4-2a and 4-2b** reveals the yield at 75%F_{MSY} is not only greater than the MSY (638,000 pounds whole weight) but is also greater than the ABC specified by the South Atlantic Council/Scientific and Statistical Committee (SSC) ABC Control Rule. The MSA Section 302 (h)(6) and the NS 1 Guidelines indicate the ACL cannot exceed the catch level recommendations provided by a fishery management council's SSC. Therefore, **Alternative 1 (No Action)** would not meet the legal requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Alternative 2 would set the ACL/OY equal to the ABC. The NS 1 guidelines indicate ACL may typically be set very close to the ABC. This scenario is used for many other, mostly un-assessed, snapper grouper species but does not include a buffer to provide for management uncertainty. Creating a buffer between the ACL/OY and ABC would provide greater assurance that overfishing is prevented and the long-term average biomass is near or above B_{MSY}. To account for scientific uncertainty, the South Atlantic Council's SSC has recommended establishing the ABC, based on the ABC Control Rule, at a level that would result in a 35% probability of overfishing. **Tables 4-2a and 4-2b** reveals that the ABC recommended by the South Atlantic Council's SSC, using the Council's approved ABC Control Rule, results in the establishment of a large buffer between the OFL and ABC (average = 531,250 pounds ww) reflecting the high level of scientific uncertainty in the assessment results.

Alternatives 3, 4, and **Preferred Alternative 5** would have a greater positive biological effect than **Alternative 2** because they would create a buffer between the ACL/OY and ABC that would account for management uncertainty. **Alternative 4** would set the most conservative ACL at 80% of the ABC. As shown in **Tables 4-2a and 4-2b**, there is a substantial buffer between the OFL and the ABC reflecting the high level of scientific uncertainty. The NS 1 guidelines indicate the ACL may typically be set very close to the ABC, when uncertainty is accounted for. Setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty about whether management measures are constraining fishing mortality to target levels to ensure the OFL is not exceeded. During the 2011 season, preliminary estimates of the commercial and recreational overages were 26% and 523% respectively (**Tables 4-1a and 4-1b**) indicating a high level of management uncertainty.

The South Atlantic and Gulf of Mexico Fishery Management Councils are developing a generic dealer reporting amendment to provide more timely and accurate data reporting that should reduce the incidence of quota overages. The target date for implementation of improved quota monitoring is January 1, 2013. Furthermore, the Southeast Fisheries Science Center is developing a new Commercial Landings Monitoring (CLM) system for commercial quota monitoring with an implementation date of May 1, 2012. The new CLM quota monitoring system and actions in the generic dealer report amendment to provide more timely and accurate data reporting are expected to reduce the incidence of quota overages.

Under **Alternatives 1 (No Action) - 4**, short-term yields in excess of equilibrium expectations represent windfall conditions that are typically short lived, as the natural tendency of the population is to return to, and vary around, the estimated equilibrium conditions for a given exploitation rate. Therefore, as the extra yield and stock biomass is removed, or "fished down", population abundance will decline. However, there is risk to this "fishing down" approach, because if managers overshoot the equilibrium biomass target, population biomass could drop below both target and limit levels and create an overfished situation. **Preferred Alternative 5** avoids this situation for golden tilefish by relying on the equilibrium estimate of 75% F_{MSY} to set ACL and OY. The alternative of using the estimated equilibrium value 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.

The magnitude of effects of the ACL/OY alternatives on business activity would directly correlate with the level of ACL. **Alternative 2** would provide the largest ACL (of the viable alternatives), and would result in the largest positive impacts on business activity for all states combined. The estimated economic effects of the various ACL/OY alternatives would directly correlate with the level of ACL as a percent of ABC. That is, the closer the ACL would be to ABC, the lower the consequent effects. **Alternative 2** sets the ACL equal to the ABC, the highest possible ACL, and would result in fewer short-term social impacts than under **Alternatives 3** and **4**, which each set the ACL at a percentage of the ABC and **Preferred Alternative 5** that sets the ACL at the equilibrium level of the yield at 75%F_{MSY}.

Modifying the ACLs and OY for golden tilefish would not have direct impacts on the administrative environment. ACLs are already in place for golden tilefish, and commercial and recreational closures have taken place in the past. Under the current management system, the lower the ACL is set the more likely it is to be met or exceeded, and the more likely an Accountability Measure (AM) would be triggered, and therefore would have the greatest administrative impact.

Table 2-1. Summary of effects under **Action 1**.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action). ACL & OY = yield @ 75% F_{MSY}.	Based on updated biomass data, the ACL would exceed MSY and ABC, which is not consistent with the Magnuson-Stevens Act guidelines.	Based on updated biomass data, the ACL would exceed MSY and ABC, which is not consistent with the Magnuson-Stevens Act guidelines.
Alternative 2. ACL = OY = ABC.	Least biological benefits since no buffer between ACL & ABC.	Highest short-term benefits but could be lower in long-term given no buffer between ACL & ABC.
Alternative 3. ACL = OY = 90% of the ABC.	Biological benefits intermediate between **Alternatives 2** and **4** since 10% buffer between ACL & ABC.	Short-term benefits intermediate between **Alternatives 2** and **4** but higher in long-term given a 10% buffer between ACL & ABC.
Alternative 4. ACL = OY = 80% of the ABC.	Highest biological benefits since 20% buffer between ACL & ABC.	Lowest short-term benefits but higher in long-term given a 20% buffer between ACL & ABC.
Alternative 5 (Preferred). ACL = OY = yield @ 75% F_{MSY} when stock is at equilibrium.	High, sustainable biological benefits since the ACL is set at the yield at 75%F_{MSY} when stock is at equilibrium and there is a buffer between ACL & ABC.	Sustainable short-term and long-term benefits since the ACL is set at 75%F_{MSY} when stock is at equilibrium and there is a buffer between ACL & ABC.

2.2 Action 2. Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector

Alternative 1 (No Action) (Preferred). No commercial Annual Catch Target (ACT) currently exists for golden tilefish.

Alternative 2. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 90% of the commercial sector ACL.

Alternative 3. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 75% of the commercial sector ACL.

Alternative 4. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 50% of the commercial sector ACL.

Comparison of Alternatives

Under **Preferred Alternative 1 (No Action)** there is no commercial ACT for golden tilefish to help ensure the ACL is not exceeded and AMs are triggered. A commercial ACT is not necessary if the commercial sector landings are closely tracked in-season through a quota monitoring system and projections occur in a timely manner to close the commercial golden tilefish sector before landings exceed the ACL. There have been overages in the commercial sector every year since the quota was reduced in 2006 (Amendment 13C; SAFMC 2006) (**Tables 4-8a and 4-8b**). The preliminary estimates of ACL overage for 2011 are 26% commercial and 523% recreational; final numbers will be available in mid-2012 (**Tables 4-1a and 4-1b)**.

The South Atlantic and Gulf of Mexico Fishery Management Councils are developing a generic dealer reporting amendment to provide more timely and accurate data reporting that should reduce the incidence of quota overages. The target date for implementation of improved quota monitoring is January 1, 2013. Furthermore, the Southeast Fisheries Science Center is developing a new Commercial Landings Monitoring (CLM) system for commercial quota monitoring with an implementation date of May 1, 2012. The new CLM quota monitoring system and actions in the generic dealer report amendment to provide more timely and accurate data reporting are expected to reduce the incidence of quota overages.

Setting a commercial ACT between 90% and 50% of the ACL (**Alternatives 2-4**), and closing golden tilefish when the value is reached would provide and even greater buffer between the catch level and the ABC. This would provide greater assurance overfishing would not occur and AMs would not be triggered. Establishing an ACT that is 50% of the ACL (**Alternative 4**) would be the most conservative ACT among the alternatives considered. Examination of the values in **Table 4-9** reveals that **Alternative 4** would provide a commercial ACT that is similar to the current quota (282,819 pounds gutted weight; 316,757 pounds whole weight). **Alternative 4** would be expected to have the greatest beneficial effect for the golden tilefish stock among **Alternatives 2-4**; whereas,

Preferred Alternative 1 (No Action) would be expected to have the least positive biological effects.

The greatest economic benefit for commercial fishermen would be to set an ACT as close to the ACL as possible so long as the ACL was not exceeded. If catches exceed ACT and Accountability Measures (AMs) are triggered, any gains from the excess landings in one year would be offset by potential reductions in the next. It is in the commercial sector's best economic interest to catch the total landings allowed by an ACT (or the ACL if ACT = ACL).

There is an increasing possibility of negative short-term social effects going from **Alternative 2** to **Alternative 4**. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Although these are common responses to closures, it is not known how fishermen may respond if closures are anticipated for several different species or groups. There could be a domino effect as one closure forces them to switch to another species, which closes as thresholds are met with the added fishing pressure.

Under **Preferred Alternative 1 (No Action)** there is no ACT for the commercial sector. Because the commercial sector for the golden tilefish component of the snapper grouper fishery is already tracked through the quota monitoring system, in-season management for the commercial sector should be feasible without the use of an ACT, particularly once measures are established to enhance dealer reporting (targeted for January 1, 2013). However, under existing reporting requirements, the commercial sector exceeded the commercial sector ACL in 2011 by 26% based on preliminary landings data (**Tables 4-1a and 4-1b**). Establishing an ACT for the commercial sector as proposed under **Alternatives 2-4**, would result in a very slightly increased administrative burden beyond the status quo, since an additional reference point would need to be monitored.

Table 2-2. Summary of effects under **Action 2**.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action) (Preferred). No commercial ACT currently exists.	Negative biological effects possible if overfishing results from continued overages.	Highest short-term benefits but possible negative long-term benefits if overfishing results from continued overages.
Alternative 2. Commercial ACT = 90% commercial ACL.	Negative biological effects lower than **Preferred Alternative 1 (No Action)**.	Short-term benefits lower than **Preferred Alternative 1 (No Action)** but higher than **Alternatives 3** and **4**. Positive long-term benefits since risk of lower landings due to quota overages is reduced.
Alternative 3. Commercial ACT = 75% commercial ACL.	Negative biological effects intermediate between **Alternatives 2** and **4**.	Lower short-term benefits than **Alternative 4** but higher positive long-term benefits since risk of lower landings due to quota overages is reduced.
Alternative 4. Commercial ACT = 50% commercial ACL.	Least negative biological effects since 50% buffer between ACL & ACT and greatest assurance that ACL is not exceeded.	Least short-term benefits but most positive long-term benefits.

2. 3 Action 3. Revise Recreational Accountability Measures (AMs) for Golden Tilefish

Alternative 1 (No Action). Do not revise current recreational AMs for golden tilefish.

If the recreational ACL is exceeded, the Regional Administrator (RA) shall publish a notice to reduce the length of the following recreational fishing season by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing season. Compare the recreational ACL with projected recreational landings over a range of years. For 2010, use only 2010 landings. For 2011, use the average landings of 2010 and 2011. For 2012 and beyond, use the most recent three-year running average.

Alternative 2. Specify the recreational in-season AM trigger.

Sub-alternative 2a. Do not specify an AM trigger.

Sub-alternative 2b (Preferred). If the annual landings exceed the ACL in a given year.

Alternative 3. Specify the recreational in-season AM.

Sub-alternative 3a. Do not specify an in-season AM.

Sub-alternative 3b (Preferred). The Regional Administrator (RA) shall publish a notice to close the recreational sector when the ACL is projected to be met.

Alternative 4. Specify the recreational post-season AM.

Sub-alternative 4a (Preferred). Monitor following year and shorten season as necessary. If the ACL is exceeded, the following year's recreational landings would be monitored in-season for persistence in increased landings. The Regional Administrator (RA) will publish a notice to reduce the length of the recreational fishing season as necessary.

Sub-alternative 4b. Payback. If the recreational ACL is exceeded, and golden tilefish are overfished, the Regional Administrator (RA) shall publish a notice to reduce the recreational ACL in the following season by the amount of the overage.

Comparison of Alternatives

Alternative 1 (No Action) would not change the current system of recreational Accountability Measures (AMs). The primary modification to the system of recreational AMs for golden tilefish under **Alternatives 2-4** is the elimination of the use of the three-year running average to determine ACL overages. Eliminating the three-year average would result in a reduced risk of implementing overly conservative AMs when they are not needed. The three-year running average could be heavily influenced by a single year's anomalously high or low landings, which may or may not be due to actual increased harvest or statistical variation. Variability in recreational data is accounted for under **Alternative 4** because corrective post-season action would ensure that any recreational ACL overage is taken into consideration when establishing the ACL for the following season via

either a shortened season or a payback provision. The most biological benefits would result under the combination of **Sub-alternatives 2b (Preferred)**, **3b (Preferred)** and **4b**.

Accountability Measures (AMs) would have direct economic effects on fishing participants, because they would affect the allowed harvest or fishing opportunities for golden tilefish. These economic effects would generally be immediate with in-season AMs and would be delayed if only post-season AMs were implemented.

The setting of AMs can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest, during either the current season or the next. The long-term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long-term social effects.

In-season AMs **(Alternative 3)** for the recreational sector are the most administratively difficult to implement in a timely manner because (1) the private recreational data are available 45 days after the end of a 2-month wave after the data are processed, reviewed, and ready for use by fishery managers and (2) the headboat data are available as resources allow the data to be keypunched and analyzed. In-season recreational AMs for golden tilefish would rely heavily on projections of when the ACL would be met during the fishing season, which would be associated with a high degree of uncertainty. The remaining alternatives and sub-alternatives proposed under this action would have similar administrative impacts to the status quo.

Table 2-3. Summary of effects under **Action 3**.

Alternatives	Biological Effects	Socioeconomic/Administrative Effects
Alternative 1 (No Action). Reduce length of following season and use 3-year running average.	Possible biological benefits due to reduction of fishing season if ACL exceeded with 3-year average.	Possible negative short-term and long-term impacts due to reduction of fishing season if ACL exceeded with 3-year average.
Sub-alternative 2a. No AM trigger.	Least amount of biological benefits.	High short-term indirect benefits but diminishing long-term benefits due to potential ACL overages. Negative impacts greater than **Sub-alternative 2b (Preferred)**.
Sub-alternative 2b (Preferred). If landings exceed ACL in given year.	Does not address anomalous spikes in landings; only one year's data used to determine trigger.	Negative short-term indirect economic effects but less than **Alternative 1 (No Action)**. Increased socioeconomic benefits over time due to avoidance of unnecessary AMs being triggered.
Sub-alternative 3a. No in-season AM.	May have negative effects since there would be less of a chance that ACL overages are prevented.	Short-term benefits higher than under **Sub-alternative 3b (Preferred)** but lower long-term benefits due to potential ACL overages
Sub-alternative 3b (Preferred). Regional Administrator closes recreational sector when ACL projected to be met.	High biological benefits due to greater assurance that the ACL will not be exceeded.	Lower short-term benefits than under **Sub-alternative 3a** but higher long-term by preventing ACL overages.
Sub-alternative 4a (Preferred). Monitor following year and shorten season as necessary.	Moderate biological benefits since the following fishing season and associated mortality is addressed.	Ensures that AMs are triggered when absolutely necessary; beneficial in the short term but lower benefits over long term due to potential ACL overages.
Sub-alternative 4b. Payback. If recreational ACL exceeded, and golden tilefish are overfished, reduce the recreational ACL in the following season.	Highest biological benefit by reducing the following year ACL by the amount of the overage; critical if stock is overfished.	Negative short-term impacts higher than **Sub-alternative 4a (Preferred)** but higher long-term benefits by ensuring resource sustainability.

Chapter 3. Affected Environment

The affected environment for the snapper grouper fishery 2as recently described in the Comprehensive Annual Catch Limit (ACL) Amendment (SAFMC 2011c), Amendment 17B (Amendment 17B) to the Fishery Management Plan for the Snapper Grouper of the South Atlantic Region (SAMFC 2010b), and the Fishery Ecosystem Plan (FEP) of the South Atlantic Region (SAMFC 2009b). Those descriptions of the biological, social, economic, and administrative environments are herein incorporated by reference. Copies are available from the South Atlantic Fishery Management Council's (South Atlantic Council) Web site (www.safmc.net).

3.1 Habitat Environment

Many deepwater snapper grouper species utilize both pelagic and benthic habitats during several stages of their life histories; larval stages of these species live in the water column and feed on plankton. Most juveniles and adults are demersal (bottom dwellers) and associate with hard structures on the continental shelf that have moderate to high relief (e.g., coral reef systems and artificial reef structures, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings). Juvenile stages of some snapper grouper species also utilize inshore seagrass beds, mangrove estuaries, lagoons, oyster reefs, and embayment systems. In many species, various combinations of these habitats may be utilized during daytime feeding migrations or seasonal shifts in cross-shelf distributions. More detail on these habitat types can be found in Amendment 17B (SAFMC 2010b), the Comprehensive Annual Catch Limit (ACL Amendment (SAFMC 2011c), and Volume II of the Fishery Ecosystem Plan (SAFMC 2009b), and are incorporated by reference.

3.2 Biological and Ecological Environment

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

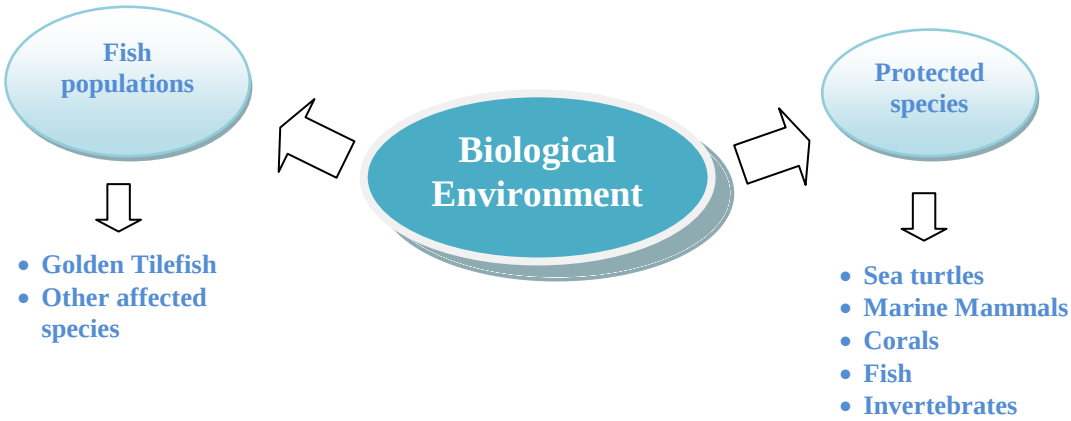

Figure 3-1. Two components of the biological environment described in this amendment.

3.2.1 Golden Tilefish

Golden tilefish (*Lopholatilus chamaeleonticeps*) are distributed throughout the Western Atlantic, occurring as far north as Nova Scotia, to southern Florida, and in the eastern Gulf of Mexico (Robins and Ray 1986). According to Dooley (1978), golden tilefish occur 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. Golden tilefish are most commonly found at about 200 meters (656 feet), usually over mud or sand bottom but, occasionally, over rough bottom (Dooley 1978).

Maximum reported size is 125 centimeters (50") total length and 30 kilograms (66 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). A recent Southeast Data Assessment and Review (SEDAR) assessment estimated natural mortality (M) at 0.10 (SEDAR 25 2011). Golden tilefish spawn off the southeast coast of the 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 sea cucumbers (Dooley 1978).

3.2.1.1 How was the Stock Assessment Done?

Golden tilefish were assessed through the Southeast Data, Assessment, and Review (SEDAR) process in 2011, using data through 2010 (SEDAR 25 2011). A previous stock assessment was conducted in 2004, using data through 2002 (SEDAR 4 2004).

SEDAR is a cooperative Fishery Management Council process initiated to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean. The Caribbean, Gulf of Mexico, and South Atlantic Councils manage SEDAR in coordination with NOAA Fisheries Service and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR seeks improvements in the scientific quality of stock assessments, constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.

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

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

3.2.1.2 Golden Tilefish Assessment History

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

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

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

3.2.1.3 Golden Tilefish Current Status

The recent assessment (SEDAR 25 2011) of the golden tilefish stock indicated that the U.S. southeast stock of tilefish is currently **not overfished** and **overfishing is not occurring**.

Estimated time series of stock status (spawning stock biomass (SSB)/minimum stock size threshold (MSST)) shows a decline in the early 1980s, and then an increase since the mid-2000s (**Figure 3-2**). Estimates of spawning biomass were below the minimum stock size threshold (MSST) from 1993 through 2003. Current stock status was estimated to be $SSB_{2010}/MSST = 2.43$. If this ratio is greater than one, then the stock is not overfished. The uncertainty analysis suggested that the estimate of a stock that is not overfished (i.e., SSB > MSST) is robust. Age structure estimated by the model shows fewer older fish than the (equilibrium) age structure expected at MSY. However, in the terminal year (2010), ages 1-7 approached the MSY age structure.

The estimated time series of fishing mortality (F)/fishing mortality that will produce MSY (F_{MSY}) suggests that overfishing has occurred throughout some of the assessment period (**Figure 3-3**). Spikes in the early 1980s through 2004 are due primarily to the longline fleet. Current fishery status in the terminal year, with current F represented by the geometric mean from 2008-2010, is estimated to be $F_{2008\text{-}2010}/F_{MSY} = 0.36$. If this ratio is below one, then the stock is not undergoing overfishing. This estimate indicates that overfishing is not occurring and appears robust across the uncertainty analyses.

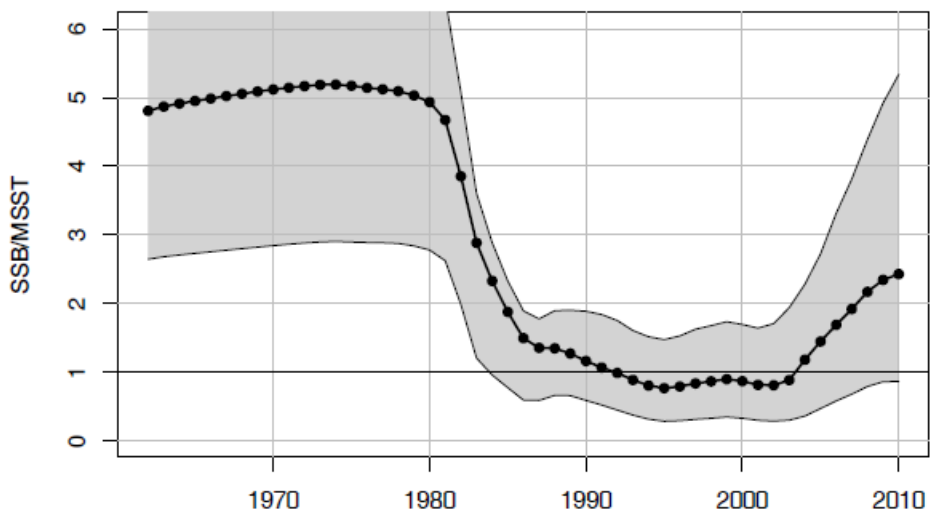

Figure 3-2. Trends in golden tilefish spawning biomass (SSB) relative to the minimum stock size threshold (MSST) from Figure 3-24 of SEDAR 25 (SEDAR 25 2011). Solid line indicates estimates from base run of the Beaufort Assessment Model; gray error bands indicate 5th and 95th percentiles of the Monte Carlo and bootstrap trials.

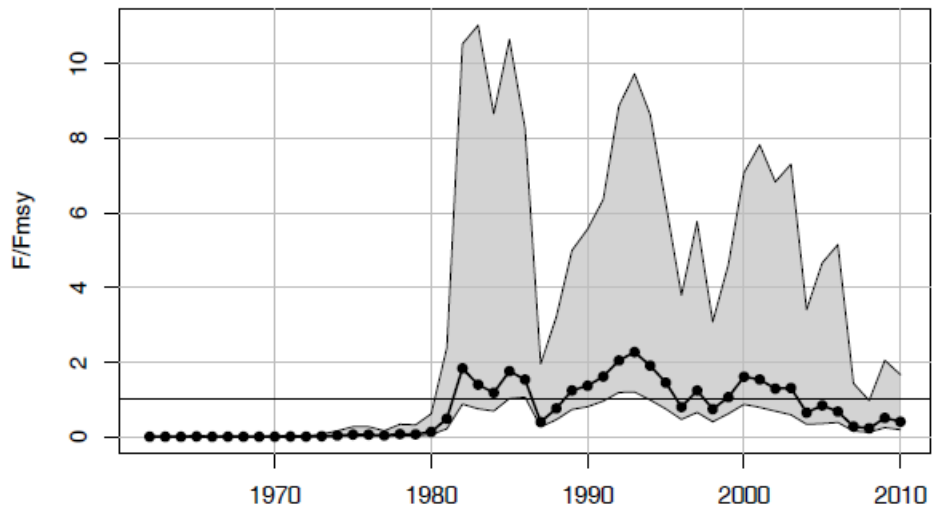

Figure 3-3. Trends in golden tilefish fishing mortality relative to F_{MSY} of golden tilefish from SEDAR 25 (SEDAR 25 2011). Solid line indicates estimates from base run of the Beaufort Assessment Model; gray error bands indicate 5th and 95th percentiles of the Monte Carlo and bootstrap trials.

The South Atlantic Council's Scientific and Statistical Committee (SSC) reviewed the assessment results during their November 8-10, 2011 meeting in Charleston, South Carolina. Their findings, *directly from their written report*, for golden tilefish are as follows:

☐ Consider whether the assessments represent Best Scientific Information Available. SSC recommendations are taken into consideration by the agency when determining "BSIA".

SSC RECOMMENDATION:

Golden Tilefish: ***Satisfied with data used in assessment. Satisfied the assessment team sufficiently explored the uncertainties in the data. Endorse the use of this assessment as representing BSIA***.

☐ Apply the ABC control rule and recommend ABC and OFL.

SSC RECOMMENDATION:

Golden Tilefish: ***Recommend OFL = yield at Fmsy. Assessment is a valid basis for P* approach. Assessment Info = Tier 1, Uncertainty Characterization = Medium (Tier 3), Stock Status = Tier 1, Productivity and Susceptibility = High Risk (Tier 3). P* = 0.35***

☐ Provide Fishing Level Recommendations for assessed stocks; include discussion of uncertainties and their consequences.

SSC RECOMMENDATION:

Golden Tilefish: ***SSC accepts the base run and the recommendations of the Review Panel. The SSC recommends using the values from the Review report. The projections of yield for the P* level were not available; however, Dr. Williams reported they would be provided to the Council. There was concern with using an input steepness (i.e., steepness was not internally estimated by the model), but the uncertainty in that value is taken into consideration during the MCB analysis. If this is a species that has a dominant year class (or several)***

every 10-20 years, the Council may want to take caution in nursing that year class through. By hitting the dominant class too strongly, it could affect the next dominant year class and depress biomass for long periods of time. Should be wary of actual recruitment, biomass, and F patterns, but final determination of stock status seems reasonable. Support the use of video survey for adult tilefish. Recommend that future stock structure research be based on microchemistry tagging studies instead of genetics.

Fishing Level Recommendations Table: Tilefish

Criteria	Recommended Values from SEDAR 25	
	Definition	Value
M (Instantaneous natural mortality; per year)	Average of Lorenzen M	0.10
$F_{current}$ (per year)	Geometric mean of the apical fishing mortality rates in 2008 - 2010	0.070
F_{MSY} (per year)	F_{MSY}	0.185
B_{MSY} (metric tons)	Biomass at MSY	2918
SSB_{2010} (metric tons)	Spawning stock biomass (female gonad wt, mt) in 2010	54.8
SSB_{MSY} (metric tons)	SSB_{MSY}	25.3
MSST (metric tons)	(1-M)*SSB_{MSY}	22.6
MFMT (per year)	F_{MSY}	0.185
MSY (1000 pounds)	Yield at MSY	638
OY (1000 pounds)	Yield at F_{OY}	OY (65% F_{MSY})= 610 OY (75% F_{MSY})= 625 OY (85% F_{MSY})= 634
F_{OY} (per year)	F_{OY} = 65%,75%, 85% F_{MSY}	65% F_{MSY}= 0.120 75% F_{MSY}= 0.139 85% F_{MSY}= 0.157
Biomass Status	SSB_{2010}/MSST	2.43
Exploitation Status	$F_{current}/F_{MSY}$	0.36

3.2.2 Other Fish Species Affected

Golden tilefish are primarily taken with longline gear over mud habitat where no other snapper grouper species commonly occur. However, longline gear is also deployed in mud and rock habitat where snowy grouper (*Epinephelus niveatus*), blueline tilefish (*Caulolatilus microps*), and yellowedge grouper (*Epinephelus flavolimbatus*) may be caught along with golden tilefish. A detailed description of the life history of these species is provided in Volume II of the South Atlantic FEP (SAFMC 2009b).

3.2.3 Protected Species

There are 31 different species of marine mammals that may occur in the EEZ of the South Atlantic region. All 31 species are protected under the Marine Mammal Protection Act (MMPA) and six are also listed as endangered under the ESA (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). In addition to those six marine mammals, five species of sea turtle (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; the Atlantic sturgeon; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]) are protected under the ESA. Portions of designated critical habitat for North Atlantic right whales and *Acropora* corals also occur within the South Atlantic Council's jurisdiction. Descriptions of the life history characteristics of the protected species can be found in the FEP (SAMFC 2009b) and in the Comprehensive ACL Amendment (SAFMC 2011c), and are herein incorporated by reference.

3.3 Human Environment

Information on the commercial snapper grouper fishery is contained in previous amendments [Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Amendment 17B (SAFMC 2010b), and the Comprehensive ACL Amendment (SAFMC 2011c)] and is incorporated herein by reference. Recent information that focuses on golden tilefish is included as **Appendix C**.

3.4 Social and Cultural Environment

Descriptions of the social and cultural environment of the snapper grouper fishery are contained in Jepson et al. (2005) and Amendment 17B (SAFMC 2010b), and are incorporated herein by reference. Because so many communities in the South Atlantic benefit from snapper grouper fishing, discussion of affected communities focuses on "indicator communities", defined as communities thought to be most heavily impacted by snapper grouper regulations.

3.5 Environmental Justice Considerations

Executive Order 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This executive order is generally referred to as environmental justice (EJ).

To evaluate EJ considerations for the proposed actions, information on poverty and minority rates is examined at the county level. Information on the race and income status for groups at the different participation levels (vessel owners, crew, dealers, processors, employees, employees of associated support industries, etc.) is not available. Because the proposed actions would be expected to affect fishermen and associated industries in several communities along the South Atlantic coast and not just those profiled, it is possible that other counties or communities have poverty or minority rates that exceed the EJ thresholds.

In order to identify the potential for EJ concern, the rates of minority populations (non-white, including Hispanic) and the percentage of the population that was below the poverty line were examined. The threshold for comparison used was 1.2 times the state average for minority population rate and percentage of the population below the poverty line. If the value for the community or county was greater than or equal to 1.2 times the state average, then the community or county was considered an area of potential EJ concern. Census data for the year 2010 were used. Estimates of the state minority and poverty rates, associated thresholds, and community rates are provided in **Table 3-1**; note that only communities that exceed the minority threshold and/or the poverty threshold are included**.**

While some communities expected to be affected by this proposed amendment may have minority or economic profiles that exceed the EJ thresholds and, therefore, may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. No adverse human health or environmental effects are expected to accrue to this proposed amendment, nor are these measures expected to result in increased risk of exposure of affected individuals to adverse health hazards. The proposed management measures would apply to all participants in the affected area, regardless of minority status or income level, and information is not available to suggest that minorities or lower income persons are, on average, more dependent on the affected species than non-minority or higher income persons.

Golden tilefish is part of an important commercial fishery throughout the South Atlantic region, and specifically in Florida, and are also targeted by recreational fishermen. The actions in this proposed amendment are expected to incur social and economic benefits to users and communities by implementing management measures that would contribute to conservation of the golden tilefish stock and to maintaining the commercial and recreational sectors of the fishery. Although there could be some short-term impacts due to any closures that may result due to catch limits and associated accountability measures, the overall long-term benefits of maintaining the golden tilefish stock at the optimum yield level is expected to contribute to the social and economic health of South Atlantic communities.

Table 3-1. Environmental Justice thresholds (2010 U.S. Census data) for counties in the South Atlantic Region. Only coastal counties (east coast for Florida) with minority and/or poverty rates that exceed the state threshold are listed.

State	County	Minority Rate	Minority Threshold*	Poverty Rate	Poverty Threshold*
Florida		**47.4**	**56.88**	**13.18**	**15.81**
	Broward	52.0	-4.6	11.7	4.11
	Miami-Dade	81.9	-34.5	16.9	-1.09
	Orange County	50.3	-2.9	12.7	3.11
	Osceola	54.1	-6.7	13.3	2.51
Georgia		**50.0**	**60.0**	**15.0**	**18.0**
	Liberty	53.2	-3.2	17.5	0.5
South Carolina		**41.9**	**50.28**	**15.82**	**18.98**
	Colleton	44.4	-2.5	21.4	-2.42
	Georgetown	37.6	4.3	19.3	-0.32
	Hampton	59.0	-17.1	20.2	-1.22
	Jasper	61.8	-19.9	9.9	-0.92
North Carolina		**39.1**	**46.92**	**15.07**	**18.08**
	Bertie	64.6	-25.50	22.5	-4.42
	Chowan	39.2	-0.1	18.6	-0.52
	Gates	38.8	0.3	18.3	-0.22
	Hertford	65.3	-26.2	23.5	-5.42
	Hyde	44.5	-5.4	16.2	1.88
	Martin	48.4	-9.3	23.9	-5.82
	Pasquotank	43.4	-4.3	16.3	1.78
	Perquimans	27.7	11.4	18.6	-0.52
	Tyrrell	43.3	-4.2	19.9	-1.82
	Washington	54.7	-15.6	25.8	-7.72

*The county minority and poverty thresholds are calculated by comparing the county minority rate and poverty estimate to 1.2 times the state minority and poverty rates. A negative value for a county indicates that the threshold has been exceeded.

Finally, the general participatory process used in the development of fishery management measures (e.g., scoping meetings, public hearings, advisory panel meetings, scientific & statistical committee meetings, and open South Atlantic Council meetings) provided sufficient opportunity for meaningful involvement by potentially affected individuals to participate in the development of this amendment and have their concerns factored into the decision process. Public input from individuals who participate in the fishery has been considered and incorporated into management decisions throughout development of the amendment.

3.6 Administrative Environment

Descriptions of the administrative environment are contained in the Comprehensive ACL Amendment (SAFMC 2011c) and Amendment 17B (SAFMC 2010b), and are incorporated herein by reference.

Chapter 4. Environmental Consequences

4.1 Action 1. Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish

Alternative 1 (No Action). ACL and OY = yield at 75%F_{MSY}.

Alternative 2. ACL = OY = Acceptable Biological Catch (ABC).

Alternative 3. ACL = OY = 90% of the ABC.

Alternative 4. ACL = OY = 80% of the ABC.

Alternative 5 (Preferred). ACL = OY = yield at 75%F_{MSY} when stock is at equilibrium.

4.1.1 Biological Effects

Golden tilefish were assessed through the Southeast Data, Assessment, and Review (SEDAR) process in 2011 using data through 2010 (SEDAR 25 2011). Results from the assessment indicated the stock is **not overfished** and is **not undergoing overfishing**. The stock assessment results show that the biomass of golden tilefish has increased substantially since the last assessment and is now above B_{MSY} (**Figure 4-1**).

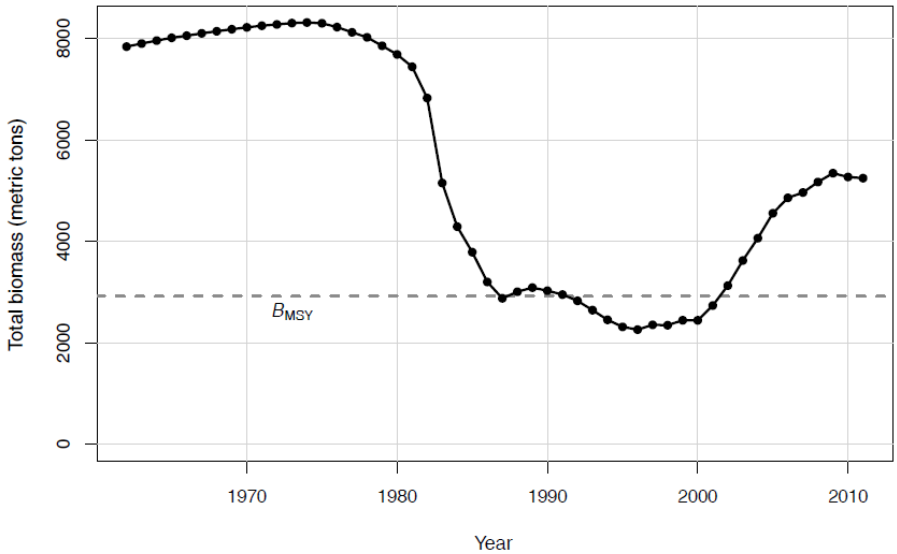

Figure 4-1. Estimated total biomass (metric tons) at start of year. Horizontal dashed line indicates B_{MSY}.
Source: Figure 3-11, SEDAR 25 (SEDAR 25 2011).

Preliminary landings for 2011 are shown in **Tables 4-1a and 4-1b**; the commercial overage is estimated to be 26% and the recreational overage is estimated to be 523%. Final catch data for 2011 will be available in mid-2012.

Table 4-1a. Total commercial and recreational preliminary landings and overages of golden tilefish in 2011. Values are in pounds **whole weight (ww)** (conversion factor for gutted weight for golden tilefish is 1.12).

	Commercial ACL (ww)	Recreational ACL (No. fish)	Recreational ACL (ww)	Total ACL Pounds (ww)
Amendment 17B ACL	316,757	1,578	9,797	326,554
Landings in 2011	399,664		61,007	460,671
Overage in pounds	82,907		51,210	134,117
% Overage in 2011	26%		523%	41%

Source: Commercial, Recreational & Total ACL from Amendment 17B (SAFMC 2010b). Preliminary 2011 landings from NMFS SEFSC Projection Analyses, Appendix F.

Table 4-1b. Total commercial and recreational preliminary landings and overages of golden tilefish in 2011. Values are in pounds **gutted weight (gw)** (conversion factor for gutted weight for golden tilefish is 1.12).

	Commercial ACL (gw)	Recreational ACL (No. fish)	Recreational ACL (gw)	Total ACL Pounds (gw)
Amendment 17B ACL	282,819	1,578	8,747	291,566
Landings in 2011	356,843		54,471	411,313
Overage in pounds	74,024		45,724	119,747
% Overage in 2011	26%		523%	41%

Source: Commercial, Recreational & Total ACL from Amendment 17B (SAFMC 2010b). Preliminary 2011 landings from NMFS SEFSC Projection Analyses, Appendix F.

Results from the recent stock assessment (SEDAR 25 2011) suggest the current ACLs (commercial ACL = 282,819 pounds gutted weight (gw); recreational ACL = 1,578 fish) can be increased. The South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical Committee (SSC) has recommended establishing the Acceptable Biological Catch (ABC), based on the South Atlantic Council/SSC ABC Control Rule, at a level that would result in a 35% probability (P*) of overfishing. The overfishing limit (OFL) is specified by the South Atlantic Council's SSC based on the yield at F_{MSY}. Values for OFL for 2012-2015, based on the most recent stock assessment (SEDAR 25 2011), are shown in **Tables 4-2a and 4-2b**.

Taking the increase in biomass and preliminary estimates of overages in 2011 into account, the projected values for ABC and ACL, provided by the Southeast Fisheries Science Center (SEFSC) on January 27, 2012 (**Appendix F**) based on SEDAR 25 (SEDAR 25 2011), are shown in **Tables 4-2a and 4-2b**. Currently there is no ABC or OFL specified for golden tilefish.

The South Atlantic Council's Scientific and Statistical Committee (SSC reviewed the assessment results and accepted the base run and the recommendations of the SEDAR 25 Review Panel. The SSC recommended using the values from the SEDAR 25 Review Workshop Report. The final

SEDAR 25 SAR Section III Assessment Workshop Report shows projections in Table 3.17 (**Appendix F**) for the year 2011 through 2030. The SSC did not provide any specific guidance on how far into the future to use the projections. NOAA/NMFS Southeast Fisheries Science Center (SEFSC) provided Interim Tilefish Projections dated January 5, 2012 (**Appendix F**) with projections for 2011 through 2020, dropping the 2021 through 2030 values because "In general, projections of fish stocks are highly uncertain, particularly in the long term (e.g., beyond 5-10 years)". The interim projections covered 10 years and the ABC decreases each year from a high of 789,000 pounds whole weight in 2012 to 646,000 pounds whole weight in 2020. Projections using the South Atlantic Council/SSC ABC Control Rule with a probability of overfishing (P*) of 35% were provided by SEFSC on January 27, 2012 (**Appendix F**). The number of years projected were 5 (2011 through 2015) presumably again based on the concern due to high uncertainty beyond 5-10 years. The final P* values for ABC shown in **Tables 4-2a and 4-2b** are lower than the interim values due to the P* methodology better addressing the level of scientific uncertainty associated with recruitment than the interim methodology.

Table 4-2a. Proposed ACL levels for 2012-2015 based on projections of yield at F_{MSY} (OFL), equilibrium yield at 75%F_{MSY} from SEDAR 25, and ABC from SEFSC (January 27, 2012; Appendix F). Values are in pounds **whole weight** (conversion factor for gutted weight for golden tilefish is 1.12).

Year	OFL	Total ABC	ACL (Am17B) Status Quo 75% F_{MSY}	Alternative 2 ACL=OY=ABC	Alternative 3 ACL=OY= 90% ABC	Alternative 4 ACL=OY= 80% ABC	Preferred Alternative 5 Equilibrium 75% F_{MSY}
2012	1,386,000	668,000	1,062,000	668,000	601,200	534,400	625,000
2013	1,242,000	669,000	991,000	669,000	602,100	535,200	625,000
2014	1,124,000	666,000	931,000	666,000	599,400	532,800	625,000
2015	1,031,000	655,000	880,000	655,000	589,500	524,000	625,000
Avg 2012-15	1,195,750	664,500	966,000	664,500	598,050	531,600	625,000

Table 4-2b. Proposed ACL levels for 2012-2015 based on projections of yield at F_{MSY} (OFL), equilibrium yield at 75%F_{MSY} from SEDAR 25, and ABC from SEFSC (January 27, 2012; Appendix F). Values are in pounds **gutted weight** (conversion factor for gutted weight for golden tilefish is 1.12).

Year	OFL	Total ABC	ACL (Am17B) Status Quo 75% F_{MSY}	Alternative 2 ACL=OY=ABC	Alternative 3 ACL=OY= 90% ABC	Alternative 4 ACL=OY= 80% ABC	Preferred Alternative 5 Equilibrium 75% F_{MSY}
2012	1,237,500	596,429	948,214	596,429	536,786	477,143	558,036
2013	1,108,929	597,321	884,821	597,321	537,589	477,857	558,036
2014	1,003,571	594,643	831,250	594,643	535,179	475,714	558,036
2015	920,536	584,821	785,714	584,821	526,339	467,857	558,036
Avg 2012-15	1,067,634	593,304	862,500	593,304	533,973	474,643	558,036

The proposed ACLs shown in **Tables 4-2a and 4-2b** are allocated using the existing recreational (3%) and commercial (97%) split. The resulting commercial and recreational sector ACLs are shown in **Tables 4-3a and 4-3b**.

Table 4-3a. Proposed commercial and recreational ACL levels for **Alternatives 2-5** for 2012-2015 based on projections of ABC from SEFSC (January 27, 2012). Commercial values are in pounds **whole weight** (conversion factor for gutted weight for golden tilefish is 1.12). Recreational values are number of fish. A conversion factor of 6.21 from SEFSC (January 27, 2012; Appendix F) is used to convert weight to numbers of fish. Allocation is 97% commercial and 3% recreational.

	Alternative 2 (ACL=ABC)		Alternative 3 (ACL=90% ABC)		Alternative 4 (ACL=80% ABC)		Pref. Alternative 5 (ACL=Yield@75% Fmsy)	
Year	Comm (lbs ww)	Rec (# fish)	Comm (lbs ww)	Rec (# fish)	Comm (lbs ww)	Rec (# fish)	Comm (lbs ww)	Rec (# fish)
2012	647,960	3,227	583,164	2,904	518,368	2,582	606,250	3,019
2013	648,930	3,232	584,037	2,909	519,144	2,586	606,250	3,019
2014	646,020	3,217	581,418	2,896	516,816	2,574	606,250	3,019
2015	635,350	3,164	571,815	2,848	508,280	2,531	606,250	3,019
Average	644,565	3,210	580,109	2,889	515,652	2,568	606,250	3,019

Table 4-3b. Proposed commercial and recreational ACL levels for **Alternatives 2-5** for 2012-2015 based on projections of ABC from SEFSC (January 27, 2012). Commercial values are in pounds **gutted weight** (conversion factor for gutted weight for golden tilefish is 1.12). Recreational values are number of fish. A conversion factor of 6.21 from SEFSC (January 27, 2012; Appendix F) is used to convert weight to numbers of fish. Allocation is 97% commercial and 3% recreational.

	Alternative 2 (ACL=ABC)		Alternative 3 (ACL=90% ABC)		Alternative 4 (ACL=80% ABC)		Pref. Alternative 5 (ACL=Yield@75% Fmsy)	
Year	Comm (lbs gw)	Rec (# fish)	Comm (lbs gw)	Rec (# fish)	Comm (lbs gw)	Rec (# fish)	Comm (lbs gw)	Rec (# fish)
2012	578,536	3,227	520,682	2,904	462,829	2,582	541,295	3,019
2013	579,402	3,232	521,462	2,909	463,521	2,586	541,295	3,019
2014	576,804	3,217	519,123	2,896	461,443	2,574	541,295	3,019
2015	567,277	3,164	510,549	2,848	453,821	2,531	541,295	3,019
Average	575,504	3,210	517,954	2,889	460,404	2,568	541,295	3,019

Estimates of yield and productivity for fish stocks are available as both equilibrium and static values. Equilibrium values represent the yield expected, on average, over a long period of time from a given management strategy. Examples are quantities such as the Maximum Sustainable Yield (MSY) and Optimum Yield (OY). Static values represent the yield that can be taken at any given point in time and may be more or less than the equilibrium values. Examples are the yield estimated by stock assessment projections and presented as the result of a particular exploitation rate applied at a particular time. The important quantities in determining both static or equilibrium yield from a population are the amount of fish in the population, usually presented in stock biomass (weight), and the fishing pressure or rate of removal, usually presented as a rate (i.e., fishing mortality rate or F). Below are current values in whole weight (ww) and gutted weight (gw) *when the stock is at equilibrium* for MSY and OY from the latest stock assessment based on specifications in Amendment 17B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 17B) (SAFMC 2010b).

MSY = 638,000 pounds ww (569,643 pounds gw)
ACL and OY = yield at 75%F_{MSY} = 625,000 pounds ww (558,036 pounds gw)

Fisheries managers often limit fishing mortality rates to manage stocks, thereby attempting to exert influence over one of the values necessary to determine yield. The other value, population biomass, is expected to vary over time in response to environmental, stock, and fishery conditions. Both equilibrium and static values are useful to managers, as the former provides an indication of the long-term goal and the latter provides a more up-to-date indication of a stock's performance.

Alternatives 1 (No Action) - 4 represent static estimates of ACL, where yield values are estimated by stock assessment projections (**Tables 4-2a and 4-2b**). **Preferred Alternative 5** represents the estimates of the ACL based on the yield at 75%F_{MSY} when the stock is at equilibrium. Under all of the alternatives, the OY would equal ACL. The National Standard 1 (NS 1) Guidelines state that if OY is set close to the MSY, which is the equilibrium value for OFL, the conservation and management measures in the fishery must have very good control of the amount of catch in order to achieve the OY without overfishing. The ACLs under **Alternatives 1 (No Action)** and **2** are greater than long-term equilibrium value of MSY.

Alternative 1 (No Action) would retain the definition of ACL = yield at 75% of F_{MSY} for golden tilefish. Based on this ACL definition, Amendment 17B (SAFMC 2010b) established an overall ACL of 326,554 pounds whole weight (ww) where 316,757 pounds ww (282,819 lbs gutted weight (gw)) is allocated to the commercial sector (97%), and 9,797 pounds ww (1,578 fish) is allocated to the recreational sector. Based on the updated biomass information (SEDAR 25 2011), examination of values for **Alternative 1 (No Action)** in **Tables 4-2a and 4-2b** reveals the yield at 75%F_{MSY} is not only greater than the MSY (638,000 pounds whole weight) but is also greater than the ABC specified by the South Atlantic Council/SSC ABC Control Rule. The Magnuson-Stevens Act Section 302 (h)(6) and the NS 1 Guidelines indicate the ACL cannot exceed the catch level recommendations provided by a fishery management council's SSC. Therefore, **Alternative 1 (No Action)** would not meet the legal requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Alternative 2 would set the ACL/OY equal to the ABC. The NS 1 guidelines indicate ACL may be set very close to the ABC. This scenario is used for many other snapper grouper species but does not include a buffer to provide for management uncertainty; however scientific uncertainty has been considered when specifying ABC through the South Atlantic Council's ABC control rule. Creating a buffer between the ACL/OY and ABC would provide greater assurance that overfishing is prevented and the long-term average biomass is near or above B_{MSY}. The NS 1 guidelines state that setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty about whether management measures are constraining fishing mortality to target levels.

To account for scientific uncertainty, the South Atlantic Council's SSC recommended establishing the ABC, based on the ABC Control Rule, at a level that would result in a 35% probability of overfishing. **Tables 4-2a and 4-2b** reveal that the ABC recommended by the South Atlantic Council's SSC results in the establishment of a large buffer between the OFL and ABC (average = 531,250 pounds ww) reflecting the high level of scientific uncertainty in assessment results. Therefore, the ABC would have to be exceeded by about 44% (based on average 2012-2015 data) for the OFL to be exceeded. There have been overages in the commercial sector every year since the quota was reduced in Amendment 13C (SAFMC 2006), which has historically represented the majority of the golden tilefish catch (**Tables 4-1a and 4-1b, 4-4, 4-8a, and 4-8b**). For example, during the 2011 season, the commercial overage was 26% and the recreational overage was 523%

(**Tables 4-1a and 4-1b**), based on preliminary data, indicating a high level of management uncertainty.

Alternatives 3, 4, and **Preferred Alternative 5** would have a greater positive biological effect than **Alternative 2** because they would create a buffer between the ACL/OY and ABC that would account for the current level of management uncertainty. **Alternative 4** would set the most conservative ACL at 80% of the ABC.

The South Atlantic and Gulf of Mexico Fishery Management Councils are developing a generic dealer reporting amendment to provide more timely and accurate data reporting that should reduce the incidence of quota overages. The target date for implementation of improved quota monitoring is January 1, 2013. Furthermore, the Southeast Fisheries Science Center is developing a new Commercial Landings Monitoring (CLM) system for commercial quota monitoring with an implementation date of May 1, 2012. The new CLM quota monitoring system and actions in the generic dealer report amendment to provide more timely and accurate data reporting are expected to reduce the incidence of quota overages.

For stocks that are overfished, where biomass is below a desired threshold, static estimates of yield will be below equilibrium estimates for the same exploitation rate. On the other hand, biomass of stocks that are not overfished may exceed the expected equilibrium or average conditions. Under such conditions, the stock is capable, for a short time, of returning yields that exceed those at equilibrium.

The latest assessment (SEDAR 25 2011) indicated golden tilefish is not overfished and biomass is above equilibrium or average conditions. Under **Alternatives 1 (No Action)-4**, short-term yields in excess of equilibrium expectations represent windfall conditions that are typically short lived, as the natural tendency of the population is to return to, and vary around, the estimated equilibrium conditions for a given exploitation rate. Therefore, as the extra yield and stock biomass is removed, or "fished down", population abundance will decline. As demonstrated in **Tables 4-2a and 4-2b**, declining population abundance results in declining yield under **Alternatives 1 (No Action)-4** in subsequent years. Under **Alternatives 1 (No Action)-4**, managers would be faced with regularly declining yield until the population reaches the equilibrium point, at which time harvest would be maintained at the equilibrium value. However, there is risk to this "fishing down" approach, because if managers overshoot the equilibrium biomass target, population biomass could drop below both target and limit levels and create an overfished situation. These risks can be substantial, as normal lags in data and population analyses could be such that a stock falls considerably below the target level before managers realize there is a problem. Moreover, one of the biggest challenges in fisheries management is reducing harvest, especially when constituents have become accustomed to higher levels and are experiencing an abundant stock.

Preferred Alternative 5 avoids this situation for golden tilefish by relying on the equilibrium estimate of yield at 75% of F_{MSY} to set ACL and OY. Stocks with this status are expected to vary around the target biomass levels, meaning that in some years, static yield would be more than equilibrium levels and in others, it would be less. Managers could attempt to chase that yield up and down, but delays in data, analyses, and management action make such a strategy impractical. The alternative of using 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.

Golden tilefish are primarily taken with longline gear over mud habitat where no other snapper grouper species commonly occur. However, longline gear is also deployed in mud and rock habitat where snowy grouper, blueline tilefish, and yellowedge grouper may be caught along with golden tilefish although catching the species together is not common. Revising the ACL is not expected to negatively affect non–target species or any species listed under the Endangered Species Act or Marine Mammal Protection Act.

Table 4-4. Commercial and recreational landings (in pounds whole and gutted weight) of golden tilefish, 1986-2010 (conversion factor for gutted weight for golden tilefish is 1.12).

	Whole Weight			Gutted Weight		
Year	**Commercial**	**Recreational**	**Total**	**Commercial**	**Recreational**	**Total**
1986	1,339,354	319	1,339,673	1,195,852	285	1,196,137
1987	413,546	147	413,693	369,238	131	369,369
1988	699,276	3,967	703,243	624,354	3,542	627,896
1989	1,005,085	14	1,005,099	897,397	13	897,410
1990	1,007,924	349	1,008,273	899,932	312	900,244
1991	1,080,512	390	1,080,902	964,743	348	965,091
1992	1,080,482	6,929	1,087,411	964,716	6,187	970,903
1993	1,149,853	0	1,149,853	1,026,654	-	1,026,654
1994	895,513	12,778	908,291	799,565	11,409	810,974
1995	752,599	0	752,599	671,963	-	671,963
1996	374,056	3,499	377,555	333,979	3,124	337,103
1997	404,389	28,986	433,375	361,062	25,880	386,942
1998	405,165	1,238	406,403	361,754	1,105	362,860
1999	565,979	8,137	574,116	505,338	7,265	512,604
2000	805,956	13,789	819,745	719,604	12,312	731,915
2001	438,253	35,179	473,432	391,297	31,410	422,707
2002	396,253	17,598	413,851	353,797	15,713	369,510
2003	247,763	45,419	293,182	221,217	40,553	261,770
2004	288,101	38,348	326,449	257,233	34,239	291,472
2005	305,151	240,240	545,391	272,456	214,500	486,956
2006	451,286	50,743	502,029	402,934	45,306	448,240
2007	336,811	9,538	346,349	300,724	8,516	309,240
2008	350,138	0	350,138	312,623	-	312,623
2009	377,986	54,514	432,500	337,488	48,673	386,161
2010	444,108	27,131	471,239	396,525	24,224	420,749

Source: NMFS SERO ACL Dataset.

4.1.2 Economic Effects

In general, an ACL alternative that provides for the largest ACL level would allow fishing participants to generate the largest economic benefits from a fishery, at least in the short term. This is particularly true in the case of the golden tilefish component of the snapper grouper fishery inasmuch as the current commercial ACL for the species has been consistently exceeded and the commercial fishing season has become shorter. A recreational closure was implemented on October 6, 2011 because the recreational ACL was exceeded. Alternatives in place and being proposed in this amendment would trigger the application of Accountability Measures (AMs) for the recreational sector (see Action 3).

Among the five alternatives, **Alternative 1 (No Action)** would provide for the largest ACL, and thus may be considered best from an economic standpoint. However, this alternative would result in an ACL larger than the recommended ABC, and does not comply with the Magnuson-Stevens Act. **Alternative 2** may then be considered best in terms of its consequent economic effects, but it should be noted that **Alternatives 3, 4,** and **Preferred Alternative 5** would provide for increases in commercial and recreational ACLs above their current levels. Thus, in principle, **Alternatives 2** through **Preferred Alternative 5** may be expected to generate positive economic effects on the commercial and recreational sectors. It is also reasonable to expect that the level of positive economic effects on both the commercial and recreational sectors would be larger with higher ACLs.

Not all of the ACL/OY alternatives being considered in this action have the same likelihood of promoting a sustainable fishery over time. In general, the closer ACL is to OY/ABC, the smaller the short-term economic impacts, but at the same time the likelihood of the biomass going below B_{MSY} is increased. That is, **Alternative 2** is likely to provide better economic conditions than the other alternatives over the short-term. The decision that needs to be made is how much biological risk is reasonable given the level of negative economic impacts the South Atlantic Council is willing to endure. The regulatory regime adopted over time would play a major role in making long-term economic benefits sustainable over time. The most conservative alternative has a higher likelihood of generating increased, long-term economic value while preserving the sustainability of the fish stock, assuming the fishing mortality rate is allowed to increase should stock conditions warrant it. Optimally, from an economic perspective, allowing fishermen to take all of the ACL, but not exceed it, would provide the most economic benefit in the long-term. Regulatory regimes that make the optimal less likely to occur could erode the economic benefits over time, even at higher stock levels. Overcapacity is one condition that can make it more difficult to manage landings close to an ACL.

4.1.2.1 Economic Effects on the Commercial Sector

The commercial sector is allocated 97 percent of the ACL, and in recent years, the hook-and-line and longline gear groups have fully harvested the commercial allocation. For the current analysis, the economic effects of the various alternatives are quantified by estimating their revenue consequences on the hook-and-line and longline gear groups. Profits would have been a more ideal metric for economic analysis, but information on vessel profits is not available.

For purposes of the revenue analysis, data from 2005-2010 are used to characterize the baseline scenario. This time period captures the more recent commercial activities in the golden tilefish portion of the snapper grouper fishery. All revenue figures are expressed in 2010 dollars. As the

ACL under each alternative is provided over the years 2012-2015, the revenue effects are expressed as net present values.

A total of 142 vessels using hook and line and 38 vessels using longline landed golden tilefish in any one year during 2005-2010. Vessels using hook and line gear landed an annual average of about 27,000 lb gw of golden tilefish and 220,000 lb gw of other snapper grouper species. Gross revenues of these vessels averaged annually at $76,000 (2010 dollars) from golden tilefish and $567,000 (2010 dollars) from other snapper grouper species. For 2005-2010, vessels using longline gear landed an annual average of about 298,000 lb gw of golden tilefish and 153,000 lb gw of other snapper grouper species. Their revenues for this period averaged annually at $802,000 from golden tilefish and $286,000 from other snapper grouper species. On average, vessels using hook and line gear depended on other snapper grouper species for a majority of their revenues while vessels using longline gear depended on golden tilefish as their major source of revenues. Obviously, some vessels using hook and line gear could be expected to be more dependent on golden tilefish as a major source of revenues. In the same vein, vessels using longline gear could be more dependent on other snapper grouper species as a major source of revenues. These vessels, using hook and line or longline gear types, are assumed to comprise the universe of commercial vessels directly affected by actions in this regulatory amendment, including the ACL alternatives. It is possible that, with increases in the ACL, other commercial vessels may enter or re-enter the golden tilefish portion of the snapper grouper fishery, but it is not reasonably possible to determine how many vessels would do so.

Estimates of revenue changes, in net present value terms, due to the various ACL alternatives would be different when estimated for different years and using that particular year's fishing characteristics as the baseline. This is illustrated in the four charts of **Figure 4-2** below. Revenues are in thousands of 2010 dollars calculated as net present values of revenue streams over the years 2012-2015 using a 7 percent discount rate. The shape of all four charts is similar, indicating that the relative distribution of each ACL alternative's revenue effects is the same whichever year is used as the baseline year. The revenue effects would be smallest if 2006 were used as the baseline and largest if 2007 were used as the baseline. While the charts are not drawn exactly the same, reading off the revenue (vertical) axis reveals that **Alternative 2** would result in the largest revenue effects and **Alternative 4**, the lowest. Moreover, the effects of each ACL alternative on the longline gear group (LL) clearly dominate those on the hook and line group (HL).

For the purpose of determining the economic effects of the various ACL alternatives, while making use of each year's information, each year's estimates of the revenue effects were averaged and the results are used to represent the expected economic effects. **Table 4-5** presents the expected revenue effects of each ACL alternative. These revenue effects are calculated as changes relative to the baseline revenues, i.e., average annual revenues for 2005-2010. Net present values of revenue changes over the years 2012-2015 are presented using discount rates of 7%, 5%, and 3%.

Alternative 2 would provide the largest increase in revenues to all vessels harvesting golden tilefish, followed by **Preferred Alternative 5**, **Alternative 3**, and **Alternative 4**. This ordering is mainly driven by the relative ACL levels associated with each alternative. Longline vessels would receive most of the increases in revenues, because of the dominating presence of this group in the harvest of golden tilefish during the baseline years. The use of discount rates other than 7% would merely change the magnitude but not the direction of revenue effects.

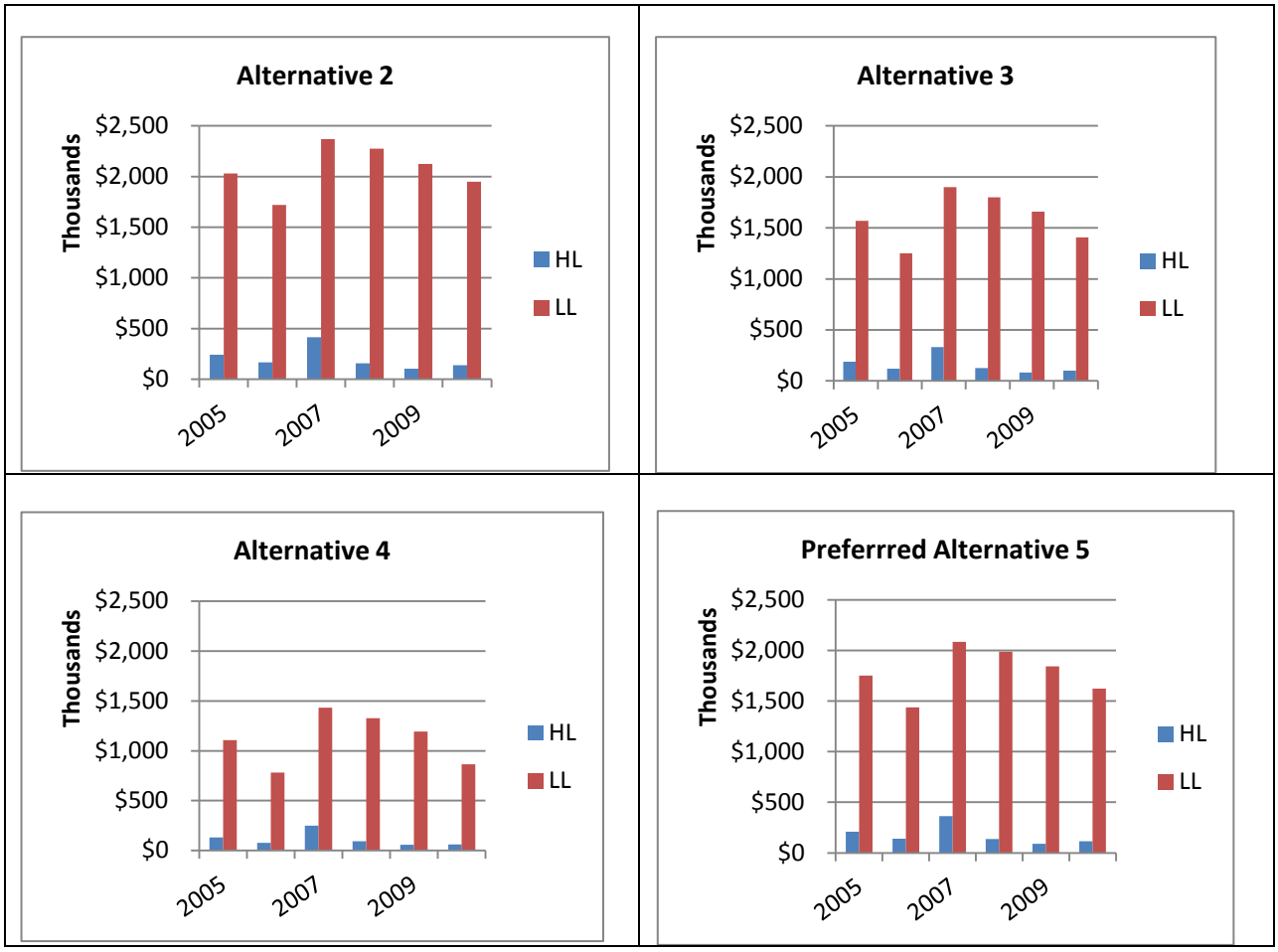

Figure 4-2. Revenue effects of each ACL alternative on hook-and-line (HL) and longline (LL) vessels using different years as the baseline year. Revenues are in thousands of 2010 dollars expressed as net present values over the period 2012-2015.

The difference in the revenue effects of **Alternative 2** from each of the other alternatives would more than double as the ordering of these other alternatives goes down. The effects of **Alternative 2** would be approximately $300,000 higher than those of **Preferred Alternative 5**, $500,000 higher than those of **Alternative 3**, and $1,000,000 higher than those of **Alternative 4**.

One major assumption in estimating the revenue effects of the ACL alternatives is that each ACL alternative would affect only the revenues derived from a vessel's harvest of golden tilefish. Vessel revenues from other snapper grouper species are assumed to remain the same. This is probably an unlikely situation because when vessels harvest more golden tilefish, for example by increasing their fishing time or number of trips, they may also catch other snapper grouper species. However, the amount of harvest of other snapper grouper species and their associated revenues cannot be determined.

The extent to which these revenue increases would result in net profit increases cannot be estimated. As long as future fishing effort approximates that of the 2005-2010 condition, it can be

expected that the revenue increases due to any of the ACL alternative would trickle down as profit increases. If, on the other hand, the ACL increases mainly invite more participants into the fishery or more intense effort from existing participants, the fishing season could very well be shortened. This could potentially increase the cost of fishing as well as decrease safety at sea. Moreover, if the current derby-type fishery continues into the future, market gluts could occur which would dampen the price for golden tilefish. In a derby-type fishery, revenue increases would be less than those shown in **Table 4-5,** and possibly profits would also be adversely affected.

Table 4-5. Net present value of revenue increases over 2012-2015 due to each ACL alternative, 2012-2015, in thousands of 2010 dollars.

	Hook and Line	**Longline**	**Total**
7% Discount Rate			
Alternative 2	$203	$2,077	$2,281
Alternative 3	$157	$1,598	$1,755
Alternative 4	$111	$1,118	$1,229
Preferred Alternative 5	**$176**	**$1,790**	**$1,966**
5% Discount Rate			
Alternative 2	$213	$2,174	$2,387
Alternative 3	$165	$1,672	$1,837
Alternative 4	$117	$1,170	$1,286
Preferred Alternative 5	**$184**	**$1,874**	**$2,058**
3% Discount Rate			
Alternative 2	$223	$2,278	$2,501
Alternative 3	$173	$1,752	$1,924
Alternative 4	$122	$1,226	$1,348
Preferred Alternative 5	**$193**	**$1,964**	**$2,157**

4.1.2.2 Economic Effects on the Recreational Sector

The recreational sector is a relatively small component of the golden tilefish portion of the snapper grouper fishery. This sector is allocated 3 percent of the total golden tilefish ACL. The current recreational ACL is 1,578 fish, or 9,799 lb ww using a conversion rate of 6.21. Recreational harvest has far exceeded its ACL, particularly in more recent years. In 2010 and 2011, recreational harvests of golden tilefish were approximately 27,000 lb ww and 61,000 lb ww, respectively. These harvest levels are comparable to the harvest levels of the hook and line segment of the commercial sector. The current AM for the recreational sector is a post-season AM that would shorten the following fishing year's season by the amount necessary to ensure the following year's ACL is not exceeded. The recreational fishery was closed on October 6, 2011 and there are alternatives in this amendment (**Action 3**) that could revise this current AM.

Assessment of the economic implications of the ACL alternatives is conducted by estimating the changes in consumer surplus (CS) to recreational anglers. CS is the net benefit an angler derives from an additional fish kept on a fishing trip and is equivalent to the difference between the monetized benefit an angler receives and the actual cost. This value is an appropriate measure of economic effects on recreational anglers as a result of changes in fishing regulations. The relatively sparse number of target trips for golden tilefish by anglers fishing through the for-hire vessels precluded the estimation of effects on the net operating revenues (NOR) of for-hire vessels. The methodology employed in this assessment follows that used in previous amendments to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) (Comprehensive ACL Amendment, SAFMC 2011c; Amendment 17A, SAFMC 2010a; Amendment 17B, SAFMC 2010b; Amendment 18A, SAFMC 2011f; and Amendment 24, SAFMC 2011d) on the recreational sector. Detailed discussions of the methodology and its limitations may be found in those amendments and are incorporated herein by reference.

Similar to the analysis done for the commercial sector, the historical fishery performance in 2005-2010 is considered to define the no action or baseline alternative. For this period, recreational harvests averaged 63,694 lb ww or 10,257 fish. The CS value used is $26.52 per fish in 2010 dollars, and is based on the recent estimates of willingness to pay (CS) for snapper grouper species in the Southeast (Carter and Liese 2011). This CS value is assumed constant across fishing platforms, geographical areas, and levels of harvest. This may not necessarily be the case. Headboat anglers may value some snapper grouper species differently, on average, than private and charterboat anglers. The direction and magnitude of such difference are unknown, though the higher cost of fishing to charterboat anglers suggests the CS to headboat anglers would be less than that to charterboat anglers. In the absence of relevant information, no adjustment is made for possible CS differences among anglers fishing through different platforms. For the same reason, no adjustments are made to possible CS differences across geographic areas or over various harvest levels.

Estimates of the net present value of CS changes over 2012-2015, expressed in 2010 dollars, are presented in **Table 4-6**. The tabulated results assume that recreational harvests cease once the sector ACL is reached. This could happen with an in-season AM in the form of fishery closure. Because of substantial harvests during 2005-2010, which serve as the baseline harvests, ACL increases under any of the ACL alternatives would be less than those in the baseline. Hence, the results shown in **Table 4-6** are negative CS changes under any ACL alternative. The least CS reduction would be associated with **Alternative 2**, followed by **Preferred Alternative 5**, **Alternative 3**, and

Alternative 4. The use of different discounting rates would not change the ordering of alternatives in terms of CS effects. Lower discount rates would simply result in larger CS reductions. It may be noted that these results would likely be overestimates since anglers can adapt to regulations, such as shifting their effort to other species.

Concluding that negative effects will result despite ACL increases seems odd, but as noted earlier this is because of large recreational harvests during the baseline years. To provide a different perspective, two scenarios are developed. Scenario 1 uses the current recreational ACL of 1,578 fish as the baseline harvest and ACL values under each ACL alternative for 2012-2015. Scenario 2 uses the same baseline as before (2005-2010 recreational harvest) but maintains the current ACL of 1,578 fish over the years 2012-2015. In effect, Scenario 2 would have the same ACL under all ACL alternatives. Estimates of CS changes under these two scenarios are presented in **Table 4-7**.

Scenario 1 shows CS increases under all ACL alternatives because each alternative would provide for harvest levels above the current ACL (see **Table 4-7**). Using the current recreational ACL as the baseline means that, in effect, the average harvests in 2005-2010 were constrained to the current ACL. Had it been the actual case, the recreational sector would have forgone some of the CS values realized in 2005-2010, and those forgone CS values could be larger or smaller than the CS gains during 2012-2015. In any case, Scenario 1 illustrates a trade-off between short-term losses and long-term gains, an opposite situation displayed in **Table 4-6**.

Scenario 2 shows CS reductions under all ACL alternatives because the baseline harvest exceeded the ACL that is kept constant in 2012-2015 (see **Table 4-7**). This scenario illustrates the case where the ACL is kept constant at its current level and an in-season AM particularly in the form of a fishery closure is effectively implemented. The negative values under this scenario are higher than those shown in **Table 4-6**.

Table 4-6. Net present value of consumer surplus reductions over 2012-2015 due to each ACL alternative, in thousands of 2010 dollars.

	Discount Rate		
	7%	**5%**	**3%**
Alternative 2	($633)	($663)	($695)
Alternative 3	($662)	($693)	($726)
Alternative 4	($691)	($723)	($758)
Preferred Alternative 5	**($650)**	**($681)**	**($713)**

Parentheses indicate negative numbers.

Table 4-7. Net present value of consumer surplus changes over 2012-2015 due to each ACL alternative, in thousands of 2010 dollars.

	Scenario 1			Scenario 2		
	Discount Rate			Discount Rate		
	7%	5%	3%	7%	5%	3%
Alternative 2	$147	$154	$161	($780)	($816)	($856)
Alternative 3	$118	$123	$129	($780)	($816)	($856)
Alternative 4	$89	$93	$98	($780)	($816)	($856)
Preferred Alternative 5	**$129**	**$136**	**$142**	**($780)**	**($816)**	**($856)**

Parentheses indicate negative numbers.

4.1.3 Social Effects

Although an administrative action, defining the OY for a species establishes a management target for allowable harvests. If defined as a percentage (less than 100%) of the MSY, the target would incorporate a protective buffer to help ensure the biological health of the resource is not threatened, thereby helping support stable environmental, economic, and social benefit streams. The larger the buffer, the greater the certainty of biological protection. However, an excessively large buffer (i.e., a buffer that exceeds the biological variability of the resource, environmental challenges, and potential for fishery-induced problems) would result in overly restrictive harvest allowances, leading to foregone social benefits. While none of the relevant biological parameters are ever likely known with certainty, the best OY specification would be expected to balance the risk and costs of being insufficiently conservative against the costs of potentially unnecessarily "leaving fish in the water", all decisions on which incorporate best available knowledge of the biology of the resource, environmental challenges, and the harvest capabilities of the fishing sectors. **Alternatives 2-Preferred Alternative 5** would set the OY equal to the ACL, which establishes a buffer between the ACL/OY and the MSY/OFL level and could result in underutilized resource. Concerning the ACL, in general the higher the ACL, the greater the short-term social and economic benefits that would be expected to accrue, assuming long-term recovery and rebuilding goals are met. Preventing overfishing is assumed to result in net long-term positive social benefits. **Alternative 2** sets the ACL equal to the ABC, the highest possible ACL, and would result in fewer short-term social impacts than under **Alternatives 3** and **4**, which each set the ACL at a percentage of the ABC and **Preferred Alternative 5** that sets the ACL equal to the long-term yield.

4.1.4 Administrative Effects

Modifying sector ACLs and OY for golden tilefish would not have direct impacts on the administrative environment. ACLs are already in place for golden tilefish and commercial and recreational closures have taken place in the past. In general, the lower the ACL is set the more likely it is to be met or exceeded, and the more likely an AM would be triggered, and therefore would have the greatest administrative impact. **Alternative 2** would identify the highest ACLs for golden tilefish. Therefore, greater harvest would be allowed before an AM is triggered. **Alternatives 3** through **Preferred Alternative 5** would implement lower ACLs than **Alternative 2** and are therefore more likely to be met or exceeded than ACLs specified under **Alternative 2**. In the long-term, taking action to prevent an ACL overage or correcting for an ACL overage, could be administratively beneficial if those actions prevent the stock from reaching an overfished condition that would trigger development of a rebuilding plan.

4.2 Action 2. Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector

Alternative 1 (No Action) (Preferred). No commercial Annual Catch Target (ACT) currently exists for golden tilefish.

Alternative 2. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 90% of the commercial sector ACL.

Alternative 3. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 75% of the commercial sector ACL.

Alternative 4. Establish an Annual Catch Target (ACT) for the golden tilefish commercial sector = 50% of the commercial sector ACL.

Discussion

During the March 2012 meeting, the Council received a briefing from the NMFS SEFSC outlining the new system under development for commercial quota monitoring:

"SEFSC is developing a quota monitoring system (CLM – Commercial Landings Monitoring system) which

i. takes into account

1. different boundaries for each stock – based on fishing area where available

2. Variable quota periods – overlapping years, multiple periods per year,

3. Overlapping species groups (single species, aggregated species)

ii. Draws data from multiple sources

1. SAFIS (GA and SC)

2. FL and NC dealer reports via Bluefin Data's file upload system (systems which have been in place since the early-mid 2000s)

iii. One system will be used for all stocks managed by SAFMC including stocks with landings taken in the Gulf of Mexico

iv. Compliance monitoring built in

1. Direct link to SERO permits data base

v. Projections and expansions for no-reporting dealers built in

vi. Expected completion about May 1

vii. Once completed staff will be able to focus more on compliance and data quality rather than on programming

SEFSC is rebuilding our 2011 quota monitoring software for greater efficiency. This will be used until CLM is in place and to verify CLM results."

The Council's intent in considering ACTs is that if the commercial ACT is met, or projected to be met, the commercial fishery would be closed; harvest and possession would be limited to the bag limit and no sale would be allowed. There are no Accountability Measures (AMs) in place that would require landings over the ACL to be deducted from the following year or that would provide for any underage of the ACL to be added the following year.

In considering commercial ACTs, the Council reviewed previous amendments that regulated golden tilefish. Commercial quotas and trip/bag limits were implemented in 1994. Reductions in the quota beginning in 2006 resulted in commercial and recreational closures:

- Amendment 6 (SAFMC 1993) was implemented effective June 27, 1994
  - Commercial quota – 1,475,795 pounds gutted weight (gw) January – December 1994; 1,238,818 pounds gw January – December 1995; and 1,001,663 pounds gw January 1, 1996 onwards each year until modified.
  - Commercial trip limits (effective June 6, 1994) – 5,000 pounds gw until quota met and then 300 pounds gw
  - Recreational bag & possession limit – groupers (excluding Goliath grouper and Nassau grouper, and all species of tilefish combined = 5
- Amendment 13C (SAFMC 2006) was implemented effective 10/23/06

Commercial quota (F_{MSY}) = 295,000 lb gw (331,000 lb ww)

- Amendment 15B (SAFMC 2008b) was implemented effective 2/15/10
  - MSY equals the yield produced by F_{MSY} (0.043) = 336,425 lbs whole weight. MSY and F_{MSY} are defined by the most recent SEDAR.
  - OY equals the yield produced by F_{OY}. Note: If a stock is overfished, F_{OY} equals the fishing mortality rate specified by the rebuilding plan designed to rebuild the stock to SSB_{MSY} within the approved schedule. After the stock is rebuilt, F_{OY} = a fraction of F_{MSY}. Golden tilefish is not overfished. F_{OY} =75%F_{MSY}. OY = 326,554 lbs whole weight
  - MSST equals SSB_{MSY}(0.75) = 1,454,063 lbs whole weight
- Amendment 17B (SAFMC 2010b) was implemented effective 1/31/11
  - Total ACL (F_{OY}) = 326,554 pounds ww or 291,566 pounds gw
  - Commercial ACL = 282,819 pounds gw
  - Recreational ACL = 8,747 pounds gw = 1,578 fish
- Commercial closures
  - October 23, 2006
  - October 3, 2007
  - August 17, 2008
  - July 15, 2009
  - April 12, 2010
  - March 9, 2011
  - February 17, 2012
- Recreational closures
  - October 6, 2011

4.2.1 Biological Effects

Under **Alternative 1 (No Action) (Preferred)** there is no commercial ACT for golden tilefish currently in place. In situations where the commercial sector landings are closely tracked in-season through a quota monitoring system, and projections can be made to close golden tilefish before the ACL is exceeded, a commercial ACT is not needed. However, commercial landings exceeded the commercial sector quota/ACL every year since 2006 when the quota was reduced from 1 million pounds (**Tables 4-8a and 4-8b**).

An ACT can be used as a benchmark for triggering AM applications and could function like an ACL, and thus would, at best, have the same short-term effects on fishing participants as an ACL. The South Atlantic Council's intent in considering ACTs under **Alternatives 2-4** is that if the commercial ACT is met, or projected to be met, the commercial fishery would be closed; harvest and possession would be limited to the bag limit and no sale would be allowed. There are no AMs in place that would require landings over the ACL to be deducted from the following year or that would provide for any underage of the ACL to be added the following year.

The percent overage for the commercial sector was 26% in 2011 based on preliminary landings; final numbers available in mid-2012 are likely to be higher. The 2012 commercial sector was closed on February 17, 2012, and the estimated overage was 29%. The commercial overage ranged from a low of 2% in 2007 to a high of 36% in 2006.

The South Atlantic and Gulf of Mexico Fishery Management Councils are developing a generic dealer reporting amendment to provide more timely and accurate data reporting that should reduce the incidence of quota overages. The target date for implementation of improved quota monitoring is January 1, 2013. Furthermore, the Southeast Fisheries Science Center is developing a new Commercial Landings Monitoring (CLM) system for commercial quota monitoring with an implementation date of May 1, 2012. The new CLM quota monitoring system and actions in the generic dealer report amendment to provide more timely and accurate data reporting are expected to reduce the incidence of quota overages. In addition, **Preferred Alternative 5** under **Action 1** would set the ACL below the ABC recommended by the South Atlantic council's SSC to account for management uncertainty.

The ABC recommended by the South Atlantic Council's SSC, based on the South Atlantic Council/SSC ABC Control Rule, results in the establishment of a large buffer between the OFL and ABC (average = 531,250 pounds ww) recognizing the high level of scientific uncertainty. Therefore, overfishing would occur only if landings exceeded the ABC by about 44% (based on average 2012-2015 data), slightly more than the overages in 2006 (36%) and 2010 (34%).

Table 4-8a. Golden tilefish quota overages (pounds **whole weight**) (conversion factor for gutted weight for golden tilefish is 1.12).

Year	Commercial Quota/ACL	Commercial Landings	Commercial Overage	Commercial % Over	Recreational Quota/ACL	Recreational Landings	Recreational Overage	Recreational % Over
2006	331,000	451,286	120,286	36%				
2007	331,000	336,811	5,811	2%				
2008	331,000	350,138	19,138	6%				
2009	331,000	377,986	46,986	14%				
2010	331,000	444,108	113,108	34%				
2011	316,757	399,664	82,907	26%	9,799	61,007	51,208	523%
2012	316,757	408,992	92,235	29%				

Source: Data for 2006-2010 from NMFS ACL Database 9/2011. Preliminary landings for 2011 from SEFSC projection analyses (Appendix F). Preliminary landings for 2012 from SEFSC quota monitoring.

Table 4-8b. Golden tilefish quota overages (pounds **gutted weight**) (conversion factor for gutted weight for golden tilefish is 1.12).

Year	Commercial Quota/ACL	Commercial Landings	Commercial Overage	Commercial % Over	Recreational Quota/ACL	Recreational Landings	Recreational Overage	Recreational % Over
2006	295,536	402,934	107,398	36%				
2007	295,536	300,724	5,188	2%				
2008	295,536	312,623	17,088	6%				
2009	295,536	337,488	41,952	14%				
2010	295,536	396,525	100,989	34%				
2011	282,819	356,843	74,024	26%	8,749	54,471	45,721	523%
2012	282,819	365,171	82,352	29%				

Source: Data for 2006-2010 from NMFS ACL Database 9/2011. Preliminary landings for 2011 from SEFSC projection analyses (Appendix F). Preliminary landings for 2012 from SEFSC quota monitoring.

Setting a commercial ACT between 90% and 50% of the ACL (**Alternatives 2-4**), and closing golden tilefish when the ACT value is reached would provide greater assurance overfishing would not occur and AMs would not be triggered. Establishing an ACT that is 50% of the ACL (**Alternative 4**) would be the most conservative ACT among the alternatives considered. Examination of the values in **Tables 4-9a and 4-9b** reveals that **Alternative 4** would provide a commercial ACT that is similar to the current quota (282,819 pounds gw; 316,757 pounds ww). Therefore, under **Alternative 4**, shortened fishing seasons would be expected to continue to occur for golden tilefish; although, endorsement actions being considered in Amendment 18B to the Snapper Grouper FMP (under development) are expected to prolong the fishing season and lessen derby-like conditions to some extent.

The lower the ACT, the greater the biological benefit for golden tilefish. Therefore, **Alternative 4** would also be expected to have the greatest beneficial impact for the golden tilefish stock among **Alternatives 2-4** and **Preferred Alternative 1 (No Action)** would be expected to have the least amount of positive biological effects.

Whether or not a commercial ACT is established is not expected to negatively affect non–target species or any species listed under the Endangered Species Act or Marine Mammal Protection Act. Because the ACT alternatives would be used to determine when to close the fishery and the ACT would be set at a lower value than the ACL, there would be expected to be biological benefits on non-target species that may be captured with golden tilefish. Setting the ACT at a value that would provide less opportunity for impacts with endangered or threatened species or the habitats thereof are expected from this action. However, the impacts of the golden tilefish fishery on protected species and habitats are minimal.

Table 4-9a. Values (**pounds whole weight**) for Commercial ACT based on alternatives in **Action 1** and alternatives in **Action 2** (conversion factor for gutted weight for golden tilefish is 1.12).

Alternative 2 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012	647,960	583,164	485,970	323,980
2013	648,930	584,037	486,698	324,465
2014	646,020	581,418	484,515	323,010
2015	635,350	571,815	476,513	317,675
Average	644,565	580,109	483,424	322,283
Alternative 3 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012	583,164	524,848	437,373	291,582
2013	584,037	525,633	438,028	292,019
2014	581,418	523,276	436,064	290,709
2015	571,815	514,634	428,861	285,908
Average	580,109	522,098	435,081	290,054
Alternative 4 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012	518,368	466,531	388,776	259,184
2013	519,144	467,230	389,358	259,572
2014	516,816	465,134	387,612	258,408
2015	508,280	457,452	381,210	254,140
Average	515,652	464,087	386,739	257,826
Alternative 5 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012-15	606,250	545,625	454,688	303,125

Table 4-9b. Values (**pounds gutted weight**) for Commercial ACT based on alternatives in Action 1 and alternatives in Action 2 (conversion factor for gutted weight for golden tilefish is 1.12).

Alternative 2 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012	578,536	520,682	433,902	289,268
2013	579,402	521,462	434,551	289,701
2014	576,804	519,123	432,603	288,402
2015	567,277	510,549	425,458	283,638
Average	575,504	517,954	431,628	287,752
Alternative 3 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012	520,682	468,614	390,512	260,341
2013	521,462	469,315	391,096	260,731
2014	519,123	467,211	389,342	259,562
2015	510,549	459,494	382,912	255,275
Average	517,954	466,159	388,466	258,977
Alternative 4 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012	462,829	416,546	347,121	231,414
2013	463,521	417,169	347,641	231,761
2014	461,443	415,299	346,082	230,721
2015	453,821	408,439	340,366	226,911
Average	460,404	414,363	345,303	230,202
Alternative 5 (Action 1)				
Year	ACL	90% (Alt 2)	75% (Alt 3)	50% (Alt 4)
2012-15	541,295	487,165	405,971	270,647

4.2.2 Economic Effects

An ACT would have no direct economic effects on the commercial sector if it is solely used as a monitoring tool. If used as a benchmark for triggering AM applications, an ACT would act like an ACL and thus would, at best, have the same short-term effects on fishing participants as an ACL. In such a situation, an ACT that is close or equal to the ACL would provide the best economic scenario for commercial fishermen. **Preferred Alternative 1 (No Action)** would not establish an ACT leaving the ACL as the benchmark for AM applications. Among the other ACT alternatives, **Alternative 2** would be best from the perspective of short-term effects on the commercial sector, followed by **Alternative 3**, and **Alternative 4**.

If an ACT were used to trigger an AM, like a fishing season closure, its effects can be estimated in the same way as was done earlier for an ACL. **Table 4-10** presents the revenue effects of each ACT alternative using the same baseline data as in the ACL analysis. Each ACT alternative is analyzed given an ACL alternative since the ACT is defined as some percentage of an ACL.

The positive revenue effects of any ACL alternative under **Action 1** would be preserved under **Alternatives 2** and **3** for an ACT, albeit at lower levels. The effects would turn negative under **Alternative 4**, indicating this alternative would tend to erase all potential benefit increases to the commercial sector from ACL increases.

As with the ACL alternatives, the extent to which these revenue increases under **Alternatives 2** and **3** would result in net profit increases cannot be estimated. The revenue reductions under **Alternative 4** would likely result in profit reductions to the commercial sector. As noted in an earlier discussion of the economic effects of ACLs, it can be expected that the revenue increases due to any of the ACL alternative would trickle down as profit increases as long as future fishing effort approximates that of the 2005-2010 condition. This may also be true with the revenue increases under **Alternatives 2** and **3** for an ACT, but the likelihood of a profit increase under these two ACT alternatives would be lower than that for the corresponding ACL alternative. A different scenario would result if such revenue increases mainly invite more participants into the fishery or result in more intense effort from existing participants. The fishing season could be shortened, likely increasing the cost of fishing as well as decreasing safety at sea. Moreover, if the current derby-type fishery continues into the future, market gluts could occur which would dampen the price for golden tilefish. In a derby-type fishery, revenue increases would be less than those shown in **Table 4-10,** and it would become more likely for profits to be adversely affected.

Table 4-10. Net present value of revenue changes over 2012-2015 due to each ACT alternative, in thousands of 2010 dollars.

ACL→	Alt. 2 for ACL			Alt. 3 for ACL			Alt. 4 for ACL			Alt. 5 for ACL		
ACT↓	HL	LL	SUM	HL	LL	SUM	HL	LL	SUM	HL	LL	SUM
7% Discount Rate												
90%	$157	$1,598	$1,755	$116	$1,166	$1,282	$75	$734	$809	$133	$1,339	$1,472
75%	$88	$878	$967	$54	$519	$573	$20	$159	$178	$68	$663	$730
50%	($26)	($321)	($347)	($49)	($560)	($610)	($72)	($800)	($873)	($40)	($464)	($505)
5% Discount Rate												
90%	$165	$1,672	$1,837	$121	$1,220	$1,341	$78	$768	$846	$139	$1,402	$1,540
75%	$93	$919	$1,011	$57	$542	$599	$20	$166	$186	$71	$694	$765
50%	($28)	($336)	($364)	($52)	($587)	($639)	($76)	($838)	($914)	($42)	($486)	($528)
3% Discount Rate												
90%	$173	$1,752	$1,924	$127	$1,278	$1,406	$82	$805	$887	$146	$1,469	$1,615
75%	$97	$963	$1,060	$59	$568	$627	$21	$173	$195	$74	$727	$802
50%	($29)	($353)	($382)	($54)	($616)	($670)	($79)	($879)	($958)	($44)	($510)	($554)

Parentheses indicate negative numbers.

4.2.3 Social Effects

Setting ACTs usually entails a further reduction in harvest target levels to ensure catch remains at or below the ACL and does not wildly fluctuate. For species where information is scarce and management is uncertain, it becomes a real possibility that there can be negative short-term impacts that may not have been necessary if thresholds are too restrictive. With other species, which have more certainty in management and monitoring of catch, a more precise harvest level can be set with certainty and reduce volatility in the fishery. Additionally, if the ACT is associated with the AMs, it can lead to significant impacts on the social environment if the AMs include restrictions or closures.

Under **Preferred Alternative 1 (No Action)** there would not be a buffer through the ACT that is less restrictive than **Alternatives 2-4**. With **Alternatives 2-4,** the buffer would reduce the harvest threshold further from the ACL. Therefore, among **Alternatives 2-4**, **Alternative 2** would be expected to have the most positive social effects and **Alternative 4** would be expected to have the greatest negative social effects. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Although these are common responses to closures, it is not known how fishermen may respond if closures are anticipated for several different species or groups. There could be a domino effect as one closure

forces them to switch to another species, which closes as thresholds are met with the added fishing pressure.

4.2.4 Administrative Effects

Under **Preferred Alternative 1 (No Action)** there is no ACT for the commercial sector. Establishing an ACT for the commercial sector as proposed under **Alternatives 2-4**, would result in an increased administrative burden beyond the status quo, since additional reference points would need to be monitored.

4.3 Action 3. Revise Recreational Accountability Measures (AMs) for Golden Tilefish

Alternative 1 (No Action). Do not revise current recreational AMs for golden tilefish.

If the recreational ACL is exceeded, the Regional Administrator (RA) shall publish a notice to reduce the length of the following recreational fishing season by the amount necessary to ensure landings do not exceed the recreational sector ACL for the following fishing season. Compare the recreational ACL with projected recreational landings over a range of years. For 2010, use only 2010 landings. For 2011, use the average landings of 2010 and 2011. For 2012 and beyond, use the most recent three-year running average.

Alternative 2 (Preferred). Specify the recreational in-season AM trigger.
Sub-alternative 2a. Do not specify an AM trigger.
Sub-alternative 2b (Preferred). If the annual landings exceed the ACL in a given year.

Alternative 3 (Preferred). Specify the recreational in-season AM.
Sub-alternative 3a. Do not specify an in-season AM.
Sub-alternative 3b (Preferred). The Regional Administrator (RA) shall publish a notice to close the recreational sector when the ACL is projected to be met.

Alternative 4 (Preferred). Specify the recreational post-season AM.
Sub-alternative 4a (Preferred). Monitor following year and shorten season as necessary. If the ACL is exceeded, the following year's recreational landings would be monitored in-season for persistence in increased landings. The Regional Administrator (RA) will publish a notice to reduce the length of the recreational fishing season as necessary.
Sub-alternative 4b. Payback. If the recreational ACL is exceeded, and golden tilefish are overfished, the Regional Administrator (RA) shall publish a notice to reduce the recreational ACL in the following season by the amount of the overage.

Discussion

Amendment 17B to the Snapper Grouper FMP (Amendment 17B) (SAFMC 2010b) implemented commercial and recreational AMs for golden tilefish. Subsequent to the implementation of Amendment 17B, the South Atlantic Council determined the methodology employed by the system of recreational AMs under Amendment 17B may not be the most appropriate way to constrain harvest at or below the recreational ACL and it could unnecessarily penalize recreational participants in the golden tilefish component of the snapper grouper fishery. Therefore, at their December 2011 meeting, the South Atlantic Council requested that AMs for golden tilefish be re-examined to incorporate more flexibility as is appropriate for this component of the snapper grouper fishery. This action was included in Amendment 18B (under development) but has now been moved to this Regulatory Amendment 12.

4.3.1 Biological Effects

The recreational golden tilefish AMs outlined in Amendment 17B (SAFMC 2010b) employed the use of a three-year running average. Using a three-year running average of recreational landings to determine if the recreational ACL has been exceeded in any given year is not likely to be the most appropriate means of determining such overages. As Amendment 17B states, the three-year running average was intended to account for variability in the recreational data collection and associated data uncertainty. However, exceptionally high recreational landings in a single year could significantly influence the running average for several years into the future in addition to reducing the ACL in the season following an overage. Therefore, using the three-year running average has the potential to penalize the recreational sector once when the ACL is met or is projected to be met and in subsequent years when the average value is calculated. This situation could result in the possible triggering of unnecessary AMs creating unintended socioeconomic consequences and lowered ACLs that are not biologically needed. Because of the issues presented by the use of a three-year average, the South Atlantic Council proposed new AM alternatives that do not include this method. Since this action would only change the methods used to determine if AMs are required, and does not establish immediate harvest objectives, it would not directly affect the ecological environment, non-target species, or any species listed under the Endangered Species Act or Marine Mammal Protection Act.

Alternative 1 (No Action) would not change the current system of AMs for determining recreational ACL overages and modify the corrective actions taken if the ACL is projected to be met or is exceeded. **Alternative 2** specifies the trigger for recreational AMs. Under **Preferred Sub-alternative 2b**, AMs would be triggered when the current year's recreational landings exceeded the recreational ACL. To prevent the recreational ACL from being exceeded, **Preferred Sub-alternative 3b** would allow the Regional Administrator (RA) to close recreational fishing for golden tilefish when the recreational ACL was projected to be met. In-season monitoring of recreational landings is difficult, however. Currently, private recreational data become available 45 days after the end of a two-month wave and the headboat data are keypunched and analyzed as resources allow. There would likely be some uncertainty associated with imposing in-season AMs for the recreational sector making post-season AMs more appropriate. **Alternative 4** addresses post-season AMs under two scenarios: (1) regardless of overfished status (**Preferred Sub-alternative 4a**) and (2) when the stock has been declared overfished (**Sub-alternative 4b**). **Preferred Sub-alternative 4a** would attempt to ensure that the amount of the previous year's ACL overage would be accounted for in the subsequent year via a shortened season, and thus would be biologically beneficial. **Sub-alternative 4b** would only attempt to account for overages if the stock was overfished.

4.3.2 Economic Effects

Accountability measures (AMs) would have direct economic effects on the recreational sector, because they would affect the allowed harvest or fishing opportunities for golden tilefish. These economic effects would generally be immediate with in-season AMs and would be delayed if only post-season AMs were implemented. The no action alternative (**Alternative 1**) provides for only a post-season AM which would be triggered if, starting in 2012 and thereafter, the average harvest over three years exceeded the sector's ACL in the current year. Considering the relatively high recreational landings of golden tilefish in the most recent years, the averaging method would tend to

result in relatively high landings that could trigger an AM application even if the ACL in the current year were not exceeded. If the recreational sector's ACL remained unchanged, the near-term expectations under **Alternative 1 (No Action)** would be an increasing level of losses in consumer surplus to recreational anglers and profits to the for-hire sector. As the recreational sector's ACL is increased over time, gains in angler consumer surplus and for-hire sector profit would be delayed for a number of years.

Of the two sub-alternatives under **Alternative 2**, **Sub-alternative 2a** would result in no application of in-season AMs, and this would prevent short-term losses in the recreational sector due to regulatory measures. In contrast, **Preferred Sub-alternative 2b** would provide for an AM trigger that could immediately or eventually result in adverse economic effects on the recreational sector. The long-term economic effects of these two sub-alternatives would depend on whether the magnitude of overages in the recreational sector would rise to a level that would prompt future stricter regulations. If stricter regulations were needed in the future due to overages, **Sub-alternative 2a** would have negative long-term economic effects as it would not trigger an AM and **Preferred Sub-alternative 2b**, positive long-term economic effects.

Sub-alternative 3a would be similar to **Alternative 1 (No Action)**, and thus would not bring about any changes to current and future economic conditions in the recreational sector. **Preferred Sub-alternative 3b** provides for an in-season AM that would close the recreational sector when its ACL is met or projected to be met. Relative to the no action alternative, this sub-alternative would result in short-term losses in consumer surplus to anglers and profits to the for-hire sector because recreational fishing opportunities in the current year would be curtailed.

Preferred Sub-alternative 4a has different economic implications than **Alternative 1 (No Action)** to the extent that, in triggering an AM, the recreational ACL would no longer be compared with the average landing in the three most recent years. Considering the relatively high recreational landings of golden tilefish in the most recent years, the averaging method would tend to result in relatively high landings that could trigger an AM application even if the ACL were not exceeded in the current year. In the short-term, **Preferred Sub-alternative 4a** would result in potentially less adverse economic effects than the no action alternative. **Sub-alternative 4b**, which applies if the stock is overfished, provides for a post-season payback for overages in the prior year, and thus in principle may be expected to reduce angler consumer surplus and for-hire profits. However, this sub-alternative would not have immediate effects on the recreational sector because the most recent stock assessment indicates golden tilefish is not overfished. In addition, the South Atlantic Council decided not to implement a post-season ACL payback when new projections, as in the present case, are adopted that incorporate ACL overages and the ACLs are adjusted based on those projections. Relative to the no action alternative, **Sub-alternative 4b** would benefit the recreational sector, because it would eliminate the applications of post-season AMs as long as the stock is not overfished.

4.3.3 Social Effects

The setting of AMs can have significant direct and indirect effects on the social environment as they usually impose some restriction on harvest, during either the current season or subsequent seasons. The long-term effects should be beneficial as they provide protection from further negative impacts on the stock. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long-term social effects.

Alternative 1 (No Action) would implement no additional management measures and there would be no additional social impact on the recreational sector. The trigger defined in **Alternative 2** is primarily administrative and social effects would be generated by the associated AMs that are triggered. As with any early closure due to reaching an ACL, **Preferred Sub-alternative 3b** could result in impacts on recreational anglers and for-hire operations that depend on access to golden tilefish. However, this in-season accountability measure would provide some protection from continued overages and from the required payback in **Sub-alternative 4b**. The in-season and post-season AMs should provide sufficient protection for the golden tilefish stock, and the long-term benefits of stock protection should contribute to continued participation in the recreational golden tilefish sector.

4.3.4 Administrative Effects

Alternative 1 (No Action) is likely to be the most administratively burdensome alternative because it would require ongoing calculations of the three-year average of recreational landings. However, the time associated with averaging the most recent recreational landings over three years is not considered an overly burdensome administrative task. In-season AMs **(Alternative 3)** for the recreational sector are the most administratively difficult to implement in a timely manner because of the time when the recreational landings are reported and are ready for use by fishery managers. In-season recreational AMs for golden tilefish would rely heavily on projections of when the ACL would be met during the fishing season, which would be associated with a high degree of uncertainty. The level of uncertainty associated with in-season projections could result in the recreational sector being closed before it is necessary or being left open too long into the fishing season. For this reason, it is advantageous to not only rely on in-season AMs but also implement post-season AMs that would be triggered if the ACL is exceeded. The latter are addressed under **Alternative 4**. **Preferred Sub-alternative 4a** would require monitoring landings in the year following a sector overage, to detect whether or not the increased landings persist in the following year or are an anomaly. Because recreational landings would need to be tracked regardless of what post-season AM alternatives are chosen there is not likely to be a significant difference in administrative impacts among the sub-alternatives under **Alternative 4**.

Chapter 5. Reasoning for Council's Choice of Preferred Alternatives

5.1 Action 1. Revise Annual Catch Limit (ACL) and Optimum Yield (OY) for Golden Tilefish

The Snapper Grouper Advisory Panel (Snapper Grouper AP) reviewed the draft Regulatory Amendment 12 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 12) document provided to the South Atlantic Fishery Management Council (South Atlantic Council) in the March 2012 briefing book via mail and e-mail. Unfortunately, the Snapper Grouper AP did not have the advantage of discussing this amendment when they last met in October 2011, because the golden tilefish Southeast Data, Assessment, and Review (SEDAR) assessment had not been completed, and the South Atlantic Council had not yet requested development of Regulatory Amendment 12. The South Atlantic Council received a large number of comments from the Snapper Grouper AP, some of which overlap with Amendment 18B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 18B). In addition, these are individual comments from Snapper Grouper AP members; they do not constitute recommendations from the entire AP. The following comments from the Snapper Grouper AP were presented to the South Atlantic Council in March 2012:

- Allow for a two-week season at the beginning of a month and close the last two weeks of a month to allow for proper reporting of catch (less chance for overage) and data collection throughout the year.
- Stagger the openings and closings based on each State's historical landings within preset State latitude/longitude boundaries to "even out" the market distribution of each species, and help to maintain a good price year-round.
- Institute fishing 2 weeks on 2 weeks off with bi-annual split quota.
- Assign a quota and accountability measures (AMs) to longline and hook and line gear. If the longline sector goes over their quota, reduce the quota the following year by the amount of the overage.
- Consider an increase in allocation to the recreational sector: 80 commercial/20 recreational split.
- Snapper Grouper AP members want a chance to review not only the material that's been provided via e-mail, but to discuss this with each other in an open forum while the subject matter experts are present. There are some questions raised in the document that need answers to what Snapper Grouper AP members perceive as critical decision-making questions. The Snapper Grouper AP had little access to pertinent data that goes along Regulatory Amendment 12, and taking action at the March 2012 meeting could be viewed as too hasty.
- Issues are too important for South Atlantic Council to make any rash or not well thought out actions for golden tilefish.

The South Atlantic Council's Scientific and Statistical Committee (SSC) reviewed the SEDAR 25 (2011) golden tilefish stock assessment at their November 2011 meeting, and reviewed the draft Regulatory Amendment 12 document provided to the South Atlantic Council in the March 2012 briefing book via e-mail. Recommendations from the SSC were presented to the South Atlantic Council at their March 2012 meeting.

In summary, the SSC recommended an ABC based on a 35% probability of overfishing because of uncertainty in the terminal year of the assessment, which resulted in a significant separation between ABC and OFL. Much of that uncertainty is associated with the estimates of abundance, because there were one or two very strong year classes that occurred relatively recently. As the strong year classes had not fully recruited to the fishery, it is not possible to know how large they were. One SSC member encouraged the South Atlantic Council to account for management uncertainty by not setting the annual catch limit (ACL) equal to the ABC.

The South Atlantic Council staff member responsible for the SSC spoke in support of the **Preferred Alternative 5** under Action 1, which would set the ACL/OY equal to the yield at 75% F_{MSY} when the golden tilefish stock is at equilibrium. An appealing factor of **Preferred Alternative 5** is that it would set the ACL consistent with the sustainable level of harvest that is expected over the long term. There could be some concern that the magnitude of the equilibrium optimum yield (OY) is similar to the equilibrium maximum sustainable yield (MSY). An advantage of setting ACL equal to the yield at 75% F_{MSY} is that it provides for a large fishing mortality cushion (25%), which is good for preventing overfishing, while still allowing for a large amount of yield, thus reducing concern that the magnitude of OY would be similar to MSY. Furthermore, **Preferred Alternative 5** would set the ACL below the SSC's recommended ABC, and establish a buffer for management uncertainty.

The South Atlantic Council chose **Preferred Alternative 5** for **Action 1** to set the Annual Catch Limit (ACL) equal to the Optimum Yield (OY) and equal to 625,000 pounds whole weight (558,036 pounds gutted weight) which is higher than the current ACL of 326,554 pounds whole weight and is a sustainable catch level. This represents the yield at 75% F_{MSY} when the stock is at equilibrium. The South Atlantic Council could have set a higher ACL (**Alternatives 1-4**) but chose not to given the level of scientific uncertainty in the stock assessment, projections that would require the ACLs decline in the future, and the need to conform to the Magnuson-Stevens Fishery Conservation and Management Act requirements that ACLs not exceed the ABC recommendations provided by the South Atlantic Council's SSC/South Atlantic Council ABC Control Rule.

The South Atlantic Council chose a stable level of landings that provides considerably more yield than currently allowed. Input from fishermen that have been in the golden tilefish portion of the snapper grouper fishery since its inception, indicated the proposed ACL is close to the long-term average that they could take. The South Atlantic Council concluded the preferred alternative best meets the goals and objectives of the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) as amended and provides the best probability of maintaining golden tilefish at a level that prevents overfishing, thereby preventing it from becoming overfished.

5.2 Action 2. Establish an Annual Catch Target (ACT) for the Golden Tilefish Commercial Sector

The Snapper Grouper Advisory Panel (SGAP) reviewed Regulatory Amendment 12 via mail/e-mail; their comments are included under **Action 1**. They had no specific comments on **Action 2** to set an ACT for the commercial sector.

The South Atlantic Council's Scientific and Statistical Committee (SSC) reviewed Regulatory Amendment 12 via e-mail; their comments are included under **Action 1**. They had no specific comments on **Action 2** to set an ACT for the commercial sector but did recommend caution about likely overages and suggested reducing the ACL from the ABC to account for such overages.

The South Atlantic Council is very concerned about the continued overages in the commercial sector and more recently in the recreational sector. The South Atlantic Council is working very closely with the Southeast Fisheries Science Center (SEFSC) to make improvements to the quota monitoring program for the commercial fishery and with the Southeast Regional Office (SERO) to make projections using Marine Recreational Information Program (MRIP) data for the recreational fishery. In addition, the South Atlantic and Gulf of Mexico Councils are working on a joint dealer amendment that should improve the timeliness of data submission and institute some level of consequence for non-reporting. It is anticipated these improvements will be in place sometime during 2012.

During the South Atlantic Council's March 2012 meeting, the SEFSC recommended that uncertainty in landings due to monitoring should be incorporated in the Annual Catch Target. Given the South Atlantic Council's continued concerns about the inability of the current system to adequately track commercial landings, they considered establishing a new approach whereby a set season would be calculated based on the current average catch per day. However, given the behavior of fishermen as they continue to adapt to changing regulations, the South Atlantic Council concluded such an approach could also likely result in overages.

The South Atlantic Council's Snapper Grouper Committee recommended **Alternative 2** as **preferred** to set the ACT for the commercial sector equal to 90% of the commercial sector ACL. **Alternative 2** would have reduced the commercial target harvest level from the commercial ACL of 606,250 pounds whole weight (541,295 pounds gutted weight) to a commercial ACT of 545,625 pounds whole weight (487,166 pounds gutted weight). This would require a change in the commercial AM such that the commercial sector would close when the ACT (not the ACL) is met or projected to be met. There was concern that if there were an underage, the commercial sector would not be able to apply unused quota to the next season if it resulted in the ACL being larger than the ABC. It was also pointed out that currently there is no payback of any commercial overages for golden tilefish.

The South Atlantic Council considered the Snapper Grouper Committee's recommendation for **Alternative 2** but instead chose **Alternative 1 (No Action)** as **preferred** which continues the current situation with no ACT for the commercial sector. The South Atlantic Council noted that the Council's SSC had recommended an ABC for golden tilefish based on a 35% probability of overfishing, which established a very large buffer between the OFL and ABC to account for scientific uncertainty. Furthermore, the new quota monitoring system being developed by the SEFSC, along with actions in the

generic dealer reporting amendment to provide more timely and accurate data reporting, are expected to reduce the incidence of quota overages. In addition, the South Atlantic Council's **Preferred Alternative 5** under **Action 1** would set the ACL below the South Atlantic SSC's recommended ABC, thereby accounting for management uncertainty. Therefore the South Atlantic Council determined that an ACT for the commercial sector is not needed at this time.

The South Atlantic Council concluded the preferred alternative best meets the goals and objectives of the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) as amended and provides the best probability of maintaining golden tilefish at a level that prevents overfishing, thereby preventing it from becoming overfished.

5.3 Action 3. Revise Recreational Accountability Measures (AMs) for Golden Tilefish

The Snapper Grouper Advisory Panel (SGAP) reviewed Regulatory Amendment 12 via mail/e-mail; their comments are included under **Action 1**. They had no specific comments on **Action 3** to revise recreational AMs.

The Scientific and Statistical Committee (SSC) reviewed Regulatory Amendment 12 via e-mail; their comments are included under **Action 1**. They had no specific comments on **Action 3** to revise recreational AMs.

The South Atlantic Council chose **Preferred Sub-alternatives 2b, 3b, and 4a for Action 3** to revise the recreational AMs from the status quo of using a three-year running average of landings to implement post-season AMs. **Preferred Sub-alternative 2b** would specify a trigger for an in-season AM when the recreational landings meet or are projected to meet the ACL within a given fishing year. **Preferred Sub-alternative 3b** would authorize the Regional Administrator (RA) to publish a notice to close the fishery when the ACL is met or projected to be met. The combined recreational in-season AM would be as follows: If the annual recreational landings exceed the recreational ACL in a given year, the Regional Administrator (RA) shall publish a notice to close the recreational sector when the recreational ACL is projected to be met. **Preferred Sub-alternative 4a** specifies a post-season AM that states: If the annual recreational landings exceed the recreational ACL in a given year, the following year's recreational landings would be monitored in-season for persistence in increased landings. The Regional Administrator (RA) will publish a notice to reduce the length of the recreational fishing season as necessary.

The South Atlantic Council concluded that using the three-year average would unnecessarily penalize recreational participants in the golden tilefish component of the snapper grouper fishery because high recreational landings in a single year could influence the running average for several years into the future. Using the three-year average could result in the triggering of unnecessary AMs, creating socioeconomic consequences that are not biologically necessary. Therefore, the South Atlantic Council concluded **Sub-alternatives 2b**, **3b**, and **4a** would provide the best approach to prevent and monitor recreational ACL overages.

The South Atlantic Council concluded the preferred alternative best meets the goals and objectives of the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) as amended and provides the best probability of maintaining golden tilefish at a level that prevents overfishing, thereby preventing it from becoming overfished.

Chapter 6. Cumulative Effects

6.1 Biological

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

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

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

2. Establish the geographic scope of the analysis.

The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West, which is also the South Atlantic Fishery Management Council's (South Atlantic Council) area of jurisdiction. The extent of boundaries also would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. More detail is provided in **Chapter 3** of this document.

3. Establish the timeframe for the analysis.

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

4. Identify the other actions affecting the resources, ecosystems, and human communities of concern (the cumulative effects to the human communities are discussed in Section 6.2).

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

I. Fishery-related actions affecting golden tilefish.

A. Past

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

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

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

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

B. Present

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

Amendment 18A to the Snapper Grouper FMP (SAFMC 2011f) contains measures to limit participation and effort in the black sea bass fishery, reduce bycatch in the black sea bass pot fishery, changes to the rebuilding strategy, and other necessary changes to the management of black sea bass as a result of the recent stock assessment. In addition, Amendment 18A includes alternatives to improve data collection. The South Atlantic Council approved Amendment 18A in December 2011 and sent the document to the Secretary of Commerce on January 5, 2012. The proposed rule published on March 23, 2012, with a comment period ending April 23, 2012.

Regulatory Amendment 11 to the Snapper Grouper FMP (Regulatory Amendment 11; SAFMC 2011b) was approved by the South Atlantic Council at their August 9, 2011, meeting and sent to the Secretary of Commerce on September 28, 2011. If approved by the Secretary of Commerce, Regulatory Amendment 11 would remove the current deepwater closure beyond 240 ft for six deepwater snapper grouper species. The proposed rule published on December 20, 2011, with a comment period ending January 19, 2012.

The Comprehensive ACL Amendment (SAFMC 2011c) includes ACLs and AMs for federally managed species not undergoing overfishing in four FMPs (Snapper Grouper, Dolphin Wahoo, Golden Crab, and *Sargassum*). Actions contained within the Comprehensive ACL Amendment include: (1) Removal of species from the snapper grouper fishery management unit; (2) designating ecosystem component species; (3) allocations; (4) management measures to limit recreational and commercial sectors to their ACLs; (5) AMs; and (6) any necessary modifications to the range of regulations. The South Atlantic Council approved the Comprehensive ACL Amendment in September 2011 and sent the document to the Secretary of Commerce on October 14, 2011. The Comprehensive ACL Amendment was approved on March 16, 2012, the final rule published on March 16, 2012, and regulations became effective on April 16, 2012.

Amendment 20A to the Snapper Grouper FMP (Amendment 20A; SAFMC 2011e) would distribute shares from inactive participants in the wreckfish individual transferable quota (ITQ) to active shareholders. The South Atlantic Council approved Amendment 20A in December 2011 and sent the document to the Secretary of Commerce on December 19, 2011. Amendment 20A was approved on April 11, 2012. The proposed rule published on March 30, 2012, with a comment period ending April 30, 2012.

Amendment 24 to the Snapper Grouper FMP (Amendment 24; SAFMC 2011d) considers a rebuilding plan for red grouper, which is overfished and undergoing overfishing. The South Atlantic Council approved Amendment 24 in December 2011 and sent the document to the Secretary of Commerce on December 14, 2011. The proposed rule published on March 30, 2012, with a comment period ending April 30, 2012.

C. Reasonably Foreseeable Future

Amendment 18B to the Snapper Grouper FMP (Amendment 18B; SAFMC under development) considers establishment of an endorsement program for the golden tilefish commercial sector. Amendment 18B also includes actions to modify the golden tilefish fishing year, modify existing trip limits and specify new ones, and allocate the commercial ACL to longline and hook and line sectors.

Amendment 20B to the Snapper Grouper FMP (Amendment 20B; SAFMC under development) includes a formal review of the current wreckfish ITQ program, and would update/modify that program according to recommendations gleaned from the review. Amendment 20B would also update the wreckfish ITQ program to comply with Reauthorized Magnuson-Stevens Fishery Conservation and Management Act requirements.

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

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

The snapper grouper ecosystem includes many species which occupy the same habitat at the same time. For example, black sea bass co-occur with vermilion snapper, tomtate, scup, red porgy, white grunt, red snapper, red grouper, scamp, gag, and others. Therefore, many snapper grouper species are likely to be caught and suffer some mortality when regulated since they will be incidentally caught when fishermen target other co-occurring species. In contrast, golden tilefish prefer a mud habitat and can be targeted without significant bycatch from other snapper grouper species. Other natural events such as spawning seasons and

aggregations of fish in spawning condition can make some species especially vulnerable to targeted fishing pressure.

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

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

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

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

The species most likely to be impacted by actions in Regulatory Amendment 12 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 12) is golden tilefish, *Lopholatilus chamaeleonticeps*. Trends in the condition of golden tilefish are determined through the Southeast Data, Assessment and Review (SEDAR) process. In 2004, golden tilefish was assessed as part of SEDAR 4 (SEDAR 4 2004), using landings, age, length, and abundance index data through 2002. The model estimates suggested the golden tilefish stock was undergoing overfishing and that it was very close to being overfished.

The latest stock assessment for golden tilefish (SEDAR 25 2011) indicated that the South Atlantic population is not overfished nor undergoing overfishing. The current level of spawning stock biomass (SSB_{2010}) is estimated to be well above the Minimum Stock Size Threshold (MSST) -- $SSB_{2010}/MSST = 2.43$. The current level of fishing is slightly higher than one-third of F_{MSY} ($F_{2008-2010}/F_{MSY} = 0.36$). More information on the SEDAR assessments for golden tilefish can be found in **Chapter 3** and **Chapter 4**.

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

This step is important in outlining the current and probable stress factors on snapper grouper species identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the resources cannot be

sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

Fish populations

Quantitative definitions of overfishing and overfished for golden tilefish are identified in Amendments 11 and 12 to the Snapper Grouper FMP (SAFMC 1998a and 1998b). Numeric values of overfishing and overfished thresholds for golden tilefish were updated/modified in Amendment 15B (SAFMC 2008b). These values include maximum sustainable yield (MSY), the fishing mortality rate that produces MSY (F_{MSY}), the biomass or biomass proxy that supports MSY (B_{MSY}), the minimum stock size threshold below which a stock is considered to be overfished (MSST), the maximum fishing mortality threshold above which a stock is considered to be undergoing overfishing (MFMT), and optimum yield (OY). Amendment 15B also provided new definitions of MSST for golden tilefish. Amendment 15B became effective in December 2009.

Climate change

Global climate changes could have significant effects on South Atlantic fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (Kennedy et al. 2002).

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

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

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

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

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

Table 6-1. The cause and effect relationship of fishing and regulatory actions within the time period of the Cumulative Effects Analysis (CEA).

Time period/dates	Cause	Observed and/or Expected Effects
Pre-January 12, 1989	Habitat destruction, growth overfishing of vermilion snapper.	Damage to snapper grouper habitat, decreased yield per recruit of vermilion snapper.
January 1989	Trawl prohibition to harvest fish (SAFMC 1988).	Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many snapper grouper species.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	Prohibited gear: fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. Size/Bag limits: 10" TL vermilion snapper (recreational only); 12" TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20" TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991).	Reduce mortality of snapper grouper species.
Pre-June 27, 1994	Damage to *Oculina* habitat.	Noticeable decrease in numbers and species diversity in areas of *Oculina* off FL
July 1994	Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993)	Initiated the recovery of snapper grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing continue for a number of snapper grouper species including golden tilefish.	Spawning potential ratio for golden tilefish is less than 30% indicating that they are overfished.
July 1994	Commercial quota for golden tilefish; commercial trip limits for golden tilefish; include golden tilefish in grouper recreational aggregate bag limits.	
February 24, 1999	All S-G without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runners. Vessels with longline gear aboard may only possess snowy, Warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish.	

Time period/dates	Cause	Observed and/or Expected Effects
October 23, 2006	Snapper grouper FMP Amendment 13C (SAFMC 2006)	Commercial vermilion snapper quota set at 1.1 million pounds gutted weight; recreational vermilion snapper size limit increased to 12" TL to prevent vermilion snapper overfishing.
Effective February 12, 2009	Snapper grouper FMP Amendment 14 (SAFMC 2007)	Use marine protected areas (MPAs) as a management tool to promote the optimum size, age, and genetic structure of slow growing, long-lived deepwater snapper grouper species (e.g., speckled hind, snowy grouper, Warsaw grouper, yellowedge grouper, misty grouper, golden tilefish, blueline tilefish, and sand tilefish). Gag and vermilion snapper occur in some of these areas.
Effective March 20, 2008	Snapper grouper FMP Amendment 15A (SAFMC 2008a)	Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Effective Dates Dec 16, 2009, to Feb 16, 2010.	Snapper grouper FMP Amendment 15B (SAFMC 2008b)	End double counting in the commercial and recreational reporting systems by prohibiting the sale of bag-limit caught snapper grouper, and minimize impacts on sea turtles and smalltooth sawfish.
Effective Date July 29, 2009	Snapper grouper FMP Amendment 16 (SAFMC 2009a)	Protect spawning aggregations and snapper grouper in spawning condition by increasing the length of the spawning season closure, decrease discard mortality by requiring the use of dehooking tools, reduce overall harvest of gag and vermilion snapper to end overfishing.
Effective Date January 4, 2010	Red Snapper Interim Rule	Prohibit commercial and recreational harvest of red snapper from January 4, 2010, to June 2, 2010 with a possible 186-day extension. Reduce overfishing of red snapper while long-term measures to end overfishing are addressed in Amendment 17A.
Effective Date December 4, 2010	Snapper Grouper FMP Amendment 17A (SAFMC 2010a).	SFA parameters for red snapper; ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; accountability measures. Establish rebuilding plan for red snapper.
Effective Date January 31, 2011	Snapper Grouper Amendment 17B (SAFMC 2010b)	ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; and AMs for species undergoing overfishing.

Time period/dates	Cause	Observed and/or Expected Effects
Effective Date July 15, 2011	Regulatory Amendment 9 (SAFMC 2011a)	Harvest management measures for black sea bass; commercial trip limits for gag, vermilion and greater amberjack
2011	Regulatory Amendment 11 (SAFMC 2011b)	Re-addresses the deepwater area closure implemented in Amendment 17B
2011	Comprehensive ACL Amendment (SAFMC 2011c)	ACLs, ACTs, and AMs for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.
Target June 2012	Snapper Grouper FMP Amendment 24 (2011d)	Prevent overfishing and implement a rebuilding plan in the red grouper fishery.
Target 2012	Snapper Grouper FMP Amendment 20A (2011e)	Redistribute inactive wreckfish shares.
Target June 2012	Snapper Grouper FMP Amendment 18A (2011f)	Prevent overexploitation in the black sea bass fishery.
Target 2012	Snapper Grouper Amendment 18B (under dev)	Establish an endorsement program for golden tilefish.

9. Determine the magnitude and significance of cumulative effects.

Proposed management actions, as summarized in **Chapter 2** of this document, would adjust the ACL, OY, establish a commercial ACT, and modify recreational AMs for the golden tilefish portion of the snapper grouper fishery. Detailed discussions of the magnitude and significance of the preferred alternatives appear in **Chapter 4** of this document. A description of the cumulative impacts on the socioeconomic impacts can be found in **Section 6.2**.

The snapper grouper fishery has been subject to increased regulation in recent years (**Table 6-1**). Many of the management measures have been implemented to address overfishing or overfished stocks. A new stock assessment on golden tilefish indicated the golden tilefish stock is not overfished or undergoing overfishing and that the population could withstand an increase in the annual catch limit (ACL). The action to increase the ACL will result in social and economic benefits to the fishing community. Amendment 18B, that is in development and would establish an endorsement program for the golden tilefish fishery, would limit participation in the fishery to those who have met the eligibility requirements for participation in that fishery. An endorsement program established with a higher ACL may extend the fishing season for golden tilefish.

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

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

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

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

6.2 Socioeconomic

A description of the human environment, including a description of commercial and recreational snapper grouper fisheries and associated key fishing communities is contained in Jepson et al. (2005) and Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) and incorporated herein by reference. A description of the history of management of the snapper grouper fishery is contained in **Appendix D** and is incorporated herein by reference. Participation in and the economic performance of the fishery have been affected by a combination of regulatory, biological, social, and external economic factors. Regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Gear restrictions, notably fish trap and longline restrictions, have also affected harvests and economic performance. The limited access program implemented in 1998/1999 substantially affected the number of participants in the fishery. Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have played a role in determining the changing composition of the fishery. Additional factors, such as changing career or lifestyle preferences, stagnant to declining ex-vessel fish prices due to imports, increased operating costs (e.g., gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for non-fishery uses have impacted both the commercial and recreational fishing sectors.

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

A detailed description of the expected social and economic impacts of the actions in this amendment is contained in **Chapter 4**, and is incorporated herein by reference. Current and future amendments are expected to add to this cumulative effect. Amendment 15B to the Snapper Grouper FMP (SAFMC 2008b) prohibited the sale of bag-limit caught snapper grouper species for those who do not hold a federal commercial permit for snapper grouper. This eliminated the ability of the recreational angler to subsidize the cost of a fishing trip through the sales of snapper grouper and may, therefore, decrease recreational demand. This action has a more pronounced effect on the for-hire sector, which often uses the sale of bag-limit caught fish to pay crewmembers.

Amendment 16 to the Snapper Grouper FMP (SAFMC 2009a) addressed overfishing in the gag and vermilion snapper fisheries. The corrective action in response to overfishing always requires harvest reductions and more restrictive regulation. Thus, additional short-term adverse social and economic effects would be expected. These restrictions are expected to prevent the stocks from becoming overfished, which would require recovery plans, further harvest restrictions, and additional social and economic losses.

Amendment 17A to the Snapper Grouper FMP (SAFMC 2010a) addressed the overfishing and overfished status of red snapper. Red snapper is, in general and compared to other snapper grouper species, not a significant commercial species; it has greater importance as a target species to the recreational sector, especially the for-hire sector in certain areas of the South Atlantic.

Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) specified harvest controls (ACLs and/or ACTs) and AMs for several snapper grouper species, as well as allocations for golden tilefish, and modify the framework to allow more efficient modification of these measures in the future, where necessary. While some final specifications of these measures may result in additional short-term reductions in social and economic benefits to participants in the fisheries, these measures would be expected to support more stable management and sustainable social and economic benefits from enhanced resource protection, larger and/or more consistent harvests, and long-term stable stocks.

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

The Comprehensive ACL Amendment (SAFMC 2011c)specifies ACLs for snapper grouper species not undergoing overfishing. The cumulative impacts of the Comprehensive ACL Amendment have been estimated and are contained in the amendment. The Comprehensive ACL Amendment would cap landings for snapper grouper species at levels experienced in recent years.

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

Other amendments are expected to be implemented during 2012, which could further affect harvest of snapper grouper species. Amendment 18A (SAFMC 2011f) contains measures to limit participation and effort in the black sea bass fishery, reduce bycatch in the black sea bass pot fishery, changes to the rebuilding strategy and other necessary changes to the management of black sea bass as a result of the ongoing stock assessment. Implementation of Amendment 18A is expected in summer 2012. Amendment 18B (under development) would establish an endorsement program for golden tilefish. Regulatory Amendment 11 (SAFMC 2011b) would remove the current deepwater closure beyond 240 ft for six deepwater snapper grouper species. Amendment 20A (SAFMC 2011e) would distribute shares from inactive participants in the wreckfish ITQ system to active shareholders. Amendment 24 (SAFMC 2011d) considers a rebuilding plan for red grouper, which is overfished and undergoing overfishing.

Chapter 7. Other Things to Consider

7.1 Unavoidable Adverse Effects

There are several unavoidable adverse effects on the socioeconomic environment that may result from implementation of Regulatory Amendment 12 (Regulatory Amendment 12) to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP). These may include a derby style fishery to harvest an increased amount of golden tilefish quota, and inequity of harvest among fishermen in Florida, North Carolina, South Carolina, and Georgia. These issues are being addressed through the South Atlantic Fishery Management Council's (South Atlantic Council) development of Amendment 18B.

7.2 Effects of the Fishery on Essential Fish Habitat

The biological impacts of the proposed actions are described in **Chapter 4**, including impacts on habitat. No actions proposed in this amendment are anticipated to have any adverse impact on essential fish habitat (EFH) or EFH-Habitat Areas of Particular Concern (EFH-HAPC) for managed species including species in the snapper grouper complex. No additional impacts of fishing on EFH were identified during the public hearing process. Therefore, the South Atlantic Council has determined no new measures to address impacts on EFH are necessary at this time. The South Atlantic Council's adopted habitat policies, which may directly affect the area of concern, are available for download through the Habitat/Ecosystem section of the South Atlantic Council's website: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx .

NOTE: The Final EFH Rule, published on January 17, 2002, (67 FR 2343) replaced the interim Final Rule of December 19, 1997 on which the original EFH and EFH-HAPC designations were made. The Final Rule directs the Councils to periodically update EFH and EFH-HAPC information and designations within fishery management plans. As was done with the original Habitat Plan (SAFMC 1998c) and Comprehensive Habitat Amendment (SAFMC 1998d), a series of technical workshops were conducted by South Atlantic Council staff and a draft approach that includes new information has been completed pursuant to the Final EFH Rule.

7.3 Damage to Ocean and Coastal Habitats

The actions proposed in Regulatory Amendment 12 would not result in any adverse impacts to ocean and coastal habitats.

The alternatives and proposed actions are not expected to have any adverse effect on the ocean and coastal habitat. Management measures implemented in the original Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) (SAFMC 1983) through Amendment 7 to the Snapper Grouper FMP (SAFMC 1994) combined have significantly reduced the impact of the snapper grouper fishery on essential fish habitat (EFH). The South Atlantic Council has reduced the impact of the fishery and protected EFH by prohibiting the

use of poisons and explosives; prohibiting use of fish traps and entanglement nets in the exclusive economic zone (EEZ); banning use of bottom trawls on live/hard bottom habitat north of Cape Canaveral, Florida; restricting use of bottom longline to depths greater than 50 fathoms north of St. Lucie Inlet; and prohibiting use of black sea bass pots south of Cape Canaveral, Florida. These gear restrictions have significantly reduced the impact of the fishery on coral and live/hard bottom habitat in the South Atlantic Region.

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

In addition, measures in Amendment 9 to the Snapper Grouper FMP (SAFMC 1997b), that include further restricting longlines to retention of only deepwater species and requiring that black sea bass pots have escape panels with degradable fasteners, reduce the catch of undersized fish and bycatch and ensure that the pot, if lost, will not continues to "ghost" fish. Amendment 13C to the Snapper Grouper FMP (SAFMC 2006) increased mesh size in the back panel of pots, which has reduced bycatch and retention of undersized fish.

Amendment 15B to the Snapper Grouper FMP (SAFMC 2008b) included an action that would implement sea turtle bycatch release equipment requirements and sea turtle and smalltooth sawfish handling protocols and/or guidelines in the permitted commercial and for-hire snapper grouper fishery effective February 15, 2010.

Amendment 16 to the Snapper Grouper FMP (SAFMC 2009a) included an action which is intended to reduce bycatch by requiring fishermen use dehooking devices effective July 29, 2009. Limiting the overall fishing mortality reduces the likelihood of over-harvesting of species with the resulting loss in genetic diversity, ecosystem diversity, and sustainability.

Measures adopted in the FMP (and amendments) for Coral, Coral Reefs, and Live/Hardbottom Habitats of the South Atlantic Region and FMP (and amendments) for the Shrimp Fishery of the South Atlantic Region have further restricted access by fishermen that had potential adverse impacts on essential snapper grouper habitat. These measures include the designation of the Oculina Bank Habitat of Particular Concern (HAPC) and the Rock Shrimp closed area (see the Shrimp and Coral FMP/Amendment documents for additional information).

The South Atlantic Council's Comprehensive Habitat Amendment (SAFMC 1998d) contained measures that expanded the Oculina Bank HAPC and added two additional satellite HAPCs. Amendment 14 to the Snapper Grouper FMP (SAFMC 2007) established marine protected areas where fishing for or retention of snapper grouper species is prohibited.

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

The relationship between short-term uses and long-term productivity will not be affected by this amendment. The proposed actions would allow for an increase in the Annual Catch Limit (ACL) based on the most recent stock assessment. An ACL has been established for golden tilefish through Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) and **Action 1** in Regulatory Amendment 12 to the Snapper Grouper FMP could increase the golden tilefish ACL. The actions being proposed in this amendment would not have an impact on the short-term uses and long-term productivity. However, if this is a species that has a dominant year class (or several) every 10-20 years, the South Atlantic Council may want to take caution in nursing that year class through. By hitting the dominant class too strongly, it could affect the next dominant year class and depress biomass for long periods of time.

7.5 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are defined as commitments that cannot be reversed, except perhaps in the extreme long-term, whereas irretrievable commitments are lost for a period of time. None of the actions proposed by this amendment would result in irreversible or irretrievable commitments of resources.

7.6 Unavailable or Incomplete Information

The Council on Environmental Quality (CEQ), in its implementing regulations for the National Environmental Policy Act, addressed incomplete or unavailable information at 40 CFR 1502.22 (a) and (b). That regulation has been considered. There are two tests to be applied: 1) Does the incomplete or unavailable information involve "reasonable foreseeable adverse effects…;" and 2) is the information about these effects "essential to a reasoned choice among alternatives…". A stock assessment has been conducted on golden tilefish using the best available data, which indicate the stock is not overfished and is not undergoing overfishing. Status determinations for the species were derived from the Southeast Data, Assessment, and Review (SEDAR) process, which involves a series of three workshops designed to ensure each stock assessment reflects the best available scientific information. The findings and conclusions of each SEDAR workshop are documented in a series of reports, which are ultimately reviewed and discussed by the South Atlantic Council and their Scientific and Statistical Committee (SSC). SEDAR participants, the South Atlantic Council's Advisory Panels, the South Atlantic Council, and NOAA Fisheries Service staff reviewed and considered any concerns about the adequacy of the data. The South Atlantic Council's SSC determined that the assessments (SEDAR 4 2004; SEDAR 25 2011) were based on the best available data.

7.7 Environmental Justice Considerations

Executive Order 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This executive order is generally referred to as Environmental Justice (EJ).

To evaluate EJ considerations for the proposed actions, information on poverty and minority rates is examined at the county level. Information on the race and income status for groups at the different participation levels (vessel owners, crew, dealers, processors, employees, employees of associated support industries, etc.) is not available. Because the proposed actions would be expected to affect fishermen and associated industries in several communities along the South Atlantic coast and not just those profiled, it is possible that other counties or communities have poverty or minority rates that exceed the EJ thresholds.

In order to identify the potential for EJ concern, the rates of minority populations (non-white, including Hispanic) and the percentage of the population that was below the poverty line were examined. The threshold for comparison that was used was 1.2 times the state average for minority population rate and percentage of the population below the poverty line. If the value for the community or county was greater than or equal to 1.2 times the state average, then the community or county was considered an area of potential EJ concern. Census data for the year 2010 was used. Estimates of the state minority and poverty rates, associated thresholds, and community rates are provided in **Table 7-1**; note that only communities that exceed the minority threshold and/or the poverty threshold are included in the table**.**

While some communities expected to be affected by this proposed amendment may have minority or economic profiles that exceed the EJ thresholds and, therefore, may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. No adverse human health or environmental effects are expected to accrue to this proposed amendment, nor are these measures expected to result in increased risk of exposure of affected individuals to adverse health hazards. The proposed management measures would apply to all participants in the affected area, regardless of minority status or income level, and information is not available to suggest that minorities or lower income persons are, on average, more dependent on the affected species than non-minority or higher income persons.

Golden tilefish is part of an important commercial fishery throughout the South Atlantic region, and specifically in Florida, and the fish is also targeted by recreational fishermen. The actions in this proposed amendment are expected to incur social and economic benefits to users and communities by implementing management measures that would contribute to conservation of the golden tilefish stock and to maintaining the commercial and recreational sectors of the fishery. Although there would be some short-term impacts through the implementation of ACLs/OYs, commercial ACT, and recreational AMs if one or both sectors of the fishery is closed early due to exceeding the limits, the overall long-term benefits of setting limits on golden tilefish harvest is expected to contribute to the social and economic health of South Atlantic communities. Additionally, the proposed actions incorporate an increase in allowable harvest, which will benefit South Atlantic fishermen and communities.

Finally, the general participatory process used in the development of fishery management measures (e.g., scoping meetings, public hearings, advisory panel meetings, Scientific and Statistical Committee (SSC) meetings, and open South Atlantic Council meetings) provides sufficient opportunity for meaningful involvement by potentially affected individuals to participate in the development process of this amendment and have their concerns factored into the decision process. Public input from individuals who participate in the fishery has been considered and incorporated into management decisions throughout development of the amendment.

Table 7-1. Environmental justice thresholds.

State	County	Minority Rate	Minority Threshold*	Poverty Rate	Poverty Threshold*
Florida		**47.4**	**56.88**	**13.18**	**15.81**
	Broward	52.0	-4.6	11.7	4.11
	Miami-Dade	81.9	-34.5	16.9	-1.09
	Orange County	50.3	-2.9	12.7	3.11
	Osceola	54.1	-6.7	13.3	2.51
Georgia		**50.0**	**60.0**	**15.0**	**18.0**
	Liberty	53.2	-3.2	17.5	0.5
South Carolina		**41.9**	**50.28**	**15.82**	**18.98**
	Colleton	44.4	-2.5	21.4	-2.42
	Georgetown	37.6	4.3	19.3	-0.32
	Hampton	59.0	-17.1	20.2	-1.22
	Jasper	61.8	-19.9	9.9	-0.92
North Carolina		**39.1**	**46.92**	**15.07**	**18.08**
	Bertie	64.6	-25.50	22.5	-4.42
	Chowan	39.2	-0.1	18.6	-0.52
	Gates	38.8	0.3	18.3	-0.22
	Hertford	65.3	-26.2	23.5	-5.42
	Hyde	44.5	-5.4	16.2	1.88
	Martin	48.4	-9.3	23.9	-5.82
	Pasquotank	43.4	-4.3	16.3	1.78
	Perquimans	27.7	11.4	18.6	-0.52
	Tyrrell	43.3	-4.2	19.9	-1.82
	Washington	54.7	-15.6	25.8	-7.72

*The county minority and poverty thresholds are calculated by comparing the county minority rate and poverty estimate to 1.2 times the state minority and poverty rates. A negative value for a county indicates that the threshold has been exceeded.

Source: 2010 U.S. Census data.

Chapter 8. Other Applicable Law

8.1 Administrative Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedures Act (APA) (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, 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. This amendment complies with the provisions of the APA through the South Atlantic Fishery Management Council's (South Atlantic Council) extensive use of public meetings, requests for comments, and consideration of comments. The proposed rule associated with this amendment will have a request for public comments, which complies with the APA.

8.2 Information Quality Act

The Information Quality Act (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 Information Quality Act (IQA). This document has used the best available information and made a broad presentation thereof. The process of public review of this document provides an opportunity for comment and challenge to this information, as well as for the provision of additional information.

The information contained in this document was developed using best available scientific information. Therefore, this Amendment and Environmental Assessment are in compliance with the IQA.

8.3 Coastal Zone Management Act

Section 307(c)(1) of the federal Coastal Zone Management Act (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 South Atlantic 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. Based on the analysis of the environmental consequences of the

proposed action in **Chapter 4**, the South Atlantic Council has concluded this amendment would improve federal management of golden tilefish and is consistent to the maximum extent practicable with the Coastal Zone Management Plans of Florida, Georgia, South Carolina, and North Carolina. This determination has been submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management Programs in the States of Florida, South Carolina, Georgia, and North Carolina.

8.4 Endangered Species Act

The Endangered Species Act (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 NOAA Fisheries Service 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.

The IPT, Council Staff, and Council reviewed the actions proposed in Regulatory Amendment 12 and concluded that there were no impacts on threatened or endangered species of their habitat designated as critical to their survival and recovery. An ESA determination was made that the proposed actions will not affect protected species in the action area in ways that have not been addressed in previous ESA consulations.

8.5 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 amendment and associated regulations. Therefore, preparation of a Federalism assessment under E.O. 13132 is not necessary.

8.6 Executive Order 12866: Regulatory Planning and Review

E.O. 12866, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact

Review (RIR) for all fishery regulatory actions that implement a new FMP or that significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the RFA. A regulation is significant if it is likely to result in an annual effect on the economy of at least $100,000,000 or if it has other major economic effects.

In accordance with E.O. 12866, the following is set forth by the Council based on the RIR (**Appendix A**): (1) this rule is not likely to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) this rule is not likely to create any serious inconsistencies or otherwise interfere with any action take or planned by another agency; (3) this rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) this rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order; and (5) this rule is not controversial.

8.7 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 including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. 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 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 amendment are consistent with the directives of E.O. 12962.

8.8 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 amendment are consistent with the directives of E.O. 13089.

8.9 Executive Order 13158: Marine Protected Areas

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 (MPAs). 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 amendment are consistent with the directives of E.O. 13158.

8.10 Marine Mammal Protection Act

The Marine Mammal Protection Act (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 NOAA Fisheries Service) 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 NOAA Fisheries Service 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 golden tilefish component of the snapper grouper fishery in the South Atlantic is listed as a Category III fishery in the 2012 Final List of Fisheries (LOF)(76 FR 73912; November 29, 2011). No incidentally killed or injured marine mammal species has been documented in this fishery.

8.11 Migratory Bird Treaty Act and Executive Order 13186

The Migratory Bird Treaty Act (MBTA) implemented several bilateral treaties for bird conservation between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and the former Union of Soviet Socialists Republics. Under the MBTA, it is unlawful to pursue, hunt, take, capture, kill, possess, trade, or transport any migratory bird, or any part, nest, or egg of a migratory bird, included in treaties between the countries, except as permitted by regulations issued by the Department of the Interior (16 U.S.C. 703-712). Violations of the MBTA carry criminal penalties. Any equipment and means of transportation used in activities in violation of the MBTA may be seized by the United States government and, upon conviction, must be forfeited to the government.

Executive Order 13186 directs each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement a memorandum of understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) to conserve those bird populations. In the instance of unintentional take of migratory birds, NOAA Fisheries Service would develop and use principles, standards, and practices that will lessen the amount of unintentional take in cooperation with the USFWS. Additionally, the MOU would ensure that National Environmental Policy Act (NEPA) analyses evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

An MOU is currently being developed, which will address the incidental take of migratory birds in commercial fisheries under the jurisdiction of NOAA Fisheries Service. NOAA Fisheries Service must monitor, report, and take steps to reduce the incidental take of seabirds that occurs in fishing operations. The United States has already developed the U.S. National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. Under that plan many potential MOU components are already being implemented.

The alternatives considered in this amendment are consistent with the directives of E.O. 13186.

8.12 National Environmental Policy Act

This amendment to the South Atlantic Snapper Grouper FMP has been written and organized in a manner that meets NEPA requirements, and thus is a consolidated NEPA document, including a final Environmental Assessment as described in NOAA Administrative Order (NAO) 216-6, Section 6.03.a.2.

Purpose and Need for Action
The purpose and need for this action are described in **Section 1.4.**

Alternatives
The alternatives for this action are described in **Section 2.0.**

Affected Environment
The affected environment is described in **Section 3.0**.

Impacts of the Alternatives
The impacts of the alternatives on the environment are described in **Section 4.0.**

8.13 National Marine Sanctuaries Act

Under the National Marine Sanctuaries Act (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 the NOAA. The Act 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 two main sanctuaries in the South Atlantic exclusive economic zone are Gray's Reef and Florida Keys National Marine Sanctuaries.

The alternatives considered in this Regulatory Amendment are not expected to have any adverse impacts on the resources managed by the Gray's Reef and Florida Keys National Marine Sanctuaries.

8.14 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act (PRA) is to minimize the burden on the public. The Act 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. PRA requires NOAA Fisheries Service to obtain approval from the OMB before requesting most types of fishery information from the public.

8.15 Regulatory Flexibility Act

The Regulatory Flexibility Act (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, NOAA Fisheries Service 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 Act 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 Act's provisions.

The Initial Regulatory Flexibility Analysis (IRFA) is included as **Appendix B**.

8.16 Small Business Act

Enacted in 1953, the Small Business Act requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise. The objectives of the act 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, NOAA Fisheries Service, in implementing regulations, must make an assessment of how those regulations will affect small businesses.

8.17 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Fishery Conservation and Management Act to require that a Fishery Management Plan (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. Therefore, this amendment proposes neither procedures for making management adjustments due to vessel safety problems nor procedures to monitor, evaluate, or report on the effects of management measures on vessel or crew safety under adverse weather or ocean conditions.

Chapter 9. List of Preparers

Table 9-1. List of preparers.

Name	Agency/Division	Area of Amendment Responsibility
Karla Gore	NMFS/SF	SERO IPT Lead/Fishery Scientist
Gregg Waugh	SAFMC	SAFMC IPT Lead/Fishery Biologist
Myra Brouwer	SAFMC	Fishery Biologist
Dr. Tony Lamberte	NMFS/SF	Economist
Dr. Jack McGovern	NMFS/SF	Fishery Scientist
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Monica Smit-Brunello	NOAA/GC	Attorney Advisor

NMFS = National Marine Fisheries Service, SAFMC = South Atlantic Fishery Management Council, SF = Sustainable Fisheries Division, SERO = Southeast Regional Office, and GC = General Counsel.

Chapter 10. List of Agencies, Organizations, and Persons To Whom Copies of the Environmental Assessment are Sent

Responsible Agency

Regulatory Amendment 12:
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
Charleston, South Carolina 29405
(843) 571-4366 (TEL)
Toll Free: 866-SAFMC-10
(843) 769-4520 (FAX)
safmc@safmc.net

Environmental Assessment:
NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 (TEL)
(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
North Carolina Sea Grant
South Carolina Sea Grant
Georgia Sea Grant
Florida Sea Grant
Atlantic States Marine Fisheries Commission
Gulf and South Atlantic Fisheries Development Foundation
Gulf of Mexico Fishery Management Council
National Marine Fisheries Service
- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

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